

**A STUDY OF INDIGENOUS SORGHUM AGRICULTURE IN
SOUTHERN AFRICA: COMBINING ISOTOPE AND
INDIGENOUS KNOWLEDGE SYSTEMS APPROACHES**

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ABSTRACT

Sorghum and millets were the principal grain crops of sub-Saharan African farming societies. Enquiry into their isotopic variability is scant and some of the work that has been done is based on studies in highly controlled, artificial environments. To help fill this gap, the present study investigates the variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in three varieties of sorghum, *mshalane*, 236 and 308. These were cultivated at four localities in different regions of Eswatini and South Africa, either by small-scale traditional farmers or in accordance with their methods. In addition, this study includes carbon and nitrogen isotopic analysis of archaeological sorghum grains from the mid-19th century Historic Cave siege site. The study also explores the impact that choice of agricultural practices and methods of grain storage and food preparation may have on the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of sorghum. To this end, semi-structured interviews were conducted with 18 contemporary small-scale agriculturalists from eastern Eswatini. The range of $\delta^{13}\text{C}$ values in the contemporary-grown sorghum from summer-rainfall regions of South Africa is 1.7‰ (n=90), and the *mshalane* variety shows the greatest sensitivity to environmental variation. Archaeological sorghum grains from Historic Cave yield $\delta^{13}\text{C}$ values approximately 1.1‰ less negative than contemporary-grown sorghum (after correction for variation in atmospheric $\delta^{13}\text{C}$), which likely reflects particular agricultural practices and/or the cultivation of sorghum varieties with characteristically higher $\delta^{13}\text{C}$ values by the Kekana Ndebele. The range of $\delta^{15}\text{N}$ values in both contemporary (5.4‰, n=90) and archaeological (8.7‰, n=11) sorghum is larger than that usually attributed to a single trophic level, with significant implications for the interpretation of $\delta^{15}\text{N}$ in consumers. Some methods of sorghum storage and preparation involve fermentation, which may increase isotopic variation further. These results will contribute towards achieving improved isotope-based dietary reconstructions in African Iron Age farming communities.

PLAGIARISM DECLARATION

This thesis reports the results of the original research I conducted under the auspices of the Department of Archaeology in the Faculty of Science at the University of Cape Town. All the assistance that I received has been acknowledged. This work has not been submitted for a degree at any other university.

Signature:

DEDICATION

In loving memory of my Dad

Derick Hendrick Thulare Masemula

Mgidi, Mbonani, Mlotjwa

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This project holds great significance to me as it started off as a somewhat wild idea to explore how different strands of information from different worldviews, Indigenous Knowledge Systems and Archaeometry, could be made to work with each other in contributing to knowledge production. I did not know what the outcome would be but it was my intention to try to turn nothing into something. Without the significant contributions of a number of individuals and bodies, I would never have seen it come to fruition.

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CHAPTER ONE:

Introduction

Introduction

The dietary transition from hunting and gathering to farming is one of the most important processes in all of human history. In south-central and southern Africa, it was accompanied by changes in socio-economic structures including sedentism, demographic expansion, metallurgy, ceramic production, animal husbandry and crop cultivation, termed the Chifumbaze Complex (Phillipson 2005; Russell *et al.* 2014). Although crop plants were key in this transition, archaeologists have paid much less attention to domesticated plants compared with domesticated animals as the recovery rate of the former is low due to plant processing methods and/or preservation issues (Reid & Young 2000). In the African context, *Sorghum bicolor* (hereafter, sorghum) is of particular interest because it made a significant contribution to the diets of past farming communities, helping to shape the nature of their subsistence strategies across Africa and beyond. Today, sorghum is the fifth most important cereal grown globally, after wheat, maize, rice and barley (National Research Council 1996). It is a hardy crop that can thrive in a range of environmental conditions, from arid to waterlogged conditions. Worldwide, it feeds more than 500 million people, especially in the semi-arid tropics and subtropics of Africa, South- and Southeastern Asia and the Americas (Doggett 1988; Winchell *et al.* 2017). It is also used for fuel, animal feed and fodder (National Research Council 1996).

Current archaeological evidence for the origins and domestication of sorghum points to Africa and Northeast Africa particularly (Beldados *et al.* 2018; Fuller & Boivin 2009; Winchell *et al.* 2018; 2017). The Indian Ocean, a corridor for interaction and exchange of goods, provided a significant connection for the transport of plant domesticates between Africa and South Asia (Boivin *et al.* 2013; Fuller *et al.* 2011). Sorghum arrived in India by 2000 BCE, and evidence of it is found in multiple sites in South Asia along with other African plant domesticates including pearl millet (*Pennisetum glaucum*), finger millet (*Eleusine corocana*), hyacinth beans (*Lablab purpureus*) and cowpeas (*Vigna unguiculata*) (Boivin *et al.* 2013; Boivin & Fuller 2009; Fuller & Boivin 2009; Fuller & Hildebrand 2013; Fuller *et al.* 2011). Sorghum (and other cereal crops) reached southern Africa fully domesticated in the early 1st millennium CE (Antonites & Antonites 2014). Settlement patterns in the first millennium CE appear to have been driven by agriculture: villages were sited in river valleys, where soils were deep and fertile (Antonites & Antonites 2014; Maggs & Ward 1984). In time, farming populations grew. In some regions, we can see evidence of socio-political and economic

stratification and participation in small- and large-scale trading activities, contributing to the creation of state-level societies (Mitchell 2013; Pikirayi 2013).

Light stable isotope analysis is a powerful tool for reconstructing dietary patterns of past societies (Katzenberg & Waters-Rist 2018; Schoeninger 2011; Schwarcz & Schoeninger 2012). The principle is that light stable isotope ratios (e.g. $^{13}\text{C}/^{12}\text{C}$, $^{15}\text{N}/^{14}\text{N}$) of consumers (animals and humans) reflect those of their food, so that if diets incorporate categories of foods with very different isotope ratios (e.g. C_3/C_4 photosynthesizers, marine/terrestrial foods), analysis of consumer tissues can yield semi-quantitative estimates of their relative importance in the diet (Katzenberg & Waters-Rist 2018; Lee-Thorp 2008; Schoeninger 2011). Recently, scholars have acknowledged the importance of exploring the variation of carbon and nitrogen isotope values in food plants that form the foundation of the foodweb. Research has been done on C_3 crops and millets (An *et al.* 2015; Bogaard *et al.* 2007; 2013; Lightfoot *et al.* 2016; Reid *et al.* 2018), but much less work has been undertaken on sorghum. Plant isotope ratios are significantly influenced by genetic and environmental variables, with inter- and intra-species variation, and variation between plant parts (e.g. grains vs. chaff) (An *et al.* 2015; Cernusak *et al.* 2013; Lightfoot *et al.* 2016; Reid *et al.* 2018). Consumption of different varieties of a species or plant parts by people and/or animals will likely impact the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of consumers (Lightfoot *et al.* 2016). A lack of detailed baseline studies in natural growing conditions likely experienced by farming communities and their effect on plant stable values makes it difficult to understand the extent of this variation and its impact on consumers. This study will contribute to filling this gap.

Another important goal of this thesis was to establish a dialogue with contemporary small-scale farmers in Eswatini to gather information about agricultural indigenous knowledge. Subsistence farming requires detailed knowledge of the crops and the environment. Daily life, nature and agriculture are therefore interlinked. Historical accounts of southern African farming societies describe their knowledge of soil types and their suitability for different crops (Bryant 1949; Mönnig 1967). As they relied solely on natural rainfall, agriculturalists also required a deep understanding of climatic and seasonal patterns. Differences in environmental conditions across space and time, and choices of which crops or varieties to cultivate would have influenced plant isotope ratios. A combination of a scientific approach and an indigenous perspective therefore allows for a collaborative discussion to start taking shape between the academic community and the communities whose knowledge base, particularly in agriculture, is as valid as a scientific one.

Aims and objectives

To this end, this study investigates the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ variation in three varieties of sorghum: *mshalane*, 236 and 308. These were sourced from the Malkerns Research Station in Eswatini, and were grown at four locations: two in Eswatini, in the Lonhlupheko and Siboveni areas of Siteki (35km apart), and two in South Africa, in Benoni, Gauteng (summer rainfall, Highveld) and Richards Bay, Kwa-Zulu Natal (summer rainfall, coastal). Two *S. bicolor* panicles grown in 1999-2000 in a garden in Constantia, Cape Town (winter rainfall), were also included as an outgroup, as sorghum (a summer rainfall crop) would not normally grow in this region. The methods of cultivation were similar to those used by pre-colonial farmers: minimal preparation of the fields, watering only by natural rainfall, no use of artificial fertilizers or pesticides. In addition, this study includes carbon and nitrogen isotopic analysis of archaeological sorghum grains from Historic Cave, a mid-19th century siege site located in the Makapan Valley, Limpopo Province, South Africa (Fig. 1.1). The study also explores the impact that choice of agricultural practices and methods of grain storage and food preparation may have on the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of sorghum cultivars. This is conducted through interviews with small-scale sorghum farmers in Eswatini, in which they provided information about agricultural practices in the past and present.

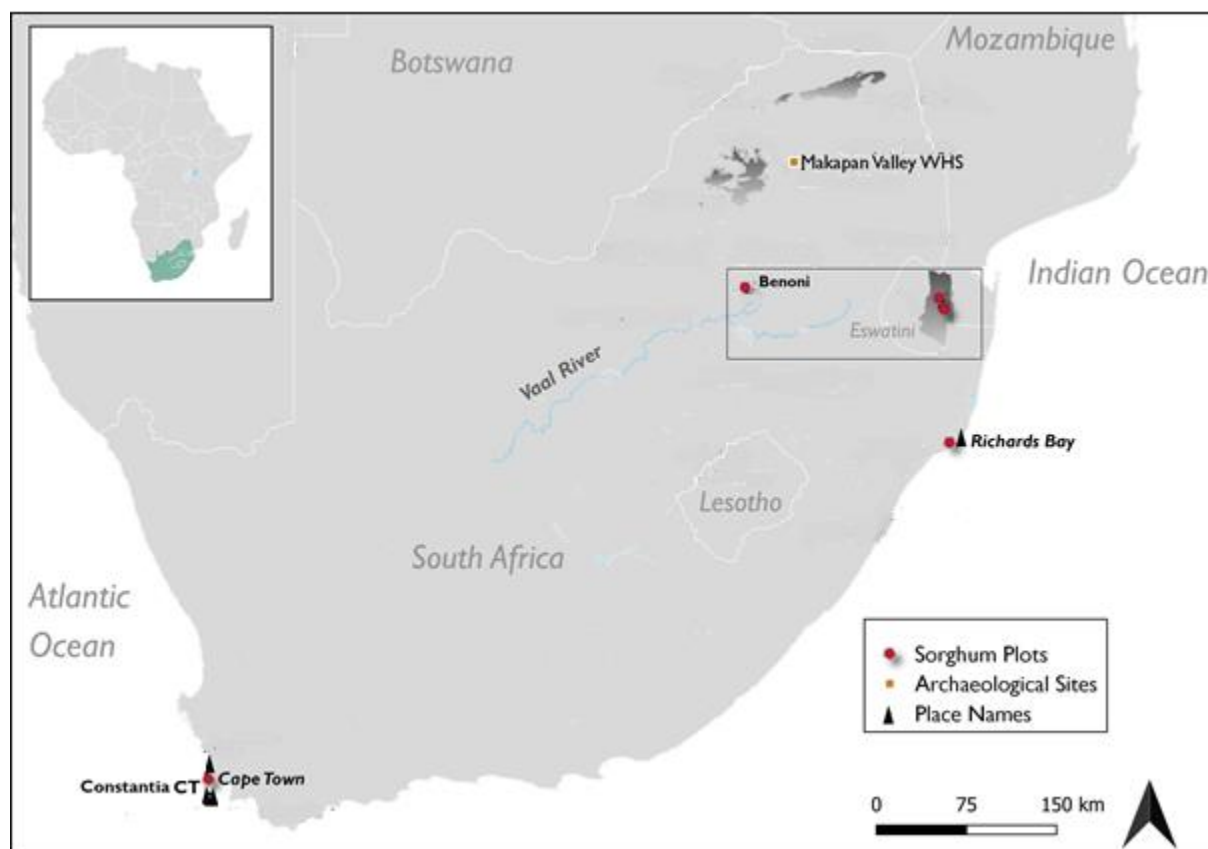


Figure 1.1: Locations of the plots where sorghum was grown for this thesis, and the Makapan Valley World Heritage Site where Historic Cave is situated (Map compiled by Dr Faye Lander).

Thesis outline

Chapter Two (Archaeological Background) outlines the evidence as to where and when sorghum was domesticated. It discusses the Bantu expansion into southern Africa, within which cultigens such as sorghum are thought to have spread. The chapter considers sorghum evidence on sites that were once inhabited by Iron Age communities, and briefly discusses the history of, and archaeobotanical evidence found at the Historic Cave site.

Chapter Three (Background to Light Stable Isotopes) provides an overview of the principles of stable carbon and nitrogen isotopes, and considers the environmental factors and land use patterns that may influence isotope variation in C₃ and C₄ plants.

Chapter Four (Indigenous Knowledge Systems in relation to Agricultural Practices) includes an overview of different definitions of IKS, and the definition used in this study. It reviews indigenous knowledge-based agricultural practices amongst the amaZulu and Sotho-Tswana of South Africa, and Svosve people of Zimbabwe as narrated by 19th and early 20th century missionaries and other observers, especially those practices that may have an effect on plant isotope values. These include 1) the number and types of sorghum varieties grown, 2) soil preparation practices such as fertilization (or lack thereof) and slash and burn agriculture, 3) the methods of sorghum cultivation utilized, starting from the sowing process, 4) storage practices and 5) the uses of different sorghum varieties.

Chapter Five (Background of the Study Areas) summarizes the conditions required for sorghum growth and development and gives an overview of relevant aspects of the environments of the regions where sorghum was grown for this study.

Chapter Six (Materials and Methods) describes the process of establishing relations, and setting up interviews with small-scale farmers in Eswatini. It also describes how the sorghum grown for this study was sown, cultivated and harvested, and how the sample of archaeological sorghum from Historic Cave was obtained. The laboratory methods used for stable isotope analysis are described, and statistical treatments applied on the data are briefly outlined.

Chapter Seven (Carbon and Nitrogen Isotopic Patterns of Sorghum Grains) reports the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of the contemporary and archaeological sorghum grains.

Chapter Eight (Past and Present Agricultural Practices in Eswatini Society) reports on the interviews conducted with contemporary Eswatini farmers in relation to 1) sorghum varieties that were and are grown, 2) sowing, harvesting and storage methods and 3) how the harvest is used. Knowledge of past farming practice shared by farmers was passed down from their grandparents and parents.

Contemporary agricultural practice is strongly influenced by the teachings of the Rural Development Agency (RDA).

Lastly, Chapter Nine (Discussion and Conclusion) assesses the patterns in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ reported in Chapter Seven in relation to previous research. It also considers the likely isotopic impacts of practices reported in the interviews reported in Chapter Eight. In order to improve our palaeodietary reconstructions, both sources of variation should be incorporated.

CHAPTER TWO:

The Origin and Spread of Domesticated Sorghum in Africa

Introduction

This chapter explores the origin and spread of domesticated sorghum in Africa. It discusses the expansion of farming into southern Africa, and evidence of sorghum on sites occupied by Iron Age communities.

The origin and domestication of sorghum in Africa: a brief discussion

Sorghum bicolor (thereafter, sorghum) is a cereal that belongs to the grass family, *Gramineae* or *Poaceae*. It is the fifth most important cereal grown world-wide, preceded by wheat, maize, rice and barley (Doggett 1988). An indigenous crop to Africa, sorghum is a staple for at least half a billion people in more than 30 countries, particularly rural communities (National Research Council 1996). On a global scale, 50 million hectares of land is used to grow around 70 million tons of sorghum grain annually (National Research Council 1996). Sorghum is resilient and hardy, however, it can also adapt to less than ideal environmental conditions including high rainfall and temporary waterlogging (National Research Council 1996). Its ability to adjust its metabolic system and conserve water, and its large and deep-penetrating roots gives it physiological superiority over other major cereals such as maize (National Research Council 1996). Today, it is mostly grown for human consumption, animal feed and fodder, as well as fibre and fuel (Paterson *et al.* 2009; National Research Council 1996). In the past, sorghum porridge was an important food. In a contemporaneous African cultural setting, sorghum has largely been used for producing African beer (*umcombathi*). Similar to the context of Eswatini where it is used in the formal brewing industry, sorghum is also used for the production of alcohol components such as ethanol and starch (Sawadogo-Lingani *et al.* 2021).

Cultivation and domestication definitions

Cultivation is the intentional or unintentional human activity of repeatedly sowing, managing and harvesting wild plants (Weiss *et al.* 2006). Through careful selection of specific traits of a wild plant over time, the genetic make-up of the plant may change such that it is unable to reproduce and survive without human intervention, at which point it is considered domesticated (Colehour 2008; Haaland 1995). Traits that typically characterise domesticated Old and New World grains include loss of natural seed dispersal, increase in seed size, loss of germination inhibition, and synchronous ripening of crops (Fuller 2007). These traits have been crucial in distinguishing wild from domesticated crops as part of understanding the domestication process. From an archaeobotanical

perspective, loss of natural seed dispersal and increase in seed size have been the most visible. The wild precursors of domesticated sorghum are found only in Africa (Harlan & Stemler 1976), so we can be confident that sorghum was first cultivated and domesticated in Africa. The initial stages of domestication are, however, difficult to detect (Haaland 1992; Phillipson 2005) so it is challenging to determine the date and cultural context within which domestication occurred (Winchell *et al.* 2017).

Morphology of wild and domesticated sorghum

Efficient natural seed dispersal is one of the most important traits in wild plants. Seeds may disperse with the aid of animals, gravity, wind, humidity, or seed dispersal appendages to ensure that at least some germinate successfully (Elbaum *et al.* 2007; Fuller *et al.* 2010; Wehncke 2010).

Barbs, awns and hairs are seed dispersal appendages prominent in morphologically-wild plants. They aid wild plants to reach the site of germination (Elbaum *et al.* 2007). For this reason, the size, shape, and (especially in grasses) the general spikelet structure of a plant play a significant role in aiding seed dispersion (Fuller 2007). The mechanism of seed dispersal for wild sorghum are awns (covered with barbs) which are shorter or absent in the cultivated varieties (Adugna & Bekele 2013; Bai *et al.* 2017; Beldados *et al.* 2018). For the wild ancestors of *Pennisetum glaucum* (pearl millet), the plant dispersal unit is bristly and is aided by wind (Fuller & Allaby 2009). In wild wheat, the structural composition of awns aids in the positioning of the seeds into the soil in relation to changing humidity (Elbaum *et al.* 2007). Domesticated wheat grains are plump, and the awns are significantly reduced or absent (Fuller 2007). Poor preservation of barbs, awns and hairs in archaeobotanical remains challenges the use of this trait to study the progression of domestication, although studies of rice domestication in 5th millennium BCE East Asia shows potential (Fuller & Allaby 2009; Fuller *et al.* 2007).

Through natural shattering, as seen in wild grains, a smooth abscission scar is created at the spikelet base and this can be recognised archaeologically (Fuller *et al.* 2010; Fuller 2007; Purugganan & Fuller 2009; Winchell *et al.* 2018; Fig. 2.1a). By comparison, the inflorescences of domesticated plants are threshed to separate grains from the stem, leaving a rough abscission scar at the spikelet base evidenced by a torn or attached rachilla, or a rip scar (Fuller 2007; Winchell *et al.* 2017; 2018; Fig. 2.1b & Fig. 2.1c). A torn rachilla is also present in immature wild grains if they are green-harvested to avoid loss of grain from natural seed dispersal (Barron *et al.* 2020). The discovery of three genetic variants at the *Shattering1* (*Sh1*) locus of domesticated sorghum is suggested to indicate three independent sorghum domestication events (Lin *et al.* 2012). The consequences of selection for the non-shattering trait are twofold: reduction of grain loss during harvest, and reliance on human aid for propagation (Gepts 2014; Kimber 2000; Purugganan & Fuller 2009; Winchell *et al.* 2017). The loss

of natural seed dispersion has been correlated with the use of sickle tools and/or hand-picking of ripe or nearly ripe cereal crops (Hillman & Davies 1990; Wilke *et al.* 1972). Archaeological evidence from the Middle East shows sickle tool use prior to domestication of barley and wheat, while in China, the use of sickle tools post-dates cereal domestication (Fuller 2007). Therefore, harvesting methods may have been contextual – perhaps depending on the socio-cultural circumstances of the people who tended to the cereal crops.

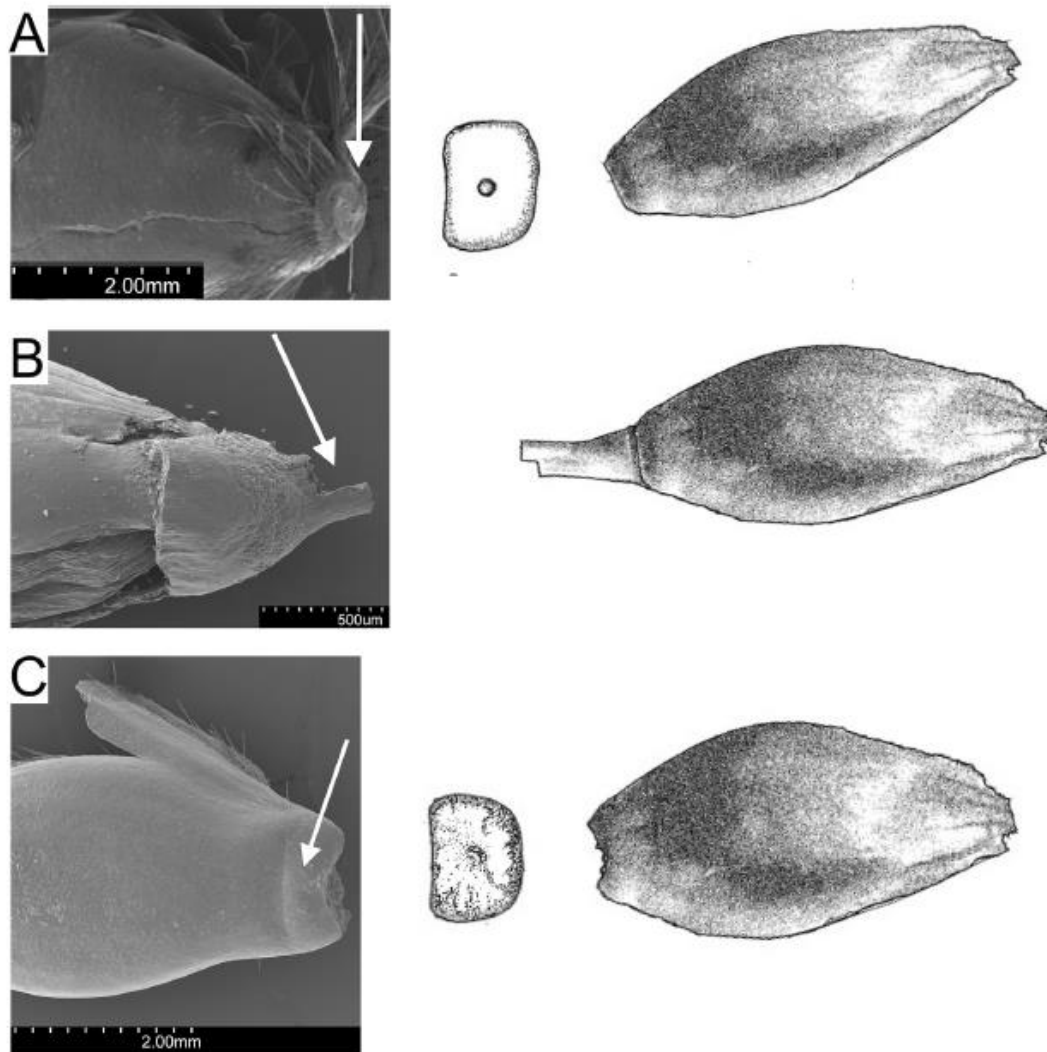


Figure 2.1: Scanning Electron Microscope (SEM) images (left) and drawings (right) of modern reference samples of sorghum. **a** Shows the smooth abscission scar of wild-type sorghum. **b** Torn rachilla of domesticated and green-harvested wild sorghum. **c** rough abscission scar seen in domesticated sorghum (Barron *et al.* 2020: 4).

Progression towards increased grain size is an important part of domestication. Phenotypically, grains may show up to 60% size increase, becoming plump-shaped, and having open glumes (Fuller *et al.* 2014; Winchell *et al.* 2017; 2018; Fig. 2.2). Grain size may be related to environmental factors, genetic variability, crop processing, and in the archaeobotanical context, charring (Willcox 2004). Larger-sized seeds have an advantage in competitive (sharing soil nutrient resources with other

vegetation) and environmentally (e.g., drought) challenging conditions (Westoby *et al.* 1996). In cultivated environments wherein seeds undergo deeper burial, larger-sized seeds are advantaged as they are able to access deeper water reserves (Fuller *et al.* 2010; Purugganan & Fuller 2009). The sudden appearance of large-grained barley, wild einkorn wheat and/or rye with morphologically wild rachis fragments and spikelet bases in some Early Neolithic sites in northern Syria suggests introduction of partially domesticated cereal crops from elsewhere (Willcox 2004; Willcox *et al.* 2008). Archaeobotanically, a domesticated sorghum grain would be fully-filled and plump, whereas the wild counterpart would be narrow, flatter and smaller (Barron *et al.* 2020; Beldados *et al.* 2018; Dahlberg & Wasylukowa 1996; Fig. 2.2). However, use of grain size as a domestication criterion can be unreliable as charring of seeds leads to shrinkage of length and puffing of breadth and thickness as observed in Near Eastern domesticates by Willcox (2004). Varalli *et al.* (2023) observed a similar pattern of swelling in charred sorghum. Additionally, unlike the non-shattering characteristic, increased seed size does not seem to present itself uniformly and consistently across all domesticated crops (Liu *et al.* 2007; Fuller *et al.* 2010). This morphological trait should therefore be used with caution through correlation with other lines of evidence - such as presence or absence of a smooth abscission scar, and the presence or absence of an attached branchlet on the spikelet (e.g., Dahlberg & Wasylukowa 1996).

The delayed germination (germination inhibition) sometimes seen in wild grains in response to environmental conditions such as temperature and day length, and seed coat damage, is selected against in domesticated crops (Fuller 2007). It is a consequence of selecting against seeds that delay germination through cultivation (Fuller & Allaby 2009). In domesticated crops, the seed coat is thinner so that germination begins as soon as the seed is sown and receives moisture/water (Fuller & Allaby 2009; Fuller *et al.* 2010). There is also a selection for lighter seed colour and the loss of rugae and papillae (Fuller & Allaby 2009). Archaeologically, it may be difficult to find evidence of germination inhibition on seed remains given that they are mostly carbonized. However, the study of *Chenopodium* domestication in North and South America has shown evidence of a progressive reduction of testa thickness (Bruno & Whitehead 2003; Smith 1989; 2006).

Synchronous ripening is a trait of domesticated crops: seeds are both sown and reach maturity simultaneously (Kimber 2000; Winchell *et al.* 2017). The transition from foraging to cultivating of seeds led to domestication wherein the simultaneous sowing of seeds resulted in synchronous ripening and harvesting of mature grains (Fuller 2007).



Figure 2.2: Long, thin and papery grains of wild sorghum (left), and firmly attached plump-shaped grains of domesticated sorghum (right) (Lin *et al.* 2012: 720).

Africa: the unchallenged locality for sorghum domestication

Harlan (1976) notes that the location of wild relatives of plants may provide knowledge on the geographical distribution of domestication, as well as ecological restrictions on adaptation abilities of domesticated plants. Since the beginning of both plant and animal domestication, however, climatic conditions have shifted, making it difficult to know the exact distribution of the wild relatives (Harlan 1976; Fuller & Stevens 2018). Further, human influence on the environment may have significantly changed the range of at least some of the species and this may also be true for sorghum (Harlan 1976). Four wild races of *Sorghum bicolor* are known to exist; namely *virgatum*, *arundinaceum*, *aethiopicum* and *verticilliflorum*, all of which are widely distributed in various parts of the African continent (Harlan 1976; Kimber 2000; de Wet & Huckabay 1967). *Virgatum* is found along the Nile Valley and in Central Sudan (Kimber 2000; de Wet & Harlan 1971; Fig. 2.3a). Its panicles are narrow, and its branches are partly upright (de Wet & Harlan 1971). The race *arundinaceum* is distributed in the forested areas of West Africa, including the Equatorial Guinea coast and the Democratic Republic of Congo (Kimber 2000; de Wet & Harlan 1971; Fig. 2.3a). It has panicles that are open and large, and its branches are undivided near the stem base (de Wet & Harlan 1971). The race *aethiopicum* occurs in the drier West African savanna, from Mauritania to the west of Ethiopia (Kimber 2000; de Wet & Harlan 1971; Fig. 2.3a). The panicles of *aethiopicum* are smaller, and its branches are partly upright and well divided (de Wet & Harlan 1971). *Verticilliflorum*

is a truly wild grass found mostly in African savanna regions, and has large and wide panicles that divide at the base (Kimber 2000; de Wet & Harlan 1971). Of these, *arundinaceum* is the most likely ancestor of domesticated sorghum (Winchell *et al.* 2017).

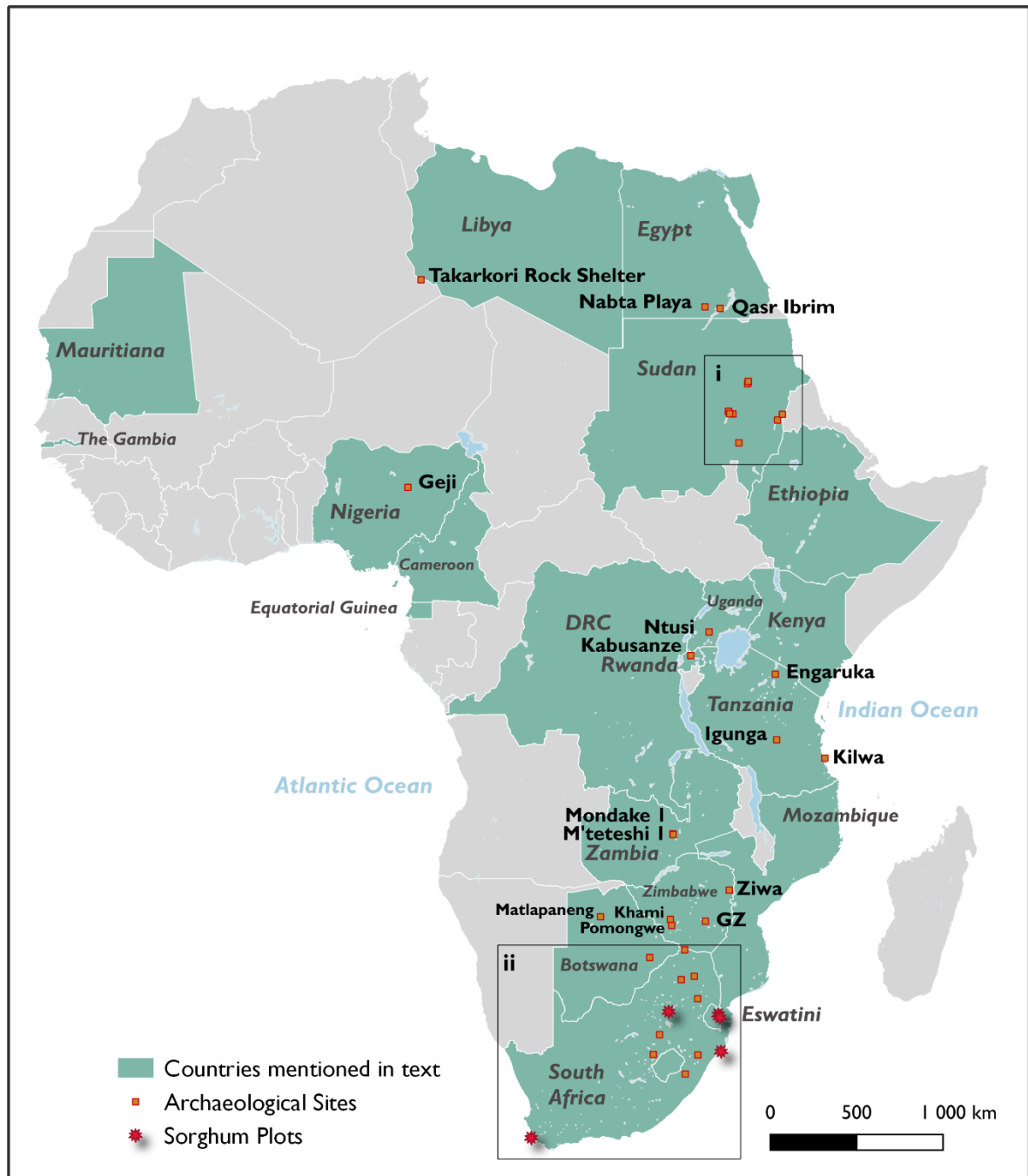


Figure 2.3a: Distribution of all archaeological sites with evidence of cereal cultivation mentioned in the text. Areas in boxes are enlarged in Figures. 2.3b, 2.3bc and 2.3d (Map compiled by Dr Faye Lander).



Figure 2.3b: Archaeological sites in Sudan with evidence of cereal cultivation (Map compiled by Dr Faye Lander).

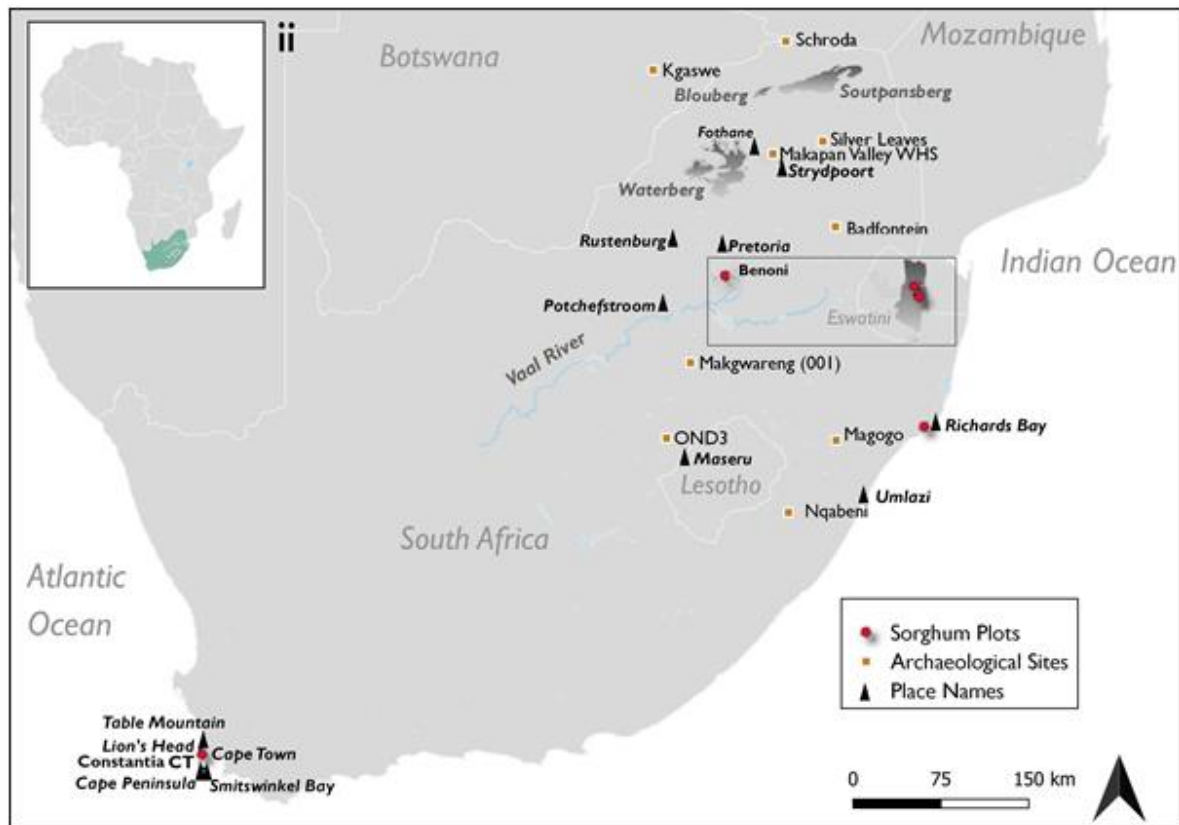


Figure 2.3c: The four plots where sorghum was grown for this thesis, the Makapan Valley World Heritage site where Historic Cave is situated, the archaeological sites with evidence of domesticated cereal cultivation in southern Africa, and relevant places mentioned in the text (Map compiled by Dr Faye Lander).

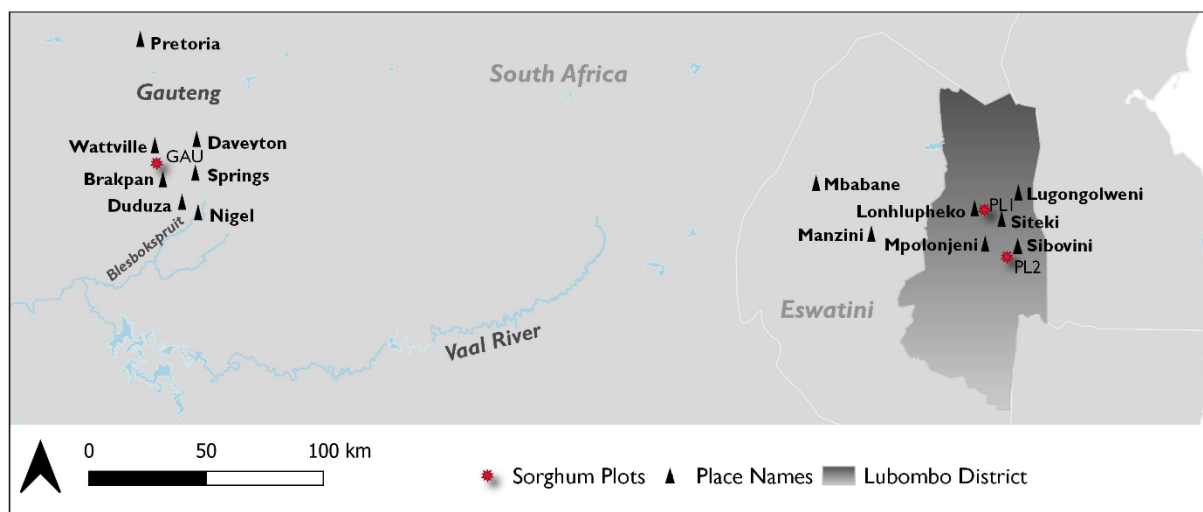


Figure 2.3d: A close-up of the sorghum plots in Eswatini and Gauteng, South Africa, and relevant surrounding places mentioned in the text (Map compiled by Dr Faye Lander).

Step towards domestication: archaeological evidence of wild sorghum cultivation in Africa

Sorghum domestication is a process that occurred in Africa as the wild relatives of the crop still grow solely on the African continent, and not in other regions where domesticated sorghum currently

grows, such as India. In the central Sahara, Late Acacus hunter-foragers (8200 – 6400 BCE) of the Libyan Takarkori rockshelter were cultivating, amongst others, wild sorghum (*Sorghum verticilliflorum*) as indicated by the smooth abscission scar and immature flattened spikelets, some of which have a torn rachilla (Mercuri *et al.* 2018; Winchell *et al.* 2018; Fig. 2.3a). By 4800 to 3000 BCE, the site was occupied by Neolithic Pastoral groups who extensively exploited smaller millets including *Echinochloa colona* and *Panicum laetum* and domesticated fauna (Mercuri *et al.* 2018). Unlike *S. verticilliflorum*, these millets were never domesticated anywhere on the continent (Mercuri *et al.* 2018). In the Eastern Sahara, the site of Nabta Playa E-75-6 (8000BP) presents some of the earliest evidence of wild grass seeds such as *Sorghum bicolor* spp. arundinaceum, *Panicum turgidum* (a wild millet) as well as wild edible fruits from the *Zizyphus* sp and *Capparis* sp (Wasylikowa & Dahlberg 1999; Wendorf & Schild 1998; Fig. 2.3a). These are amongst 20 000 charred archaeobotanical remains from 80 morphological types, including legumes and tubers, all recovered from hut floors (Wendorf & Schild 1998). Of these plant foods, sorghum is amongst the most abundant (Wendorf & Schild 1998). Sorghum remains present with small-sized grains, spikelets with smooth abscission scars, and spikelet bases lacking in the branching structures that hold the fruiting head (Dahlberg & Wasylikowa 1996). These morphological features, and the early date attest to their being wild, contrary to the IR spectroscopy of the sorghum lipid component which suggested similarities to the cultivated types (Wasylikowa & Dahlberg 1999; Wasylikowa *et al.* 1993). During the period of occupation, this area would have experienced at least 500 mm of rainfall annually (Wendorf & Schild 1998). Flooding during summer was common occurrence, forming permanent and temporary water sources such as springs, lakes and streams (Wendorf & Schild 1998); occupation was seasonal during the drier winter months (Wetterstrom 1998). These conditions promoted the growth of natural stands of sorghum, which people harvested and perhaps cultivated, but without domestication (Wasylikowa & Dahlberg 1999).

In the Middle Nile Valley/Atbara region of northeastern Sudan, evidence of plant food exploitation is seen at the Early Holocene sites of Abu Darbein (8600 BP), and El Damer and Aneibis which cluster around 8000 BP and are thus approximately contemporaneous with Nabta Playa (Haaland 1992, 1995, 1999; Fig. 2.3b). The inhabitants of these sites were hunter-gatherers whose lifestyles have been reconstructed differently by different researchers. Close (1995) proposed that they were semi-sedentary, maximizing their use of the perennial waters of the rivers Nile and Atbara during the dry seasons. Haaland (1992) pointed to the presence of wattle and daub remains at El Damer and Aneibis, and grindstones and pottery at all three sites, as indicating a settled, sedentary lifestyle by 8000 BP. In this scenario, seasonal fishing would have required processing and storage of fish for future use, for which pottery would have served well (Haaland 1992, 1993). Remains of at least 30

fish species, including open-water species such as *Synodontis*, *Lates* and *Bagrus*, and floodplain species such as *Barbus*, *Clarias* and *Tilapia* as well as three types of shellfish suggest the intensive exploitation of aquatic resources (Haaland 1993). Numerous bone harpoons and disc-shaped pottery thought to be net sinkers are an indication of a fishing technology (Haaland 1993). Hunting of small and large wild mammals including gazelle, elephants and giraffes and gathering of wild grasses is evident at all three sites (Haaland 1993; Magid 1995). Impressions of the family *Gramineae* on pottery found at the sites, including *Setaria*, *Panicum* and *S. verticilliflorum*, suggest the consumption of cereal grasses (Haaland 1993; Magid 1995). Remains of fruit seeds such as *Zizyphus spina-christi* (L.) Wild and *Celtis integrifolia* Lam. indicate consumption of edible fruits (Haaland 1993).

The appearance of grindstones at these three sites is very likely associated with the processing of grass seeds such as sorghum. Additionally, pottery use created a new relatedness between food resources and their preparation through cooking, allowing for population growth as women's fertility increased with earlier infant weaning, declined postpartum infertility and shorter birthing spaces (Haaland 1995). Sedentism, with an emphasis on aquatic resource exploitation based on the use of pottery technology, Haaland (1992) posits, are the preconditions for the beginning of cultivation. Alternatively Close (1995) suggests semi-sedentism wherein hunter-gatherer groups may have seasonally occupied the sites and kept designated areas for burials, citing a lack of clear evidence for permanent residence during the 10th and 9th millennium BP when pottery was first being used in the area. Further, the importance of pottery for food preparation has been questioned as the sites lack strong indication for specific roles of pottery for the inhabitants (Close 1995).

In line with Haaland's (1992) theory of permanent occupation in the Middle Nile Valley sites, restriction of movement brought about intensive use of available resources, including natural stands of sorghum which would have grown in the vicinity. To meet the demands of the growing population, Haaland (1992; 1999) suggests that seed grasses such as *Setaria sp*, *Panicum sp* and *S. verticilliflorum* seeds would have been tended to, to achieve the most desirable (for instance, large and constant yields) harvests. Herein began the practice of cultivation, parallel with the beginning of animal husbandry in the area in the 6th millennium BP (Haaland 1992). Plant remains at the Middle Holocene sites in the Sudanese Nile Valley are rare, however circumstantial evidence does suggest cultivation practices. The site of Um Direiwa dated to about 6000 BP, and Kadero (5950-5030 BP), both in the Sudanese Nile Valley, produced grain and spikelet impressions including sorghum and millet (Beldados *et al.* 2007; Klichowska 1984; Fig. 2.3b). Grain impressions on pottery at Kadero, some of which were first identified as domestic sorghum (Klichowska 1984), were later reclassified as belonging to wild specimens using Scanning Electron Microscopy (SEM) so, at least, they point to

the processing and use of wild cereal (Stemler 1990). However, it is important to note that Stemler (1990) does not rule out the possibility that the sorghum may have been an early-stage domesticate. *Celtis* impressions have also been recovered in Kadero (Stemler 1990). In the Blue Nile, the site of Sheik el Amin dated to 5550±60 BP and 4590±45 BP produced pottery impressed with *Setaria sp* and sorghum (amongst others), all morphologically wild (Magid 2003; Fig. 2.3b). Impressions of fruit seeds of *Celtis integrifolia* and *Cucurbitaceae* were also part of the food economy (Magid 2003). The substantial increase in grindstone frequency at these later sites is associated with increased reliance on cereals, which is in turn a pre-condition for cultivation. At the site of Um Direiwa, 30 000 fragments of worn grindstones were recovered, compared to the barely 100 grindstones found at the Middle Holocene sites (Haaland 1995; 1999). It has been suggested that grindstone presence at the sites may be evidence for ochre processing (Krzyżaniak 1991). At the Kadero site, ochre in the form of lumps and powder in grave contexts, lumps of ochre in cosmetic sets, and ochre-painted ceramic vessels indicate the need to prepare the pigment before its use (Krzyżaniak 1991). Contemporary grindstone practices in northwest Kenya show the versatile nature of upper- and lower grindstone use on edible and non-edible items (Fig. 2.3a). For cereal processing, “harder” large-seeded grains such as sorghum are ground twice; first with a large angular, rough-textured upper grindstone, followed by a small-sized smooth-textured upper grindstone (Shoemaker *et al.* 2017:423). Smaller and “softer” millet grains are ground using only the rounded smooth upper grindstone (Shoemaker *et al.* 2017: 424). Grindstones are also useful for grinding castor oil seeds for ritual and medicinal purposes (Shoemaker *et al.* 2017). In Nigeria and Zambia, grindstones are known for clay preparation (Derricourt 1986; Sadr & Fauvelle-Aymar 2006; Sassoon 1962; Fig. 2.3a; Fig. 2.4) and iron production (David 1998). Caton-Thompson (1949:377) reports “discoidal ochre-stained grinders” and the occasional “bright red” contemporary pottery sherds from Mesolithic Khartoum sites. Therefore, the use of grindstones on the continent also suggests symbolic and social significance (Shoemaker *et al.* 2017). However, Haaland (1995) adds that while grindstones may have been used to process items like ochre, their presence in large numbers suggests that their primary use was likely related to cereal processing. Nonetheless, the plant remains recovered at the Early and Middle Holocene sites indicate the exploitation of two types of plant foods: seed grasses such as sorghum and millets that require processing and preparation before consumption, and ready-to-eat fruits such as *Zizyphus* and *Celtis* - an indication of the maximum use of what the environment offered (Magid 2003).



Figure 2.4: Image of woman grinding clay for pottery-making in Geji, northern Nigeria (Sassoon 1962:145).

Archaeological evidence of domesticated sorghum in Africa

The earliest evidence for domesticated sorghum comes from northeast Africa. From there, sorghum spread into different parts of the continent at different times. In the eastern Sahel, the KG23 Butana Group site preserves evidence from the mid-4th millennium BCE of sedentary hunter-gatherers engaging in cereal cultivation, exploiting riverine resources and hunting wild fauna, with herding of domesticated animals apparently a somewhat later addition (Sadr 1991; Winchell *et al.* 2017; Fig. 2.3b; Fig. 2.5). Ceramic impressions showed sorghum seeds, some with wild and others with domesticated features. Some spikelet bases had wild-type smooth abscission scars, and the spikelets themselves were immature (narrow), indicating harvesting of under-ripe wild grains. Other impressions were of ripe, rounded grains with broken rachilla still attached, characteristic of domesticated (non-shattering) sorghum (Winchell *et al.* 2017). No rip scars were reported (Winchell *et al.* 2017). The domesticated sorghum accounted for 31% of impressions (Barron *et al.* 2020; Winchell *et al.* 2017). From this evidence, the KG23 site appears to indicate the early stages of domestication. However, recent microCT-scanning of potsherds from the same site increases the

proportion of domesticated sorghum to 73% (Barron *et al.* 2020). This places the site at a later stage in the process of sorghum domestication than previously thought. It is likely that there are older sites with evidence for earlier sorghum cultivation (Barron *et al.* 2020). The morphological traits of domesticated sorghum seen at KG23 are consistent with those of the predominantly domesticated carbonized sorghum recovered at the Jebel Moya site (2550-2210 BCE) of the successive Gash Group (2700-1700 BCE) in south-central Sudan, which include plump-shaped grains and chaff with torn rachilla (Brass *et al.* 2019; Fig. 2.3b; Fig. 2.5). Unlike at KG23, domesticated fauna are reported at Jebel Moya and other Gash Group sites, indicating an agro-pastoral economy (Brass *et al.* 2019). 53km southwest of the Butana group sites, we see somewhat later evidence of domesticated sorghum at Mahal Teglinos K1 of the Jebel Mokram Group (1700-1500 BCE) (Beldados *et al.* 2018; Fig. 2.3b; Fig. 2.5). There, 33% (22 of 66) sorghum impressions were of mature grains with domesticated-type spikelets, with torn rachilla (Beldados *et al.* 2018). 6% (4 of 66) of the same assemblage consisted of spikelets with rip scars, a trait exclusive to domesticated sorghum but absent at the KG23 site (Beldados *et al.* 2018). 26% (17 of 66) of the wild-type spikelets had a smooth abscission scar, consistent with evidence from other eastern Sahelian sites (Beldados *et al.* 2018). The carbonized sorghum assemblage of the same site is entirely wild, with more than 50% (10 of 19) comprising immature spikelets, some of which have a broken rachilla (Beldados *et al.* 2018). With a smaller proportion of domesticated sorghum spikelets at Mahal Teglinos K1 relative to the earlier KG23 (and Jebel Moya) sites, factors such as variation in preservation, a lack of archaeobotanical remains, and the need for high-output techniques to increase the quality and quantity of evidence is emphasized (Barron *et al.* 2020). Nonetheless, the visibility of at least 1500 years of sorghum domestication in the greater Kassala region has led to a suggestion that the area may have been one of the key areas of independent domestications (Beldados *et al.* 2018; Fig. 2.5). In West Africa, sorghum seems to have played a minor role, arriving only in the Iron Age (1st millennium BCE to early 2nd millennium CE) whereas pearl millet was already widely cultivated (Kahlheber & Neumann 2007). Significantly, *Pennisetum* sp. (pearl millet), with origins in West Africa, was being grown in the Kassala area by at least 1960 BCE, indicating a multi-grain domestication process in the eastern Sahel by this time (Beldados *et al.* 2018).

In the Great Lakes region, the earliest evidence for fully domesticated sorghum dates from the mid-1st millennium CE, and consists of remains of a “broad-grained free-threshing” variety (together with domesticated pearl and finger millet) at the Kabusanze site in southern Rwanda (Giblin & Fuller 2011:257; Fig. 2.3a). Around the same time, sorghum of *durra* and/or *bicolor* races was being cultivated at Qasr Ibrim (420-640 CE) and Soba (from 600 CE) sites in southern Egypt and Sudan, respectively (Beldados *et al.* 2018; Rowley-Conwy 1991; Van der Veen & Lawrence 1991; Fig. 2.3b).

Sorghum from Qasr Ibrim was identified and differentiated based on grain colour and the degree of compactness of the inflorescence, although the author acknowledged the difficulty of using grain colour to identify sorghum races (Rowley-Conwy 1991). The *durra* race at Soba was identified by grain shape and size (Van der Veen & Lawrence 1991). Along with sorghum, pulses and fruits appear to have been staples at the sites (Van der Veen & Lawrence 1991). In Ntusi, Uganda, sorghum dating to the 14th century has been recovered from pits (Reid 1996; Fig. 2.3a). Detailed descriptions of sorghum morphology are scarce for material recovered from more recent periods.

The Bantu Expansion and the spread of sorghum to southern Africa

Much research remains to be done on the mechanisms and the timing of the spread of the various domesticates through Africa. We know, however, that the spread of Bantu-speaking populations played an important role. Ancestral Bantu-speaking populations can be traced to the area of the present-day Cameroon-Nigeria border, from where they expanded to reach the Great Lakes region during the 1st millennium BCE (Isern & Fort 2019; Fig. 2.3a). In West Africa, these populations cultivated root (yam) and tree crops (palm oil), and utilized implements such as axes and hoes made from stone (Phillipson 2005; Russell *et al.* 2014). In the Great Lakes region, they learned cereal cultivation, iron-making technologies and livestock-keeping from their new-found farmer and pastoralist neighbours (Boivin *et al.* 2013; Isern & Fort 2019). This new way of life then spread rapidly through Eastern and Southern Africa.

Most scholars see the spread of the Early Iron Age or “Chifumbaze Complex” as resulting from major population expansion accompanied by migration (De Filippo *et al.* 2012; Diamond & Bellwood 2003; Russell *et al.* 2014; Fig. 2.5). The precise routes of migration remain unresolved (Russell *et al.* 2014) but coastlines and rivers are likely to have been important corridors (Blench 2012; Clist 1989; Russell *et al.* 2014). Archaeologists have long argued for large-scale migration on the grounds that the simultaneous appearance of iron-working, the building of permanent settlements and the appearance of mixed farming (both agriculture and stock-keeping) in regions previously occupied by hunter-gatherers is consistent with the arrival of a new incoming population with all of these skills, but not with the diffusion of multiple types of knowledge through existing populations. More recently, genetic studies of both archaeological human remains and contemporary populations unequivocally support the “Bantu migration” (Gurdasani *et al.* 2015; Schlebusch & Jakobsson 2018; Semo *et al.* 2020).

A smaller group of scholars (Chami 1999, 2007; Gramly 1978, Robertson & Bradley 2000) have argued that this new way of life spread through eastern and southern Africa amongst existing populations, and that there is no need to invoke migration. Chami (1999) proposed a trade model

for the movement of the Chifumbaze Complex, in which Graeco-Roman/East African trading networks created opportunities for raw material and other goods to move between traders, thus producing a supply-demand chain (Chami 1999). Agricultural growth, and the increase in people's wealth would have caused population growth and competition amongst skilled specialists in and around the trade posts and centres. Movements of individuals in response to this would have allowed the spread of Iron Age traditions (Chami 1999). The trade model is, however, a minority interpretation of the evidence.

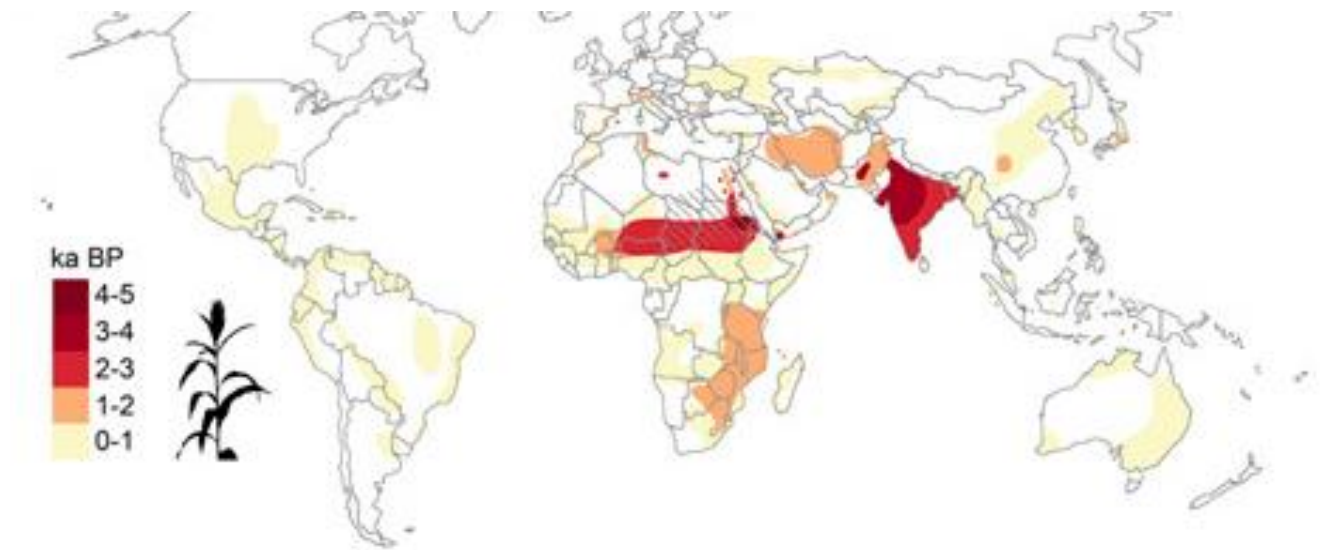


Figure 2.5: Global distribution of domesticated sorghum (Boivin et al. 2016:6391).

Sites of early (first millennium CE) farming settlements in Eastern and Southern Africa are less abundant and less well preserved than those dating to the second millennium CE. Robertson (2000) reported excavations at four first millennium sites in central Zambia. M'teteshi 1 yielded carbonised sorghum seeds that may date as early as 100 CE, although the context is disturbed (Fig. 2.3a). Mondake 1 yielded sorghum and cow-peas (*Vigna unguiculata*) from a unit dated to the second half of the first millennium CE (Fig. 2.3a). At the Matlapaneng and Society sites (7th-10th centuries CE) in Botswana, recovery of carbonized sorghum and millet seeds (amongst other food plants), and shallow grindstones indicate agricultural practice (Denbow 1986; Fig. 2.3a). Further south, the earliest direct indication of cereal agriculture is from the site of Silver Leaves, in the form of bulrush millet impressions dating to the 3rd century CE (Antonites & Antonites 2014; Klapwijk & Huffman 1996; Lander & Russell 2018; Fig. 2.3c). At the Magogo site in the Mudén area of Kwa-Zulu Natal, carbonized seeds dating to the 7th century were recovered from a pit (Maggs and Ward 1984; Fig. 2.3c). Finger millet and bulrush millet could be identified with confidence, and some of the other seeds may be sorghum, although poor preservation made identification difficult (Maggs & Ward

1984). Sorghum is certainly present at the 9th century CE site of Schroda, in the Limpopo River Valley (Hanisch 2002; Fig. 2.3c).

Based on evidence of domestication further north in the continent, and the absence of wild progenitors in southern Africa, grain crops (including sorghum) would have arrived in southern Africa fully domesticated. Early Iron Age farmers selected for deep fertile soils in valley bottoms to grow their crops, making sorghum and millets determinants of the settlement pattern (Antonites & Antonites 2014; Maggs & Ward 1984; Ohinata 2001; Pwiti 1996).

Direct archaeobotanical evidence from eastern and southern Africa is much more frequent in the second millennium CE. In Tanzania, carbonized sorghum grains have been recovered from Kilwa, where what is believed to be *Sorghum vulgare* was excavated from the floor of a burned house (Chittick 1974; Fig. 2.3a). The grains, dating to the 11th/12th century, are small from shrinkage (Chittick 1974). In Engaruka, charred grains recovered in an enclosure are believed to be sorghum, and date to between the 15th and 18th century (Sassoon 1967; 1971; Fig. 2.3a). Although infrequent, grindstones and rubbing stones were also recovered in Engaruka (Sassoon 1967). From a later excavation at the same site, carbonized seeds were tentatively identified as sorghum based on grain morphology (the grain is spherical, has a pointed apex and measures about 2.5mm x 2.5mm) (Robertshaw 1986: 8). In Igunga, carbonized sorghum seeds were found on a house floor dated to the 19th century (Sutton 1973; Fig. 2.3a). At the site of Kgaswe, in Botswana, sorghum and millet were found in burnt features thought to have been grain bins dating to the 11th century (Denbow 1986; Fig. 2.3c). Great Zimbabwe has yielded sorghum from a house floor dating to the 13th century (Robinson 1961; Fig. 2.3a), while at Khami, sorghum dating to between the 14th and 16th century was found in pits (Jonsson 1998; Fig. 2.3a). At the Ziwa Ruins, 15th to 19th century carbonized seeds (*Sorghum caffrorum* Beauv.) were recovered from the hut floor of sites XVB, and in the grinding place within the wall enclosures of site IV (Summers 1958; Fig. 2.3a). Lastly, at the Pomongwe site, sorghum was discovered on the surface as well as in pits dating to the 19th century (Reid & Young 2000: Fig. 2.3a). In South Africa, a number of sites preserve direct evidence of cultivated cereals. A midden at Makgwareng (OO1) in the southern Highveld, dating from the 17th - 18th century CE, produced pottery with seed impressions (Maggs 1976; Fig. 2.3c). The quality of the impressions was good enough to identify them definitively as sorghum seeds (Maggs 1976). Carbonized sorghum sp. seeds in sunken bowls were recovered from daga floors and a midden in the stone ruins in Badfontein (17th-19th century), Mpumalanga and Nqabeni (18th century), Kwa-Zulu Natal (Collett 1982; Hall & Maggs 1979; Fig. 2.3c). At the Nqabeni site, sorghum was recovered along with cow pea (*Vigna unguiculata*) and maize (*Zea mays*) (Hall & Maggs 1979). The recovery of carbonized sorghum in association with cow peas is consistent with the occurrence of both food plants and *Citrullus* cf.

lanatus (mid-19th century) in large numbers among broken pots on the hut floor of OND 3, a Type V site in the southern Highveld (Maggs 1976; Fig. 2.3c). The late appearance of sorghum in South Africa (17th century CE) is likely a result of preservation issues and/or a lack of systematic recovery and analysis of archaeobotanical remains. Although lacking direct evidence, sorghum would likely have been cultivated along with bulrush millet at the 3rd century CE Silver Leaves site in northern South Africa.

Some of the best archaeobotanical evidence in southern Africa comes from the Historic Cave in the Makapan Valley, described below. This site has preserved plant remains (amongst other items) dating to the siege of the site in 1854.

The Historic Cave, Makapan Valley, South Africa

The rich and well-preserved archaeobotanical evidence of Historic Cave site provides extensive information about the agricultural lifestyle in mid-19th century Makapan area (Esterhuysen 2006; Esterhuysen & Hardwick 2017; Fig. 1.1; Fig. 2.3c). The site is described in detail as sorghum found there contributes significantly to the present study. Situated about 18 km northeast of Mokopane in Limpopo, Historic Cave is part of a series of caves including the Cave of Hearths and Limeworks Cave, in the Makapan Valley World Heritage Site (Esterhuysen 2010). The Historic Cave comprises a western and an eastern chamber (Esterhuysen 2006, 2010; Fig. 2.6). The latter has been excavated by Esterhuysen (2006) and its archaeological and archaeobotanical finds provide important information about the 1854 CE siege of the Kekana Ndebele (a local Nguni chiefdom led by Chief Mugombane) by the Trekboers (Dutch settlers), which resulted in the death of scores of individuals from both parties.

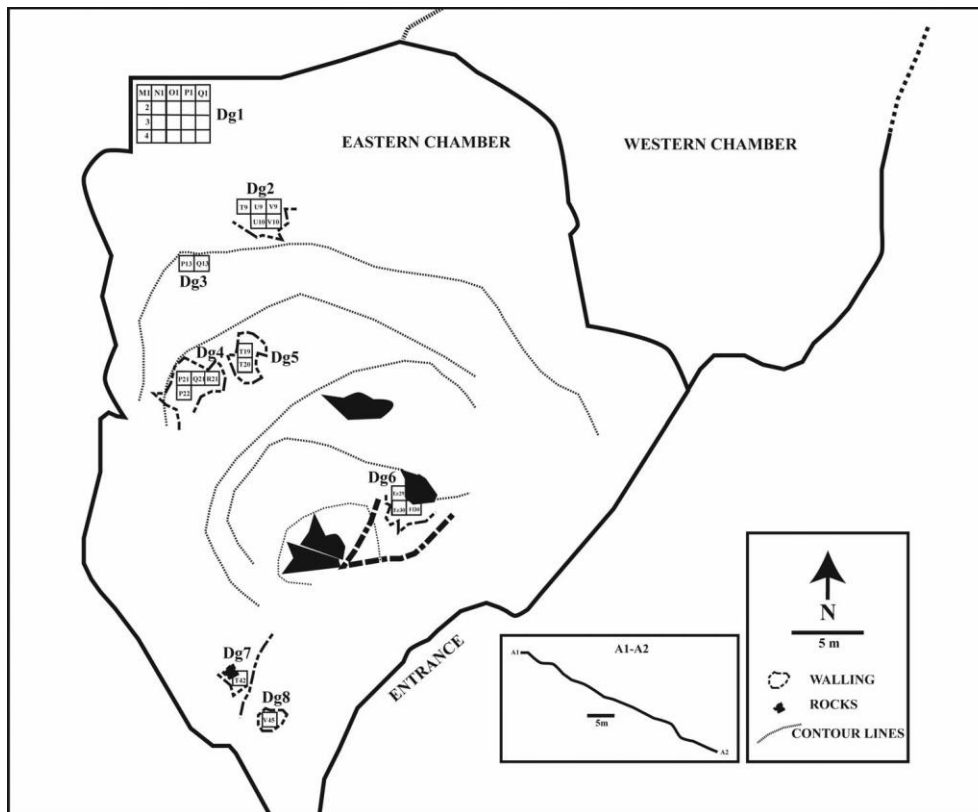


Figure 2.6: Floor plan of Historic Cave as of 2006 (Esterhuysen & Hardwick 2017: 100).

A brief history of the area and the events leading up to the siege of 1854 CE

The socio-economic atmosphere of the northern part of South Africa during the 18th and 19th centuries was characterized by well-established ivory-trading networks and relations between local chiefdoms and Swahili-Portuguese traders on the east coast. Simultaneously, the Trekboers, seeking to break away from British rule in the Cape, sought entry into, and dominance over the Kekana and Langa AmaNdebele territory for its ivory trade route as early as the beginning of the 18th century (Esterhuysen 2006). It is unknown how far the territory of the AmaNdebele reached, however Mugombane's headquarters stretched across the present day Pruissen and Vier-en-Twintig Riviere farms, while the Langa chief Mankopane's headquarters were situated 60 km north of Mokopane in Fothane (Esterhuysen 2006, 2010; Fig. 2.3c).

Demand for labour and tribute by the Trekboers meant that indigenous communities who occupied the region were used to meet those demands (Esterhuysen *et al.* 2009). Furthermore, women and children became part of the trade as they were significant contributors to the local and regional economy (Bonner 1983, Esterhuysen *et al.* 2009). Slave-trade centres were established in Potchefstroom (previously known as Mooi River Dorp), Pretoria, and Rustenburg for hunting and raiding activities that were practiced by both indigenous communities and Trekboers (Comaroff and Comaroff 1991; Delius and Trapido 1982; Esterhuysen *et al.* 2009; Fig. 2.3c). With assistance from

people in the indigenous communities, the Boer commandos captured at least a portion of the slaves from the Langa, Kekana and Sebetiela Ndebele (Esterhuysen *et al.* 2009). Others were from Venda, Kwena, Khoe and Ganawa groups who were located in the Soutpansberg, Blouberg and Waterberg areas (Esterhuysen *et al.* 2009; Morton 2005; Fig. 2.3c). After slave raiding and trading had been made illegal in 1852, slave trade became an undercover activity in which slave children were classified as orphans (Morton 2005: 200). During all this time, the landscape was a frontier zone in which competition for resources and trade heightened, contributing to power shifts within chiefdoms, and between chiefdoms and Trekboers (Esterhuysen 2006).

Over a period of about four years, between 1850 and the year of the siege, Mugombane built alliances with Chiefs Sebetiele, Mankopane and Maraba in opposition to the Trekboers (Esterhuysen 2006). By 1854, the Trekboers changed their trade route from Strydpoort to Makapanspoort (Mokopane) as they had failed to gain control over BaPedi (Delius & Trapido 1982; Esterhuysen 2006; Fig. 2.3c). The shift created tensions that led to a series of back-and-forth violent episodes from both the AmaNdebele and the Boers (Esterhuysen 2006). In September 1854, Mugombane and his party attacked a group of Trekboer men, women and children at their headquarters, while in Fothane, Mankopane killed Hermanus Potgieter and his hunting group (Esterhuysen 2006; 2010). Following the attack, and in anticipation of a counter-attack by the Boers, the Kekana withdrew into Historic Cave with enough provisions to keep them sustained (Esterhuysen 2006; 2010; Esterhuysen & Hardwick 2017). After tracing their retreat on the 25th October 1854, and failing to rout the Kekana from the cave, the Boers barricaded them (Esterhuysen & Hardwick 2017). A number of the Kekana died attempting to escape, while others perished from dehydration and by November 21st of 1854, the remaining Kekana were forced to surrender (Esterhuysen & Hardwick 2017). More than 150 years later, the archaeological remains have been systematically excavated and studied to understand the historical event. For the purposes of this study, the archaeobotanical remains provide an opportunity to delve into the farming practices of 18th and 19th century southern Africa.

Preservation and excavation of archaeological remains: the archaeobotanical evidence

The excavations uncovered features such as an earthen floor with a fire pit, as well as a storage area. They also yielded grinding stones, stone artefacts, glass, iron and ostrich egg shell beads, flora and fauna, and pottery (Esterhuysen 2010; Esterhuysen & Hardwick 2017). The presence of considerable quantities of vitrified dung in the western area may be evidence of its use as a livestock enclosure during the siege (Esterhuysen 2010).

As of 2006, there were four areas excavated in the eastern chamber, Dg1 through Dg4. A further four areas, Dg5 through Dg8 have since been excavated (Fig. 2.6). Dg1 was the largest excavation,

extending over 20 m² (Fig. 2.7). Excavated sediments were dry sieved through a coarse 5mm and a fine 1mm mesh sieve in order to recover plant remains. (Esterhuysen 2006). Dg1 yielded most of the sorghum grains analysed in this study, with one sample coming from Dg2 (5 m², see Fig. 2.8). Only a very small proportion (2.62%) of recovered archaeobotanical remains were carbonized, and significantly, the uncharred remains were dominantly associated with storage vessels such as bins and baskets (Esterhuysen & Hardwick 2017). The variable nature of the assemblage is a certain indicator of mixed crop practice within the Kekana population (Esterhuysen & Hardwick 2017). Mixed-crop farming has been linked to a reduction of nitrogen loss in the soil, as well as lower risks of crop loss due to insufficient rains (Esterhuysen & Hardwick 2017). In all eight areas of the eastern chamber, *S. bicolor* dominated the archaeobotanical sample. Sorghum seeds and heads made up 54.7% (n= 6777) of the archaeobotanical assemblage, followed by *Citrullus lanatus* at 24.6% (n= 3053). Millet (*Pennisetum glaucum*) was much less common, at only 1.2% (n=145), and there were two maize cobs and six maize kernels. There were also significant quantities of *Lagenaria* (bottle gourd and/or squash), though this was difficult to quantify since it consisted mainly of rind (Esterhuysen & Hardwick 2017). Clearly, sorghum was extremely important in these people's economy. All sorghum grains retrieved for analysis were from *S. bicolor*, and were still attached to their respective panicles. As observed by the author, based on the retrieval of both yellowish and red sorghum grains, there were probably at least two varieties of sorghum. To the author's knowledge, there is no published literature on the morphological traits of the sorghum seeds from this site, so it is difficult to know how similar they are to modern varieties.

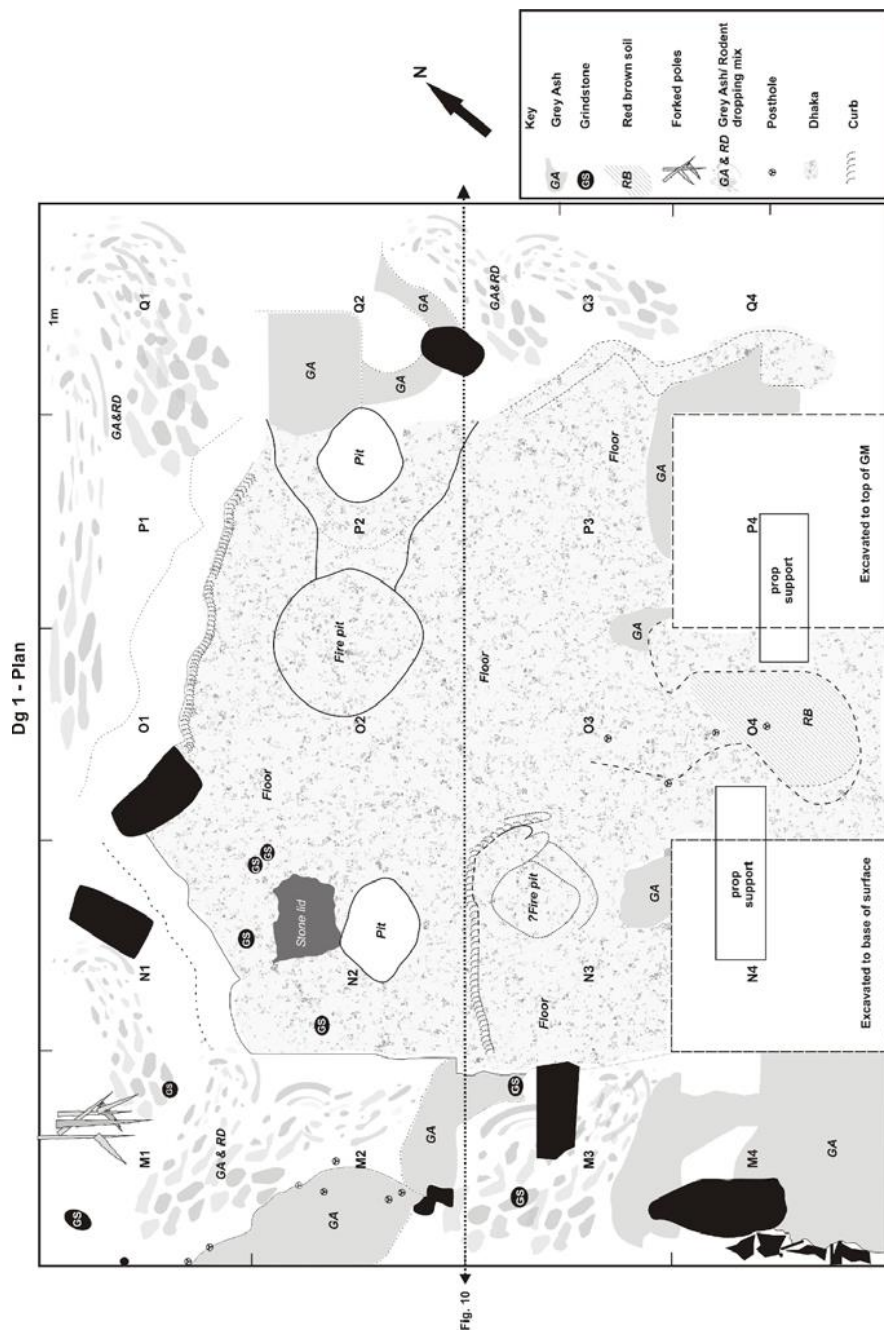


Figure 2.7: Floor plan of excavation area Dg1 (Esterhuysen 2006: 29).

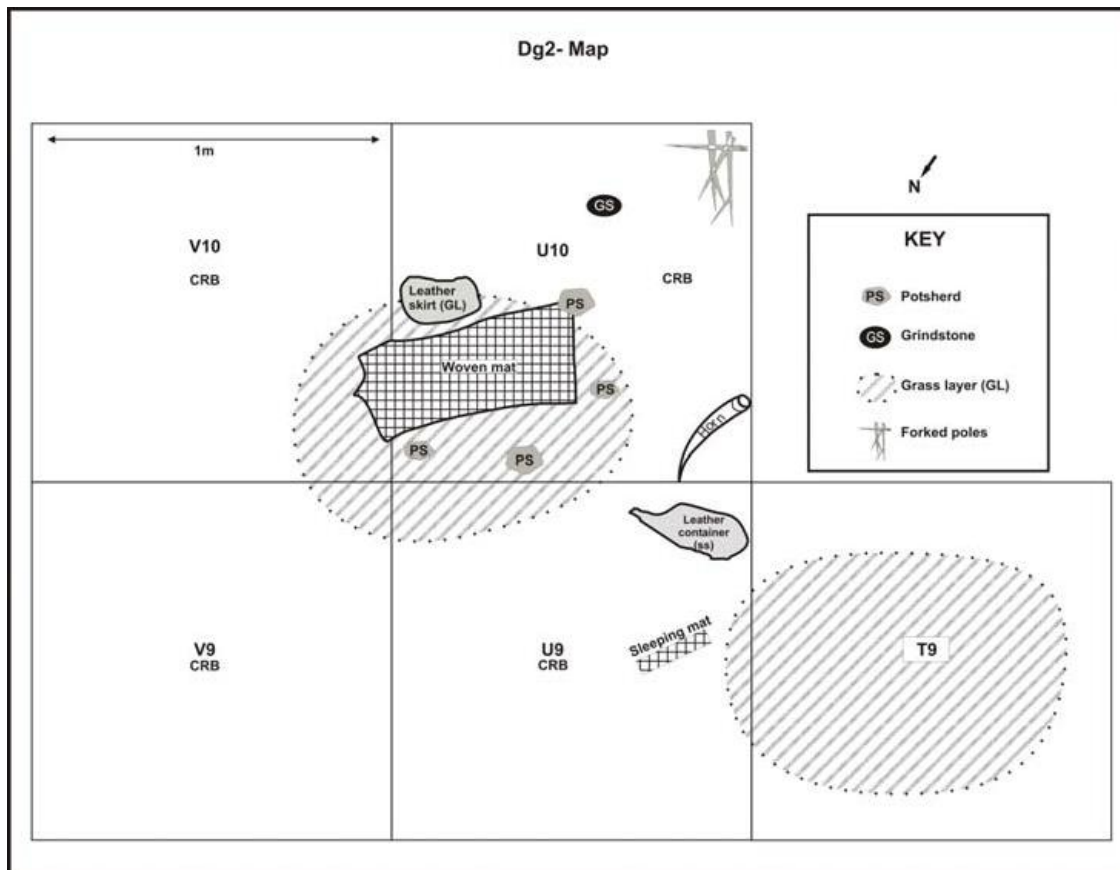


Figure 2.8: Floor plan of excavation area Dg2 (Esterhuysen 2006: 40).

Concluding remarks

The chapter provided a description of the origin and spread of domesticated sorghum in Africa. To this end, the morphological traits that indicate genetic change from wild to domesticated varieties were briefly described. Archaeobotanical evidence for the cultivation of wild sorghum in the eastern Sahel is summarized chronologically, in relation to other archaeological finds in order to situate the finds within the wider subsistence strategies. Archaeobotanical evidence for domesticated sorghum is discussed as it relates to the spread of sorghum agriculture via the Bantu migrations from the Great Lakes area to the east and south of the continent. Given its importance to the present study, a brief account is given of the Historic Cave site and the excavations carried out there, together with its archaeobotanical assemblage. The following chapter provides background to the carbon and nitrogen isotopes in plants.

CHAPTER THREE:

Stable Carbon and Nitrogen Isotopes in Plants

Introduction

This chapter provides an overview of the principles of light stable carbon and nitrogen isotope analysis and their application in plants. A brief discussion is given of carbon isotopes within the three photosynthetic pathways. This is followed by a review of the environmental factors that affect carbon and nitrogen isotope values in plants. These factors are important for the interpretation of the sorghum isotope data in this study.

Brief Introduction to Stable Isotopes

Stable light isotope analysis, especially of carbon and nitrogen isotopes, is a well-established tool for investigating palaeodiet and behavior in palaeoecology and archaeology. The carbon and nitrogen cycles therefore form an important part of such investigations, as the patterning of carbon and nitrogen isotopes in the foodweb is largely dependent on these cycles.

By definition, isotopes are different forms of a given chemical element that possess the same number of protons and electrons, and differ in the number of neutrons. Consequently, their chemical properties remain the same (Van der Merwe 1982). However, the rate of reaction differs, usually with a bias against the heavier isotope. Nitrogen, for example, has two non-radioactive isotopes, ^{14}N and ^{15}N , with a percent natural abundance of 99.642 and 0.368, respectively. The agreed reference standard for measuring nitrogen isotopes is atmospheric nitrogen gas, and nitrogen isotope ratios are expressed in delta notation relative to the standard:

$$\delta^{15}\text{N} = \left[\frac{R(\text{sample})}{R(\text{AIR standard})} - 1 \right] * 1000\text{‰}$$

$$\text{where } R = ^{15}\text{N}/^{14}\text{N}$$

.

Carbon is represented by two stable isotopes, ^{12}C (98.93%) and ^{13}C (1.07%), and the radioactive ^{14}C isotope, which is useful in radiocarbon dating of organic samples (Hoefs 1980; Van der Merwe 1982; Trumbore 2000). As for nitrogen isotopes, carbon isotope ratios are expressed in the δ notation, where:

$$\delta^{13}\text{C} = \left[\frac{R(\text{sample})}{R(\text{PDB standard})} - 1 \right] * 1000 \text{‰}$$

R is once again the ratio of the heavy to the light isotope. The unit ‰ is parts per thousand, or parts per mil.

During photosynthesis, atmospheric carbon dioxide (hereafter $\text{CO}_2(\text{atm})$) is converted to organic molecules using one of three photosynthetic routes: the Calvin-Benson (C_3) cycle, the Hatch-Slack (or C_4) cycle, and the Crassulacean Acid Metabolism (CAM) cycle (Tippie & Pagani 2007). All of these types of photosynthesis preferentially fix ^{12}C and discriminate against the heavier isotopes, but the extent of this carbon isotope fractionation varies across the three pathways. The C_4 photosynthetic pathway is the main subject of interest in this study, however, a brief discussion of C_3 and CAM photosynthesis is also provided for completeness.

The chemistry of carbon isotopes within plant photosynthetic processes: Calvin-Benson Cycle

The Calvin-Benson cycle is a photosynthetic process that is used by trees, shrubs and C_3 grasses that grow mainly in temperate regions. This use of CO_2 , light, and water to produce complex organic molecules is a phenomenon that dates back at least 3465 million years (Summons *et al.* 1999), and for the Calvin-Benson Cycle, it is described to be at its optimum in conditions of higher CO_2 and lower oxygen (hereafter O_2) concentrations (Berner & Kothavala 2001; Tippie & Pagani 2007). Consequently, the high CO_2/O_2 ratio provides $\text{CO}_2(\text{atm})$ fixing enzyme, RuBisCO, with prime conditions in the first step of carbon fixation during the photosynthetic process (Ehleringer 2005; Ehleringer & Cerling 2002). $\text{CO}_2(\text{atm})$ is fixed to a five carbon molecule, ribulose 1,5-bisphosphate (RuBP), by RuBisCO to form 2-carboxy-3- ketoarabinitol- 1,5-bisphosphate, an enzyme-bound intermediate (Tippie & Pagani 2007). Following this, the intermediate undergoes hydrolysis (a chemical reaction which involves converting a compound into smaller molecules using water) to break down into two 3- phosphoglycerate molecules (Tippie & Pagani 2007). In turn, these molecules are phosphorylated (the introduction of a phosphate group to a molecule) to 1,3-bisphosphoglycerate, and then reduced to glyceraldehyde-3-phosphate (G3P) (Tippie & Pagani 2007). Six G3P molecules are produced for every three CO_2 molecule absorbed by RuBP. Out of these six G3P molecules, one is converted to a simple sugar that is stored within the plant and is used for its nutrition, while the remaining molecules are used for RuBP regeneration (Ehleringer 2005; Tippie & Pagani 2007). It is well-established that the current $\delta^{13}\text{C}$ value of $\text{CO}_2(\text{atm})$ is -8.5‰ relative to the PDB standard. This value has been decreasing since the start of the industrial revolution and continues to do so with ongoing combustion of fossil fuels (Fiorella *et al.* 2021; Keeling *et al.* 2017). However, in C_3 plants, the ^{13}C composition is depleted by a further 19‰, so that the average $\delta^{13}\text{C}$ value for such plants is -28.8±2.7‰ (n=3478) with a range of -20‰ to -37‰ (Cornwell *et al.* 2017). This is a larger range compared to C_4 plants (Kohn 2010), as will become evident later in the chapter.

Under certain conditions, however, a process called photorespiration occurs, whereby RuBisCO fixes diatomic oxygen (O_2) instead of CO_2 , therefore interrupting carbon fixation (Tippie & Pagani 2007). Such conditions include high temperatures and low internal CO_2/O_2 ratios which hinder the regeneration of RuBP, and hence reduce carbon fixation and overall photosynthesis (Tippie & Pagani 2007). Defined as the proportion of carbon assimilation to photons absorbed, high quantum yields during photosynthesis determine which photosynthetic pathway dominates (Boon *et al.* 2002). The quantum yield at which C_3 plants are favored over C_4 plants depends on the daytime growing seasonal temperature, and the pCO_2 since C_3 plants are favored at higher pCO_2 (Cerling *et al.* 1997; Collatz *et al.* 1998; Ehleringer *et al.* 1991; Hare *et al.* 2018; Fig. 3.1). The crossover temperature ($T_{50\%}$) is that at which the quantum yields of the two pathways would be equal (Boon *et al.* 2002). At modern $CO_{2(atm)}$ levels the crossover temperature is in the range of $16^\circ C$ to $20^\circ C$, with C_3 -dominated ecosystems occurring at temperatures below the crossover point, and C_4 -dominated ecosystems above it (Cerling *et al.* 1997; Fig. 3.1). At pre-industrial $CO_{2(atm)}$ levels (approximately 280 ppm), the crossover temperature (estimated from Fig. 3.1) would have been about $14^\circ C$.

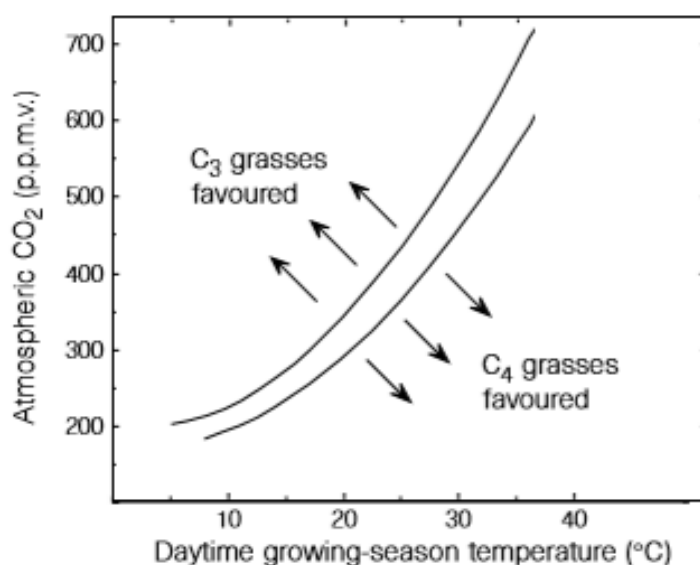


Figure 3.1: Model of the distribution of C_3 and C_4 vegetation as a function of atmospheric partial pressure of CO_2 and temperature (Cerling *et al.* 1997:157).

The chemistry of carbon isotopes within plant photosynthetic processes: Hatch-Slack Cycle

Today, the Hatch-Slack cycle is found in more than two thirds of all grasses in the tropical and subtropical regions, as well as at least 90% of tropical savanna (Tippie & Pagani 2007). C_4 dicotyledonous trees and/or shrubs are uncommon in Africa, but occur more commonly elsewhere, such as Asia (Ehleringer & Cerling 2002; Su *et al.* 2011). The C_4 cycle uses the C_3 template, but has an

extra biochemical adaptation which involves increasing CO₂ to levels that allow the C₃ cycle to operate efficiently (Ehleringer 2005; Tipple & Pagani 2007). An anatomical feature in C₄ plants called the Kranz anatomy makes this series of reactions possible. It is a structure of bundle-sheath cells that contain chloroplasts, and are surrounded by mesophyll cells. In the mesophyll cells, the enzyme phosphoenolpyruvate-carboxylase (PEP-C) assimilates HCO₃⁻_(aq) onto phosphoenolpyruvate (PEP) to produce the four carbon-containing compound, oxaloacetate (Sage 2004; Tipple & Pagani 2007). HCO₃⁻_(aq) is enriched in ¹³C relative to CO₂, and ¹³C discrimination in PEP-C is significantly less than in RuBisCO (Cernusak *et al.* 2013). The oxaloacetate is transported from the mesophyll- to the bundle sheath cells where CO₂ is released through decarboxylation of the compound (Ehleringer *et al.* 1991). The bundle sheaths act as a site wherein CO₂ concentration is increased and the *p*CO₂ is kept higher than the ambient (Collatz *et al.* 1998; Ehleringer *et al.* 1991). CO₂ released from decarboxylation is then fixed using the C₃ cycle (Cerling *et al.* 1993; Ehleringer *et al.* 1991; O'Leary 1988).

Within the Hatch-Slack cycle are three biochemical subtypes (NADP-ME, NAD-ME, and PCK) named after their C₄ acid decarboxylases (Murphy & Bowman 2009; Tipple & Pagani 2007). Oxaloacetate is converted to aspartate by aspartate aminotransferase (NAD-ME and PCK subtypes) or reduced to malate by malate dehydrogenase (NADP-ME subtype) before being transported to the bundle sheath cells (Hatch *et al.* 1975; Pick *et al.* 2011; Wang *et al.* 2014). In the NADP-ME subtype, to which sorghum belongs, malate produces CO₂ and pyruvate during which NADPH is formed through catalysis by NADP-ME (Pick *et al.* 2011; Wang *et al.* 2014). In the bundle sheath cytosol or mitochondria of the NAD-ME and PCK subtypes, aspartate is reconverted to oxaloacetate (Taniguchi *et al.* 1995; Wang *et al.* 2014). Vegetation that employs C₄ photosynthesis can thus reduce transpiration, eliminate photorespiration by reducing stomatal opening and assimilate CO₂ at rates that cannot be afforded under the Calvin-Benson cycle alone (Sage 2004; Tipple & Pagani 2007).

C₄ plants have an average δ¹³C value of -12.9±1.5‰ (n=137), with a range of -10‰ to -14‰ (Cerling *et al.* 1997; Cornwell *et al.* 2017; Katzenberg 1989; Pate 1994). This is a narrower range than that seen in C₃ plants. The three subtypes of C₄ photosynthesis lead to slightly different δ¹³C values. NADP-ME grasses mainly occupy mesic environments and have the highest δ¹³C values. The reported δ¹³C averages for NADP-ME subtypes, which include sorghum, are -11.35 ±0.13‰ (Hattersley *et al.* 1982), -11.8±1.0‰ (Schulze *et al.* 1996) while Cerling *et al.* (2003) reported an average of -11.8±0.2‰ for mesic NADP-ME grasses. PCK subtypes occur in regions that receive intermediate rainfall and have intermediate δ¹³C values, and their observed averages are -11.95±0.19‰ (Hattersley *et al.* 1982), -12.5±0.8‰ (Schulze *et al.* 1996) and -12.9±0.1‰ (Cerling *et al.* 2003). Lastly, NAD-ME grasses dominate xeric areas and have the lowest δ¹³C values (Cerling *et al.* 2003;

Hattersley 1982; Murphy & Brown 2009; Schulze *et al.* 1996). The reported $\delta^{13}\text{C}$ averages for NAD-ME subtypes are $-12.7 \pm 0.21\text{‰}$ (Hattersley *et al.* 1982), $-13.3 \pm 1.0\text{‰}$ (Schulze *et al.* 1996) and $-13.1 \pm 0.2\text{‰}$ (Cerling *et al.* 2003). Genetic factors can cause $\delta^{13}\text{C}$ variation within a species (An *et al.* 2015; Hammer *et al.* 1997; Hubick *et al.* 1990; Lightfoot *et al.* 2016; Reid *et al.* 2018; Tieszen & Fagre 1993). Hammer *et al.* (1997) grew 45 cultivars of *S. bicolor* in a glasshouse under non-limiting water and nutrient conditions, and reported a $\delta^{13}\text{C}$ range of 1.1‰. Hubick *et al.* (1990) find differences of up to 0.6‰ in $\delta^{13}\text{C}$ between the leaves of different sorghum strains. Reid *et al.* (2018) report a range of 1.6‰ and 1.9‰ in finger and pearl millet accessions, respectively. Lightfoot *et al.* (2016) observe a 2.0‰ range in foxtail millet accessions, and Tieszen & Fagre (1993) report a range of up to 2.2‰ in maize. An *et al.* (2015) report higher ranges in common millet (2.3‰) and foxtail millet (2.6‰) accessions.

Studies have taken interest in the evolution and spread of C_4 plants (e.g. Cerling 1999; Ehleringer *et al.* 1991; Osborne & Sack 2012). C_4 photosynthesis evolved more recently than C_3 . The spread of C_4 vegetation involves a combination of many climatic and non-climatic conditions such as temperature, water availability, the season during which rainfall occurs, altitude, latitude, herbivory, habitat disturbance and fire (Ehleringer 2005; Ehleringer & Monson 1993; Huang *et al.* 2001; Sage *et al.* 1999; Tipple & Pagani 2007). Ehleringer *et al.* (1991) argue that while environmental influences such as temperature and aridity should be considered, their influence alone would not have been enough to account for the appearance and spread of C_4 vegetation.

Surveys carried out in North and South America, Europe, Asia and Africa show the distribution of C_4 vegetation. Temperature, altitude and latitude tend to influence the dominance of one photosynthetic pathway over another. C_4 grasses dominate in areas of low latitude and altitude, although C_4 species such as *Muhlenbergia* and *Spartina* sp. occur at high latitudes, e.g. in southern Alaska and northern Canada as a result of the warming of the continental interior (Sage *et al.* 1999). In addition to establishing a summer and winter temperature threshold (16°C and between 8°C and 12°C, respectively) below which the majority of C_4 grasses are unable to grow, seasonality of precipitation is a major driver of C_3/C_4 dominance at low and mid-latitudes (Sage *et al.* 1999). In extreme drought conditions, precipitation seasonality may shift, reducing rainfall and C_4 coverage during the warmer months (Knapp *et al.* 2022).

While C_4 grasses are bound to have a competitive edge in environments with a warm and wet growing season, such as the monsoonal climates of parts of Africa and India, C_3 flora tend to dominate Mediterranean climates with their cooler and wetter growing seasons (Sage *et al.* 1999). In cooler and higher altitude and latitude settings, ice-accumulation or high water levels may shorten

the growing season of C₃ plants such that the season begins only when temperatures are warmer. This creates a niche for C₄ plants to grow in an environment that would have otherwise favored C₃ plants (Sage *et al.* 1999).

C₄ vegetation is also dependent on the amount of light available, with contributions from edaphic and climatic factors. This is supported by observations that prove the co-existence of various C₄ species of plants in the Kenya tropical savanna understory of C₃ trees such as baobabs where access to light intensity is only 30%, as well as the presence of C₄ plants in the surrounding areas (Belsky *et al.* 1989; Sage *et al.* 1999). Similarly, the C₄ grass representation in the temperate savanna environs of Minnesota also decreases with decrease in light exposure (Belsky *et al.* 1989; Peterson & Reich 1996; Sage *et al.* 1999; Weltzin & Coughenour 1990). However, at light exposures below 10%, C₄ plants are unable to survive no matter the climate (Sage *et al.* 1999).

Alongside a host of environmental factors, C₄ distribution and success is also affected by influences such as herbivory, fire and human disturbance. Herbivores can have a positive or negative effect on the growth of C₄ grasses, depending on the contextual setting because while C₄ grasses may be threatened by overgrazing, herbivores such as elephants are known to reduce C₃ distribution by destroying woodland populations and allowing favorable conditions for C₄ grasses to flourish. Following the rinderpest outbreak of the 19th century in Africa, wild animals such as elephants and wildebeest were moved into national parks (McNaughton 1992). A substantial decline of canopy cover was reported following the move of elephants into the Serengeti National Park, however, scholars contend that elephants alone cannot be responsible for the widespread destruction of C₃ flora citing instead, an interplay of multiple sources including fire, tree, elephant and browser influence (McNaughton & Sabuni 1988; McNaughton 1992). The abovementioned factors, considered together, provide a stronger explanation of the patterns of C₄ (and by extension, C₃) vegetation distribution.

A brief description of the Crassulacean Acid Metabolism (CAM) cycle

The CAM pathway includes five systems of photosynthesis, namely the Facultative CAM, Constitutive CAM, Obligate CAM, CAM-cycling, and CAM-idling (Herrera 2009). All these CAM modes produce acids such as malate by CO₂ assimilation within the cytosol at night (Kerbaudy *et al.* 2012, Pereira & Cushman 2019). Malate is stored in vacuoles with hydrogen ions (H⁺), causing organic acid accumulation in the form of malic acid (Edwards & Ogburns 2012; Herrera 2009; Kerbaudy *et al.* 2012). During the day, the malate undergoes decarboxylation to release CO₂. The CO₂ is fixed by RuBisCO via the C₃ pathway (Kerbaudy *et al.* 2012). When a plant reversibly switches from C₃ or C₄ photosynthesis to the CAM state, it is Facultative. Facultative CAM occurs in plants such as *Talinum*

triangulare (C₃), *Mesembryanthemum crystallinum* (C₃), and *Portulaca oleracea* (C₄) during periods of water stress (Winter & Holtum 2014). In Constitutive CAM, the plant will express CAM when the leaves reach maturity as in *Clusia rosea*, irrespective of environmental conditions (Winter *et al.* 2008). Further, Facultative and Constitutive CAM can exist simultaneously (Winter 2019). In the Obligate CAM, nocturnal CO₂ assimilation and organic acid accumulation occur at high rates even when the environmental conditions are not under stress (Kerbaudy *et al.* 2012). Depending on the amount of nocturnal acid accumulation, Obligate CAM species are further classified as weak or strong CAM (Herrera 2009; Cushman & Bohnert 1999). In CAM-cycling, CO₂ fixation and organic acid accumulation occurs during the day. However, during the dark period, the stomata are closed and the CO₂ required for fixation is made available through plant tissue respiration (Kerbaudy *et al.* 2012; Martin *et al.* 1988). Plants that use this type of CAM pathway include *Drosanthemum hispidum* (Martin *et al.* 1988), *Sedum nuttallianum* (Martin & Jackson 1986), *Talinum calycinum* (Martin & Zee 1983), *Pereskia grandifolia* and *Pereskia aculeate* (Rayder & Ting 1981). For plants that use CAM-idling, there is both diurnal and nocturnal stomatal closure. There is also small organic acid accumulation, and CO₂ fixation during the dark period is possible through plant tissue respiration (Kernauby *et al.* 2012). For succulents such as *Hoya carnosa*, CAM-idling indicates reversibility depending on the environmental conditions (Rayder & Ting 1983).

Environmental factors that influence carbon isotope ratios of plants

Environmental factors that influence carbon isotope ratios in plants include the concentration of CO₂ in the atmosphere and its carbon isotopic composition, humidity, including precipitation and water availability, and light intensity/photosynthetic rate, all of which in turn influence the isotopic composition of heterotrophs (Farquhar *et al.* 1989; Goude & Fontugne 2016). These factors are discussed below.

The effects of water availability on the $\delta^{13}\text{C}$ values of C₃ vegetation

The carbon isotope composition of C₃ plants is influenced by the carbon isotopic composition of CO₂ (atm) and the ratio of intercellular to ambient concentrations of CO₂, expressed as p_i/p_a (Farquhar *et al.* 1982):

$$\delta^{13}\text{C} = \delta^{13}\text{CO}_2(\text{atm}) - a - (b - a) p_i/p_a$$

where *a* is a value of 4.4‰, the carbon isotopic fractionation that occurs during CO₂ diffusion into the leaf, and *b* is a reported value of 27‰ by Tipple & Pagani (2007) and up to 30‰ by Madhavan *et al.* (1991) and Von Caemmerer *et al.* (2014), and is the carbon isotopic fractionation during carboxylation by RuBisCO. Since p_i/p_a is determined in part by the opening and closing of the stomata and is therefore a function of water availability, a plant's $\delta^{13}\text{C}$ value is strongly correlated

with water stress. Photosynthetic Water Use Efficiency or WUE is therefore defined as the ratio of the rate of carbon fixation by the plant to the rate of water loss due to transpiration (Farquhar et al 1989). Under conditions of limited water availability, plants increase their WUE by decreasing their stomatal conductance, and thus, lowering p_i (the internal CO_2 concentration) (Ehleringer 1993; Ehleringer & Cooper 1988; Wang *et al.* 2005). This results in less discrimination against ^{13}C during CO_2 fixation (Tippie & Pagani 2007), i.e. less negative plant $\delta^{13}\text{C}$ values. In a number of regional studies, over rainfall gradients of up to 1700 mm/pa, correlations between Mean Annual Precipitation (MAP) and $\delta^{13}\text{C}$ values range from 0.20 to 0.78, and $\delta^{13}\text{C}$ ranges from -23.0‰ to -31.2‰ (Feng *et al.* 2020; Liu *et al.* 2007; Murphy & Bowman 2009; Stewart *et al.* 1995; Swap *et al.* 2004). In the Ethiopian Rift Valley, Liu *et al.* (2007) report a negative correlation between leaf $\delta^{13}\text{C}$ and precipitation below 1019.2mm, and a positive response above this value. On a global scale, Diefendorf *et al.* (2010) show that leaf isotope fractionation (Δ_{leaf}) responds strongly and positively with MAP, with the latter accounting for 55% ($p < 0.0001$) of the Δ_{leaf} variability. At low MAPs, however, leaf fractionation values are unusually low, possibly a result of bias towards sites with considerable species diversity (Fig. 3.2). Together, the MAP and altitude account for 61% of the variability in Δ_{leaf} while latitude and temperature have insignificant influences. In Kohn's (2010) larger global compilation, data from each site was averaged to improve the accuracy of global $\delta^{13}\text{C}$ averages in C_3 plants, and thereby allowing for their application in past and future climatic and ecological settings. Kohn found that MAP accounts for 59% of variation in $\delta^{13}\text{C}$ while altitude, latitude and temperature have minor effects. Below 500mm per annum, $\delta^{13}\text{C}$ values are higher than -25.5‰ while the isotopic discrimination becomes nearly constant at higher MAP (Kohn 2010).

More enriched $\delta^{13}\text{C}$ values are observed for C_3 plants on elevated ground compared with lower-lying areas of the same landscape. In the Eastern Mediterranean, Hartman & Danin (2010) propose that plants on lower ground benefit from rainwater runoff from adjacent higher areas, and may also be able to access water from aquifers. Moreover, these plants are often shielded from direct exposure to the sun's radiation, contributing towards high stomatal conductance (Hartman & Danin 2010).

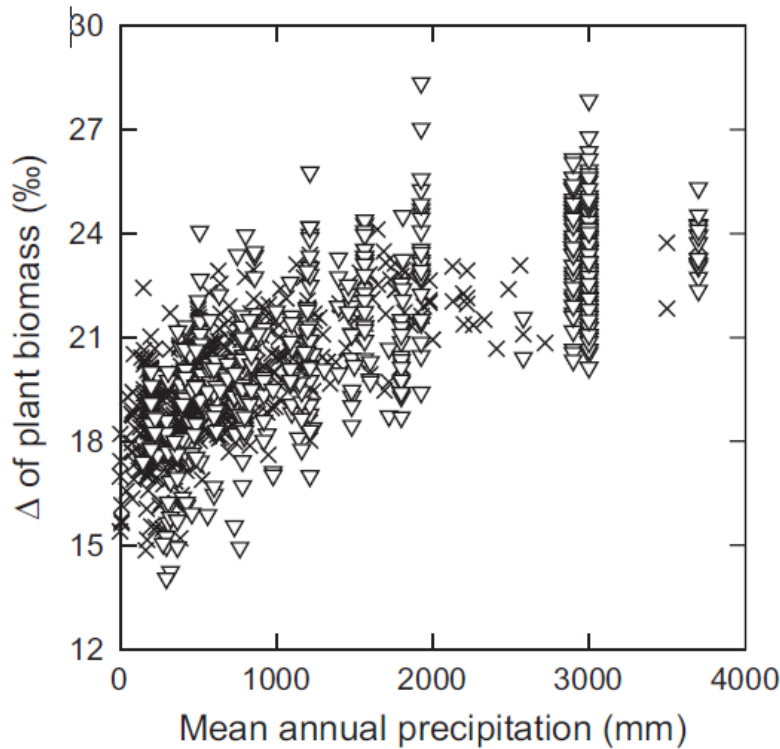


Figure 3.2: Graphical representation of Δ_{leaf} as a function of MAP in C_3 plants. Data from Diefendorf *et al.* (2010) - triangles and Kohn (2010) - crosses. Diefendorf *et al.* (2010) data points represent the combination of individual species by site and Kohn (2010) data points are averages for each site. Taken from Cernusak *et al.* (2013:954).

The effects of temperature on the $\delta^{13}\text{C}$ values of C_3 vegetation

Temperature influences the $\delta^{13}\text{C}$ values of C_3 plants in several ways. High temperatures lead to plants reducing the size of their stomatal apertures, which decreases p_i/p_a and increases the plant's $\delta^{13}\text{C}$ values (McCarroll & Loader 2004; Morecroft & Woodard 1996; Wang *et al.* 2013; Zhou *et al.* 2022). Elevated temperatures also tend to increase enzyme activity (Wang *et al.* 2013; Zhou *et al.* 2022). Understanding temperature contribution towards $\delta^{13}\text{C}$ variation is complicated by co-varying factors such as water availability (e.g., rainfall, soil moisture availability), altitude, latitude and CO_2 concentration (Hemming *et al.* 1998; Körner *et al.* 1991; Lipp *et al.* 1991; Li *et al.* 2009; Liu *et al.* 2017; Morecroft & Woodard 1996; Zheng & Shangguan 2007).

Most previous studies have reported positive relationships between temperature and plant $\delta^{13}\text{C}$ (Lipp *et al.* 1991; Liu *et al.* 2007; 2017; Loader & Hemming 2001; Schleser *et al.* 1999; Wang *et al.* 2013; Zhou *et al.* 2022), although some have reported negative (Farmer 1979; Morecroft & Woodward 1996; Sheu & Chiu 1995; Zheng & Shangguan 2007) or no relationships (Chengjun *et al.* 2003; Gebrekirstos *et al.* 2009). To explore the relationship between temperature and $\delta^{13}\text{C}$ values in tree rings, a number of studies have estimated a temperature coefficient (τ), which describes how much the isotope values change per unit temperature change ($\Delta\delta^{13}\text{C}/\Delta T$) (Hemming *et al.* 1998; Lipp

et al. 1991; Schleser *et al.* 1999). Schleser *et al.* (1999) found that a larger τ (0.12‰/°C) correlated with an exceptionally warm mean temperature (16.4°C) for July 1983, compared with a slightly lower τ of 0.10‰/°C for the mean annual temperature. Values vary in different species: Hemming *et al.* (1998) report τ values of 0.22‰/°C (*Fagus sylvatica*), 0.24‰/°C (*Quercus robur*) and 0.37‰/°C (*Pinus silvestris*). A number of studies have attempted to distinguish the effects of temperature and moisture on the $\delta^{13}\text{C}$ values of C_3 plants (Wang *et al.* 2013; Liu *et al.* 2017; Zhou *et al.* 2022). In general, temperature appears to be a less important influence on the $\delta^{13}\text{C}$ of C_3 plants than moisture (Liu & An 2020; Liu *et al.* 2007).

The effects of water availability on the $\delta^{13}\text{C}$ values of C_4 vegetation

C_4 plants are less sensitive to environmental factors than C_3 plants. The C_4 photosynthetic mechanism enables the plant to continue photosynthesizing even with low stomatal conductance. This results in C_4 plants being more water use efficient (Ehleringer & Monson 1993). The $\delta^{13}\text{C}$ composition of C_4 plants is expressed as:

$$\delta^{13}\text{C} = \delta^{13}\text{CO}_2 (\text{atm}) - a - (b_4 - b\phi - a) p_i/p_a$$

where (as for C_3 plants) a and b are the fractionations associated with the diffusion of CO_2 and fixation by RuBisCO, respectively (Tippie & Pagani 2007). b_4 is the fractionation associated with carboxylation by PEP-C (-5.7‰ at 25°C). This step is temperature- and carbon anhydrase dependent. Carbon anhydrase catalyzes the conversion of CO_2 to HCO_3^- within the mesophyll cells. The last factor, ϕ , is the proportion of CO_2 that leaks from the bundle sheath cell and is therefore not available to be fixed by RuBisCO (Farquhar *et al.* 1982). In C_4 plants, the relationship between $\delta^{13}\text{C}$ and water availability can be negative (as for C_3 plants), positive, or of no significance, depending on the leakiness effect (Cernusak *et al.* 2013). The underlying mechanisms that influence the leakiness effect are poorly understood, however, ϕ tends to be less than 0.37 under most environmental conditions (Cernusak *et al.* 2013; Henderson *et al.* 1992; Lightfoot *et al.* 2020; Ubierna *et al.* 2011). Henderson *et al.* (1998) grew *Sorghum bicolor* in the field and in a tightly controlled environment to explore the relationship between transpiration efficiency (TE) and carbon isotope discrimination ($\Delta^{13}\text{C}$). TE is defined as the ratio of total harvestable yield to water transpired (Ellsworth & Cousins 2016). For a good *S. bicolor* yield, transpiration must be low. In turn, this lowers the p_i/p_a (Twohey *et al.* 2019). In C_4 plants (unlike C_3), a low p_i/p_a and a ϕ less than 0.37 result in a positive linear relationship between TE and $\Delta^{13}\text{C}$, as observed in this study where ϕ was 0.2 across various irradiances and leaf-to-air water vapor deficit (Henderson *et al.* 1998). Comparably, an increase in the TE of field-grown *Z. mays* results in an increase in $\Delta^{13}\text{C}$ (Twohey *et al.* 2019).

It has been proposed that during droughts a decrease in p_i/p_a of C_4 species in Northwest China causes a decrease in $\delta^{13}C$ values, which in consequence influences the ϕ (Wang *et al.* 2005). C_4 plants occurred mostly in areas of high soil water availability. *Salsola collina*, a C_4 species growing in both valley and hill slope environments, yielded a $\delta^{13}C$ value of -11.2‰ in the former and -11.6‰ in the latter. Five C_4 species all showed more negative $\delta^{13}C$ values in the dry season compared with the wet season, although the difference was not statistically significant (Wang *et al.* 2005). From this evidence, the pattern in C_4 plants seems to be the opposite of that in C_3 plants: C_4 plants appear to have more negative $\delta^{13}C$ values in conditions of limited soil water availability, and increase WUE in response to this climatic factor (Wang *et al.* 2005). With a substantially larger sample, Murphy & Bowman (2009) clearly identified the same pattern: a positive correlation between $\delta^{13}C$ and moisture availability in C_4 grasses in Australia. The difference between grasses from the wettest and driest locations was, however, only 1.7‰, compared with 2.8‰ for C_3 species. When the C_4 subtypes (NAD-ME, NADP-ME and PCK) were considered separately, the relationships were clearer, with $\delta^{13}C$ values for NADP-ME on average 1‰ less negative than the others. NADP-ME grasses tend to occur in mesic regions, which may explain this pattern (Cerling *et al.* 2003; Hattersley 1982; Murphy & Bowman 2009; Schulze *et al.* 1996). Rao *et al.* (2017), in a global review, found a significantly positive correlation between the $\delta^{13}C$ of modern C_4 plants and MAP.

On a smaller scale, a similar pattern has been observed in Australian C_4 grasses where the $\delta^{13}C$ values decrease by an average of 0.5‰ in drought conditions, and the average $\delta^{13}C$ for leaf matter of well-watered NAD-ME and NADP-ME are -13.3‰ and -12.2‰, respectively (Ghannoum *et al.* 2002). The NAD-ME subtypes may have better stomatal control, and may be able to maintain a higher p_i within the leaf during drought conditions, relative to NADP-Me subtypes. This gives NAD-ME subtypes more advantage in its leaf WUE during limited water supply (Ghannoum *et al.* 2002). An *et al.* (2015) reported a positive relationship between $\delta^{13}C$ of modern foxtail millets and rainfall less than 450mm in northern China. However, the relationship was unclear above this precipitation level. A positive correlation is reported for $\delta^{13}C$ values of *Setaria italica* grain and leaves with water availability under various watering regimes with R^2 values of 0.83 and 0.88, respectively (Lightfoot *et al.* 2020). A $\delta^{13}C$ range of -14.9‰ to -12.9‰ is observed for grains from the driest to the wettest environment (Lightfoot *et al.* 2020). For the leaves, the range is between -16.0‰ to -14.1‰, therefore indicating the same pattern (Lightfoot *et al.* 2020). On the contrary, Swap *et al.* (2004) reported no relationship between the mean annual rainfall and the $\delta^{13}C$ values of C_4 vegetation.

Although plants form the basis of the foodweb, there is a lack of understanding of the extent of isotopic variation within them. Further, because C_4 crops such as sorghum and millet were the staple

grain crops of farmers in Africa, variation in their $\delta^{13}\text{C}$ values is an important factor in interpreting isotopic measurements of archaeological botanical, faunal or human remains.

The effects of temperature on the $\delta^{13}\text{C}$ values of C_4 vegetation

Fewer studies have investigated the impact of temperature on $\delta^{13}\text{C}$ variation in C_4 plants. Several authors have found no correlation between mean annual temperature and $\delta^{13}\text{C}$ in C_4 plants (Wang et al 2013; Rao et al 2017; Zhou *et al.* 2022), while An *et al.* (2015) found a weak positive correlation between $\delta^{13}\text{C}$ of foxtail millet cultivated in northern China and annual temperature ($R^2=0.11$; $\tau=1.15$). It is probably more meaningful to examine correlations between plant $\delta^{13}\text{C}$ and growing season temperatures. In controlled chamber experiments at 14-40°C, Troughton & Card (1975) reported a weak negative relationship between the $\delta^{13}\text{C}$ values of five C_4 species and temperature, with a τ value of -0.046. Zhou *et al.* (2022) showed that the relationship between $\delta^{13}\text{C}$ values in *Cleistogenes* and growing season temperature (GST) is nonsignificant but positive below 16.3°C ($R^2=0.29$; $\tau=1.1$), and nonsignificant but negative above it ($R^2=0.20$; $\tau=-0.19$). Growing season temperatures in this study were all between 15-20°C (Zhou *et al.* 2022). At mean growing season temperatures of 25 to 28°C, the correlation between temperature and $\delta^{13}\text{C}$ values in African pearl millet grains was stronger ($R^2=0.37$) (Reid et al. 2018). Liu and An (2020), in a global survey of $\delta^{13}\text{C}$ in leaf-wax alkanes, found that $\delta^{13}\text{C}$ values in C_4 plants were more strongly correlated with temperature than with precipitation.

The effects of carbon dioxide concentration on the $\delta^{13}\text{C}$ values of C_3 and C_4 vegetation

The CO_2 concentration in the atmosphere has risen from 270ppm before the beginning of the Industrial Revolution to more than 407 ppm in 2018 (Dlugokencky *et al.* 2019; Ehleringer & Cerling 1995; Friedli *et al.* 1986; Revelle & Suess 1957). For every 100ppm increase in $\text{CO}_{2(\text{atm})}$ there is an estimated 2‰ decrease in the $\delta^{13}\text{C}$ values of plants as a result of ^{13}C depletion in fossil fuels (Feng & Epstein 1995). Schubert & Jahren (2012) show a strong influence of partial pressure of $\text{CO}_{2(\text{atm})}$ ($p\text{CO}_2$) on the net isotopic discrimination between C_3 terrestrial plant tissue and $\text{CO}_{2(\text{atm})}$ ($\Delta\delta^{13}\text{C}_p$) when climatic influences such as water availability are held constant. Their study suggests an increase in $\Delta\delta^{13}\text{C}_p$ of 0.019-0.76‰ per 100ppm increase in $p\text{CO}_2$, smaller than the 0.37-2.7‰ range reported by other studies (including Beerling & Woodward 1993, Feng & Epstein 1995, Sharma & Williams 2009, Van der Water *et al.* 1994 and Wang *et al.* 2011). Schubert & Jahren (2012) propose an enzymatic mechanism on RuBisCO which increases the $\Delta\delta^{13}\text{C}_p$ without stomatal influence. In this process, increased $p\text{CO}_2$ levels create greater numbers of activation sites on RuBisCO through co-ordination with magnesium (Mg) atoms during CO_2 fixation. The process, in turn, causes an increase in the p_i/p_o and $\Delta\delta^{13}\text{C}_p$ without stomatal influence (Schubert & Jahren 2012). Considering that the consensus is to connect the behavior of p_i/p_o to stomatal control, it is easy to overestimate the influence of

climatic factors such as water availability on the $\Delta\delta^{13}\text{C}_p$ and therefore $\delta^{13}\text{C}$ values, especially during increasing levels of $\text{CO}_{2(\text{atm})}$.

More recently, Hare *et al.* (2018) have shown that the impact that $p\text{CO}_2$ can have on the $\delta^{13}\text{C}$ of flora and fauna is often underestimated. Glacial/interglacial changes in $p\text{CO}_2$ are large enough to drive measurable variation in the degree of carbon isotope fractionation associated with C_3 photosynthesis (Hare *et al.* 2018) which should be factored into palaeoenvironmental reconstructions based on archaeological or fossil faunal or floral remains (e.g. Sealy *et al.* 2020). Increasing $p\text{CO}_2$ over the last deglaciation has resulted in an increase in photosynthetic fractionation of $0.5\pm 1.5\text{‰}$ in angiosperms and $1.4\pm 1.2\text{‰}$ in gymnosperms. This is significant, considering the effects of MAP over the same period were found to be only $0.4\pm 0.4\text{‰}$ and $0.3\pm 0.3\text{‰}$ for angiosperms and gymnosperms respectively (Hare *et al.* 2018, see also Hare and Lavergne 2021).

C_4 plants differ from C_3 vegetation in the way they respond to climatic and atmospheric conditions. The Kranz anatomy allows the photosynthetic process to proceed over a large range of $\text{CO}_{2(\text{atm})}$ concentrations. Stomatal control plays a minor role in the p_i/p_a and in how much CO_2 reaches the bundle sheath cells as the CO_2 concentrating mechanism allows for the demands to be met before it is fixed by RuBisCO. As a result, the effect of $\text{CO}_{2(\text{atm})}$ levels on the carbon isotope composition in C_4 vegetation over a large range is likely to be small (Hare pers. comm. April 2020).

Influence of land-use management practices on the $\delta^{13}\text{C}$ values of plants

Worldwide, the advent of animal husbandry and crop cultivation changed the scope of social and economic interaction such that agriculture became one of the main methods of food production. This new way of life gave rise to social and ecological changes such as larger populations and increased socio-economic disparities (Bogaard *et al.* 2013). The study of archaeobotanical remains provides a means of understanding how these populations maintained agricultural practices and the impact of past land use activities and patterns on crop carbon isotope composition of C_3 crops (Serret *et al.* 2008; Styring *et al.* 2017). The discussion is based solely on C_3 crops as these have been the main focus for studies of prehistoric European agricultural practices.

Deliberate watering (irrigation or manual watering) or cultivation of crops in soils with good water retention capacity are potential land management strategies for improving crop yields during periods of water limitation. In northern Mesopotamia, low and variable annual rainfall patterns require crop water management strategies (Styring *et al.* 2017). In arid conditions, plant $\Delta^{13}\text{C}$ decline in response to increased WUE. Over millennia, plant $\Delta^{13}\text{C}$ values are therefore expected to vary in response to environmental conditions. Styring *et al.* (2017) observed an insignificant change in cereal and pulse $\Delta^{13}\text{C}$ values over a period during which there were known climatic changes, from

which the authors infer that the farmers were practicing crop management strategies. Other crop management strategies include soil manure treatments. The growing of pulses and cereal in fertilizer-treated farm and field experimental settings does not show a uniform pattern between $\delta^{13}\text{C}$ values and crop fertilization (Kanstrup *et al.* 2011; Serret *et al.* 2008; Treasure *et al.* 2016; Wallace *et al.* 2013). Jenkinson *et al.* (1995) observe a mean $\delta^{13}\text{C}$ value of $-25.6 \pm 0.42\text{‰}$ for fertilized wheat straw, compared with $-26.4 \pm 0.29\text{‰}$ for its unfertilized counterpart. Straw $\delta^{13}\text{C}$ values are consistently lower than grain $\delta^{13}\text{C}$ values (Serret *et al.* 2008; Kanstrup *et al.* 2011) because grain contains more starch and protein, which are isotopically heavy, compared with lignin and cellulose in straw (Senbayram *et al.* 2008). Serret *et al.* (2008) report a 0.5‰ increase in $\delta^{13}\text{C}$ for both wheat grain and straw as a result of urea fertilization (Serret *et al.* 2008). However, fertilization effect on the straw is noticeable only from 0 to $50 \text{ kg Ha}^{-1} \text{ N}$, after which $\delta^{13}\text{C}$ values are almost constant (Serret *et al.* 2008). *Vicia faba*, a Celtic Black broad bean grown in a field setting show minor increases of about 1‰ with manure treatment (Treasure *et al.* 2016). Other studies have found no significant shifts in $\delta^{13}\text{C}$ as a result of fertilization, e.g. Bol *et al.* (2005) found no consistent difference between wheat (both grain and straw) and barley grain grown with and without fertilizer. Wallace *et al.* (2013) observed inconsistent correlations between fertilized and unfertilized wheat and lentils, with $\delta^{13}\text{C}$ differences of up to 0.6‰ . Kanstrup *et al.* (2011) report no clear pattern between manure treatment and $\delta^{13}\text{C}$ values. However, the type of crop has a noticeable effect on the $\delta^{13}\text{C}$ values, in the ascending order of barley, emmer and spelt (Kanstrup *et al.* 2011).

An added environmental factor relevant to how fertilizer application impacts $\delta^{13}\text{C}$ values is water availability. Manured crops increase biomass. This increases water demands and in turn, decreases stomatal conductance and ^{13}C discrimination (Senbayram *et al.* 2008). During periods of water stress, plants have a minor response to nitrogen fertilization, causing large differences between $\delta^{13}\text{C}$ values of fertilized and unfertilized plots while the opposite effect is observed for wet periods (Jenkinson *et al.* 1995). Jenkinson *et al.* (1995) reported that the size of the difference in $\delta^{13}\text{C}$ ranged from 0.23‰ to 1.74‰ .

Influence of fermentation on $\delta^{13}\text{C}$ of C_4 grains

In addition to the factors above that pertain to growing the plants, plant processing activities that occur after harvest, such as fermentation, may exert influence on the $\delta^{13}\text{C}$ values. There is potential for fermentation to have a noticeable effect on $\delta^{13}\text{C}$ values of food and beverages in fermented form, such as sorghum, maize and barley beer. Fermentation is a bacteria or yeast-led process in which fermentable sugars are metabolized to produce ethanol and CO_2 in anaerobic conditions (Lyumugabe *et al.* 2012). From first principles, the CO_2 that escapes would be expected to include more of the lighter ^{12}C , leaving the remaining product ^{13}C -enriched; this pattern is indeed observed

in experimental studies (McCool & Brenner-Coltrain 2018). There is interest in exploring the potential of carbon (and oxygen) isotopic ratios in consumers to trace the consumption of fermented drinks in ancient populations (e.g. Gagnon & Juengst 2018; McCool & Brenner-Coltrain 2018). McCool & Brenner-Coltrain (2018) found that the $\delta^{13}\text{C}$ of *chichi*, a maize-based beer of the Andes, was less negative than that of the maize kernels used to make it, although the value for the beer was not reported. However, the authors concluded that $\delta^{13}\text{C}$ values alone do not reliably distinguish a *chicha* drinker from a maize consumer (McCool & Brenner-Coltrain 2018). To address this, Gagnon & Juengst (2018) proposed a multi-bioarchaeological approach that involves the use of oral health indicators, stable isotopic signatures and dental calculus. As research on this is limited, there is scope to explore the question of the effect of fermentation on carbon isotope values further. This is important as beer production is culturally important, intercontinentally.

Nitrogen isotopes in plants

Nitrogen gas (N_2) makes up the greatest portion of the atmosphere, at 78%, and yet nitrogen is still one of the most limited resources in terrestrial ecosystems, particularly for autotrophs which rely on the element for growth and development (He *et al.* 2009). Nitrogen is critically important in photosynthesis, with more than 50% of nitrogen in the leaves of C_3 plants forming part of the proteins involved in the Calvin Cycle (Evans 1989; Aranibar *et al.* 2004). Nitrogen isotope ratios are key to elucidating the underlying events of nitrogen cycling on both a temporal and spatial level, as they exert great influence not only on soil and plant systems, but also on animals whose nitrogen isotope composition is crucial in a range of applications, from tracing environmental influences on diets (Goude & Fontugne 2016) to mapping climatic patterns (Richards & Hedges 2003; Hedges *et al.* 2004).

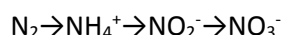
Nitrogen occurs in two stable isotopic configurations: the lighter and more abundant ^{14}N which contributes 99.6% of atmospheric nitrogen, and the heavier and less common ^{15}N (Delwiche & Steyn 1970; Handley & Raven 1992). Nitrogen cycling is a complex series of processes that involve nitrogen input mechanisms into soil, transformation between different forms within the soil, and nitrogen loss, each of which may discriminate against ^{15}N (Craine *et al.* 2015; Högberg 1997).

Nitrogen input into soils and its effects on plants

Nitrogen input, or what Craine *et al.* (2015:3) call “ecosystem nitrogen supply”, is defined as the amount of nitrogen from the atmosphere that enters the ecosystem through nitrogen deposition (i.e. atmospheric deposition), fixation, or bedrock weathering.

Nitrogen fixation and mineralization

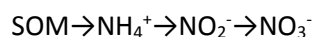
Nitrogen fixation is a process whereby $N_{2(g)}$ is converted to plant-ingestible nitrogen forms such as ammonium (NH_4^+) and nitrates (NO_3^-) as below (Kizilkaya 2009; Steenhoudt & Vanderleyden 2000):



These interconversions are carried out by soil bacteria such as *Azospirillum*, *Azotobacter*, *Aoarcus* and *Herbaspirillum* via the nitrogenase complex (Fernández *et al.* 2014; Kizilkaya 2009; Sivasakthi *et al.* 2017; Steenhoudt & Vanderleyden 2000). The nitrogenase complex involves the dinitrogenase protein at the site of N_2 reduction, and the dinitrogenase reductase protein which carries electrons from an electron donor to the nitrogenase protein (Steenhoudt & Vanderleyden 2000). The introduction of these bacteria on grasses such as wheat, millet and maize increases seed germination and improves nitrogen accumulation by plants (Boddey *et al.* 1986; Cassán & Diaz-Zorita 2016; Okon & Labandera-Gonzalez 1994).

Prior to the industrial era, the conversion of $N_{2(g)}$ occurred at rates of between 40 to 130 Tg N yr^{-1} (Galloway *et al.* 1995; Vitousek *et al.* 2013). Exponentially increasing anthropogenic activity has increased the rate by an extra 140 Tg N yr^{-1} , with agriculture contributing up to 40 Tg N yr^{-1} , fertilizer usage adding 80 Tg N yr^{-1} and fossil fuel burning contributing another 20 Tg N yr^{-1} (Galloway *et al.* 1995). On a global scale, estimates of the rate of nitrogen fixation have ranged from 128 Tg N yr^{-1} (Galloway *et al.* 2004) to 195.06 Tg N yr^{-1} (Cleveland *et al.* 1999). Nitrogen fixation from anthropogenic activities clearly makes a massive contribution to the nitrogen cycle (Vitousek *et al.* 2013).

Nitrogen mineralization also contributes significantly to plant nitrogen uptake (Deenik 2006). It is defined as a process in which microorganisms convert organic nitrogen from soil organic matter (SOM) to the inorganic forms NH_4^+ and NO_3^- (Heaton 1986; Ma *et al.* 1999; Szpak 2014):



The initial conversion of SOM to NH_4^+ results in no fractionation, at approximately 0‰ (Heaton 1986; Szpak 2014). Upon its release into the soil, NH_4^+ may follow any one of several pathways such as its oxidation into NO_2^- or NO_3^- by nitrifying bacteria (Deenik 2006). Even though plants can take up NH_4^+ and NO_3^- , they may prefer one form to the other (Marshall *et al.* 2007), influencing isotopic fractionation and their $\delta^{15}N$ values (Goude & Fontugne 2016; Högberg 1997; Marshall *et al.* 2007; Szpak 2014). NH_4^+ can also be incorporated into the microbial community, known as immobilization (Deenik 2006; Ward 2008). Immobilization is the sequestration of NH_4^+ by soil microorganisms so that the amount of nitrogen available to plants is temporarily reduced (Bell & Binkley 1989; Deenik

2006; Jansson & Persson 1982). Mineralization varies with soil temperature and moisture, with an increase in either variable increasing its rate (Dawes *et al.* 2016; Li *et al.* 2018). In southern Africa, higher mineralization rates have been reported under tree canopies relative to between them as a result of litter fall accumulation (Aranibar *et al.* 2008). On agricultural land, application of manure has been shown to increase mineralization as well as reduce nitrogen losses during the growing season (Deenik 2006). Ultimately, the $\delta^{15}\text{N}$ values of plants are strongly influenced by these responses.

Nitrogen atmospheric deposition

Nitrogen atmospheric deposition is the process of transferring reactive nitrogen from the atmosphere to terrestrial and aquatic systems (Gallaway *et al.* 2008; Pacyna 2008). Increased fossil fuel combustion leads to the deposition of oxidized nitrogen in the form of nitric acid (HNO_3) and nitrate (NO_3^-) (Gebauer *et al.* 1994). It also deposits reduced nitrogen including ammonia (NH_3) and ammonium (NH_4^+) from agricultural activities such as fertilizer application (Gebauer *et al.* 1994; Kuang *et al.* 2016). In aquatic systems, nitrogen deposition can be damaging by causing eutrophication, the excess growth of algae as a result of excessive nutrients which leads to oxygen depletion (Carpenter 2005). In soil-plant systems, nitrogen deposition can be favorable as it can be a nutrient for plants (Pacyna 2008).

Nitrogen loss in soil

Nitrification and denitrification

Nitrification is a two-step process. First, NH_3 is oxidized to nitrite (NO_2^-) by ammonia oxidizing bacteria (AOB) and ammonia oxidizing archaea (AOA) (Fan *et al.* 2015). Archaea are single-celled prokaryotes that do not have a nucleus (Dodds & Whiles 2010; Suchodolski 2013). With no further fractionation, the second step is the oxidation of NO_2^- to NO_3^- by nitrite oxidizing bacteria (NOB) (Kowalchuk & Stephen 2001). A small portion of the nitrogen is released as nitrous oxide (N_2O) (Inatomi *et al.* 2019). Nitrification is therefore the means by which the primary form of plant-available nitrogen (NO_3^-) is made available (Sahrawat 2008). The degree of isotope discrimination is expressed as the alpha (α) value, which is $^{15}\text{N}/^{14}\text{N}$ in the starting material of the reaction divided by that in the product. An α value of approximately 1, as seen during nitrogen fixation and nitrification, indicates that there is little fractionation of the nitrogen isotopes. Factors which influence the overall nitrification process include soil pH, temperature, substrate availability and concentration, and the availability of the bacteria responsible for the oxidations (Sahrawat 2008). It has been reported that nitrification takes place in the higher pH range of 5.5 to 10.0 where the AOB have been shown to dominate (Sahrawat 2008; Shen *et al.* 2012). However, acidic levels of 3.8 have also been observed,

and AOA are favored (Sahrawat 2008; Shen *et al.* 2012). The favorable temperature for nitrification is reported at 25°C (Justice & Smith 1962; Sahrawat 2008). However, temperatures as high as 35°C have been reported by others (Myers 1975; Sahrawat 2008).

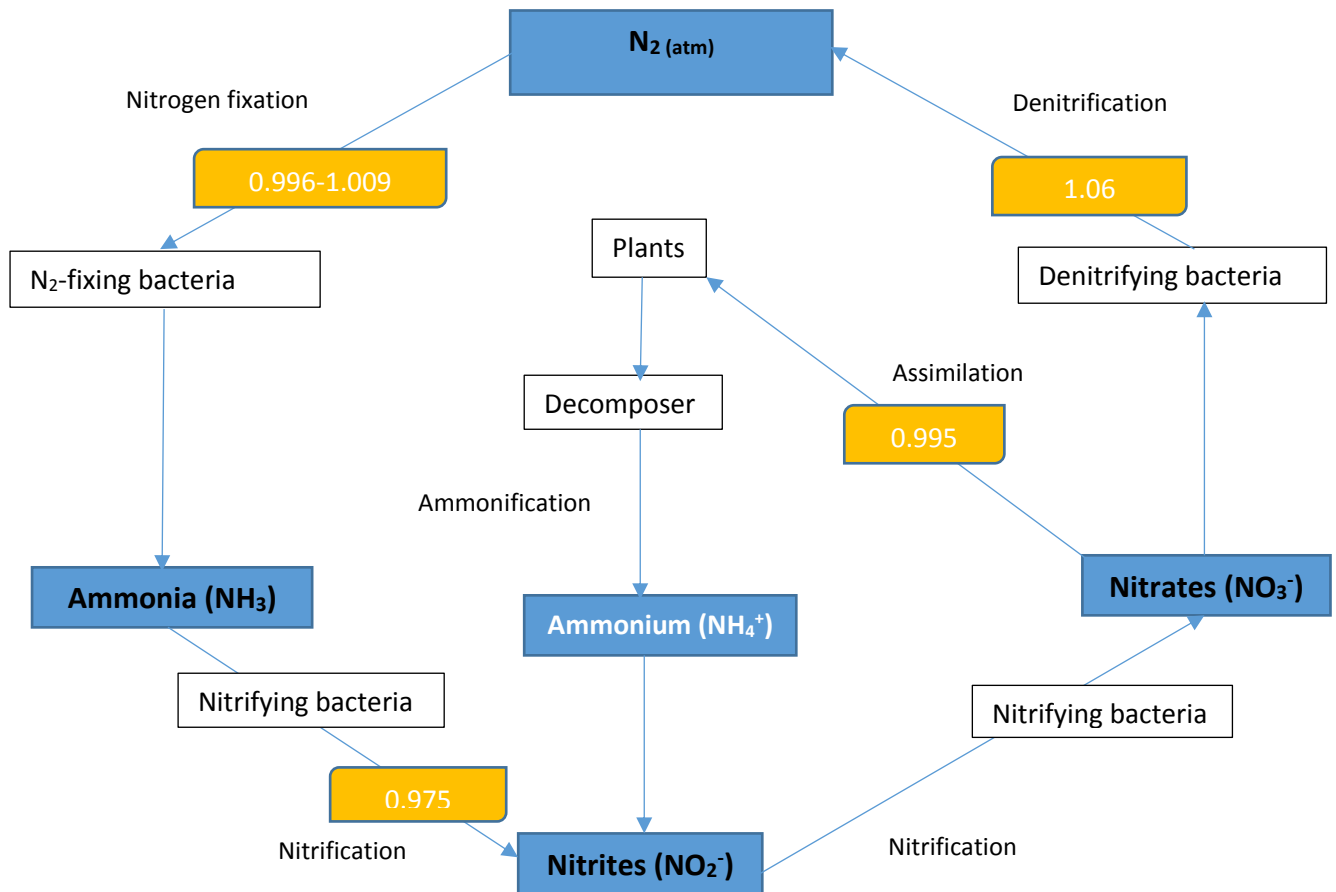


Figure 3.3: Illustration of the terrestrial nitrogen cycle, and the corresponding alpha (α) values (in yellow boxes) for each process (Adapted from Björnsne 2018: 12).

The opposite of nitrification is denitrification, a process in which nitrate and nitrite are reduced to nitric oxide (NO), nitrous oxide (N_2O), and dinitrogen (N_2) (Solanki *et al.* 2017; Szpak 2014). As seen in Fig. 3.3, the α value associated with denitrification is 1.06 (i.e. >1), which means that the lighter ^{14}N is preferentially converted to atmospheric N_2 , leaving ^{15}N -enriched soils. Natural factors such as the presence of organic carbon as well as nitrates (Čuhel *et al.* 2010; Davidson & Swank 1986; Firestone & Davidson 1989; Solanki *et al.* 2017), anaerobic environments (Boyer *et al.* 2006; Čuhel *et al.* 2010; Firestone & Davidson 1989; Högberg 1997; Solanki *et al.* 2017; Stevens *et al.* 1997), high soil moisture content and rainfall (Boyer *et al.* 2006; Čuhel *et al.* 2010; Davidson & Swank 1986; Solanki *et al.* 2017; Stevens *et al.* 1997), high temperature (Abdalla *et al.* 2009; Boyer *et al.* 2006; Davidson &

Swank 1986), soil pH (Boyer *et al.* 2006; Čuhel *et al.* 2010; Davidson & Swank 1986; Firestone & Davidson 1989; Solanki *et al.* 2017) are known to influence denitrification rates. Nitrogen loss through denitrification is especially visible in agriculture where fertilization encourages the process (Aranibar *et al.* 2008; Solanki *et al.* 2017). It has been demonstrated by Hofstra & Bouwman (2005) that factors such as the type of fertilizer used on the land, the type of crop being cultivated, as well as the frequency of nitrogen application, have a strong effect on agricultural soil. Manure applications on agricultural soils in varying concentrations has been shown to increase N₂O emission rates, irrespective of the manure type, and in turn denitrification rates (see Paul *et al.* 1993). The $\delta^{15}\text{N}$ of N₂O varies over time as a result of the relative importance of nitrification compared to denitrification, as well as the changes in substrate $\delta^{15}\text{N}$ (Pérez *et al.* 2001). N₂O produced by denitrification is more enriched than that of nitrification because the lighter N₂O is preferably used to produce N₂, leaving the heavier unreacted N₂O (Barford *et al.* 1999; Pérez *et al.* 2000). It is worth noting, however, that these $\delta^{15}\text{N}$ trends are from urea-fertilized agricultural fields, which would be unlike the agricultural fields of lowland Swaziland where farmers may use cattle manure or fertilizer treatments, if at all.

Ammonia volatilization

One of the ways that nitrogen is lost from the soil system is through volatilization, a process in which ammonia gas (NH_{3(g)}), upon its conversion from NH₄⁺, is released to the atmosphere (Fenn & Hossner 1985; Singh *et al.* 2013). While 70% of atmospheric NH₃ derives from volatilization, urea from domestic animals contributes 32 Tg N yr⁻¹, 10 Tg N yr⁻¹ from soils of unmanaged ecosystems, and 9 Tg N yr⁻¹ is acquired from fertilized agricultural lands (Schlesinger & Hartley 1992). In the first step, NH₄⁺ is converted to NH₃, followed by the diffusion of the product to the volatilization site, where volatilization takes place (Högberg 1997). Because this is a multi-step process, fractionation throughout the operation can be large (Högberg 1997). The first step is an equilibrium reaction and results in the depletion of NH₃ by 20‰ to 27‰ relative to NH₄⁺ (Evans 2007; Frank *et al.* 2004). While the isotopic effect of the intermediary step is negligible, the loss of NH₃ into the atmosphere causes a fractionation of up to 30‰ (Evans 2007; Högberg 1997; Shearer & Kohl 1986). Significant volatilization thus enriches the soil with ¹⁵N, as NH_{3(g)} is always isotopically light (Frank *et al.* 2004).

Fertilizers

The use of manure on crops leads to raised $\delta^{15}\text{N}$ values in soil and plants, mainly due to NH₃ volatilization and subsequent oxidation of the remaining waste which results in high NO₃⁻ $\delta^{15}\text{N}$ values (Bogaard *et al.* 2013, 2007; Fraser *et al.* 2011; Högberg 1997; Kendall *et al.* 2007; Styring *et al.* 2016b; 2019; Szpak 2014; Vaiglova *et al.* 2014). For NO₃⁻ from animal waste, Kreitler (1975; 1979)

reports a range of 10‰ to 22‰ with an average of 14.4‰. A range of 14.5‰ to 20‰ is reported for solid and liquid manure (Somers & Savard 2009). Long- and short- term farming on experimental sites over a broad region from northwest Europe to the eastern Mediterranean, growing cereals and pulses using cattle, goat and sheep manure, suggest a visible impact of manuring on plants that is influenced by the quantity of manure and the frequency of its application (Bogaard *et al.* 2007; Fraser *et al.* 2011; 2013; Szpak 2014). Grain $\delta^{15}\text{N}$ are consistently higher than straw $\delta^{15}\text{N}$ values (Bogaard *et al.* 2007; Bol *et al.* 2005; Kanstrup *et al.* 2011; Senbayram *et al.* 2008; Serret *et al.* 2008). However, a negative correlation was found between urea fertilization and crop $\delta^{15}\text{N}$ that is related to lower $\delta^{15}\text{N}$ values in urea relative to soil $\delta^{15}\text{N}$ by up to 10‰ (Serret *et al.* 2008). The authors report 2.0‰ decline in wheat grain $\delta^{15}\text{N}$ that corresponds to 0 – 200 kg of urea fertilization, compared to less than 0.5‰ decline in straw $\delta^{15}\text{N}$. Kanstrup *et al.* (2011) observe up to 10‰ grain $\delta^{15}\text{N}$ variation between manured and unmanured cereals (emmer, spelt, naked barley and modern barley). This is compared to 8‰ variation in straw $\delta^{15}\text{N}$ between manured and unmanured cereals (Kanstrup *et al.* 2011).

At Bad Lauchstädt site, Germany, a $\delta^{15}\text{N}_{\text{grain}}$ range of 2.7‰ to 4.1‰ is reported for *Triticum aestivum* L. (winter wheat) when 20t/ha of cattle manure is applied biennially over a 100-year period (Bogaard *et al.* 2007). At the same site, application of 35t/ha in the same frequency and over the same time period produced higher $\delta^{15}\text{N}_{\text{grain}}$ values and a wider range, between 3.4‰ to 5.7‰ (Bogaard *et al.* 2007). In comparison, the Rothamsted site in Hertfordshire, England yielded a wider range of $\delta^{15}\text{N}_{\text{grain}}$ of 5.8‰ to 8.6‰ when 35t/ha of cattle manure was applied yearly over a century (Bogaard *et al.* 2007). For both sites, the $\delta^{15}\text{N}_{\text{grain}}$ values of unfertilized plots are considerably lower (Bogaard *et al.* 2007: table 3a & 3b). In pulses, significant crop $\delta^{15}\text{N}$ increases are effected only under intensive soil manure treatment (>70 t/ha) as they are N_2 -fixing plants (Treasure *et al.* 2016). Celtic black broad beans cultivated in manured soils have higher $\delta^{15}\text{N}$ ($2.6 \pm 0.3\text{‰}$) relative to unmanured beans ($0.7 \pm 0.1\text{‰}$) (Treasure *et al.* 2016). In Aleppo, Syria, *T. aestivum* L. grown in 2008 on manure-applied land received 201mm of rainfall and full irrigation. For this batch of cereals, a ^{15}N enrichment of 1.9‰ is reported. A larger ^{15}N enrichment of 3.5‰ is reported for 2009, when the crop received 263mm of rain, in addition to full irrigation (Fraser *et al.* 2011). Therefore, the amount of water available affects the degree to which manuring increases the $\delta^{15}\text{N}$ (Fraser *et al.* 2011).

Water availability and its influence on $\delta^{15}\text{N}$ of plants

Water availability is a key component in the overall functioning of the soil-plant system. On their study of nutrient dynamics along a precipitation gradient in Hawai'i, Austin & Vitousek (1998) were one of the first researchers to propose what they termed an open- and closed nitrogen cycle based

on nutrient availability within the ecosystem, which was in turn associated with water availability. In their study, the authors suggest that in environments where water is not a limiting factor, nitrogen becomes a limited resource and creates a closed nitrogen cycle that tightly recycles the available nitrogen. The influence of mean annual rainfall, particularly on the $\delta^{15}\text{N}$ of C_3 vegetation of dry southern African savannas, has been linked to processes within the nitrogen cycle such as lower microbial activities and reaction rates, volatilization of NH_4^+ and internal nitrogen cycling within plants as a result of water stress, all of which cause enrichment (Hoefs 1997; Swap *et al.* 2004). It is argued that in systems that lack water, microbial processes within the increased nitrogen pools contribute in two ways: during the drier periods, the soil is subject to slower rates of background microbial processes and then, at the beginning of the rainy season, the microbial processes are intensified (Handley *et al.* 1999; Swap *et al.* 2004). Even with intense microbial activity, however, sites that experience less rainfall are found to produce higher $\delta^{15}\text{N}$ values for the residual nitrogen as the period of microbial activities is too short to process the entire available nitrogen pool within the soil (Swap *et al.* 2004). It is now widely agreed that vegetation systems in arid environments, where water is limited, will have an open nitrogen cycle. Fixed nitrogen is returned to the atmosphere as N_2 (g), and the denitrification reaction associated with this process, results in preferential loss of the lighter ^{14}N so that the remaining nitrogen pool is ^{15}N -enriched (Austin & Vitousek 1998; Murphy & Bowman 2009).

Globally, Amundson *et al.* (2003) reported a decrease in plant $\delta^{15}\text{N}$ which corresponds to increasing MAP. In a number of regional studies with a rainfall gradient of up to 1370mm/pa, a decline of up to 6.0‰ is reported per 100mm increase in C_3 and C_4 soil-plant systems, which is linked to lower ^{15}N soil enrichment in wetter environments (Liu *et al.* 2022; Liu *et al.* 2007; Sah *et al.* 2006). Hartman & Danin (2010) reported a significant negative correlation between plant $\delta^{15}\text{N}$ values and rainfall in eastern Mediterranean region. However, they also found that seasonal differences have no impact on C_3 $\delta^{15}\text{N}$ values (Hartman & Danin 2010).

In southern Africa, Swap *et al.* (2004) report a significant negative relationship between $\delta^{15}\text{N}$ values of C_3 vegetation and rainfall, accounting for over 50% of the variation. The authors report an $R^2 = 0.54$ ($p < 0.01$) and note that a variation as great as this is unexpected considering the differences in soil types, land use history and changes over time across the study sites (Swap *et al.* 2004). A similar relationship is observed between $\delta^{15}\text{N}$ and water availability in Australian C_3 grasses, with a 9.5‰ increase from the wettest to the driest sites (Murphy & Bowman 2009).

In C_4 vegetation, a significant difference in $\delta^{15}\text{N}$ is reported between the three subtypes, namely NAD-ME, NADP-ME, PCK, with PCK producing higher $\delta^{15}\text{N}$ than the others. There were, however no

significant differences between $\delta^{15}\text{N}$ of the different C_4 subtypes and water availability (Murphy & Bowman 2009). Swap *et al.* (2004) also observed a significant relationship between the $\delta^{15}\text{N}$ values of C_4 plants and rainfall, however, the correlation of only 4% ($R^2=0.04$, $p<0.01$) indicated that the influence of rainfall was slight. These studies indicate a general trend between the two variables, however, it is also apparent that the magnitude of the variation differs between C_3 and C_4 plants. For the former, various studies have reported this effect to range from 0.47‰ per 100mm increase in rainfall (Aranibar *et al.* 2004; Liu & Wang 2009; Ma *et al.* 2012) to $1.0\pm0.1\%$ for the same amount of precipitation (Liu & Wang 2009; Ma *et al.* 2012). Recently, Reid *et al.* (2018) reported a significant positive relationship between the $\delta^{15}\text{N}$ of pearl millet and cumulative annual precipitation. Lightfoot *et al.* (2020) found that an increase in the watering regime of foxtail millet resulted in an increase in $\delta^{15}\text{N}$ values. Sanborn *et al.* (2021) found no noticeable impact of water availability on $\delta^{15}\text{N}$ in pearl millet accessions. This is a likely indication that the least watered plants, which each received 0.5 ± 0.1 litres every third day, may not have been severely stressed (Sanborn *et al.* 2021). It is difficult to deduce on the basis of the information provided.

Temperature and its influence on $\delta^{15}\text{N}$ of plants

Temperature is another important climatic variable that influences $\delta^{15}\text{N}$ variability in plants. Earlier investigations by Martinelli *et al.* (1999) show that tropical forests generally have higher N reserves in soils which, through ^{14}N loss pathways, result in elevated leaf $\delta^{15}\text{N}$ values ($3.7\pm3.5\%$) compared with temperate forests which have lower N availability and hence leaf $\delta^{15}\text{N}$ values ($-2.8\pm2.0\%$). A few studies have also indicated that the correlation between temperature and C_3 $\delta^{15}\text{N}$ values can be positive (Amundson *et al.* 2003; Craine *et al.* 2015; Kang *et al.* 2011; Liu *et al.* 2007). Based on global isotopic patterns, Amundson *et al.* (2003) reported a dominant positive temperature effect on plant $\delta^{15}\text{N}$ values, although Craine *et al.* (2009) showed that this correlation is only maintained at sites with temperatures above -0.5°C , below which the response is negative. In eastern China, Kang *et al.* (2011) found a significant positive relationship between foliar $\delta^{15}\text{N}$ in *Quercus variabilis* (oriental oak) which has been related to increased net mineralization as well as nitrification with increasing temperatures which may result in a positive correlation between temperature and plant $\delta^{15}\text{N}$ values. Others have observed a negative relationship (Feng *et al.* 2020; Sah *et al.* 2006). For example, Sah *et al.* (2006) found that when all other co-factors are excluded, the foliar $\delta^{15}\text{N}$ values decrease with increasing temperature ($-0.67\text{‰}/^\circ\text{C}$). However, inclusion of rainfall results in an insignificant but positive impact on foliar $\delta^{15}\text{N}$ values ($+0.052\text{‰}/^\circ\text{C}$). Feng *et al.* (2020) report a negative response of $\delta^{15}\text{N}$ values to temperature increases in the C_3 and C_4 plant-soil system in southern China. On the other hand, Murphy and Bowman (2009) show that between 6 and 26°C , there is an insignificant correlation between temperature and $\delta^{15}\text{N}$ in Australian C_3 grasses. Reid *et al.* (2018) observed a

lower $+0.29\text{‰}/^{\circ}\text{C}$ $\delta^{15}\text{N}$ for pearl millet grains, consistent with global plant $\delta^{15}\text{N}$ patterns, while Murphy & Bowman (2009) indicate that like C_3 grasses, temperature has no effect on C_4 $\delta^{15}\text{N}$ values.

Effects of land use patterns on plant $\delta^{15}\text{N}$ variability

Processes such as cultivation, grazing and fires have been observed to have an influence on the nitrogen isotope abundance of soils and plants (Aranibar *et al.* 2008; Cook 2001). In their study of the $\delta^{15}\text{N}$ values of soils, C_3 and C_4 vegetation along a land use gradient in the Kalahari, Aranibar *et al.* (2008) note that increased intensity of land use elevated the $\delta^{15}\text{N}$ values in soils and C_3 plants, with the exception of those in the most arid sites of the study. They propose that grazing by domestic animals and cultivation may have had an effect on specific processes within the nitrogen cycle. These include NH_3 volatilization from deposition of urine in areas with high numbers of cattle, removal of plants with low $\delta^{15}\text{N}$ values by herbivore consumption and crop harvesting, as well as damage of nitrogen fixing soil crusts by cattle movement (Aranibar *et al.* 2008; Kreitler 1979). However, grazing has been shown to have no effect on the $\delta^{15}\text{N}$ values of trees, and no appreciable influence on the $\delta^{15}\text{N}$ values of grasses in semi-arid savannas of Australia (Cook 2001). In the Kruger National Park savanna, where fires are a common phenomenon, it was thought that the soil $\delta^{15}\text{N}$ of the ecosystem in those areas would be affected. To the contrary, Aranibar's *et al.* (2003) study of the impact of fire on nutrient cycling have shown that influence of fire on soil $\delta^{15}\text{N}$ of the ecosystem shows an inconsistent trend. The overall pattern is one that seems to show positive correlation between the $\delta^{15}\text{N}$ values and at least some of the activities such as grazing and cultivation. This causes enrichment of ^{15}N of the soil-plant system as the processes of fractionation favor the lighter ^{14}N during volatilization, leaving ^{15}N enriched soils. On the other hand, other activities such as fires do not seem to influence $\delta^{15}\text{N}$ values of the soil-plant system in a predictable way. Therefore, it is necessary to consider these factors when working towards understanding aspects of past environments and/or their interaction with human and animal communities.

Symbiotic relations between mycorrhizal fungi and plants

Mycorrhizae are fungae which form a symbiotic relationship with plants, by supplying them with water and nutrients, including nitrogen (He *et al.* 2009; Read & Perez-Moreno 2003) from nitrogen-fixing bacteria associated with the mycorrhizae (He *et al.* 2009; Read & Perez-Moreno 2003). Mycorrhizal fungi tend to retain ^{15}N rich nitrogen while transferring ^{15}N -depleted nitrogen to the plants (Hobbie & Högberg 2012). As a result, mycorrhizal fungi exert a major influence on nitrogen isotope ratios in soils and plants (Hobbie & Högberg 2012; Högberg 1997). Three main types of mycorrhizal fungi are known to exist, namely the arbuscular mycorrhizal, ectomycorrhizal, and ericoid mycorrhizal fungi. Their differences are numerous and include their carbon requirement,

species diversity, host plant, and their enzymes differ in the way they are able to acquire different forms of nitrogen (Craine *et al.* 2009; Hobbie & Högberg 2012).

Arbuscular mycorrhizal fungi tend to be well-adapted to sites with high nitrogen cycling rates, and low proteolytic capabilities (the ability to digest proteins) (Hobbie & Högberg 2012). C₄ crops such as millet and sorghum have symbiotic relationships with arbuscular mycorrhizae, including *Glomus mosseae* and *Glomus intraradices* (Biielders *et al.* 2010; Estevam pers. comm. March 2018; Nasr *et al.* 2013). Nasr *et al.*'s (2013) study of the symbiotic relationship between *Sorghum bicolor* and mycorrhizae under various drought levels shows a significant impact on the success of plant growth as the root/shoot ratio, root length and leaf area were all reported to decrease in the absence of mycorrhizae during drought stress condition (Nasr *et al.* 2013). Also, because mycorrhizal plants are able to produce higher biomass even under water stressed conditions compared to non-mycorrhizal plants, mycorrhizal sorghum produced a higher biomass compared to the non-mycorrhizal sorghum (Al-Karaki & Clark 1998; Nasr *et al.* 2013; Neumann & George 2004). Ectomycorrhizal fungi have varying proteolytic capabilities, depending on their affinity for water. For example, hydrophobic ectomycorrhizal fungi possess proteolytic capabilities and thrive in conditions where nitrogen is limited, whereas hydrophilic ectomycorrhizal fungi lack proteolytic capabilities and are able to absorb soluble nitrogen forms from free-living microorganisms (Hobbie & Högberg 2012; Lilleskov *et al.* 2011). Lastly, ericoid mycorrhizal taxa are adapted to organic-rich ecosystems with low rates of nitrogen cycling and good proteolytic and litter-degrading capabilities (Hobbie & Högberg 2012). The author has not been able to find evidence for the association of sorghum with ectomycorrhizal and ericoid mycorrhizal fungi. Irrespective of the type of mycorrhizal fungi, it is now well documented that plants that share a symbiotic relationship with the fungi will have lower $\delta^{15}\text{N}$ values, relative to non-mycorrhizal plants (Craine *et al.* 2009; He *et al.* 2009; Hobbie & Högberg 2012).

On a global scale, Craine *et al.* (2009) report a foliar $\delta^{15}\text{N}$ average of $+0.9 \pm 0.2\text{‰}$ for non-mycorrhizal plants, while arbuscular plants showed a mean of $-1.1 \pm 0.1\text{‰}$, ericoid mycorrhizal plants $-5.0 \pm 0.2\text{‰}$, and ectomycorrhizal plants $-2.3 \pm 0.2\text{‰}$. The impact of mycorrhizal fungi on soil-plant systems is important as the pattern of foliar $\delta^{15}\text{N}$ values indicates the use of different nitrogen sources by mycorrhizal ecosystems.

Trophic level enrichment: implications for palaeodietary reconstructions

These studies highlight a challenge in palaeodietary investigations. The prevalent route for reconstructing trophic level in palaeodiets is through $\delta^{15}\text{N}$ measurements of herbivore and human bone collagen from the same context or site, as bones usually preserve better than plants (Styring *et al.* 2018). Two assumptions are made in this approach: humans that subsisted on a purely plant-

based diet will have $\delta^{15}\text{N}$ values similar to herbivores, due to both groups consuming plants that have the same $\delta^{15}\text{N}$ values. Humans that consumed 100% animal-based diet will have $\delta^{15}\text{N}$ values that are more positive by 3 to 6‰ compared with herbivores (Hedges & Reynard 2007; O'Connell *et al.* 2012; Sponheimer *et al.* 2003; Styring *et al.* 2018). This approach does not account for $\delta^{15}\text{N}$ variability across plant parts (e.g. grains versus chaff) and land management practices like manuring. In Lightfoot & Stevens (2012), the average $\delta^{15}\text{N}$ for wheat and barley from an Iron Age Site in Britain are 2.8‰ and 3.8‰, respectively. In comparison, the average $\delta^{15}\text{N}$ for horse (4.2‰), sheep (4.2‰) and cattle (4.3‰) are similar to that of the grain, while for humans, it is much higher at 8.5‰ (estimated from Fig. 4 of Lightfoot & Stevens 2012). Knipper *et al.* (2016) report an average $\delta^{15}\text{N}$ of 5.7 ± 2.2 ‰ for barley (grain), 6.5 ± 0.9 ‰ for herbivores and 9.2 ± 0.8 ‰ for adult humans. This similarity between the values for barley grain and herbivores suggests that herbivores at these sites were not eating grain, and that cereals consumed by humans were fertilized with substantial amounts of manure (Lightfoot & Stevens 2012; Knipper *et al.* 2016). Thus, the conventional interpretation of human $\delta^{15}\text{N}_{\text{collagen}}$ values minimizes plant protein while overestimating animal protein contribution to diet (Bogaard *et al.* 2013; Lightfoot & Stevens 2012).

Concluding remarks

This chapter gave a brief description of the factors causing carbon and nitrogen isotope variation in plants. Environmental factors such as rainfall, temperature, light intensity, altitude and latitude are all important, as are the physiological processes of the plants. Much of the research conducted to date is based on C_3 plants, with only a few studies considering how C_4 vegetation is affected by the same factors (Lightfoot *et al.* 2020; Murphy & Bowman 2009; Ma *et al.* 2012; Swap *et al.* 2004). There generally seems to be a positive relationship between the $\delta^{13}\text{C}$ of C_4 plants and water availability (e.g. Lightfoot *et al.* 2020; Reid *et al.* 2018; Sanborn *et al.* 2021; Wang *et al.* 2005). A positive (Lightfoot *et al.* 2020; Reid *et al.* 2018), negative (Swap *et al.* 2004) and no correlation (Sanborn *et al.* 2021) have been observed between the $\delta^{15}\text{N}$ values of C_4 plants and rainfall (e.g. Murphy & Bowman 2009). Manure application increases the $\delta^{15}\text{N}$ values of plants. From an African archaeological point of view, we would particularly like to know more about the range of isotopic variation seen in the major C_4 crops (sorghum and millets) grown in natural or near-natural conditions. This is currently a gap in our knowledge that requires further research. In the next chapter, a background is provided of the indigenous knowledge systems within agricultural practices in the southern African context.

CHAPTER FOUR:

Indigenous Knowledge Systems in Relation to Agricultural Practices

Introduction

The chapter begins with a brief overview of different working definitions of Indigenous Knowledge Systems (IKS), and the definition adopted for the purposes of this study. Next, a review is given of past Indigenous Knowledge (IK) practice for sorghum agriculture in different southern African groups such as amaZulu, the Sotho-Tswana, including the baPedi, Tsonga and the Svosve people. Although these accounts are biased towards the missionaries (Junod 1927; Bryant 1949) and anthropologists (Mönnig 1967; Van Zyl 1972) who recorded them, the author recognizes their relevance in the current discussion. Junod (1927) and Bryant's (1949) accounts were based on the late 19th and early 20th centuries, while Mönnig (1967) and Van Zyl (1972) reported on the latter part of the 20th century, all used to the best of the author's ability. Knowledge of these practices is important for understanding their potential impact on the carbon and nitrogen isotope signal of sorghum grain. Therefore, relevant information includes 1) the number and types of sorghum varieties grown by each group 2) soil preparation practices such as fertilization (or lack thereof) and slash and burn agriculture 3) the methods of sorghum cultivation employed, starting from the sowing process 4) storage practices and 5) the various uses of the sorghum varieties.

Defining Indigenous Knowledge Systems

Defining IKS is problematic as it means different things to different people (Takawira 2015). They have been defined as knowledge systems that are specific to a given culture and geographical area, and locally based. They are preserved and inherited orally, through observation and first-hand experience (Tharakan 2017). IK is often associated with the terms 'local' and 'traditional'. Grenier (1998) defines IK as unique local and traditional knowledge, customized to meet the particular needs of the population of a given geographical area. These IKS are an accumulation of experiences, observations and trial-and-error experiments, and depend on balanced human-environmental interaction (Grenier 1998). Berkes (1993) offers the term 'Traditional Ecological Knowledge' (TEK) and defines it as experience amassed over millennia from direct human-environment contact. Traditional knowledge suggests conventional principles and practices that persist over generations and lifeways, and largely centre on belief (Berkes 1993; Hagar 2003). Some scholars suggest that individuals do not need to possess any kind of knowledge, including indigenous knowledge, to practise and pass on their traditions (Hagar 2003). However, Horsthemke (2004: 35-36) argues that the knowledge base of indigenous practice and know-how, particularly when compared to

“nonindigenous knowledge”, ought to be closely associated not only with belief but truth and justification as “belief, even justified belief, does not amount to knowledge”. On the other hand, it is argued that the term ‘local knowledge’ problematically assumes that every community is able to develop their own knowledge base that is unique to them and that is related to their life experiences (Horsthemke 2004; Takawira 2015).

Nonetheless, each of these terms reference intersecting concepts, therefore, choosing a particular definition requires consideration and acknowledgement of the existing limitations and disputes related to the use of each term. For the purpose of this study, the concept of indigenous knowledge used here acknowledges the following:

- 1) The indigenous knowledge used by past and present farmers in Eswatini comprises practices, beliefs and experiences that were and still are passed on only orally through observation and practical participation,
- 2) The use of certain indigenous knowledge extends across geographical regions, indicating a level of interaction and/or shared history,
- 3) Indigenous knowledge of past farming communities developed over centuries and likely changed to meet their needs, indicating the dynamic nature of IKS,
- 4) Even within a community, everyone does not make use of practices in the same way, indicating human agency and diversity in knowledge base.

Therefore, IKS is taken as a repository of information amassed by a population of a given geographical area over multi-generational timescales through trial-and-error experiments, experiences and observations to meet the needs of its custodians. This knowledge is intertwined and depends on person-to-person and person-to-environment interactions. Since people interact over different geographical scales, and since environmental conditions may change through time, IKS are dynamic and subject to outside influence. Lastly, because certain practices within the general crop production process are linked to the keeping of domesticated animals, gender-specific roles, the execution of certain tasks at specific times, and community involvement, IKS is closely tied to domestic, socio-economic and socio-cultural aspects of living.

Sorghum varieties grown by past farming communities in southern Africa

Sorghum was a principal cereal crop, and a number of varieties were grown by past farming communities across southern Africa. For instance, in what is now northern KwaZulu-Natal and southern Mozambique, Thonga people in the late 19th century grew five types of sorghum, each with characteristic phenotypic features: 1) the *djabana*, with white grains, 2) the *ntjyaka* with elongated panicles, 3) the *phila* with white and red grains, 4) the *shikombe*, with curved panicles and 5) the

timba, with a sweet-tasting stalk similar to sugarcane (Junod 1927). Mönnig (1967) reported that the baPedi living in Limpopo Province in the first half of the 20th century grew six sorghum varieties, and although he did not record their names, they were differentiated by seed color which ranged from white to yellow, red and brown. The baPedi practiced seed selection and each variety was grown separately (Mönnig 1967). Mixed cropping of vegetable varieties was also practiced and these were an important dietary component as they were often partnered with the cereal dishes (Quin 1964). Briefly, vegetables included legumes such as groundnuts or jugo beans (*ditloo-marapo*) and cowpeas (*manawa*); cucurbits such as indigenous (*marotse*) and nonindigenous (*mafodi*) pumpkin varieties; and gourd varieties (*maraka*) (Junod 1927; Mönnig 1967).

Soil fertilization practices by past farming communities in southern Africa

Historical evidence suggests that the majority of past farming societies across southern Africa did not intentionally practice soil fertilization on a large scale (Bryant 1949; Mönnig 1967; Van Zyl 1972). There are, however, some exceptions. Nyanga in north-eastern Zimbabwe, Bokoni in eastern South Africa and Engaruka in north-eastern Tanzania are examples of intensive agriculture with extensive landscape modification (terracing) and in some cases irrigation (Delius & Schirmer 2014; Soper 2002; Stump 2006; Westerberg *et al.* 2010; Widgren *et al.* 2016). Amongst these societies, crop agriculture and cattle-keeping were integrated activities whereby accumulated manure was collected from cattle kraals and/or pits and deposited into the fields (Delius & Schirmer 2014; Soper 2002; Stump 2006). In Nyanga, furrows also channeled cattle slurry which irrigated cultivated land and gardens (Soper 2002).

In most regions of southern Africa, farmers did not substantially modify agricultural landscapes. Fields were cleared of weeds, trees and grass by burning (e.g. Van Zyl 1972). Particularly among the Svosve community in Zimbabwe, the fields were also burnt to remove plant-damaging pests (Takawira 2015). The resultant ash became a fertilizing agent for the soil. In some communities the act of burning the field was intended primarily for clearing unwanted vegetation, rather than as a conscious effort to fertilize the soils (Bryant 1949; Mönnig 1967; Van Zyl 1972). Svosve indigenous farmers may have known about the effects of burning the field as “they believed that burning the land would also improve the quality of the soil” (Takawira 2015:47). A second form of unintended fertilization was through the deposition of cow dung and urine on the fields when, after harvest, cattle were let into the cultivated areas to consume the crop remains (Mönnig 1967; Van Zyl 1972). At the suggestion of agricultural extension officers, baPedi farmers might casually apply manure to their fields, but it was never a common practice (Mönnig 1967). Bryant (1949) stated that the amaZulu did not manure their fields in order to fertilize them, although they were well aware of improved soil productivity of kraal areas, where ample urine and cow dung had been deposited by

cattle. Consequently, the cattle kraal was moved every few years for the purpose of using the enriched soil as sowing ground (Bryant 1949). Svosve farmers believed that manure application increased the risk of pests, crop diseases and weeds (Takawira 2015). As Takawira (2015:47) suggests, through trial-and-error experimentation, farmers may have stopped using manure when they observed its effects on their crops, prompting them to find alternative solutions. In these communities, manure was used for a variety of purposes. In addition to its possible application as fertilizer, it was also used to smear on floors and walls like plaster, and in areas where woody vegetation is limited, it may be burned as fuel. The sizes of the animal pens (and by proxy, the number of animals kept) is therefore not necessarily an indication of the quantity of manure available for soil fertilization.

Based on historical accounts, most past farming communities in southern Africa appear to have practiced irregular, small-scale low-intensity manuring, if they used manure at all. Some communities (e.g. Nyanga) used certain practices, including manuring, more intensively (Soper 2002). It is impossible to account for millennia-worth of agricultural history.

Sorghum production process of past farming societies in southern Africa

19th and early 20th century accounts of the agricultural economy of the baPedi and amaZulu societies show similar sowing-to-harvesting processes, with slight geographical variations. In these societies, the process began once the land had received enough rain at the beginning of the rainy season. To rely on natural rainfall to water crops is consistent with the general practice amongst subsistence farmers in sub-Saharan Africa. The ground could then be broken. Bryant (1949) reported that amaZulu women did this with iron hoes. For baPedi farmers, the agricultural cycle was initiated by the chief through a seed ritual and ploughing ceremony. In the early 20th century, baPedi men did the ploughing using an ox-drawn plough (Mönnig 1967). Next, women sowed the seeds in one of three ways, by 1) broadcasting ((*ukuHwaya*), 2) placing the seeds in holes dug out with the fingers (*ukuGaba*) or 3) dropping the seeds into the soil (*ukuTukuza*) (Bryant 1949; Mönnig 1967). Once the seedlings had emerged, the women were responsible for weeding (Bryant 1949; Mönnig 1967). Pedi women weeded three times during the growing season (Mönnig 1967). Weeding was first done along with thinning by hand when the crop was young, and then twice more, using hoes, when the crops had grown (Mönnig 1967). For the amaZulu women, weeding was done once, when the crops had grown to half a meter in height (Bryant 1949). In the fields of both the baPedi and amaZulu, sheltered platforms called *izakamukanya* were used as observation posts (Bryant 1949; Mönnig 1967). From these structures, women and children were obligated to spend entire days warding off birds (*ukuHebeza*) from the soft, newly-formed grains of sorghum and millet crops (Bryant 1949; Mönnig 1967). Weevils, birds and baboons posed a challenge for the baPedi to the point that

traditional medicine was also used to protect their crops (Mönnig 1967). The amaZulu farmers had to be wary of doves and finches (Bryant 1949). Historical accounts indicate that irrigation was not practiced (Bryant 1949; Mönnig 1967; Van Zyl 1972). Instead, farmers relied on natural rainfall (Bryant 1949; Mönnig 1967). Rain was integral to the livelihoods of baPedi such that they had various rites for rain, including the annual rain-making ceremony which was practiced even in favourable conditions (Mönnig 1967).

When the sorghum crops had matured, harvesting took place and in the baPedi farming communities, a first-fruits ritual had to be observed by the chief before harvest by the general population. During harvesting, the sorghum panicles were broken off from the stalks before being taken to the homesteads (Mönnig 1967). The baPedi stored their harvested sorghum on custom-made structures called *Seboya* to allow them to dry (Mönnig 1967). For the amaZulu, harvesting was done once the grains were completely dry and involved removing the panicles and binding them into bundles (*iQinqa*) (Bryant 1949). A threshing floor (*isiBuya*) was then prepared, either outside the homestead's kraal or in a field, by smearing cow dung on the ground (Bryant 1949). Once this was dry, women along with their adult daughters threshed the harvest (*ukuBula*) using stout sticks (Bryant 1949). Threshing was strictly a night-time activity as the cooler conditions prevented itching of the body (Bryant 1949). Large quantities of threshed grains were winnowed (*ukuwEla*) using flat baskets, while other techniques were used for smaller quantities (Bryant 1949). Some sorghum remained unthreshed and was hung over smoke in a thatched hut, in order to prevent weevil infestation. This was used as seed in the following growing season (Bryant 1949).

Amongst the amaZulu (and some other groups) the threshed grain was stored in storage pits called *umGodi*, located in the cattle kraal (Bryant 1949). Once the grain had been transferred into the pit, a large stone lid was used to cover it, after which cow dung would be smeared all around the lid followed by soil (Bryant 1949). This made an airtight seal and prevented weevils from accessing the grain (Bryant 1949). The resulting anaerobic environment within the pit caused the grain to ferment and go sour or *saNgcobe* (Bryant 1949). Sometimes, the grains on the sides and bottom of the pit would be mouldy and in this state it was called *uPata* (Bryant 1949). Although these effects may have been unexpected when this method of storing grain was first initiated, it became an anticipated and desired outcome by some as it was good to make sorghum beer (*uMcombothi*) (Bryant 1949). The use of these grain pits is traced back to the *abaNtungwa* of inland KwaZulu-Natal, who additionally stored their grains in large grass-woven baskets called *isiLulu* (Bryant 1949). Cereal grain storage baskets were used by many agricultural groups, including the Sotho-Tswana groups of southern Africa and extending as far north as the Lake Chad region (Bryant 1949). The baPedi stored their threshed grain in baskets called *Sešego* or clay pots in custom-built huts. The grain was then

mixed with aloe ash (*Molara*) to discourage weevils (Mönnig 1967). In Zimbabwe, grain bins were used to store harvested grains and other crops such as beans and groundnuts (Mabgwe & Manyanga 2017; Manyanga 2007). The grain bins were generally built on an elevated platform of stones or on a rocky outcrop using wooden pole structures and clay/*Dhaka* (Mabgwe Manyanga 2017; Manyanga 2007).

Sorghum was consumed in a wide range of sorghum-based dishes and alcoholic beverages. These meals include porridge and soft sour porridge which were eaten with either vegetables, milk, beans or occasionally, meat (Esterhuysen & Harwick 2017; Quin 1964). Sorghum beer brewing and drinking are common practices in Africa (and by extension in past societal practices), made for cultural and social occasions including appeasing of ancestors, birth, burial, marriage, and rites of passage (Embashu *et al.* 2019). It is called *umcombothi* or *utshwala* in South Africa, *doro* in Zimbabwe, *omalovu* in Namibia, *mtama* in Tanzania, *ikigage* or *amarwa* in Rwanda, , *pito* or *burkutu/burukutu* in Nigeria and Ghana, *tchoukoutou* in Benin, *tchapalo* in Togo, *dolo* in Burkina Faso and *merissa* in Sudan (Lyumugabe *et al.* 2012; Sawadogo-Lingani *et al.* 2021). It is important to note that similar beers can also be made using other cereals like maize or millet (e.g. Ayirezang *et al.* 2016; Dirar 1976; Osseyi *et al.* 2011; Tiisekwa 1986). Sorghum beer is largely produced by women and varies slightly across geographical areas (Dirar 1978; Lyumugabe *et al.* 2010, 2012; Sawadogo-Lingani *et al.* 2021). The brewing process mainly includes the malting and brewing of the red strain, although white sorghum and/or maize and millet are also used (Ekundayo 1969; Lyumugabe *et al.* 2012). The malting process generally includes cleaning, steeping (soaking), draining, germination and sun-drying the sprouted sorghum grains (Lyumugabe *et al.* 2012; Sawadogo-Lingani *et al.* 2021). Brewing produces wort for fermentation, resulting in the sorghum beer. It includes grinding or milling sorghum malt, mashing (mixing the ground malt with hot water), acidification, cooking, cooling and fermentation (Sawadogo-Lingani 2021). Alternatively, the fermentation is achieved by combining yeasts and lactic acid bacteria (Sawadogo-Lingani 2021). Fermentation affects the isotope values of the consumed product and should therefore be taken into consideration. As shown above, the agricultural subsistence strategies of past farming societies in southern Africa were intertwined with the symbolic, socio-economic and socio-cultural aspects of life and this is significant.

Do varieties of sorghum serve different purposes?

Rao & Murty (1982) describe the use of different varieties of sorghum for specific purposes. These include popping sorghum, scented sorghum, sweet or chewing sorghum, roasting sorghum, and varieties for producing alcoholic and nonalcoholic beverages (Rao & Murty 1982). Food quality criteria such as color, texture, taste and scent are closely associated with sorghum-based dishes,

including fermented porridge (*ogi*), leavened (*injera*, *kisra*) and unleavened (*roti*, *tortilla*) breads, and the production of alcoholic and nonalcoholic beverages (Kayode *et al.* 2005). It has been shown that tannin levels are generally higher in the darker sorghum varieties (e.g. McMillian *et al.* 1972). Tannin is linked to poor digestibility (Beta *et al.* 1999; Harris *et al.* 1970; McMillian *et al.* 1972), and affects the taste of the food. The amounts of tannin present will therefore influence food quality and preference, unless it is inactivated or removed during sorghum processing (Beta *et al.* 1999). In Benin, red and brown sorghum varieties are generally preferred for making alcoholic and nonalcoholic drinks like *tchoukoutou* (Kayode *et al.* 2005; Lyumugabe *et al.* 2012), sorghum pastes (*dibou* or Nigerian *to*) and porridges (*koko*) (Kayode *et al.* 2005). Many elders in Benin believe that *dibou* made with red sorghum is nutritious, while that made with white sorghum is not (Kayode *et al.* 2005). Maize *dibou*, which is white in color, is made only when sorghum is in short supply or unavailable (Kayode *et al.* 2005). In Nigeria, light-coloured sorghum varieties are preferred for making a thin fermented porridge called *ogi* (Murty *et al.* 1982). *Couscous* is also made with white sorghum grains (Dicko *et al.* 2002). *Injera*, a leavened bread made in Ethiopia, can be made with sorghum. White sorghum is preferred for this purpose, as it tends to have a lower tannin content (Rooney & Murty 1982).

Concluding remarks

The chapter offered a brief outline of previously proposed definitions of Indigenous Knowledge Systems by various scholars, and the definition adopted for the present study. This was followed by a review of indigenous knowledge-based sorghum agriculture amongst past baPedi, amaZulu and Sotho-Tswana groups of southern Africa. These practices, which may influence the carbon and nitrogen isotope ratios of sorghum, need acknowledgement. Farmers cultivated different strains of sorghum, which were stored separately. The storage pits induced mould or fermentation of the grains, called *uPata* and *saNgcobe*, respectively. In these respective states, the grains were used for beer making. Soil fertilization by manuring was practiced casually and at low intensity, if at all, although amaZulu used the highly productive soil in the kraal area to cultivate crops. The sorghum production process varied slightly across farming groups and crops depended on natural rainfall. Sorghum-based dishes were prepared such as thin porridge (sometimes fermented) and porridge which were consumed with meat, vegetables, fruit, legumes or milk. The following chapter describes the ideal growing conditions for sorghum growth and development. It also provides an outline of the environmental conditions of the regions where sorghum was grown for this study.

CHAPTER FIVE:

Environmental Context of the Study Areas

Introduction

The chapter begins with a description of climatic conditions for optimum sorghum growth and development. This is followed by a brief account of the environment of the Lowveld region of Eswatini, as well as that of Richards Bay in Kwa-Zulu Natal, Cape Town in the Western Cape, and Wattville, Benoni in the Gauteng Province (Fig. 1.1). These localities include a low-lying coastal environment and high altitude inland areas, thereby including a large range of environmental variation over which farmers grew sorghum during the precolonial period.

Optimal growing conditions for sorghum

Sorghum (*S. bicolor*) is an indigenous African cereal crop from the grass family, *Gramineae*. Sorghum favors warm tropical environments with summer rainfall where it reaches optimum harvest yields. Sorghum thrives in deep, well-drained, and fertile soils (Du Plessis 2008; National Research Council 1996). Optimum sorghum yields depend on favorable climate, soil conditions, day length.

Temperature

Sorghum seeds require warm temperatures to stimulate germination and growth (Du Plessis 2008). Temperature plays a critical role at the time of planting and germination, as well as after germination (Du Plessis 2008). The required minimum temperature for germination is between 7-10°C, while as much as 80% of seed germination occurs within the first 10 to 12 days at a temperature of 15°C (Du Plessis 2008). The optimum temperature range for growth and development after germination is from 21°C to 30°C (Du Plessis 2008). Young crops of one to three weeks are unlikely to survive below -7°C (Du Plessis 2008). Crops that are older than three weeks are unable to survive at freezing point temperatures (Du Plessis 2008).

Day length

Sorghum requires long nights before it begins the reproductive stage of its development, and flower formation requires 10 to 11 hours of photoperiod (Du Plessis 2008). Vegetative growth occurs when photoperiods are longer than 12 hours (National Research Council 1996; Du Plessis 2008).

Water requirements

Sorghum is considered drought-tolerant. In South Africa, it grows in the drier western parts of the country at an estimated Mean Annual Precipitation (MAP) of 400mm, and the wetter east at approximately 800mm (Du Plessis 2008; National Research Council 1996). The leaves of sorghum coil

up as a response to water stress and reduce metabolic activities for the duration of the dry period (National Research Council 1996). The leaf cuticle and silica presence in plant tissue protects crops from desiccation, and the deep-penetrating roots of sorghum promotes effective water absorption (Du Plessis 2008; National Research Council 1996; Rizwan *et al.* 2015).

Soil conditions

In South Africa today, sorghum is primarily grown in shallow and clayey soils, with optimal clay proportion in soil ranging from 10-30% (Du Plessis 2008). Soil temperatures of at least 15°C, and a depth of 10 cm with sufficient soil moisture creates optimum conditions to begin planting (Du Plessis 2008). Although the crop performs poorly in sandy soils, the presence of heavy textured subsoil improves its growth potential (Du Plessis 2008). Further, unlike maize, sorghum does extremely well in soil pH conditions of between 5.5 and 8.5. Sorghum can tolerate waterlogging conditions only for short periods (Du Plessis 2008).

A brief outline of the geography of Eswatini

Eswatini is one of sixteen member states which form part of the Southern African Development Community (or SADC). With an area of just over 17 300 km², Eswatini is the second smallest African state after Gambia in West Africa, and half the size of Lesotho (Goudie & Price-Williams 1983). Eswatini has a maximum distance of 180 km from north to west, and about 130 km from east to west (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992: 5). The greatest part of the country lies between the 26th and 27th southern parallels and the 31st and 32nd meridians (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992: 5). Landlocked between Mozambique on the east, and South Africa on the north, south and west, Eswatini's distance from its former capital is only 168 km, 619 km from Maseru of Lesotho, and 685 km from Zimbabwe (Goudie & Price-Williams 1983). The country's population projection is estimated to be 1 400 000 by the year 2050 (Ministry of Economic Planning and Development 2019). In 2017, the Ministry of Economic Planning and Development (2019) reported that over 70% of Eswatini's population reside in rural settings and still rely on small-scale agriculture for their livelihoods. The country is topographically diverse with four ecological zones: the Highveld, Middleveld, Lowveld, and the Lubombo Mountains (Masarirambi *et al.* 2019; Ministry of Economic Planning and Development 2019). The focus of this thesis is the Lowveld region.

The Lowveld (Lihlanze)

Plot One (Masango Homestead) and Plot Two (Maziya Homestead) are located in the Lowveld, the largest ecological region in Eswatini, at an elevation of 211 m. The lowveld is generally divided into

the Western and Eastern Lowveld (Loffler & Loffler 2005). In the Eastern Lowveld, the land rises steeply to form the Lubombo Plateau (Loffler & Loffler 2005). It accounts for 37% of land cover in the country and it is also an area of low relief (Goudie & Price-Williams 1983). The mean elevation for the entire region is between 150-300 m, with an eastern slope of 3% (Murdoch 1968; Ohinata 2001), while the eastern and western portions range between 200 m to 300 m and 250 m to 400 m, respectively (Loffler & Loffler 2005). Rainfall is low, ranging from 200 to 550 mm per annum (Mlenga & Jordaan 2019). Coupled with high and variable temperatures, this part of the country is prone to droughts as evaporation is high (Goudie & Price-Williams 1983; Mlenga & Jordaan 2019). It is therefore common to observe Bushveld vegetation such as thorn trees and grass, and sugar cane farming, with irrigation, is typical (Goudie & Price-Williams 1983).

Geology of the Lowveld

The Lowveld is made up of sedimentary and volcanic rocks of the Karoo Supergroup, which are of the Permian to Jurassic Era (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). The Karoo Supergroup comprises sediments, basalt and rhyolites and forms the low lying areas in the eastern portion of the country (Goudie & Price-Williams 1983; Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). Shales, sandstones and claystone form part of the Western Lowveld (Goudie & Price-Williams 1983). Basalt dominates the Eastern Lowveld (Loffler & Loffler 2005; Murdoch 1968). Amongst the Karoo rocks are dykes and sills of dolerite which are in fact intrusions (Goudie & Price-Williams 1983).

Soils and soil erosion

Soil formation is a result of chemical and physical weathering of rocks (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). The rocks of Eswatini are categorized into acidic, basic and intermediate (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). Basalt and dolerite are basic rocks and upon weathering, the resultant soil is generally high in clay content. This is particularly the case for basalt (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). Therefore, the Lowveld is comprised of basalt and dolerite-derived vertisols (clayey soils) which contract and crack when dry, and expand when wet (Dudek *et al.* 2019; Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992).

Soil degradation through gully erosion or sheet removal is a major factor affecting many parts of Eswatini, reducing the amount of land available for cultivation, and decreases the fertility of the

remaining soil (Goudie & Price-Williams 1983). Highly seasonal and heavy rainfall, exacerbated by overgrazing are the primary reason for high levels of soil erosion, as they ultimately compromise the soil structure (Goudie & Price-Williams 1983). The temporary water flows of rainstorms create gullies with steep vertical sides that end up becoming too large to be removed through ploughing, and this increases landscape instability. Parts of the Lowveld region are also affected as they are generally dominated by organ pipe forms of gullies, which equally compromise the potential of agricultural activities in the area (Ohinata 2001).

Temperature

The Lowveld has the mean annual temperatures (MAT) of 22°C (Goudie & Price-Williams 1983; Ministry of Tourism and Environmental Affairs 2012). The area of Lavumisa in the Eastern Lowveld experiences both the highest average maximum temperature (34°C) in January and the highest July mean minimum temperature (10°C) (Ministry of Tourism and Environmental Affairs 2012). The rain shadow which is caused by the Lubombo Mountains adjacent to the Lowveld region influences the climatic conditions so that overall, the region experiences severe and extended winter droughts and higher overall temperatures (Swaziland Ministry of Natural Resources, Land Use and Energy, and Canadian International Development Agency 1992). This is indicated by the hot temperatures of up to 40°C during the day, and much cooler minimum temperatures which border close to 0°C at night (Goudie & Price-Williams 1983; Ministry of Tourism and Environmental Affairs 2012).

Rainfall

Eswatini experiences an average of 890 mm of rainfall annually, with just under a fifth of it occurring during winter and the rest during the summer months, between September and March (Goudie & Price-Williams 1983). Rainfall may vary considerably annually for all regions, including the Lowveld (Ministry of Tourism and Environmental Affairs 2012). The country's rainfall pattern is linked to two factors; variation and fluctuation, and altitude (Goudie & Price-Williams; Ohinata 2001). Instances have been recorded in the past, of times when rainfall varied and fluctuated. The summer rainfall of 1917/8, for example, averaged 1400 mm while the summer rainfall of 1930/1 managed only 430 mm. The winters of 1904 and 1943 also show a similar trend as the former experienced 50 mm and the latter, 560 mm (Goudie & Price-Williams 1983). This climatic trend shows an alternating pattern of wetter, followed by drier periods (Goudie & Price-Williams 1983). High altitudinal areas receive more rain than those in lower altitudes. While the Highveld receives the most rainfall (up to 1770 mm/pa), and a general range of between 1000 and 1500 mm/pa) because of its high altitude, the Lowveld experiences a low 550 to 625 mm/pa in the Eastern Lowveld and 625 to 725 mm/pa in Western Lowveld, and the Lubombo Mountains observe up to 750 mm per annum (Goudie & Price-Williams 1983; Löffler & Löffler 2005; Ohinata 2001). Consequently, the Lowveld is characterized as a

dryland. The driest zone is the southern Lowveld while the northern Lowveld falls under the intermediate dry sub-humid II zone (Ministry of Tourism and Environmental Affairs 2012).

Agriculture in contemporary Eswatini

Today the Eswatini landscape is divided into the Title Deed Land (TDL) and the Swazi Nation Land (SNL) of which the latter is of interest to the present study (Dlamini & Masuku 2011). More than 50% of the country's land is classified under SNL and held by the King on behalf of the Nation (Dlamini & Masuku 2011; Goudie & Price-Williams 1983). While some of this land is for communal grazing, part of it is issued to individual families by the chiefs of the Nation and because there is no secure title to the land, production is for subsistence purposes (Goudie & Price-Williams 1983). A small portion of this produce is marketed, although there has been a marked increase over the years. Some of the cultivated crops include irrigated sugar, citrus and pineapple, beans, sorghum and cowpeas (Goudie & Price-Williams 1983; Ministry of Tourism and Environmental Affairs 2012). However, the most important crop in SNL is maize, which is also the staple food for the country and accounts for approximately 70 000 ha of cultivated land (Goudie & Price-Williams 1983). The other crops (including sorghum) occupy around 10 000 ha (Goudie & Price-Williams 1983). In relation to yield per area, the Lowveld is the least valued as it is drought-prone with its low rainfall patterns and high temperatures. Even so, rainfall-sensitive maize is grown on more than half the cropland, while sorghum occupies less space (3.62% of the total cropland) and produces low yields in the same ecological region (Goudie & Price-Williams 1983).

A brief outline of the geography of South Africa

As of the year 2021, South Africa's population was reported at more than 60 million, and estimated to grow by 2% annually (World Wildlife Fund 2010; Statistics South Africa 2022). The increasing population numbers and the pressure that is placed on agricultural productivity has since led to discussions on sustainable agricultural practices (World Wildlife Fund 2010). Compared to the increase in yields of crops such as wheat by at least four-fold, and sorghum by seven-fold in the early 20th century, production yield declined as a result of repeated drought episodes in the period between the 1930s and 1990s (Ramaila *et al.* 2011). Today, rain-fed crop production is possible in only 12% of the country's landscape as a consequence of climate and soil related patterns (World Wildlife Fund 2010). Only 3% of arable land is considered truly fertile (World Wildlife Fund 2010).

Richards Bay, Kwa-Zulu Natal

Kwa-Zulu Natal has an area of more than 8.8 million ha, and spans 300 km in length and 300 km in width (Camp 1999). The altitude of Kwa-Zulu Natal is 600 m in the east, to 1500 in the west (Camp 1999). As a consequence of the variable topographic nature of the province, the agricultural

potential tends to be in areas with moderate slopes and soil properties which allow for favourable depth and good drainage. Such areas include the north-eastern coastal region as well as part of north-western part of the province (Camp 1999). Richards Bay, north of Kwa-Zulu Natal, is located on a coastal plain at the edge of Mozambique's Coastal Plain and has an altitude of less than 100 m (Burger 2008). As a product of dune ridges, the coastal plain has created an environment of forest and shrubland vegetation, as well as swamp-characterised drainage, and lake systems (Burger 2008). It is an area that experiences sub-tropical to tropical climate (Burger 2008).

Geology and soil systems of Zululand coastal plain

As part of the Zululand coastal plain, the geological environment of Richards Bay has been strongly influenced by changing sea levels (Burger 2008). The geological sequence begins with rock formations dating back to the Cretaceous period, approximately 50 mya. At that time, siltstones were laid down in a marine environment, occasionally interspersed with thin clay lenses and bands of limestone (Burger 2008: 46). Overlying these deposits are thin, discontinuous Miocene deposits and the more extensive heterogeneous layer of poorly consolidated fine grained sands, clays, silts and lignite of the Port Dunford Formation (Burger 2008). The Port Dunford Formation, which stretches from Richards Bay to Umlazi, makes up part of the sandy deposits that form a high dune cordon along the entire length of the coast (Mucina & Rutherford 2006). The Port Dunford Formation is overlain by geologically recent sands. As a result of wind activity, these have formed a series of north-south aligned ridges which now characterize the coastal plain (Burger 2008; Germishuys 1999). The high permeability and rapid rate of nutrient leaching of sandy soils makes them less fertile. This is especially true of regions that receive more than 900 mm of rain annually (Burger 2008; Camp 1999:26).

Temperature

Subtropical climates are defined as having mean temperatures of 13°C to 18°C during the coldest month, while tropical climates experience mean temperatures greater than 18°C in the coldest month (Camp 1999). Richards Bay lies within a 20°C isotherm and experiences subtropical to tropical climatic conditions, with the Cape St Lucia Weather Station recording an average annual temperature of 21.5°C (Burger 2008). The summers are very hot and humid, and the winters are mild (Mucina & Rutherford 2006). The average monthly relative humidity in Richards Bay varies from 59% in August and 72% in November (Mucina & Rutherford 2006).

Rainfall

The climatic conditions of the KwaZulu-Natal province are influenced by the position of the south Indian Ocean Subtropical anti-cyclone (Camp 1999). During summer, the anti-cyclone weakens and

moves in a southerly direction off the coast, causing increased rainfall during this season. In contrast, winter experiences strengthened anti-cyclone as it migrates northerly (Camp 1999). This results in atmosphere stability and reduced rainfall (Camp 1999). Like the general rainfall pattern of the province, Richards Bay experiences year-round rainfall, the majority of which is received during the more humid and hot summers (Burger 2008; Weisser and Müller 1983). Mucina & Rutherford (2006) report a higher percentage of 41.6% annual mean rainfall in winter for both Richards Bay and St Lucia. Richards Bay along with other high rainfall areas such as the Drakensberg can experience rainfall of up to 1400 mm/year (Camp 1999).

Wattville, Benoni

Wattville is a township situated in the East Rand, Benoni. As part of the East Rand Basin, Benoni falls within the Ekurhuleni Metropolitan Municipality, or the EMM (Labuschagne 2015). The Basin also includes the towns of Brakpan and Springs, and is approximately 30 km long and 20 km wide (Labuschagne 2015). The topography of the area is considered flat with a maximum elevation difference of 120 m between Duduza and the southern exit point at Blesbokspruit (Scott 1995). It consists of undulating plains with pans, plains with pans, ridges and superimposed river valley on plains with pans such as the Blesbokspruit (Environomics 2007; Labuschagne 2015). Blesbokspruit runs from the north of Daveyton and Benoni, southwards through Springs and Nigel, as it approaches the Vaal River (Environomics 2007). Blesbokspruit is considered a wetland and while the eastern catchment comprises of natural wetlands, the west has since been used altered by agricultural activities (Environomics 2007).

Geology and soil systems

The East Rand Basin is predominantly sedimentary strata of the main Witwatersrand Supergroup Basin, and the younger sediments of the Transvaal Supergroup strata (Hobbs & Cobbing 2007; Labuschagne 2015). The East Rand Basin is covered by a combination of Soil Group B/C, Soil Group C/D, Soil Group B, and Soil Group C. Soil Group B has moderate infiltration rates, effective depth and drainage, while permeability is slightly limited (Van Schalkwyk 2015, Table 6: 33). The infiltration rate for Soil Group C is poor with restricted permeability and shallow soil depth; and Soil Group D have extremely low infiltration rates, the highest restricted permeability of all the groups, and the soils tend to be extremely shallow (Van Schalkwyk 2015). The quality of the soil thus exerts influence on the agricultural potential of the area. Wattville, as part of the EMM, is heavily settled residential township, and therefore considered unviable for agricultural development (Environomics 2007).

Temperature

The East Rand is part of a temperate Highveld region which experiences cold winters as a result of the frequent frost which occurs between the months of mid-April and September (Labuschagne 2015; Scott 1995). The summers are mild, and temperatures are predominantly below 30°C (Labuschagne 2015). However, the area can experience hot episodes, with temperatures reaching as high as 35°C (Labuschagne 2015; Van Schalkwyk 2015).

Rainfall

In southern Africa, regions that experience summer to strong summer rainfall are favourable for temperate grasslands (Mucina *et al.* 2006), as is the case in the study area. The rainfall varies spatially, ranging from 400 mm to 2500mm annually (Mucina *et al.* 2006). In the East Rand, the average rainfall per year is ranges between 715mm to 735 mm, and at least 80% of it occurs from October to April (Evironomics 2007; Labuschagne 2015). The area is prone to hail and has been recorded to cause damage to fruit ranging from mild to severe (Evironomics 2007). Rainfall is pivotal to rain-fed crop production, however the success of this depends on deep soils which are able to store water for the dry periods of the growing season (Evironomics 2007).

Constantia, Cape Town

As part of the Fynbos ecology, the study area is characterized by nutrient-poor soils that support Fynbos vegetation (Rabelo *et al.* 2006:79). The area experiences hot and dry summers, as well as wet and cool winters, particularly in the west portion of the biome region (Rabelo *et al.* 2006). The suburb is part of a province with a geographical land area of 129 462 km² and agricultural activities has contributed significantly through the cultivation of winter grain, fruit, as well as viticulture, amongst others (Statistics South Africa 2014; Vink & Tregurtha 2003). While the Mediterranean climate of the area is unfavourable for C₄ grain production during its winter rainfall season, successful harvest is possible with fertile soils and adequate water supply during summer.

Geology and soil systems

Quartzite, gneiss, shales, sandstone and granite are some of the rocks that make up the variable geology of the Western Cape, and hence the Fynbos Biome (Rabelo *et al.* 2006). These rocks, particularly the sandstone and quartzite, tend to be nutrient-poor (Rabelo *et al.* 2006). One of the vegetation units that make up the Fynbos region belongs to the Peninsula Granite Fynbos. Found on the lower slopes of the Cape Peninsula, its distribution covers Lion's Head to Smitwinkel Bay, and almost entirely covers Table Mountain and Constantiaberg, amongst others (Rabelo *et al.* 2006). The Peninsula Granite Fynbos is characterized by deep, loamy soils suitable for fruit orchards and vineyards, with red-yellow apedal or Glenrosa and Mispah forms which derive from Cape Peninsula

Pluton of the Cape Granite Suite (Rabelo *et al.* 2006). Constantia, in particular, is an agriculture-oriented area where the landscape has been extensively fertilized (Sealy pers. comm. October 2018). As with the Table Mountain area, the soils of the Constantia test plot are clayey and consist of decomposed granite (Sealy pers. comm. October 2018).

Temperature

As part of the Fynbos Biome, Cape Town experiences hot and dry summers as a result of Hadley Cells (Rabelo *et al.* 2006). Hadley Cells is a term used to describe the poleward circulation of air from the equator (Showman 2009). During winter, the Hadley Cell offshore of southern Africa is found near 32°S, and 37°S in summer (Rabelo *et al.* 2006). The maximum monthly temperature is a mean of 26.9°C, while in winter the average maximum and minimum are 17.7°C and 9.1°C, respectively (Tadross & Johnston 2012).

Rainfall

The Fynbos region is estimated to have a Mean Annual Precipitation (MAP) of 480 mm (Rabelo *et al.* 2006). Cyclonic fronts and their accompanied north-westerly winds result in these rains during the winter season (Rabelo *et al.* 2006). The Strandveld has the lowest at 350 mm, Renosterveld at 370 mm and Fynbos at 540 mm (Rabelo *et al.* 2006). Cape Town's Mediterranean climate receives a mean rainfall range of between 560 mm and 1400 mm around the mountains of the Cape Peninsula (Tadross & Johnston 2012). As one moves towards the east, the rainfall pattern changes to summer rainfall episodes as a consequence of the equatorial air as it effects a summer rainfall pattern (Rabelo *et al.* 2006).

Concluding remarks

This chapter outlined the environmental conditions required for optimum growth and development of sorghum. These include climatic factors such as rainfall and temperature, as well as soil state and type, which when considered together, create balanced conditions for sorghum to grow. In this study, the environments in which sorghum crops were grown differed and will thus be reflected in their carbon and nitrogen isotope values. A brief discussion of the environmental variables of each area was therefore given to shed light on the growing conditions of the crops. The next chapter reports the process of acquiring the contemporary-grown and archaeological sorghum grains analysed in this study, selection of plots used to cultivate the sorghum, and the process of establishing relations and setting up interviews with agriculturalists in Eswatini. An overview is given of the stable isotopic methods used on sorghum and the statistical treatments applied.

CHAPTER SIX:

Materials and Methods

Introduction

This chapter comprises two parts. Part One describes how the grains used in this study (contemporary and archaeological) were obtained. Modern grains came from the cultivation of test plots in Eswatini (formerly known as the Kingdom of Swaziland) and South Africa, while the archaeological grains came from the collection of materials excavated from the Historic Cave in the Makapan Valley. Part One also briefly describes the process of setting up interviews with subsistence farmers in Eswatini. Part Two summarizes methods used for the stable isotope analysis. Lastly, the statistical treatments applied on the data are briefly described.

Research Plan

As part of the fieldwork for this thesis, the initial aim was to establish contact with small-scale sorghum and millet farmers. In deciding where to situate the study, I considered countries in southern Africa where traditional sorghum and millet varieties are still grown; these included Zimbabwe, Botswana, Mozambique, the Kingdom of Eswatini and South Africa (Fig. 2.3a). Of these countries, Eswatini was chosen because of its smaller size, making contact with small-scale sorghum farmers who also possessed knowledge on indigenous farming practices relatively simpler. Additionally, Eswatini was chosen because of previous fieldwork experience here and its close proximity to Johannesburg. However, upon communicating with the said farmers, it became apparent that sorghum was more readily available than millet. As a result, the study focused solely on the former crop. To allow for comparisons of sorghum grown under different climatic conditions, sorghum test plots were also created in two different locations in South Africa: first, Wattville, Benoni in the Gauteng (summer rainfall, Highveld) and second, Richards Bay, Kwa-Zulu Natal (summer rainfall, coastal)(Fig. 2.3c; Fig. 2.3d; Fig. 6.1). In addition, two *S. bicolor* plants that were grown in 1999-2000 in a garden in Constantia, Cape Town (in the winter rainfall region) were included in the study (Fig. 1.1).

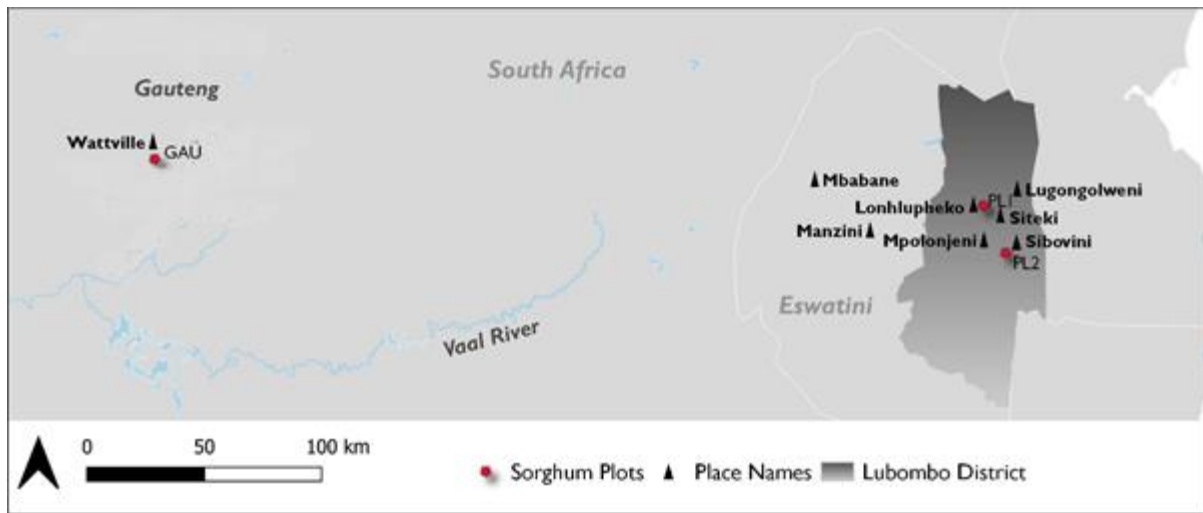


Figure 6.1: Locations where sorghum was cultivated for this study (Map compiled by Dr Faye Lander).

Sourcing Contemporary and Archaeological Sorghum Grains

Part One: Cultivation of indigenous sorghum in Eswatini and South Africa, and archaeological grains from Historic Cave.

Eswatini fieldwork

Three trips to Eswatini were carried out to meet officials from the Ministry of Agriculture, local community members, and Swazi subsistence farmers who granted me permission to conduct the study, assisted with sourcing traditional sorghum grains and with the subsequent cultivation and harvesting. I describe this in more detail below, the first of which involved establishing connections with the local agriculturalists.

First fieldwork trip: establishing relations with Swazi subsistence sorghum farmers

The first fieldtrip to Eswatini was facilitated by Mr Sibusiso Dlamini, a Masters student collaborating with the Malkerns Agricultural Research Station in Manzini (Fig. 6.1), as well as researchers from the same research station. Mr Dlamini assisted me in contacting Mr Freddie Sihlongonyane, a Senior Extension Officer in the Eswatini Ministry of Agriculture. On the 16th of July 2017, we met Mr Sihlongonyane, who introduced us to a local subsistence farmer, Mr Masango, his female relative and several other local subsistence farmers living in the Lonhlupheko area. Lonhlupheko is located in the low rainfall, Lowveld of Eswatini (Fig. 6.1), the only ecological region in the country where sorghum is the primary crop of production. A meeting was organized with local farmers, during which the project was presented. This work was approved by the Faculty of Science Research Ethics Committee at the University of Cape Town, approval code FSREC 07-2018. During the meeting, it was noted by the farmers that planting ideally begins in September. However, delays of the rainy season may push the sowing to as late as December. It was made apparent that even though

traditional sorghum was still cultivated by some subsistence farmers, hybrids have become increasingly the dominant crop, particularly as their grains have been distributed free of charge by Christian aid organizations. This was somewhat surprising because prior to our discussion of the hybrids, the farmers had described to us the advantages of cultivating traditional sorghum.

Following our meeting, the farmers suggested that they help us to set up a test plot where both the traditional and hybrid varieties could be planted. As the discussions progressed, it was decided that two test plots should be cultivated. Plot 1 (26°24'15.94"S, 31° 51'51.02"E 377 m asl) is part of a field that belongs to the Masango Homestead and is located in the Lonhlupheko area of Siteki (Fig. 6.1). Plot 2 (26°35'9.75"S, 31° 57'41.53"E 218m asl), a distance of approximately 35km from Plot 1, is on ground belonging to the Maziya family in the Sibovini area, Siteki (Fig. 6.1; Fig. 6.2). Prior to sorghum cultivation for this study, no fertilizer was applied on either of the fields. A small cash payment was made to the two farmers on whose land the sorghum was sown.

Second fieldwork trip: Sowing of sorghum grains on designated plots of land

In the second phase of fieldwork, Mr Sihlongonyane introduced us to Mr Vilakati, who is employed at the Malkerns Research Station as an Assistant Extension Officer. Mr Vilakati assisted us with the sorghum-sowing process. At Plot 1, sorghum had last been grown in 2015. In November 2016, the soil was ploughed and left to recover until it was ploughed again just before sowing for this study. As a consequence of delayed rains, sowing began on the 13th of November 2017.

At both test plots, three varieties of sorghum were sown: 308, 236 and *mshalane*. *Mshalane* sorghum is the only variety whose siSwati name is still in use. The siSwati name for the 308 variety is homeni, however it is currently not much used. Conversations with local farmers failed to produce the siSwati name of the 236 variety as most people farm only hybrid sorghum today. Prior to sowing, I was advised that pesticides should be used to protect the sorghum against pests. However, the goal for the sowing-to-harvesting process was to follow traditional methods as far as possible, so we asked that pesticides not be used on the entire crop. Thus, to ensure a yield, each plot was divided into two sections. In one section of the plot, sorghum was treated with Cypermethrin pesticide before and after germination while the other section was sown without pesticide treatment. The same sowing process was used for both Test Plots 1 and 2. For each variety, three 2 meter long rows were ploughed. Grains were sown into the ploughed rows, approximately 0.15m apart, to allow space for growth for each sorghum plant. Additionally, each row was separated by 0.9m. Upon completion of sowing, the grain were covered with soil. The sorghum was not watered, but relied on naturally occurring rainfall. To help with growth, weeding was done using a hoe.



Figure 6.2: Plot 2 at the Maziya homestead in the Sibovini area of Siteki, Eswatini (Photo Credit: Dr Thembi Russell).

Third fieldwork trip: Harvesting the crop

Harvesting of all the Eswatini-grown sorghum, at Test Plots 1 and 2 (Figs. 6.3 & 6.4), took place on the 27th of March 2018. The sorghum crops were harvested by cutting off each panicle from its stem, since all the varieties grown had single panicles. Following this, each panicle was placed in a Ziploc bag and labelled. The harvested sorghum was then stored in a freezer before the laboratory analysis was undertaken. A sample of each type of sorghum planted was put aside and stored for future research (held by Dr Thembi Russell, Archaeology Division, University of the Witwatersrand). The quantity of sorghum harvested in Test Plots 1 and 2 differed. Plot 1 produced a total of 77 sorghum heads, 27 of which were immature at the time of harvest. Fifty sorghum heads were harvested in Plot 2, of which 13 were immature. In total, the Eswatini locations yielded 127 sorghum heads. These figures are for the non-pesticide sorghum crops. The yield of pesticide-treated sorghum was approximately the same as that of the non-treated harvest, however, the former were not used for isotopic analysis.



Figure 6.3: *Mshalane* sorghum at Plot 1 (Masango field) shortly before harvesting, 2018 (Photo Credit: Dr Thembi Russell).



Figure 6.4: Sorghum growing at Plot 2 (Maziya homestead) shortly before harvesting, 2018 (Photo Credit: Dr Thembi Russell).

Fourth fieldwork trip: Interviews with Swazi subsistence sorghum farmers

Prior to the interviews, Mr Vilakati, with the support of community motivators of the Mpolonjeni and Lugongolweni constituencies (*Tikhundla*), Lubombo District (Fig. 6.1), sought volunteers amongst the local farmers. Eighteen sorghum farmers offered to participate, and in April 2019, I

returned to Eswatini to conduct the interviews. The farmers included males and females in the age range of 50 to 80 years. I chose 50 years as the minimum age as I thought this age group would provide deeper insight into past agricultural indigenous practices. None of the farmers showed any reluctance during the interviews. The interviews were carried out individually with the assistance of Mr Vilakati as the interpreter. The subject matter was explained prior to the commencement of each interview, but participants heard the questions for the first time during the interviews, which each lasted approximately an hour. The interviews consisted of thirty questions relating to present and past farming practices to understand the trajectory of the decision-making processes of farmers over time (Appendix 2). After the interviews, each farmer was presented with an appreciation pack for their time.

South African fieldwork

In December 2017 I travelled first to Wattville, Benoni and then to Richards Bay to organize sorghum plots in each locality. Both plots were located adjacent to a place of residence. No plants or vegetables had previously been grown in the Benoni plot for at least three years. In Richards Bay, the sorghum was sown between two miniature trees. In both locations, the soils had not been fertilized in the past. In addition to these locations, two sorghum plants that were grown in Constantia, Cape Town, in 1999-2000 were included in the study.

Benoni, Richards Bay and Constantia Plots: Sowing the sorghum grains

The Benoni plot is located in Wattville, Benoni, Gauteng (26° 13'30.02"S, 28°17'57.27"E 1663m asl), and the Richards Bay plot is located in Arboretum, in the coastal town of Richards Bay, Kwa-Zulu Natal (28°45'24.07"S, 32°3'23.91"E 30m asl)(Fig. 2.3c, Fig. 2.3d; Fig. 6.1). As in Eswatini, the 308, 236 and *mshalane* varieties were sown in each of the plots. None of the sorghum was treated with pesticides. Similar to Plots 1 and 2 of Eswatini, three rows each 2 meters long, and separated by 0.9m were dug for each variety. Grains were sown into these rows, approximately 0.15m apart, to allow space for growth for each sorghum plant. Upon completion of sowing, the grains were covered with soil. The sorghum was not watered, but relied on naturally occurring rainfall. To help with growth, weeding was done using bare hands/garden tools.

Sorghum from the plot in Constantia, Cape Town (34° 2.410'S, 18° 25.887'E, 38m asl) was not grown specifically for this project, but as part of an earlier attempt to collect heritage varieties of sorghum and millet from different parts of southern Africa (Fig. 1.1). To sow, the soil was dug down deep enough to bury the sorghum grains using a spade. The grains were covered with soil and watered every two to three days. This was essential for the sorghum to grow, since Cape Town has a Mediterranean climate with summer droughts. The exact dates of sowing and harvesting were not

recorded, but the growing season was the summer of 1999-2000. These plants were grown in an area that had previously been cultivated, so in earlier years the soil had been treated with fertilizer.

Benoni, Richards Bay Plots: Harvesting the crop

In Benoni, the sorghum was harvested in April, while that grown in Richards Bay was harvested a short time afterwards. Similar to the process in Eswatini, the sorghum was harvested by cutting off each panicle from its stem, then placed it in a Ziploc bag and labelling it. The harvested sorghum was stored in a freezer before the laboratory analysis was undertaken. The quantity of sorghum harvested in both Benoni and Richards Bay was smaller than in Eswatini as a result of the lesser size of the plots, however a variation was also noted between the two latter plots. The Benoni plot yielded only six sorghum panicles, all of which were mature. The low yield was a result of a poor pollination and fungus infestation. Fifty-five sorghum panicles were harvested at the Richards Bay plot – 51 mature, and 4 immature panicles. Only two panicles were available from the Constantia plot. Therefore, the South African plots produced a total of 63 sorghum panicles.

Archaeological Sorghum grains from the site of Historic Cave, Limpopo Province, South Africa.

The archaeological sorghum is part of the floral remains excavated by Professor Amanda Esterhuysen as part of her doctoral work at the mid-nineteenth century siege site, Historic Cave in the Limpopo Province (Chapter Three). Due to very dry conditions in the cave, there is excellent preservation of organic materials dating from the siege. The excavated materials are stored in the Department of Archaeology at the University of the Witwatersrand. Eight areas of the Eastern Chamber of the Historic Cave were excavated, namely Dg1 through Dg4, of which Dg1 and Dg2 yielded most sorghum. Sorghum grains analysed in this study were therefore taken from Dg1 and Dg2. Approximately 30 bags containing panicles of sorghum were meticulously sorted through to identify sorghum grains that would be subsequently collected for stable carbon and nitrogen isotope analysis. Grains that were retrieved from the same panicle were bagged together. Additionally, each grain or group of grains that were retrieved from their respective panicles were placed in separate sample bags which were in turn placed in a single bigger labelled bag. In the case where an individual grain was too small to grind, it was combined with grains of the same context. Any grains that appeared burnt were avoided as burning may influence the isotope ratios. A total of 12 sorghum samples (see Table 7.5) were taken for carbon and nitrogen isotope analysis.

Part Two: Isotope Analysis

Laboratory procedure

Sample preparation

All sorghum samples were processed according to the standard methods used in the UCT Archaeometry Laboratory. Each sorghum grain head (panicle) contains anywhere between 50 and 100 grains. Therefore, the first phase of sampling involved analysis of 12 individual grains from various positions on a single panicle of variety 308 of Plot 1 (Fig. 6.5). This was to ascertain if there is significant carbon and nitrogen isotope variability associated with the positions of seeds within the panicle. As will become apparent in the following chapter, there is no significant variation based on grain positioning on a given sorghum panicle. Consequently, for all subsequent work on modern sorghum, 20 grains were taken in a random fashion from each panicle and homogenized by grinding in a liquid nitrogen-cooled Spex 6750 Freezer/Mill. Upon securing the vials in place and closing the lid of the mill, the machine operating parameters were set: two cycles of two minutes each, separated by an interval of 1.5 minutes. Lastly, an impact frequency of 10 was selected. For the analysis of archaeological sorghum, the number of grains per sample varied depending on what was available. This poses a limitation. Ideally, the 20 grains per sample of modern sorghum should be replicated in the archaeological context in order to facilitate statistical tests, but this was not possible in this study.

Carbon and nitrogen isotope analysis of ground sorghum samples

Approximately 0.5mg of each ground sample was weighed into a tin cup using a Sartorius MSE3.6P-000-DM microbalance. Each tin cup was folded to enclose the sample and exclude air. The samples were placed in an automated Flash 2000 organic elemental analyzer with the combustion temperature set to 1020°C. The resultant CO₂ and N₂ gases were purified before their introduction into the Delta V Plus isotope ratio mass spectrometer (IRMS), via a Conflo IV gas control unit. The system is made by Thermo Scientific, Bremen, Germany. Isotope values were reported in parts per thousand (‰) relative to the PDB standard for carbon, and AIR (atmospheric nitrogen) for nitrogen. The standard deviations of repeated measurements of homogeneous materials (internal laboratory standards) were below 0.2‰ for both $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ (Appendix 1).



Figure 6.5: Images of the single panicle of sorghum variety 308 from Plot 1 of Eswatini to show the positions of individual grains tested for isotopic variation.

Statistical Treatment of Data

SPSS software was used to calculate descriptive statistics (means, medians, standard deviations, and ranges) for $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of sorghum grain samples. Some of the sample sizes are small and stable isotope values are usually not normally distributed, and therefore require non-parametric testing. The Kruskal-Wallis Test was used to make comparisons and test for the significance (or lack thereof) of isotopic differences between more than two groups. A Mann-Whitney U Test was used to test for the significance (or lack thereof) of isotopic differences between two groups.

Concluding remarks

The chapter briefly describes the rationale used in choosing the study areas for this thesis. An outline of how the contemporary and archaeological sorghum grains were obtained is given, including a detailed description of the sowing-to-harvesting process of the contemporarily-grown sorghum. The process of establishing relations with farmers, and the arrangement and the subsequent administration of interviews is outlined. Next, the laboratory preparation for plant material is given, and the standard procedure for isotopic analysis described. Lastly, the statistical methods used on the data are briefly explained. In the next chapter, results from the carbon and nitrogen isotopic measurements for contemporary-grown and archaeological sorghum grains are reported.

CHAPTER SEVEN: Results:

Carbon and Nitrogen Isotopic Patterns of Sorghum Grains

Introduction

This chapter presents results for the carbon and nitrogen isotope measurements of 104 sorghum grain panicles, the clusters of sorghum seeds which branch off from the stem. 92 derive from pesticide-free sorghum crops grown in 2017-2018 in the Kingdom of Eswatini, Wattville, Benoni in Gauteng Province, Richards Bay in Kwa-Zulu Natal, and two were grown in 1999-2000 in Constantia, Cape Town, in the Western Cape Province. The latter two were included as an outgroup grown in a region where sorghum would not normally grow, to see how different the isotopic values might be compared with the summer rainfall regions of South Africa. Approximately the same quantity of pesticide-treated sorghum was grown in Eswatini, however this was not analysed. In addition, 12 samples of archaeological sorghum were analysed. These consisted of grain recovered from the Historic Cave, Makapan Valley, South Africa, dating from the siege of the cave in 1854.

Within-panicle isotopic variation

Table 7.1 presents $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of 12 randomly selected grains from a single panicle of sorghum variety 308, from Plot 1 in Eswatini, to investigate whether or not there is significant within-panicle variation (Fig. 6.5). The $\delta^{13}\text{C}$ values ranged from -12.2‰ to -12.5‰, with a mean of -12.4±0.1‰. The $\delta^{15}\text{N}$ values ranged from 5.3‰ to 5.7‰, with a mean of 5.5±0.2‰. The range in $\delta^{15}\text{N}$ values (0.4‰) is slightly larger than that in $\delta^{13}\text{C}$ values (0.3‰) but both are small, considering that analytical uncertainty is ±0.2‰. Table 7.1 also lists the weight %C, weight %N and C:N values as an indicator of the degree of consistency across samples. The range of values is 45.1 to 46.1 for %C, 1.4 to 1.7 for %N, and 30.8 to 39.2 for the atomic C:N ratios. %N shows the lowest variation (0.3) compared to %C (1.0). The degree of variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values was small enough that 20 randomly selected grains from each of the other panicles were pooled for analysis.

Table 7.1: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for 12 grains from a single panicle of sorghum variety 308, from Plot 1 of Eswatini.

Sample	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio
1A	-12.4	5.3	45.8	1.6	28.7	33.5
1B	-12.3	5.5	45.5	1.6	28.3	33.0
1C	-12.5	5.7	45.9	1.7	27.7	32.3
1D	-12.4	5.7	45.2	1.6	28.8	33.6
1E	-12.2	5.3	46.1	1.5	30.2	35.2
1F	-12.3	5.3	45.7	1.5	31.1	36.2
1G	-12.3	5.3	45.8	1.4	33.5	39.1
1H	-12.5	5.3	45.1	1.7	26.4	30.8
1I	-12.3	5.6	45.7	1.6	28.4	33.1
1J	-12.4	5.6	45.9	1.6	28.5	33.3
1K	-12.3	5.3	45.3	1.5	30.6	35.7
1L	-12.3	5.5	45.7	1.4	33.6	39.2
Mean $\pm$ Stdev	-12.4 $\pm$ 0.1	5.5 $\pm$ 0.2				

Table 7.2: Number of panicles of each variety of modern sorghum used for $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis.

Variety	Plot 1, Eswatini	Plot 2, Eswatini	Richards Bay	Gauteng	Cape Town
<i>Mshalane</i>	10	6	10	4	-
308	10	10	10	2	-
236	8	10	10	-	-
<i>S. bicolor</i> , variety unknown	-	-	-	-	2

$\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of contemporary-grown sorghum

20 grains were homogenized and measured for each of the 92 panicles listed in Table 7.2. The range of values is 38.7 to 48.1 for %C, 1.1 to 2.6 for %N, and 18.1 to 49.7 for the atomic C:N ratios. $\delta^{13}\text{C}$ values vary from -13.3‰ to -11.6‰, with a range of 1.7‰ (Table 7.3). The mean is -12.5 $\pm$ 0.4‰ and the median is -12.4‰. When two panicles from Constantia (CT HD 1 and CT HD2) are excluded, the $\delta^{13}\text{C}$ range and mean values do not change. The median increased insignificantly to -12.5‰. These values are within the expected range for plants that employ a C_4 photosynthetic pathway, ranging between -10‰ to -14‰. At -11.6‰ and -11.9‰ the $\delta^{13}\text{C}$ values of CT HD 1 and CT HD 2 grown in 1999/2000 lie at the positive end of the range of variation, however they are within the range of the overall sample set. The $\delta^{13}\text{C}$ of $\text{CO}_{2(\text{atm})}$ in 1999/2000 was approximately 0.5‰ less negative than in 2017/2018 (Graven *et al.* 2017).

The $\delta^{15}\text{N}$ values range from 1.7‰ to 8.8‰, i.e. a range of 7.1‰. The mean is 4.4 ± 1.6 ‰ and the median is 4.9‰. Excluding the two samples from Constantia with values of 8.2‰ and 8.8‰, grown in a garden where the soils probably retain residual fertilizers, the range is 1.7 to 7.1‰ (4.4 ± 1.5 ‰), still a large range. In Figure 7.1 $\delta^{15}\text{N}$ is plotted against $\delta^{13}\text{C}$ for contemporary sorghum samples. The linear regression equation is $y = -2.038x - 20.97$, with an R^2 value of 0.22. If the two outliers are excluded, the equation is $y = -2.71x - 29.53$, and the R^2 value is 0.41. The Spearman's Rank Co-efficient value of -0.532 ($p < 0.01$) indicates a moderately negative relationship. Appendix 1 lists the weight %C, weight %N and atomic C:N values for the modern-grown sorghum.

Simple linear regression is, however, not entirely appropriate for this dataset, since different panicles from the same plot will probably be more similar to one another than to panicles from different plots. To account for this, a mixed effects linear regression was performed with locality as the random effect. The Intraclass Correlation Coefficient (ICC) is 0.92, showing that locality has an important effect (this test is reported in detail in Appendix 3).

Table 7.3: Descriptive summary statistics of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of 92 contemporary sorghum panicles.

Variable	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)
Minimum	-13.3	1.7
Maximum	-11.6	8.8
Range	1.7	7.1
Median	-12.4	4.8
Mean $\pm$ Stdev	-12.5 ± 0.4	4.4 ± 1.6

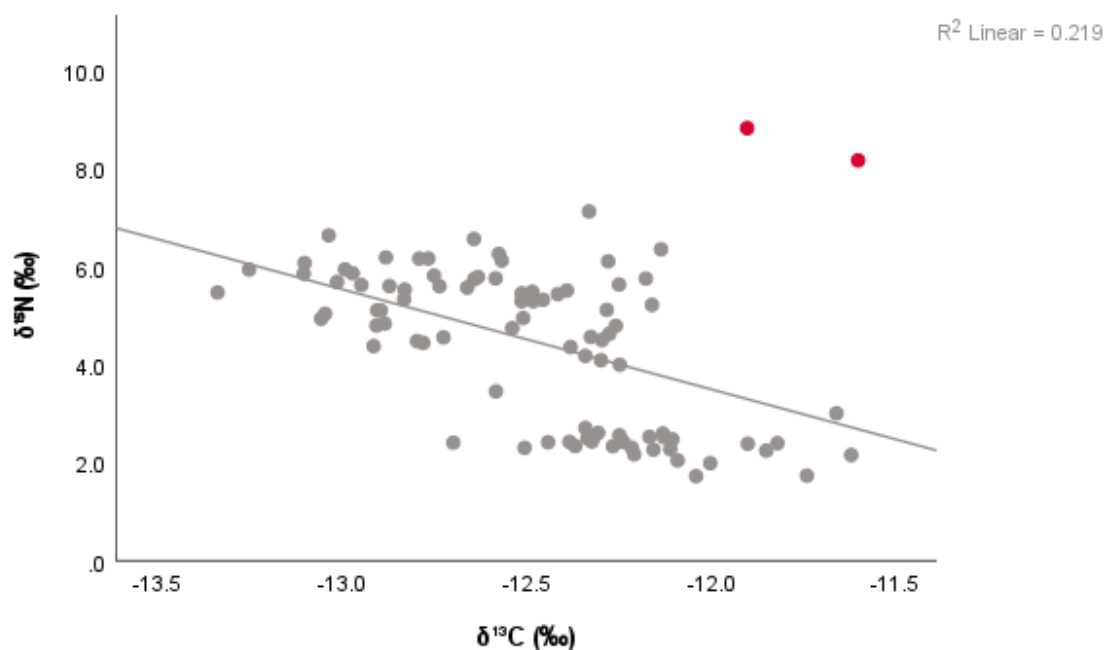


Figure 7.1: $\delta^{15}\text{N}$ plotted against $\delta^{13}\text{C}$ values for contemporary sorghum grains (n=92). The red points represent CT HD 1 and CT HD 2.

Comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of contemporary sorghum based on location

The five plots in which the sorghum was grown and harvested for this study are in different regions with different climates that are likely to affect the isotopic composition of the plants (Table 7.4). The most important climatic variables are rainfall, temperature, and potential evapotranspiration (PET) (Table 7.4). These variables are not relevant for the Cape Town samples as they were watered artificially. Values for Richards Bay and Benoni were obtained from the Agricultural Research Council (ARC). MAT and MAP for the localities in Eswatini were obtained from the Swaziland Meteorological Service, and MAPE from the Royal Eswatini Sugar Corporation. Plots 1 and 2 of Eswatini experienced similar weather conditions during growing season. In Eswatini, sowing began in November 2017 and harvest took place in March 2018. In the South African plots, sowing began in December 2017 and harvest took place in April of 2018, therefore, the values used are for the appropriate months.

Table 7.4a: Monthly rainfall for Plots 1 and 2 of Eswatini, Richards Bay, and Gauteng (Wattville) for the years 2017 and 2018.

Rainfall (mm)	November	December	January	February	March	April	Average
Plot 1	172	88	82	149	17	-	102
Plot 2	172	88	82	149	17	-	102
Richards Bay	-	145	50	166	88	55	101
Gauteng	-	342	119	49	188	33	146

Table 7.4b: Average daily minimum and maximum temperatures for Plots 1 and 2 of Eswatini, Richards Bay, and Gauteng (Wattville) for the years 2017 and 2018.

Temperature (°C)	November	December	January	February	March	April	Average
Plot 1	13/26	14/24	15/27	17/26	16/28	-	15/26
Plot 2	13/26	14/24	15/27	17/26	16/28	-	15/26
Richards Bay	-	19/28	19/31	20/29	19/30	17/29	19/29
Gauteng	-	14/26	14/28	14/26	12/25	10/23	13/26

Table 7.4c: Monthly potential evapotranspiration for Plots 1 and 2 of Eswatini, Richards Bay, and Gauteng (Wattville) for the years 2017 and 2018.

Potential Evapotranspiration (mm)	November	December	January	February	March	April	Average
Plot 1	181	161	198	114	116	-	154
Plot 2	181	161	198	114	116	-	154
Richards Bay	-	127	159	105	117	87	119
Gauteng	-	136	156	107	105	80	117

Examination of Fig. 7.2 shows that there are two major clusters of points: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for Plots 1 and 2 of Eswatini and Gauteng Province cluster together, and are significantly different from the values for Richards Bay (Fig. 7.2, Mann-Whitney Z-value = 6.154 and -7.703 respectively, $p < 0.001$). This is consistent with the result of the mixed effects linear model reported above.

Table 7.4a shows a drastic fluctuation of rainfall conditions over the 5-month growing period across all localities. On average, Gauteng experienced the highest rainfall, at 146 mm/month, followed by the Eswatini localities (102 mm/month) and Richards Bay (101 mm/month). Temperatures at Richards Bay were higher (29/19 °C) than Eswatini (26/15 °C) and Gauteng (26/13 °C) (Table 7.4b). Table 7.4c shows that for all the localities, there is variation in potential evapotranspiration with the highest rates in January. However, over the 5-month growing period, the Eswatini localities experienced the highest average potential evapotranspiration, at 154 mm, compared with 119 mm in Richards Bay and 117 mm in Gauteng.

The different climatic conditions across these locations may explain the difference in the distributions of both the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values. This will be explored further in the following chapter.

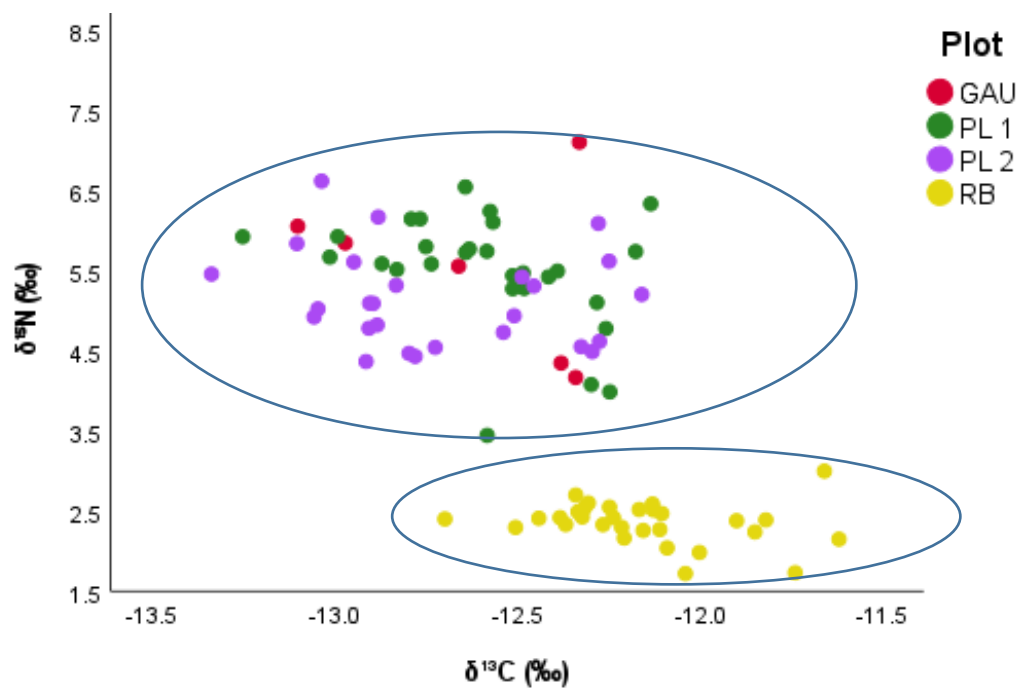


Figure 7.2: Scatterplot showing the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution according to the location of contemporary sorghum.

a)

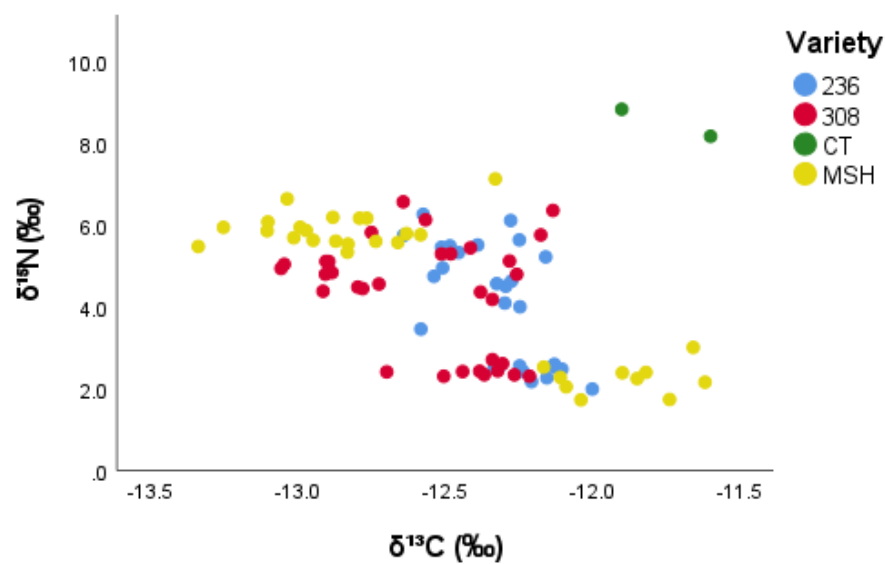


Figure 7.3a: Scatterplot showing distribution of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ for each contemporary variety.

b)

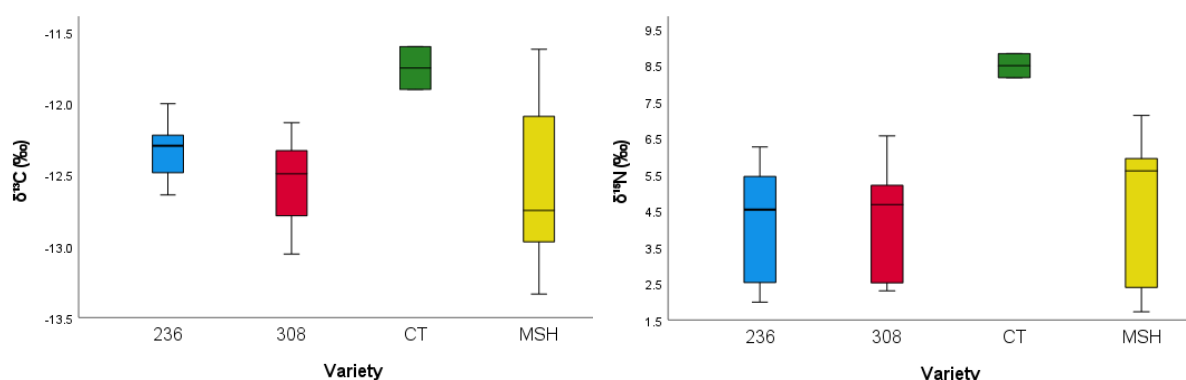


Figure 7.3b: Boxplots showing the spread of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for each contemporary variety.

Location-independent comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution of varieties

Comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution of varieties

Carbon

All the sorghum grown in 2017-2018 was one of 3 varieties: *mshalane*, 308 and 236. Figure 7.3a shows the distribution of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for all contemporary-grown sorghum varieties to ascertain whether or not there are significant differences across the varieties. The $\delta^{13}\text{C}$ values of the *mshalane* variety show the greatest scatter, from -13.3‰ to -11.6‰ with a mean of $-12.6 \pm 0.5\%$ and median of -12.8‰. The 308 variety shows less variation (-13.1 to -12.1‰) with a mean of $-12.6 \pm 0.3\%$ and median of -12.5‰. The 236 variety displays least variation (-12.6 to -12.0‰) with a mean of $-12.3 \pm 0.2\%$ and median of -12.3‰. The two samples of Cape Town sorghum have $\delta^{13}\text{C}$ of -11.9‰ and -11.6‰.

Nitrogen

Figure 7.3b shows the spread of the $\delta^{15}\text{N}$ values of each sorghum variety. Values for *mshalane* vary from 1.7‰ to 7.1‰ with a mean of $4.7 \pm 1.8\%$ and median of 5.9‰. Values for the 236 variety range from 2.0‰ to 6.3‰ with a mean of $4.1 \pm 1.4\%$ and median of 4.5‰, while those for 308 range from 2.3‰ to 6.6‰ with a mean of $4.3 \pm 1.8\%$ and median of 4.7‰. Cape Town sorghum has the highest $\delta^{15}\text{N}$ values, at 8.2‰ and 8.8‰. Kruskal Wallis Test shows that the distributions of $\delta^{13}\text{C}$ values are different across varieties (H-value = 14.101, $p=0.003$). Pairwise comparison tests reveal that the difference is between the 308 and 236 varieties (p-value adjusted by Bonferroni correction, $p=0.047$). There is no significant difference in $\delta^{15}\text{N}$ values between the varieties.

A mixed-effects linear regression with sorghum variety as the random effect yielded a high Intraclass Correlation Coefficient of 0.82, indicating that a high proportion of the total variability in $\delta^{15}\text{N}$ is due to differences between varieties (rather than within varieties) (details in Appendix 3). This is,

however, a lower ICC than that reported above for locality, indicating that locality is more important than variety in determining the patterning seen in these data.

Location-dependent comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution of varieties

Comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of varieties within each location

The $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution of varieties are compared for each location. The Cape Town samples are excluded as they were a single variety grown in a single location.

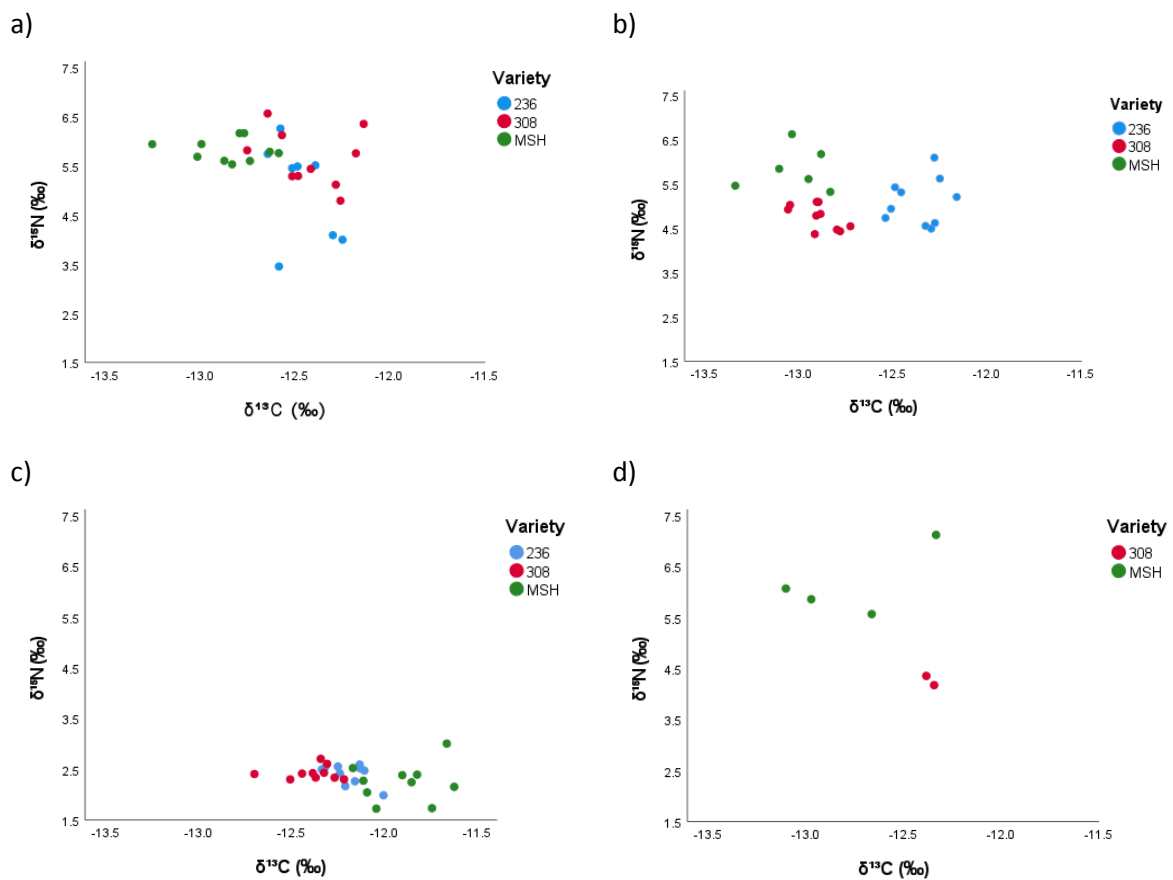


Figure 7.4: Scatterplot showing the distribution of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of each variety for (a) Plot 1 of Eswatini, (b) Plot 2 of Eswatini, (c) Richards Bay, and (d) Gauteng.

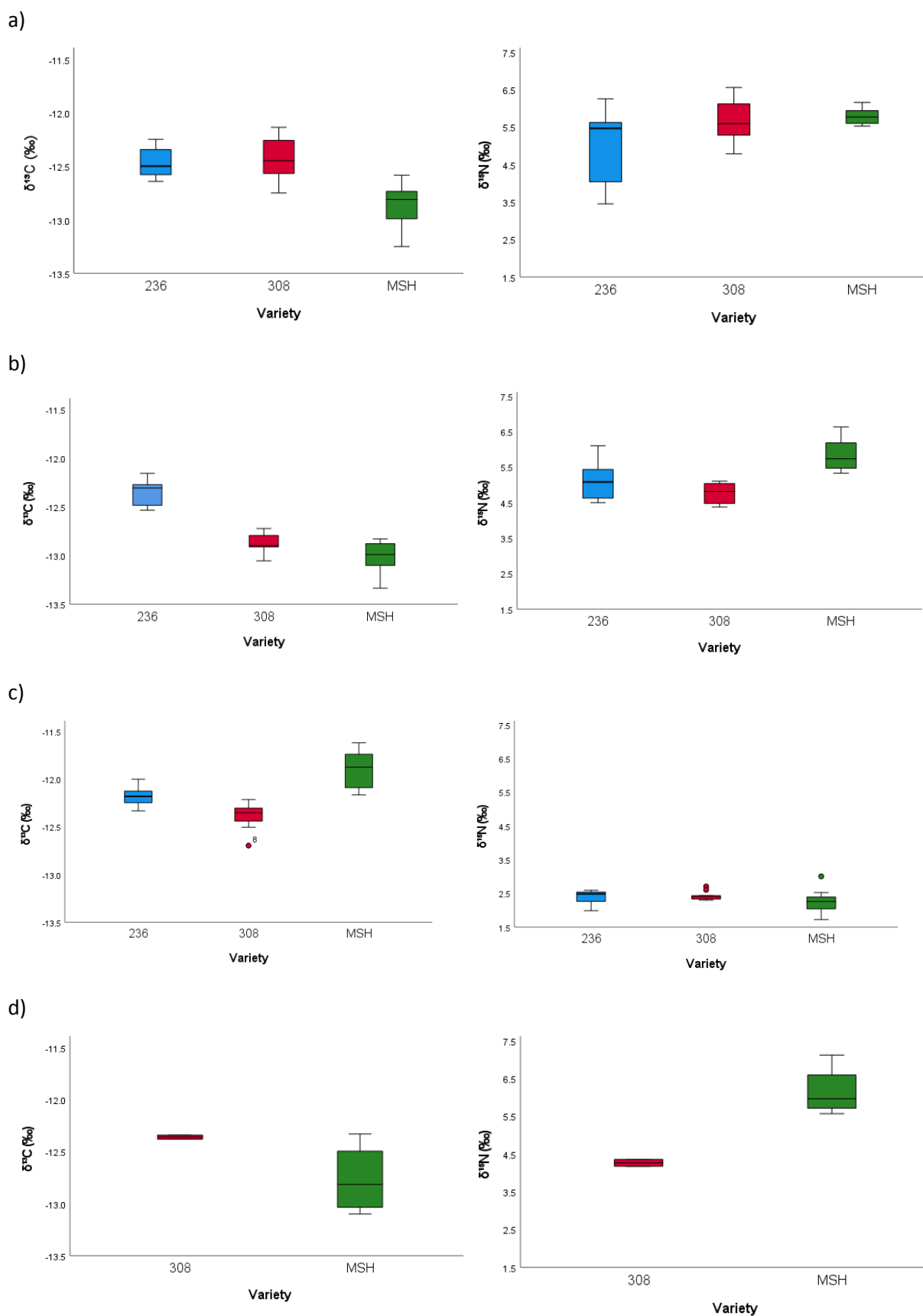


Figure 7.5: Boxplots showing the spread of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of each variety for Plot 1 of (a) Eswatini, (b) Plot 2 of Eswatini, (c) Richards Bay, and (d) Gauteng.

Carbon

At Plot 1 of Eswatini, the Kruskal-Wallis test indicates that the distribution of $\delta^{13}\text{C}$ values are different across varieties (H-value = 15.938, $p < 0.001$). The most negative $\delta^{13}\text{C}$ values are for *mshalane*, and pairwise comparisons adjusted by the Bonferroni correction shows that it is significantly different from both the 236 (Fig. 7.4a, Fig. 7.5a; $p = 0.005$) and the 308 varieties ($p = 0.001$). The $\delta^{13}\text{C}$ values of 236 are not significantly different from 308 (p -value adjusted by Bonferroni correction, $p = 1.000$). Mann-Whitney Z-value for *mshalane* compared with 236 and 308 combined is -3.980, $p < 0.001$. At Plot 2 of Eswatini, the Kruskal-Wallis test shows a significant difference in the $\delta^{13}\text{C}$ values across varieties (H-value = 18.434, $p < 0.001$). Pairwise comparisons adjusted by the Bonferroni correction indicate that the $\delta^{13}\text{C}$ values for *mshalane* are not significantly different from 308 (Fig. 7.4b, Fig. 7.5b; $p = 1.000$), however both varieties are significantly more negative than 236 ($p = 0.000$ and $p = 0.002$, respectively). At Richards Bay, the distribution of $\delta^{13}\text{C}$ values are different across varieties significantly differed (H-value = 21.370, $p < 0.001$). *Mshalane* is less negative than 308 (Fig. 7.4c, Fig. 7.5c; pairwise comparison adjusted by Bonferroni correction, $p = 0.000$) but not significantly different from 236 ($p = 0.062$). Therefore, *mshalane* from the various localities has yielded both the most negative and the most positive $\delta^{13}\text{C}$ values of all the contemporary sorghum.

Nitrogen

The $\delta^{15}\text{N}$ pattern within each location is less clear. At Plot 1 of Eswatini and Richards Bay, the $\delta^{15}\text{N}$ values are not significantly different across all varieties (H-values = 4.803 and 3.757 respectively, $p < 0.05$). At Plot 2 of Eswatini, the Kruskal-Wallis test indicates a significant difference in the $\delta^{15}\text{N}$ values across varieties (H-value = 12.326, $p = 0.002$). Pairwise comparisons adjusted by the Bonferroni correction show that the $\delta^{15}\text{N}$ values of *mshalane* are significantly different from 308 ($p = 0.001$) and not significantly different from 236 ($p = 0.085$). Lastly, the $\delta^{15}\text{N}$ values of 308 are not significantly different from 236 ($p = 0.385$).

Comparison of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of each variety across different locations

Carbon

A Kruskal-Wallis test shows that the $\delta^{13}\text{C}$ values in the 308 variety are significantly different across locations (H-value = 19.757, $p < 0.001$). The $\delta^{13}\text{C}$ values in the 308 variety are the most negative in Plot 2 of Eswatini, and significantly different from that grown in Plot 1 of Eswatini (pairwise comparisons adjusted by Bonferroni correction, $p = 0.002$) and Richards Bay ($p = 0.001$). The $\delta^{13}\text{C}$ values of 308 grown at GAU, Plot 1 and Richards Bay are similar and show no significant difference (H-value = 0.213, $p = 0.899$) (Fig. 7.6a, Fig. 7.7a). A Kruskal-Wallis test shows that the $\delta^{13}\text{C}$ values in the 236 variety are significantly different across locations (H-value = 13.118, $p = 0.001$). The $\delta^{13}\text{C}$ values of

the 236 variety grown in Plots 1 and 2 of Eswatini indicate no significant difference (pairwise comparisons adjusted by Bonferroni correction, $p=0.649$). However, the $\delta^{13}\text{C}$ values of 236 grown in Richards Bay are significantly different from those at Plots 1 ($p=0.001$) and 2 of Eswatini ($p=0.047$). The $\delta^{13}\text{C}$ values in the *mshalane* variety are significantly different across locations (Kruskal-Wallis H-value = 20.981, $p<0.001$). The most negative $\delta^{13}\text{C}$ values are for *mshalane* grown in Richards Bay, which is significantly different from that of Plots 1 (pairwise comparisons adjusted by Bonferroni correction, $p=0.004$) and 2 of Eswatini ($p=0.000$). The $\delta^{13}\text{C}$ values of *mshalane* grown at Plots 1 and 2 of Eswatini and GAU are similar, indicating no significant difference (Kruskal-Wallis H-value = 3.600, $p=0.165$).

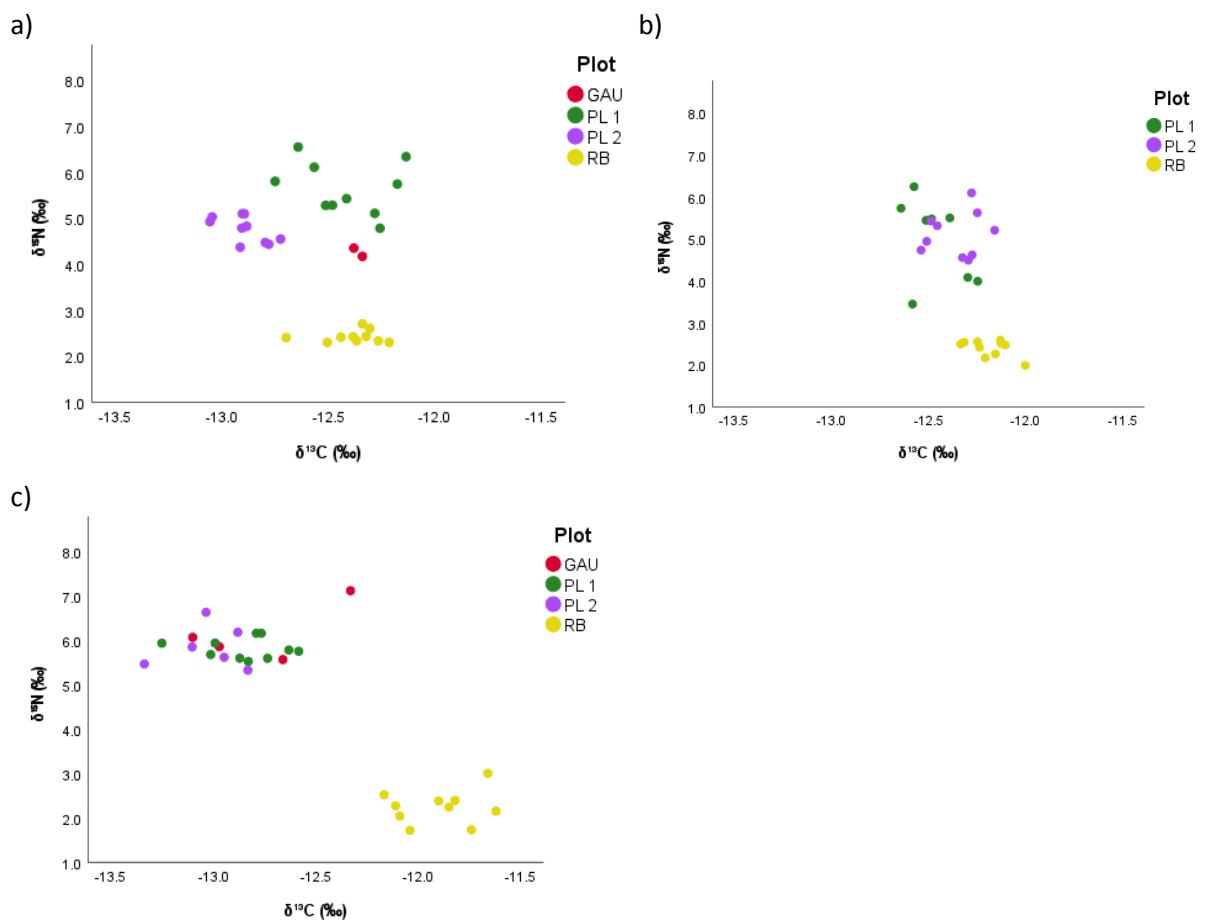


Figure 7.6: Scatterplot showing the spread of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for (a) 308, (b) 236 and (c) *mshalane* varieties across locations.

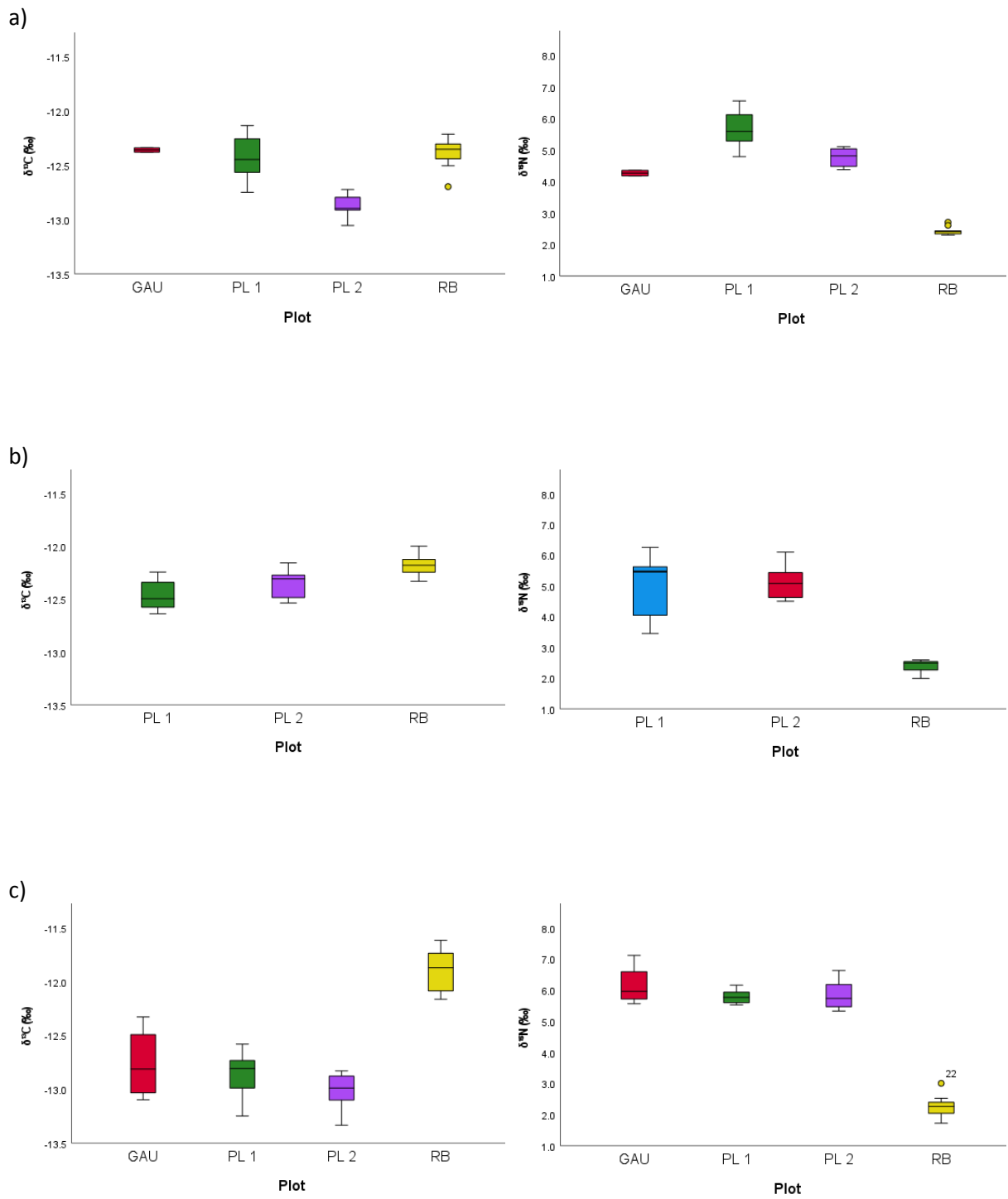


Figure 7.7: Boxplots showing the spread of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for (a) 308, (b) 236 and (c) *mshalane* varieties across locations.

Nitrogen

For all varieties, the $\delta^{15}\text{N}$ values are the most negative in Richards Bay. A Kruskal-Wallis test shows that the distribution of $\delta^{15}\text{N}$ values in the 308 variety are significantly different across locations (H-value = 26.900, $p < 0.001$). Pairwise comparisons indicate that the $\delta^{15}\text{N}$ values for the 308 variety at Richards Bay are significantly different from Plots 1 (p-values adjusted by Bonferroni correction, $p = 0.000$) and 2 of Eswatini ($p = 0.016$). The $\delta^{15}\text{N}$ values for the 236 variety across locations are significantly different (Kruskal-Wallis H-value = 18.651, $p < 0.001$). The $\delta^{15}\text{N}$ values for 236 at Richards Bay are significantly different from Plots 1 (p-values adjusted by Bonferroni correction, $p = 0.001$) and 2 of Eswatini ($p = 0.001$). Lastly, the $\delta^{15}\text{N}$ values for the *mshalane* variety across locations are significantly different (H-value = 19.695, $p < 0.001$). The $\delta^{15}\text{N}$ values for *mshalane* at Richards Bay are significantly different from Plots 1 (p-value adjusted by Bonferroni correction, $p = 0.001$) and 2 of Eswatini ($p = 0.011$) and GAU ($p = 0.006$).

$\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of archaeological sorghum from Historic Cave, Makapan Valley

Table 7.5 shows the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for 11 samples of *S. bicolor* from Historic Cave, together with weight %C and %N and elemental (atomic) C:N ratios. Samples A1, A7, A8a, E, F1, G and H were each measured on a single grain. In the other cases (A8b, Ax, C and F2), the individual grains were too small for analysis so multiple grains from the same context were pooled. The grains in Sample A8b each had a small dark speck. These specks are similar to those seen on Sample 308 Gauteng HD 2 (hereafter, Sample 308 GAU HD 2). It was thus deduced that the specks were a natural occurrence. The $\delta^{13}\text{C}$ values for sorghum from Historic Cave have been adjusted to account for the fossil fuel effect. This was done by subtracting 1.7‰ from each measured value, based on $\delta^{13}\text{C}$ $\text{CO}_{2(\text{atm})}$ of -6.7‰ for the year 1854 from the dataset of Graven et al. (2017) and -8.4‰ for the year 2018 (from Mauna Loa, Scripps Institution of Oceanography Global CO_2 Program 2018). As a result, the $\delta^{13}\text{C}$ values of sorghum from Historic Cave can be compared directly with those of sorghum grown in 2017-2018.

Table 7.5: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for 11 archaeological sorghum samples from Historic Cave. The $\delta^{13}\text{C}$ values are corrected for the fossil fuel effect (-1.7‰). Mean and standard deviations exclude sample B4. Sample F1 were red grains and F2 were yellow grains which possibly indicates at least two varieties. Information on the color of grains was not collected for the other samples – all appeared brownish.

Sample	Area of Cave	Unit	Layer	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio	Additional Information
A1	Dg1	M1	GM	-11.5	9.6	42.0	1.4	29.5	34.4	Single Grain
A7	Dg1	M1	GM	-10.9	12.6	41.9	1.7	24.1	28.1	Single Grain
A8a	Dg1	M1	GM	-11.5	8.9	41.1	2.5	16.6	19.4	Single Grain
A8b	Dg1	M1	GM	-11.2	12.8	42.7	2.0	21.9	25.6	Five Grains
Ax	Dg1	M1	GM	-10.8	8.0	39.5	2.0	20.0	23.3	Three Grains
C	Dg1	N1/M1	Floor	-11.1	10.1	41.8	1.2	34.5	40.3	Two Grains
E	Dg1	M2	RBL/GM	-11.5	4.8	42.1	2.4	17.3	20.2	Single Grain
F1	Dg1	M2	GM	-11.5	5.4	41.2	1.2	34.0	39.7	Single Grain
F2	Dg1	M2	GM	-11.7	6.1	41.8	2.0	20.9	24.4	Multiple Grains
G	Dg1	M1	Surface	-12.8	4.1	41.7	1.9	22.0	25.7	Single Grain
H	Dg1	V9	Sub-Surface	-11.5	7.6	39.1	1.7	23.7	27.7	Single Grain
Mean±Stdev				-11.5±0.5	8.2±3.0					

Table 7.5 shows the %C, %N and the atomic C:N ratios of the archaeological sorghum as a check on the quality of the material analysed. It should be noted that, as described in Chapter Six, these are desiccated (not carbonized) grains. %C values range from 39.1 to 42.8, and %N from 1.2 to 2.8. The range of C:N ratios is 17.7 to 40.3. All the %C values for grains from Historic Cave therefore lie within the range reported for modern sorghum analysed in this thesis, tabulated in Appendix 1 (38.7 to 48.1). %N values for Historic Cave also lie within the modern range (1.1 to 2.6), with the exception of Sample B4 which contains 2.8% N. Its atomic C:N ratio, at 17.7, is also outside the modern range.

The $\delta^{13}\text{C}$ values for Historic Cave range from -12.8‰ to -10.8‰ , with a mean of $-11.5 \pm 0.5\text{‰}$ ($n=11$) and a median of -11.5‰ (Table 7.6). The $\delta^{15}\text{N}$ values range from 4.1‰ to 17.2‰ with a mean of $8.9 \pm 3.8\text{‰}$ and a median of 8.4‰ . $\delta^{15}\text{N}$ values therefore extend over a wide range of 13.1‰ compared with only 2‰ for the $\delta^{13}\text{C}$ values (Fig. 7.8). Sample B4 with high %N and C:N values, also has the highest $\delta^{15}\text{N}$ value of 17.2‰ . It seems likely that this sample has undergone post-depositional alteration, so it will be excluded from further analysis. This reduces the range of $\delta^{15}\text{N}$ values to 8.7‰ and shifts the mean to $8.2 \pm 3.0\text{‰}$ (Table 7.5, $n=11$) and the median to 8.0‰ (Table 7.6). The loosely scattered distribution produces a regression equation of $y = 3.69x + 50.44$, with an R^2 value of 0.44, and a Spearman's Rank Co-efficient of 0.70 ($p < 0.05$). There is a significant positive correlation between the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values (Fig. 7.8).

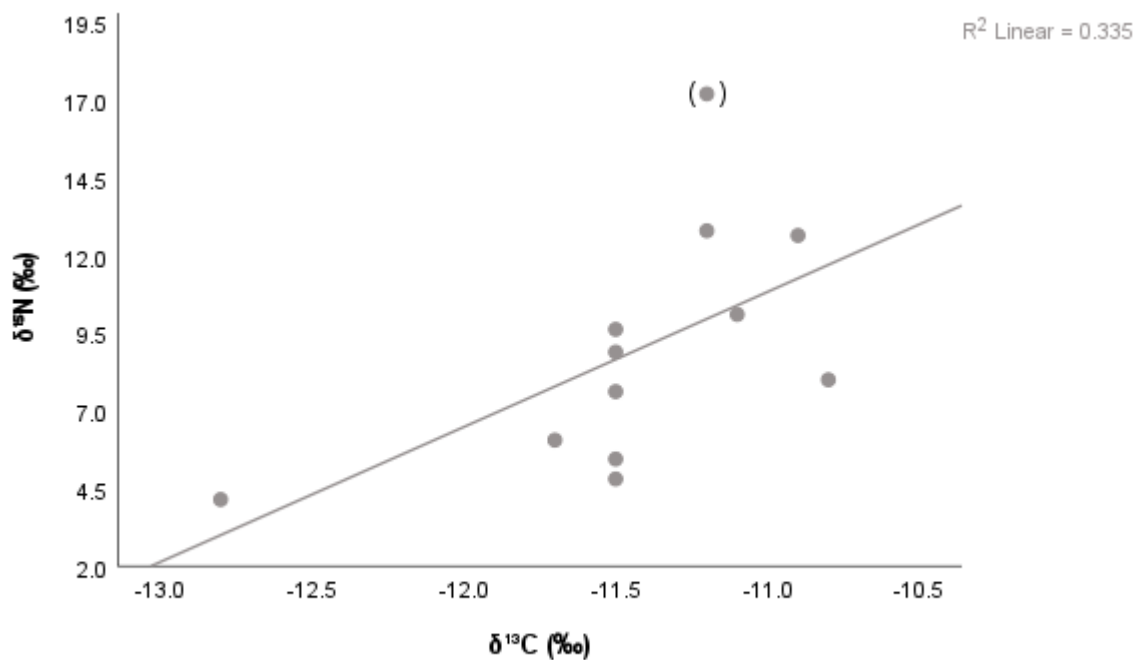


Figure 7.8: Spread of the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for archaeological sorghum grain from Historic Cave. The $\delta^{13}\text{C}$ values are corrected for the fossil fuel effect. Point shown in brackets is Sample B4.

A comparison of the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of contemporary and archaeological sorghum

Figure 7.9 shows the distribution of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of the contemporary compared with the archaeological sorghum from Historic Cave. Archaeological samples tend to have less negative $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ than modern ones (Mann-Whitney Z-values = -4.602, $p < 0.001$ and $Z = -3.737$, $p < 0.001$), with the exception of archaeological Sample G which clusters with the modern grains. The range of $\delta^{13}\text{C}$ values for archaeological sorghum is 2.0‰ (n=11), only slightly larger than 1.7‰ (n=92) for modern sorghum. The range of $\delta^{15}\text{N}$ values for archaeological sorghum is 8.7‰ (n=11), larger than 7.1‰ (n=92) for modern sorghum, although the archaeological sample is much smaller and presumably all came from the vicinity of Historic Cave. The implications of this will be discussed further in the following chapter.

Table 7.6: Descriptive summary statistics of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ according to period. $\delta^{13}\text{C}$ values of archaeological sorghum are corrected for the fossil fuel effect (-1.7‰).

Contemporary	N	Median	Maximum	Minimum	Range
$\delta^{13}\text{C}$	92	-12.4	-11.6	-13.3	1.7
$\delta^{15}\text{N}$	92	4.8	8.8	1.7	7.1
Archaeological					
$\delta^{13}\text{C}$	12	-11.5	-10.8	-12.8	2.0
$\delta^{15}\text{N}$	11	8.0	12.8	4.1	8.7

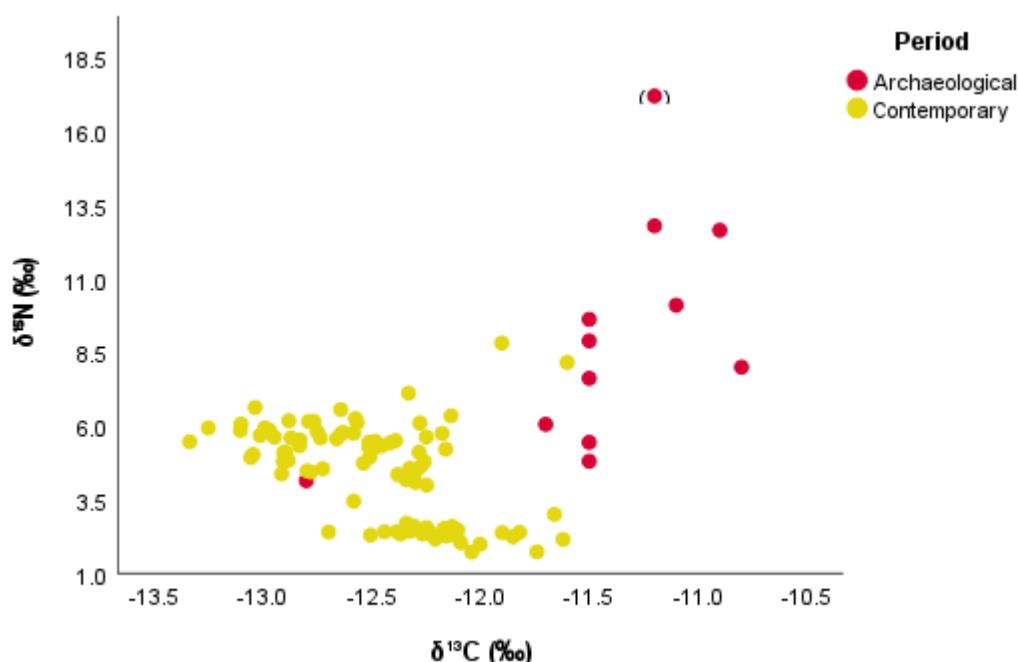


Figure 7.9: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of contemporary sorghum compared with archaeological sorghum from Historic Cave. Archaeological samples have been corrected for the fossil fuel effect (-1.7‰).

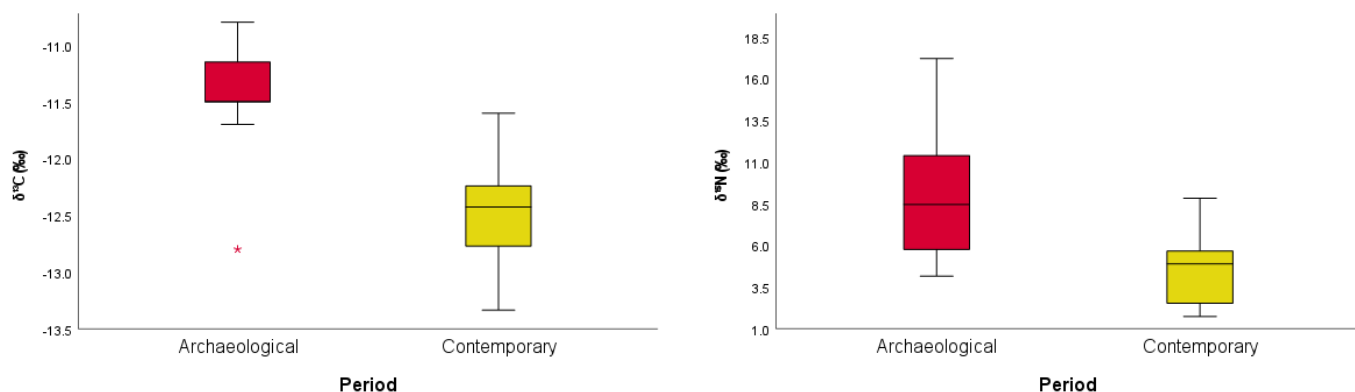


Figure 7.10: Boxplot showing the spread of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values according to period. $\delta^{13}\text{C}$ values of archaeological sorghum have been corrected for the fossil fuel effect (-1.7‰).

Concluding remarks

$\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values were measured for 92 panicles of contemporary-grown pesticide-free sorghum, and 12 samples of single or multiple grains recovered from different archaeological contexts within Historic Cave. The goal was to assess the distribution of values and variation:

- a) Within a single sorghum panicle
- b) Amongst all contemporary-grown sorghum
- c) Amongst all contemporary-grown sorghum based on location
- d) Amongst all contemporary-grown sorghum based on varieties
- e) Amongst all varieties within each location
- f) For each variety across different locations
- g) Amongst sorghum grains recovered from Historic Cave
- h) Between sorghum from Historic Cave and contemporary sorghum.

The minor within-panicle variation for both $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values shows that position of individual sorghum grains on a panicle has no isotopic significance and therefore no effect on the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in consumers. $\delta^{15}\text{N}$ values are more variable than $\delta^{13}\text{C}$ values across all groups. Sorghum grown in Constantia, Cape Town lies at the positive end of the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ distribution, probably a reflection of the less negative $\delta^{13}\text{C}$ value of $\text{CO}_{2(\text{atm})}$ in 1999/2000 relative to 2017/2018, and the effect of residual fertilizer in the soil. *Mshalane* from the various locations has yielded both the most negative and the most positive $\delta^{13}\text{C}$ of all the contemporary sorghum, with the lowest $\delta^{15}\text{N}$ values coming from Richards Bay. The $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of the archaeological samples tend to be less negative than the contemporary ones. Chapter Eight reports on the interviews conducted with contemporary

farmers in Eswatini in relation to agricultural, food storage and consumption practices of the distant and recent past.

CHAPTER EIGHT: Results:

Past and Present Agricultural Practices in Eswatini Society

Introduction

This chapter provides a brief report on the interviews that were conducted with the 18 sorghum farmers from Eswatini. These interviews had two goals: first, to shed light on past and present small-scale subsistence farming practices of this part of southern Africa. The second goal was to elucidate how these practices may influence the carbon and nitrogen isotope patterns in plants, and therefore the dietary reconstruction of past farming communities. The questions were structured around the types of indigenous versus modern sorghum varieties that were and are grown, sowing, harvesting, and storage practices, and how the harvest is used. In relation to the past, farmers shared knowledge of agricultural practice passed down from their grandparents and parents, while current farming practice is strongly influenced by the teachings of the Rural Development Agency (RDA).

Varieties of sorghum grown: past and present

One of the key questions posed to the eighteen farmers concerned the types of sorghum varieties grown over time. In each interview, the farmer was asked to list all the indigenous sorghum varieties they could remember that were grown by their grandparents and parents, as well as themselves. Fifteen farmers were able to respond to this question. Table 8.1 lists the nine varieties reported, with distinguishing characteristics (where mentioned). Farmer 9 did not grow sorghum until the RDA introduced the modern varieties. However, she recalled that the *mshake* variety was grown by other farmers, so it is included here (Table 8.1). Farmers 1, 17 and 18 (20%) recalled only one indigenous variety, even though their families grew multiple strains. Ten farmers (67%) recalled their families growing multiple indigenous varieties of sorghum. Some farmers provided phenotypic descriptions of varieties whose names they could not remember, such as:

...we grew mshake, mshalane and another white variety that I became aware of a little later in my life. It was loved by birds (Farmer 12: 15 April 2019)

Others gave both the names and physical descriptions of the varieties their families grew such as:

My family grew only two types. There was one called mshake. It grew a tall stalk, and its grains were red. Then there was another one that grew a shorter stalk called mathinikwane (Farmer 15: 15 April 2019)

From narrations such as these, it was possible to assign names to some of the varieties whose phenotypic characteristics were provided. Farmer 6 listed the largest number of varieties, with a total of 7. Farmers 5, 8, 12, and 10 (27%) each mentioned 3 varieties, and Farmers 4, 11, 13, 15 and 16 (33%) 2 varieties. These were 1) *mshalane*, 2) *mathinikwane* (or *matsinikwane*), 3) *gabane*, 4) *ntfweka* (or *ndvweka*), 5) *mshake*, 6) *khwebintombi*, 7) *gebeleweni*, 8) *jiba*, and 9) *mgcobane*. Of these varieties, *ntfweka*, *mshake*, *jiba* and *mathinikwane* were described. *Ntfweka* was described by Farmer 10 as having red grains and growing similar to sweet cane (*imfe* in isiSwati). It is not immediately clear whether this meant the *ntfweka* is similar to sweet cane or simply grows like it (Table 8.1):

My family used to grow mshake and ndvweka. It [ndvweka] is the variety that has red grains and they grow like sweet cane. We also grew mathinikwane, the variety with the short stalk (Farmer 10: 14 April 2019)

The *mshake* variety was described as having had red grains and a long flexible stalk. The stalk bent when birds attempted to perch on its panicle. The *mshalane* was described as having a long stalk, with floppy panicles which make it difficult for birds to perch and consume the grains. The *jiba* variety was also not eaten by birds. As Farmer 5 explained:

There is the jiba variety, which is not eaten by birds. I don't know why or how to explain it, but the birds do not eat this variety at all. You simply sow its seeds and let them grow without any worry of the birds (Farmer 5: 14 April 2019)

In contrast, the Eswatini farmers grew only three modern varieties (Table 8.1). The *NS5511* is a short-stalked variety with brown/red grains. The *marcia* variety is also short-stalked, with white grains. It is loved by birds. Lastly is the 8625 variety which is also known as *pannar*. No phenotypic description was reported for the 8625 variety. Of the 18 farmers, only Farmer 6 grew all three modern varieties. Seven farmers (1, 2, 4, 5, 9, 10 and 17) or 34% grew only *NS5511* and *marcia*, and six farmers (7, 8, 11, 14, 15 and 18) or 33% grew only *NS5511*. Of these six farmers, four (8, 11, 14 and 15) or 66% used only *NS5511* because *marcia* is targeted by birds:

I grow the red/brown variety [NS5511] only. I do not want the white variety [marcia], it attracts too many birds [Farmer 14: 15 April 2019]

and,

I used to grow different varieties of [modern] sorghum but I have since stopped. I used to grow the white [marcia] and red/brown [NS5511] varieties. I then stopped growing the white variety because I didn't get any harvest [Farmer 15: 15 April 2019]

Farmers 13 and 16 did not know the names of the varieties that they grew. However, Mr Vilakati (agricultural extension officer) told us that it was *NS5511*. Farmer 12 had previously not grown any modern varieties but was due to start in the coming season. Farmer 3 grew the *mshalane*, which was the only indigenous variety still being grown at the time of the interviews. It is included in the indigenous count for *mshalane* as indicated by the asterisk. Except for *mshalane*, none of the farmers mentioned the varieties that were grown for this study.

Table 8.1: A list of indigenous sorghum varieties, their descriptions and the number of times they were mentioned. Seven in the column for *mshalane* includes six mentions of people growing it in the past, and Farmer 3 mentioned that she was still growing it at the time of the interviews.

Name of indigenous variety	Description	No. of farmers who mentioned it
<i>Mshalane</i>	Tall stem, floppy panicle, brown grains	7
<i>Mshake</i>	Tall flexible stem, red grains	11
<i>Mathinikwane/Homeni</i>	Short stem, white grains	8
<i>Mgcobane</i>	Not available	2
<i>Jiba</i>	Not liked by birds	1
<i>Gebeleweni</i>	Not available	1
<i>Gabane</i>	Not available	2
<i>Ntfweka/Ndvweka</i>	Red grains, grow like sweet cane	2
<i>Khwebintombi</i>	Not available	1
Name of modern variety	Description	No. of farmers who mentioned it
<i>NS5511</i>	Short stem, red/brown grains	16
<i>Marcia</i>	Short stem, white grains, loved by birds	8
<i>8625</i>	Not available	1

Advantages and disadvantages of growing indigenous versus modern sorghum strains

The farmers identified the advantages and disadvantages of growing indigenous compared with modern sorghum varieties. Ten of the 18 farmers (5, 6, 10, 11, 13, 14, 15, 16, 17 & 18) or 56% mentioned that generally, birds were not a threat to the grains of the indigenous sorghum varieties (e.g. Farmer 11). This was especially true for three varieties: 1) *mshake*, which has a tall and flexible stem that bent over whenever a bird attempted to perch on its panicle, 2) *mshalane*, which has a floppy panicle that makes it difficult for birds to comfortably perch on its panicle, and 3) *jiba* which was not eaten by birds. However, Farmer 13 suggested that indigenous varieties were vulnerable to birds. On the other hand, the modern varieties, particularly the *marcia* are loved by birds, more so than the indigenous varieties. The second factor is the harvest yield. Seven of the 18 farmers (3, 4, 5, 6, 15, 16 & 18) or 39% said indigenous varieties have smaller yields compared with modern ones. However, the higher yields came at a monetary cost:

The modern varieties have a bigger harvest. However, the expenses needed to get a bigger harvest are higher [Farmer 5: 14 April 2019]

If you tend to your modern sorghum by applying synthetic fertilizer and pesticide the yield is bigger compared to that of the indigenous strains [Farmer 4: 13 April 2019]

Only Farmer 13 reported larger harvests from indigenous varieties:

The old varieties grew to be tall and had big stems, giving bigger heads and larger harvests [Farmer 13: 15 April 2019]

In relation to the ripening period, four of the 18 farmers [2, 3, 10 & 15] or 22% mentioned that the indigenous varieties take longer to ripen compared to the modern strains, while five (5, 10, 14, 15 & 18) or 28% mentioned that unlike the modern types, indigenous varieties were not vulnerable to weevils. Farmers 11, 12, 16 & 17 said there were no disadvantages associated with growing the indigenous sorghum, Farmer 11 adding that he would abandon the modern for the indigenous varieties if he could gain access to them:

I have nothing negative to say about the indigenous sorghum because if I were to access them now, we would stop all these modern varieties and grow them [indigenous varieties]: [Farmer 11: 14 April 2019]

Three of the 18 farmers (10, 11 & 17) said the indigenous sorghum tastes good. Further advantages and disadvantages included the following:

- 1) Indigenous varieties were difficult to harvest in relation to the modern types because of their tall stalks (Farmer 14),
- 2) In indigenous varieties, the whole crop did not ripen simultaneously, unlike their modern counterparts (Farmer 13),
- 3) The *mshake* in particular have hard grains which require grinding before they are cooked (Farmer 14),
- 4) Modern varieties are negatively affected by hot weather conditions (Farmer 17),
- 5) Both the indigenous and modern varieties give good yields (Farmer 8), and
- 6) Modern sorghum varieties have no particular advantage except that the thin porridge (*incwancwa*) and *emaheu* made from them taste good, although not as good as the *mshake* which did not require sugar for taste (Farmer 17).

Process of growing indigenous and modern sorghum varieties

Sorghum was (and still is) grown by the 18 farmers and their families, with slight variations as people applied agency for the best personal outcome. It is important to note that the descriptions provided by each farmer varied. This does not necessarily mean that certain steps were omitted – it may simply reflect less detailed communication of information. Farmers were specifically asked how they grew sorghum, however, Farmers 1, 2, 6, 7, and 9 described the growing process of maize. Farmers 9 and 12 did not grow sorghum until recently. Farmers 3 and 4 mentioned both maize and sorghum in their descriptions. The full process, as can be gathered from all descriptions, is as follows:

Six farmers (2, 3, 4, 6, & 9) mentioned that manure and/or synthetic fertilizer (*uManyolo*) were applied. Manure and synthetic fertilizer are referred to in the context of past and present farming practice, respectively, unless stated. Three farmers (2, 6, & 7) mentioned that manure and/or synthetic fertilizer were applied as the first step to planting the seeds. Farmer 9 mentioned the application of synthetic fertilizer in the past. Farmer 4 mentioned using manure but did not specify when it was applied, while in her current practice, she mixes manure and synthetic fertilizer. Farmer 2 applied synthetic fertilizer at the same time as the seed is planted, using a tractor. Farmer 3 tested the soil to check whether or not synthetic fertilizer was needed. If so, it was applied after planting.

Fields were ploughed using oxen (past) and tractors (current). In the past, seven of the 18 farmers (1, 2, 3, 9, 11, 14 & 16, i.e. 39%) began by ploughing and followed with broadcasting the seeds by hand. Eight farmers (4, 5, 8, 10, 12, 13, 15 & 17) or 44% mentioned that their families broadcast seed before they ploughed. Farmers 6 and 18 said their families started with ploughing, followed by planting the seeds in furrows. The family of Farmer 6 mixed their seeds with grass-laden manure, while the family of Farmer 18 mixed theirs with sand in a 1:1 ratio to control for spacing, after which the field was raked using a rake or tree branch to cover the seeds.

Farmer 7 sometimes ploughed first and then scattered the seeds, and sometimes did it the other way round. The family of Farmer 6 scattered a mixture of Swazi brew remains (called *emashica*) and a certain store-bought chemical in order to discourage cutworms. In the current practice, however, people mostly open furrows. Two farmers (8 & 18, or 11%) used rippers to open furrows before planting. Farmers 10, 11, 15, 16 & 18 (28%) followed the tractor to plant the seeds. Farmer 2 and 14 (11%) used the same or another tractor to plant, while 17% (Farmers 3, 6 & 17) used both. Farmers 1, 5, 12 & 13 (22%) planted by hand as well, however, they did not specify whether or not they followed the tractor. Farmers 4, 7 & 9 (17%) did not specify how they plant. Farmer 1 sometimes used a conservation-based approach which involved digging holes in order to save water.

Following germination, and once the crops had grown to a certain height, the next step in both periods was to manage weeds. In the past, five (5, 7, 10, 12 & 13) or 28% of farmers said their families managed weeds by hand. Farmers 5 and 12 also mentioned suppressing weeds using feet, while Farmers 6 and 7 used a cultivator. One farmer (3) thinned the crop as well as weeding, and Farmer 14 used a plough. Farmer 15 said that her family practiced inter-cropping, so weeds were removed to allow another crop to be planted next to the sorghum. In both periods, twelve farmers (5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, & 18, or 67%) used hoes, while seven (2, 3, 4, 6, 7, 8 & 9 or 39%) did not specify how they controlled weeds. In the past, pests such as cutworms, aphids, fall armyworms and/or stalk borers were controlled using granules (Farmer 7) or aloe ash (Farmer 1). In the current practice pesticides or chemical sprays were used as advised by extension officers. Farmer 4 used halts weed, a pesticide which prevents weeds.

Once the sorghum panicles had formed, the birds were controlled. One farmer (12) said that in the past, his family used to design a network of strings in the field to which stone-filled tins were tied. A touch of the string caused a noise which scared the birds off.

In both past and current practice, the families of two farmers (15 & 18) would shake stone-filled tins as they walked along the fields. Additionally, Farmer 15 also threw stones as part of their current bird control method. Three farmers (13, 14 & 15) fashioned *itidubulo* from the *sisal* plant, which was used in both periods, to 'shoot' at the birds. In the recent practice, the farmers, their family members, or hired assistants looked out for birds by walking up and down the field (Farmer 5). Farmer 18 planted closer to the homestead as people were less readily available to guard the sorghum compared with the past. Farmer 16 planted during a period when birds were less active, such as October, to reduce the need to guard the sorghum. For the family of Farmer 11, *mshake* in particular did not need to be guarded against birds because as he put it:

The birds were not guarded... whenever birds tried to perch on it [panicle] the weight would cause it [stalk] to go down [bend]. When they fly off, it [stalk] springs back upright [Farmer 11; 14 April 2019]

Guarding birds is more important with modern sorghum varieties, as narrated by Farmer 15 below:

It is more difficult to control birds now because they love the modern sorghum strains more than the indigenous varieties. This is to the extent that the birds eat the sorghum grains even if you are present. So we control them the same way we controlled the indigenous mathinikwane variety and even more than that [Farmer 15: 15 April 2019]

In the event that a bird was able to perch and feed on the grains, it consumed the top part of the sorghum head, leaving the bottom as it was unable to reach it. The uneaten part at the bottom of the head is called *lijoli*.

In the past, when the sorghum crops were mature, they were harvested. As described by four farmers, the sorghum was harvested by cutting the panicles off with a knife (5) and then tying them together with *umsunyane*- or grass rope (5, 10, 17 & 18). The sorghum panicles were then taken to the homestead to be temporarily stored on cribs (*inyango*, *intjamba*, *ncolobane* or *tilulu* in siSwati) until they were dry and ready for threshing.

The cribs varied from large baskets made of the *Libibi* tree and stored on raised logs at the top of a tree, as mentioned by Farmers 1, 3 and 4 (17%), to raised storage platforms made of four to six logs with smaller horizontally arranged logs on top on which the sorghum harvests were stacked. These sometimes had covers or grass roofs (Farmers 1, 2, 11) or lacked roofs (farmers 6, 10, 16 and 17). Farmers 5, 9, 12, 14 and 18 (28%) did not mention whether or not there was roofing. Farmer 13 described a raised structure similar to the ones described above, however, the sorghum heads were stacked as one would fashion a thatched roof to allow for water to run down when it rained. The family of Farmer 15 stored their harvest on the raised log structure as described previously until the heads were dry. Following this, a fence was built from reeds so that it surrounded the door of the rondavel. In that enclosed area, the ground was smeared with cow dung after which the sorghum heads would be threshed using sticks. The grains would then be taken to a thatched house for temporary storage to ensure complete drying and prevent rotting of the harvest. Other storage structures include a raised platform that was erected above a cooking area inside a house in order to smoke the sorghum heads, thus preventing weevil infestation (Farmer 7). In the case of Farmer 8, the thatched house was specifically made to store the sorghum harvest. The cribs used in recent times were similar to the structures used in the past, while in some cases grain was stored in any available shelter such as the inside of any house or rondavel with empty space.

In the past, once the sorghum heads were completely dry, the ground outside the homestead was smeared with cow dung in preparation for threshing. An announcement would be made by the King and an invitation would be sent out to the neighbours. The threshing was done by men in the late afternoon or at night and the winnowing was done by women the following day, during the day. As Farmer 14 narrates, this was a culturally significant process:

An announcement would be made. The threshing always happened at night (during winter) to avoid the itch that one would experience if it was done during the day. Winnowing was not allowed at night as the process was culturally respected. I cannot tell you why this was, it just was that way. If

you asked [the elders] why it was done that way, they would ask you what you wanted to do with that information [Farmer 14: 15 April 2019]

In more recent times, the harvest was threshed in various ways including putting the panicles in sacks and hitting them with sticks.

Next, the sorghum was stored. Storage differs across periods. In the past, grain for use in the near future was kept in drums (Farmer 12) or clay pots (Farmer 10). A cover was placed over the clay pots and then sealed with cattle dung to prevent air from entering. Sorghum stored in this way remained dry, and did not ferment.

For longer-term storage, the families of 14 farmers (3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 & 18) or 78% stored their grain in *ingungu*, storage pits situated in the cattle kraal. Sorghum and maize were stored in separate *tingungu*. The *ingungu* was covered with a piece of stiffened bark, followed by a big flat stone or metal dish to serve as a lid. To seal it, cattle dung was smeared around the lid to prevent air and pests such as weevils from entering. Additionally, the cow dung environment prevented weevil manifestation. Finally, a stone would be used to mark the spot as cattle were still kept in the kraal. When food ran out, permission had to be granted from an elder (normally a grandfather) to access the grain from the *ingungu*:

Once the sorghum has been threshed, the grains are taken to the ingungu. Two drums are used to store the grains that we will use. The majority [of grains] are stored in the ingungu. When the drums empty, we will take from the ingungu. We then alert [my] grandfather that the food in the drums has run out. He will then open the ingungu in the morning and let it air out the entire day. When the sun sets, in the late afternoon, the grains are retrieved from the ingungu. You cannot retrieve the food immediately after the air is let out as the toxic fumes will kill you! [Farmer 12: 15 April 2019]

Sorghum stored in the *ingungu* fermented slightly, and is called *sancote*. A porridge dish called *sibata* was made using grains that were *sancote*. Fermented maize is also called *sancote*. For some, this was a welcome outcome as Farmer 14 said:

All the grains have to smell when you eat them...they were not enjoyed without the smell [Farmer 14: 15 April 2019]

The family of Farmer 7 prepared their meals from the smoked grain that was kept in the house above the fireplace. Farmer 1 did not mention any long-term storage methods. Farmers 2 and 6 preferred to store their sorghum in metal tanks (as is currently practiced) instead of *ingungu* as their families did not like the smell and taste of the *sancote*. In the current practice, even though metal tanks were the primary means of storage, plastic tanks, sacks or drums were sometimes used.

Weevil tablets were placed in the tanks with the sorghum grain to control for weevils, something that was avoided in the past by storing in *ingungu*.

Dishes prepared from sorghum

Once the grain is ready for consumption, various dishes are made (Table 8.2). All 18 farmers use their sorghum to make thin porridge (*lidokwe/incwancwa/indengane*), which is a dish sometimes made sour (fermented). Seven (39%) of the 18 farmers report making porridge or *liphalishi* (1, 4, 5, 10, 14, 17 & 18), which is reportedly good for diabetics, and the non-alcoholic fermented drink *emaheu* (1, 6, 7, 8, 12, 15 & 17). Of the seven who make porridge, Farmer 14 said he would make it if he was well enough, meaning when he is well it is likely a staple. Eight farmers (44%) make Swazi brew (*tjwala* – an alcoholic fermented drink) for ceremonial and/or regular social purposes (1, 5, 6, 8, 12, 13, 16 & 17); one farmer (1) mentioned that the *marcia* variety is especially good for this. Of the eight farmers, Farmer 6 sells some of her sorghum to people who, at times, make Swazi brew. *ticaba*, a dish made by boiling sorghum, followed by grinding to make it softer and then mixing with ground groundnuts (*emantongomane*), is made by three (17%) of the 18 farmers (3, 9 & 15). Two (11%) out of 18 farmers (3 & 9) report making a dish called *emashwele*, which is cooked much like samp. It is prepared by grinding sorghum grain, followed by cooking. The cooked grain is then mixed with either cowpeas (*inhlumaya*) or groundnuts. The grinding/pounding (*ukukhobola*) involved in making the *ticaba* and *emashwele* dishes is done using a wooden African mortar (*likhovu*). Sorghum can also be used to make a sour milk (*emasi*) infused dish, which involves boiling and then grinding the sorghum grain, followed by mixing it with sour milk (Farmer 8); bread by grinding the sorghum grains (Farmer 14); and bartering one drum of sorghum grains for two drums of maize (Farmer 15). Three farmers (12, 16 & 17) or 17% make and sell *imvubelo*, a by-product of Swazi brew which has a high alcohol concentration. *Imvubelo* is mixed with water before consumption. Lastly, seven of the 18 farmers (4, 6, 7, 10, 11, 12 & 15) or 39% sell some of their sorghum.

Table 8.2: List of ways in which sorghum is used and the number of times they were each mentioned.

Native Term	English Term	No. of Mentions
Lidokwe/ <i>Incwancwa/Indengane</i>	[Sour] thin porridge	18
<i>Lipalishi</i>	Porridge	7
<i>Emaheu</i>	Naturally fermented non-alcoholic drink	7
Tjwala/ <i>Umcombothi</i>	Swazi brew	8
<i>eMashwele</i>	Dish similar to samp	2
<i>Ticaba</i>	Soft ground sorghum dish	3
<i>Emasi</i>	Sour milk	1
<i>Imvubelo</i>	Alcohol concentrate	3
<i>Sinkwa</i>	Bread	1
<i>‘ukuTjintjisana’</i>	Bartering	1
<i>‘ukuTsengisa’</i>	Selling	7

Concluding remarks

In this chapter, a brief overview of the interviews conducted with the Eswatini farmers is presented. The purpose of the report is to get a clear understanding of small-scale subsistence farming practice of the past and present in Eswatini. The report includes 1) a description of the varieties of indigenous and modern sorghum, 2) the advantages and disadvantages of indigenous versus modern varieties, 3) the process of sowing to harvesting in both the past and present context, and 4) the different ways the sorghum is used. In Chapter Nine, carbon and nitrogen isotope patterns are interpreted upon in the context of relevant archaeological, historical and ethnographic (agricultural IK) accounts.

CHAPTER NINE:

Discussion and Conclusion

Introduction

This chapter discusses the variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of field-grown sorghum cultivated for this study in the light of previously published literature. It also considers indigenous knowledge related to farming practices which are likely to contribute to the stable isotope variability in C_4 crops and foods prepared from them, particularly in the context of the wider goal of dietary reconstruction in southern African Iron Age farming communities.

Variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of sorghum grain across different environments

$\delta^{13}\text{C}$ variation

The overall variation in $\delta^{13}\text{C}$ for the three varieties of sorghum in this study across four growing plots was 1.7‰, with a range from -13.3 to -11.6‰ (n=90). This is similar to the ranges reported in previous studies of C_4 cultigens. Reid *et al.* (2018) explored variation in $\delta^{13}\text{C}$ among 108 accessions of historical and modern pearl millet from India and different parts of Africa, and found the range to be 2.2‰ (corrected for the Suess effect). For 17 accessions of finger millet, the range was 1.6‰. In samples of common millet collected across northern China, the range of $\delta^{13}\text{C}$ values was 2.3‰ (n=18/19) while in foxtail millet it was 2.6‰ (n=66) (An *et al.* 2015). Lightfoot *et al.* (2016) studied accessions of foxtail millet collected from Eurasia and Africa. These were grown under controlled experimental conditions, and showed $\delta^{13}\text{C}$ variation of 2.1‰ (n=29). For millets, the similarity in the ranges of $\delta^{13}\text{C}$ values across different studies, cultigen species, genetic traits and growing conditions is a strong indication that the degree of variation that can typically be expected in crops grown under natural conditions is approximately 2.0 to 3.0‰. Studies of sorghum appear to show lower ranges of variation: Hammer *et al.* (1997) grew 45 cultivars of *Sorghum bicolor* in a glasshouse under non-limiting water and nutrient conditions, and found that the range of $\delta^{13}\text{C}$ values was only 1.1‰. Hubick *et al.* (1990) and Henderson *et al.* (1998) both reported ranges of less than 1‰ in comparisons of different varieties of field-grown sorghum (n=12 and 8 respectively). These studies, however, had a very different goal (identification of optimal strains for agriculture), and are thus less helpful for the purposes of this thesis.

The causes of this variation differ in the different studies. In Hubick *et al.* (1990), Henderson *et al.* (1998) and Lightfoot *et al.* (2016), different varieties were grown in the same conditions (moisture availability, temperature) so the variation in $\delta^{13}\text{C}$ must be due to genetics. In An *et al.* (2015) and Reid *et al.* (2018), both based on material collected across large environmental gradients,

environmental factors such as moisture availability and temperature probably played a role. In this study, $\delta^{13}\text{C}$ values for sorghum grown in Gauteng (GAU) and the Eswatini localities are similar, yet the average monthly rainfall during the growing season of 2017-2018 was substantially higher in the former (146mm) relative to the latter locations (102mm). The average growing season PET was lower in GAU (117 mm) compared with Plots 1 & 2 of Eswatini (154mm). In combination, these factors mean that there was much greater water availability for sorghum grown in GAU and Richards Bay than in Eswatini. At Richards Bay, average monthly rainfall (101 mm) was similar to that in Eswatini but PET (119) was similar to GAU. Temperature was very similar at GAU (13/26 °C) and Plots 1 & 2 of Eswatini (both 15/26°C), but substantially higher at Richards Bay (19/29 °C) which may account for the less negative $\delta^{13}\text{C}$ values in sorghum grown there. Previous studies of millets have reported both positive (An et al. 2015) and negative (Reid et al. 2018) relationships between growing season temperature and plant $\delta^{13}\text{C}$. The processes involved here remain poorly understood. From Figs 7.3 and 7.4, it is clear that both the most positive and the most negative $\delta^{13}\text{C}$ values in sorghum cultivated for this thesis are for the *mshalane* variety, at Richards Bay and both Eswatini plots, respectively. In this study, environmental rather than genetic factors therefore appear to be the major drivers of variation in $\delta^{13}\text{C}$.

In the present study, the $\delta^{13}\text{C}$ values of the three varieties pattern differently relative to one another, in the various plots. In Plot 1 of Eswatini and Richards Bay, the $\delta^{13}\text{C}$ ranges for 236 and 308 are not significantly different, whereas in Plot 2 of Eswatini, 308 has more negative values than 236. In Plot 1 of Eswatini, *mshalane* has the most negative $\delta^{13}\text{C}$ values - more negative than both 236 and 308. At Richards Bay, it is the least negative less negative than both 236 and 308. Since the same varieties were grown in all locations, this is further evidence of the complex, multi-faceted influence of environmental factors. Sensitivity to climatic variation appears to differ across varieties, with *mshalane* apparently especially responsive to growing conditions.

$\delta^{15}\text{N}$ variation

The overall $\delta^{15}\text{N}$ variation for three sorghum varieties across four locations is 5.4‰ with a range from 1.7 to 7.1‰ (n=90). This is a larger variation than for $\delta^{13}\text{C}$, which is also true of previous studies of millet species. Lightfoot *et al.* (2016) reported a variation of 6.0‰ in $\delta^{15}\text{N}$ of 29 foxtail millet accessions from Eurasia and parts of Africa, cultivated in a controlled experimental chamber. Reid *et al.* (2018) found that the range of $\delta^{15}\text{N}$ values in 17 modern and historical finger millet accessions was 5.8‰, while in 102 accessions of pearl millet it was 8.5‰. Styring *et al.* (2019) observed a variation of up to 4.8‰ for pearl millet panicles within single plots. There appear to be no previous studies of natural $\delta^{15}\text{N}$ variability in sorghum. Clearly, variation in $\delta^{15}\text{N}$ across different studies, cultigen species, genetic traits and growing conditions is greater than for $\delta^{13}\text{C}$. It is important to note

that although there are only three sorghum varieties in this study, amaSwati farmers spoke of growing up to nine in the past. This may increase the range of $\delta^{15}\text{N}$ values further.

What might be the cause/s of the large range of variation in $\delta^{15}\text{N}$? $\delta^{15}\text{N}$ values in plants are greatly impacted by nitrogen dynamics in soils, especially factors such as the form/s of nitrogen available for assimilation by plants, moisture availability, temperature and mycorrhizal association. As for $\delta^{13}\text{C}$ above, Lightfoot *et al.* (2016) kept growing conditions consistent for different accessions of foxtail millet, so the main driver of variation in $\delta^{15}\text{N}$ in their study was genetic variability. Reid *et al.* (2018) documented an almost identical range in different strains of field-collected pearl millet, in which environmental factors such as moisture availability and temperature almost certainly had an influence, in addition to genetic variation. They also reported a positive relationship between growing season temperature and $\delta^{15}\text{N}$ in pearl millet.

In this study, the lowest $\delta^{15}\text{N}$ values for sorghum are at Richards Bay, where temperatures during the growing season were highest (Fig. 7.2, Table 7.4b). $\delta^{15}\text{N}$ values for sorghum from Gauteng and Eswatini localities are higher, and the distributions do not overlap with that of sorghum grown at Richards Bay (Figs 7.6 and 7.7). This provides further evidence that in this study, environmental factors appear to be the major influence on plant $\delta^{15}\text{N}$. There may also be other drivers, such as the degree of mycorrhizal association. Manure, compost and artificial fertilizers were not used in the course of this study.

The 5.4‰ variation in $\delta^{15}\text{N}$ seen in sorghum in this study is similar to the degree of variation usually expected across trophic levels, which is 3-6‰ (Hedges & Reynard 2007; O'Connell *et al.* 2012; Sponheimer *et al.* 2003). This is important for palaeodietary investigations in African (and other) farming communities: interpretation of variation in $\delta^{15}\text{N}_{\text{collagen}}$ in humans will need to take account of variability in plant foods, as well as animal protein consumption and aridity. Archaeologically, this implies that N isotope patterns cannot be used alone as reliable proxies for palaeodiets as there are multiple possible reasons for high $\delta^{15}\text{N}$ in consumers (environmental and/or genetic variation in crop $\delta^{15}\text{N}$, aridity effect, open/closed N cycle and manuring, in addition to animal protein consumption). Lightfoot *et al.* (2016) have also made this point in relation to the degree of variation in $\delta^{15}\text{N}$ they found in foxtail millet. The large $\delta^{15}\text{N}$ variation observed by Styring *et al.* (2019) for pearl millet grains is associated with variability in applying manure and/or household waste in designated areas of plots. More broadly, Styring *et al.* (2018) highlight the fact that a number of studies have found $\delta^{15}\text{N}$ values of cultivated cereal grains to be less negative than expected on the basis of $\delta^{15}\text{N}_{\text{collagen}}$ of herbivores from the same sites. Nitrogen isotope analysis of C_3 cereal grains across early farmer sites in Europe showed evidence of medium-high manuring treatments (Bogaard *et al.* 2013; 2007;

Vaiglova *et al.* 2014; Styring *et al.* 2016b). This is in comparison to unmanured forage that would have been exploited by wild herbivores (Vaiglova *et al.* 2014; Styring *et al.* 2016b) or the cereal chaff that can have lower $\delta^{15}\text{N}$ by up to 3.0‰ relative to grain (Bogaard *et al.* 2013; 2007). Lightfoot & Stevens (2012) and Knipper *et al.* (2016) both reported similar $\delta^{15}\text{N}$ values for grain and herbivores, with higher $\delta^{15}\text{N}$ in humans. These studies give a clear indication that first, herbivores were not consuming grain, as their $\delta^{15}\text{N}$ would have been 3.0 to 6.0‰ less negative due to trophic enrichment, and secondly, humans and herbivores were not exploiting the same plant resources. Palaeodietary researchers therefore cannot assume that humans who subsisted purely on plant resources will have $\delta^{15}\text{N}$ values similar to herbivores (Styring *et al.* 2018). This will lead to underestimation of plant protein contributions in palaeodietary reconstruction. There is clearly much work to be done to adequately characterize $\delta^{15}\text{N}$ values of staple grain crops in ancient farming societies.

Variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of sorghum from Historic Cave

The range of $\delta^{13}\text{C}$ values for 11 sorghum samples from Historic Cave was 2.0‰ (-12.8 to -10.8‰, mean -11.5 ± 0.5 ‰). These samples consisted of different numbers of grains, and some were single grains. This complicates comparison with the samples of modern sorghum, each of which consisted of 20 homogenised grains. However, given the consistency observed in the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of grains from a single panicle (Table 7.1), the broad patterns seen in the comparison of archaeological and modern samples should be valid. The analytical uncertainty of these measurements is in the first decimal place, so this range of values is comparable to the range of 1.7‰ seen in 92 modern sorghum specimens in this study (mean -12.5 ± 0.4 ‰). It is important to note that first, sorghum was retrieved from a cave, and that this was a siege site to which people withdrew hurriedly with as many provisions as they could transport. Therefore, there is no information about factors like the number of varieties of sorghum present and whether or not they were all grown in the same season or field, and by extension the same climatic conditions. Second, mean annual rainfall in the Makapan Valley from 1921 to 1968 was approximately 600mm (Moore 1981). Woodborne *et al.* (2015) have measured $\delta^{13}\text{C}$ values in baobab growth increments to reconstruct the rainfall history of northeastern South Africa. Their record shows very dry pulses ca. 1830 and 1844, but the age modelling of this record may require some adjustment (Woodborne pers. comm., June 2023) so the severe drought of the 1840s may have extended somewhat later. The evidence at this stage is, however, inconclusive. The less negative $\delta^{13}\text{C}$ values of the archaeological- relative to modern sorghum may reflect environmental variation, particular agricultural practice/s and/or genetic variability. The Kekana Ndebele may have grown varieties of sorghum that had characteristically high $\delta^{13}\text{C}$ values.

The range of $\delta^{15}\text{N}$ values in 11 samples of sorghum excavated from Historic Cave was 8.7‰ (4.1 to 12.8‰). Clearly, the range of $\delta^{15}\text{N}$ values is higher than that of modern sorghum grown for this study (5.4‰, $n=90$). Water stress can lead to high $\delta^{15}\text{N}$ values, and if there was indeed a drought in the early 1850s, open N cycling in the soil may be a contributing factor. Second, if multiple varieties were present, the high $\delta^{15}\text{N}$ values may be a result of genetic characteristics of the strains involved. Lastly, high $\delta^{15}\text{N}$ values in agriculture are typically associated with manuring. Elevated $\delta^{15}\text{N}$ in crops due to manuring reflects longstanding fertilization practices (e.g. Fraser *et al.* 2011). Historical evidence indicates that intensive manuring was not a widespread practice (Junod 1927; Mönnig 1967; Van Zyl 1972), but if some of the sorghum analysed was grown on old cattle kraals and some wasn't, perhaps in different years, the highly variable $\delta^{15}\text{N}$ values might be reflecting varying manuring intensities across those fields and seasons. Knipper *et al.* (2016) proposed a similar explanation for the [much lower] range of $\delta^{15}\text{N}$ values (3.5 to 9.4‰, mean 5.7 ± 2.2 ‰) in charred barley grains recovered at the site of Basel-Gasfabrik, Switzerland.

In general, the comparison between the modern and archaeological sorghum appears to indicate that the modern samples give a conservative estimate of the true magnitude of variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of crops grown by past farming societies.

Manuring practices amongst past Eswatini farming communities

Elevated $\delta^{15}\text{N}$ values in plants are associated with soil fertilization, and are proportional to the intensity and frequency of application. Soil fertilization can be implemented at different levels ranging from intensive to non-intensive. Intensive fertilization involves greater labour input as cattle dung is accumulated and collected from the cattle kraal, transported to the field and incorporated into the soils. In the southern African context, non-intensive fertilization typically occurs after harvest, when cattle are allowed to roam the field and consume the crop residue. In the process, the cattle deposit manure and urine which is incorporated into the soil during winter ploughing. This type of low-level manure deposition is unlikely to make a substantial difference to $\delta^{15}\text{N}$ values in crops. Enquiry about the frequency and methods of manure application was not set as a standard interview question. However, conversations with Swati farmers revealed that past agricultural practices in Eswatini had involved application of kraal manure (72% of respondents). Farmers provided information about the frequency and methods of application in responses to other soil fertilization-related questions (Appendix 2). Some families applied kraal manure at 3 to 6 year intervals, which was sufficient for the soils to maintain the fertility to produce good or at least acceptable yields. In one family, the seeds were (and still are) mixed with ground manure, before application to the soil. In another family, the manure was mixed with grass and applied during winter. In summer, when the first rains fall, manure and then seeds were applied into the soil in an

alternating fashion. For yet another family, the presence of witchweed indicated soil infertility, a signal that kraal manure should be applied before sowing. Based on available information, past farming societies of Eswatini did not carry out intensive manuring of agricultural fields.

Historical records indicate that the most intensively manured crops were likely those cultivated on old cattle kraals (Bryant 1949). This is unlikely to have involved large quantities of crops as cattle kraals are relatively small compared with whole fields. However it may have resulted in appreciable variation in the $\delta^{15}\text{N}$ of crops if a portion of them were grown on a previous cattle kraal site while the rest were not. Overall, the historical evidence from the 19th and early 20th centuries is consistent with the information gathered from Eswatini farmers in showing that agricultural societies in southern Africa have typically used low-intensity manuring. Farmers were aware of, and sometimes took advantage of the benefits of cattle manure in soil.

Livestock, Cattle Dung and Agricultural Practices

What is of interest is the central role that cattle dung seems to have played amongst past farming communities in Eswatini. First, cattle dung provided nitrogen and other nutrients to soils. Second, in preparation for threshing of sorghum heads, the ground was smeared with cattle dung. This was done outside, in the family courtyard, as described for KwaZulu-Natal farming communities who used the space just outside the cattle kraal or the fields (Bryant 1949). Threshing was a highly-structured, socially anticipated and culturally respected activity. Neighbouring men and women were invited to participate. Threshing was a night time activity done by men, while the winnowing was done the following morning by women. For the baPedi farmers, threshing was a collective effort, however in KwaZulu-Natal, it was assigned to adult girls and their mothers (Bryant 1949; Mönnig 1967). Third, the food storage pits (*tingungu*) located in the cattle kraal were lined with cattle dung. The bark of a marula tree (*umgano*), the root of the *umkhiwa* or the *umsudana* tree was used as a lid, and then more cattle dung applied to ensure that the pit was completely sealed, and weevils could not access the grains. As a result of the hot, unventilated dung-laden environment inside the *ingungu*, at least some grains underwent fermentation and become *iSancote* for emaSwati or *isaNcobe* for amaZulu (Bryant 1949). It is unlikely that the first agricultural communities to introduce the practice of dung-lined storage pits intended to cause chemical changes to their grains. Further, not everyone used the *ingungu* to store their grains as some families disliked *iSancote*. However, over time, fermented grains became an established part of many household dishes in Eswatini and Kwa-Zulu Natal. For the Swati families that especially looked forward to its taste and smell, the *ingungu* became a means to acquiring the *Sancote*, from which a dish such as the *sibata* was made:

All the grains have to smell when you eat them...they were not enjoyed without the smell [Farmer 14: 15 April 2019]

Amongst the farmers of KwaZulu-Natal, *uPata* was particularly preferred for making alcohol brew (Bryant 1949). Overall, what it means is that livestock-keeping and agriculture were interwoven practices that exerted significant social, economic and subsistence influence in past agricultural/farming communities.

$\delta^{13}\text{C}$ variation in sorghum foods due to fermentation

Sorghum beer is particularly significant and widespread in cultural and social spheres of past and present African (and other) farming communities, although maize and millet can also be used (Embashu *et al.* 2019). 44% of the Eswatini farmers interviewed reported that their families still make sorghum beer for ceremonial or ordinary social occasions. Sorghum beer brewing is variable across geographical regions, however, it generally involves three main steps: sorghum malting, wherein sorghum is germinated and left to dry, and then ground; mashing, which involves adding the ground malted sorghum to boiling water, thereby converted the starch into fermentable sugars; and fermentation of the sorghum extract, which produces CO_2 and ethanol in anaerobic conditions (Lyumugabe *et al.* 2012; Stern *et al.* 1997). Additionally, *sancote*, the fermented end-product of *ingungu*-stored sorghum (and maize) grain was widespread amongst past emaSwati (Chapter Eight) and amaZulu farming communities (Bryant 1949), with 78% of Eswatini farmers using *ingungu* to store their harvests, and therefore consuming grains that were *sancote*. *Sancote* was used mostly for sorghum beer but also for food (Bryant 1949; Chapter Eight). Foods made with fermented grain are expected to be ^{13}C -enriched, as the lighter ^{12}C is preferentially lost as CO_2 (Gagnon & Juengst 2018; McCool & Brenner-Coltrain 2018). To this end, questions are raised in this thesis, of the degree to which consumables like sorghum beer- and *sancote*-based consumption can influence the $\delta^{13}\text{C}$ of consumers, and whether such influence can be differentiated from unfermented sorghum-based meals.

This area of research is relatively new and requires further exploration, particularly as the production and consumption of fermented food products played a key role across vast geographical areas.

Genetic differences & climatic sensitivity across sorghum varieties: implications for palaeodietary reconstruction

Consistent with previous studies (An *et al.* 2015; Lightfoot *et al.* 2016; Reid *et al.* 2018), this thesis finds that genetic differences between different varieties of C_4 crop plants (here, sorghum) may cause significant $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ variation. Variation in growing conditions, too, can lead to significant

differences. The *mshalane* variety demonstrates particular sensitivity towards climatic variation as it shows the greatest range of $\delta^{13}\text{C}$ values, providing the most positive and most negative values in this thesis. Interviews with contemporary farmers indicated that prior to their use of the three varieties of sorghum most often grown today (*marcia*, NS5511 & 8625), past farming communities in Eswatini grew at least nine varieties: 1) *mshake*, 2) *mshalane*, 3) *mathinikwane*, 4) *jiba*, 5) *gebeleweni*, 6) *gabane*, 7) *mgcobane*, 8) *ntfweka* and 9) *khwebintombi*.

The varieties most recalled were *mshake*, *mshalane* and *mathinikwane*. Together with *jiba*, these varieties were associated with their phenotypic characteristics, especially advantageous or disadvantageous features. *Mshake* and *mshalane* were not vulnerable to predation by birds, due to long flexible stalks (the former) and floppy panicles (the latter) that made it difficult for birds to perch and eat the grain. *Jiba* was also not prone to being eaten by birds. *Mathinikwane* had a short stalk, white grains and was especially attractive to birds. Guarding against birds may have been labour-intensive, however it could be done by children in the days before they were expected to go to school. Women may have been less available as they had other responsibilities. In current agricultural practice in Eswatini, a third of the farmers interviewed said that they did not grow *marcia*, with some referring explicitly to birds:

I grow the red/brown variety [NS5511] only. I do not want the white variety [marcia], it attracts too many birds [Farmer 14: 15 April 2019]

and

I used to grow different varieties of [modern] sorghum but I have since stopped. I used to grow the white [marcia] and red/brown [NS5511] varieties. I then stopped growing the white variety because I didn't get any harvest [Farmer 15: 15 April 2019]

Considered together, I suggest that past agriculturalists probably preferred to cultivate varieties with special advantages, such as *mshalane*, *mshake* and *jiba*, which gave better yields compared with varieties such as *mathinikwane* which attracted birds, and therefore required more labour. Chapter Four describes how, elsewhere in Africa, people prefer particular varieties of sorghum for particular purposes (roasting, popping, chewing) or for reasons to do with taste or colour (Rao & Murty 1982; Rooney & Murty 1982). In this study, Farmer 1 indicated that the *marcia* variety was particularly good for making Swazi brew. If some varieties of sorghum (and other crops) like *mshalane* were especially sensitive to environmental variability, then regional differences in climate and environment could lead to sufficient variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ to affect palaeodietary reconstruction. This is therefore worth investigating in the future.

Conclusions and recommendations for future research

The present study investigated the variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of three varieties of sorghum, namely 236, 308 and *mshalane*, that were field-grown in four geographically and climatically diverse regions of South Africa and Eswatini. Agricultural methods used were similar to those of pre-colonial farmers. This study also measured $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in 12 samples of sorghum grain from the mid-19th century Historic Cave siege site. The second aim of this study was to collect information on past and current small-scale subsistence farming practices in Eswatini, and examine the ways in which these practices may affect the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in crops. A better understanding of isotopic variation in staple food crops will help us to refine isotope-based dietary reconstructions of past farming communities. This thesis also highlights the significance of utilizing multiple strands of evidence such as indigenous knowledge to address and improve isotope-based palaeodietary reconstructions in African Iron Age farming communities. The main conclusions of the study are:

- 1) The total range of $\delta^{13}\text{C}$ values in three varieties of contemporary-grown sorghum was 1.7‰. This degree of variation is broadly consistent with that seen in previous studies of domesticated millets, which was 2 to 3‰. The implication is that the degree of variation in $\delta^{13}\text{C}$ that can typically be expected in C_4 grain crops grown under natural conditions is about 2 to 3‰.
- 2) Different varieties of sorghum show different sensitivities to environmental conditions. In this study, *mshalane* was most responsive to climatic/environmental variation as it yielded both the most negative (at Eswatini) and the most positive $\delta^{13}\text{C}$ values (at Richards Bay).
- 3) The $\delta^{13}\text{C}$ values of archaeological sorghum from Historic Cave were approximately 1.1‰ less negative than contemporary-grown sorghum (after Suess correction). This likely indicates the influence of particular agricultural practices and/or the cultivation of sorghum varieties with distinctly high $\delta^{13}\text{C}$ values by the Kekana Ndebele.
- 4) The range of $\delta^{15}\text{N}$ values for contemporary sorghum was 5.4‰ (n=90) and that for archaeological sorghum was 8.7‰ (n=11). These are comparable to, or larger than the differences expected at successive trophic levels (3 to 6‰). This is significant for estimation of trophic levels in palaeodietary studies.
- 5) Storage and preparation of sorghum-based foods include the practice of storing grain in tightly sealed, manure-lined pits, and brewing to make sorghum beer. Both cause fermentation, during which $^{12}\text{CO}_2$ is preferentially released, leaving the food products enriched in ^{13}C . This was not explicitly investigated as part of the present study, but it may be worth further research to explore its potential impact on $\delta^{13}\text{C}$ values of consumers.

- 6) Farmers have many reasons for preferring some varieties of sorghum over others. These include yield, susceptibility to predation by birds, flavour and colour of grain, and more. It would be valuable to conduct further interviews that explore these questions in more detail to inform discussions on past dietary habits.
- 7) There is potential for future research on the faunal remains from Historic Cave, to ascertain whether their carbon and nitrogen isotope values are comparable with those of sorghum recovered in the cave.

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APPENDIX 1

Appendix 1: Summary of the sample number, the variety of sorghum sampled, the plot from which sorghum was grown, the sorghum head used for stable carbon and nitrogen isotope analysis, the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values, weight %C, %N, C:N ratio and atomic C:N ratio of each sorghum sample for contemporary-grown sorghum. 'MSH' is *mshalane*, 'RB' is Richards Bay and 'GAU' is Gauteng.

Sample	Variety	Plot	Head No.	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio
308 PL 1 HD 1	308	1	1	-12.4	5.4	47.1	1.5	31.0	36.2
308 PL 1 HD 2	308	1	2	-12.3	5.1	47.6	1.7	28.5	33.3
308 PL 1 HD 3	308	1	3	-12.2	5.7	47.1	1.8	26.4	30.8
308 PL 1 HD 4	308	1	4	-12.5	5.3	42.9	1.4	30.9	36.1
308 PL 1 HD 5	308	1	5	-12.5	5.3	47.7	1.7	28.8	33.6
308 PL 1 HD 6	308	1	6	-12.3	4.8	47.6	1.5	31.0	36.2
308 PL 1 HD 7	308	1	7	-12.7	5.8	48.1	2.2	22.3	26.0
308 PL 1 HD 8	308	1	8	-12.1	6.3	47.6	1.6	29.0	33.8
308 PL 1 HD 9	308	1	9	-12.6	6.1	47.4	1.7	27.6	32.2
308 PL 1 HD 10	308	1	10	-12.6	6.6	47.4	1.7	28.1	32.8
308 PL 2 HD 1	308	2	1	-12.9	4.4	47.0	1.6	30.2	35.2
308 PL 2 HD 2	308	2	2	-13.1	4.9	47.4	2.1	23.2	27.1
308 PL 2 HD 3	308	2	3	-12.9	5.1	47.5	1.7	28.1	32.8
308 PL 2 HD 4	308	2	4	-12.9	5.1	47.1	1.7	27.3	31.9
308 PL 2 HD 5	308	2	5	-13.0	5.0	46.7	1.7	27.0	31.5
308 PL 2 HD 6	308	2	6	-12.8	4.5	46.7	1.7	28.0	32.7
308 PL 2 HD 7	308	2	7	-12.8	4.4	47.0	1.9	24.7	28.8
308 PL 2 HD 8	308	2	8	-12.9	4.8	46.6	1.4	32.4	37.8
308 PL 2 HD 9	308	2	9	-12.7	4.5	46.7	1.5	30.3	35.4
308 PL 2 HD 10	308	2	10	-12.9	4.8	46.6	1.7	28.0	32.7
308 RB HD 1	308	RB	1	-12.3	2.7	45.9	1.1	42.6	49.7
308 RB HD 2	308	RB	2	-12.3	2.4	46.5	1.3	35.3	41.2

Sample	Variety	Plot	Head No.	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio
308 RB HD 3	308	RB	3	-12.3	2.3	45.8	1.1	40.4	47.1
308 RB HD 4	308	RB	4	-12.4	2.3	46.2	1.4	32.8	38.3
308 RB HD 5	308	RB	5	-12.3	2.6	45.7	1.1	42.4	49.5
308 RB HD 6	308	RB	6	-12.4	2.4	45.9	1.3	36.7	42.8
308 RB HD 7	308	RB	7	-12.4	2.4	45.9	1.1	40.1	46.8
308 RB HD 8	308	RB	8	-12.7	2.4	45.6	1.1	42.4	49.5
308 RB HD 9	308	RB	9	-12.5	2.3	45.1	1.2	39.2	45.7
308 RB HD 10	308	RB	10	-12.2	2.3	45.0	1.4	32.7	38.2
308 GAU HD 1	308	GAU	1	-12.3	4.2	43.7	2.0	22.3	26.0
308 GAU HD 2	308	GAU	2	-12.4	4.4	44.3	2.0	22.2	25.9
236 PL 1 HD 1	236	1	1	-12.6	6.2	45.4	2.2	20.6	24.0
236 PL 1 HD 2	236	1	2	-12.4	5.5	45.4	2.1	21.5	25.1
236 PL 1 HD 3	236	1	3	-12.6	3.4	45.5	2.1	21.3	24.9
236 PL 1 HD 4	236	1	4	-12.3	4.1	44.8	1.8	25.1	29.3
236 PL 1 HD 5	236	1	5	-12.5	5.4	45.2	2.1	21.1	24.6
236 PL 1 HD 6	236	1	6	-12.2	4.0	45.4	2.3	19.8	23.1
236 PL 1 HD 7	236	1	7	-12.6	5.7	45.1	2.1	21.4	25.0
236 PL 1 HD 8	236	1	8	-12.5	5.5	44.5	2.0	21.9	25.6
236 PL 2 HD 1	236	2	1	-12.2	5.6	44.6	2.2	20.2	23.6
236 PL 2 HD 2	236	2	2	-12.5	4.7	44.3	2.3	18.9	22.1
236 PL 2 HD 3	236	2	3	-12.5	4.9	44.0	1.9	22.9	26.7
236 PL 2 HD 4	236	2	4	-12.3	4.5	43.6	1.9	23.3	27.2
236 PL 2 HD 5	236	2	5	-12.5	5.3	43.3	1.8	24.2	28.2
236 PL 2 HD 6	236	2	6	-12.3	6.1	43.2	2.4	17.9	20.9
236 PL 2 HD 7	236	2	7	-12.3	4.6	42.6	1.7	24.9	29.1
236 PL 2 HD 8	236	2	8	-12.3	4.6	43.1	2.4	18.4	21.5
236 PL 2 HD 9	236	2	9	-12.5	5.4	42.9	2.0	21.1	24.6
236 PL 2 HD 10	236	2	10	-12.2	5.2	42.9	2.2	19.8	23.1
236 RB HD 1	236	RB	1	-12.2	2.2	42.2	1.4	31.1	36.3
236 RB HD 2	236	RB	2	-12.0	2.0	42.1	1.3	33.6	39.2

Sample	Variety	Plot	Head No.	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio
236 RB HD 3	236	RB	3	-12.2	2.3	42.0	1.2	36.1	42.1
236 RB HD 4	236	RB	4	-12.1	2.5	42.0	1.1	37.3	31.9
236 RB HD 5	236	RB	5	-12.2	2.4	41.6	1.4	30.8	35.9
236 RB HD 6	236	RB	6	-12.2	2.5	42.0	1.1	38.8	45.3
236 RB HD 7	236	RB	7	-12.3	2.5	41.8	1.2	33.7	39.3
236 RB HD 8	236	RB	8	-12.1	2.5	41.4	1.2	35.5	41.4
236 RB HD 9	236	RB	9	-12.1	2.6	41.8	1.4	30.7	35.8
236 RB HD 10	236	RB	10	-12.3	2.5	41.3	1.3	32.8	38.3
MSH PL 1 HD 1	MSH	1	1	-12.8	5.5	40.4	2.1	19.2	22.4
MSH PL 1 HD 2	MSH	1	2	-12.6	5.8	40.5	2.1	19.4	22.6
MSH PL 1 HD 3	MSH	1	3	-13.3	5.9	40.3	2.1	19.2	22.4
MSH PL 1 HD 4	MSH	1	4	-12.7	5.6	40.3	1.8	21.9	25.6
MSH PL 1 HD 5	MSH	1	5	-12.8	6.2	39.9	2.1	19.0	22.2
MSH PL 1 HD 6	MSH	1	6	-12.8	6.2	39.7	2.2	17.8	20.8
MSH PL 1 HD 7	MSH	1	7	-13.0	5.7	39.9	2.5	16.3	19.0
MSH PL 1 HD 8	MSH	1	8	-13.0	5.9	39.5	2.1	19.4	22.6
MSH PL 1 HD 9	MSH	1	9	-12.9	5.6	39.9	2.1	18.8	21.9
MSH PL 1 HD 10	MSH	1	10	-12.6	5.7	39.6	2.1	19.2	22.4
MSH PL 2 HD 1	MSH	2	1	-12.9	5.6	39.7	2.1	18.6	21.7
MSH PL 2 HD 2	MSH	2	2	-13.0	6.6	40.1	2.3	17.2	20.1
MSH PL 2 HD 3	MSH	2	3	-13.1	5.8	39.5	2.1	18.5	21.6
MSH PL 2 HD 4	MSH	2	4	-13.3	5.5	40.1	2.2	18.1	21.1
MSH PL 2 HD 5	MSH	2	5	-12.8	5.3	39.4	2.2	17.7	20.7
MSH PL 2 HD 6	MSH	2	6	-12.9	6.2	39.7	2.6	15.5	18.1
MSH RB HD 1	MSH	RB	1	-12.2	2.5	38.7	1.6	24.7	28.8
MSH RB HD 2	MSH	RB	2	-11.9	2.4	47.3	1.5	30.8	35.9
MSH RB HD 3	MSH	RB	3	-11.9	2.2	42.3	1.2	36.6	42.7
MSH RB HD 4	MSH	RB	4	-12.0	1.7	42.3	1.4	30.6	35.7
MSH RB HD 5	MSH	RB	5	-12.1	2.3	42.6	1.4	31.2	36.4
MSH RB HD 6	MSH	RB	6	-11.7	3.0	42.1	1.5	28.3	33.0

Sample	Variety	Plot	Head No.	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	Wt %C	Wt %N	Wt C:N ratio	Atomic C:N ratio
MSH RB HD 7	MSH	RB	7	-12.1	2.0	41.8	1.4	30.0	35.0
MSH RB HD 8	MSH	RB	8	-11.6	2.2	42.0	1.5	28.5	33.3
MSH RB HD 9	MSH	RB	9	-11.8	2.4	41.9	1.4	30.5	35.6
MSH RB HD 10	MSH	RB	10	-11.7	1.7	41.9	1.1	37.4	43.6
MSH GAU HD 1	MSH	GAU	1	-13.0	5.9	44.8	2.0	22.4	26.1
MSH GAU HD 2	MSH	GAU	2	-12.7	5.6	44.0	2.1	20.6	24.0
MSH GAU HD 3	MSH	GAU	3	-13.1	6.1	44.2	2.4	18.2	21.2
MSH GAU HD 4	MSH	GAU	4	-12.3	7.1	42.5	1.6	25.8	30.1
CT HD 1	<i>S. bicolor</i>	CT	1	-11.6	8.1	42.8	2.2	19.4	22.6
CT HD 2	<i>S. bicolor</i>	CT	2	-11.9	8.8	42.2	1.9	22.1	25.8

APPENDIX 2

Appendix 2: Transcripts for 18 interviews conducted with Eswatini farmers in 2019. Only Interviews 1, 2, 7 and 9 are transcribed and translated. Names of farmers are omitted for anonymity.

INTERVIEW 1: FARMER 1

- **Interviewer: *Singacala ne baba?***

Can we start sir?

- Farmer: *Sowu ready wena sisi?*

Are you ready sister?

- **Interviewer: *Ya. Njengoba mama besesizile last, lomsebenzi esewenzawo nje, sizama uku understanda ukuthi abantu abakudala bebenzanjani, bebafarma kanjani? So, lawomaquestions esizowabuza manje yimibuzo nje ukuzama uku understanda ukuthi ifarming beyenzeka njani before njengoba iyenzenka manje.***

Yes. As we were here last time, the work that we do is to try to understand how people long ago used to farm. So, the questions that will be asked will be trying to understand how farming was done then before modern times.

- **Interviewer: *Okay, iquestion eyokucala, when did you begin farming?***

First question.

- Interpreter: *Wacala nini kulima?*

When did you start farming?

- **Farmer: *Yi, shokutsi ngacala ngabo... angitsi nje 2000, kucala emabele.***

I think I started in 2000, starting (to farm) sorghum.

- Interpreter: *Kulima nje no. Kulima nje emphilweni yakho?*

Just farming. Farming in your life?

- Farmer: Ngicala ngimuncane vele. Shokutsi ngicala ngabo '73 bo '74. Ngacala ngalima ngombila, ngasengingeta nakotini. Angitsi vele ngifike lapha ekhaya kami kunesigulumba, kulinywa.

I started when I young. I think it was 1973 or 1974. I started farming maize, then I added cotton. Because I found my marital home having a tractor, they were farming.

- Interpreter: She started farming in 74. [inaudible] She started with cotton and maize and then later sorghum.

[Inaudible]

- **Interviewer: Okay, what was the reason for changing from cotton and maize to sorghum?**

- Interpreter: *Eh make ingabe kwaba yini sizatfu sokutsi wawulima kotini nembila wase sotela ekulimeni emabele?*

Mam, what was the reason that you changed from farming cotton and maize and moved to sorghum?

- Farmer: *Shokutsi kwase kuncipha lithulu. Kwatsiwake cishe emabele ayabambeleva kunalombila. Lakakotini ke khona ke kwabe sekuncipha lamandla. Ngoba kotini ufuna kakhulu emandla ukuhlakule umeme ingigilo futsi. Kani sorghum yena ufutsa nje scencane naleso sibungu losifutsako. Kani kotini ufusa njalo njalo njalo... konkhe nje njalo isifutfo sihlala emhlanje after 7 days.*

Because the rain decreased. Then they told us that sorghum holds better (is draught resistant) than maize. With cotton the strength in me decreased, because cotton takes up a lot of work as you must weed it out and carry a huge pesticide container on your back to spray it. With sorghum you spray a tiny bit with the pesticide container, yet with cotton you spray it again and again and again... all that time the container is on your back after every 7 days.

- Interpreter: One of the reasons why she changed from cotton and maize was; for maize it was due to climate change, the rains were not sufficient for the maize. And then for cotton, cotton demands a lot of work so, due to my age I ended up not having much [Inaudible].

- Co-supervisor: And since 2000 does she just grow sorghum?

- Interpreter: Ya, since 2000 is growing sorghum till now.

- **Interviewer: Okay that was the question I was going to ask. Who taught you the techniques that you have been using to farm your crops?**

- Interpreter: *Ngubani lowakufundzisa nje lendlela lowulima ngayo tonkhe letilimo tako?*

Who taught you how to how to farm all your crops?

- Farmer: *Shokutsi bakaAgriculture. Shokutsi kwakunebelimisi basibita basikhomba kutsi nasilima lamabele asentekanje asentekanje.*

It was the Ministry of agriculture. There were farmers that called us and showed us that when you farm sorghum you do this.

- Interpreter: *Ngaphambi kwekutsi lababe Agriculture babekhona, ngoba bafika nyalo, wawufundziswe ngubani sukela ku74 kuze kube ngunyalo?*

Before the people from Ministry of Agriculture came, because they only came recently, who taught you from 1974 until now?

- Farmer: *Awu lapho ke, kwakuvele ngitilimela nje ekhaya nje kulima kwasekhaya, silandzele sigulumba. Kulima kwebanftu labadzala lebebakulima.*

Oh, there I was just farming by myself, simple farming following the tractor. This was the way the elders used to farm.

- Interpreter: Okay when I started in 1974, I was using the information from my grandparents. [Inaudible] and then later I changed to information that I was given by the Ministry of Agriculture. As they gave us extension officers.
- **Interviewer: What things do you consider important in order to have a successful harvest?**
 - Interpreter: *Yini nje tinfto lotibona timcoka kuze tikwakhele sivuno lesikhulu?*
What things do you see as important for a good harvest?
 - Farmer: *Lansimini yami? Shokutsi kuhlakula nekukhokhela kahle silimo sami.*
In my field? Meaning managing weeds and crop management.
 - Interpreter: Is weeding and crop management.
 - Co-supervisor: What is crop management? You know when you say crop management what do you mean?
 - Interpreter: Crop management which includes cleaning, applying pesticide if needed.
 - Co-supervisor: All those things like fertilizers, everything?
- **Interviewer: Do you use information that your grandmother and grandfather used when you farm?**
 - Interpreter: Nawulima nyalo ngabe uyayisebentisa yini lelwati lebantfu labadzala kadzeni babelisebentisa kulokulima lokulimako nyalo?
When you farm now do you use knowledge that elders from your past used to farm with when you farm now?
 - Farmer: *Angisalusebentisi.*
I do not use it.
 - Interpreter: I'm no longer using it.
- **Interviewer: Why?**
 - Interpreter: *Leni nje?*
Why?
 - Farmer: *Asengitsi nje, kadzeni ngesihlava kwakutsiwa kucutfwa umhlaba utsele sife sihlava, kwabonakala kutsi asisafi sesiyafutsa ngalemitsi. Eh, nalokutsi ke kadzeni bebatsi kwawona lamabele abefunjwa yabo. Mina nje ekhaya kitsi emabele bewalinywa kodvwa bewafunjwa. Bekamila nje kutsi fu! Nomanihlakula nje nikhoke*

lelikhula niwayekele nje wona ahlange. Amile onkhe ke nasenivuna senitowuvuna kanjalo.

Let me say, long ago when (managing) stalk borer one would take soil and pour on top, the stalk borer would die, then we saw later that it does not die anymore then we sprayed with chemicals. Also long ago, they would say that sorghum should be broadcasted. At my home sorghum would be broadcasted. They would grow in clusters. Whenever you would weed, it would be left alone to grow until harvest time.

- Interpreter: Okay one of the reasons why I changed from my old parents' technique, for example, long time ago when you are managing stalk borer. You were using eh a soil so you would just pick the soil and put inside the maize and the stalk borer would die. Then later on the stalk borer could not die so that is where they introduced chemicals. And another thing, another technique sorghum was... when planting sorghum it was broadcast, broadcast all over the field which makes it difficult to manage weed than yet the new technique you just plant it along the lines and then it's easy to control weed.
- Co-supervisor: Okay, so they used to just scatter?
 - Interpreter: Just scatter.
- Co-supervisor: And then it was difficult to weed?
 - Interpreter: It was difficult to weed. Or even to manage pest.
- Co-supervisor: Okay
- **Interviewer: Okay, can you take me through the process from the beginning of the planting season right up to the harvesting period.**
 - Interpreter: For the technique used now or the old one?
- **Interviewer: What is used?**
 - Co-supervisor: Old one, now. Both in a way. Just those steps.
 - Interpreter: Okay let's start with the old one. *Nyalo ngicela ungicazele kutsi nawulima sukela ekucaleni nje ungakalimi ungisuse lapho uze uyofika ekugcineni sowuvuna. Sicale ngalendlela lendzala lebeyisebentiswa bomkhulu bakho. Ususe ekucaleni siyovuna bese sibuye kuleyikhona nyalo nakhona siyisuse ekucaleni size siyovuna. Asicale ngalendzala.* Now please explain for us how you would sow from the beginning before you plough until you harvest. Start with the way your forefathers did it in the past. From the beginning until you harvest then we will come back to the techniques used now still there tell us from the beginning until harvest. Let us start with the old one.
 - Farmer: *Shotsi ke kulelendzala, eh ekhaya kitsi kwakunetinkhomo, tinkhomo mkhulu ke abambe likhuba, ke bashayele bobhuti ke noma make abambe likhuba bashayele*

abobhuti kulinywa. Nje umakulinywa so kuguculwe ngalengkhabu besekubuya lenhlanyelo ke sebaya broadcaster ke babroadcaster ke. Seke bayalima ke sekuyakhulwa emveni kwaloko ke kuyakhula ke kudla kwakho. Sekuyavunwa kubuyiswe emakhaya.

So in the past, we had cattle at home, my grandfather would hold the plough and my brother would drive or my mother would hold the plough and my brothers would drive. By ploughing like this it tills the soil then we bring the seeds to broadcast and broadcast. Then we plant and it grows and that is how your food grows. We harvest and take home.

- Interpreter: *Lana ngaphambi kwek' uvune letilokuyatane naloku lokunye, beniyake nitente njani?*

Here before harvesting the aphids and other things what would you do to them?

- Farmer: *Tilokatane bekusetjeniswa yona lemilotsa, kutsiwa kufutswa sicencane nalomhlaba kutselwe esihlaveni.*

We would use ashes for the aphids, then it was said you apply soil onto the other pests.

- Interpreter: Okay, the first thing that we used to do long time ago, due to the long time we there were no machines, we used oxen to plough. We plough the field, eh we come with the seed, we broadcast after broadcasting we wait for it to grow, and then in case there are some pests or in case there are some pests, we use soil or we use ashes depending on the pest, for example we have aphids we use ashes to control aphid. And then we wait for the crop to get ready and then we harvest, we put it on traditional cribs.

- Co-supervisor: What are they like?

- Interpreter: Okay, *asowusicazele ngaleti letinyango benifaka kuto kadzeni? Hayi letanyalo betikanjani?*

Please explain to us how were the traditional cribs from the past? Not the ones present today, how were they?

- Farmer: *Shotsi nje, ekhaya kitsi kwakuvele kukhona lenyango babe Vilakati, kufakwa lanyangweni yakhiwe kubekwe letingodvo.*

Meaning at my home there was the crib Mr Vilakati, we would store in it, it was built using logs.

- Interpreter: *Yakhiwe kanjani, leyakadzeni.*

How was the olden one built?

- Farmer: *Ehe yakhiwe nje lokunye bagawule, lakitsi kwakunesihlahla kutsiwa Libibi, yalibona bamise letigodvo bamise letigodvo bese bayavundlisa bayaphica ngaloLibibi, bayaphica ngaloLibibi. Sebayayenta inyango, sebaya shayela ngemangu ngemathayela*

nakunemathayela nomangalotjani bafulele. Lokunye kukhona lokunye lebebakwakha angati batsi sidleke yini, kube nje kungabekwa lapha etulu esihlahlani.

It was made but chopping logs. At home there was a tree called *Libibi*, they would make the logs stand then take the *Libibi* and weave it. They would weave with the *Libibi*. Then make the crib, they would then cover with the metal if the metal is there or with the grass. There is also something else they would do, I am not sure if it is called a nest but they would make it and put up a tree.

- Interpreter: *Kwakhiwa ngetjani?*

They made it with grass?

- Farmer: *kwakhiwa ngetjani lokunye bebakwakha ngaloLibibi. Laphakitsi kwakhusebenta leLibibi, bakuphice so beseke bayafaka lombila ke* [inaudible].

It was built with grass sometimes or they would build with the *Libibi*. But most of the time they used *Libibi*, they would weave and then store the maize [inaudible].

- Interpreter: Eh the types of cribs we used were made, it was made of, there is a certain grass called *Libibi*.

- Co-supervisor: How do you spell it?

- Farmer: *Sihlahla*

A tree

- Interpreter: It's a tree. But not exactly a tree. Because you know the Reed dance? Sort of a Reed dance but that one is big. So they use something like that to make the cribs.

- Co-supervisor: I see.

- **Interviewer: *Lispelwa kanjani leLibibi?***

How do you spell the *Libibi*?

- Interpreter: *Libibi? L.I.B.I.B.I.*

- Co-supervisor: So they would weave it? Is it woven? What shape would it be?

- Interpreter: Ya. Sort of like reeds because it used to be, I don't know how I can explain this one but we don't have an English name for this one. We know it just the *Libibi*.

- Co-supervisor: And then do they make it like a basket or something?

- Interpreter: Ya, like a basket, it sort of like a basket.

- Co-supervisor: How big is it?

- Interpreter: *Beyiba nganani?*

How big would it be?

- Farmer: Big one. *Lokunye bakwentele khona laphetulu esihlahleni. Lokunye bakwentele laphetulu esihlahleni ahleti lomtfwana anikete lolaphetulu ukhetse lombila, kutselwe*

letulu, kukhetfwe kutsele letulu. Besekutsi lo lotokuhlanyelwa wona ke sowuyakhetfwa lana nanenta loku lukuyicatako. Soyahamba ke wona uhukwa etulu edladleni yabona lakunentfutfu khona. Awudliwa yingobolwane ke uyahlala nje. Utawuze kutsi masekulinywa sowuyakhutunwa ke. Phindze uhambe uyowuhlanyela. Lowesintfu.

Another type they would do on top of the tree. They would do it on the tree with someone sitting up the tree and a child will bring it up. They would choose the maize and store up the tree. Then the one that will be planted is picked out while you remove the peels from the corns. This one is taken and shelved on top in the cooking rondavel where there is smoke. This prevents insects eating it and it stays there. When it is planting time the grains will be removed then. You replant them. The indigenous one.

- Interpreter: Okay, this crib the *Libibi* it was built on a tree. It was built on a tree, eh the harvest that was going to be eaten, it was stored on the *Libibi* but the one which was not going to be eaten, to be used as, to be planted for the next season, was stored in a rondavel where there is smoke, it was hanged over where there is smoke. Just to prevent it for, to reserve it for next season.
- Co-supervisor: Does the smoking stop pests or what or preserve it.
 - Interpreter: Ya, it stops pests.
- Co-supervisor: So when they build it up on a tree what's it protecting from?
 - Interpreter: *Yini sizatfu sekwkhwiwa esihlahleni kungakhiwa phasi.*
What is the reason that you built it on a tree and not on the ground?
 - Farmer: *Angati lokutsi bebewentelani nami.*
I also do not know.
 - Interpreter: So, doesn't know
- Co-supervisor: Doesn't know?
 - Interpreter: Ya, she doesn't know the reason why it was built upon the tree. She was told to just build it on a tree.
 - Farmer: *Noma bebentela bantfu labebako yini, kotja bekute kangako lebebako. Bebatsandza nje kutsi kwakhiwa lesidleke letulu babeke khona. Angati leni.*
Maybe they did it to prevent people from stealing, but they were not many people who used to steal. They just liked to build the nest up there and store there. I do not know why.
- Co-supervisor: That rondavel word where there is smoke, the maize for the next harvest, the one that gets smoked?
 - Interpreter: Where was it stored?

- Cosupervisor: No how. When you said that for next season [inaudible] those get smoked in the rondavel, is it a normal house or is it a special thing that is built for the smoking?
 - Interpreter: Hai, it's just a normal house, a rondavel, where they used to cook.
- Co-supervisor: Okay, just above the cooking?
 - Interpreter: Ya above the cooking
- Interviewer: **Angisho besibheka umama bekasijela ngendlela leyakudala so manje sekuyile yamanje.**

The lady was tell us about the old one, so now what happens now?

- Interpreter: *Nguleyanyalo ke.*

The one now.

- Farmer: *Kulena yanyalo? Kuleyanyalo ke angisho besengishito silima njani yeVilakati lokutsi nyalo siyalima ngaletigulumba, besesiyaplantela. Kani futsi sesifundzisiwe kutsi silime ngale CA ngalokonga. Nakhona silime songemanti simbe tigodzi nomasengi ngasakukhoni mine, labanye bayakwenta minangikhoni kumba letigodzi. Futsi sizatfu sekutsi ngingakhoni kute lendzawo lebiyelekile lenganongena khona tinkhomo.*

The one for now? Well now I had said Mr Vilakati that we plough using tractors, then we plant. We have also been taught to observe conservation agriculture techniques. With that we save water by digging holes although I cannot do it anymore, others do it. The reason I cannot do it is because I lack the appropriate space to do it.

- Interpreter: *Asowuaze ke uqhubeke nasenihlanyelile kwentekani till till ekuvuneni nakhona.*

Please explain what happens after planting until harvesting also.

- Farmer: *Lapha ke nasengihlanyelile la, sengiplantelile beseke funekutsi ngikhokhele. Sengiyabuya ke ngiya hlakula, sengiyafutsa sicencane, ngiyafutsa nalesibungu lesikhona lestockboro. Bese seyekhula emabele ami nasakhula ke sengihlushwa tinyoni sengiya juba ke ngiyahamba ngiyogcebela enyangweni. Ngiyawa layisha langemoto ngiyahamba ngiyekhaya, sengiyowaphakisha enyangweni, ngiyaphakisha, ngiyaphakisha. Ngihle ngifaka nelihawu, ngalesinye sikhatsi ngibete lihawu, njenganyalo ngite lihawu, ngite lona angikalifaki. Kani lona lenta lokutsi leletinye tilwanyana loku la lelihawu likubulale nangibekile lenyangweni. Nangingakalufaki lokweti lwanyana kuyaqhubeka kungimoshele lamabele ami. Besengiyawabhula ke ngindlala liseyila. Leseeyili yinkhulu, sivamisa kukwenta kusihlwa ngoba kutsiwa emabele ayaluma, kani lapentsambama nasekuwula ematolo ngiyawakhipha njenganyalo emini ngibeke kahle ngishaye tinkhukhu bese ayawoma ke. Sekusi*

entsambama siyawashaya ngalemizaca, siwashaya siwashaye. Ngiyakukhetsa lokwemaqcumbu ngiyakulahla sengiyawela ke, ngiwafak' esakeni ngiyawahlula kahle kutsi akahle, ngiyawafaka esakeni. Ngiyawafaka letangeni, ngiyawagcina letangeni.

Here once I have planted, after I plant I need to manage the crops. I come back to manage weeds, apply pesticide and spray chemical to kill stalk borer. Then the sorghum grows, as it grows then birds become a problem. I cut it down and put into the traditional crib. I pack them into a car to take them home, thereafter I pack and pack into the crib. I sometimes add (lihawu) then, but sometimes I do not have it, like now I do not have it so I do not add it. But its job is to kill off tiny insects in the crib. If I do not add it the insects continue to spoil my sorghum. I then lay them on a tarp. It is a huge tarp, we usually do this in the evening, because it is said that sorghum is itchy, yet in the evening around sunset I take out mist now in the afternoon and place it properly chasing off any chickens so they can get dry. Then during the evening we hit them with sticks, we hit and hit. ***Ngiyakukhetsa lokwemaqcumbu ngiyakulahla sengiyawela ke*** I put them into a sack I check if they are okay, then put into sacks. Then I go put into tanks and stored them in tanks.

- Interpreter: *Sowukahle? Sowufik' ekugcineni kwekhuhlanyela?* Okay, the modern way, we pay for tractors which government provides us with tractors, we pay for the tractors then they come, and plough, they plant. Sometimes we don't pay for tractors because we use conservation agriculture techniques where we dig some holes and then we plant. The reason why we usually opt for the conservation technique is because of the insufficient rains, there is not much moisture this time. So it's either we use the tractors, or we use the conservation agriculture techniques. Then we plant after planting we control weeds, and then after weeds, it depends whether there are some pests or not. If there are some pests in most cases we usually experience aphids, we control aphids using pesticides and then we control stalk borer. There is another worm which is called army worm, we control it using some chemicals that are recommended by the Ministry of Agriculture, and then after that we wait for the sorghum to be ready and then comes the birds. Then we have to come here all the time, trying to scare the birds. Then when they are ready, we harvest them then we store them in our modern cribs and then after storing when they are ready, and then we use sticks. We just beat them with sticks so that the grain, we will move the grain to the heads using sticks and then we store them in tanks.
- Co-supervisor: So it's modern tanks?
- Interpreter: Ya, its modern tanks.

- Co-supervisor: Plastic or metal or?
 - Interpreter: Most of them they are metal. There are some which are metal but most of them they are metals.
- Co-supervisor: And then just let me ask you, has someone come to watch the fields for the birds?
 - Interpreter: *Kukhona lotako lansimini atohlala lana alindze tinyoni?*
Does anyone come to sit and guard against the birds?
 - Farmer: *Eyi kute. Sihle sita nje.*
No there is no one. We sometimes come though.
 - Interpreter: *Koja kumele ngabe ukhona?*
But there should be someone there?
 - Farmer: *Umtsetfo nje kumele ngabe ukhona. Kube nje sitimele kahle, ngabe vele kuba nemuntfu abekhona agadze. Manje ke asikhoni.*
As a rule someone should be there. If we were in a stable condition, we would get someone to guard. But we cannot.
 - Interpreter: We sometimes come and watch the birds, but due to our, we don't afford to hire someone every time to be here. We just come once [inaudible].
- **Interviewer: How did you get the land that you have been using to farm?**
 - Interpreter: *Lenzawo lena uyitfole njani le kutsi ulime?*
How did you get this land to farm on?
 - Farmer: *Lena nje shokutsi sanikwa ngulomunye babe. Shotsi sabutsana siyinhlangano saseke wasinike lobabe kutsi ke ca, ikhona indzawo lasingalima khona siyinhlangano simekanyekanye ngoba bebasitjele lokutsi lamabele umaniwalime kanyekanye kube siwalime kuyokusuke le siyofika la enhla. Letinyoni umatidla, titawudla nje nawe uwatfole uhambe uye ekhaya nawo naloyo kanjalo, ngoba kunengi. Kani nangabe nje kungangalonyaka ngoba silime siyithu. Lonyaka tikhombisa kusicedzela.*
This one we were given by a man. We grouped together and formed an organisation, then this man gave us, because there was land where we as an organisation could come and farm as they had told us that if a group of people sow sorghum, they can do it from one end of the field to the other. When the birds come to eat the sorghum the damage does not become extensive everyone can carry something home because there is still a lot. Yet when, like this year because there is just two of us sowing, this year it looks like they will finish it for us.
 - Interpreter: *Niyayirenta yini?*

Do you rent?

➤ Farmer: *Siyayirenta yi10% irent.*

We rent, it cost 10%.

○ Interpreter: Okay, which means this land we are renting it to someone its 10% of harvest. Which is 10% of harvest we give it to the landowner.

▪ Co-supervisor: Who is the landowner? Is it the chief?

○ Interpreter: No its not it's just someone.

▪ Co-supervisor: Someone? Why doesn't she?

○ Interpreter: It belongs to the chief and the chief give it to someone and then that person is now renting it.

▪ Co-supervisor: I thought in Swaziland everyone could get a piece of land. Is it not possible?

○ Interpreter: Ya, it's possible to get a piece of land but it is not possible, it is not same size. Some they get big some they get small. So the ones who they get big, they can just lease it to the other one.

➤ Farmer: *Ngoba nje ekhaya ikhona kepha yincane. Senginemndeni lomkhulu; kunebafana. Nabobafuna kulima abasatsandzi kutsi sengalima lambele. Kani lamabele ke sesita lanhlanganweni.*

Because the one I have at home is small. I have a big family, with boys. They also want to farm, and they do not like me sowing sorghum. Then I joined this organisation for the sorghum.

- Interviewer: She is saying she does have a piece of land but its small and she's got a big family and has boys and they also want to farm. So they don't want the sorghum to be farmed there, so they farm it here. **Was there a time before this when you or your forefathers could choose which land to use for farming?**

○ Interpreter: *Ngaphambi kwanyalo, kwakutsi nyalo sowunalensimu loyirentako kadzeni bekukhona kutsi bokhokho bakho basemuva kutsi indzawo beyiyinengi bebakhona kukhetsa kutsi wo lana sifuna kulima, lana sifuna kwentani, lana sifuna kwentani? Bekukhona yini lokutsi bayakhona kukhetsa kutsi yini bafuna kuyisebentisa kulima labafuna kufuyela kuyo bafuna kuyentani?*

Before now, because now you farm on rented land, long ago were your forefathers choose what to do since the land was huge to say this area we will farm, this land we will do this and here we will do that? Did they have any way to choose what if they wanted to sow in that area or herd in it or whatever?

- Farmer: *Kwakukhona vele, ngoba mine nje kitsi kwakunendzawo lenkhulu. Ngoba kitsi Vilakati ngulaph' Emalahleni kwakunendzawo lenkhulu kwalemayini yengena emasimini akitsi. Kwakunendzawo lenkhulu, kulinywa bomake balima namkhulu alima naloyo nje anesivandzi sakhe lapha nalapha.*

Yes it was there, because at home we had huge land. Mr Vilakati as my home is in Emalahleni the space there was huge such that they took some of it for the mine. There was a huge land, where my mother would farm and my grandfather would farm, everyone had their fields there and there.

- Interpreter: Okay we used to have such land, whereby we could choose which one for cropping or which one to use for cattle. Unfortunately there came a mine where our land was taken by the mine.

- **Interviewer: Which year was that?**

- Interpreter: *Ngumuphi lomnyaka nawukhumbula khale, lemyini yafika laphemasimini akini?*

Which year if you remember properly, did the mine come to your field?

- Farmer: Mmm, shotsi bo64.

I think around 1964.

- Interpreter: Ya, 1964.

- **Co-supervisor: The coal?**

- Interpreter: Ya there is coal mine along Mpaka.

- **Interviewer: Okay since the previous question was yes, they could get to choose what type of soil was chosen for planting the crops?**

- Interpreter: *Okay njengaloku nje kadzeni benikhona lokukhetsa kutsi nifuna kusebentisa lena ibeyekulima, lena ibeyetinkhomo tifuyo, lena ibeyani, beni leyekulima lomhlabatsi wekulima beniwukhetsa nibuke ini? Noma nhloboni wemhlabatsi beniwusebentisa ekulimeni?*

Since in the past there was choice of where to farm, herd cattle or animals, or anything else, the land for farming was it chosen looking for what properties? Or what type of soil was chosen for farming?

- Farmer: *Shotsi bebabuka nje indzawo la, ngoba bekunemasimu nje kutsiwa kusesikhunjini yabo, kubukwe indzawo la kungatsi kukahle khona nemanti. Kantsi tinkhomo tona tiyiswa ngalana kunetintsaba khona, kunemahlatsi khona nje, lakunematje khona.*

They would look at the land because there was a wetland, they would look for where it was good enough and close to the water. For the cattle they would take them to mountainous places that have soil and rocks.

- Interpreter: *Lomhlabatsi bekuba ngulonjani inhlobo yawo? Noma mhlawumbe ngembala bowunjena bewunjani?*

What type of soil was it? Maybe what colour was it?

- Farmer: *Eyi shokutsi lomhlaba walekitsi babe wawusihlabatsi.*

Meaning the soil at my home was loam soil.

- Interpreter: Okay the type of soil that was used for crops, it was the one which is like flat and is like it have some swamps along the area which means it has an ability to hold water. The ones for livestock it was the one which is mountainous.

- Interviewer: So they separated where they kept the cattle and where they did the farming?

- Interpreter: Ya.

- Interviewer: Okay so from the previous question now, how do you tell which soil or ground is healthy for growing the crops?

- Interpreter: Okay, *njengalokubenikwati lokutsi nibone umhlaba wekulima kutsi ngulo, benikhona ngani lokuwubona kutsi lona ngulovundzile lokutsi ungakhona lokutsi kulima kuwo? Noma nje ngulophilile kutsi ungakhona kutsi ulime?*

Because they were able to choose the land, how did you see which was fertile to farm on? Or which was healthy to farm on?

- Farmer: *Eish angati lokutsi bebabona ngani.*

I do not know how they saw.

- Interviewer: Like *manje*.

Now.

- Interpreter: *Oho nyalo?*

Oh now?

- Interviewer: Or both.

- Interpreter: *O kadzeni utsi bebabona ngani kadzeni?*

In the past how did they see?

- Farmer: *Ngitsi eyi angati bebabona kanjani ngoba bengisemncane.*

I was saying that I do not know how they would see because I still young then.

- Interpreter: *Nyalo ke ubona ngani, Lapha mele ngihlanyele lomhlabtsi uvundze kanganani or uphile kanganani kutsi ngingahlanyela loku nyalo?*

And now how do you see that here is good to plant the soil is fertile or healthy to sow?

- Farmer: *Nyalo ngoba sekukhona labalimisi, sebayasitjela lokutsi eyi lomhlaba sowugugile, sowunesona, sofanelwe kutsi wentiwe ini. Kani kadzeni sasivele nje ulime singanalo lolwati.*

Now there are extension officers, they tell us if the soil is unhealthy and what to do to the soil. Before they came we would just sow without any knowledge.

- Interpreter: Okay long time ago, I am not aware I don't know what technique they used to differentiate the soil that which one is healthy, which one is not healthy because I was too young at the time. But now due to the availability of extension officers the advice I'd base on. For example there is a streaker once your crop has a streaker it is a sign that your soil is not healthy. So you have to go for soil testing to see which elements are not balanced now.

- **Interviewer: Do you grow different types of sorghum?**

- Interpreter: *Nawulima emabele ngabe ulima tinhlobo letehlukene yini?*

When you plant sorghum do you plant different types?

- Farmer: *Mmm shotsi nje ngilime nje la tinguthu letinhlobo. Mane lelenye itsandva kakhulu tinyoni, lokuye Marcia. Le NS4411 cishe yona incono kakhulu iyadliwa seyidliwa ngulamatumama leletincane letinenge ticshe atiyitsandzi.*

Yes, I plant two types. But one is loved by the birds, the Marcia one. The NS4411 is a bit better because it is eaten by pigeons the small birds do not like it.

- Interpreter: Okay lenhlanyelo le yiNS4411 or 5511?

The other one is NS4411 or NS5511?

- Farmer: Double 5.

- Interpreter: Now yes I use different varieties. The first one is the NS5511 this one the birds don't like it that much but they eat it and then there is Marcia. Marcia is the white variety, this one birds they like it.

- **Interviewer: Out of these two which ones are indigenous? Are they indigenous or are they not?**

- Interpreter: No they are not indigenous.
- Co-supervisor: These one they are not genetically modified, or are they just varieties?
- Interpreter: They are varieties they are not genetically modified.

- **Interviewer: So the sorghum that is planted, is it planted all at the same time?**

- Interpreter: At the same time as in?
- Co-supervisor: All the different varieties do they get planted at the same time?
- Interpreter: Ya they are planted at the same time.

- **Interviewer: If the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?**

- Interpreter: *Nangabe nje simoselitulu asikhombisi kutsi lonyaka kutawulimeka, asikho kahle kulimeka, wenta njani wena kuze ukhone kutsi ulime utfole sivuno lesiphatsekako?*

If the weather does not show promising signs for farming, it is not good for farming, what do you do in order to get a good harvest?

- Farmer: *Ey ngemutsetfu ngabesenta leCA, lelesehluleka kuyo ngendzaba yekutsi site indzawo levalekile. Yona ngabe iyasisita kakhulu.*

We are meant to be using conservation agriculture techniques, but this is difficult for us because we need a fenced field. It would be helping us a lot.

- Interpreter: *Nentanjani nyalo ngoba anenti leCA nenta njani?*

What do you do now because you do not do the CA.

- Farmer: *Ngiyalima nje. Lokunye ngigcine ngingakatfoli lutfo.*

I just plant. Sometimes I end up not getting anything.

- Interpreter: Okay actually we must use conservation agriculture techniques as advised but the problem with conservation agriculture we need to fence the land. Which means during winter there must be no cattle getting inside, because we fail to control the cattle, they get inside during winter when the ploughing season comes we just plough waiting for the rains. If they come they come, if they don't we lose.

- **Interviewer: Okay so when the sorghum is planted is the different land to plant the sorghum and different land for the cattle or is the cattle allowed to just roam during the growing season where the sorghum is growing?**

- Interpreter: *Nanihlanyela ngabe niyo yini indzawo yekuhlanyela iyodvwa, yekulima embele bese eceleni ubanetinkhomo eceleni? Noma lentikhomo nalambaele tiyayisharisha lendzawo?*

When plant do you have a designated area just for planting the sorghum then the cattle will have their space, or the cattle and the sorghum share the area?

- Farmer: *Ngemtsetfo ikhona indzawo yetinkhomo, kuphela nje kutsi singebantfu asicabangi. Ngala nje tincomo tidla laphetulu entsabeni nangalana ngakitsi tinkhomo tifanele tidle ngale kubheke esporweni koja ke bantfu ukhandze kutsi batsi ngale tiyebiwa tinkhomo, ukhandze bantfu kutsi batotidlisa khona lana eceleni kwalamasimu. Setiyasijombela tiyangena.*

It is supposed to have separate spaces for farming and cattle, but we as people do not think. On that side the cattle graze up the mountain, our side the cattle are meant to graze towards the railway, but people say that their cattle get stolen, then they bring their cattle to graze near the field. They then come in.

- Interpreter: Okay the land is divided into two, there is land for cropping and there is land for pastures but the land for pastures is just too far for some other farmers they believe that their cattle are stolen. So some they come with their cattle, they allow them to feed around the field. So in that process the cattle can just jump inside.
- **Interviewer: *Imanure iyasebenziswa for lmacrops lawa?***
 - Is kraal manure used for the crops?
 - Interpreter: As for now or then?
- Interviewer: Both.
 - Interpreter: *Umcuba beniwusebentisa kadzeni kutowenta emasimu enu? Nyalo ngabe nisawasebentisa yini?*
Were you using kraal manure long ago in your field? Now do you still use it?
 - Farmer: *Eh kadzeni bowusetjentiswa nanyalo uyasetjentiswa mane nje ubese ubanga kakhulu lolukhula.*
Yes long ago it was used and now it is used but it then causes more weed growth.
 - Interpreter: [Back] Then, it was used as a manure, and now it is used as a manure. The problem now is that most of the manure it causes a lot of weeds.
- **Interviewer: *Beside the cattle manure what other manure or fertiliser or anything that will help.***
 - Interpreter: Now?
- Interviewer: Both.
 - Interpreter: *Ngaphandle kwekusebentisa umcuba, kadzeni bebasebentisa ini nangabe umcuba bangakawusebentisi kuvundzisa lakulamasimu awo, kadzeni, nanyalo nangabe ningawusebentisi umcuba ngoba unibangela likhula nisebentisa ini kuvundzisa lenikulimile?*
Besides using manure, long ago what was used instead of manure to make the field fertile, now that you saying that the manure causes weeds what do you use instead to make what you planted fertile?
 - Farmer: *Kadzeni bebasebentisa lomcuba nabangakasebentisi umcuba kwakuvele lina kahle lelitulu, kuba khona. Ngoba nanyalo umalina lelitulu kahle asiwudzingi kakhulu lomnyolo. Kani nyalo uma ungafuni lomcuba uyawusebentisa manyolo.*
Long ago they would only use the manure, however the rain was good enough that yield would be there. Even now when it is raining properly you do not need that much manure.
Yet the manure if you do not want it can be changed for fertiliser.
 - Interpreter: Okay long time ago, they only used the manure, if you have not used manure which means there is nothing you have used. And now if you have not used manure you can use there are different types of fertiliser, which you can use now.

- **Interviewer: Before using the hybrid varieties which types of sorghum did you grow? Can you remember?**

- Interpreter: *Ngaphandle kwekutsi nyalo sesisebentisa letinhlanyelo letibunjiwe tesilungu, kadzeni benisebentisa tphi letinhlanyelo lokhona kutikhumbula, kusho kona tinhlanyelo lebetilinwa kadzeni kungakafiki lokutsi kufike letinhlanyelo letikhona nyalo?*

Apart from the modern hybrids used now, which types were used long ago that you remember? Just the ones used long ago not including the modern one used now?

- Farmer: *Kadzeni bekusebentiswa tinhlanyelo mane sengilikohlwe lelegama lato. Letatitsela nje lamabele entenje, nomalifika lelituba lingkhoni kulidla. Ukhandze kutsi lenye nje itababovu lenye ibemhlophe.*

There were different types long ago but I have forgotten their names. The ones that were used would do like this, even when the bird comes it will not eat it. You would have brown and white.

- Interpreter: *Lamagama akhona kute lokukhumbulako?*

You remember none of the names?

- Farmer: *Kungasiwo lawabewahlanyele boNandi la, abemhlophe wona amakhulu.*

It was not the ones planted by Nandi, they were big and white.

- Interpreter: *Ngaphandle kwalawo khona...*

Apart from those?

- Farmer: *KuneMshalane angisati lokulokunye kutsiwa yini. Mshalane kunye lokulokunye angisati kwakutsiwa yini legama lalamabele. Lengiwakhumbulako nje.*

There is Mshalane and I do not remember what the other one is called. Mshalane is one and I do not know the other sorghum's name the ones I remember.

- Interpreter: The variety that I can remember now is only Mshalane. There were varieties that were used long time ago but I could not remember their names. But you can characterise them like; after forming the heads, the heads just bent down some were white, some were brown.

- **Interviewer: Why did you stop using those?**

- Interpreter: *Nawayekele lani letinhlanyelo letikanjanlo kutisebentisa nitofaka letitesilungu?*
Why did you leave those types to use the modern ones?

- Farmer: *Kwasekuyaphela nje kulima emabele, loku ke sebawvusa nyalo ngekutsi nawemabele atawisita okubamba somiso.*

There was a stop in sorghum production, then they reintroduced it now so that they help with the drought.

- Interpreter: There was a time where production of sorghum was stopped and then later after some years it resurface and then it came with this type of variety.
- **Interviewer: Why was the production stopped?**
 - Interpreter: *Kwamiselwane lokulinywa kwemabele kadzeni kuze kucamuka nyalo nje?*
Why did the farming of sorghum stop long ago only to come back now?
 - Farmer: *Yi angati. Shotsi kwase kucamuka nje kulima umbila. Basebayekela emabele, sekulinywa umbila sekunakwa umbila.*
I do not know. Maybe farming maize came along then they left sorghum to farm maize and all focus if on maize.
 - Interpreter: Which means there was a demand for planting maize so people they just shifted from sorghum to maize.
- **Interviewer: Can you see an improvement in the sorghum that you plant now compared to the one you used before? If yes what are the improvements?**
 - Interpreter: Okay *kulamabele lowulima nyalo ngabe uyabona kutsi kukhona yini umehluko emkhatsisini, umehluko ngesivuno kulolositfolo nyalo nalesa besitfolakala kadzeni kulamabele lamadzala? Nangabe ukhona ngabe lomehluko uba kuphi?*
Do you see any difference with the sorghum now, the difference between the harvest that you get now and the one from the sorghum long ago? If ther is a difference, where is it?
 - Farmer: *Eish ngekesengati ngoba kadzeni bengisemuncane nangingati nekutsi bahlanyele intfo lengakanani kutfolakele lokungakanani. Nangidla nje kuphela. Kani nyalo sengiyati ngoba ngiyengikhiphe inhlanyelo ngihlanyele. Kani kucala nangibuka nje ensimini. Ngabengicala emanga kutsi kwakukhishwa infto lengaka kutfolakale lokungaka ngabengiyaphosisa.*
Unfortunately I do not know because long ago I was too young, I would not know how much was planted and how much they got. I would only eat. But now I know because I take out the seeds to plant. Yet before I would watch the field. I would be lying if I said how much was taken out and this much was received, I would be dishonest.
 - Interpreter: Okay for long time ago, I could not know whether they, I cannot differentiate whether you gain now or you lose because long time ago I was not hands on planting, I was too young. But now because now I am hands on, I know only for now.
- **Interviewer: When in the year does the planting begin?**
 - Interpreter: *Emnyakeni nje kulima kucala nini? Mhlawumbe inyanga longasibekisela ngayo kutsi kucala nini?*
In the year when does sowing being? Maybe a month that you can guess around?

- Farmer: NgaOctober.
In October.
- Interpreter: In October.
 - Farmer: *Kulinywe kulaboSeptember ke kepha ngalokontjintja kwesimoselitulu sokhandza sesicala kulima ngaDecember.*
We also plant in September but because of the change in climate, you find that we now start sowing in December.
- Interpreter: Normally it starts in October or September/October but due to climate change now we start in December.
- **Interviewer: And then when is harvest time?**
 - Interpreter: *Nivuna nini inyanga leningasho kutsi nivuna ngayo?*
Which month would you say you harvest during the year?
 - Farmer: *Shotsi nguyeloApril.*
Meaning its April.
 - Interpreter: It's April.
 - Farmer: *Kani kube besilime kahle nabesivunile ngaMarch.*
If we had planted properly/timely we would have harvested in March.
- **Interviewer: How many times do you plant and harvest in a year?**
 - Interpreter: *Emnyakeni ngabe nihlanyela kangakhi phindze nevune kangakhi?*
In a year how many times do you plant and harvest?
 - Farmer: *Hawu sihlanyela kanye sivunye kanye. Ngoba sihlanyela ngolo October siyesiyowuvuna ngalaboApril.*
We plant only once and harvest only once. Because we plant from October until April.
 - Interpreter: We plant once, and then we harvest once. We start in October till April.
- **Interviewer: What measures do you take to ensure that the land recovers between the growing seasons?**
 - Interpreter: *Ngutiphi nje taba lenitentako nangabe senivunile noma emkhatsisini kwekuvuna nekuhlanyela, lenikwentako lamkhatsisini, lomhlabatsi wenu ubuye esimeni sekutsi nasenisilima niwukhandze sewuvundzile?*
What measure do you take after harvesting or between harvesting and planting, what you do in between, so the soil regains the health so when you start planting it is fertile?
 - Farmer: *Ey kute lesikwentako ngoba site fence, akukavaleleki.*
Nothing because we do not have a fence, it's not secure.
 - Interpreter: There is nothing we do, because these are is not properly fenced.

- Farmer: *Lananje ukhandza bantfu bafike bacace lelidaradi, bafake tinkhomo ubone tingena ngale. Noma kumbe nakasatotikhipha, afike ativulele. Ahambe ashiye kuvulekile.*

What you find happening here is people come and open the fence and let their cattle through and then you see the entire that side. Or others come to release their cattle, they open the gate and do not close it.

- Interpreter: Because some farmers they just open the gate, and put their farmers inside during the winter. That's why there is nothing we do.
- Co-supervisor: Because there is no fence?
- Interpreter: The fence is there but not a proper fence.
- **Interviewer: Last question, what do you use the sorghum for?**
 - Interpreter: The harvested one?
- Interviewer: Ya
 - Interpreter: *Lamabele leseniwavunile ke lesivuno senu nisisebentisa kwentani?*

What do you use the sorghum you harvest for?

- Farmer: *Kuningi lesikwentako ngamabele. Siyawagaya sidle incwancwa, noma labanye bagaye badle liphalihi, labanabo shukela nje. Labanye bente emahewu, labanye baphise tjwala.*

There is a lot you can do with sorghum. We grind them to eat thin porridge, others grind them to make porridge especially those with diabetes. Others do emahewu and others traditional beer.

- Interpreter: There are a lot of things that you do with sorghum the first one we grind them we make thin porridge, some they make pauper porridge, some they the ones which you make pauper porridge are the ones which are diabetic which is good to be eaten by people who are diabetic, some they make Swazi brew, they prepare Swazi brew.
- **Interviewer: So because now there is two, because *umama ukhulisa* two different varieties. So *kulawo mavarieties amaphi, woyithu ayenza* the alcohol, the porridge or *khona especific eyenza* the alcohol?**

So because now there is two, the lady grows two different varieties. So between those varieties, are they both used to make alcohol or is there a specific one for the alcohol.

 - Interpreter: *Kuletinhlolo takho letinhu leti, lenalemhlophe nalenalebovu, ngabe totimbili tenta loku noma kukhona lena lengiyona lekahle ekwenteni loku, lena ikahle ekwenteni loku?*

Between the two different types, the white one and the brown one, would they both make this or there is a specific one that is best to do this, and another for that?

- Farmer: *Shotsi bayayenata nje kulelebovu. Mtsetfowayo ngulelemhlophe lelekutsiwa kwentiwa ngawo tjwala.*

They just do it with the brown one. But the specific one to use is the white one for the alcohol.

- Interpreter: Okay they can use both, but the one which is very good is the Marcia which is the white one.
- Interviewer: For the alcohol?
 - Interpreter: For especially the alcohol. This one is very good it has high content of alcohol.
- Interviewer: **Umama ukhulele kuphi? Like ukhulele kule area or ku enye iarea?**

Where did the lady grow up? Like she grew up in this area or some other area

- Interpreter: Ukhulele la, ekhaya khubo is just next to the mine. The mine is just about 5K or 7K that way.

She grew up her, her home is just next to the mine.

- Co-supervisor: Does she remember, do people here still plough with oxen?
- Interviewer: **Do people here still plough with oxen?**
 - Interpreter: *Ngabe tisasebenta tinkhab*

Do people still use oxen?

- Farmer: *Kwamanje ey sebascarce kutisebentisa. Basekhona mane bantfu, mine kami kwakukhona khonkhe kwekusetjentiswa kwetinkhab kwase kuvama laba labebako. Bangatikhandza lemadlelweni, leletitinkhab bavele bashaye inkwela bashaye inhlavu la. Babese badecider ukutsi kute nkhome lephindze ifundziswe kuboshelwa. Saletiyekelwa tibe tidlambeni khona kutawutsi nakacamuka umuntfu tiphephise.*

It is very seldomly used. There are still people though. I had every oxen tool at my house then there were more thieves. If the find the oxen cattle grazing they would steal it. Then it was decided that no cattle should be taught again. This way when thieves come they will be safe.

- Interpreter: There are some which are still using oxen but due to the people who are stealing cattle it is not wise to use cattle as an oxen because it become use to people when the thieves come they can easily take them.
- Interviewer: **Umama ka mama what crops did she use?**

What crops did her mother use?

 - Interpreter: As in *tinhlobo betintiphi?*

As in which types?

- Interviewer: Ya

- Co-supervisor: I am just wondering, I am just looking for when the change was from the sorghum to prefer maize. Maybe if her grandmother or someone where they all growing maize at that time with some still growing sorghum.

- Interpreter: During the time of when maize was being introduced? Just were there other people who were planting other crops other than maize?

- Co-supervisor: I am just wondering if for instance, was her grandmother planting maize or sorghum?

- Interpreter: *Okay ubuta kutsi ke ngabe mhlawumbe bokhokho bakho noma bogogo bakho bebalima ini naglesikhatsi kucalwa lokushntjwa kulinywe emabele. Baqhubeka ngemabele bawalima noma bawayekela bangasawalimi?*

She is asking about maybe your great-grandmother or grandmother were farming during the transition from sorghum. Did they continue to farm sorghum or they stopped.

- Farmer: *Ngingasho kutsi nabobawayekela ngona nje tsine sisakhula sisebancane kwakudliwa neticaba temabele bese sekugcina kuyaphela kulinywa umbila.*

I can say that they also stopped farming sorghum. We grew up eating sorghum ticaba it eventually stopped when maize was farmed.

- Interpreter: *Yini ticaba?*

What is ticaba?

- Farmer: *Nakaboiliwe lamabele lawa besekuwaya phekwa kuphekwa nje kungaka gayiwi. Besesekuya silwa etjeni sekubhicwa nemantongomane [inaudible] noma awudlanga liphalihi.*

When you boil the sorghum then cook it without grinding them first. Then you a mash and mix with peanuts ... even if you do not eat porridge.

- Interpreter: *Okay Ngelisikhatsi kutofika lesikhatsi salamabele kutsi nyalo kungena umbila beninenta lamabele kuphela yini?*

When maize was being introduced were you just doing sorghum?

- Farmer: *Wawukhona lombila koja wawumncane. Kwasekutiwa naletihlanyelo timimbila sekuyekelwa lamabele sekulimnywatona.*

There was maize but a little bit. Then when growing maize increased then sorghum was left for maize.

- Interpreter: when the change from sorghum to maize came some they continued with the sorghum but most of them they stopped planting the sorghum because there was this

varieties. The hybrid varieties, maize hybrid varieties were introduced and they seemed to be giving enough yield so, most of the people they just left the sorghum then they pushed to maize.

- Co-supervisor: so if you talking about making that traditional beer, is it fine to make it with the maize, there is no difference?
 - Interpreter: No the maize is not good.
- Co-supervisor: so if people want the traditional beer they must grow sorghum?
 - Interpreter: Yes
- Co-supervisor: Or can they buy it?
 - Interpreter: Should I ask or?
- Co-supervisor: Either of you, just asking more generally.
 - Interpreter: Okay most of them they buy 'cause we import most of the sorghum. From Taiwan. Even if you don't grow sorghum now when you want the traditional beer you have to go and buy.
- Co-supervisor: Does anyone still make those cribs, the Libibi?
 - Interpreter: *Bakhona labasalenta letinyango teLibibi?*
Is anyone still using cribs made from Libibi?
 - Farmer: *Hawu sekute.*
No none
 - Interpreter: Leni?
 - Why?
 - Farmer: Angati.
I do not know.
 - Interpreter: No one. It seemingly does not know why.
- Co-supervisor: And in her childhood di she see them?
 - Interpreter: Her childhood? *Wawabona usemncane kadzeni?*
Did you see the when you were still you long ago?
 - Farmer: Ini babe?
What, Mr?
 - Interpreter: LeLibibi?
 - The Libibi.
 - Farmer: *Ehe*
Yes
 - Interpreter: *Uyalati?*

You know it?

➤ Farmer: *Ehe.*

Yes

○ Interpreter: Like she knows it, she knows it.

- **Interviewer: *Siyabonga mama sesiwabuzile onke imibuzo ebesithanda ukukubuza wona.***

Thank you mam we have asked all the questions we wanted to ask you.

INTERVIEW 2: FARMER 2

○ Interpreter: *Yabona letintfo leti labatiphetse make, shotsi lenkhulumo yetfu batayirecorda lokutsi nasebale labakhona batokuyicubulunga kahle.*

You see this device that they're carrying, it is because they are going to record our conversation so that they can listen to it at a later stage properly.

➤ Farmer: *Ngabe ngitokukhona yini.*

I do not know if I can.

○ Interpreter: *Kurecorda? Angitsi sibuta imibuto nje kutsi kulima kuqhubekani, akusiyinkinga.*

To record? We are asking simple questions about continuous farming; it will not be a problem.

- **Interviewer: *Ninjani mama?***

How are you mam?

➤ Farmer: *Ngiyaphila mtfwanami unjani wena?*

I am fine my child, how are you?

- **Interviewer: *Siyaphila, igamalami nginguNandi and then lo ngumake Thembi. Sisuka sonke eSouth Africa. Mina ngiphuma eUniversity of Cape Town yena uphuma eWits but sisebenzisana sonke***

We are fine. My name is Nandi, I'm traveling with Thembi. We are both from South Africa. I am from the University of Cape Town and she is from the Wits but we are working together.

➤ Farmer: *Kule Agriculture?*

In this Agriculture?

- **Interviewer: *Eh, sifuna uku understander more about ukuthi ukulima bekunjani kucala before manje, before ikhathi zamanje.***

Yes. We want to understand more about how farming was done before present, before now.

➤ Farmer: *Bekuncono mntfwanami kulima kucala, nyalo sesilima kabuhlungu, litulu alini.*

It used to be much better then, now we plant in difficulty, there is no rain.

- Interviewer: Eh, eh. *Ngiyabona nami, njengoba besize last ngizolima nami lama sorghum lawa bebasiphe wona kuthi sicaleLate because akusase right manje sekushisa kakhulu, akunamanzi.*

Yes. I see it myself because from the last time we came to plant the sorghum that they gave us, we started late because the weather is not good. It is too hot, there is no water.

➤ Farmer: Yebo kute emanti, Inkhosi ayisiphi emanti. Usipha late.

Yes there is no water, the Lord does not give us water. He gives it late.

- Interviewer: *Ngizokubuza nje amaquestion, mara mangibuza ngizo khuluma noBab Vilakati, and then yena cause ngizowabuza ngeSingisi and then yena uzokutjela ngeSiswati because mina iSiswati angisazi kahle. Umake uzalwe ngomunyaka omuphi?*

I am going to ask you questions but when I ask I will talk to Mr Vilakati, because I will ask them in English, and he will tell you in SiSwati because I do not know SiSwati well. When were you born mam?

➤ Farmer: 1968.

- Interviewer: When did you begin farming?

○ Interpreter: *Ukucala nini ukulima yemake? Kucala nje kwakho nawungakhumbula umnyaka.*

When did you begin farming mam? The year you remember as the first time.

➤ Farmer: *Wesitsatfu lomnyaka ngacala kulima embbele.*

This is the third year I am farming sorghum.

○ Interpreter: No, *kulima nje emphilweni yakho.*

Just farming in general in your life.

➤ Farmer: *Kulima?*

Farming?

○ Interpreter: *Ya hai emabele, kulima nje. Nawungabekisa kutsi?*

Yes not sorghum but general farming. When you estimate?

➤ Farmer: *Ngacala mangicala kwendza.*

I started when I first got married.

- Interpreter: *Awubekise kutsi wacala nini kwendza.*

Can you estimate which year you got married?

- Farmer: *Ngendza nga 1985.*

I got married 1985.

- Interpreter: *Shotsi, I started in 1985*

Meaning,

- **Interviewer: Who taught you the techniques that you used to farm your crops?**

- Interpreter: *Ngubani lowakufundzisa letindlela lolima ngato. Lowowulima ngato kadzeni nalolima ngato nyalo ngubani lowakufundzisa.*

Who taught the ways that farm using? The techniques used in the past to farm and the ones you use now, who taught you.

- Farmer: *Besebona nabalimako.*

We would see when they were farming.

- Interpreter: I was taught by my grandparents.

- **Interviewer: What things do you consider important in order to have a successful harvest?**

- Interpreter: *Nawutocala lokulima ngutiphi tintfo lotibona timcokwa, lotaw'tibona kutsi yabona leti titangikhiphela sivuno esikahle? Tiphi lotibonako kutsi kuna naku, na naku, na naku, nangilima utawuze kunginike sivuno lesiphilako.*

Before you begin to plant, what things do you see as important, that you see that these things will yield a good harvest? What do you see that this and this and this if I do it, it would give me a good harvest?

- Farmer: *Besilima embontjisi.*

We would plant beans.

- Interpreter: *Ngisho kutsi ngukuphi lokubukako nawutokulima kutsi funa ngente naku noma naku kutsi ngitotfola sivuno lesiphelele? Noma ngabe nilima ini nje.*

I mean what do you look at before you plant that I need to do this or that in order to get a full harvest? No matter what you have planted.

- Farmer: *Nomasilima ini? Ngiyengibone kutsi ancono embontjisi, tincono tinhlumaya, ngoba tona tiyamelana nelilanga.*

Whatever we plant? I usually see that beans and cow peas work better because they can withstand the sun.

- Interpreter: *Ngifuna kutsi uma utawulima, yabo awukalimi lansimini, ngukuphi nawutocala kulima? Lokubeka lamncondvweni wakho kutsi ya funa ngente naku laphensimini yami kuze ngitotfola sivuno lesiphilako?*

I mean to say if you are to start planting, as right now you have not planted in your field, what do you do before you start planting? What do you put in mind that you need to do this in your field to get a good harvest?

- Farmer: *Nawutocala kulima?*

Before you start planting?

- Interpreter: *Nawutolima ungakalimi, kubanani emcondvweni kutsi kufuna ngibe nanaku nanaku lakulensimu yami kuze ngitotsi loku lengitokuhlanyela kunginike sivuno lesiphilako noma kungaba yini?*

When you are going to plant before you plant, what do you think about that I need this or that in my field in order for when I plant to get a good harvest regardless of what I plant?

- Farmer: *Wo emcondvweni wami bengikhonte kakhulu umbila. Bengilima umbila bengicale ngigugcule, besesengiyabuya ngidvweba emalayini. Sengiyabuya sengenta ngesandla sengigceba ngelikhula. Cishe ngiyabona sekuyonga ke loko.*

In my mind I like maize. When I plant maize I start by tilling the soil, then I create lines. I come back and use my hand to cover the weeds. That is what I see helps.

- Interpreter: Okay what I consider very important is winter ploughing, and then when they come time for planting, then I just plant.

■ Co-supervisor: Why is winter ploughing important?

- Interpreter: *Yini lokutsi kubemcokwa kutsi ugucule kucala ngaphambi kwekulime?*

What makes it important to plough first before planting?

- Farmer: *Kuyekubencono lelikhula.*

It helps with managing weeds.

- Interpreter: It's the way of managing weeds.

● Interviewer: Do you use information that your grandparents used when you farm?

- Interpreter: *Nawulima kukhona yini mhlawumbe lwati lowulutsatsa kubokhokho bakho noma kubatali bakho lolusebentisa? Likhona lwati lowalimunya kadzeni lolusebentisa nyalo?*

When you farm is there any knowledge that is from your ancestors or your parents that you use? Is there knowledge that was passed down generationally from the past that you use now?

➤ Farmer: Mmm.

Yes

○ Interpreter: Yes there is.

• Interviewer: *Yini?*

What is it?

○ Interpreter: *Ngabe nguyiphi nje lwati lowalisebentisa lowalimunya kadzeni?*

What knowledge is it that you got that you use?

➤ Farmer: *Shotsi kadzeni, ekhaya besihle sifake umcuba. Nyalo ngiyafaka, ngicala ngamanyolo, ngifake makhabeti. Ngulok'wentako loko nyalo.*

Which means, at home we used kraal manure, now I apply fertiliser then LAN. That is what I use now.

○ Interpreter: Okay, is the fertilizer application because long time ago we used kraal manure, and then now because there are these synthetic fertilisers are using. I start fertiliser followed by LAN. The fertiliser is this one it's the 2.3.2.22 or 2.3.2.13 but it has all, it has the NPK (Nitrogen, Phosphorus and Potassium). I start with the NPK then followed by the LAN.

• Co-supervisor: When she says they used to use the kraal manure, did they actually collect from the kraal and take or was it just that the cows went to the field?

○ Interpreter: *Nakadzeni nanisasebentisa lomcuba, ngabe lomcuba beniwukhipha esibayeni niyofaka lena nobe letinkhomo bekutsi nakusebusiki tihambe tiyokaka lemasimini lomcuba utingenele? Benenta njani?*

Long ago when you would use the kraal manure, did you take the manure from the kraal to the field or the cattle would go in winter to defecate in the field and you get the manure? What did you do?

➤ Farmer: *Besiwukhipha esibayeni siyowufaka emasimini.*

We would take it from the kraal to the field.

○ Interpreter: We used to take it in kraals then we apply it in our field.

▪ Co-supervisor: So the cattle, they never used to just let the cattle just [inaudible].

○ Interpreter: *Kadzeni betiya yini lensimini tiyodlala, tiyohamba khona?*

In the past, did they go to the field to graze, to walk through there?

➤ Farmer: *Betiya.*

They would go.

- Interpreter: *Betiya nini?*

When would they go?

- Farmer: *Ebusika.*

In winter.

- Interpreter: Okay, they used to go but only on winter.

- Farmer: *Besetidla tidla emahlanga, phela nawe uyati.*

Then they would eat emahlanga (this is left over stock of maize after harvesting is done), you also know this.

- Interpreter: They used to go in winter.

- Co-supervisor: After it's ploughed or before it's ploughed?

- Interpreter: After harvesting you allow the cattle to go and then you remove them just before you start planting.

- **Interviewer: Are your farming methods similar or different to how your grandparents farmed?**

- Interviewer: *Ingabe letindlela lotisebentisa nyalo tekulima tehlukile yini kunaleta lebetisetjentiswa ngubomkhulu bakho nabomak'wakho kadzeni noma tiyafanana? Ukhona yini umehluko usicazele lomehluko endleleni isetjentiswa nyalo nalendlela beyisebenta kadzeni?*

Are your farming methods now different from those that your forefathers or your parents used in the past or they are the same? Is there a difference, please explain the difference between techniques then and now?

- Farmer: *Shotsi ngatsi kwehlukile, ngoba nyalo kutelemvula. Kwehluke lokutsi kute lemvula noma ungalima, ufake bomanyolo, ufake bomakhabeni sivele sivuno sibesincane.*

Which means it was different, because now there is no rain. It's different because it does not rain anymore, even if you plough, apply fertiliser, apply LAN your yield may still be little.

- Interpreter: *Kadzeni bekubanjani?*

How was it in the past?

- Farmer: *Bekubancono kakhulu.*

It was much better.

- Interpreter: It is different in a way that now there are not enough rains even if you can apply fertilizer, you are not going to get much yield. But long time ago you just only apply the manure and then you get a lot for harvest.

- Interviewer: Can you take me through the process from the beginning of the planting season right up to the harvesting period?

- Interpreter: *Kuletindlela takadzeni betisetjentiswa nalendlela yanyalo, ngicela kutsi sicale ngeyakadzeni kutsi bokhokho bakho bebatsi nabatawulima bacale bentenje bentenje bentenje bentenje till till baze bavune. Sasesibuya kulekhona nyalo lekhona nyalo kutsi yona nayo uyicale ngokutsi nawucalakupima senta nje till till sivune. Asicale ngeyakadzeni kutsi bebenta njani bona, bese ucaze letigaba kutsi nabelima bacala bebente nje kufike kube nje kube nje bese ekugcineni sifika la sibesivuna besoyema.*

Using the techniques that were used in the past and now, please starting with the ones from the past, what your forefathers did before they planted they did this and that until they harvested. Then we will come back to the one used now, also with it start from the beginning before you plant until harvest. Let us start with in the past with what they did, then you explain the stages of farming from the beginning saying what happens here and what happens there at the end when you harvest then you can stop.

- Farmer: *Kadzeni bekute naletigulumba besilima ngetinkhabi, ucoshe ngetinkhabi ukhadze lokutsi lokunye kuyagucuka lokunye kuyantontisela lombila, silandzela tinkhabi siyahlanyela, kuyagcibela. Lapho ke sivuno sitasitfolo. Masicedza lapho siyohlakula, bekute bomakhabeni kadzeni, vele nje bekutsiwa makutocalwa kulinywa I mean makutocalwa lokulima, angitsi lomcuba wetfu utincumbi lapha ensimini, stawuhamba tsine bantfwana siwu sakatise kubeng'khatsi makulinwa lomcuba ungena ngaphasi tiyawukhitsiya letinkhabi so lelikhuba nalihamba lihamba la [inaudible]. Labanye, khona lomcuba lebesiwenta tsine ekhaya kitsi nje besiwugaya nanyalo basawenta lekitsi, besewugaya so.*

Long ago there were no tractors we would plough using oxen, you would lead the oxen, one would turn over the soil and another would broadcast the maize, we would follow behind the oxen to plant and cover the seeds. There we would get a good harvest. When we finish that we manage weeds, we did not have LAN then when we would start ploughing I mean at the beginning since we had a lot of manure in the kraal, us children would go and broadcast the manure and then the ploughing would start. The manure would go into the soil as the oxen plough the manure would [inaudible]. Others, there was this other manure that we used to make at home whereby we would grind the manure like this.

- Interpreter: *Niwugaya nigaya ini?*
When you grind, what do you grind?

- Farmer: *Lomcuba angitsi niwugaya ubesoft. Lomunye uhamba nalomcuba so njenga namanyolo yabona, uhambe so, lomunye uhamba namanyolo lomunye uhamba nembila uyantatisela.*
The manure when you grind it you make it soft. One would go with the manure just like you do with fertiliser like this. One would go with the manure and another with the maize just broadcasting it.
- Interpreter: *Asicubeke, sesihlanyelile asicubeke siyembili sizesiyfika ekugcineni.*
Let us continue, after we have planted forward until harvesting.
- Farmer: *Sesiyahlakula siyacedza siyavuna, sekuphelile kanjalo.*
Then we manage the weeds we finish, we harvest, it's done.
- Interpreter: *Nawuvuna niwufaka kuphi?*
When harvesting, where do you store it?
- Farmer: *Enyangwini.*
In cribs.
- Interpreter: *Enyangwini, bekuba ngulekanjani?*
In cribs, what kind?
- Farmer: *Enyangwini, shotsi bekwakhiwa inyango babambe bayogala tigodvo bomkhulu babuye bayakhe.* Bebayiphica ngetinkhuni, yabona lokwekuphica.
The cribs, which means when making a crib my grandfather would collect logs and make it. They would weave it using sticks, you see that weaving.
- Interpreter: Bayiphica ngetinkhuni?
They would weave with sticks?
- Farmer: *Hai letikhona nyalo tabofenisi, kuphicwa ngetinkhuni kubekahle lanetulu bese kuyavalwa kwentele kutsi emanti angangeni. Ushayiwe ngulomoyo lombila, masicedza lapho ke sesiyawuhudluta.*
Not the ones present today made from wires, they would weave it with sticks and it looks good then it would be closed to prevent water coming in. the maize would be aired, when it's done there then we would remove the grains from the corn.
- Interpreter: *Asesime lapho sitabesesiyaqhubeka ngalelenye.* Long time ago what used to do before we plough, we just apply the manure. We put some heaps in field and then we broadcast them and after broadcasting comes the oxen they plough after ploughing its either

we broadcast the seeds or we follow the oxen during the ploughing time, we just follow them. Or sometimes during planting we used to cast the manure and then we mix it with the seed then we plough. After ploughing we manage weeds, after managing weeds there were no this type of fertiliser, so we were not applying much fertiliser, there were no fertiliser at that time we only depended on manure. And then we wait for the crop to be ready then after it is ready, we harvest put it in cribs. The kind of cribs is the one which we were made of sticks whereby we just put sticks on top of each other, we have the crib and then we put our harvest in cribs and then we shell it and then we store it in tanks. *Lamatanga lebenifaka kuwo ngulawanjani? Ngabe nula wethayela noma ngumaphi?*

Let us stop there, we will continue with the other one. What kind of tanks would you put it in? Is it the metal or?

➤ Farmer: *Ngulawelithayela*

The metal one.

○ Interpreter: *Bewangekho lawa lakhiwa ngelubumba?*

There were none that were made from clay?

➤ Farmer: Mmm. *Lobanye bebakufaka etingungwini. Angitsi uyakwati lokwengungu loku?*

No. Other people would be stored underground storage. Do you know it?

○ Interpreter: *Lokwaphasi? Lokugujelwe phasi?*

The underground one? The one you dig underground?

➤ Farmer: Eh.

Yes

○ Interpreter: Okay, we use different storage tanks the one with, the first one is the metal one but most of the farmers they use the storage which was digged. They digged inside the kraal and then they make, they make it with some clay then they put their harvest.

▪ Co-supervisor: Was that in the past or is there anyone who does it that way now?

○ Interpreter: *Kukhona nyalo lokwenta kugubhela esibayeni? Noma bekwentiwa kadzeni?*

Is there anyone who digs in the kraal now? Or it was done long ago?

➤ Farmer: *Yintfo yakadzeni.*

It is something of the past.

○ Interpreter: It was only the past.

➤ Farmer: *Bekwentiwa bokhokho lentfo ngeke sisakwenta tsine.*

It was done by our forefathers that thing we cannot do it now.

- Interpreter: *Asositjele ngendlela nyalo, kutsi nyalo nihlanyela kanjani? Nilimakanjani nyalo, usicale ekulimeni nakhona uyosifikise ekugcineni.*

Tell us about now, how do you plant now? When you farm now, start from the ploughing until the end.

- Farmer: *Nyalo? Nyalo sicasha tigulumba takaRDA, silime ngato. Shokutsi siyesicahse lesoigulumba silime bese sesiyophindze sibuyela kaRDA siyofuna liplantana litoplantela. Sicala silime kucala besesiyabuya siyaplantela. Sitsi nasifaka lenhlanyelo yetfu, sifaka lenhlanyelo ngalangetulu, angitsi kwente nje loko sifaka lenhlanyelo, ufake lomanyolo ngale besekuyahamba ke. Bese kuyahlanyeleka ke, sesiyacedza ke sesiyabuya sesiyahlakula. Masicedza kuhlakula, sesiyavuna.*

Now? Now we hire tractors from RDA, we plough using them. Meaning we hire the tractors to plough then we go back to RDA to ask for another tractor to plant. So we plough then we plant. When we put in our seeds, we put on one side and the other we put fertiliser and then it goes. Then it is able to plant, we finish, and come back to manage weeds. When we are done managing weeds we harvest.

- Interpreter: *Nanicedza kuvuna?*

When you finish harvesting?

- Farmer: *Sifaka etinyangweni.*

We put in cribs

- Interpreter: *Tikanjani letinyango?*

What kind of cribs are those?

- Farmer: *Inyango yakami nje ngiyakhe ngafenisi lolomncane. Ngitsenga tigodvwo bangakhela bese letinye bayativulisa so seyakheka. Ikahle inesivalo besuyavala.*

My crib is made from tiny meshed wire. I bought logs and they made it for me opening it like so then it is made. It is done well, it has a lid to close on top.

- Interpreter: Okay, now because there are no much oxen, we hire tractors. We plough using the tractors, we plant using tractors. During the planting time we apply both the seed and the fertiliser during planting and then manage weeds. After weeding, we wait for our crop to be ready and then after being ready we harvest, we put it in cribs then we share it then we store it in tanks, the metal tanks. The crib that we are using now are the modern one which are made with mesh wire.

- **Interviewer: How did you acquire the land that you have been using to farm?**

- Interpreter: *Lenzawo lenilima kuyo nyalo niyitfole kanjani kuze nilime?*

The place you are using to farm now, how did you get it so you can farm?

- Farmer: *Shotsi sayicela kababe Nyoni. Sinhlangano yahlangana.*

Meaning we asked from Mr Nyoni. We are a group that came together.

- Interpreter: *Niyayirenta?*

You rent it?

- Farmer: *Shotsi siyalima, bese sikhokha, batsi sitawukhokha 10% wetfu nangabe silime kahle. Umangabe silime lamabele ntinhlumaya siyesikhokhe tinhlumaya sikhokhe ligogogo lamabele, simikise lekulelikhaya.*

Meaning we plant, then we pay, we pay 10% if we had a good harvest. If we have planted sorghum and cow peas we normally pay 1 kilo of cow peas and 1 kilo of sorghum to the home.

- Interpreter: This land we are using, someone is leasing it to us. We pay 10% after, we pay 10% of our harvest.

- **Interviewer: Okay because that answer was yes. Was there a time before this where you or your forefathers could choose which land to use for farming?**

- Interpreter: *Ngaphambwe kwekutsi nisebentise lendzawo lena, kadzeni kusenabomkhulu nabokhokho bekukhona lokutsi indzawo beyinengi, siyati indzawo sitawulima kuyo lena sibeka umcuba kuyo lena senta loko. Bekukhona loko?*

Before you used this land, long ago when your forefathers and ancestors were around and there was ample space, where they were able to choose that this land we will use to farm and this land we put manure. Was that possible?

- Farmer: *Kubokhokho?*

For my forefathers?

- Interpreter: *Kadazeni?*

Long ago?

- Farmer: *Bekukhona.*

It was possible.

- Interpreter: Yes, we used to have land for ploughing crops, and then for livestock.

- **Interviewer: Was it allocated or could they just choose?**

- Interpreter: Yes is allocated this one for crops, this one for livestock.

- **Interviewer: So now why do people have to lease? Like why is there a shortage of land?**

- Interpreter: *Nyalo ke make asositjele nyalo lendzawo ya [Surname omitted] uyanibhadalisa uyanibadalisa lo10% nanicedzakuvuna, leni nje nizenitobadala indzawo ya [Surname omitted]? Tiphi tindzawo ticedvwa yini?*

Now mam please tell us Mr [Surname omitted] land which you pay 10% for after harvesting now, why would you even have to pay for Mr [Surname omitted] place? What happened to the land, what finished it?

- Farmer: *Tindzawo ticedvwa ngebantfu bayakha. Kusele sitfolu uhlaba lomncane siyalima emakhaya kancane. Sitalana sitokhona kulima ifarm lenkhulu.*

The place is limited because people are building. We are then left with little land, we plant at home but it is small. We come here because we can do large scale farming.

- Interpreter: The reason why now we are using this land which we lease is because there are a lot of homesteads which are maturing all over hence we don't have much land to plough.

- **Interviewer: Back then what type of soil was chosen or considered for sowing the crops?**

- Interpreter: *Okay kadzeni, kusenakunabomkhulu nabo nisacala lokulima benisalisa lomhlaba wekulima bekuba ngumhlaba lokanjani? Kuzebatsi lositakulima kuwo lona wetinkhomo. Lowokulima bebawukheta ngani? Bekubukwani kuwo?*

Long ago, when your forefathers were starting to farm, what type of soil would be used? For them to say we will farm on this land and use that for cattle. The farming land how was it chosen? How did they test it?

- Farmer: *Ngicabanga bekubukwa kutsi lona kunemvuno lona* [inaudible].

I think they would look to see the harvest.

- Interpreter: *Babuka lovundzile wokulima longakavundzi wetinkhomo?*

They would observe the fertile land to be for farming and the infertile to be for cattle?

- Farmer: *Mmm*

Yes

- Interpreter: Okay, it was only differentiated by, they were looking at the area that this one is fertile or this one is not fertile. The fertile one was used for producing crops and the one which is not fertile then they kept it for livestock.

- **Interviewer: How could they tell that that particular land was fertile?**

- Interpreter: *Njengoba sowushito make kutsi babuka lowuvundzile lonawukavundzi, lolowuvundzile bebawubona ngani kutsi lona uvundzile nabawubuka? Bebasebentisa inikwubuka noma bebabona ngani kutsi lona uvundzile ke lo?*

As you have mentioned that they looked for the fertile and infertile soil, the fertile soil how would they see it that this one is fertile when observing it? What did they use to observe it or how did they see that this one is fertile?

- Farmer: *Bebabona ngokutsi sebayalima kutsi kuvundzile besesibona ngalokudla kutsi kuyatfolaka.*

They would see by planting and seeing the harvest, then they would see that they get crops.

- Interpreter: Which means it was a trial and error. Which means they plant the seed, if this one is giving us this harvest, so they left it then they use another one.

- **Interviewer: Do you grow different types of sorghum?**

- Interpreter: *Kulamabele lowalimago ngabe ulima tinhlobo letehlukene yini?*

With the sorghum that you farm, do you perhaps plant different kinds?

- Farmer: *Lamabele?*

The sorghum?

- Interpreter: Yebo.

Yes.

- Farmer: *Tehlukene lamanye ngulawabovu besengulankha lamhlope.*

They are different others are brown and others are white.

- Interpreter: Yes I grow different type; the one is the brown one and the other is the white one. The brown one is the NS5511 and the white one is the Marcia.

- Co-supervisor: It's the same as the previous one?

- Interpreter: Yeah it's the same.

- **Interviewer: So which ones are indigenous? Does she know any indigenous types of sorghum apart from these ones?**

- Interpreter: *Kulentinhlobo temabele letikhona lelotilimako leti, tikhona letinye lotatiko nagphandle kwaleti, tisintfu?*

With the different types of sorghum that you farm, do you know of any others, indigenous one?

- Farmer: *Angisakwati lentfo, bengibona balima bomkhulu mane bengingawa hlukanisi.*

I do not know these things anymore, I would see my grandfather use it but I could not differentiate it.

- Interpreter: Yes there are but I don't know their names.

- **Interviewer: Are people still growing the ones that she knows? Are people still growing the indigenous ones now? The one that she is talking about.**

- Interpreter: *Bakhona labanye labasawalima akadzeni?*

Are there still people who farm the ones from the past?

- Farmer: *Kute lengimatiko.*

No one I know.

- Interpreter: Hai there is no one I know.

- **Interviewer: If the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?**

- Interpreter: *Nangabe lesimo selitulu sibonakala ngazutsi asicaci kahle, lokutsi vele lokulima, wenta njani wena kuze utilungiselela kutsi nawungenani kubekhona lokutfolako noma yize lesimo selitulu sikanje?*

If the weather shows to be inconsistent, the farming, what do you do to prepare yourself to at least get some harvest even with the failing weather?

- Farmer: *Ngitilungisela ini?*

What do I prepare?

- Interpreter: *Yini lokwentako kutilungiselela lokungenani kumane kubekhona lokutfolako noma lesimo selitulu sikhomba lokutsi asicaci?*

What do you do to prepare yourself so that you at least get something even with the failing weather?

- Farmer: *Shotsi ekhaya ngillima batata.*

Meaning I plant sweet potato at home.

- Interpreter: *Sengisho lakulamabele?*

I mean with the sorghum?

- Farmer: *Kulamabele? Ngivele ngifake nje ngigadze kutsi malina litulu kutwawuvuna.*

With sorghum? Oi just plant and wait for the rain to come eventually to get a harvest.

- Interpreter: There are no major steps that I take, I just plough and wait for the rains, if they come they come if not I lose.

- **Interviewer: Okay which other crops that she plants besides sorghum?**

- Interpreter: Now?

- **Interviewer: Ya, now.**

- Interpreter: *Ngutiphi tilimo ngaphandle kwalamabele lowalima nyalo?*

What other crops do you grow besides sorghum now?

- Farmer: *Ngilime batata, ngilimekotini nemabontjisi.*
I plant sweet potato, cotton and beans.
- Interpreter: I have sweet potato, I have cotton and beans.
- **Interviewer: Why did people stop using the indigenous sorghum? If she remembers.**
 - Interpreter: *Yini lokwenta lokutsi bantfu bayekele lokulima lamabele esintfu bantjintje kuwo bazebayofika ekutsini balime lawa?*
What made people to change from the indigenous sorghum, to change until they used this one?
 - Farmer: *Angati mtfwanami ngicabanga kutsi kwabonakala kutsi lanka ayasheshisa lawa lesiwalima nyalo.*
I do not know my child, I think they saw that this one is faster the ones we plant now.
 - Interpreter: Okay, I am not that much sure but I suspect that is because this one they take shorter time as compared to the ones for the indigenous one, this one they take short time.
- **Interviewer: When in the year does sowing begin?**
 - Interpreter: *Kulima nje kucala nini emnyakeni?*
When do you begin sowing in the year?
 - Farmer: *Kulima?*
Sowing?
 - Interpreter: *Ya inyanga nje longatsi kulima kucala nganayi inyanga nayi?*
Yes the month where you can say that planting starts in this month?
 - Farmer: *Tsine sicala ngaOctober.*
We start in October.
 - Interpreter: We start in October.
- **Interviewer: And then harvest time?**
 - Interpreter: *Bese nivuna nini?*
And then when do you harvest?
 - Farmer: *Njengoba siyovuna nyalo ngaApril.*
As we are going to harvest now in April.
 - Interpreter: Ya, in April we harvest in April.
Yes
- **Interviewer: How many do you sow and harvest in a year?**
 - Interpreter: *Emnyakeni nje umunye ulima kangakhi uphindze uvune kangakhi?*
In a year how many times do you sow and how many times do you harvest?

- Farmer: *Sivuna kanye njengoba sivuna.*

We harvest once as I am going to do.

 - Interpreter: I plough once and harvest once.
- **Interviewer: What measures do you take to make sure the land recovers during the growing seasons?**
 - Interpreter: *Yini ke lokwenatako nasewuvunile nje ngaphandle kwekutsi uhlanyele nawucedza kuvuna, yini lokwentako lamkhatsisini kutsi lomhlabatsi wakho ubuyele ubesesisimeni sekutsi nawucala kulima ubesowulungele ukulima sowuvundzile?*

What do you do after harvesting besides planting when you finish harvesting, what do you do between to the soil to get it back to standard when you start to plough it is ready for sowing and fertile?
 - Farmer: *Shokutsi ngulokutsi sigucule.*

Meaning it is just tilling the soil.
 - Interpreter: *Ugucule kuphela?*

Tilling only?
 - Farmer: *Mmm*

Yes.
 - Interpreter: Which means winter ploughing.
- **Interviewer: What do you use the sorghum for?**
 - Interpreter: *Lamabele ngabe uwasebentisa kuwentani? Nasewuwavunile?*

What do you use the sorghum for? After harvesting?
 - Farmer: *Mabele?*

Sorghum?
 - Interpreter: Yebo.

Yes.
 - Farmer: *Ngiyadla, lofikako ngimutsengisele ngoba kusete imakete.*

I eat, anyone who comes I sell it to them because there is no market.
 - Interpreter: Some of them I eat, some I sell.
- **Interviewer: The ones that she eats, how does she prepare it?**
 - Interpreter: *Ngabe kulowuwadlako, wadla kanjani? Mhlawumbe wadla ngondoko noma wadla kanjnai sicazele lapho kutsi uwadla kanjani?*

The one you eat how do you prepare it? Maybe you make thin porridge or how do you eat them, explain to us how you consume them?
 - Farmer: *Siwadla umdoko ngente incwancwa.*

We make thin porridge and sour porridge.

- Interpreter: *Kuphela?*

Only?

- Farmer: *Mmm.*

Yes.

- Interpreter: Which means thin porridge only.

- **Interviewer: Both types?**

- Interpreter: *Ngabewong'thu lawamhlophe nalawabovu wenta incwancwa kuphela?*

Is it both kinds brown and white that you use for sour porridge?

- Farmer: *Ngitsi mangiyowagaya ngiwaphitiye lowamhlophe nangabe ngitsatse nangabe ngenta i20L ngitsatse i10L lemhlophe mangabe akhona ngitsatse i10L kulalabovu ngiwabhice.*

When I go to the miller I mix them. If I am milling 20L then I use 10L white and 10L brown for mixing.

- Interpreter: *Bese ayahlangana onkhe sowenta umdoko?*

Then you mix them all to make soft porridge?

- Farmer: *Mmm ngihambe ngiyogaya asahlangene.*

Yes I go to mill them when it is already mixed.

- Interpreter: Which means both of them I use for thin porridge. 'Cause when I go to the miller I just mix the two.

- **Interviewer: Did you grow up around here?**

- Interpreter: *Ngabe ukhulele kuphi lanayini make?*

Did you grow up here mam'?

- Farmer: *Ngikakhulela la.*

I did not grow up here.

- Interpreter: *Ukhulele kuphi?*

Where did you grow up?

- Farmer: *Ngakhulela Le kaMaphungwane.*

Around Maphungwane.

- Interpreter: I did grow up not in this area, in the Highveld.

- **Interviewer: Do people still plough using oxen?**

- Interpreter: *Ngabe nyalo bantfu basahlanyela basalima ngetinkhabi lana?*

Do people still plough using oxen here now?

- Farmer: *Awukwaphela kadzeni.*
It stopped a long time ago.
- Interpreter: *Kwaphela kanjani?*
How did it stop?
- Farmer: *Sekute lengimubonako lolima ngetinkhabi kulelive leli, lekitsi kusalinywa ngetinkhabi.*
There is no one I see using oxen in this area, back home people still use it.
- Interpreter: Okay in this area there is no one using oxen, but in my area where I grew up they are still using oxen.
- Co-supervisor: Where did she grow up? Like the town or something the area?
- Interpreter: Let's say its Maphungwane under Siteki, because Siteki is divided into two there is the lower part there is the higher part. The higher part is taking the Mozambique altitude.
- Co-supervisor: Oh so it's this side when you said Highveld? I thought you meant there Pigg's Peak whatever.
- Interpreter: This one let's say it's a plateau this one.
- **Interviewer: Okay this is the last question. What did your grandparents grow?**
 - Interpreter: *Ngabe mhlawumbe bokhokho bakho bebalima ini?*
What did your forefathers used to plant?
 - Farmer: *Bebalima lombila, balime nawona lamabele ngisakhula.*
They planted maize and sorghum when I was growing up.
 - Interpreter: *Ngukuphi bekulinywa kakhulu kulong'thu?*
What was farmed most between the two?
 - Farmer: *Bekulinywa umbila kakhulu. Nemabontjisi netinhlumaya netindlubu nemantongomane.*
Maize was sowed the most. Also beans, cow peas, jugo beans and peanuts.
 - Interpreter: Okay they used to grow sorghum, maize, cowpeas, beans and jugo beans.
- **Interviewer: The cotton is it for selling?**
 - Interpreter: Yes it is for selling. There is a cotton ginnery at Big Bend.
- **Interviewer: Siyabonga mama sesicedile.**
Thank you mam' we are done.
 - Farmer: *Ngiyabonga bantfwa'bami.*
Thank you my children.

INTERVIEW 3: FARMER 3

Interpreter: Unangaki mnyaka?

Farmer: Ngina 60.

Interviewer: Ok.

Interpreter: Ok.

Interviewer: Ok make mangibuza lemibizo ngizobuza ngo baba Vilakati then yena uzo... Uzo translate abuze ngeSiSwati.

Farmer: Ok, ok, ok.

Interviewer: Ok, eh... When did you begin farming?

Interpreter: Wacala nini kulima nje, kulima nje?

Farmer: Mmm kusho kutsi ngicale nga 1994.

Interpreter: Kucala nje emphilweni yakho kulima?

Farmer: Imphilo yami, lokutsi imphilo yami ngiyibeke ekulimeni?

Interpreter: Sisho nje, hhayi kulima lokutsi sewugcile kuko, kulima nje.

Farmer: Kulima...oh ngacala ngimncane ngoba nasekhaya besilima.

Interpreter: Awubekise.

Farmer: Kusho kutsi bo 60s ngobe mine ngibo 50s, bengidvonsa nje tinkhabi ngikhumbula kusakofelwa and...

Interpreter: Ok, kusho kutsi... eh... She started around the 60s while she was young.

Interviewer: Ok, eh... What plants did you grow back then and what plants do you grow now?

Interpreter: Eh... angitsi utsi wacala lekubo 60 banibani?

Farmer: Mmm,

Interpreter:.... yini lebeniyilima le kubo 60 banibani?

Farmer: Bekulinywa emabele, emantongomane, tindlubu, tinhlumayo,

Interpreter: Ok, from the 60s we were planting sorghum... [Interruption]

Farmer: Nembila.

Interpreter:... maize, cowpeas, groundnuts and beans.

Interpreter: And then nyalo ke, senilimani nyalo?

Farmer: Nyalo sengilima lamabele, ngilime bhatata, ngilime tinhlumaya, ngilime tindlubu.

Interpreter: Ok, now I... [Interruption]

Farmer: Nembila.

Interpreter: Eh...Now I grow maize, sorghum, eh...cowpeas, groundnuts eh, ja [Masemula edit- July 2022: plus sweet potato and beans]

Interviewer: Ok, eh... Who taught you the techniques that you have been using to farm your crops?

Interpreter: Ngubani ke lolakufundzisa letindlela lolima ngato nyalo nalobolima ngato ngaphambili?

Farmer: Balimisi.

Interpreter: Sengisho nje le... kusuka la kubo 60 banibani.

Farmer: Hha... kusho kutsi nje bantfu labadzala bebalima ngaleyo ndlela.

Interpreter: I learnt it from my grandparents, and now I was taught by my extension officers.

Interviewer: What things do you consider important in order to have a successful harvest?

Interpreter: Yini ke tintfo leti..., lotibuka nje timcoka, nangabe ucala nje kulima nawutafuna kwacha nje sivuno lesikahle, tintfo tini nje lotibuka timcoka lotofuna kucala ngato utsi ok loku kumcoka - funa ngibuke naku nanaku kuze ngitotfola sivuno lesi right?

Farmer: Ngiye ngicale ngibuke kutsi ludrada lwami lulungile yini, ngivuse lona, ngitsi ngingalivusa ke ngibuke lokutsi ngibhadala kanjani kokulima, tigulumba, imali sengiyilungisile ngihambe ngiyobhadala.

Interpreter: Kuphela?

Farmer: Ehe Babe...

Interpreter: Awuphindze make, yini lokubuka kumcoka njje nawutocala lokulima, tintfo tini lekufuna utinakekele?

Farmer: Ngiye nginakekele loludrada lwami bese ngiyabuka lokutsi ngiyaluvusa langiluvusa khona sengiyabuka ke kutsi nyalo nginayo imali yekuyobhadala sigulumba, ngihambe ke ngoba phela

sesabete tinkhabi sesilima ngetigulumba, e.... bese ngiyabhadala ke, ngiyalungisa ke, ngiyabhadala ngiyabeka liphepha lami, sengilindzela timvula.

Interpreter: Ok, what I consider important is the.... Is fencing, I do proper fencing, and then prepare some money to pay for tractors [Masemula edit – July 2022: because we no longer use oxen] and then when rains come I just go pay and then plough.

Interviewer: Ok, do you use information that your grandparents used when you farm?

Interpreter: E... lukhona yini lwati lolusebentisako nyalo lowalimunya ladzeni kubokhokho bakho noma kubatali bakho?

Farmer: Lukhona, njengokutsi njena likhula awulihlaleli kutsi utazubona kungunganani noma lesosilimo sakho, mine nje bebangitjela kutsi kungaze kuhlanyelwe wabona lukhula siya... ngiyangena ngiyahlaku[h]la.

Interpreter: Ok [Interruption]

Farmer: Ngoba kuze kukhule kahle lokudla.

Interpreter: There is a technique I use from my great grandparents eh... which is eh... weed management. I was taught that I am not supposed to wait for weed to be many, just seeing little weed, I just have to start weeding.

Interviewer: Are your farming methods similar or different to how your grandparents farmed?

Interpreter: Ingabe letindlela lotisebentisako nyalo tekulima tehlukile yini kunaleti betisetjentiswa bokhokho bakho noma tiyafanana?

Farmer: Iya tihluke kancane ngoba besisebentisa umquba ikakhulu kubobabe, nyalo sesisebentisa bomanyolo.

Interpreter: Ok, there are differences although they are not that much because long time ago we used kraal manure but now we use the synthetic fertilizers.

Interviewer: Ok.

Farmer: Nalokutsi tinhlanyelo tsine betihhuka lapha etulu, sitikhutula, nyalo sowuyayitjenga, nguloko nje.

And... secondly, to store seed for the next season we used to hang them in huts where there is smoke but now we go to the shops and buy.

Interviewer: Ok, can you take through the process from the beginning of the planting season right up to the harvesting period?

Interpreter: Both two ways?

Interviewer: Iya [Yes].

Interpreter: Ngicela nje umane ungitjele kafishane kutsi angitsi kadzeni bekulinywa nanyalo kuyalinywa?

Farmer: Mmm [Yes]

Interpreter: Ungicale ngaleyakadzeni indlela kutsi kadzeni bebalima... nabacala lokulima bebacala bente nje, bahlanyeke bachubeke bachubeke uze uyofika ekuvuneni ngalendlela yakadzeni

Farmer: Mmm,

Interpreter: Bese uphindze uwutongitjela leyanyalo kutsi nyalo kwentiwa njani nawucala kuhlanyela toti toti uze uyovuna, asicale ngaleyakadzeni.

Farmer: Leyakadzeni, Leyakadzeni bekulinywa ngetinkhabi.

Interpreter: Ok.

Farmer: Nakhona bekuguculwa, bese silandzelele tinkhabi.

Interpreter: Eh... nigucule ebusika noma nigucule lesisikhatsi nilima?

Farmer: Eee... (Yes) ukhandze kutsi sigucula siphindze futsi sihlanyeke, eeeh... Leyanyalo...

[Interruption]

Interpreter: Eh... asicale kadzeni sicedze size siyofika ekuvuneni kadzeni.

Farmer: Ok... ngiyahlanyela ke, bese kuyalandzela ke kuhlakula nekukofela ngoba besikofela bese siyahlakula ke. Emva kwaloko siyakulindza kuyavutfwa siyavuna, sesikuyisa etincolobaneni kuletilulu takhona betakhiwe kungasito letinyango tanyalo.

Interpreter: Betikanjani letilulu?

Farmer: Bekwakhiwa ngetjani nje kwakhiwe lesintjingi sibe sikhulu lesilulu.

Interpreter: Silulu lelesijwayelekile setjani?

Farmer: Eeee lesetjani mane bekuba kukhulu.

Interpreter: Bekuba yini ligama lako?

Farmer: Bebatsi silulu nje.

Interpreter: Ok.

Farmer: Bese ke bayakubeka sitsele lombila khona.

Interpreter: Bakubeka kuphi?

Farmer: Bebakwakhela tigidvo inakunjana tjamba lobunjena babeke khona sitsele khon ke, emva kwaloko ke kuyabhulwa kuyakutulwa, sewuyatsatfwa lombila uyowukwa engungwini esibayeni.

Interpreter: Woo... kugujwa esibayeni.

Farmer: Kugujwa ingungu lesibayeni kusindvwe kushiswe yome, bese kutselwa lombila ke, bekunguyona thange lakhona, sancote.

Interpreter: Sancote?

Farmer: Ehe...

Interpreter: A... sesiyicedzile sitawubuya lulelenye.

Long time ago we used oxen. We start by applying manure then we plough using oxen, after ploughing, before using oxen then we apply the seeds. Then after planting we wait for the crop to grow and then we manage weeds. After managing weed, we wait for it to be ok, then we harvest, we put it on cribs which were called "tilulu".

Co-supervisor: How do you spell it?

Interpreter: "TILULU".

Interpreter: Let's write it "SILULU".

Co-supervisor: Oh, "si".

Interpreter: Iya... because "Ti" is like many, lets write "Silulu".

Co-supervisor: What is that one like?

Interpreter: It was made by grass.

Co-supervisor: Grass?

Interpreter: Made of grass.

Co-supervisor: Is it more like a basket again?

Interpreter: lyaaa.

Co-supervisor: How big is it? Is it huge?

Interpreter: Iya... it's more like a basket.

Farmer: Yebo.

Co-supervisor: Is it huge?

Interpreter: Ya... huge one where we stored our food, our food.

Co-supervisor: And where does it go? Is it on the floor?

Interpreter: No it was up.

Co-supervisor: On what?

Interpreter: It's like... It was raised upwards, they were just putting some sticks.

Co-supervisor: Yes...

Interpreter: Then they put it on top of the sticks.

Interviewer: Yeah...

Interpreter: Then they put their crop for it to be dry. After drying... benikuhhudla ngani?

Farmer: Sesiwuhhudla ngetandla noma sibeke litje.

Interpreter: Lamabele?

Farmer: Emabele besiwabhula.

Interpreter: Ok, they used sticks just to remove the seeds from the heads and then after that, they stored in "etingungwini" which were these traditional tanks which were inside the kraal. Yeah, they are called the... [Interruption].

Co-supervisor: Those clay ones?

Interpreter: Yeah, the clay ones, they are called "Ingungu", iya, ingungu [Masemula edit – July 2022: ingungu is not made from clay. It is a hole dug in the kraal that is lined with dung].

Co-supervisor: How do you spell it?

Interpreter: I. N. G. U. N. G. U [Spells the word], this is "ingungu".

Co-supervisor: INGUNGU [pronounces word].

Interpreter: Although they can look similar this one, but the pronouncing is not the same.

Co-supervisor: How do you say it?

Interpreter: Ingungu.

Farmer: (Laughing).

Interviewer: So ispelwe right?

Interpreter: Iya ispelwe right, spelling is OK.

Interviewer: Wooooo..... ngiyakuzwa.

Interpreter: The difference is the pronunciation “ingungu”.

Interpreter: Yeah...

Interviewer: Yeah... ok.

Interpreter: Did you get it?

Co-supervisor: No, not getting it.

(Everyone laughs).

Co-supervisor: I want to ask a question. Like, these things that she talked about, did she see it in her childhood?

Interpreter: Wakubona konkhe loku?

Farmer: Konkhe loku mine ngiyakwati. Nekungene ngungwini sikiphe kudla, beyiye igwatjulwe iphole ngoba kuyashisa langekhatsi bese ke naseyipholile bese siyangena ke sikiphalokudla nangabe kushodile ekhaya.

Interpreter: E... all of these I know, I've been using it long time ago, and the maize which comes after.... When storing it in the “ingungu” is called “sancoti”.

Co-supervisor: Yes.

Farmer: Bowutsi nawusidla simuncwanyana, siyanuka futsi.

Interpreter: It's got that smell.

Interviewer: Oh, from being in there?

(They are all laugh).

Interpreter: Yes.

Co-supervisor: What do you call it?

Interpreter: It's called "Sancoti".

Farmer: Manje laba banyalo abangeke basasidla and simnandzi!

Interpreter: "Sancoti" spelling "sanc[o]ti".

Co-supervisor: [Expresses confusion].

Interpreter: "Sancoti", like "Ncobile", "sancoti".

Co-supervisor: It's only maize stored like that? You don't do sorghum?

Interpreter: iSorghum beniyfaka nayo?

Farmer: Beyiba nengungu yayo.

Interpreter: Yes, both.

Interpreter: And then isorghum beyibitwa ngekutsini naseyiphuma lapha?

Farmer: Kuyafanana nakhona sancoti.

Co-supervisor: They're both the same name?

Interpreter: Yeah both have the same name.

Farmer: Kuyafakwa la, angitsi bekunguwona mathangi. Bekwentelwa kutsi kungangeni ngobolwane.

Interpreter: Ok.

Co-supervisor: But that thing, that smell and the bitter taste... do people like it? Is it something nice? You know what I mean?

Farmer: Awu bekumnandzi (laughing).

Interpreter: Back then it was nice, but now...

Co-supervisor: Now it's strange?

Farmer: (Laughing) bekumnandzi.

Interpreter: Asewusitsatse ke ngaleyanyalo indlela kutsi nyalo kwenteka kubanjani nyalo kusuka. Ekucaleni uze uyofika ekugcineni ekulimeni.

Farmer: Angitsi ke nyalo uma sewulima batsi kufuna wati mhlabatsi wakho kutsi umunyu kangani.

Interpreter: Ok.

Farmer: E... sewuycala ke uyalima sewuyati kutsi kudzinga manyolo,

Interpreter: Mmmm, iya...

Farmer: ... Noma kudzingani, sewuyahlanye... uyalimake. Sewutsenga inhlanyelo ke nyalo esitolo, namanyolo sewuya.... Uyabona sekunaletindleko ke nyalo.

Interpreter: Chubeka ke.

Farmer: Uphindze ke nasewuvuna sekwa..... balimisi basifundzisa kutsi sekwakhiwa letincolobane letishayis' umoya, utokoma kahl' umbila ungangenwa laligundvwane, nako kubit' imali. Eee... uphindze uwuhhudle lombila, sekudzinga kutsi uwufake ethangeni, utsenge liphilisi ufake umbila, tsine besingawufaki leliphilisi.

Interpreter: Benifakani?

Farmer: Besifaka la engungwini kute ingobolwane, utentele sancoti lapha.

Interpreter: Ok now before you do anything, you have to start by testing your soil. After testing your soil, it is where you'll know whether you'll need fertilizer or not. If you need fertilizer, you go and buy fertilizer. And then you come with the tractor. You plough, you plant. Either using a tractor or you follow the tractor. And then you apply the fertilizer if need be, and then you wait for it to be ready, then you harvest, you put it in creeps. There are modern creeps which are recommended by the ministry, and then after that you shell the maize or if it is sorghum you gonna shell it, then and you put it in modern storages which are these metal tanks.

Farmer: Bese ufak' emaphilisi lalacendza le...

Interpreter: And then in the metal tanks you put weevil tablets to prevent weevils.

Co-supervisor: Ok.

Interpreter: Iyaaa kani long ago they were not using any chemical in terms of weevil. Weevil, they were not friendly with the smell and the taste of the sancoti.

Co-supervisor: Because of the kraal?

Interpreter & Farmer: Yes.

Co-supervisor: And then you know with this, this uhm "silulu",

Interpreter: Yes...

Co-supervisor: Is that just to make the crop dry? So you put it there to dry the crop before you're going to do that hitting to get the seeds separate. Is that the purpose of this?

Interpreter: Ok kuletilulu benifaka kuto kadzeni, bekuyinhloso yokufaka lapho kutsi nikufakele kutsi kome nje noma kukhona lokunye lokusitako kufaka laph' etilulwini?

Farmer: Hhayi besifakela kutsi kome.

Interpreter: Just only for drying.

Co-supervisor: For drying, ok. And so now does she just do these things? She doesn't use anything of the old type now?

Interpreter: Ok, nyalo nje kute kwakadzeni lokusebentisako, usebentisa lolokusha kodvwa?

Farmer: Hha... sengisebentisa lolokusha.

Interpreter: Iya, no old types only these ones.

Co-supervisor: Ok.

Interpreter: Iya.

Interviewer: Why doesn't she use the old way?

Interpreter: Wayekelelani letindlela letindzala wabese sewugcila kuletanyalo?

Farmer: Sekute lalabakwati kugubha tingungu. Asisafuyi naletinkhomo, ngoba phela bowuyakha lengungu lakakho ebaleni hhayi esibayeni, kunalabocwepheshe lebatigubha.

Interpreter: Ok.

Farmer: Kwatiwa nje kutsi babe bani uyakwati kuyigubha.

Interpreter: Lokulima ke nyalo anisebentisi lendlela yakadzeni lemasimini indlela lokulima?

Farmer: Lendlela yokulima ngiye ngente lokutsi silime sigulumba ngibuye ngitifakele mine ngetandla langemuva.

Interpreter: Ok, the reason is that, 1) there are no oxen now to plough. Secondly, few people have cattle. So for the ingungu it was to build inside a kraal, so there are no kraals now. And there are no people who know how to build ingungu, so that is why they opted to use the modern creeps and the modern storages.

Co-supervisor: Why are there no cattle in this place? [Interruption]

Farmer: Kantsi nalabantfwana angeke basakudla lokudla lokubuya lephansi batsi kuyanuka.

(Everyone laughs).

Interpreter: Kuteleni tinkhomo nyalo?

Farmer: E'... indzaba yekutsi somiso.

Interpreter: Lesa 2015?

Farmer: Iya...

Interpreter: Ngaphambi kwaloko betikhona?

Farmer: Betikhona.

Interpreter: Oh ok. Which means they were... most of them died during the dry season of 2015/2016. Before then they were using the oxen.

Co-supervisor 2: Oh really?

Interpreter: Iya.

Co-supervisor: In the past, with this clay-lined... the clay pits, who use to make it? Was it women or men?

Interpreter: Letingungu betakhiwa bobani, bomake noma bobabe?

Farmer: Bobabe.

Interpreter: Men.

Co-supervisor: And she doesn't think there's anyone who can remember how to do that?

Interpreter: Kute nje locabanga kutsi kulabobabe labakhona angakhumbula kutsi kwentiwa njani loku?

Farmer: Hhi, angati ngoba sekute kahle bantfu labadzala ngoba beyigujwa lentfo iye lephansi, iti ingafika lephansi bese iya lemaceleni, kube nje ingasuka la iye lemotweni.

Interpreter: Letinkhomo tichuveke tihambe latulu?

Farmer: Bekumbonywa phela. Bekuba nelitje nje lelisicebedvu. Lamahlandzeni ke bebashaya lomganu bawente loligcolo, batsi ke mbo, bese kutsatfwa bulongo kuyavalwa kuyavalwa kuyavalwa, kungangen' umoya. Tinkhomo tihambe la, tilale futsi la.

Interpreter: Iya seemingly these days, there is no one I can remember who can do this, because it needs someone, it needs an expert with this one. Some of them they used this [interruption]

Farmer: Uyabona lawungabatfola khona kuka Maphungwane.

Interpreter: Ok.

Farmer: Iya ngoba kukhona labasenato letingungu ngoba name ngiwekutalwa le kaMaphungwane.

Interpreter: It's like in this area there is no one but like in Maphungwane, which is the plateau, there are some still use this day.

Co-supervisor: Oh really?!

Interpreter: Iya.

Co-supervisor: I'd love to see it. What were you saying about the bark of trees?

Interpreter: Ok this bark they use to cover the ingungu.

Farmer: Ngoba lomnyango bewuba mkhulu.

Co-supervisor: To close it?

Interpreter: Yes to close it using cow dung to smear it around.

Co-supervisor: Ok, to seal it?

Interpreter: To prevent any pests to get inside.

Interviewer: Ok, uhm, how did you acquire the land you have been using to farm?

Interpreter: Kulenzawo lena lolima kuyo wayitfola kanjani, uyitfole kanjani kutsi ulime kuyo?

Farmer: Sayitfola sayinikwa yindlunkhulu.

Interpreter: I got it through the kukhonta system.

Co-supervisor: Through the Chief?

Interpreter: Ja, from the Chief.

Interviewer: Ok, was a time before this when you or your forefathers could choose which land to use for farming?

Interpreter: Ngaphambilini kusenabomkhulu bakho, letindzawo benikhona yini kukhetsa kutsi lena sitawulima kuyo, lena sitawufuya tinkhomo noma nje benibhica?

Farmer: Bekukhona lokukhetsa,

Interpreter: Ja,

Farmer: Mm, nakulesosikhatsi sabo babemkhulu ngoba phela lamasimi bebawabeka ngenhlanye, kulinywe kuleyondzawo, nemi ibe ngenhlanye, netinkhomo kwateke kutsi titawudla ngale.

Interpreter: Ok.

Farmer: Mmm.

Interpreter: It's like, there was a land for ploughing, land for livestock then for settlement.

Interviewer: Ok, ok, eh, ngicela ukubuyela emuva kancane kukhona equestion engikhohlwe ukuyibuza. La umama bekathe baya prepare(ah) before atjala manje sekenza lelenye, wathi uya checka kucala ukuthi i...

Farmer: Umhlaba?

Interviewer: Ja, ufertile or not. So uchecka kanjani, uwubona kanjani ukuthi u fertile or not?

Interpreter: Nyalo ukhona njani lokuwucheka kutsi uvunzile noma unjani?

Farmer: Sesaba nema RDAs basifundzisa balimisi, ucupha lomhlaba wakho uwuyise le RDA, bese uya le laphu checkwa khona kubo research.

Interviewer: Oh ok!

Interpreter: I take soil samples then I submit them to the soil test unit [RDA], then they test the soil.

Interviewer: Before? Like, ngaleza yinkathi?

Interpreter: Kadzeni benenta njani?

Farmer: Ah, kadzeni bewubuka lokutsi... kuba netimbali lamasimini, tivama kuvela kutsiwa "sono", nekwetjani kuba mhloshana kutsi nakubhala kumila bona lotjani, batsi lomhlaba sesewu... Sewunakunjana lona, awusanasivuno sewu poor.

Interpreter: Seniwenta njani?

Farmer: Bese kufakwa umcuba.

Interpreter: Oh ok. Long time ago we used this, uhm, streaker, you know streaker?

Co-supervisor: It's something to do with [interruption].

Interpreter: It's a witchweed.

Co-supervisor: Ok that's what the other person mentioned.

Interpreter: Yes streaker is a witchweed. Once your field has a lot of witchweed, it's an indication that there's a problem with your field. Then to solve that problem they applied manure.

Interviewer: Ok...

Interviewer: So this question I'm gonna ask now, is leading from now, the question about whether or not people could choose their land back then for farming.

Interviewer: What type of soil was considered of chosen for sowing crops?

Interpreter: Uhm, kadzeni, long time, beniwukhetsa njani mhlabatsi kutsi lona utawulungela kulima kuwo, lonatinkhomo?

Farmer: Angitsi kunetindzawo lokhandza kuti titihoshana, bebabona ke bantfu labadzala kutsi la kuletihoshana la kuvama kuhamba emanti, uyahamba ke lomhlaba, bebangawufuni ke leyondzawo leyo ukhandze kutsi kunetihoshana khona, bafune nje indzawo lekahle kutisi le yemasimu ke lena ikahle.

Interpreter: Ok, they used flat land. The land which is flat, that one was chosen for crop... for ploughing. They avoid the land where there is... every time there's a... water running along... during rain there's water running there, they avoid that area, which means that one was kept for livestock. The flat one was for planting.

Co-supervisor: Why is the flat land used for planting? Is it just that it's easy to plant, what makes it good?

Interpreter: Lenzawo lena lebonakala icondzile, yini kutsi yona ibonakale ilungile kutsi ungalima kuyo kunalelenye?

Farmer: Angitsi ayikhukhuleki noma kunetimvula.

Interpreter: It's because during rain there's no washing away of soil, that's why it is.

Co-supervisor: No erosion.

Interpreter: Iya, no erosion.

Co-supervisor: Can I just ask a question because when I asked that question about the clay-lined pits, kraals, it's because there's no livestock, that they don't use it now. I just want to ask the difference, like in the past they used the grass baskets, the big ones for storage. Why is it that nowadays they use a different method? Why the change?

Interpreter: For storing their [Interruption]

Co-supervisor: For that storing. From the grass baskets, then. Why did that change, maybe? What's good about the grass baskets?

Interpreter? Uhm, ok. Utsi, kadzeni angitsi benisebentisa letilulu, nashintjelani kuletilulu natiyekela nakha letinyango leti letikhona nyalo?

Farmer: Eh, ngicabanga lokutsi lolushintjo lentiwa kutsi tonkhe tintfo tiyashintja setihamba ngebusha, nalaba lebebenta loku bancephile baya, abasekho kani loku bofenisi siyabatsenga siyabafaka, sifaka la tinyangweni.

Interpreter: Kani labenta loku, usho laba bebanelwati lekwakha letilulu.

Farmer: Kwakha letilulu.

Interpreter: Ok, one of the reasons is that uhm there are no much people who have the knowledge on how to build the tilulu, as compared to the modern cribs because now there are lot of people who are aware of how to build modern cribs.

Co-supervisor: Mm.

Interpreter: As compared to the tilulu.

Interviewer: Ok, do you grow different types of sorghum?

Interpreter: Ngabe ulima tinhlobo letehluka yini temabele?

Farmer: Iya, ngicale lonyaka lo kulima tinhlobo letahlukeni temabele, bengilima yinye inhlobo.

Interpreter: Yes I grow different types of sorghum but I started this year.

Interviewer: Ok, so before when she did the one type, which one was it?

Interpreter: Ok kadzeni bewulima inhlobo yinye angitsi?

Farmer: Mmm.

Interpreter: Bowulima yiphi kadzeni nje solo wacala kulima?

Farmer: Bengiye ngilime namabele, asintfu mane sa... sengiwayekele kwase kufika laba baka World Vision bahle banginika inhlanyelo ngemnyaka ngemnyaka.

Interpreter: Ngubani ligama lawo?

Farmer: Eyi angiwati ke lel' igama lawo.

Interpreter: Ok, I use to grow the indigenous one, before an NGO came and gave me the modern varieties but I don't know the name of the indigenous one I use to grow it.

Interviewer: The name of the NGO is?

Interpreter: It's World Vision.

Interviewer: Oh, so is that the reason why she changed from indigenous to the ones she's using now?

Interpreter: Yes changed because World Vision was giving it for free.

Interviewer: So if World Vision did not give her those, she was still gonna be using the indigenous?

Interpreter: Ok, kube nje World Vision akakunikanga lenhlanyelo ngabe uyschubekela ngalesintfu?

Farmer: Iya, ngiyatsemba ngabe ngiyachubeka ngobe naku nyalo nje ngifune nawa ngoba ngifuna kuwabona kutsi ngeke yini ngichubeke nawo uma [Interruption]

Interpreter: Yes I would continue with my indigenous one.

Interpreter: Ok.

Co-supervisor: When did it happen that she changed?

Interpreter: She changed this year.

Co-supervisor: Oh, this year?

Interviewer: But she's still carrying on with the indigenous as well?

Interpreter: Iya, like this one, she's now producing this one.

Interviewer: Yeah,

Interpreter: The one you used to grow is not the Mshalane

Interviewer: Ok...

Interpreter: It's just an old name.

Interviewer: Oh!

Interpreter: Now producing Mshalane, if Mshalane is ok then we continue with it.

Interviewer: Ok, is there, uhm, is there any difference... hmm, how do I ask this?

[Speaks to Co-supervisor] I want to ask if now, the one that she used before the indigenous one that she doesn't know.

Co-supervisor: Mmm.

Interviewer: Whether she sees any good difference between what she's using now and that one.

Co-supervisor: Like how different are the plants?

Interviewer: Yeah, is there [Interruption]

Co-supervisor: Is there an advantage?

Interviewer: Yeah,

Co-supervisor: Ask it.

Interviewer: Ok, is there an advantage to now having changed from the old one, to this one, is there a positive [Interruption]?

Interpreter: Ok. Nawubuka nje ngesivuno ngabe khona lenzuzo yakhona ngabe ibonakala i... inemehluko lomkhulu nomavele kute likuzuzile lokutseni nawucatsanisa sivuno lobusitfolo kulenhlangelo lendzala nalelensha, lukhona lushintjo utfole kancono noma kumbe bewusitfolo kancono emuva?

Farmer: Le muva nakuloku?

Interpreter: Mmm.

Farmer: Lala semuva njengoba ngishito nje kutsi lawa esintfu ayavama lokuphutaphuta kuvutfwa kani lawa ekutsengwa etitolo kuyaphangiphangisa.

Interpreter: Sengisho kutsi lesivuno bunengi baso.

Farmer: Lesivuno siningi kulawa latsengwa letitolo.

Interpreter: Ok, there's a... there's a huge difference in terms of harvest. The modern one you get lot of harvest but that one, the indigenous one there's little harvest. The reason is that this one [indigenous one] they take a long time to be ready.

Interviewer: Ok.

Interpreter: But this one they take a shorter time, hence if there are some birds they'll attack this one because it takes some time.

Interviewer: Ok. If the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Nangabe mhlambe ke simo selitulu nakutawucala kulima asivumi, sikhomba kutsi hhayi akulungi lonyaka, yini lokwentako lokutilungiselela kutsi eyi kuze ngigcine ngilimile ngitfole sivuno lesincono, angente naku yize vele lokwelitulu kukhomba vele kutsi akucaci kahle?

Farmer: Mana ke angikuva ke kahle mlimisi, utsi?

Interpreter: Nayi iseaon seyitawucala, besuyabona kutsi timvula atikho kahle, futsi tibonakala kutsi angeke tifiike kahle, yini lokwentako kutilungisela kwekutsi utfole sivuno?

Farmer: Ngiye ngihlale ngilidzile lokutsi uma lina ngifake phansi.

Interpreter: Nalingakani awufaki?

Farmer: Angifaki.

Interpreter: Yini lokunye lokwentako?

Farmer Lokunye lengiye ngikwente ngiye ngifake ngishiyanise, ngingafaki kanye kanye kulamasimi ami.

Interpreter: Ok, 1) What I do, I don't plant before rains. I just wait for the rains. Or I plant at different stages which means I demarcate my field...I plant first plant, and then followed by the second one, and then the third one, in case for the rains if I don't receive the first rain maybe I'll get yield for the second one.

Interviewer & Co-supervisor: Oh, ok.

Interpreter: Iya, not planting everything at once.

Interviewer: Ok, are domestic animals left to wonder on the land where the sorghum has been planted for manuring or are they kept separately?

Co-supervisor: Although now there aren't cattle. But before.

Interviewer: Yeah, before.

Co-supervisor: When there were cattle.

Interviewer: Yeah, when there were still cattle...

[Talk between interviewer and co-supervisor]

Interviewer: Ok, are domestic animals left to wonder on the land where the sorghum has been planted for manuring or are they kept separately?

Interpreter: Letinkhomo nomakungaba timbuti noma tinkhomo, nityekela tihambe laphe nsimini yini kutsi mhlambe titawu... Tihambe tikakele nsimini noma nitibeka tiba eceleni nje tondwana kodvwa atiyi lemasimini?

Farmer: Hhayi kuba nesibaya khani kutotfolakala lomcuba ukhishwe lesibayeni.

Interpreter: Sengisho indzawo mhlambe latidla khona, tidla lakhaya noma tidla lamaceleni?

Farmer: Tidla lamaceleni, ngaphandle kwebusika e ngoba bese tiyangena lamasimini.

Interpreter: Ok, in summer, they have their own land where they feed, but in winter they are brought inside the fields.

Interviewer: Ok, and then did she said like the... the.... they take the manure from the kraal?

Interpreter: Iya, they take manure from the kraal to the field not that cattle can go to the field.

Interviewer: Ok, if you do not use cattle for manuring, what do you use instead before then?

Interpreter: Kadzeni nangabe anikawusebentisi umcuba kuvundzisa emasimini, benivundzisa ngani?

Farmer: Bekute ngoba benifaka lomcuba, bewutfo kutsi niyahlala for 6 years ningakafaki lutfo lapha phansi but uyacuba umcuba.

Interpreter: Ok nyalo ke naningakawufaki mcuba nifakani?

Farmer: Sifaka manyolo.

Interpreter: Ok back then she they only used the kraal manure, they were no other alternatives, if you not used kraal manure that means there nothing you could have used, now if there's no kraal manure, they will use this synthetic manures.

Interviewer: When in the year does sowing begin?

Interpreter: Emnyakeni nje kulima kucala nini?

Farmer Emnyakeni.... Angibekise nje kusukela kandzeni, bekucalwa ngabo October kulima timvula tisekhona, nyalo sesiye sibone ngako, ukhandze kutsi November, December ngikhani sicala kulima kuya ngalokishintja kwalesimo selitulu.

Interpreter: Is like long time ago, the season started October, but now it's November or December [Masemula edit – July 2022: because of climate change].

Interviewer: When is harvest time?

Interpreter: Bese nivuna nini?

Farmer: Kuya ngekutsi phela kutsatsa tinyanga letingu 3 ukhandze kutsi sekuvutiwe lokunye sekulungile sesiyavuna.

Interpreter: Inyanga nje nawungbekisa kutsi lena yekuvuna?

Farmer: Inyanga lengingayibekisa kutsi yekuvuna ngulo April.

Interpreter: Iya we harvest in April [Masemula edit – July 2022: it takes 3 months for the sorghum to fully grow. When the 3 months has lapsed, it means we can harvest. Around April].

Interviewer: Ok, what measures do you take to make sure that the land recovers between the growing seasons?

Interpreter: Yini lenikwentako nje, asesitsi senicedzile kuvuna, nenta ini kutsi lomhlabatsi wenu ubuyele ube sesimeni sekutsi uphile kahle emkhatsisini wekutsi nani nanicedza nje kuvuna noma nitolima, yini leleniyentako lamkhatsini.

Farmer: Emkhatsini?

Interpreter: Angibekise nje, naku sewuvunile nyalo, yini loloyentako lakulomhlabatsi wakho ngaphambi kwekutsi uphindze ulime,

Farmer: Mhm...

Interpreter: Lokulungisako kutsi uphindze ube kahle.

Farmer: Nyalo ke ngalokutsi sesabete labo... le...lemicuba, sesiye siphendvule nawunalemali letinhlanga utifake phansi.

Interpreter: Now because we no longer have kraal manure, we just practice winter ploughing where we just take the crop, upside down. Then we'll use the crop as the manure, the old residue.

Interviewer: What do you use the sorghum for?

Interpreter: Lamabele niwasebentisa kwentani?

Farmer: Ngidla incwancwa kuwo, ngipheke ticaba ngoba ngilima emantongomane,

Interpreter: Nani lokunye?

Farmer: (Laughing) ngipheke stambu semabele, batsi ngemashwele, (All laughing). Ayagandzeka akachemeteki, nali likhuvu lami lapha.

Interpreter: I prepare thin porridge, and then, yini lokunye tishwala?

Farmer: Hmm mm.

Interpreter: Mashwele?

Farmer: Ngulestambu lamashwele, ticaba loloku.... Upheka lamabele uwafake njengemancobo, bese ubuyisa etjeni, ubuyise emantongomane uyawagayinga kahle, uyawasila ke lamantongomane, bese uyakubhica uyakubhica, udla unatse emanti liyowushona loku ungakadli lutfo.

Interpreter: Ticaba?

Farmer: Ticaba.

Interpreter: Iyeeeeee how can I put this one...

(All laughing)

Interpreter: Ok, I do thin porridge and then "ticaba". How do you make ticaba? You just take the grain as it is, you put it in... [Asks the Farmer a question] ufaka emanti labandzako noma?

Farmer: Uyapheka njengemancobo nje kubile kuvutfwe.

Interpreter: You just take the grain as it is, you cook, then [Interruption]

Farmer: Sewuyakukhipha ke sekushe lamanti, sewubuyisa etjeni ke uyasila uyasila uyasila. Emantongomane akho sewuwasilile nawo uwagayingile, anuka kamnandzi sewuyakuphitiya masewukusilile kanye kanye.

Interpreter: Ok now I see.

Farmer: Sewuyabumba ke uyadla.

Interpreter: Ok, how do you prepare leticaba? You just first by cooking the grains. After cooking you take it out you grind it to be soft, and then you mix it with grind groundnuts, then after that you eat.

Interpreter: And then "emashwele"?

Farmer: Emashwele ngulestambu, uyagandza.

Interpreter: Ubhica na [Interruption]

Farmer: Awubhici nalutfo nje, uyagandza ugandze uphindze ukupheke loku... njenge stambu nje.

Uma kunetinhlumayo ufake utsatse lamantongomane ubondze ubondze then sengi...

Interpreter: Then I prepare “emashwele”, emashwele, how to prepare emashwele...

Farmer: Asati lokugandza kutsi utawutsi yini (laughs).

Interpreter: Grind it, but we call it kukhobola.

Co-supervisor: Pound it?

Interpreter: Iya, you pound it and then after that we mix it either with cowpeas or groundnuts, then you eat.

Co-supervisor: You don't cook it?

Farmer: Uyakupheka.

Interpreter: You cook like samp, you cook it like samp.

Co-supervisor: So it's been roasted or something, is it roasted or boiled?

Interpreter: Boiled.

Interpreter: You prepare it like you're preparing samp.

Co-supervisor: Ok ok, how did she grind it, what did she use?

Interpreter: Eh, usebentisani nawu [Interruption]

Farmer: Hha... a... ye D (calling somebody). Kwentani?

Interpreter: Nangab' ukugaya uyakukhobola kanje nobe uyakugaya ngembokodvo?

Farmer: Ngiyakukhobola.

Interpreter: Uyakukhobola?

Farmer: Awubakhombise nal' ikhovu (requesting somebody to show them “likhovu”).

Interpreter: She's coming with the “likhovu” which is used to...

Farmer: Likhovu nali (laughing).

Interpreter: Likhovu?

Farmer: Mmm.

Interpreter: Do you know likhovu?

Farmer: Angitsi utsite utawuya kaShewu, utawufike uwabone ke lekaShewu labawasebentisa kakhulu, umshini waka Ngwane...

Interpreter: Nami I am not used to these things.

Farmer: (Laughing).

Interviewer: I don't know it,

Co-supervisor: I am so excited.

Interpreter: Now she is getting too deep in SiSwati.

Co-supervisor: No, this is indigenous knowledge, proper.

Interviewer: Yeah.

Co-supervisor: It's the proper, the wooden one.

(All laughing)

Co-supervisor: Does she still use it now?

Farmer: Yes.

Co-supervisor: Yes, you do?

Interpreter: Hhaa...

Farmer: Ubesuyafaka ke, uyakhobola ke, ngisho nalestambu nembila.

Co-supervisor: It's called "Likhovu"?

Interpreter: Iya, it's called "likhovu"

Co-supervisor: Can I take a picture?

Interpreter: Yes.

Interpreter: Wacala kuyisebentisa nini lentfo lena?

Co-supervisor: What wood is it?

Farmer: Ngacala kuyisebentisa ekhaya

Interpreter: Yeee

Farmer: Sisakhula

Co-supervisor: What wood do you have to use for this?

Interpreter: Lesihlahla, sihlahla bani lelowenta ngaso loku?

Farmer: Hhi angati ke ngoba ngakutsenga kulaba labakubatako kutsi basebentisa sihlahla bani.

Interpreter: No, she does not know.

Co-supervisor: But is it a particular wood?

Interpreter: Yeah, it's the same one with the one that is used to make "Umgcwebhe", do you know (Umgcwebhe)?

Farmer: Ehheeee ngulabo labenta lolugcwebhe, lukhona la tindleleni.

Interpreter: You see the dishes like this one?

Co-supervisor: Oh yeah, like the meat dish?

Interpreter: Yeah, it's the same tree as this one.

Interpreter: Eyi... bayakudla labantfwana lokudla lenikugaye lana noma kudliwa nguwe ewdvwa?

Farmer: Siyasidla nje lestambu kahle nje sonkhe.

Co-supervisor: So people don't grind with those stones anywhere in Swaziland?

Interpreter: They use the stones, in my homestead nje we use this one.

Co-supervisor: Really?

Interpreter: Iya.

Co-supervisor: And it's different from this?

Farmer: Eee [Yes]

Interpreter: Iya It's different, it's like [Interruption]

Co-supervisor: It makes it smoother?

Interpreter: Iya, it makes it smoother, it's like [Interruption]

Farmer: Kwenta sibe smooth loku.

Interpreter: I'll take a picture some time, then I'll send it.

Interviewer: Ok uhm, did you grow up around here?

Interpreter: Ukhulele lana yini?

Farmer: Hhayi ngikhulele kaMaphungwane.

Interpreter: I grew up kaMaphungwane in the plateau.

Co-supervisor: Ok, what do you call the plateau?

Interpreter: Maphungwane.

Co-supervisor: Is it more fertile on the plateau?

Interpreter: Iya it's more fertile and there are lot of rains.

Co-supervisor: There's a lot of rains? It's totally different.

Interpreter: The plateau, which means it starts that side. That one is totally different from this one

Farmer: Hhayi kwehlukile.

Interpreter: Nawukhuphuka nje, the altitude is totally different.

Co-supervisor: And are there a lot of people living there?

Interpreter: Iya.

Farmer: Hhawu baningi.

Interviewer: A lot?

Interpreter: A lot.

Co-supervisor: So different.

Interpreter: If you are in Maphungwane, far off Maphungwane you can just there Mozambique or there Maputo.

Co-supervisor: Mhm...

Interpreter: Iya...

Co-supervisor: How long does it take to dry the sorghum before you can hit it with the sticks?

Interpreter: Kutsatsa sikhatsi lesinganani lokutsi ome lamabele akho ungakawabhuli?

Farmer: Hhawu, cishe yinyanga ngoba masinyane nje kufuna usheshe uwabhule.

Interpreter: A month or so.

Co-supervisor: And then, you don't let the rain fall on it, right?

Interpreter: Iya.

Co-supervisor: I mean, how is it protected?

Interpreter: With the modern creeps there is a shelter on top.

Co-supervisor: Ok, and then in the past those baskets, they had a lid?

Interpreter: Kadzeni, kule... Kulama... angitsi loku bekufakwa etilulwini?

Farmer: Mhm.

Interpreter: Bekuvalwa ngani kutsi kungangeni manti?

Farmer: Bekwakhiwa nje tindlu letinje, kubekwe langephansi kwalendlu kubete lolubondza lendlu.

Interpreter: Oh, indlu like le?

Farmer: Yebo!

Interpreter: Oh!

Farmer: Kubete lolubondza kodvwa lamaceleni. Angitsi sebakhe letinakunjane babeke langetulu kushay' umoya la, kuphela kube nale shelter yani, yetjani.

Interpreter: Ok, ok, they used to have these kinds of houses where there are no walls, and then they put the "tilulu" under it.

Co-supervisor: Oh, so it had a roof and no walls.

Interpreter: Yes.

Co-supervisor: Can I take a picture of the sorghum there? That one drying in that thing?

Interpreter: On the other side?

Co-supervisor: Yeah, does she mind?

Interpreter: Utsi ingabe angatsatsa sitfombe naleminyango yakho?

Farmer: Angatsatsa, naloku yayisola (laughing).

Interpreter: Yes you can even though, it is not that one.

Co-supervisor: No, it's that one, right? The old one?

Interpreter: It's not the old one and it's not the modern one. It's just something nje.

Farmer: (Laughing), kusho kutsi sisemkhatsini.

Co-supervisor: But I'm still interested.

Interpreter: No, you can take it.

Co-supervisor: Because it's working, it works for her.

Interpreter: Iya sekuphelile.

Interviewer: Sekuphelile.

INTERVIEW 4: FARMER 4

Interviewer: Sawubona Ma.

Farmer: Yebo Sesi.

Interviewer: Unjani?

Farmer: Ngikhona Ma.

Interviewer: Siyaphila. Igama lami ngingu Nandi Ma,

Farmer: Eh...

Interviewer: And then lona ngu make Thembi,

Farmer: Wo...

Interviewer: Eh. Size... size lana ngoba sifuna uku understand nje ukuthi abantu baba... [Asks the interpreter a question] eh ukulima?

Interpreter: Iya.

Interviewer: Ukuthi abantu bebalima njani kudala and then nokuthi abantu balima kanjani manje.

Farmer: Wo...

Interpreter: Sizo... Sizocela ukubuza nje imibuzo ehlangene naleyonto.

Farmer: Ok.

Interviewer: Yebo.

Interpreter: Asicale, unangakhi mnyaka make?

Farmer: Ngina 60 babe.

Interpreter: Watalwa nini?

Farmer: Ngatalwa nga 1958, 25 August.

Interpreter: Kusho kutsi una 61.

Interviewer: Akakabi na 61.

Farmer: Kusho kutsi nga August ngikhani ngitsi 61.

Interpreter: Wo... August hho... (Laughing).

Farmer: Iya.

Farmer: Nedi kwaphambana idate, ngakwakhona 25 January. Manje hhawu, ngase ngichubeka nalesitifikethi kutsi hhawu sona sibhalwe August ngase konkhe sengukubala laku August.

Interpreter: Ok.

Interviewer: Ok, when did you begin farming?

Interpreter: Wacala nini kulima nje, kulima nje noma, kulima hhayi nje mabele, kulima nje wacala ini?

Farmer: Kulima bengingalime ekhaya kitsi bekulima nje bantfu labadzala sibabona balima. Mine ngilime sengila la lakhona lahlandzeni ka Mpiko, mhh, Mpike khona

Interpreter: Le kulabantfu labadzala nakulinywe angitsi bewukhona?

Farmer: Ehe... Bengikhona.

Interpreter: Kunini lapho ngifuna lapho?

Farmer: Hhi... Le kubo 70s. Besiya ekhaya na babe wasuka lekhaya waya la Big Bend.

Interpreter: Ok.

Farmer: Eee wahlala natsi ke sakhona lokukhula khula, ngiyabona besila kubo 8 years, mine ahambe name ekhaya, ngikhandze gogo la Mjoti ke alima... Alima inhlanyelo yakhe. Yena ke angati batsi yinsambansamba lokwemabhontjisi lokumhlophe.

Interpreter: Hhayi ke sitawufika lapho make.

Farmer: Woo.

Interpreter: Kusho kutsi wacala lana kubo 70s.

Farmer: Ehe...

Interviewer: Ok.

Interpreter: 19... 1970s

Interviewer: Ok, e... what plants did you grow back then and what plants do you grow now?

Interpreter: Ok, le kubo 70 bani bani bekulinywa ini?

Farmer: Bekulinywa umbila, kulinywe mabele, kakhulu nje kudla bekulinywa ngulamabele aiwakhandze akhona, bese bekwentiwa nangawo liphalihi.

Interpreter: Nani lokunye kwakulinywa?

Farmer: Nembila, nabhatata

Interpreter: Ok

Farmer: Nalensambansamba lengiyishoko, ngoba bekunemabhontjisana nje amhlophe.

Interpreter: Back then we use to plant mainly sorghum, then maize, uhm, sweet potatoes and then rice beans, which is called "Insambansamba in SiSwati. Ya, rice beans.

Interviewer: Who taught you the techniques [Interruption]?

Co-supervisor: And now?

Interviewer: Oh yes,

Interpreter: Nyalo ke, yini leniyilimako nyalo?

Farmer: Nyalo lesiyimako, siya.... Nyalo sesilima bokotini, koja kotini sengamyekela. Koja silima bokotini kodwa ngiyachubeka nembila. Nemabele ke ngiyawalima mine, nabhatata ngiyamlima lapha ekhaya, na... nemjumbula.

Interpreter: Ok.

Farmer: Mmm.

Interpreter: Now we grow cassava, maize, sorghum, sweet potato, e... yini lenye kenje? It's cassava, sorghum, sweet potato and cotton, iya

Co-supervisor: These ones are all for herself, the cotton's for the sale, right?

Interpreter: Yes

Interviewer: Ok, who taught you the techniques you have been using to farm your crops?

Interpreter: Ngubani ke lowakufundzisa lolwati ekulimeni nje kadzeni nanyalo? Ngubani lowakufundzisa lelo lwati lelo?

Farmer: Lwati besilutsekela latinhlajnganweni nasiya basibitile kutsi balimi bakotini bayafuneka le gushede, siye khona ke, bafie ba.... bakhulume ke labalimisi kutsi lokotini funa siwuhlakule kanjani, siwunakekele kanjani ekufutseni kuze sitotfolo sivuno lesikahle, ungangcoli kakhulu. Uma utawuyekelela ekukhuleni uphindze ungawufutsi nakahle, ukha totini lasangasuye white lasa blawni

Interpreter: Ok.

Farmer: Lasakabi, manjena batsi fun' ube clean kotini kuz' utotfolo likilo lelikahle, funa ufutse uhlahule umphindze lakuhlakuleni umuphe lakusele khona.

Interpreter: Ok, ngaphambi kokuba kufike letinhlangano, benikufundza kuphi loku, lelwati lekulima nalutsatsaphi?

Farmer: Lwati lekulima nje mine ngesuka nalo ekhaya, kutsi bobabe vele bebalima, imvamisa yabo vele bebaphila ngekudla kwekulinywa.

Interpreter: Ok.

Farmer: Ngikhandze kutsi ke nalayekhaya bebasebentisa kutsi bona umbila nabawtolile, batawubeka enyangweni bawubhule [Interruption]

Interpreter: Hhayi sitawufika lapho make.

Farmer: Woo.

Interpreter: I use the technique from my grandparents.

Interviewer: What things do you consider important in order to have a successful harvest?

Interpreter: Ok, asesitsi nje make ufuna kuba nesivuno lesiphathekayo. Ngitiphi tinfoto lotibona kutsi timcoka letitakufikisa esivunweni lesiphatsekako, lokumele utibu... lobonako nje kutsi uyabona loku naloku ngiko lokungangifikisa kutsi ekugcineni ngivune kancono?

Farmer: Ekuvuneni kahle, kusho kutsi nakungakangeni kutu.... Kusho kutsi nje uma indzawo yakho ikahle ibiyelekile, angisho loko kucala.

Interpreter: Ehe... yebo.

Farmer: Ibiyeke lendzawo.

Interpreter: Yebo.

Farmer: Beseke utfola lemali yekutsi, wo ngifuna kulima mine lapha kuleli hour nobe lo 2 hours wami, ube nalemali yekutsi ube nalesigulumba lotasi... ehhe.

Interpreter: Yebo.

Farmer: Bes' utsenga lenhlanyelo.

Interpreter: Mhm...

Farmer: Besutsenga namanyolo. Nawufuna nje kutfolo sivuno lesikahle, utsenga manyolo, bese utsenga nalomakhabe. Sewuyalima ke lokulima kwakho ke, sewuyakhona ke nalokutsi ufake manyolo wakho, nembila wakho nasotsi sewufaka namakhabe wakho. Lapho sivuno siba sihle kakhulu, uma netinkhomo tingakudleli.

Interpreter: Eh... the first thing I consider is the fencing, you must have a proper fencing. Two, I must have money to pay for a tractor, and I must have money to buy seeds that I'm going to plant. And then I must have money for fertilizer. That is what I consider before I plant.

Co-supervisor: Can I just ask you a quick question? With the seeds, people no longer take the seeds from the previous crop and take it to the next years? They always buy new seeds?

Interpreter: With these varieties?

Interviewer: They don't keep [Interruption]

Interpreter: You can, you can plant them next season but you're not going to get good yield.

Interviewer: Ok.

Interpreter: This one you just plant it once then you go back to the shop, you buy.

Co-supervisor: Ok.

Interpreter: Only the indigenous ones which you can repeat at least five years.

Interviewer: Ok.

Interpreter: Ya, but this one you are not.

Interviewer: Ok uhm, do you use information that your grandmother and grandfather used when you farm?

Interpreter: Ingabe lendlela lolima ngayo nyalo, uyalusebentisa yini lolwati labokhokho bakho noma bomake wakho laba nomatfolo noma lowalibona balenta, uyalusebentisa nyalo?

Farmer: Ngiyalusebentisa kwanyalo ngoba emandla ami semafisha. Ikhona lensimi yami lemfisha lapha, uma ngite lokutsi ngibe nalemali yokutsi ngilokuzane nguyawusebentisa umkhono ngoba bona beba.... Bebagaba, ngingatsi kugaba. Lensimi lencane nje, ngiyayigaba ngemkhono mine nangiloku ngifuna lokulima manje ngiloku ngite lemali yekutsi ngilokuzane ngiyagaba ngisebentise lolukhuba.

Interpreter: Ok. Yes I use the old techniques. Eh... one of it is that I... long time ago they used pot holing. They used pot holing and now I still use pot holing. Pot holing is where you just dig holes and then you plant in the holes, it's called pot holing. I[t]s one of the conservational [inaudible] techniques.

Co-supervisor: Is that like what she was mentioning before, the other lady?

Interpreter: Ya.

Co-supervisor: Is it because it keeps...it doesn't dry out the land? Ploughing dries it? And this keeps the moisture [Interruption]

Interpreter: Ya it conserves more moisture, iya most of the time it's for conserving moisture, ya.

Co-supervisor: But it's... it's more labour right?

Interpreter: It's more labour on the first year.

Co-supervisor: Yes.

Interpreter: But on the second year, you don't have to do the pot holing you just plant.

Co-supervisor: Ok.

Interpreter: At least for three years using the same hole.

Co-supervisor: Oh I see. Can I ask you, is the fencing important for animals, to keep the animals out that eat the crops?

Interpreter: Iya is just only for the animals.

Co-supervisor: Is it just cattle or other animals?

Interpreter: There are lot of goats here.

Co-supervisor: Goats?

Interpreter: Iya, just cattle and goats.

Interviewer: Ok, are your farming methods similar or different to how your grandparents farmed?

Co-supervisor: You just asked that. Is it just pot holing that you mentioned?

Interpreter: Iya, I mentioned just pot holing.

[Talk between interviewer and co-supervisor]

Interviewer: What methods does she use that are different from back then?

Interpreter: Ngutiphi tindlela lotisebentisako nyalo tekulima letehlukile kuleti betisetjentiswa kadzeni?

Farmer: Nyalo kunesigulumba. Angitsi kadzeni bekusetjentiswa tinkhabi?

Interpreter: Mm,

Farmer: Nginaso nasesikofolo setinkhabi bengikofola ngilima ngetinkhabi. Nyalo sasesingena ke kulokulima ngesigulumba, ehe.

Interpreter: Ok, back then it was eh... oxen was used. Now there are tractors. I use tractors as oppose to the oxen.

Interviewer: Ok, can you take me through the process from the beginning of the planting season right up to the harvesting period, then and now?

Interpreter: Ok, yemake nje nanilima kadzeni, sicela umane usichazele nje kutsi... usicalele ekucaleni kutsi kadzeni nakutawulinywa bekwentiswa nje, nasekulinyiwe kukhona lokulinyiwe bewenta nje wenta nje uze uyofika ekugcineni uvune bese sewuyokubeka la ulubeka khona loku noma kusethangeni noma ngukuphi. Kulokwakadzeni, utasuphindze isichazela kulokwanyalo, awusichazele kulokwakadzeni kutsi bekwentiswa njani nawukhumbula?

Farmer: Kulima kwakadzeni bobabe bebasebentisa tona letinkhabi, balime ngato ke letinkhabi koja ke kulima kwakadzeni nangikubuka bekungesiko lokulima lekwentu malayini. Kadzeni bebayifata lenhlanyelo angitsi labatolima khona, bayihashi bayihashi. Bese ke kubuya letinkhabi ke tiyalima tiyama, iyagcibeleka ke ngaleyondlela iyagcibeleka ke ngaleyondlela, bavune nasekomile, bakhe tinyango.

Interpreter: Letikanjani?

Farmer: Inyango nje beyakhiwa bekutinyango bekulokuzana ngiyabekisa nje kutsi kadzeni bekwakhiwa ngatsi sibuya, ngitsini vele? Kwakhiwe nje ku... letigodvo kubekwe kubekwe bese kutsatfwa lomtjamba waletigodvo kuyandlalwa langetulu. Sekuyabekwa ke le... sekwakhiwa lenyango ke iyasekelwa kaso ngalelebasekela ngako lamaceleni, bese kufakwa lombila ke lakhatsi, kwakhiwe njengesilulu, ngitotsi kanjani vele?

Interpreter: Kwakhiwa njengesilulu?

Farmer: Ee babe.

Interpreter: Eh... kadzeni?

Farmer: Kadzeni bese kuyabekwa ke.

Interpreter: Nasekuhudliwe bese kubekwaphi?

Farmer: Uma sewuhhudliwe uyatsatfwa ke manje lombila sekuyiwa lasibayeni setinkhomo, kukhona ke lemigodzi lengayikhandza seyikhona angati lekutsi beyigujwa ngubani. Imigotzi seiyavulwa ke, ukhona lasibayeni latilala khona batsi yi "Ngungu", ehe. Lombila ke sebayawutsela lakhatsi angitsi sewomile sewuhhudliwe wentiwe, sewuyatselwa ke lakhatsi. Noma ngemabele noma yini, konkhe losetjentiwe nje kwanakuzana bakutsela khona bakutsela khona sebayavala ke, lapha kunengungu bebasindza ngebulongo.

Interpreter: Iya...

Farmer: Bese ke batselile tintfo tabo bayavala ke, masebavala ke kuphindze kubuyiselwe lomcuba ke, tinkhomo still ke loko tiyalala la, khona lapha lokudla kule phansi lasibayeni.

Interpreter: Ok.

Farmer: Ehe.

Interpreter: E... let's start with the e... long time ago. This one is different.

Co-supervisor: Really?

Interpreter: When planting, they start by broadcasting the seeds. Before plough just broadcast first, broadcast first,

Interviewer: Oh

Interpreter: Then followed by the ploughing,

Interviewer: Mh...

Interpreter: Ok just before you broadcast you just apply manure all over. You apply manure all over the field then you broadcast the seeds, and then you plough. After ploughing you wait for it to grow, to emerge. And then after emerging you manage weeds. After managing the weeds then you wait for the crop to be matured, and then you harvest. After harvesting you put it in the 'tilulu'. And then from the "tilulu" to the "ingungu".

Interviewer: Ok.

Interpreter: Ya, the difference is when you just broadcast first.

Interviewer: Iya.

Interpreter: Before you plough.

Interviewer: Iya... and the manuring was cattle manure?

Interpreter: Yes, cattle manure.

Interviewer: Ok.

Co-supervisor: Do people only use cattle manure?

Interpreter: Then?

Co-supervisor: Mm?

Interpreter: Ok, kadzeni make bekusetjentiswa lomanyolo... lo, lomcuba kuphela?

Farmer: Bekusetjentiswa umcuba babe.

Interpreter: Kute lokunye bewukufaka?

Farmer: Hhayi kute bekeuvundzisa wona lomcuba nje.

Interpreter: Ok, only manure.

Farmer: Ngulomcuba bowuvundzisako.

Co-supervisor: From cattle?

Interpreter: From cattle.

Co-supervisor: Collected in the kraal?

Interpreter: Iya. Wetimbuti bekubate?

Farmer: Uma unato timbuti nakhona nawo uyavundzisa koja nje tsine ekhaya kitsi bekusebenta lomcuba lowetinkhomo.

Interpreter: Ok, eh... we used cattle manure not this one for goats.

Interviewer: Ok.

Interpreter: And then nyalo ke nentani nyalo? Asitsatse lokulima kwanyalo kutsi nanitawulima nentani nyalo uze uyofika ekugcineni ekuvuneni nakhona nyalo?

Farmer: Ah... kulima kwanyalo ke, pho ke nawunalemali yekutsi utolima lawo ma hour akho lowalimako. Utsenge naku mcuba, naku inhlanyelo namanyolo wakho uma ufuna kutfolo sivuno lesikahle. Bese ungena ngekuhlakula uma lombila wakho uwubona kutsi naku unalesihlava, uyawufutsa uye kumlimisi ucele kutsi mbila wami unesihlava mutsi muni lengingafutsa ngawo, bakulayeke lowo mutsi longafutsa ngawo, ubuye uwufutse ke, uwuhlakule ube kahle ukhule, uvune. Inyango tanyalo ke kufuna langaphansi lwalenyango nayikhona, ibe netigodvo letikaso bese uyabeka ke lomtjamba wakho la. Ushaywe ngumoya bese uyigigitsela ngafenisi ke lamaceleni. Bese uyayifulela ke latulu wentele kutsi noma lina litulu unganetfwa lombila wakho. Seyikanjalo ke tinyango tanyalo atisefani netakadzeni, bese ke siyawuhhudla umbila. Nasiwuhhudla ke bese siwufaka emathangeni umbila tsine asisafaki le esibayeni, siwufak' emathangeni. Lamathangeni ke natofaka ke bese uba neliphilisi lakho wentele kutsi lombila wakho ungangenwa tingobolwane.

Interpreter: Ok. Eh... nilima ngani lensimini?

Farmer: Silima ngesigulumba.

Interpreter: Oh, ngesigulumba?

Farmer: Ehe... Babe.

Interpreter: Now what happen now, you prepare. You must have money to pay for the tractor, then the tractor plough...plough and plant. Then you wait for the weeds, you control weeds by using the halts weed. And then, if in case you... there are some pest like this one which is dominant these days, the fall armyworm, you go to the extension officer you ask for the assistance. They tell you what kind of chemical you can use, then you come and spray. After spraying, you wait for the crop to be ready, you harvest. You put it on modern cribs, and then from the modern cribs you shell it to the... to the modern tanks. [Masemula edit – July 2022: You add pills inside the tank to prevent pests].

Interviewer: How did acquire the land that you have been using to farm?

Interpreter: Even now?

Interviewer: Ya.

Interpreter: Lenzawo loyisebentisa nyalo ekulimeni wayitfola kanjani?

Farmer: Ngagawula tihlahla.

Interpreter: Ngisho yona lenzawo lowayigawula wayitsatsaphi?

Farmer: Wooo kwaba yindzawo, angitsi ngendzile mine, lakhaya kaMbiko kusetjentiswa emasimi akhona.

Interpreter: Bawatsatsaphi bona?

Farmer: Bona? Bakhonta

Interpreter: They got it through “Khonta” system.

Interviewer: Uhm, was there a time before this when you or your forefather could choose which land you could use for farming?

Interpreter: Kadzeni kusenabo babe bakho noma bokhokho bekukhona yini lokokutsi indzawo niyati kutsi wo lenzawo lena yekulima, lena yetinkhomo, lena yani, noma beyi.... betibhicene nje?

Farmer: Awu, bekute lekuhlukaniseleka lesekukhona nyalo.

Interpreter: Kadzeni vele indzawo yekulima neyenkhome beyiba yinye?

Farmer: Angitsi tinkhomo nje ekhaya betilima nje. Angitsi ngiyabekisa, kusekhaya la, lapha ngentasi sekulakulinywa khona,

Interpreter: Ehe...tinkomo [interruption]

Farmer: Ehe... e... sibaya singala,

Interpreter: Tinkhomo betidla kuphi, khona lansimini?

Farmer: Ha-eh, atidli emasimini. Bebatilusa bafana kadzeni tihambe tiyodla le.

Interpreter: Kusho kutsi betinendzawo yato?

Farmer: Ehe labetiluswa khona, tibuye ngabo 9:00 setiyabuya setitosengwa ngoba betikhishwa kutsiwa tiyodla imphundvu, bese tiyabuya ke setitosengwa, setisengiwe ke setiyaphuma nematfole setiyahamba.

Interpreter: Eh... which means there was land for ploughing and land for livestock.

Interviewer: Ok, what type of soil was considered or chosen for sowing crops?

Interpreter: Eh, kulomhla... kulenzawo ke beniyisebentisa ekulimeni, beniwubonangani lomhlabatsi kutsi lona ulungele kutsi silime lona ulungele kutsi kuhle tinkhomo la?

Farmer: Eyi, angati lokutsi bebabona yini lokutsi ku... lona ngulokahle ekulimeni lona ngulokahle kutsi kudle tinkhomo. Ngibona nje kutsi bebati kutsi masimi angenhlanye letinkhomo tidla le emadlelweni. Bengingati ke lokutsi mane kubona kutsi mhlaba lokahle ekulimeni lona mhlaba lonjani etinkhomeni. Tsine bekuhlukaniswa nje kutsi ngala madlelo ngala kula lulinywa khon' emasimu, lilinywe ke noma nguluphi luhlobo lolulimako ulime khona.

Interpreter: Ok, which means I have no knowledge on how they differentiated between land for ploughing and this one for livestock. I saw the ploughing, to differentiate this one is for ploughing and this one for livestock... no explanation I got.

Interviewer: Ok, uhm now how do you tell which soil or ground is healthy for growing the crops?

Interpreter: Ok, nyalo ubonangani nyalo kutsi ngumuphi umhlaba lokahle lovumako kutsi ungalima kuwo?

Farmer: Nyalo ngalokufundziswa lesebakwenta baye batsi laba betelulimo umhlaba wakho uma ungasakuniki sivuno lesikahle kufuna ubowucupha lamkhatsisini uphindze uwucuphe nalapha emakhoneni ucuphe lapho. Bese uyawutsatsa sewuyahamba uyowupopolisa batofike bawubone kutsi sekudzinga... sekudzinga ini, yini lekufuna kufakwe kutokhona kuvuka.

Interpreter: Ok, now we test the soil, we take soil samples then we test it to see if the soil is good for ploughing.

Interviewer: Ok, kudala bebabona ka.... Bebatesta kanjani?

Interpreter: Kudzala beni... it seems like utse she has no information on how to iya.

Interviewer: Oh yes yes, e... do you have different type of sorghum?

Interpreter: Nyalo ke letinhlobo temabele letikhona, ngabe uke watilima inhlobo letehlukene?

Farmer: Iya, ngitilimile, kukhona lena lemhlophe batsi nguMathinikwane ngeSiSwati. Lelemfisha lengaka, itsandvwa tinyoni kakhulu, amhlophe lamabele.

Interpreter: Nguleyesilungu konje?

Farmer: Hhayi yeSiSwati ngiyati nami Mshalala nangu.

Interpreter: Lomathiningwane wani, weSiSwati?

Farmer: uSiSwati Mathiningwane abaSiSwati kadzeni koja abetsandvwa tinyoni, kodvwa nje tingamudli njengawa mabele labasinika wona, akhona mabele labasinika wona aroundishi amhlophe nawo.

Interpreter: Ok, kusho kutsi tinhlobo temabele lotatiko tingaki?

Farmer: Ngulo Mathinikwane lomhlophe, bese kuba ngunawa labovu nawa, bese kuba ngunawa ke.

Interpreter: Lawa lalapha entansi?

Farmer: LoMshalala lo.

Interpreter: Wo, loMshalala?

Farmer: Ehe, lalamadze.

Interpreter: Ok, I know how many... three varieties. There is Mathinikwane, the white short one. Then this one, the brown one which is the NS5511. And then the Mshalane.

Interviewer: So those are the ones that she also plants?

Interpreter: Yes.

Interviewer: For herself? Ok.

Co-supervisor: They are all varieties none of them are indigenous, right?

Interpreter: No, the Mathinikwane is indigenous and the Mshalane is indigenous. Only the NS5511 are the modern ones.

Co-supervisor: How do you spell it, the indigenous one?

Interpreter: It's Mathinikwane.

Farmer: Mathinikwane.

Interpreter: M.A.T.H.I.N.I.K.W.A.N.E (spells Mathinikwane to the interviewer).

Co-supervisor: So that's an indigenous?

Interpreter: Iya that's indigenous, it's the short and white.

Farmer: Ehe.

Co-supervisor: That one we didn't see before.

Interpreter: Iya it seems like in our varieties, there was nothing like this one.

Interviewer: Mm, Mm.

Interpreter: Unayo laph' ekhaya lenhlanyelo yaMathinikwane?

Farmer: Ah, sekute nyalo inhlanyelo yaMathinikwane lenginayo, lenginayo ngulena lenginayo ngule yaMashalane.

Interpreter: Ok.

Farmer: Eh, nalena ke lengayinikwa ngulabaks World Vision nginayo ke le.

Interpreter: Ok.

Farmer: Ehe.

Interviewer: Oh uhm, if the season to start planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Mm... nangabe nje kutawusuka lihlobo, kulungele kutsi kulinywe. Kuyabonakala lihlobo kungazatsi alifuni kutsi lilunge kahle, yini lokwentako kutilungiselela kutsi noma ngabe lelihlobo alilungi kodvwa ujike uhlanyele utfolatfole. Yini tindlela lotentako lansimini lotenta kutsi tilungisela lokutsi nangabe lelihlobo alicaci kodvwa nilime?

Farmer: Uyabona ke loMathi loku, noma ungakuhlanyela lesimo usibona lokutsi siyabhedza kona uyavama kuwatfole lamabele noma netinyoni noma tingatsi tiyawsukela wona atiwacedzi lankha, futsi tiyahluleka nje, tiyawadla kodvwa hhayi kangako, vele uyawatfole wona.

Interpreter: Ok.

Farmer: Nalokutsi nje lokwa kusalinywa lotini. Lokotini uma uwulimile noma letimvula titincane koja nje uma uphumile lolophumile, wawuhlakula wawunesa, kuya ngekutsi litulu lincane lamabhola abakhona koja ayayabe mancane, koja ugcina utfola, kukhona lowutakukha. Akufani nembila ngoba umbila wawutjala kantsi nalemvula yincane vele ugcina ungakatfoli lutfoungavuni lutfo.

Interpreter: Ok.

Farmer: Ehe

Interpreter: Eh... when I see that the season it looks like it's not good, I prefer planting the indigenous varieties like the Mshalane. This one even if the rains are not that much good, there is something you can get as oppose to the modern one.

Farmer: [inaudible] leyetinhlumaya.

Interpreter: I also plant cow peas which need minimum, uhm, moisture.

Co-supervisor: So both of those indigenous varieties are good even if there is no rain?

Interpreter: Yes both of them they are good when there are no rains.

Interviewer: Ok, so besides the sorghum, it's the cotton, the... what other one, besides growing the sorghum?

Interpreter: Eh, the cowpeas.

Interviewer: The cowpeas... and [interruption]

Interpreter: Yini lenye loyihlanyelako?

Farmer: Letinhlumaya.

Interpreter: Nani lokunye?

Farmer: Lo... Mju... naku ilokuzana, lamabele lawa abancono. Nalokotini.

Interpreter: Yebo.

Farmer: Naletinhlumaya.

Interpreter: Ehe.

Farmer: Ngiko longakuhlanyela.

Interpreter: Yini lenye loyihlanyelako?

Farmer: Mjumbula.

Interpreter: Ok.

Farmer: Ehe.

[Talk between interviewer and co-supervisor]

Interviewer: Are the domestic animals left to wonder on the land where the sorghum has been planted for manuring or are they kept separately now?

Interpreter: Ok, le.... Nangabe nje nilime ma... ensimini lenitawulima khona lamabele, kuze ivundze nisebentise umcuba ngabe ni... letinkhomo tiya lapha ensimini tihlale khona noma kumbe nitsatsa esibayeni niye nawo lensimini?

Farmer: Siwucupha, angitsi... nasi sibaya.

Interpreter: Iya

Farmer: Lapha..... lapha ke nawulokuzana nawuloku.... Lomcuba lesibaya nasesinalomcuba sewumnengi niyawukhipha niwubeke langaphandle e... tichubeke tinkhomo tilale lasibayeni, lomcuba lenitowusebentisa nguloleseniwukhiphile, bese niyawutsatsa ke niwufaka emabhareni nasemasakeni senihamba niyatsela ke niyatsela lansimini.

Interpreter: Ok.

Farmer: Uma senitselile ke, ngalelinye lilanga sewuyawusakata.

Interpreter: Ok.

Farmer: Sewusakata letincumbi lobowutitsela, sowuyasakata uyasakata sowuyalima ke.

Interpreter: Ok.

Farmer: Kanjalo ke so [interruption]

Interpreter: We take the manure from the kraal to the field not that the cattle they go to the field.

Farmer: Ehe.

Interviewer: Ok, if you do not use cattle for manuring, what do you use instead?

Interpreter: Eh, now and then?

Interviewer: Ya.

Interpreter: Ok, kadzeni nangabe bebangakasebentisi lomanyolo hhayi nabangakasebentisi lomcuba bebasebentisa ini kuvundzisa emasimi abo? Nyalo nawungasebentisi lomcuba usebentisa ini?

Farmer: Ngisebentisa ilokuzana, nyalo sengisebentisa manyolo.

Interpreter: Kadzeni bebasebetisa ini?

Farmer: Kadzeni lomhlabatsi wakhona ngingatsi bekungasiwo lotetemako kangako ngoba mine kute lokunye lebengikubona bakusebentisa, bengati nje kutsi lomcuba lolokhishiwe wabekwa lapha. Nasekukhona lawuhlanyela khona kungakhuli kube kufisha intfo yakhona kutsatfwe lomcuba intfo yakhona seniyavusetela lomhlaba kutsi uphindze ube right, abekulomcuba bengiwubona kute lokunye lebengikubona.

Interpreter: Ok, back then other than using the manure, there was no other fertilizer they used.

Interviewer: Ok.

Interpreter: But now if you don't have the manure, they use the synthetic one.

Interpreter: Ok, before using the hybrid varieties... if you remember, which type of sorghum did you grow?

Co-supervisor: This is now in the past. If she knows of any kind of sorghum varieties that she grew... the indigenous ones.

Interpreter: Before growing which one?

Co-supervisor: Before... Now she grows the 2 indigenous varieties. So does she know of others in the past?

Interpreter: Ok ngaphambi kokuba uhlanye nyalo la... angitsi nyalo utsete uhlanye bani koja ngu...

Farmer: Ngihlanyel' umbila.

Interpreter: Eee ngifuna lenhlanyelo loyihlanye nyalo lotsi yimfishane imhlophe?

Farmer: Wo, Mathinikwane?

Interpreter: Mathinikwane, ngaphambi kokuba uhlanye loMathinikwane, ikhona yini lenye inhlanyelo lobuyati ngaphambilini?

Farmer: Ngulomashalane.

Interpreter: Nabani lomunye?

Farmer: Lelebovu angiyati ligama layo lena kutsi yini lemabele lawa.

Interpreter: Sengisho yakadzeni hhayi nyalo.

Farmer: Hhawu ngati Mathinikwane mine naloMshalane.

Interpreter: Ok.

Farmer: Ehe, ngabe kuyinhlobo le white ngulo Mathinikwane, lo Mshalane ngilena lebovu.

Interpreter: Ok, I only know one variety which is the Mshalane, e... before planting the Mathinikwane I only knew the Mshalane e... But just above this she says she knew the Mathinikwane and Mshalane, not just the Mshalane.

Interviewer: So that's what... when she was growing up, that's the one she knows?

Interpreter: Yes she knew the Mshalane.

Interviewer: Ok, uhm, why did you stop using it?

Interpreter: Eh... wayiyekelani lokuyisebentisa le... lo Mathinikwane?

Farmer: Mathinikwane ngamgcina lekhaya kitsi labebamsebentisa khona. Lapha mangika la ngakhandza kutsi lomndeni walapha ngendze khona abawusebentisi lentfo yemabele.

Interpreter: Abawufuni?

Farmer: Ehe. Kakhulu bona intfo bebayilima ngumbila vele ba.... Bawulima kakhulu lobabetala aze atsenge ngawo tinkhomo bawuyise lelokuzaneni babuye nakubo RDA babatsengele, awutsengise ke atfole imali atsenge tinkhomo.

Interpreter: Ok, eh, the reason why I decided not to continue with the indigenous one is because I grew it in my original homestead. When I arrived here, here they were focusing mostly on maize. So no one was interested in sorghum up until now when the NGO came with the sorghum varieties. That is when we started to go back to sorghum.

Interviewer: Ok, can you see an improvement in the sorghum that you now plant compared to the one you used previously? If yes, what are the improvements?

Interpreter: Kukhona yini nawubuka umehluko ngesivuno lositfoli kutsi kumbe kulenhlangano lebeniyilima kadzeni, labo Mthinikwane?

Farmer: Ehe...

Interpreter: Kutsi sivuno besinjani sona nawusicatsanisa nalesanyalo? Ngabe besisikhulu? Ngabe besisincane? Kukhona yini nje lokubonako lokuhlukile?

Farmer: Umehluko nyalo emabele uma uwalime endzaweni lewutayinesa uyifake lomanyolo ufake nalomakhabeti wakho, aba mahle kakhulu kwengca lokwa kwakadzeni, lolotowafaka lomakhabeti ufake nalomanyolo. Aba nesivuno uma angeke atsitfwe lutfo. Ngiwabonile mine ngawakima lapha indzawo lencane nj, bengente 20, 20 yemalayini, abengu 20 lamalayini. Ngatfoli kakhulu ngoba ngawatfoli masaka la langilokuzana angu 24, ngibhule nemagogogo.

Interpreter: Ok,

Farmer: Kuphume nemagogogo, ngawatfol' amasaka langu 24... ngilime nje 24... 20 nje yemalayini, nedi besekunesekile lapha phansi.

Interpreter: Ok, there is a difference in terms of yield...the yield for the mthinikwane [inaudible] now. Especially now because they are using the fertilizer that's what makes the yield to be higher as compared to the indigenous one [Masemula edit, July 2022: For the modern sorghum, you're able to

get a higher yield, especially if you take care of your plot and apply synthetic fertilizer. From sowing 20 lines, I managed to get 24 sacks of sorghum].

Interviewer: When in the year does sowing begin?

Interpreter: Kulima kucala nini nje, la nakutsi nje kucala kulima emnyakeni nicala nini?

Farmer: Uma litulu line kahle nga August tsine siyawuhlanyela umbila.

Interpreter: August?

Farmer: Mm, ngabo August nje. September sebayahlanyela ingcumbi yebantfu. Manje ke ngalokuntjantja kwaletikhatsi, nyalo umbila watsi uwuhlanyela ngabo August uvam bese uhlangana nelilanga besuyasha, bese kutsi labalime late le kubo December ukhandze kutsi sebangibo labatfolo sivuno lesikahle.

Interpreter: Ok.

Farmer: Kunokuntjintja ntjintja vele, tsine nga August siyatjala la nanga December siyatjala la. Tsine ngalokuna kwalelitulu selina ngatsi seliyagabanga kakhulu, nanga January nje tsine umbila siyawutjala uma litulu tikhona timvutfu siwutfole.

Interpreter: Ok, when things are normal, the season starts in August. August, September. But due to climate change, sometimes we start planting in December.

Interviewer: Ok, njengoba bekatsi umama umbila... ukhuluma ngombila kuphela or also [interruption]?

Interpreter: Nalamabele nawo niyawacala lokuwalima nga August?

Farmer: Emabele nawo uyawacala nje nga August uma licala litulu kufuna mabele uwacale ekucaleni uyafaka nje ekucaleni.

Interpreter: Ok.

Farmer: Nawucala kulima, August nje mabele akahle kakhulu.

Interpreter: Even the sorghum we start planting it August.

Interviewer: Ok, and then harvesting time?

Interpreter: Bese nivuna nini, inyanga yekuvuna nje nguyiphi?

Farmer: Angitsi nje nyalo nabahlanyele nga August lamabele bawatfolo, nyalo nje sebwavunile naba nje boskoni laNzalo bona [interruption]

Interpreter: Ngiyphi lenyanga nje lenivuna ngayo?

Farmer: Ngibani nyalo nje, nyalo ngibani?

Interpreter: Ngi April nyalo.

Farmer: Ngi April, March nje sesiyacala siyawajuba.

Interpreter: Which means it's March, April?

Farmer: Ehe babe.

Interpreter: Ok, it's March or April.

Interviewer: What measures do you take to make sure that the land recovers between the growing seasons?

Interpreter: Eh, nasewucedzile kuvuna ungakahlanyeli, yini lokwentako la mkhatsisini lekwenta kutsi kulungisele lomhlabatsi wakho kutsi nasowuphindza ubuyela uyolima kukwentele sivuno lesikahle?

Farmer: Nyalo basifundzisa lokutsi letinhlanga kufuna tiphindze tigcibeleke la, ngekungafaki tinkhomo etinsimini, angitsi siye sifake tinkhomo tsine tidle mahlanga, batsi njenyalo asingakwinti loko, letinhlanga leti asityekele letinhlanga tibolele lapha phansi nako batsingiko lokwenta lomhlaba wetfu besubuyela uba kahle, siwuyekele ugucule.

Interpreter: It is winter ploughing and not to allowing cattle just to mingle just around the field.

Interviewer: Ok, what do you use the sorghum for?

Interpreter: Uwasebentisa kwentani lamabele nasewuwavunile nje uwaphundlile, uwasebentisa kwentani?

Farmer: Emabele ngiyawadla, ngiwadayise ngidayisele labanye

Interpreter: Uwadla kanjani?

Farmer: Wo, ngiwenta indengane mine,

Intrpreter: Yebo.

Farmer: Indengane nobe incwancwa kuyefanana.

Interpreter: Iya.

Farmer: Iya, neliphalishi... nato nje tintfo lengitenta [Interruption]

Interpreter: Bese uyadayisa?

Farmer: Iya, bese ngiyadayisa ke ngidayisela bantfu emagogogo, batsenge ke.

Interpreter: Ok, I use the sorghum for thin porridge, and porridge and some I sell.

Interviewer: Ok, do people still ploughing using oxen?

Interpreter: Bantfu basalima yini ngetinkhabi nyalo?

Farmer: Kushiya letindzawo, ngala ngeSigcaweni basatisebentisa tinkhabi, tsine lakitsi kaLanga la, angiwati imiti lesebentisa tinkhabi vele, la kitsi nje kuba nguletigulumba lengitibonako, angiboni kute makhelwane nje lengimbonako asebentisa tinkhabi nyalo.

Interpreter: Ok.

Farmer: Koja kuletinye tindzawo kubo Sigcaweni nje kasisi ngatsi ngiyafika ngakhandza kaMkhabela, batsi ulima ngalesigulumba besa sahlenyela yena ahlanyeke ngaletinkhabi.

Interpreter: Ok, some... some... some areas they still use the oxen, but around here no one use them. They use tractors.

Interviewer: Ok, umama simbuzile ukuthi ukhulele kuphi? Ok, ukhulele kuphi kane?

Interpreter: Eh, ngimbute?

Interviewer: Ehe.

Interpreter: Ukhulele kuphi make?

Farmer: Ngikhukele ka Ngcamphalala mine le e Saint Phillips, lengase..... Ngingatsini nje, dvute nase...

Interpreter: Esiphofaneni?

Farmer: Ngiyengca eSiphofaneni nje.

Interpreter: Ngiyabona lapho.

Farmer: Ehe, ngikhulele khona ke mine.

Interpreter: Ok she grew around Siphofaneni but in terms of temperature, climate, it's just the same.

Farmer: Nalana Mndobandoba, uyabon' eMndobandoba?

Interpreter: Iya, hhayi sengivile make.

Farmer: Ehe.

Interpreter: Kuyafana is just the same as this one.

Interviewer: Ok, it's the last one, just last question, what did your grandparents grow?

Interpreter: Eh, bo... Bokhokho bakho bebalimani?

Farmer: Bokhokho?

Interpreter: Iya, bebalimani?

Farmer: Ekhaya vele ngati kutsi nje kulinywa umbila, mabele, gogo kea lime nabhatata. Bekamlima ke gogo bhatata nale nsambansamba lengiyishilo, emabhontjisi, namngomeni netindlubu, tintfo bebatilima ke leto.

Interpreter: Eh, they use to grow mung beans which is mngomeni, and rice beans (insambansamba), sweet potato, sorghum and maize.

Farmer: Naletindlubu.

Interpreter: And jugo beans (tinhlumayo).

Interviewer: Siyabonga mama, sesicedile.

Interpreter: Siyabonga make.

Farmer: Ehe.

Interviewer: Sesingakupha nawe siphosakho.

Farmer: Wo.

INTERVIEW 5: FARMER 5

Interviewer: Sawubona Baba.

Farmer: Yebo Sisi.

Interviewer: Ninjani?

Farmer: Siyaphila Sisi singezwa nina?

Interviewer: Siyaphila, e.... igama lami ngingu Nandi baba.

Farmer: Yebo.

Interviewer: And lona ngumake Thembi.

Farmer: Make Thembi?

Interviewer: Ehe.

Farmer: Siyabonga.

Interviewer: Ok, siyabonga Babe.

Farmer: Yebo.

Interviewer: Baba lana sizo... sifuna ukufunda ngokuthi abantu balima kanjani kuleyikhathi zamanje.

Farmer: Yebo.

Interviewer: And then nokuthi abokhokho benu bebalima kanjani.

Farmer: Yebo.

Interviewer: Sizobuza nje ama... Imibuzo ehlangene nokulima kwakudala nakwamanje. And then ngizobuza ama... imibuzo yami ngizoyibuza ngeSingisi then ubaba uzo translate(ah) ngeSiSwati.

Farmer: Awu nembala kuyezwakala.

Interviewer: Ehe.

Interpreter: Unangakhi umnyaka, asicale lapho?

Farmer: Ngina 51

Interviewer: Ok. When did you begin farming?

Interpreter: Eh... wakucala nini kulima emphilweni yakho?

Farmer: Bangikhula nje.

Interpreter: Awubekise mnyaka kutsi kunini.

Farmer: Angitsi nje... ok ngicale ngino 8 years.

Interpreter: 8 years?

Farmer: Iya 8 wemnyaka.

Interpreter: It's around 76?

Farmer: Lapho ku '79 and '80... '78 and 9.

Interpreter: He started in 1979.

Interviewer: Ok, what plants did you grow, then and now?

Interpreter: Eh... nawucala le kubo '79 bewulima ini nje?

Farmer: Besilima ugwayi ekhaya kala Vumisa, ugwayi.

Interpreter: Oh ok, ok. Mhlonti?

Farmer: E... Mhlonti, besilima nje mhlonti. Silima nemkhulu.

Interpreter: Iya...

Farmer: Yebo, nakotini, nemabele, nombila.

Interpreter: Ok.

Farmer: Yebo.

Interpreter: Eh... which means I started with tobacco, then cotton, sorghum and maize.

Interpreter: Nyalo ke ulimani?

Farmer: Ngichubeka nawo umbila, ngichubeka nawo mabele, seyibhido. Sengifake ne sugarcane (anyana) nje lencane.

Interpreter: Ok now I am doing maize, sorghum, eh... and a bit of sugarcane and bit of vegetables.

Interviewer: Uhm... who taught you how to farm?

Interpreter: Ngubani lolowakufundzisa kutsi kulinywa njani? Kusukena nje wacala lokulima wawufundziswe ngubani?

Farmer: Ekucaleni ngafundziswa ngumkhulu. Saqala nje sinomkhulu wo "ulima kanje mfana, lokotini uutsa kanje mfana, wo emabele mfana yenza kanje hlakula kanje, nasembileni yenza kanje". Sigcino mine besengingasahlakuli ngemkhono, mine besekonofela (or besekolofela?) kubekhona labahlakulako. Ngikonofela ngeyinkabi, mine ke ngiyskolofela skolofela skolofela, labahlakulako bashaye mine ngichubeke ngesikolofela.

Interpreter: Ok, I was taught by my grandmother, no my grandfather whereby I learnt lot of techniques on how to plant, and then later I was doing the cultivation and some the calming weed.

Interviewer: Ok, what make the harvest successful?

Interpreter: Eh... now or?

Co-supervisor: It's sort of now in a way. We always just ask for now [inaudible]. Let's do now and then say was there anything different in the past.

Interpreter: Ok.

Yini nje nyalo lokwenta kutsi sivuno sakho sibe ngulesinhle, lokwentako nyalo kutsi kube nesivunolesinhle lensimini? Nangabe lolokuwenta nyalo kwehlukile kunalobekwentiwa kadzeni kuze batfole sivuno lesiphilako?

Farmer: Mm... kwehlukile lengikwenza manje.

Interpreter: Iya.

Farmer: Kwehlukiswa kuthi ngithe ngisaqhubeka nalolwazi ladeni, kwefika Well Vision la. Wasithatha wasiyisa esikoleni, saseyavuleka mehlo kunakuqala. Semanje emehlo akasafanani nakadeni ngoba Well Vision wasivula safunda funda ukuthi loku kunje umhlaba wu treate nganaku, kudla kwakho kufake naku kuze kubencono.

Interpreter: Mh... Ok, yini lolokufakako?

Farmer: NguMakhabeni, eh, namanyolo, noma ngumcuba, noma ngamacembe eyihlahla, macembe nje ubuyise lamacembe abe manengi, bese uyasafaka uwafake athi angobola sakhe I compost lawo sewufaka wona.

Interpreter: Ok.

Farmer: Ehe, mfowethu.

Interpreter: Ok, it is different now as compare to back then, eh, because now came a NGO, Well Vision, and they take us to a workshop and we were taught on how to produce a good harvest. As of now I am using fertilizer and LAN, and sometimes I use manure but not all the time. [Masemula edit – July 2022: He uses synthetic fertilizer or manure, but does not specify how often he uses these. He also uses stems/leaves from crops to make compost].

Interviewer: Do you use information that your grandparents used when you farm?

Interpreter: Ingabe uyalusebentisa yini lolwati lwabo khokhomkhulu bakho lowalutfole kadzeni nyalo?

Farmer: Mm hmm, kukhona lengilusebenzisako kodvwa olunye sengiluyekelile ngekuvulwa ngilokufunda funda.

Interpreter: Ok, I use some of it although I have now taken the new modern way of farming.

Interviewer: Ok, which information do you use?

Co-supervisor: Of the old.

Interviewer: Of the old, iya.

Interpreter: For the old one?

Interviewer: Iya.

Interpreter: Nguyiphi nje loloyisebentisako kuleyasemva longakayiyekeli?

Farmer: Mm, ngengekungabi nekwukulima, kuqala betsi singalima sigulumba, siyahlanyela nje sifake laphezulu la bese ngekhuba siyashaya siyasha siyashaya ngelikhuba siyashaya siyashaya. Manje ngalovulwa mehlo akusikuhlanyela kahle loku ngoba lombila uhlala lomunye awusahlali ilayini. Lesikhatsi sewutsi ufaka lomanyo... leyithako, ayifuni sithako ulingise lokwadadeni ukuthi uhlanyela nje kuwe. Sithako sifuna kuqonde.

Interpreter: Ok, bengifuna kubuta kutsi lulolwati lwakadzeni...

Farmer: Ehe,

Interpreter: Angitsi utse kukhona lolusebentisako kulolwati lwakadzeni?

Farmer: Yebo Mfwethu.

Interpreter: Ngifuna kwati kutsi nguliphi.

Farmer: Lokuhlanyela ngesandla.

Interpreter: Ok.

Farmer: Ehe.

Interpreter: I use eh, I plant by hand, which is broadcasting.

Interviewer: Ok, are your farming methods similar or different to how your grandparents farmed?

Co-supervisor: That's a bit the same.

Interviewer: Oh yeah, to the previous one.

Co-supervisor: Yeah, just remove it.

Interviewer: Ok, can you take me through the process from the beginning of the planting season right up to the harvesting period, then and now?

Interpreter: Sitawucela nje usichazele kancane kafishane nje kutsi kulokulima kwakadzeni kubo 76 nabomkhulu wakho, usitsatse nje usichazele kutsi nanilima khona besenenta nje nanitocala lokulima nente naku nanaku nanaku... 'til 'til nize niyofika ekugcineni nivune bese niyakudla nakungumbila.

Farmer: Wo.

Interpreter: Awusitsatse nje ngaleyakadzeni.

Farmer: Yebo.

Interpreter: Kutsi nakumabele.

Farmer: Yebo.

Interpreter: Benenta nje nenta nje. Nawucedza ngaloku utabe sewutsatsa kutsi nyalo senentani?

Farmer: Yebo.

Interpreter: Asesicale ngalokwakadzeni.

Farmer: Ok, kadeni lamabele besiqale sibophela iyinkabi siyolima. Masifika simise iyinkabi, kuthathwe lamabele afakwe layintweni bekungahlanyelwa lilayini,

Interpreter: Buya buya usondzele kulomshini.

(All laughing)

Farmer: (Laughs) Ok, ok, besifumba sifumbe sifumbe lendima esizawuyilima, sifumbe size siyofika ekugcineni. Emva kwaloko sifaka iyinkabi zilime, zilime, zilime. Sihlale amile mabele. Ayachubeka mabele akhule, emva kwaloko asiwahlakuleli ngelikhuba, besifike nje siheshe siheshe noma sihambe sidonza lolungathi lude siheshe siheshe siluyeke lolungakahlumi,

Interpreter: Ok.

Farmer: Kuphuma le, emva kwaloko siyeke, sibuye akhahlele, akhehlele mabele sesilima lokunye ngale sesingapha embileni, ayayiqhubekela ngapha, nasifika... nasifika lena emabeleni asavuthiwe, sibuya nemmese siyawajuba siyawaklabula siyawaklabula, siyawabopha siwaphanyeka phezulu sakha unyango njengaleyihlahla nje lapha sibophela iyigodo sifukulisa iyigodo bese siwabeka laphezulu, yebo. Sesiqedile ngamabele. Sesathi nasomile kahle siphinde futhi sibuye ebusuku ngesikhathi kunenyezi.

Interpreter: Ebusuku?

Farmer: Iya besiwabhula ebusuku. Emini angaluma abhunya akulume. Kuncono ebusuku lesikhathi lomoya sewubuthile.

Interpreter: Mm hmm,

Farmer: Sisinde laphansi sishanyele la. Sisinde, sisinde nje ngobulongo. Sisinde nje ngoblongo [inaudible] kuhlobe. Sithathe mabele ethu sibeke lapha, sithathe amabele ethu sibeke lapha. Sibuye neyinduku iyibhulo. Sibe banengi, kuhlatshwe imbuzi sibize nabomakhelwane nje. Ihlatshwe imbuzi kuphekwe la, kushaywe kushaywe siwaguqule sishaye sishaye bese siyadonsa manje sesidonsa lamabele sabhulekile. Ebesiyawadonsa siwadonsela ngenhlanye, sitsatsa lawa langaka bhuleki siwabisela lapha. Siphinde siyawashaya aze aphele sibone kutsi hhayi sekuphelile. Kuphela kwalo ke, belithathwa lifakwe emlilweni ngoba umlilo nagu phela kusolo kuyaphekwa. Lithule lingachuchumbi kusho kutsi akusekho bele ke lapho. Nangabe utsatsa leli lelinemabele ufake lapha, kuya “chuchu, chuchu, chuchu”, kuchume lamabele sesithi hhayi kusenamabele la.

Interpreter: Mm hmm,

Farmer: Yebo. Sesiyakuhlenga ke nasekungekho lamabele siyakuhlenga siyokulahla le, kusala lamabele siyawahhela, siyawahhela siyawahhela kuphuma mabele lakahle kuphuma onkhe lamakhafukhafu. Eh, kunomgodi ke besimba phansi emgodini lekhaya. Lemgodini kusindiwe nakhona, ngobulongo. Sithatha amabele sithela emgodini, sithela emgodini bese siyangena ke. Bekungena mine ngingene siwafuqe aye le ashayise, aye le ashayise. Siphinde siwathele siwathele uze ugcwale umgodi ngiwufuqa. Sibuye lapho kunegxolo ebesilixebula lesihlahla, Umanu.

Interpreter: Wo,

Farmer: Ehe. Sibuyisa leligxolo ke manje kucala. Sivala ngalo sitsi ngci lamgodini. Sibuyise ubulongo, sivale ukuthi umoya ungangeni lamgodini - ngci. Sibuyise itshe. Itshe, a stone. Leliyindingiliza lakhona bewahamba aphethwe. Sibuyise lelitshe sithi ngci, sibuyise umcuba ke manje lomhlabathi wezinkomo lasibayeni. Sigqibe, sigqibe. Bese sibuyisa amatshe okubekisa kuthi lomgodi ula, bese sibeka itshe elikhulu la. Siyazi ukuthi umgodi ula, nalona ulapha. Noma kungaba nodaka kuvaleke kanjena siyazi ukuthi umgodi ula, wo lelitshe leli umgodi ula, lelitshe leli. Awu ngiyethemba sizabokhipha nje ke sigaye, sidle. Masekuphelile lasithela khona siphinde sivule, sikhiphe, siphinde sichubeke sidle kanjalo. Kuyoze kuphele (laughs).

Interpreter: Mmm (Laughs), Ok.

Farmer: Nasembileni kanjalo. Nawo unomgodi wawo, nalamabele anomgodi wawo, kanjalo. Nasifuna umbila siyovula kulo, nasifuna mabele siyovula kulo. Siphinde sivale simbonye kanjalo.

Interpreter: Ok, long time ago we used to go the field. We started by broadcasting the seeds, and then we come and plough. After ploughing, we wait for it [crop] to emerge. After emerging, we manage weed not by using hoes. We were not hoeing, we were just removing the weeds by hands or we sometimes walk inside the field trying to suppress the weeds. And then after that we wait for it to

be ready. We come with knives, we cut the heads. After cutting the heads, we tie them on a tree. We tie them on a tree, we wait for it to be dry. After drying we come at night. Before the night we prepare an area where we are going to shell the seeds. We smear the ground using cow dung. And then at night we take the heads, we beat them at night, trying to shell them. After shelling them, we take them and store in a hole inside the kraal. When it is dark. And using cow dung we smear inside, preventing any pests that might be disturbing your harvest. And then using a bark for Umganu tree, we close the hole. And then we put a big stone on top and then wait for it to be ready, and then if we want to take some we take and then we eat.

Interpreter: Ok, nyalo ke nenta njani?

Farmer: Manje ke mfwethu, siqasha sigulumba.

Interpreter: Iya.

Farmer: Sesingena eyindlekweni ke manje kani besibophela iyinkabi kuqala, siqasha sigulumba, silime. Sesilimile sibuye sihlanyele, siphinde sigqibe.

Interpreter: Ihlanyela ngani?

Farmer: Hhayi sihlanyela ngesandla.

Interpreter: Ok.

Farmer: Yebo, bese siyagciba ngemakhuba. Emva kwaloko, kumile. Sibuye manje sikhokhele. Besingakhokheli kucala. Sikhokhele kufuna manje sivule a space sikhokhele manje. Kucala besingakhokheli besitsi singahlanyela kumile - lokufayo kuyatifela, lokuvukayo kuvuke. Sikhokhele sithi singakhokhela kubuye isifutho, bekungekho zifo kucala ukuthi sifuthe amabele,

Interpreter: Bekungekho tifo?

Farmer: Ha-ah! Ggicala la kufutha libele!

Interpreter: Mm,

Farmer: Kungumanje sesiyafutha. Siwafuthe ke, siwafuthe kuphinde ke kubuye sichenchane ubone amanya, samanya acwebezela, bewangacwebezeli kucala. Siphinde sibuye ke manje sifuthe, losichenchane sigcino aphele sichenchane kusale ke mabele. Cha, nanku ke sakhemezela. Akhule ashakaze, silinde iyinyoni. Kucala besingalindi iyinyoni. Iyinyoni bezivalwa kucala. Kukhona ekade bazivala ngakho. Okwamanje sesize okokuzuvala iyinyoni, sesilinda iyinyoni hwi hwi siphelane. Kuphinde futhi, cha, akhule amabele ethu. Asakhulile siwavune nawo siwabeke enyangweni.

Interpreter: Iya.

Farmer: Yebo mfowethu. Sesiwabekile enyangweni, sesiphinde manje sewendlala liseyila manje. Asisasindi ngalobulongo. Sekundlalwa liseyila abekwe phezu kweseyila. Kucashwe sigulumba, sibuye siwanyathele.

Interpreter: Ah, ok...

Farmer: Yebo. Siwanyathele siwanyaathele siphinde sikhweshe sigulumba, siwaguqule sidonse lana la labhulekile sibusele ngale. Siphinde sinyathele sigulumba sinyathele siphinde futhi emvakwaloko siyahlunga sinangizana. Siyabuya manje asisayi emgodini. Nali nje ithange lilele phansi. Ngithath' utshani, ngihashule ithanga manje, ithanga eline mune ngaphakathi linebulembu ngifaka utshani lana nje bengifake utshani nje. Ngokhele kushe kuhashuke kuhashuke nje. Emva kwaloko ngishanye ethangini, ngibuye ngilibeke endaweni yalo. Sengiyathatha loku osekubhulekile ngithela ethangini, ngiyena sekweniwe ngithela ethangini. Ngiyafamba ke manje ethangini ngiyofuna maphilisi, kuqala belingekho liphilisi lebesilifaka thina.

Interpreter: Beyingekho lengobolwane?

Farmer: I... besihi... Besishisa inhlaba kucala, sishise inhlaba sithathe umlotha wenhlaba.

Interpreter: Mm,

Interviewee: Ehe, esikhundleni nje saleliphilisi manje tsine besisebentisa inhlaba lakhaya.

Interpreter: Niyifake lapha engungwini?

Farmer: Leyomlotha.

Interpreter: Mhm,

Farmer: Besithi singafaka ukudla, sesivala ngawo laphezulu ekugcineni kwalokudla. Sesithela lomlotha ke, sesibuyisa lokokuvala ke njengoba ngishilo. Kumanje sekubuya liphilisi. Kufakwe liphilisi ethangini ngaphansi, kufakwe liphilisi emkhathini, kugcine liphilisi ngaphezulu. Nalo lelingasatholakali manje ngingakayi kuVilakazi, ngoba sekutsiwa yeyi siyakukunika uyoyibulala (laughing). Hamba kuMlimisi wakho. Hhawu, cishe ke sesidla ke sekuphelile lokwamanje, sesithath' ethangini ke sidle. Sibothatha ke ethangini sidle.

Interpreter: Ok.

Farmer: Yebo mfowethu.

Interpreter: May be before we start on this one there is something you have to add for the old one.

Co-supervisor: Oh yes.

Interpreter: There's a... they use to control weevil by using aloe ash.

Co-supervisor: Which ash?

Interpreter: Aloe, which we smear it around the entrance of the hole,

Co-supervisor: So you just burn the aloe and you collect the ash?

Interpreter: Iya they just burn it and smear it around then there will be no weevil.

Co-supervisor: Oh wow, that's so interesting.

Interpreter: And then ke, let's start this one. Now we hire a tractor, we plough, we plant. After planting, we wait for the crop to emerge. After emerging then we come with the hoes, trying to manage weeds. And then we do, we also do thinning. By then we were not doing thinning because we were allowing the crop to grow by itself, not to thin. It was survival of the fittest. Those who will survive, will survive, and those who will die will die. But now we have to do the thinning. And then after thinning, we come with [inaudible] to control worms and control aphids. Worms like full armyworms and stalk borer. We use knapsack sprayers with chemicals, and then we wait for it be ready. Before being ready, we go to the field, we wait for the birds. We control the birds up and down. By then there was no controlling of birds because they were traditional healers who were able to control birds. And then after controlling birds, we harvest. And then we take it to the modern cribs. After taking it to modern cribs when it's dry we take on a [inaudible], and then we hire a tractor that moves up and down - up and down the heads trying to shell it, yes up and down. After you've shelled it, you put it [Interruption]

Co-supervisor: So you just drive on top of it?

Interpreter: Iya you drive on top of it many times. After that you take it to these metal tanks.

Co-supervisor: Like that one? [Points to metal tank]

Interpreter: Iya this one. And when it is in the metal tanks then you buy weevil tablets to prevent the weevils.

Interviewer: The tablets, do they mix them with something?

Interpreter: No, just njena [Interruption]

Interviewer: Just as it is?

Interpreter: Just as it is. You just put it in a plastic, and then you just put it under and over [inaudible].

Interviewer: Ok. How did you acquire the land that you have been using to farm?

Interpreter: Lenzawo le ke lolima kuyo nyalo uyitfole kanjani? Leloyisebentisaki kulima?

Farmer: Wo siyinikwa skhulu.

Interpreter: Ok.

Farmer: Chief wethu.

Interpreter: Through kukhonta system.

Interviewer: Did you choose which land you were given?

Interpreter: Now?

Interviewer: Yes now.

Co-supervisor: Yes now because we were wondering how it works, do you just get given the land or can you choose where you're going to plant?

Interpreter: Ok eh, the question, do you choose the land you are given by the Chief or?

Co-supervisor: Does the Chief just give you your land? And you can't say what you want? That's what we wanted ask.

Interpreter: Ok babuta ke kutsi eh, nawuya nje kofuna indzawo leku Chief uvele akunike nje indzawo noma kusho wena kutsi ufuna nayiya?

Farmer: Ehe, uya locela usuke unalo leliphupho lakho lekutsi ngunayiya loyicelayo. Akubuze lokuthi yendoda leliphupho lakho lolicelayo ulicelela kuphi nje? Sowuyasho ke kutsi ewu, ngilicelela lapha celeni kwamanzi ngobani kepha ngenhla ngiticelela lapho.

Interpreter: Bes' uyakunika?

Farmer: Bes' uyakunika ke, kodwa njengamanje sinikwa sibe banengi lomhlaba.

Interpreter: It's sort of, uhm, I can choose which land can he give me. Iya, it's like I go and I suggest that I want this one, and then I try to convince why I want this, then he give.

Interviewer: Ok, what type of soil is considered or chosen for sowing crops?

Interpreter: Nyalo?

Interviewer: Now, yeah.

Interpreter: Ok, nguluphi nje luhlobo lemhlabatsi leli... lelingilona libonakala ngatsi liyalunga kutsi nilime kulo?

Farmer: Liyisidaka, lomhlabathi omnyama.

Interpreter: Oh, lomhlabathi lomnyama?

Farmer: Iya yisidaka. Angithi kunale plasta, kunale graveli, kunale sidaka lona lomnyama.

Interpreter: Ok these are black soils.

Interviewer: So ibizwa isidaka?

Interpreter: Iya isidaka.

Co-supervisor: How do you spell it?

Interpreter: Isidaka like isiZulu.

Interviewer: I.S.I.D.A.K.A [Spells word].

Co-supervisor: Ok.

Interviewer: Ok, in the past were your forefathers able to choose the land to farm on?

Interpreter: Ok, kadzeni nje kusenabo mkhulu bakho, bebakhona yini kukhetsa kutsi sifuna kulima kunayindzawo nayi, sifuna tinkhomo tibe kunayi ndzawo nayi noma bekubate lokukhetsa?

Farmer: Bekubaze lokukhetha ngobe ufikela kubo Vilakazi kanje, ngiyakha ngaboVilakazi seyibo abathi wo... buya lapha Kunene uzawuphila la, uzawulima lapha ugcine la. Kusho ukuthi akukakhethi mina, nginikwe boVilakati ngoba sebethi nawe ke ndoda ngoba sewuthi usiganile, buya la. Bakebha laphangabhusa utawugcina kulesihlahla lesi, baphinde futhi bakebhe la utawugcina la, kusho ukuthi akukakhethi mina, ninginike nje la Maphephethe la ngibonele khona.

Interpreter: Mm,

Interviewee: Yebo mfwethu.

Interpreter: Eh, they were not allowed to choose. They were just given the land and they join where the others plant. You find some people planting and then you join where they plant not that you are going to plant on a separate land.

Interviewer: Uhm, did they consider the type of soil they were planting on?

Interpreter: Ingabe mhlambe laba lokhandza sebalimile bebakuqaphela yini lokutsi lomhlabatsi lona uyalunga ekulimeni noma bebalima noma kungilongani nje?

Farmer: Kulokutsi uyalunga yini?

Interpreter: Mm?

Farmer: Well bebakuqaphela, ukuthi ngapha madoda asibuthaneni. Idlelo asilibeke ngapha ngoba lomhlabathi wakhona uyawubona umila naba bokhalimela.

Interpreter: Wo...

Interviewee: Kusho ukuthi ungamatshe umila iyimbondo [or iyimpondo?]

Interpreter: Wo...

Farmer: Kusho ukuthi ungamatshe, bese kuthiwa wo ngapha kumila lesihlahla lesi, ukudla kungapha. Bebakuqaphela ngalobukala babo.

Interpreter: Yes they did consider the type of soil they were planting

Interviewer: Do you plant different type[s] of sorghum?

Interpreter: Ingabe nyalo ulima tinhlobo temabele letehlukene yini?

Farmer: Ehe, ngilima letehlukene.

Interpreter: Yes.

Interviewer: Which types?

Interpreter: Eh, letiphi tinhlobo?

Farmer: Ngilele mnyama, lebrown. Ngilemhlophe, ngisalima leti angikatfoli lebengiyifuna.

Interpreter: Ok, is the brown one which is the NS551[1] and the white one which is the Marcia.

Co-supervisor: They're both varieties?

Interpreter: These are varieties. Marcia is the separate variety and the NS5511 is another variety.

Co-supervisor: Ok.

Interviewer: Before using the hybrid varieties which type of sorghum did you grow? Can you remember?

Interpreter: Ok nanisalima kadzeni nabo babe mkhulu bakho, angitsi besangekho lenhlanyelo lekhona nyalo?

Farmer: Yebo.

Interpreter: Lena lesilingu?

Farmer: Yebo.

Interpreter: Kukhona yini longayikhumbula yesintfulebeniyilima kadzeni?

Interviewee: Ehe,

Interpreter: Iya, awusitjele ngayo.

Farmer: Kunojiba longadliwa nyoni. Hhayi inyoni ayiwadli, hhayi angazi ukuthi ngibeke kanjani. Ulima nje uyekele ayiwathinti inyoni lawo mabele lawo,

Interpreter: Ngijiba?

Farmer: Bathi ngijiba.

Interpreter: Lenye ngibani?

Farmer: Enye ngulo Mshalane.

Interpreter: Ok,

Interviewee: Enye nguMgcobane.

Interpreter: Iya,

Farmer: Ehe... Enye nguMgcobane, ngu Mshalane, nguJiba longadliwa nyoni. Bese, hhayi ngikhumbula lenhlobo le.

Interpreter: Ok, there are, there's one which Jiba, Mshalane and Mgcobane. J.I.B.A (spells word).

Co-supervisor: This is the only one we know, right?

Interpreter: Yeah. But I suspect this one, this Mgcobane, is that variety we saw it that day,

Interviewer: Ok.

Interpreter: Yeah, that short one which was with Mshalane,

Interviewer: Ok.

Interpreter: Iya.

Interviewer: Ok, the time uthi azifani?

Interpreter: Iya, that one must be the Mgcobane because, Mgcobane is sort of like almost millet.

Co-supervisor: Ok.

Interpreter: Iya.

Interviewer: Ok, why did you stop using those ones?

Interpreter: Letinhlanyelo leti watiyekelelani kutilima sewulima leti nyalo?

Farmer: Zitholakala kalula lezi engizilima manje. Leziya hhayi angisayitholi. Ngiyafuna lokubuyela kuzo nedi nje ukuthi inkathazo yazo incane,

Interpreter: Ok.

Farmer: Mane ayisatholakali sefuna uhambe uyofuna encenye, nakhona uthola inkomishana uzobuya uyandise.

Interpreter: Ok the problem with this varieties are not easily available as compared to these modern ones.

Interviewer: Can you see an improvement in the sorghum that you now plant compared to the one that you used to previously? If yes, what are the improvements?

Interpreter: Eh, ukhona nje umehluko lowubonako nje lowubona kutsi ngumehluko lomuhle kuleti benitilima kadzeni letinhlanyelo takdzeni lebenitilima kadzeni naleti tanyalo? Nawulimile nje ukhona lomehluko lowubonako lomuhle? Nawukhona ngumuphi?

Farmer: Mhm... Ngingasho kokuthi, ey, bewumuhle lowakadeni. Beziyincane lezindleko zakhona, besingafuthi, bewangadliwa yiyinyoni. Eh, nokhula nje bekungasiwo lawangathi abulawa wukhula kalula.

Interpreter: Ngalesivuno sinjani?

Farmer: Eh, esivunweni anesigeja lesikhula lawamanje, yebo.

Interpreter: Kodwa tindleko tawo tisetulu?

Farmer: Kodwa iyindleko zokwakha lesigeja ziphezulu.

Interpreter: Ok.

Farmer: Yebo, wona ngalesigeja, anesigeja lesikhulu. Kodwa usuka eyindlekweni. Kucala besingafaki manyolo besingafaki lutho kodwa ubuye nemabele ekhaya abe manengi.

Interpreter: Iya, there is a difference. In terms of the modern one you can get high yield but at a high cost. But the indigenous one, you can get that minimum yield but at a very minimum cost,

Interviewer: Mm,

Interpreter: Which means the difference is not that much in terms of [inaudible] because we have high cost on the modern one than this one. [Masemula edit - July 2022: The indigenous sorghum varieties were good because they were cheaper to maintain: they did not need pesticide, they were not eaten by birds and weeds were not a threat. There was no need to even apply manure and you still got a big yield. The modern varieties have a higher yield compared to the indigenous strains, however, their costs are much higher].

Co-supervisor: Just let me ask a question, is this low cost because you don't have to apply anything and you don't have to buy the seeds?

Interpreter: The low cost is referring to, the modern one you have to apply fertilizer, pesticide and to have someone who is going to be taking care of the birds every day and you pay for that person. And long time ago there was no one taking care of the birds, they were only using manure as the fertilizer [Masemula edit - July 2022: People used manure at the time. However, this particular family did not use manure].

Interviewer: What do you use the sorghum for?

Interpreter: Lamabele lowalimako uwasebentisela kwentani?

Farmer: Ngiyadla mine nemndeni wami. Nalaba (the animals) sidla nabo labo solo ngumndeni wami nalaba (all laughing). Kodwa ke uma ngabe ngifuna kushintsha ukuthi hhayi asengime kudla mabele, bese ngithi ukuthengisa amanye ngithole leyo mali ngikhone kuthola nenyamana.

Interviewer: Eh,

Interpreter: Nawutsi uyawadla udla ini?

Farmer: Lidokwe, laphalishini ngityisa ngawo lalamhlophe nje. Impuphu yombila uthola ukuthi nawuyibonda iba manzi, kufuna ke ngikhe I cup yempuphu yamabele ngiyithele kule ngiyihlanganise iyosheshe itiyiye.

Interpreter: Mm...

Farmer: Yebo mfwethu.

Interpreter: Udla loko kuphela nje ngawo?

Farmer: Mhm, nokuthinta thinta phela.

(All laughing)

Interpreter: Ok, I... I use them to make thin porridge, and porridge. Then these Swazi brew and then I also feed my chickens [animals]. I sell some of them and I do, I exchange them with some other commodities.

Co-supervisor: Oh, he exchanges the sorghum?

Interpreter: Iya.

Interviewer: If the season to start planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Asitsi yeKunene nali litulu likhomba kutsi alicaci kahle kutsi litawuna vele alikhombi ayisilo lelihle,

Farmer: Yebo,

Interpreter: Yini lokwentako wena kutsi utawugcina ulimile ube nesivuno lesitawuphatseka? Lali litule alisololo libonakala lidoja nje, yini wena lokwentako kuze uchubeke ulime ube nesivuno ekhaya?

Farmer: Wo, lengikwenzayo mina?

Interpreter: Yebo.

Farmer: Wo kulaph' engadini, yebo. Ngiyalima engadini ngenzele ukuthi ngizawunisela, cishe manginisele noma lingathi liyantengantenga hhayi kuba khona engibuya nakho.

Interpreter: Ok.

Farmer: Nakuwo ke lamabele, lamabele nomalingaba lincane lelizulu, hhayi kukhona obuya nakho.

Interpreter: Mm,

Farmer: Yebo mfwethu. Akufanani nasembileni kuvele kube empty nje. Mabele kukhona ozobuya nakho noma lilincane.

Interpreter: Mm...

Interviewee: Ehe mfwethu.

Interpreter: Ok, I use my garden because I can be able to irrigate. But sometimes I just plant sorghum because sorghum, even if there are not much rains there is something that you are going to get.

Interviewer: Is there any time that you let cattle and goats onto your field?

Interpreter: Kukhona la kufika khona kutsi tinkhomo takho netimbuti utiyekele tihambe tiye masimini?

Farmer: Mhm,

Interpreter: Kunini lapho?

Farmer: Ebusika ke zidla emasimini kodwa lengadini azingeni nje nhlobo busika nehlobo.

Interpreter: Ok, during the winter I allow them to go in the field but not in my garden.

Interviewer: If you do not use cattle for manuring, what do you use instead? Before and now.

Interpreter: Eh... kadzeni nanisalima kadzeni nangabe kungasetjentiswa umcuba wekufaka la kuletintfo, benifaka ini lokunye kandzeni?

Farmer: Hhayi bekungafakwa lutfo.

Interpreter: Nyalo ke nawungakafaki mcuba ufakani?

Farmer: Ngilamacembe aleyihlahla nje, I compost loyakhile ngalamacembe eyihlahla, ubuye ukubeke ukumbonye uphinde ujube, ujube nobe tjani. Ubujube lotjani ubuyeke bubole.

Interpreter: Kuphela?

Farmer: Okunye ongakufaka, hhayi. Cishe nje nasekufutheni kadeni bekwenzeka nangabe kumbe kukhona lokunjani sifuthe ngomlotha.

Interpreter: Ok.

Farmer: Noma lomlotha lona wenhlaba sishise inhlaba sesithatha umlotha sifuthe ngawo sifumbe sifumbe, hhayi umuthi.

Interpreter: Ok, long time ago we only used manure as fertilizer. If you have not used kraal manure there is nothing we have used. But now instead of kraal manure, we can use compost. We can make compost and make it as our fertilizer [Masemula edit – July 2022: The man's family personally did not use any form of fertilizer in the past. Also, instead of using pills, they'd use ash to prevent pests].

Interviewer: When in the year does sowing begin and who does it?

Interpreter: Emnyakeni sicala nini sikhatsi sekulima?

Farmer: Mm, September nje, na October kucala ufake phansi.

Interpreter: September and October.

Farmer: Yebo.

Interviewer: And who does it?

Interpreter: Who does what?

Interviewer: The sowing.

Interpreter: Ngubani longiyen' alima ngalesikhatsi kufike lesikhatsi sekulima kulima bani?

Farmer: Kusho kutsi ngicasha sigulumba sakaMasango [Interruption]

Interpreter: No, lolobuke nje lekunguyena labukelele lokutsi kulinywe

Farmer: Lansimini kimi?

Interpreter: Iya, lakhaya.

Farmer: Ngimi mfwethu.

Interpreter: Ok.

Farmer: Eh, lengibone ukuthi hhayi isikhathi sesishayile angiyolima noma ngiyohesha ngiluingise.

Nga August ngiyalungisa, ngilungisela ukuthi September ngiyalima.

Interpreter: Ok, on August I prepare myself for the season which start from September or October.

Interviewer: When is harvesting [Interruption]

Co-supervisor: But when he plants, does he plants alone or does his family help him?

Interpreter: Uba nabani ekuhlanyeleni?

Farmer: Mm, kuyenzeka ngithathe lokwegengana kwami ngithi asihlanyeleni.

Interpreter: Iya, I take my family.

Interviewer: Ok, When is harvest time and who does it?

Interpreter: Kivuna nini futsi bobani labalabavunako?

Farmer: After 3 months siyavuna. Nasesithatha nje yesi 4 kusuke sekulungile. Nembila kanjalo, nawo usuke sewuhamukile. Wathi nje ukuhamuka, ngoba babese basivula mehlo kutsi ungawuyeki uze womele ensimi... Huh hmm.

Interpreter: Ufuna bantfu?

Farmer: Hhayi ngithatha legenge yami.

Interpreter: Ok.

Farmer: Kuyenzeka ke ngicele nabanye nje bathathu noma 4, balena [Interruption]

Interpreter: Awulenti lilima?

Farmer: Eyi, lapha bafuna imali la. Lilima abasa, bayanatha bona lotshwala bese baphinde bathi bafuna insipho

Interpreter: I usually use my family or sometimes I hire people and pay them. Sometimes they come here, I pay them with soap and brew.

Interviewer: Ok.

Interpreter: The harvesting month is either after 3 months. It's March or April, but nje just after 3 months.

Interviewer: Ok, is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Nasekuphelile ke lokulina, yini lokunye lokwentako kulungiselela umhlabatsi wakho kutsi nawucala lokulima ube sesimeni lesikahle?

Farmer: Mm, lesigulumba ngiyasicasha singikhukhulele lotshani lobu obukade bomile lesikhathi kuvunwa bushobele ngaphansi.

Interpreter: Ok,

Farmer: Naseyifika lezimvula zokuqala leyibolisayo ziyabubolisa, sengumanyolo wami loyo. Nangihlanyela sengiyahlanyela sengilalomanyolo lowale compost lebolile le.

Interpreter: Ok, I do winter ploughing. I bury the crop residue and the weed upside down as my compost for next season.

Interpreter: Kadzeni bekweniwa njani kulungiselela kulima nasewuphelike lombila sekusebusilka kulungiselelwa kulima, angitsi nyalo utsi uyalima uhlohle phansi kadzeni ke?

Farmer: Nakhona besibophela izinkabi sigawula ihlahla ngoba umeno mawumkhulu lukhuba alikhoni kulima. Sihudule leihlahla lotshani bulale. Emva kwaloko sibuye nelikhuba iyinkabi zingene sebuyakhona kulala ke sibushonise ngaphansi, ehe.

Interpreter: Even long time ago we use to practice winter ploughing, where we... If the weeds or the crop residue are very high, we will just cut a tree and then move around using the oxen in the field up until the grass is short and then we plough.

Interviewer: Ok, uhm, did you grow up around here?

Interpreter: Eh, ukhulele kuphi yebabe, ukhulele la noma ukhulele incenye?

Farmer: Ngikhulele le kala Vumisa, ngase ngiyasuka lena sengilibhobhodlelana nje sengiza la.

Interpreter: Ok, I grew up in kalaVumisa, then when I was around 15 years I came here.

Co-supervisor: Is LaVumisa, I can't remember... is it local?

Interpreter: It's the same as this one.

Co-supervisor: Is it?

Interpreter: Iya, even LaVumisa is worse than this.

Co-supervisor: Oh really?

Interpreter: Hha, LaVumisa!?

Co-supervisor: It's dry?

Interpreter: If you you can get rains more than 200 mm in a season, hha, that will be too much

Co-supervisor: Oh really?

Interpreter: Iya.

Interviewer: Do people still plough using oxen?

Interpreter: Bakhona bantfu labasalima ngetinkhabu manje?

Farmer: Mm... hhayi lakithi se abasekho.

Interpreter: Iya...

Farmer: Ngendaba zalokuthi sekusetshenziswa inyama lankomeni. Sekubuka kuyihlukumeza mawuthi uyoyilimisa uphinde futhi sowuyiyisa futhi, kusho kuthi sewuyibasele...

(All laughing)

Interpreter: Ok, there are no people who are still using oxen now, because now eh, the cattle is taken as something for cash.

Interviewer: When maize was introduced, did your parents and grandparents continue to grow sorghum?

Interpreter: Eh, ekufikeni kwembila ke ngoba siyati umbila wawungekho kadzeni. Nawufika lombila wekucala kutsiwa akulinywe umbila, labomkhulu bakho nabogogo bakho bentani? Bayekela lamabele baya embileni noma bachubeka nako konkhe?

Farmer: Abawayekelanga mabele, bachubeka lako konkhe. Embileni bachubeka nalolomnyama, lolomnyama umbila.

Interpreter: OK.

Farmer: Ehe.

Interpreter: Ok, they did not stop growing sorghum. They grew sorghum and maize at the same time but maize was the indigenous one which is black.

Co-supervisor: Oh really?

Interpreter: Iya.

Co-supervisor: I'm just interested now. He said he uses compost? Is it because there's no other, like because they don't have the manure from the kraal that they switch or is one better than the other?

Interpreter: Ok lokutsi usebentise i compost, ngabe kutsi kute yini umcuba nyalo noma kutsi kumbe incono le compost kunalo manyolo kulomcuba noma kanjani?

Farmer: Mm... Le compost iyashesha kunalomcuba.

Interpreter: Ishesha lokutsi ivele?

Farmer: Ivele. Umcuba nanguwufaka namuhla nje, uyabo... Ukahle lonyaka ozayo

Interpreter: Mm...

Farmer: I compost namhla nje ngiyifaka, liyana ibamba mswakamo iyajabula iyimpande ziyahlokoma. Umcuba u sticker nyana angazi lokuthi kanjani.

Interpreter: Ok.

Farmer: Iya.

Interpreter: The compost easily releases its nutrients while the manure it take some time. You apply it this year, this season, which means you are going to benefit for the next season.

Co-supervisor: Ok.

Interpreter: Iya.

Co-supervisor: Just one question. When he says compost does he mean that thing when he ploughs the weeds and things upside down or does he actually make it somewhere?

Interpreter: He actually make it

Co-supervisor: Does he?

Interpreter: Iya.

Co-supervisor: With?

Interpreter: With leaves, grass...

Co-supervisor: Ok, that is good for the ground for sure.

Interpreter: Iya.

Co-supervisor: When he makes the compost what does he make it in? Like a...

Interpreter: A pit or what?

Co-supervisor: A pit, iya.

Interpreter: Nawakha le compost loyishoko uyakhela kuphi, emgodzini noma uyakha ibe sebaleni noma wenta njani?

Farmer: Ngiyamba ngiyamba lomgodi ngimbe. Bese ngiyazibuyisa lezibi zami ngiy'faka lapha, bese ngifaka la, ngifaka la, ngisale ngibuyise ke lengingakabuqobi lengingakabuqobi utshani,

Interpreter: Mhm...

Farmer: Lolobula ngiyabuqoba, ngibuqobe. Ngibufake la ngibuyise nalamacembe ngifake, ngibuqobe sese ngiyabumbonya ngivule ngibuye ngivule ngifake amanzi.

Interpreter: (Laughs) I use peat compost (laughs). No, he was explaining how to do it.

Interviewer: Ok, siyabonga baba.

Farmer: Ah!

Interviewer: So besifun' ukubuza wena sesiku buzile.

Farmer: Ah, ngane yakwethu, ngiyabonga Nandi, umama kaShaka!

(They are all laughing)

Farmer: Ehe, mama kaShaka.

Interviewer: Sibonge kakhulu baba.

Farmer: Awu bakithi name ngibongile ngane zakwethu.

INTERVIEW 6: FARMER 6

Interviewer: Ok, siyabonga mama ukuthi ube nathe namhlanje. Besizokhuluma nawe mama because si... sizama ukuthola ukuthi e... abantu balima kanjani kulesikhathi samanje nokuthi bekulinywa kanjani kulesikhathi esindlulile.

Farmer: Like abo Khokho?

Interviewer: Ehe, so sizobuza nje ama questions ahangene nalo kulima.

Interpreter: So unangaki iminyaka?

Farmer: Ngina 69,

Interpreter: Hmm,

Farmer: (laughs) Ngi old enough Vilakati (laughs)

Interpreter: 69.

Farmer: Ok, Mama njengoba ngizokubuza ama question ngizobuza ubaba ngeSiNgisi and then uzowakhuluma kuwe ngeSiSwati.

Farmer: Ok.

Interviewer: Ehe.

Interviewer: When did you begin farming?

Interpreter: Wacala nini nje kulima? Nawungabekisa umnyaka nje lowacala ngawo kulima?

Farmer: Mine ngacala nje kubona kutsi sengiyaphi ekhaya kitsi langitalwa khona. Ngacala kubona kutsi kuyalinywa nangina 12 years.

Interpreter: Kunini nje umnyaka?

Farmer: Nga '62,

Interpreter: '62?

Farmer: Iya, '62.

Co-supervisor: 1962?

Interpreter: 1962.

Co-supervisor: Now this is experience.

Interpreter: Iya.

(All laugh)

Interviewer: What plants did you grow?... What plants do you grow, then and now?

Interpreter: Yini lokulimako nyalo naloku bowukulima kandzeni? Asicale ngaloku kwakadzeni.

Farmer: Ngaloku kwakadzeni? Kwakulinywa umbila, ufak' ekhatsi ke mabele. Ufak' ekhatsi tinhlumaya, tindlubu, mantongomane na bhatata.

Interpreter: It was sweet potato [Interruption]

Co-supervisor: Is this then?

Interpreter: Iya, it's then. Sweet potato, groundnuts, cowpeas, jugo beans, sorghum and maize.

Interpreter: And nyalo ke ulimani nyalo?

Farmer: Nyalo? Nyalo ngilima emabele, mantongomane, mabhontjisi, tinhlumaya, bhatata.

Interpreter: Ok, now I grow groundnuts, eh... cowpeas, sorghum, eh... sweet potato and beans.

Interviewer: Ok, who taught you how to farm?

Interpreter: Eh, ngubani lolowakufundzisako kulima?

Farmer: Kusho kutsi [Interruption]

Interpreter: Nawucala nje wafundziswa ngubani?

Farmer: Ngafundziswa batali bami.

Interpreter: I was taught by my parents.

Interviewer: What makes a harvest to be successful?

Interpreter: Yini nje nawulima ngekubuka kwakho lekuenta kutsi sivuno sibe ngulesihle?

Farmer: Kutsi ukhone kumaintaina kahle uhla kule. Ekucaleni nje nawuhlanyela usebentise umcuba, noma manyolo. Tsine nje ekhaya, sasisefa lomcuba Vilakati. Bese kutsengwa masaka lamabili amanyolo. Ube mningi lomcuba bese kufakwa lamasaka lamabili amanyolo, uyabona? Kulinywe ke, emva kwekutsi sesihlakulile bese kufakwe makhabeni. Yiko loku bekuenta sivuno.

Interpreter: Mm...

Farmer: Kufakwe makhabeni kunakwe sihlava, kufakwe ke lomutsi wesihlava.

Interpreter: Ok, it's to apply kraal manure or apply fertilizer, then I can apply LAN, you manage stalk borer and then you'll have a [inaudible].

Interviewer: Do you use information that your grandmother and grandfather used when you farm?

Interpreter: Nyalo nawulima ingabe uyakusebentisa yini lelwati labo khokhomkhulu bakho?

Farmer: Iya ngiyakusebentisa sometimes but la ehlandzeni sifundiswa... kusho kutsi kunalokutsi la ehlandzeni kuyashisa. Akufuni kutsi bese ufaka kakhulu labomanyolo nalomcuba.

Interpreter: Bekungashisi kadzeni?

Farmer: Bekungashisi phela lekitsi eDlangeni akushisi le vele kukahle, but la ngiyamfaka mine lomanyolo nangilima, ngiyamsebentisa manyolo, ehe...

Interpreter: Lomcuba awusawufaki?

Farmer: Ngiyawufaka nawo, ngiyawufaka nawo. Kuba sekutseni nje ngikhonile yini. Ngiye ngiwufake kanjena mine Vilakati umcuba, ngikhonile yini lokuwutsatsa nje nyalo kusebusika kutaba uyabona?

Interpreter: Iya,

Farmer: Ngikhokhe ngiwujike laph'e masimini bese ngiyawusakata.

Interpreter: Ok, which means I use the information from my grandparents but I add a bit of the modern style of ploughing.

Farmer: Ngichubeka naloku lengikwentako, ngiyamfaka mine lomakhabeni, still ngisamsebentisa.

Interviewer: Ok, what is that that she uses from... [Interruption]

Co-supervisor: The old?

Interviewer: Yeah.

Interpreter: Yini lolokusebentiswa nyalo kulolwati belusetjentiswa emuva?

Farmer: Ngulomcuba.

Interpreter: It's the application of kraal manure.

Interviewer: Can you take me through the process from the beginning of planting season right up to the harvesting period, then and now?

Interpreter: Ok, sicela nje usichazele kafishane kutsi nanilima kadzeni usakhumbula kulima kadzeni nilima nebatali bakho. Kutsi nanilima kanjani 'til 'til kuze kuyofika sivuno senu sivune, nisihhudle, nisibeke la nisibeka khona. Usitsatse kuloko sitatsi nasicedza kuloko bese sesibuka ke kutsi nyalo sesenta njani nyalo?

Farmer: Wo, utsi ekucaleni...

Interpreter: Kadzeni.

Farmer: Kadzeni ok kadzeni. Sasitsi nje nasito... Kutsi babe bekakhutsele kakhulu yeVilakati ngeke ukholwe, bekasika tjani babe, tjani uyabubona lotjani lobu?

Interpreter: Iya,

Farmer: Nyalo nje ububekile tincumbi. Nakuphuma lomcuba lapha esibayeni ubuyisela lotjani ufaka bona, uyabona?

Interpreter: Mm...

Farmer: Mcuba wakhe nje bekawakha ngalotjani.

Interpreter: Ok.

Farmer: Iya, kutsi utona mnengi ube nalokubamba kutsi cha utobamba lotjani ubambe,

Interpreter: Ngiyabona.

Farmer: Ehhena ke, abesebentisa loko ke. Ebusika ke angitsi ubufake ebusika lolophele lomnyani. Ebusika siyawukhokha umcuba ke, ufakw' emasimini ufakwe, ufakwe, ufakwe uwodvwana nalapho akafaki lotjani nalapho kulomcuba wakhe. Sesitatsi nasesibeka inhlavu sibeke umbila... umcuba sitsele umcuba sibeke inhlavu sitsele umcuba sibeke inhlavu.

Interpreter: Mm...

Farmer: Ehe, lelo layini. Sasisebentisa tinkhabi.

Interpreter: Ok, benicala ngekutsela umcuba,

Farmer: Ehe,

Interpreter: Ningakalimi?

Farmer: Ehe, singakalimi.

Interpreter: Bese niyalima?

Farmer: Bese siyalima, sesilimile ke sekuyadvetjwa.

Interpreter: Malayini?

Farmer: Eh, malayini ngaletinkhabi. Seke kuyahlanyelwa ke. Lolohamba nemcuba uphetse ligabha lemcuba uhamba embili. Ucupha sandla utsela la, ucupha sandla utsela la. Lolota ngemuva ubeka la etukwa lomcuba.

Interpreter: Lenhlanyelo?

Farmer: Lenhlavu, lenhlavu, yes.

Interpreter: Ok.

Farmer: Bese ke lomunye... ngoba phela nakutohlanyelwa, besiba la kubo 6. Kuna 3 labahlanyelako inhlanyelo, kube na 3 lo fak'umcuba, kube na 3 logcibelako. Sasigcibela ngetandla.

Interpreter: Ok.

Farmer: Ehhe, atsi ufuna kubona abe nesiciniseko kutsi lenhlavu yakhe ikhona lalayibeke khona ayisakhukhuleki.

Interpreter: Ok, chubeka nje size siyofika ekuvuneni.

Farmer: Ehe... kumile. Kubukwe nakufuna kuhlanyelwe kutsatfwe umswenya, ukhona lomutsi wawuyi liquid kwakulandvwa emashiqo kutselwe nalamashiqo.

Interpreter: Kubhicwe nalomutsi?

Farmer: Kucelwe labo labaphisako.

Interpreter: Lomutsi bowuyini bowutsengiswa etitolo noma?

Farmer: Yebo bowutsengwa vele, mh... bewutsengwa etitolo. Ubhicwe ke Angitsi sesihlanyele namuhla, sekubuya lamashica ke ngakusasa kufunjwa lansimini kwentelwa umswenya.

Interpreter: Umswenya uyawesaba emashica?

Farmer: Ehe, uyafa, angitsi utawuba khona wona ukhandze kunaloku lokudlakako kantsi ku poison

Interpreter: Wo.

Farmer: Ehhe... Awuve ke. Kukhule ke kubekiswe kutsi hhayi cha nyalo kumele kuhlakulwe. Utawungena kucala nesikofolo sakhe netinkhabi takhe. Abeba yedvwana ke lapho, tinkhabi takhe abetifundzise ngaleny indlela. Ufaka nje tinkhabi takhe tibe ti 2, ufaka sikofolo sakhe uphatsa siswebhu lakhe. Ungena elayinini uyakofola, uyakofola, uyakofola, uyacedza. Ngakusasa tsine sivukela khona siyohlakula.

Interpreter: Ok.

Farmer: Mm hm, kuyahlakulwa, kuyahlakulwa kuyacedvwa kuhlekulwa. Nakucedziwe kuhlakulwa kufakwa makhabeni the following day. Kufakwa makhabeni, kufakwa makhabeni, kufakwa makhabeni. Emva kwaloko kuyabukwa, uhlala khona ke yena esimini. Ngangize ngitsi mine, babe waba nani lokutsi njena onkhe malanga uvukela lapha esimini, kantsi sengiyabona labekubuka. Bekabuka nati tilokatana.

Interpreter: Mhm...

Farmer: Ehe ngoba utawuva asatsi heyi akubuye umutsi wami sihlava manje namuhla emagabha, sihlava esimini, sesiyaphumake.

Interpreter: Kwakusetjentiswani lakulesihlava?

Farmer: Kwakusetjentiswa nakwemutsi kwasekukhona naku kwemutsi koku pink.

Interpreter: Mhm...

Farmer: Nasengibuka buka mine ngaleminaka leyo. Sasivele sisebentisa kona loko ngaleminyaka leyo sasivele sisebentisa kona loku ngalamatfunga. Sicuphe phela, kuchubeke kubhaceke solo nalapho uyanaka kutsi kwentekani. Hawu kuchubeke kubhaceke umbila uhlangane wodvwa ensimini kube njeya, kome. Lapho bekufulwa khona kwakunendzima kutsiwe naku lapha nitatidlela khona lifutfo lenu. Lapha akungeni muntfu kwasalifutfo la. Sicedze ke, kome ke kulungiswe tinyango. Inyango ke yakadzeni yayingafulelwa.

Interpreter: Beyiba kanjani?

Farmer: Bekwakhiwa nje sihhoko kwentiwe kahle kubekwe lapha. Angitsi lelitulu phela lihamba lihambe nje lelitulu... bekutsi nyalo nje ngaletikhatsi nakuvunwa la kubo April akusasilo lelinengi, mm... bekubekwa nje but lokubekwa kwakhona, kungabekwa lokutsi kustakishwe kakhulu.

Interpreter: Mhm...

Farmer: Ehe, nangicala nje ngibona kuvunwa bekwakhiwa tinfo kutsiwa tiswenya telukwe uyabona.

Interpreter: Ini?

Farmer: Tiswenya,

Interpreter: Tiswenya tihle tentani letwenya?

Farmer: Letiswenya ngulombila, uyabona lombila angitsi uyabona lombila uhlukeni kabili. Bewuhlukaniswa kabili, kunetikhutu, uyatibona tikhutu lolokuncane?

Interpreter: Mhm...

Farmer: Sekunetibhuluja ke. Letibhuluja wawutsi nawuticata ungasicati sonkhe, kusale lamanye emagcebe. Nibeke lapha nibeke lapha ke. Kutase ke bomake ke bahlalwa phansi nisacata, sebayeluka bona letiswenya. Nasekutfwalwa nje lana kuta tinkhabi tilayisha setilayisha letiswenya. Tiyo beka le, tiyo beka, tiyo beka letiswenya tabo lapha. Nasekutawuvunwa ke sesicedzile. Kutsi nganginganaki ke lokutsi kuhlala for how long kojana lengingakusho kutsi bekuya kubo 3 months ngoba phela sasivuna nga April, May, sicedze ekhatsi na May. Sitaze sibhule nga August. Inyanga nje yekubhula ngisho namuhla solo ngi August. Nalana mine solo ngisebentisa August nje nangilima umbila.

Interpreter: Iya,

Farmer: Ehe... sengiyabhula ke.

Interpreter: Sewubekwaphi?

Farmer: Lombila sewubhuliwe?

Interpreter: Ehe.

Farmer: Kwakunemathange ke kitsi, kitsi nje bekungilapho.

Interpreter: Mathange... lamathange maphi, ngulawa etinsimbi?

Farmer: Ngilaw' etinsimbi, mhm... mnaka vele ngikhandze mine sekunalamathange, ayi 2, lelinye lalifaka 80 [Interruption]

Interpreter: Bekute lamanye emathange ngaphandle kwalawa?

Farmer: Bebayenta ini, ingungu but lekhaya beyingentiwa.

Interpreter: Hho...

Farmer: But le khaya beyingentiwa, mhm.

Interpreter: Kodvwa uyayati?

Farmer: Ngiyayati ingungu.

Interpreter: Ok.

Farmer: Kwakumbiwa laph' esibayeni ekhatsi lapha kumbiwe layi centre nalesibaya. Kumbiwe umgodzi, kumbiwe umgodzi, kumbiwe umgodze, kumbiwe umgodzi. Bese bawusekela kahle kjutsi unganohhovuka, bawusekele bawusekele. Se lapho nanicedza ke lokubhula lapha nine lombila wenu uyowtselwa lengungwini. Nawutselwe lengungwini, mane ke nasewuphuma lombila ah... angizange ngiwutsandze nasenguwuva somewhere, ai, hhe eh, angeke ngikhone (laughing).

Interpreter: Wa... wawu... [Interruption]

Farmer: Cishe mine ngiwuve sengilana mine lombila wengungu.

Interpreter: Iya

Farmer: Mhm... Ngiwuve sengila bengingawati.

Interpreter: Ok,

Farmer: Une smell nyana nje lesingasiso lesimnandzi (laughing).

Interpreter: Asesicedze ngaloku sitawungena ngale. Which means [Interruption]

Co-supervisor: Is it then?

Interpreter: Iya, it's then. We started by applying manure in our field, and then we broadcast manure all over the field and then we plough using oxen. After ploughing, we come with seeds. Before we apply the seeds we use the same oxen to open lines, and then we come with seeds. We apply the seeds together with the manure. And then we wait for the crop to be emerge. After emerging we... just before we emerge we use... there are remains from the Swazi brew which are called "Emashica",

Interviewer: Ok,

Interpreter: E... their remains were mixed with a certain chemical then you broadcast all over the field to prevent cutworms. There are cutworms who use to cut the maize just nje after emerging, then we use that Swazi brew remains... we mix it with poison. Then we broadcast all over the field in case the cutworms come out. They will just eat and then they die. And then after that, we... there was a cultivator. Using oxen, the cultivator will cultivate the field and then we weed. After weeding we will apply... there is this stalk borer granules in case there is a stalk borer, we apply the stalk borer granules. And then we wait for the maize to be ready. Just before it becomes ready the field was divided. There was a field for green mielies and there was a field for dry maize. And then when it is dry, we harvest. When we harvest the crops were be divided into two: there were small cobs and big cobs. The big cobs, they were called... eh... "tishwenya?"

Farmer: Siswenya, siswenya siswenya.

Interpreter: No, ngisho lombila lomkhulu.

Farmer: Oh hhe ena, phela lowo bowu... bowutentela kutsi wona [Interruption]

Interpreter: Ngisho lolomkhulu bese niyaw...emacembeni.

Farmer: Bese niyaluka.

Interpreter: Nitsi ngeSiSwati yini?

Farmer: Siswenya.

Interpreter: Iya, there is this big ones, the big cobs they were called "siswenya".

Co-supervisor: Siswenya?

Interpreter: Iya siswenya, the old... the big ones. Siswenya. It was stored separate with the small ones. Then comes a time when we are shelling. After it is dry we shell all the maize then we store in metal tanks. And some were storing it in the "tingungwini", which is the hole that was dug inside the kraal.

Farmer: Before siwufake lapha wawufakwa... sasenta umcu, a... sasenta umlotsa wenhlaba.

Interpreter: Wenhlabab?

Farmer: Wenhlabab. Phela sitama kutsi sivilela ingobolwane.

Interpreter: Ok just before we put it in metal tanks, there was this a... we prepare aloe ash for weevil.

Interviewer: And was this the same process for sorghum?

Interpreter: Iya, it was the same process for sorghum.

Interviewer: Ok.

Interpreter: Yes.

Interpreter: Asositjele ngalokwa nyalo kutsi nyalo wenta njani nyalo?

Farmer: Oh... nyalo ngiyagucula,

Interpreter: Usebentisa sigulumba?

Farmer: Iya ngisebentisa sigulumba sikhona. Nasiya sivele vela kancane lapha,

Interpreter: Ok.

Farmer: Mhm... noma ngiye eRDS ngiyofuna sigulumba bese ngiyabuya ngiyagucula. Nangicedza kugucula, ngidweba straight malayini ami. Sengiyahlanyela ngisebentisa lomanyolo. Eh, lapha ke angimenti kanje lomanyolo, ngiyamhasa nje kahle.

Interpreter: Ok.

Farmer: Mhm... hhayi lokutsi ngitsi, ngiyamhasa nje lahle.

Interpreter: Umhasa lesikhatsi uhlanyela?

Farmer: Nangihlanyela, ehe.

Interpreter: Ok.

Farmer: Yena yedvwa nje. Noma lohlanyelako usembikwami noma lobeka inhlovu usemuva kanjalo njesibate inkinga lapho, ajake afake afake abuya. Sesisebentisa lesigulumba ekugcibeleni, siphindze siyagcibela ngelihharigi. Nasesicedzile ke sibuka kutsi kuyamila sibuke, sesiyawugadzagadza ke lomswenya kutsi ukhona yini, ah... akusiyintfo levamisile lomswenya la. Intfo kutsi yintfo vele lekhona ayilingisi leNkhangala.

Interpreter: Ok.

Farmer: Mhm, laphanje ukhona nje. Sesiyabuka ke kuyamila. Sesigadza kona loko nje kutsi kute yini lokuphazamisako. Nakukhona nje ngale... sihlava, sifuna silandza lomutsi same mutsi, siyafaka siyafaka siyafaka noma sitsatse bo [inaudible].

Interpreter: Ok,

Farmer: Sifutse siyifake nge [inaudible] noma sifutse nje nge spraya so, singafaki la tipotjeni.

Interpreter: Ok.

Farmer: It depend kutsi sitfole wuphi umutsi. Ukhona lo vele lofuna sifake la etipotjeni. Bese ke sesiyahlakula. Sicedza kuhlakula, sesiyabuka kutsi kwentekani, nakhina ke loko siyalandzelela kubuka kutsi kute yini umonakalo lokhona ensimini. Naku shakata kuyashakata, ufake bantfwana njengalamabele nje ke uyawabukisisa kutsi kute yini lokuwaphazamisako ngoba afuna aphume kahle aze ashiye lolugabaji kahle la. Ngoba kuyenta kutsi nangabe ayaphazamiseka kube ashiye kanje avela abesayashiya angasakhuli. Lapho ke inkinga yakhona kuvama kuba ngulelilanga.

Interpreter: Iya,

Farmer: Ihina, kuba ngulelilanga kutsi selibalele awasakhoni kushakata kahle. Nalonyaka nje awakabi.... awakashakati kahle buka nje emuva la. So ke after that sesigadza tinyoni emabeleni, sengikhuluma lesengidila nako.

Interpreter: Kadzeni beningatigadzi?

Farmer: Betigadvwa, hee... phela kakhulu bewalinywa ngugogo lamabele. Bewagadvwa, kwakhiwe kwendlwana lapha (laughing) ihine. Sesigadza tinyoni ke, a... kuhamba kwesikhatsi... Ok kulomnyaka lophelile. Ngilomnyaka lophelile yini lasihlatjiselwe tibungu khon noma ngu 2017? Angisati. Letibungu leti laticale khona, hha tasihlasela ke lapha letibungu loya... kuloya mnyaka, koja ke nanisitjela kutsi asitsenge ini. Safutsa kwakugicika la phansi size sisabatse yehheni nakungangena inkhukhu layidvutane ingabe ingaphila yini.

Interpreter: Mhm,

Farmer: Mhm.

Interpreter: Chubeka ke size siyofika ekuvuneni.

Farmer: Mhm, sesiyavuna ke. Ekugcineni sekuvutsiwe uyavuna, uyavuna, uyavuna, uyawatfwala. Sinenyango yetfu ngal' emuva lapho nje nanyalo nje solo ngisabekile solo ngitsi kuna ngihambe ngiyo arranger koja sengibonile kungenteka ngiphindze ngiwatsatse ngiwabhule ngingakawa arrange. Sesivunile sibekile. Sesigadze kutsi ke ome kahle. Lakomeni siwanika 3 months lokung' unje nyalo kumele aphele lo April, May, June ngitawabuka nga July ngiyati kutsi kuwomile kahle la.

Interpreter: Ok, nawuwavuna bese uwabekaphi?

Farmer: Nangicedza ngiyawavula, ngiyawavula kunemathange ami lapha phansi kwesihlahla ngiwafaka khona. Ngifaka... ngisebentisa either liphilisi or lihawu.

Interpreter: Ok,

Farmer: Iya, ngihubhute ngalelihawu bese ngiyafaka mathangeni la. Ngiyabala koja kutsi ngati kutsi ngigcine ngitfole emasaka lamangaki ekugcineni.

Interpreter: Ok. Eh, which means now I use my tractor or I hire a tractor for ploughing. Normally we use manure before ploughing. And then I plough. After ploughing, I use the same tractor I open lines, then I plough. After ploughing I wait for it to emerge. If I see that there are signs of cutworms, I use cutworm bait or I use [inaudible] as a measure to control cutworms. And then I use a cultivator. I cultivate the field. Then comes weeding. I weed. I do inspection almost every day to check if there are some other worms which are destroying my crop. If there are, I spray with some chemicals which are advised by the Ministry of Agriculture. And then after that comes a time whereby there are some heads. I take my kids or I go myself to the field to take care of the birds. And then after my crop is ready, I harvest. I put it in my crib, my modern crib. And then comes a time where I shell then I store it in metal tanks. To prevent or to manage weed, weevil I use “lihawu” or weevil tablets.

Co-supervisor: Is that the aloe ash?

Interpreter: No that is, instead of using aloe ash, I use weevil tablets or “lihawu”.

Co-supervisor: What’s “lihawu”?

Interpreter: It’s almost the same as this weevil tablet because it has the same ingredients with the weevil tablet, but this one is powder.

Interviewer and Co-supervisor: Ok.

Interpreter: Iya.

Farmer: Ngike ngaku apply ke nalokuhlakula ngalomutsi.

Interpreter: Sometimes I do weeding by chemicals.

Interviewer: Ok uhm, how did you acquire the land that you have been using to farm?

Interpreter: Eh, lendzawo leniyilimako nayitfolo kanjani?

Farmer: Kusho kutsi nasifika la, sakhonta emphakatsi.

Interpreter: We got it through “kukhonta system”.

Interviewer: Ok, did you choose which land you were given?

Interpreter: Ingabe lendzawo nakhetsa kutsi nifuna leya noma nje navele batsi hambani nanikwa baninika lemphakatsi noma natikhetsela?

Farmer: Eh, ingani besingati ndzawo tsine la. Kusho kutsi satsi sitengcela sitiyela kaMathatha sabona tinkhomo tidla la eceleni.

Interpreter: Mhm...

Farmer: Kwemgwaco, sabona tinkhomo letinhle. Kahle kahle tsine, mine ngiwaseMbabane lobabe wase Spiki eNtfomjeni. Kusho kutsi sasesibona lendzawo ke. Satsi hhawu tinkhomo talapha tinhle, sibabatse siyahambahamba kute lotilandzelako letinkhomo, tila nasitobona nje nyalo kube tikhona ngabe nitibonile nje la mhm... sesiledi.

Interpreter: Natikhetsela kutsi nifuna kuta la?

Farmer: Mh no, hhayi la, saya nje emphakatsi sacela kutsi nje sicela indzawo sito [Interruption]

Interpreter: Banikhombisa la?

Farmer: Basikhombisa la. Kahle kahle babe ngoba wena sowunemalanga la, babefuna ngale uyabona nawengca kubo Mamba?

Interpreter: Ngiyabona.

Farmer: [inaudible] lapho Mguduzana. Abefuna lapho babe. Wafike watsi ke Chief e... lomuntfu unemoto ngalapha nalinile angeke aye emsebentini. Ushito kutsi uyasebenta. Ngeke aye emsebentini la, hambani niyombukela ngale... wayisho ke lesigojana sakhona mane besingati tsine,

Interpreter: Ok.

Farmer: Washo ke kutsi kuphi kuphi, base beta lapha ke. Lana kwakuneMganu nje la nala kunanay' imbuya nje.

Interpreter: Ngiyabona.

Farmer: E, Kwakune Mganu, bafike batsi uyabona ke kuloMganu lo utawufike utsi ke ke babe wanagu Babe [Full names omitted] wayitsi ke, naku ke Mziyako la sikubeka la, kutawubona wena ke kutsi utawakha kuphi. La kunesigodzi ngale, asati phela tsine nekutsi kunesigodzi, uyasewela lesigudze uya ngesheya, ngentasi kunemfula kusenemfula yeVilakati.

Interpreter: Ok.

Farmer: Emanti ahamba. Lomfula ke uyawewela awuwuvimbi futsi ngoba webantfu bonkhe. Nangala futsi kunesigodzi awuseci kuya ngale.

Interpreter: Which means in short I... we did not choose this land. We were just given.

Interviewer: Ok. What type of soil is considered or chosen for sowing crops?

Interpreter: I... hlobo luni nje lwemhlabatsi lokungulona nje lilungela kutsi kulinywe kulo, lenikhetsa kutsi nitolima kulo, ngilikanjani?

Farmer: Ngumhlabatsi lote matje, olote matje uncono.

Interpreter: Where there are no stones.

Interviewer: In the past were your forefathers able to choose the land to farm on?

Interpreter: Eh, bokhokhomkhulu benu nabayondlule Mbabane kutsi bebakhona yini bebanayo lentfo yekutsi bakhone kukhetsa kutsi tsine sifuna kulima la noma kufuya la. Bekwenteka yini loko?

Farmer: Bebeba... Kwakwenteka, ngoba indzawo yemadlelo noma bekungakabiywa but kwatiwa kutsi tinkhomo tiluselwa le mm...

Interpreter: Ok, they were able to choose.

Interviewer: Did they consider the type of soil they were planting on?

Interpreter: Ingabe lomhlabatsi lebebalima kuwo bebawu consider yini, bebawubuka yini lokutsi utawu... utawusebenta kulima noma bebavele batsi, hhayi sitawulima nje lapha bangakabuki loku kokutsi kutawuba kanjani?

Farmer: Ah, ngiyacabanga kutsi bebabuka nje umhlaba kutsi uyabona lapha indzawo yinhle singkhona kulima lapha.

Interpreter: Nayiyinhle ngulekanjani?

Farmer: Indzawo ngulete amatje, lete netihlahla lekahle nje. Angitsi nje kubo bebavele ngoba bebabanikati bendzawo.

Interpreter: Mhm...

Farmer: Bebakhetsa lendzawo lebekile leso uyabona? Itsi noma ngabe liyana lelitulu kungahambi amane abishe phansi emanti.

Interpreter: Ok they chose flat land.

Interviewer: Ok. Do you plant different types of sorghum?

Interpreter: Ingabe mhlambe ulima tinhlobo letehlukene yini temabele?

Farmer: Eh,

Interpreter: Ekulimeni kwakho nje emabele solo wacala kuwalima?

Farmer: Iya, ngike ngalima letinhlobo letintsatfu.

Interpreter: Ok.

Farmer: Iya.

Interpreter: Yes I plough three types.

Interviewer: Which are they?

Interpreter: Eh... ngutiphi letinhlobo?

Farmer: Sengiyikhohliwe lelenye, ngubani 8625 noma 526 [interruption]

Interpreter: Sengisho lokulima lsesikushoko sengisho locala kwakho kadzeni kutsi mhlambe bowu [interruption]

Farmer: Oh, hhawu bebatihlanyelela bebatilimela mabele abo lahlukene but bewangafanani vele.

Interpreter: Wena bowulima letintsatfu?

Farmer: Le khaya noma nisho la?

Interpreter: Sowusho nje kulima kwakho nje wawu... Ulime tinhlobo letingakhi?

Farmer: Nangisuka lapha yini yeVilakati or nasisacala le kitsi?

Interpreter: Noma ngikuphi.

Farmer: Ok, lekhaya tinhlobo bebatilima tatingu six.

Interpreter: Ok, six, six?

Farmer: Ehe.

Interpreter: Ngutiphi? Asewusibalele.

Farmer: Kwakuna Khwebintombi,

Interpreter: Eh, one is Khwebintombi,

Farmer: Ehe... Gebeleweni,

Interpreter: Gebeleweni,

Farmer: Gabane,

Interpreter: Eh, third one Gabane. Yesi four?

Farmer: Matsinikwane,

Interpreter: Ma?

Farmer: Matsinikwane.

Interpreter: Matsinikwane?

Farmer: Ehe.

Interpreter: Are you able to write Matsinikwane?

Co-supervisor: Just trying, you're gonna correct it. You're gonna correct it. What was number 2?

Interpreter: Ok, five?

Co-supervisor: I missed number 2.

Farmer: Ntfweka,

Interpreter: Ntfweka, eh, leyesi six ngubani?

Farmer: Hee, Konje ngibite bani?

Interpreter: Ubite... eh...

Farmer: Mshalane.

Interpreter: Wo, ngu Mshalane wesi six?

Farmer: Ehe, ngu Mshalane

Interpreter: Eh, kukhona yesibili lesingakayitfoli kahle. Ekucaleni utsite kuna, kuna Khwebintombi.

Farmer: Ehe.

Interpreter: Eh, kuKhwebintombi kube nabani?

Co-supervisor: Something beginning with "G" was next.

Farmer: Mshake.

Interpreter: Wo, Mshake.

Farmer: Ehe, Mshake.

Interpreter: Mshake. This is Khwebintombi, Mshake, Gabane.

Farmer: Ngubani?

Interpreter: Gabane?

Farmer: Gabane

Interpreter: Gabane,

Farmer: Gabane, yebo, Gabane.

Interpreter: Gabane, Matsinikwane. Ngubani leli? Lelelinye ngubani? Ndeka?

Farmer: Ntfweka.

Farmer: Spells “Ntfweka”

(All laughing)

Interpreter: Five... six? Ungaka... Leti letinye tesilingu awitibali tona?

Farmer: Hhe eh... leti nje nguleti letindzala leti.

Interpreter: Tingete nato leto leti ku leti.

Farmer: Ok, sekuna NS,

Interpreter: It's NS

Farmer: NS5511.

Interpreter: Sekunabani lomunye?

Farmer: Kuna iPannar ngubani, ngu 86 ngubani? Anginalo 8625.

Interpreter: It's Pannar (Spelling the name), it's 8625.

Farmer: Iya, sengilelemhlophe ke.

Interpreter: Then the white one which is Marcia.

Farmer: Ehe, ngu Marcia.

Interpreter: Marcia. Uke walima letinhlobo kusho kutsi bowulima tinhlobo letingu nine loke watilima?

Farmer: Ehe, ngoba leta kadze ngitibona lekhaya.

Interpreter: Lowake watihlanyena nje lowatihlanyela kadzeni lo six. And then from now
[interruption]

Co-supervisor: This is then?

Interpreter: It was then the six, and this one is now.

Co-supervisor: When did then end?

Interpreter: Wagcina nini lokulima leletindzala?

Farmer: Nga 1974

Interpreter: Wacala 74?

Farmer: Ngahamba '74 ekhaya (laughing).

Interpreter: 1974.

Farmer: Nangiphuma ngitohlala kulelikhaya lengikilo (laughing).

Interviewer: So ekhaya bona bachubeka ngalawa?

Farmer: Ehe, basachubeka but abasawalimi onkhe.

Interviewer: Ok.

Interpreter: Basekhona labawalimako?

Farmer: Basekhona labawalimako.

Interpreter: Ok, which means in my original homestead they are still planting these ones although they are not all the varieties, iya.

Co-supervisor: Where's the original homestead?

Interpreter: Ngikuphi kodzwa ekhaya la usuka khona?

Farmer: Edlangeni eHokweni.

Interpreter: Eh, in Mbabane, Mbabane eHokweni.

Farmer: Ehhokweni eNkhundla.

Co-supervisor: So all those six are indigenous, right?

Interpreter: Iya they are indigenous [inaudible] ones.

Interviewer: Ok, so now all of the ones she's using are not indigenous?

Interpreter: The three ones?

Interviewer: Iya.

Interpreter: Iya they are not indigenous.

Interviewer: Ok why did you stop using the indigenous ones?

Interpreter: Watiyekelelani kutilima leti?

Farmer: Leta?

Interpreter: Nasewufika la?

Farmer: Ukuthi angithi nangifika la ngcale nga stikhisha kubo kotini.

Interpreter: Oh ok,

Farmer: Ngicala nga stikhisha kubo kotini. Intfo lebe imcoka kulenzawo

Interpreter: Beyinemali?

Farmer: Beyinemali, yebo.

Interpreter: Nasewubuya ke wangachubeki ngani khona?

Farmer: Kulekotini?

Interpreter: Mhm,

Farmer: Kutsi angisakhoni kumema sifutfo spray.

Interpreter: Sengisho kutsi kubuya utochubeka nalalamadzala mabele?

Farmer: Mabele? Eh, kusho kutsi ngase ngiwabona nang... nangiwcabanga nje, angatsi ete kahle sivuno.

Interpreter: Nawucabanga?

Farmer: Ehhena, nangibona lawa. Ngoba lawa ngiwabona kaTfwala ngesheya.

Interpreter: Ok.

Farmer: Ngacala nje kubona kutsi, hawu! Kantsi libele lapha lisekhona ngalibona ka Tfwala. Kwatsi emnyakeni lolandzelako ngalibona lapha kababe Matsenjwa.

Interpreter: Ok, which means when I came here I shifted to cotton as cotton was like a cash crop at the time. And then when I came back to sorghum, I discovered that the modern one has more harvest as compared to the indigenous one. Eh, chubeka.

Interviewer: Can you see an improvement in the sorghum that you now plant compared to the one you used previously? If yes what are the improvements?

Interpreter: Nawubuka ke kulamabele bekalinywa kadzeni nalalalinywa nyalo, kukhona nje nawubuka kutsi nje kunco... kuncono?

Farmer: Ngikutsi lawanyalo ngatsi ancono ngekutsi lesivuno sakhona uyabona si... lesibhuluja ngingasho nje lesibhuluja sakhona sikhulu. Kantsi lawa mancane. Kepha ke ehlukeni lokutsi angisanakanga kahle lana kutsi ngiwa... akhona lawa laci she abe nalesinje lengawatfole nje mine ngingawalima, ngoba akhona labengatsandvwa tinyoni emabele kantsi anaso lesibhuluja, lawo nje vele abelinywa ngubabe bekatsi ute sikhatsi sekuyobula emabele yena.

Interpreter: Ok, there is a difference in terms of [Interruption]

Farmer: Ngiyabona tinhlanyelo nje tila kubo three [Interruption]

Interpreter: Is like the modern one they seem to be having more yield as compared to the indigenous one. Although there are some varieties which seem to be having some yield close to the modern one but I got [inaudible] those varieties.

Interviewer: Uhm, are there any downfalls to the modern ones compared to the modern ones compared to the [Interruption]?

Interpreter: Ok, kukhona yini le... Lokubonakala kukubi lokuta kulawa esilungu kunalawa esintfu?

Farmer: Hayi, angitsi lokutsi nyalo sevele ngilima lawa wena Vilakati,

Interpreter: Mhm,

Farmer: Kulukhuni lokutsi ngingatsini ngokuba...

Interpreter: Mhlambe ungabuka ngaletinyoni ninjani tona?

Farmer: Tinyoni. Eyi tinyoni kulamabele lesesivalima [inaudible]. Lawa nje lengiwalimako lo 5511, nangiqala qa tatingawadli. Betidla lalamhlophe uyabona?

Interpreter: Iya,

Farmer: Ngoba ngabe ngawalima ngawatsenga onkhe, ngangiwalime la lamhlophe ngiwalime lapha ngentansi, ngalapho nje kunalama experiment kwakung' ulamhlophe lapho. Tatidla kulalamhlophe

tingadli lapha. Kepha ke satsi sesiwadvubile vele sesiwanikela etinyonini abosigadzela vele kutsi tingangeni vele tingangeni nhlobo la. Uyati kwentekani, ngatsingitsi asengihambe ngiyohlola ngakhandz' emabele mine ahleti, sizatfu angati mine lamabele kutsi abenteke kanjani mine. Lamabele nawubuka kutsi lenyoni ihleti lana iya [inaudible], beyitsi beyisi nayihlala lana lenyoni la, le... lokudla kubheke phasi.

Interpreter: Mhm

Farmer: Ehe, kantsi nguwona lawo kubheke phasi lokudla. Ikofoye lite lenyoni ingakhoni kuphuma nenhlavu. Kepha nyalo angati seniwenta njani yeVilakati.

Interpreter: Kusho kutsi ngaletinyoni vele wona ayi yinkinga?

Farmer: Ehe, anenkinga.

Interpreter: There is a downfall in terms of the birds. The birds, they are... they like this one more as compared to the indigenous one.

Farmer: Mm,

Interviewer: What do you use the sorghum you grow for?

Interpreter: Lamabele ke niwasebentisela ini, sewuwakimile nawa uwavunile, sewuwasebentiselani?

Farmer: Ngiyawatsengisa, ngidle,

Interpreter: Uwadla kanjani?

Farmer: Ngiphek' incwancwa, emahewu, ngent' umdoko kuphela,

Interpreter: Ok.

Farmer: Labanye ke bayatsenga bayokwenta tjwala nemvubelo [inaudible].

Interpreter: Which means I use eh, I sell them. I eat them as thin porridge and some they use as the Swazi brew [Masemula edit, November 2022: imvubelo is an alcohol concentrate].

Interviewer: If the season to start planting does not present ideal conditions what steps or adjustments do you take to increase your chances of a successful harvest?

Interpreter: Nangabe le season iyasuka ibonakala ngazutsi itaba yi season lembi, letimvula tibonakala ngati angeke tize tibe nguletinhle, wenta njani kutilungiselela kutsi noma le season ibonakala inje kodwa uchubeke ulime kube khona lokutfolako?

Farmer: Kutsi nje lokulima ngatsi kuyinsila yemuntfu, especially lokutayeke nalokutsandzako. Sengatitjela ke mine la khaya kutsi la khaya la sekukhona lokwangetfusa leminyaka yaze yalandzelana, ngakunaka. Bengimhlanyeke nga October. Kutsi mabele ami amahle encenye sengitsi nje hhayi uyabona kulamaviki lalandzelako ngiyavuna, kuchamuke umoya. Kukhona lomoya lochamukako boJanuary, February angiwati uchamukaphi. Uchamuka nemvudlanyana lengasho lutfo. Ufike uwulalise phansi, uyabona? Uwulalise phansi lelabele lisilima liyamila there and there nje. Two days limilile vele.

Interpreter: Ok.

Farmer: Sengakhwesha ke nyalo vele kulima kwami nje. Ngihlala ngikulungele kona lokulima kwami kutsi nakusuka nje sengabeka kutsi ke nyalo malina nga December ngiyahlanyela. Ngivama nje kuhla... imvula nje kulamalanga ngihlanyela ngabo 1st or 2nd week of December kuya kunakuzana ekupheleni kwakhe, nangabe linile kahle. Nalingakani kahle nanga January ngiyawafaka mine imabele. Ngiyawatfola futsi.

Interpreter: Ume lokutsi lize line?

Farmer: Lize line vele ngiyema line.

Interpreter: Ok.

Farmer: But lokulima, kugucula, kuhlala kuguceliwe, ugadze nje lokutsi nalina wena ugadze kuts' udzabule uhlanyeke.

Interpreter: Ok eh... I, I plough the land, waiting for the rains to come. Then when the rains come I plant.

Interviewer: Is there any time that you let cattle and goats onto your fields?

Interpreter: Kukhona yini sikhatsi la tinkhomo netimbuti utifake emasimini tiyokudla?

Farmer: Hhawu, tiyadla vele, intfo lesengayivala yindlela lesengayivama nyalo ebusika nangicedza [Interruption]

Interpreter: During the winter they get into the field

Interviewer: If you do not use cattle for manuring what do you use instead, before and now?

Interpreter: Kadzeni nanisalima kadzeni niseselena, nangabe ningakasebentisi manyolo njengem... ningakasebentisi mcuba njengekutsi ube ngumanyolo wenu, benisebentisa ini kunonga lensimi?

Farmer: Kwakusetjentiswa, kwakusetjentiswa lomanyolo.

Interpreter: Nangabe manyolo usengekho, kadzeni?

Farmer: Hha, kute vele kwakusebenta umcuba.

Interpreter: Ok, it was only kraal manure. If we have not used it there is nothing we have used. Nyalo ke?

Farmer: Nyalo sisebentisa manyolo lo.

Interpreter: Nangabe ningakafaki lomcuba?

Farmer: Ehe, sisebentisa manyolo.

Interpreter: Now we use synthetic fertilizers instead of kraal manure.

Interviewer: Ok. Uhm, when in the year does sowing begin and who does it?

Interpreter: Emnyakeni kucala nini nje kulima and bobani lalabekwentako lakhaya nje nangabe sikhuluma ngekulima nangabe... kucala nini le season? Iphindze, ngubani lalabalimako?

Farmer: I season yetfu icala ngokutsi selinile.

Interpreter: Kungaba nini sibekise zinyanga?

Farmer: Nanga September ye Vilakati nalinile.

Interpreter: Bese kuhlanyela bobani? Kwenta bobani?

Farmer: Ngitsi nalabantfwabami.

Interpreter: Ok, the season begins in September,

Farmer: Nakwentekile.

Interpreter: I, with my family we do the planting.

Interviewer: Ok. When is harvest time and who does it?

Interpreter: Bese nivuna nini? Phindze bese kuvuna bobani?

Farmer: Sivuna ngekhutsi sekomile. Nakoma nga January siyavuna nangabe kuhambe kahle.

Interpreter: Kusho kutsi kute inyanga lenitsi yekuvuna le?

Farmer: Hm mm.

Interpreter: Kuya ngekhutsi kome nini?

Farmer: Iya kuya ngekutsi kome nini.

Interpreter: Kuvune bobani?

Farmer: Kuvune tsine futsi.

Interpreter: Ok, there's no harvest time. It's only when our fields or our crop is dry then we harvest with my, I harvest with my family. There is no specific month for harvesting.

Interviewer: Is there anything you do to make sure that the land recovers between growing seasons

Interpreter: Kukhana yini lokwentako nangabe sowuvunile ungakalimi kutsi umhlabatsi wakho ubuyele esimeni sekutsi nawulima ube ukahle?

Farmer: Iya hhawu kute, njengloku ngisho nje kutsi, tinkhomo siyativulela tingene vele kute ke lesikwentako ke.

Interpreter: Ok.

Farmer: Bengisafuna lokutsi igcine vele yona ingangenwa ngiletinkhomo leti mane ke vele yona ngisengakayihlanganisi kahle.

Interpreter: Ok, there is nothing to... to... we just allow the cattle to roam around the fields.

Interviewer: Do people still plough using oxen?

Interpreter: Bakhona yini labasalima basebentisa tinkhabi?

Farmer: Awu, la langikhona khona sekute.

Interpreter: Nothing.

Interviewer: Ok, and the last one, When did mai... I mean when maize was introduced did your parents and grandparents continue growing sorghum?

Interpreter: Mm, nakufika lombila, angitsi kadzeni umbila bekute?

Farmer: Mhm,

Interpreter: Nawufika lombila kufika lolovuso lwekutsi akulinywe lombila, ngabe batali bakho noma bokhokho bakho ngabe bakuyekela yini lokulima lamabele bacondza lambileni noma benta njani?

Farmer: Eyi vele baba... base babuya ngala mbileni.

Interpreter: Bayeka nya ngala?

Farmer: La bangayekeli nya, basala but besekulinywa intfo lencane.

Interpreter: Ok.

Farmer: Ehe.

Interpreter: Which means eh [Interruption]

Farmer: Lengingakubeka nje kutsi nangikubekisa kwaku half a [inaudible]

Interpreter: Which means eh, when times for maize comes the focus shift to maize but there were some who were [growing a] little [bit] of sorghum

Interviewer: Ok, do you have any questions, Thembi?

Co-supervisor: Hm mm

Interviewer: Siyabonga kakhulu mama sesicedile.

Farmer: Siyabonga.

Interpreter: Iya, sekuphelile.

Interviewer: Sibonga iskhathi sakho.

Farmer: Siyabonga nkosi yami.

INTERVIEW 7: FARMER 7

- **Interviewer: *Sawubona Baba***

Greetings sir.

➤ Farmer: *Yebo sisi.*

Yes sister.

- **Interviewer: *Ninjani?***

How are you?

➤ Farmer: *Sikhona*

We are well.

- **Interviewer: *Siyaphila, igama lami NguNandi waka Masemula and then wuMake Thembi. So besilana nje sifuna ukukhuluma nawe ngendaba yokulima. Sizama uku understanda ukuthi***

kudala abantu bebalima kanjani and namanje abantu balima kanjani. So amaquestions lawa esizowabuza ahlangeni naleto.

We are well, my name is Nandi Masemula and she is Ms Thembi. So we are here to talk with you about farming. We are trying to understand how people long ago used to farm as compared to today. So the questions we will ask, pertain to that.

➤ Farmer: Ehe.

- **Interviewer: *Baba singabuza ubaba ukuthi uzalwe nini?***

Sir may we ask how when you were born?

- Interpreter: *Watalwe nini mkhulu? Unangakhi nyalo?*

When were you born grandfather? How old are you?

➤ Farmer: *Ngina 82 so ngatalwa 1945, 74.*

I am 82 so I was born 1945, 74.

- Interpreter: *O ungambuta nangesingisi.*

O you can ask him in English.

- **Interviewer: When did you begin farming?**

➤ Farmer: I was born farming, since I was a boy. I used to stay with my uncle, and he used to farm.

- **Interviewer: What plants do you grow now and what plants did you grow back then?**

➤ Farmer: Now I am growing sorghum.

- Interpreter: Sorghum and what? *Yini lenye?*

What else?

- Farmer: *emabele, tinhlumaya*.
- Interpreter: Sorghum, cowpeas.
- **Interviewer: Then?**
 - Interpreter: *Kadzeni bowulimani?*
What were you farming long ago?
 - Farmer: Maize, *nemabele* not this type.
Sorghum.
 - Interpreter: It was maize and sorghum but the indigenous type.
- **Interviewer: Who taught you how to farm?**
 - Farmer: I learnt it at home.
- **Interviewer: What makes a harvest successful?**
 - Interpreter: *Yini leyenta sivuno sibe ngulesiphumelelako? Nangabe lamuhlanje utosti eyi ngivunile yini leyentako?*
What makes a harvest successful? If today you were to say you have a good harvest what would that be?
 - Farmer: You apply fertilizer, whether it's western type or kraal manure, but we used kraal manure.
- **Interviewer: Ok do you use information that your grandmother and grandfather used when you farm now?**
 - Farmer: I do use some of it.
- **Interviewer: Which ones do you use?**

- Farmer: Eh now?
- **Interviewer: Ya, now.**
 - Farmer: I'm using the western style.
- **Interviewer: So you don't use any of what you used before?**
 - Farmer: *Ya* but it is going out.
Yes.
 - Interpreter: But you still use it.
 - Farmer: I still use it because you have to weed the old way.
- **Interviewer: Which ones specifically?**
 - Interpreter: *Yimaphi lawakadzeni?*
Which ones from long ago?
 - Farmer: We use hands.
 - Interpreter: Hand-weeding. *Nani lokunye?*
What else?
 - Farmer: Ah nothing.
 - Interpreter: it means it is only hand-weeding.
- **Interviewer: Ok. Can you take me through the process from beginning of the planting season right up to the harvest period, then and now?**

- Interpreter: *Asisitsike angisho kadzeni bowulima, watalwa wavele wakhandza malume wakho alima, awusicazele kutsi malume wakho, nanilima kadzeni benicala netenje netenje size siyofika ekugcineni ekuvuneni sizesiyowabeka embele noma umbila siyofika ekugcineni.*

Let us say since you used to farm long ago, when you were born you found your uncle farming, explain to us how your uncle, you would farm long ago from the start, like this and this until you finish during harvest time for sorghum or maize till the end.

- Farmer: *Umbila*, we will use maize. Maize, in winter we would dig kraal manure and dump it into the field. Then in summer when there is rain we used to ox-span. One, I used to go to the front pulling the oxen and one would use the whip to whip the oxen, the other one would use the... hold the plough and then there would be somebody coming after with the seeds. At times we used to broadcast the seeds, not follow the oxen.

- Interpreter: Which means after ploughing you broadcast?

- Farmer: Nah ah, before you plough.

- Interpreter: You broadcast before you plough?

- Farmer: We broadcast before ploughing. There we would not use a cultivator to weed. Where we would use the lines, we would use the cultivator using the oxen. Particularly we would use two for cultivating.

- Co-supervisor: Two oxen?

- Interpreter: But ploughing you use how many?

- Farmer: Six.

- Interpreter: Six in ploughing.

- Co-supervisor: So when you ploughing with 6 oxen you have one person at the front and one person at the back? Just two people? Three and one with the whip?

- Farmer: And the one with the whip.
- Interpreter: Ungaqcubeka sesiscofelile ungaqubeka.
You can continue we have written down, continue.
- Farmer: Then we would aid by using hands to remove the remaining weed. After that we would wait, pick up pumpkins, leaves or vegetables and eat and enjoy summer. Then wait for the maize to dry. Then we'd harvest the maize, ox-pan the oxen and then carry the maize home.
- Interpreter: Using what?
- Farmer: Using a cart. My uncle had a cart. Then we did not remove the leaves when we harvested from the crops for the purposes of storing it. Our storage was inside the house, we would make fire underneath.
- Interpreter: Then you hang underneath?
- Farmer: No we don't hang, there is a storage there built inside the house and under the inside there is where we used to cook. So that the maize doesn't catch up with it. It protect the maize. There was no weevil. When you want to thresh it, then we remove the dry leaves and you thresh them and then after that there was no grinding machine, you use a grinding stone to make food.
- Interpreter: Okay. Is there any other question before we move to the modern way?
- Co-supervisor: No, thought I had one but now I can't remember let me just wait I'll think while you move on?
- Interpreter: You hang all of the crops?
- Farmer: No hanging we dump them, pack them there.

- Interpreter: Maybe can you describe, *Awusicazele kutsi lesistorage besinjani landlini, bekuba yintfo lenjani beniyakha ngani?*

Explain to us how this storage was inside the house, what kind of thing would it be? What would you build it with?

- Farmer: Pillars, eh the pillars would be high and then it is roofed and then underneath is the kitchen. And then we would bring the maize and would stack it up there, to protect it. There were no [inaudible] there. We didn't like to bury it as some used to *engungwini*, we didn't want that. So we would pack it nicely inside there and then underneath there would be cooking there, the smoke would protect the maize from weevils.

- Interpreter: Are you getting anything? The maize pit was built inside the house where they do the cooking. *Naseniwu wudlile niwubekaphi?*

After grinding it where do you place it?

- Farmer: No usually.

- Interpreter: *Niwuwudla niwudle?*

You thresh it and eat?

- Farmer: Ya, when you prepare food, you just remove it and then remove the leaves and then thresh it and put some there. You take from that one.

- Interpreter: I am not sure if you are getting this? Is like in that crib the maize was not shelved and stored in somewhere. You just take what you are going to cook at that time. Bit by bit. The smoke was used to protect the maize from the weevil. *Nyalo ke? Sesenta njani?*

And now? What do you do now?

- Co-supervisor: Can I ask one question? Why didn't you like that storage, the underground?

- Farmer: The maize gets rotten. Yes can't eat *sangcote*, when it's buried there, the maize get bad and I don't think you can all eat it. So my uncle did not like that.

- Interpreter: *Awusitjele nyalo, nyalo kwentekanjani nje? Nilima kanjani nakhona usisuse ekucaleni uyofika ekugcineni sesiyokudla.*

Tell me about now what happens now from the process of planting until we eat.

- Farmer: Now I use a tractor, plough to till the soil and I also plough and then when the sorghum or whatever I've plant either maize, when the season is good just harvest, load it. I've got a shelter for keeping my food that side. And then I wait for drying, when it is ready I thresh it and put it in tanks, I put tanks there and store the food.
- **Interviewer: What type of soil is considered a chosen for sowing crops?**
 - Farmer: Ah, we don't choose the soil, we use that soil available to us.
- **Interviewer: You don't decide which one, you just use what's there?**
 - Farmer: We use the soil we have been given by the chief.
- **Interviewer: In the past were your forefathers able to choose the land that they farmed on?**
 - Farmer No, it's the same. Land is community area that is given by the chief then you use what you have been given.
- **Interviewer: Do you plant different type of sorghum?**
 - Farmer: One type.
- **Interviewer: Which type is that?**
 - Farmer: NS5511.
- **Interviewer: Ok so that's the modern one?**
 - Farmer: Yes.

- Interpreter: Before *loku bowulima yini*?
This one were you planting it?
- Farmer: No, I used to grow [inaudible]
- **Interviewer: Ok so you never used to grow any sorghum?**
- Farmer: No.
- **Interviewer: What do you use the sorghum for, the one that you grow now?**
- Farmer: I eat it.
- Interpreter: You eat it as what?
- Farmer: As food.
- Interpreter: You eat it as how thin porridge, *mageu*?
- Farmer: Thin porridge, *mageu* and some I sell it to get some money.
- **Interviewer: If the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?**
- Farmer: I wait, I look at the sky for the rain to come.
- **Interviewer: Is there any time that you let cattle and goats onto your fields?**
- Farmer: Cattle yes, in winter.
- **Interviewer: If you do not use cattle for manuring what do you use instead, like in the past what did you use and what do you use now?**

- Farmer: Without cattle farming my grandfather had donkeys. Manure you use fertilizer, in the past there was nothing except kraal manure.
- **Interviewer: When in the year does sowing begin and who does it?**
 - Farmer: Sowing begins in October depending upon the rain. But if the rain doesn't come and it comes in December we start growing then.
- **Interviewer: Who does it?**
 - Farmer: Myself and my wife.
- **Interviewer: When is harvest time?**
 - Farmer: It's in April up to June, depending upon the time when we started planting.
- **Interviewer: And then the whole family also does the harvesting?**
 - Farmer: They do when they are present, but now children are grown up they don't stay with us most of the time.
- **Interviewer: Is there anything you do to make sure that the land recovers between the growing seasons?**
 - Farmer: Something like what?
 - Interpreter: *Mhlaumbe lokwenta nje kuvusetele lomhlabatsi kutsi uhlale esimeni lesikahle.*
Something that would revive the soil to put it in a good state.
 - Farmer: So far there is nothing except adding some kraal manure.
- **Interviewer: Did you grow up around here?**
 - Farmer: No I'm from Pigg's Peak.

- **Interviewer: Do people still plough using oxen?**

- Farmer: Ya, very few.

- **Interviewer: When maize was introduced did your parents and grandparents continue growing sorghum?**

- Farmer: No they switch to maize.

- **Interviewer: Completely switched?**

- Farmer: Yes they switched to maize. As a result it is very difficult advising them to grow sorghum now. They are now conditioned to maize even here where there is drought they still want to grow maize and enjoy it when it's still young and then it dies completely, and they get nothing.

- Interpreter: The next season they go back to maize.

- Farmer: They are just conditioned I've tried to change. I might grow a few lines for maize but most of my area is just sorghum because there is something like that. Rather than ploughing and getting nothing and go about seeking for sympathisers when there is another crop I can grow.

- **Interviewer: Thank you for answering, those were my questions and thank you for your time.**

INTERVIEW 8: FARMER 8

Interpreter: Watalwa nini Mkhulu, awsati?

Farmer: Hhayi angisati koja umfana wami nje wekucala uhambile ungale [inaudible].

Interpreter: Ok, nawutalwa watalwa kucala kuneNkhosi?

Farmer: LoMswati?

Interpreter: Mm...

Farmer: Hawu mntfwana Mswati!

Interpreter: Watalwa seyifikile imphi yesibili?

Farmer: Besengikhona.

Interpreter: Besewukhona ngemphi yesibili?

Farmer: Besengikhona.

Interpreter: Leyekucala ke?

Farmer: Angiboni kutsi bengikhona, ngangingekho.

Interpreter: Ok.

Farmer: Noma ngangikhona angati kahle.

Interpreter: Iphi lokwesikobho kwakho?

Co-supervisor: Is this interview 4 now?

Interviewer: Four, yeah.

Co-supervisor: He was here with the previous king?

Interpreter: Ya, seemingly like he was here but he was noticing anything,

Co-supervisor: Oh...

Interpreter: Ya the First World War was when konje?

Co-supervisor: Hey...

Interpreter: It was during the First World War... (Laughs). [Inaudible] because the last one was around 1940 something.

Co-supervisor: But that last one was around 1920 or something.

Interpreter: The last one?

Co-supervisor: Ya, the first one.

Interviewer: Wasn't it 1918?

Co-supervisor: 1918, ya. Can it be? Is it possible?

Interpreter: Iya, it's between the first and the last one.

Co-supervisor: Oh, so I am sure he's about 84-85.

Interpreter: Ok, now he's coming with his ID.

Co-supervisor: Can I guess? I'll guess how old he is.

Interpreter: Ok.

Co-supervisor: 85.

Interpreter: 85?

Co-supervisor: 84, 85.

Interpreter: Maybe, because my father was born in 1930.

Co-supervisor: 1930?

Interpreter: Ya, 1930 and he is still new.

Interviewer: Hmm...

Co-supervisor: Is he? Because he's old.

Interpreter: Hau, he's still new.

Co-supervisor: That's great.

Interpreter: Ah... this one is 1927.

Co-supervisor: Ya, that's the same age as my father!

Interpreter: Yeyi!

Co-supervisor: So how old are you if you're born in 1927?

Interpreter: Because 2027 he will be doing 100.

Co-supervisor: Hha ah,

Interpreter: 2027 is 100.

Co-supervisor: Oh in 2027?

Interpreter: Ya, he will be 100 so you can minus from that.

Co-supervisor: Please minus, I'm bad in Maths.

Interviewer: Sicela ucele umkhulu asondele.

Interpreter: Oh okay, sondzela kancane Mkhulu utokubamba lomshini.

Co-supervisor: What's the year now?

Interviewer: 2019.

Co-supervisor: I'm just trying to [Interruption]

Interpreter: Minus eh, 2027 minus this 2019.

Co-supervisor: I'm so bad in Maths.

Interpreter: (Laughs)

Co-supervisor: In 8 years' time, so he's 92?

Interpreter: Ya.

Co-supervisor: But he is so well, he looks so healthy and young.

Interpreter: Because of drinking milk (laughs).

Co-supervisor: I can't believe it, yoh.

Interpreter: Ye.... Mkhulu hhayi sowukhulile.

Farmer: Ngikhulile.

Interpreter: Uyakhona kuhamba ufike esitolo?

Farmer: Eyi! Sekukhona nekugula la mtimbeni wami

Interpreter: Hhayi akusikugula kuguga Mkhulu.

Farmer: Kuguga?

Interpreter: Ya.

Farmer: Ngitse ngiyahamba ngawela lesigodze la, ngatsi ngilapha ngesheya ngiyehluleka, ngabona lokutsi anginawufika ekhaya ngajika ngabuya.

Interpreter: Mm...

Farmer: Lelinye lilanga siya edamu, lidamu lilapha lekudibha tinkhomo, eh ngiphetfwe mkhuhlane, batsi ke bewuyaphi ngoba naba batukulu, sebatukulu nje laba.

Interpreter: Mm...

Farmer: Bowuyaphi? Ngitsi mine angibetsembi kahle ngitsite angikho nje. Asibuyele ekhaya Mkhulu, bangikhandza ngingakafiki ngisho la.

Interpreter: Ya, no awuguli Mkhulu minyaka seyisho njalo.

Farmer: Usho njalo?

Interpreter: Ya. Ok, yeMkhulu ke la boMake bato... bafuna kubuta nje imibuto ngekulima kwakadzeni nekulima kwanyalo kutsi kadzeni bekulinywa kanjani,

Farmer: Ok.

Interpreter: Nyalo kulinywa kanjani, tintfo nje letikanjalo. Bafuna lelwati lalemuva lelesingalati, naleli nyalo lalesesikhona kutsi sifika njani la.

Farmer: Ekukhuleni kwami [interruption]

Interpreter: Hha ah, kunemibuto labatakubuta yona la. Sitawuchubeka nalemibuto nje mine ngitakutolikela ngaleSiSwati bona batakubuta ngalesilungu.

Farmer: Ok.

Interpreter: Ya.

Interviewer: When did you begin farming?

Interpreter: Eh, wacala nini kulima Mkhulu nje emphilweni yakho? Kucala kulima?

Farmer: Emphilweni yami, umfana lo sowukhulile lo, lowesipoti.

Interpreter: Loya?

Farmer: Ngacala ngaphansi mine.

Interpreter: Kunalo?

Farmer: Mm...

Interpreter: Kusho kutsi nje [Interruption]

Farmer: Ngoba kwakute umfana ekhaya kitsi.

Interpreter: Wo,

Farmer: Mm, ngoba tinkhomo tateluswa ngumzala wakhabo make.

Interpreter: Ok, which means we can say that [Interruption]

Interviewer: That boy?

Co-supervisor: Mm,

Interpreter: That boy, he started at this age, which means from 1927 then you can estimate how old is this one then you can see which year.

Co-supervisor: He's about 11 right? Maybe.

Interpreter: Which means [Interruption]

Co-supervisor: So in the 1930s? So some time in the 1930s,

Interpreter: Ya, 1940.

Co-supervisor: 1930s, 1940?

Interpreter: Ya 1930 something, 38 to 40.

Co-supervisor: Okay.

Interviewer: It's late 1930s to [inaudible].

What plants do you grow now and what plants did you grow then?

Interpreter: Nanicala lokulima kadzeni Mkhulu usengumfana longaka, bekulinywani nje lamasimini? Benilimani?

Farmer: Besilima emabele, silima umbila,

Interpreter: Ya

Farmer: Nemantongomane besiwalima nawo, eh... silime nematsanga.

Interpreter: Ok, which means we planted sorghum, maize, groundnuts and pumpkins.

Farmer: Netinhlumaya.

Interpreter: Oh and cowpeas.

Co-supervisor: Did you say pumpkins?

Interpreter: Ya, pumpkins.

Co-supervisor: Is that then?

Interpreter: Is then. Ya, nyalo ke Mkhulu nilimani nyalo?

Farmer: Nyalo silima nayi imihlola lesiyilimako (laughs), lokotini nemabele.

Interpreter: Yebo.

Farmer: Mm...

Interpreter: Nani lokunye?

Farmer: Nalobhatata ke bengimlima.

Interpreter: Uyawulima nanyalo?

Farmer: [inaudible]

Interpreter: Ok, nani lokunye?

Farmer: Mane kuncane, umbila njena nangu ngoba phela kwatsiwa asingalimi libalele.

Interpreter: Ok,

Farmer: Mm.

Interpreter: Which means now I do sorghum, eh... sweet potato, groundnuts and a bit of maize.

Interviewer: And cotton.

Interpreter: And cotton, there's cotton.

Farmer: Nemjumbula siye siwulime.

Interpreter: And cassava. Cotton and cassava.

Co-supervisor: Where's the cassava? Is it there?

Interpreter: Ya, cassava is just at the entrance.

Interviewer: Seyikhulile le cotton or kusese early?

Interpreter: No, it's still early.

Interviewer: Oh,

Interpreter: But we can see some, there are some balls lapha but they are still early.

Interviewer: Ok, who taught you how to farm?

Interpreter: Ngubani lakufundzisa kutsi ku..... kulima?

Farmer: Kuyalinywa?

Interpreter: Ehe,

Farmer: Kwakukhona make lakhaya kukhona babe. Mine ngaba wekucala ekutalweni kwa... Kwetfu.

Interpreter: Ok, kusho kutsi wafundziswa batali bakho?

Farmer: Mm, bafa lalabatsatfu lengibalamako mine.

Interpreter: I was taught by my parents.

Interviewer: Ok, what makes a harvest successful?

Interpreter: Uhm, ekulimeni kwakho nje mkhulu, yini leyenta kutsi sivuno sibe, kube nalesihle?

Farmer: Eh, ekulimeni kwami nangifika la, ngifike ngalima bhatata la, nagamtfola bhatata, lomuti wakitsi nje bawubona ngekutotsenga bhatata.

Interpreter: Yini lolokwenta kutsi nawulima nje ube nesivuno lesikahle kunaloku, tintfo tini?

Farmer: Ngu kotini, ibe lengifike nje la ngatfola tinkhomo, kube angikabulawelwa somiso kube tinengi tinkhomo.

Interpreter: Ok, ngiyeva mkhulu ulima kotini. Ngibuta lokutsi, uhm, kuze utoba nalesivuno, asengibekise nje ulima emabele. Kuze utowatfola abe manengi, yini letintfo letenta kutsi ube nesivuno lesinengi? Kufuneka ube nani kuze sibe sinengi lesivuno?

Farmer: Kufuneka njengoba ngilima ngihlakule,

Interpreter: Okay,

Farmer: Mm, bese ke ngiyawalindza lamabele, angadliwa tinyoni. Sesiavuna ke siyabhula, mm.

Interpreter: Ok which means for sorghum I have to weed and then I have to take care of birds.

Interviewer: Ok. Do you use information that your grandparents used when you farm?

Interpreter: Kulokulima kwakho mkhulu usengumfana kanje, kukhona yini lwati lowalitfola kulabatali bakho lolusebentisako nyalo?

Farmer: Lakhona.

Interpreter: Yes I do.

Interviewer: Ok. What is that?

Interpreter: Nguliphi nje ungasibekisela kutsi ngunalu?

Farmer: Kulima kwami ngilima lombila ngilime lamabele ngingayi emakethe.

Interpreter: Mani ke, ngisho kutsi lolwati lakulimeni kulimakwakho kutsi lolwati lolusebentisako nawulima lombila.

Farmer: Nangilima lombila?

Interpreter: Ehe, noma ulima lamabele?

Farmer: Mm,

Interpreter: Angitsi utse kukhona lowalutfola le eabatalini bakho emuva?

Farmer: Mm,

Interpreter: Besifuna usho kutsi, ngunali lelengilusebentisako lengalitfola emuva.

Farmer: Lengilusebentisako ngiko lokulima lombila nalamabele, emabele koja sesiwafundzeswa nguwe besiwayekele ngendzaba yetinyoni.

Interpreter: Ya,

Farmer: Ngoba nje mine ngize ngembuleke emehlweni sasicala nga August kulima.

Interpreter: Okay.

Farmer: Mm, silime libalele sikutfole kudla.

Interpreter: Wakufundziswa ngulabatali bakho?

Farmer: Ngakufundziswa ngulabatali bami. Kwakusete ke tinkhomo ekhaya kitsi titincane, balima ngemkhono.

Interpreter: Nanyalo usalima ngalomkhono?

Farmer: Ah, angisalimi. Angisakhoni nyalo.

Interpreter: Okay, what I have learnt from my parents is to plant sorghum and maize and also I learnt how to do, there's what is called eh, what... how can I put this one? Eh, hole-making. Like pot holing, but not exactly pot holing, they are choosing a hole. Just open some, some holes and then you put the seed.

Co-supervisor: Okay.

Interviewer: Is it the same as what the other farmers were saying ukuthi if the conditions are not ok [Interruption] then you dig a hole?

Interpreter: Ya, ya. It's like it's the same, but the intention is different because this one he's just doing as he was taught but those ones they are doing it just to conserve water.

Interviewer and co-supervisor: Ok.

Interviewer: Ok, ok. Can you take me through the process from the beginning of the planting season right up to the harvesting period, then and now?

Interpreter: Uhm mkhulu asewusichazele kutsi lokwa kadzeni nawukhumbula kusalinywa kadzeni eh, usisuse nje ekucaleni, asesitsi nje utawulima lamabele angitsi bekalinywa kadzeni?

Farmer: Mm,

Interpreter: Usisuse lakucaleni kutsi nasitawulima mabele besenta naku senta naku, sente naku, sente naku toti toti siwavune siwabeke lasiwabeka khona size siyowadla. Usisuse nje ekucaleni kutsi besicala sente nje sente nje sente nje, kadzeni.

Farmer: Ngikuphendvule kunaku Vilakati, kugucula kwalamuhla loku lokugucula ungahlanyeli lutfo, kwalamuhla.

Farmer: Tsine [Interruption]

Interpreter: Okay ngitjele lokwakadzeni, kadzeni benisentani?

Farmer: Tsine nje nekuphuma kwetfu sasiphuma nehlanyelo.

Interpreter: Ya,

Farmer: Kufatwe.

Interpreter: Kufatwe?

Farmer: Mm, kufatwe. Mm, amile mabele.

Interpreter: Kufatwe kungakalinywa?

Farmer: Kungakalinywa, sesilima ngalelikhuba letfu lemkhono emabele ahlanyelwe. Kube nje namuhla kuvuka kwami ekuseni,

Interpreter: Yes.

Farmer: Ngivuke ngatsatsa likhuba lami ngafike ngafata ngafata ngafata ngafata kahle, ngase sengiyalima ke, lendzima yami noma iyofika lapha kulendlu leya.

Interpreter: Sewuyali, uyagala nje?

Farmer: Ngiyalima, kulima nje njenganangicentsa ekhaya.

Interpreter: Ehe,

Farmer: Ehe, ngilima kanjalo ke.

Interpreter: Ngalelifosholo, ngalelikhuba?

Farmer: Ngalelikhuba leli, ya kumile lokudla kwami.

Interpreter: Ehe,

Farmer: Uma kumilile lalibalela ke, kundzindzandzindze nje ngatsi kutakufa. Iyefika imvula la kubo September kumbe, kuyaphakama kutsi.

Interpreter: Bowulima ngalo August?

Farmer: Mm, August, sasilima nga August.

Interpreter: Okay.

Farmer: Kukhule lokudla ke, nakukhula siyahlakula ngiyahlakula, ngalelinye lilanga ngalelinye lilanga ngiyawulima. Mm, kukhule lokudla kwami, nakukhulile emabele asayatala.

Interpreter: Mm...

Farmer: Mm, atale emabele ke sengiyati kutsi sengitawulindza tinyoni, ngente leminye nje imisebenti koja ke ngilindze letinyoni kutsi tingawadli ke tona. Tatinganjengato futsi letalamuhla setihlakaniphile futsi letalamuhla. Kucala tatincono nje. Sivune nje nangilime indzawo lenganganayi noma lokotini, wu, litawugcwala lelithange leli, lalingagcwala, lalina litulu. Ngivune ke sesiyadla lakhaya lokudla.

Interpreter: Naniwavuna niwabekaphi?

Farmer: Nasiwavuna, sasimba umgodzi.

Interpreter: Nisengakawabhuli naniwabekaphi?

Farmer: Sasiwabeka nje enyangweni.

Interpreter: Ikanjani lenyango?

Farmer: Lenyango, sasigawula tigodvo sitimise kanje, simbe la sesiyabeka ke kuba litafulana la, bese siyabeka siyatakisha ke kuyophuma etulu.

Interpreter: Ok,

Farmer: Mm, siyafulela laph' etulu kutsi noma lina anganetfwa.

Interpreter: Ngetjani?

Farmer: Ehe, ngetjani. Eh, kufika sikhatsi, sasivama kubhula ngabo July, sicale nje nga June, July, siyabhula ke lamabele siyawacedza. Eh, sesiwabhulile lamabele, sasimba umgodze lasibayeni.

Interpreter: Mm,

Farmer: Mm, simb' umgodzi batsi yingungu, bafake khona lamabele. Eh, nakufika sikhatsi kumbe sesiyawakhanuka kuwadla, siyagwabula lapha siyakhipha emabele etfu siyawasebentisa siyadla.

Interpreter: Sekamnandzi?

Farmer: Mm, amnandzi.

Interpreter: Okay. Eh, then, we started by broadcasting the seed and then we come with our hoes we start ploughing, we start ploughing, we start ploughing. And then we wait for the seed to germinate, after germinating we come with the hoes and then we weed. We do wedding, we do weeding. After weeding, we wait for it to have heads, after forming heads we come and wait for the birds, we take care of the birds. And when it is dry, it's okay, we come and harvest we put it in cribs. The cribs were build inside a thatched house. It's like the crib was raise upwards, and then we will pack our heads, and then when it is ready for shelling, we shell them and put inside a hole which is called ingungu in the kraal. And then we, after that if we want to use it we can use it.

Interviewer: So you say the sorghum was stored in the thatched house?

Interpreter: Ya it was stored in a thatched house like this one.

Interviewer: Oh,

Co-supervisor: Was it the house, just for the sorghum?

Interpreter: Lendlu beyivele yakhelwe kutsi itawubeka lamabele noma beniyisebentisa kulokunye?

Farmer: Yayakhelwa nje mabele, nembila wona ube wodvwa.

Interpreter: Okay.

Farmer: Mm.

Interpreter: It was specifically for the sorghum.

Interviewer: Okay.

Interpreter: Ase usichazele nyalo ke kutsi nenta njani ke nyalo?

Farmer: Nyalo,

Interpreter: Kusus' ekulimeni, kususe' ekulimeni toti toti uze uyoisifikisa ekugcineni.

Farmer: Nyalo siyalima sigucule, singahlanyeli.

Interpreter: Ebusika?

Farmer: Ya ebusika. Kutfwaso lihlobo liyana litulu siyahlanyela, ngiyadzabula ngale noma ngaloku lesesilima ngako. Angitsi kucala sasilima ngetinkhomo.

Interpreter: Okay,

Farmer: Mm. Siyadzabula lapho siyahlanyela kuyamila kudla kwetfu. Solo nje ngalamanye malanga nakhona solo siyachubeka.

Interpreter: Okay,

Farmer: Kuze lokulima kwetfu kube kukhulu, sesibuyela emuva ke siyahlakula, mm. Kuyakhula kudla kwetfu uyatala siyavuna siyadla. Kushaya sikhatsi siyahamba siyovuna, sikubeka ke kona siwakhelwe indlu incolobane mbila nawo indlu, nayo ifulelwe layitulu.

Interpreter: Mm,

Farmer: Kutsi kungen' emanti abolise. Uze wome ke, ungoma ke siwufaka noma lanendlini ke siyawubhula ngeticwayi, siyawubhula ngeticwayi

Interpreter: Lenyango lenifaka kuyo ayisafanani naleya?

Farmer: Ayisafanani.

Interpreter: Okay,

Farmer: Mm. Siyawubhula ke ngeticwayi lombila bomake bayawuhwela bakhipha lokungcola ke.

Interpreter: Ya,

Farmer: Se lapho ke nawo siyawufaka la thangeni.

Interpreter: Tisekhona tingungu nyalo?

Farmer: Sekute.

Interpreter: Seniwufaka kuphi nyalo?

Farmer: Nyalo sesiawufaka kulabantfu laba.

Interpreter: Wo, kulamathange lawa?

Farmer: Mm.

Interpreter: Okay.

Farmer: Mm, siwufaka kulamathange lawa.

Interpreter: Ok, let's start. Now we hire tractors, we plough. We plough during winter. Then when the summer comes, when the rains comes we use a ripper we just open lines, and then we plough, we plough our seeds. And then when it emerges, we manage weeds after managing weeds, we... If it's sorghum we wait for the birds, we scare the birds. And then when it is ready we harvest we put it in cribs which are modern cribs. And then after that, when is ready we take it to... we shell it then we put it in metal tanks like this one.

Co-supervisor: You know that house, the thatched house for the sorghum... does it have walls, or it's open?

Interpreter: Eh, lendlu lena lebeniyenta kutsi nifaka ema... lebeniyenta sakuba yinyango kadzeni, beyiba nalo libondza noma beyibate?

Farmer: Libondza?

Interpreter: Ya,

Farmer: Sasiphica ngetintfunga.

Interpreter: Beliba khona lelibondza?

Farmer: Mm, laliba khona libondza ngoba sasimbhela tigodvo siphice.

Interpreter: Okay, there was wall but was made of sticks.

Co-supervisor: Okay

Interpreter: Ya,

Interviewer: Okay, how did you acquire the land that you have been using to farm?

Interpreter: Eh, lendzawo lena loyisebentisa kulima lena wayitfolo kanjani?

Farmer: Ngayikhontela eMphakatsi.

Interpreter: It was through the kukhonta system.

Interviewer: Okay. Did you choose which land you were given?

Interpreter: Lenzawo lena nawuya le Mphakatsi uyoyikhontela watikhetsela yini lokutsi ngifuna ninginike nayi noma bavele bakunika nje?

Farmer: Angitikhetselanga banginika nje.

Interpreter: Okay,

Farmer: Bangivumela batsi ngingene.

Interpreter: Okay, I was just given.

Farmer: Kwakuluhlatsi.

Interpreter: Okay.

Interviewer: What type of soil is considered or chosen for sowing crops?

Interpreter: Kulendlela kulomhla... lana la ulime khona, ngumhlabatsi lonjani longuwona kutsiwa ke lona kutawulinywa kuwo tilimo kungabi ngulona wetinkhomo, luhloboni lwemhlabatsi?

Farmer: Eh, sasibuka nje indzawo kutsi lenzawo ivundzile.

Interpreter: Beyobonwa ngani kutsi ivundzile?

Farmer: Siyibona ngekutsi noma uhamba kuyo ayisingilo lugwangasi yomile.

Interpreter: Mm hmm,

Farmer: Ite ematje futsi kakhulu, ngoba tihlahla leti sasitishisila ngemlilo tiwe.

Interpreter: Tisuke?

Farmer: Tisuke.

Interpreter: It's a soil that does not have stones.

Co-supervisor: You know what I'm thinking with that question? It's better to phrase it next time, is to say, what is the best type of land for farming?

Interpreter: Ya.

Co-supervisor: Rather say that. To me that is a bet... I'm just saying it now aloud because that gives, will get you a more general answer.

Interpreter: Ya.

Interviewer: Okay.

Co-supervisor: For tomorrow we'll rephrase it, or even here.

Interviewer: Mm... okay, in the past were your forefathers able to choose the land to farm on?

Interpreter: Eh, kadzeni ke ngesikhatsi sabomkhulu, bebatikhetsela yini kutsi, bebakhona kukhetsa kutsi lendzawo lena itaba yekulima lena itaba yani... bebakwenta lokuhlikanisa kutsi lena yokulima lena yani?

Farmer: Kwakungehlukaniswa ngoba tinkhomo tativuka nebafana ekuseni bayotelusa, lize liyoshona ntsambama tibuye esibayeni.

Interpreter: Kusho kutsi letinkhomo betidla endzaweni lefana nalekulinywa kuyo?

Farmer: Tativuka kwak.... kwakufana nje. Kwakufana nalendzawo lekulinywa kuyo. Kutsi nje tona tatiluswa tibe tibuya lekuwola lemasimini.

Interpreter: Okay, no they were not able to choose, the land for ploughing and for livestock was just the same.

[Talk between interviewer and co-supervisor]

Interviewer: Okay. Do you plant different types of sorghum?

Interpreter: Eh, ingabe ekulimeni kwakho ulima tinhlobo temabele letehlukene yini?

Farmer: Besilima... Inhlobo yinye, lalabovu.

Interpreter: Nyalo?

Farmer: Kucala besilima labovu.

Interpreter: Ngulenhlobo yinye?

Farmer: Ngulenhlobo yinye, angiwati ke. Ngoba wona la elokwaneni ehlangeni lwawo akanemanti lamnandzi.

Interpreter: Nyalo nyalo ulima yinye inhlobo?

Farmer: Nyalo silima, silime nawa labovu.

Interpreter: Ulima lawo kuphela?

Farmer: Mm, ngoba lawa lamhlophe uyati ke nawe Vilakati sicoshwe yini.

Interpreter: Okay, kusho kutsi bowuwalima nawo nedi wase sewuyawayeka.

Farmer: Bengiwalima, ngawalima nje la ngawatfola. Tatiselibele letinyoni, tabona kutsi tinyoni hheyi uyaphila lo, tangishaya.

Interpreter: Okay, I use to plant different types of sorghum but now I'm planting just one type.

Interviewer: Which is? Which ones does he plant?

Interpreter: Kadzeni?

Interviewer: Now.

Interpreter: Now, now this is the NS5511.

Interviewer: Okay. So there aren't any indigenous that he's planting?

Interpreter: There are not, but long time ago there was.

Interviewer: Okay, before those ones which types did he grow?

Interpreter: Eh, ngatphambi kwekutsi ulime lawa Mkhulu lanka lasa lamasha, uyabona lawa lamasha nyalo?

Farmer: Lalabovu?

Interpreter: Lalabovu nalalamhlophe,

Farmer: Mm,

Interpreter: Kadzeni bewulima... angitsi bewuwalima kadzeni lawesintfu?

Farmer: Ya.

Interpreter: Bekung' ibobani lamagama awo?

Farmer: Kwakukhona bo Gabane.

Interpreter: Okay, one is Gabane,

Farmer: Mm,

Interpreter: Lenye ngubani mkhulu?

Farmer: Lamanye kutsiwa ngu Mathinikwane.

Interpreter: Eh, Mathinikwane.

Farmer: Mm,

Interpreter: Lomunye ngubani?

Farmer: Hawu lamanye, ngasengiyaphosisa. Kwakung' igcabane, kungu Mathinikwane, se lo lamanye kungu Mshake.

Interpreter: Eh, gcabane, Mathinikwane and Mshake.

Co-supervisor: Mshake. I know we've had it. We've just got to look at the notes.

Interpreter: Ya you have written something like Mshake, I think you know the spelling. Mshake.

Interviewer: Ok with the "k" neh?

Interpreter: Ya, Mshake.

Co-supervisor: Okay, with a "k".

Interviewer: Okay, why did you stop using that, those types?

Interpreter: Wayekelelani ke mkhulu kulima lenhlobo yakadzeni wabese sewulima leyanyalo?

Farmer: Yasiphelela ngekubalela kwelilanga.

Interpreter: Kwaphela lenhlanyelo?

Farmer: Mm, kwaphela lenhlanyelo nje, kwase kubate lenhlanyelo ngoba yona yayikhula iba yindze nje.

Interpreter: Okay,

Farmer: Nangitayijuba nje ngiyibambe ngente nje.

Interpreter: Wo, lena yase seyifika ngoba isetitolo?

Farmer: Mm,

Interpreter: Okay, we lost the indigenous varieties during drought and then after drought came these modern ones.

Interviewer: Can you see an improvement in the sorghum that you plant now compared to the one you used previously? If yes, what are the improvements?

Interpreter: Eh, nawubuka ke mkhulu kulenhlaneyelo leloyilima nyalo, lebeyilapha... ukhoni yini umehluko lowubona kutsi kumbe buncono noma bu.... sivuno kulebeyilinywana kadzeni, buncono kukhona yini buncono kutsi kumbe kungatsi kunconywana ngalana noma bekuncono emuva kunasembili?

Farmer: Hha kuyafana.

Interpreter: Kuyafana?

Farmer: Mm.

Interpreter: Kufana kanjani?

Farmer: Yayayitsela le nayo leyokucala.

Interpreter: Yayayitsela?

Farmer: Mm, nalena iyatsela angeke ngiyikhohlwe.

Interpreter: Wena koja awuwuboni mehluko?

Farmer: Cha, angiuboni mehluko, ngoba nankha nje siwavune khona nankha ngawo emabele.

Interpreter: Ok, there is no difference.

Co-supervisor: Nothing?

Interpreter: Ya, if there is, then it is no significant.

Co-supervisor: Okay.

Interpreter: Ya

Interviewer: What do you use the sorghum for?

Interpreter: Lamabele ke lakhulile lawa, niwasebentisela kwentani?

Farmer: Siwasebentisa kuwagaya sente indengane.

Interpreter: Indengane, yes.

Farmer: Sente mahewu.

Interpreter: Ya, yini lokunye?

Farmer: Sivuba nankhe masi, mm, ngelibisi.

Interpreter: Nivube masi?

Farmer: Mm,

Interpreter: Kuphume ini?

Farmer: Kubese kuba ngemasi phela.

Interpreter: Eh,

Farmer: Angitsi ngisila lamabele, aphekiwe.

Interpreter: Ya,

Farmer: Mm, bese ngiyawasila ke abayimphuphu sengiyavuba ke, ngiyavuba ke.

Interpreter: Kuphuma, ligama lakhona yini?

Farmer: Kutsiwa ngemasi nasesikwentile nje, mm.

Interpreter: Nasewukwentile kuba ngemasi?

Farmer: Ehe, kuba ngemasi.

Interpreter: Nawungakawenti lamasi kuba yini, ungakabhici nalamabele?

Farmer: Kuba khona umlaza, angabhici ke naletinkhobe, kutsiwa ngumlaza ke loyo.

Interpreter: Okay,

Farmer: Mm.

Interpreter: Okay, we use the sorghum for making thin porridge. We also use it, we mix it with emasi. We boil the sorghum, we grind it then we mix it with emasi, then we eat. Anibenti tjwala?

Farmer: Siyabenta, siyabenta nabo kulatiswe lempuphu lenhlama yakhona.

Interpreter: Okay, we also do the Swazi brew.

Interviewer: Ok, if the season to start planting does not present ideal conditions what steps or adjustments do you take to increase your chances of a successful harvest?

Interpreter: Nangabe ke mkhulu litulu liyabonakala kutsi alicaci kahle, le... lomnyaka awuvumi kutsi kulimeke. Wenta njani kuze uchubeke ulime utfole sivuno lesiphatsekako?

Farmer: Ey, cha ke Vilakati angifuni kuphosisa ngoba nalonyaka nayi indzawo yami ihleti.

Interpreter: Mm,

Farmer: Ngako kutsi imvula bekute imvula, iphutile kuchamuka.

Interpreter: Wenta njani, kute lokwentako?

Farmer: Kute lengikwentako.

Interpreter: Uyema nje ulindze litulu?

Farmer: Mm.

Interpreter: Okay, which means there is nothing I do. I just wait for rain, in case it comes. If it does not, I don't plough.

Interviewer: Is there any time that you let cattle or goats on to the field?

Interpreter: Kukhona la sikhatsi khona kutsi tinkhomo nityekele tingene imasimini tidle khona netimbuti?

Farmer: Nasingakalimi?

Interpreter: Sengisho nje [Interruption]

Farmer: Kwalesikhatsi njengoba nje nyalo kutawushaya June, titawungena tidle sekusebusika.

Interpreter: Kusho kutsi ebusika?

Farmer: Mm.

Interpreter: Okay, we allow them only in winter.

Interviewer: Okay. If you do not use cattle for manuring what do you use instead, before and now?

Interpreter: Kadzeni ke mkhulu nanilima, nanisebentisa umcuba musu kuvundzisa?

Farmer: Mm.

Interpreter: Naningakasebentisi wona nanifakani?

Farmer: Nasingakasebentisi wona kwakulukhuni kutsi sitfole imali siyotsenga manyolo.

Interpreter: Beningafaki lutfo?

Farmer: Besingafaki lutfo.

Interpreter: Nyalo ke naningakafaki lomcuba nifakani?

Farmer: Nasingakafaki lomcuba nyalo sifaka manyolo.

Interpreter: Ok, then we use only the kraal manure, if we have not use it, there is nothing we could have used but now if there is no kraal manure we buy the fertilizers

Interviewer: When in the year does ploughing begin and who does it?

Interpreter: Emnyakeni nje mkhulu nakutawucala kulima, kulima kucala nini? Asitsi nje kulima kutawucala, I season yekulima icala nini?

Farmer: Nyalo sesicala nga October.

Interpreter: Kucala nga October... kwentiwa ngubani lokulima?

Farmer: Mm?

Interpreter: Ngubani lolowenta lokulima?

Farmer: Ngitsi tsine ngemvula.

Interpreter: Oh, nalinile lakhaya?

Farmer: Mm.

Interpreter: Ok, which means the season starts in October and I do the farming with my family.

Interviewer: Ok, then when is harvest time, and who does it?

Interpreter: Kuvuna ke nivuna nini?

Farmer: Sivuna lo May, sivune June.

Interpreter: Eh, kuvuna bobani?

Farmer: Kuvuna tsine.

Interpreter: Ok, we harvest in May and June. Eh, I harvest with my family.

Interviewer: Is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Nangabe ulimile mkhulu mhlambe sewuvunile usamele kutsi uphindze ulime, kukhona yini lokwentako lokwenta lomhlabatsi wakho kuwuvusetela kutsi kumbe ulungele kulima lokulandzelako?

Farmer: Kute, kukhona nje nangabe ngihlanye noma mabhontjisi.

Interpreter: Sengisho kutsi nangabe nje sewuvunile ungakalimi, yini loyentako kukungisela kulima lokulandzelako?

Farmer: Ngiyagucula mhhala.

Interpreter: Ok, which means I do winter ploughing.

Interviewer: Okay, did you grow up around here?

Interpreter: Ye... ukhulele lapha yini mkhulu?

Farmer: Ngifike la sengimkhulu, sengimdzala.

Interpreter: Ukhulele kuphi kahle kahle wena?

Farmer: Ngikhulele eBonjeni lapha dvute ne Siteki.

Interpreter: Wo, letulu?

Farmer: Mm.

Interpreter: Okay, I grew up in Maphungwane which is the plateau, and then later I came here.

Interviewer: Okay, do people still plough using oxen?

Interpreter: Bakhona yini mkhulu labasalima bantfu basebentisa tinkhaba la?

Farmer: Kute.

Interpreter: Ah, no. No one.

Interviewer: Okay. When maize was introduced did your parents or grandparents continue growing sorghum?

Interpreter: Eh, mkhulu nakufika lesigaba kutsi la lombila kutsiwa bantfu bavuswe balime lombila, benta njani batali bakho, bawuyekela lo lamabele nya noma balima lombila benta njani?

Farmer: Abayekelanga, balima mabele balima umbila.

Interpreter: Hhayi, they continued with sorghum and maize.

Interviewer: Okay.

Co-supervisor: I just want to ask. Is it easier to do the farming with the tractor than the oxen?

Interpreter: Eh, Mkhulu... ingabe ku... ngikuphi loku kulula yini kusebentisa sigulumba kunetinkhaba? Noma kuncono kusebentisa tinkhaba kunesigulumba?

Farmer: Kuncono kusebentisa tinkhaba

Interpreter: Luncono kanjani?

Farmer: Tinkhaba ngangilima ngato kute tindleko.

Interpreter: Wo,

Farmer: Mm, ngilime ngaletinkhabi tami, ngivune. Nyalo lokungencono lasigulumbeni, ngiyalima ngesigulumba libalele kute lengikutfolako kuvulekile.

Interpreter: Okay, it was better using oxen because in oxen we were not paying, you're just using your own oxen but now we have to pay for the tractor and if there are no rains we have lost.

Co-supervisor: Oh, so why doesn't, don't they continue with the oxen ploughing, seeing he has the cattle?

Interpreter: Okay, anichubeki ngani mkhulu nilime ngetinkhabi niyekele letigulumba nyalo?

Farmer: Eyil! Vilakati, sekwaphela ngoba ngisho lemisebenti yakhona ngisho lamakhuba labesilima ngawo sekute asisawatfoli kahle.

Interpreter: Netinkhabi setaphela?

Farmer: Setaphela tinkhabi satitsengisa tinkhabi taphela.

Interpreter: Ok no Interruption]

Farmer: Kwafika nesomiso tafa.

Interpreter: There are no oxen now even if you have, the implements that are used by oxen there are a few now.

Co-supervisor: Okay.

Interpreter: There are no more new that are manufactured, just using the old one.

Co-supervisor: Ya.

Interpreter: Ya. Kuphelile?

Interviewer: Sesiqedile ke Mkhulu.

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- Interpreter: *Lemibuto yefu kemake lana sitaphendvula lemibuto lela. Utayibuta ngesingisi ngitase ngitolika ngeSiSwati. Nawuphendvula nawe uphendvula lemibuto lelana nje sitosheshe sicedze sicondze ngco kuyo sitsi yabo, singayikhashane kakhulu sicondze lakuyo sitophesta lamabili matsatfu ngoba kunalabanye bantfu lengetulu. Singacala.*

The questions we are going to be answering are the ones here. She will ask in English and I will translate to SiSwati. When you reply, let's get straight to the point saying a few words because there are more people who live very far. We can start.

➤ Farmer: Ok.

- **Interviewer: *Ngingamubuza uzalwe nini?***

Can I ask when she was born?

- Interpreter: *Ya, watalwa 1950 mosi?*

Yes, you were born 1950 right?

➤ Farmer: I was born 1950.

- **Interviewer: When did you begin farming?**

- Interpreter: *Nawutalwa nga1950, wacala nini nje kulima?*

Since you were born in 1950, when did you start farming?

➤ Farmer: *Kulima? Ngacala ngabo 71. Vele nangtfolo umtfwana.*

Farming? I started in 1971. After I had my child.

- Interpreter: *Wacala '71 nawucedze kutfolo umtfwana? I start in 1971.*

You started in '71 after having your child?

- **Interviewer: What do you grow now and what did you grow then?**

- Interpreter: *Nawucala lokulima kadzeni nga71 wawulima ini nje?*

When you started planting long ago in 1971, what did you grow?

➤ Farmer: *Sasilima umbila nabobatata.*

We used to grow maize and sweet potato.

- Interpreter: *Nani lokunye?*

What else?

➤ Farmer: *Nema dvonca nje. Emantongomane.*

Sesame seeds plant. Groundnuts.

- Interpreter: Then we grew maize, groundnuts, sweet potato and this lidvonca I will tell you before the end of the day. *Nyalo ke nilima ini ngoba senishito kwakadzeni nyalo ke?*

Now what do you plant as you have said the ones from the past?

- Farmer: *Nanyalo siyaqubeka lokulima lombila mane uyala lombila, ngiyaqubeka lokulima lokwakotini, netindlubu natotiyala nemabele.*

Even now we still continue to grow maize but it's difficult, we continue with cotton, jugo beans which is also difficult and sorghum.

- Interpreter: It means now we are growing cotton, jugo beans, a bit of maize and sorghum.

- **Interviewer: Then, did she grow any sorghum?**

- Interpreter: *Kadzeni bowulima emabele kadzeni?*

In the past did you grow sorghum?

- Farmer: *Azange ngiwabone, ngiwacale manje ukufika la.*

I never saw them, I only started now, here.

- **Co-supervisor: Ask her why she has interest now?**

- Interpreter: *Waukhulela kuphi?*

Where were you born?

- Farmer: eSitsatsaweni.

- Interpreter: eSitsatsaweni is just closer to Maputo.

- **Co-supervisor: Closer to Mozambique?**

- Interpreter: Ya, closer to Mozambique just on your way to the border. On your way to Mhlumeni there is a right turn.

- Co-supervisor: But it is Lowveld?

- Interpreter: It is Lowveld.

- **Interviewer: Who taught you how to farm?**

- Interpreter: *Ngubani lowakufundzisa kulima?*

Who taught you how to farm?

➤ Farmer: *Ngatifundzela nami kubatali bami.*

I learnt for myself from my parents.

- Interpreter: I was taught by my parents.

- **Interviewer: What makes a harvest successful?**

- Interpreter: *Kulo kufundza kwakho kubatali bakho yini nje lowakubona wena kutsi, okuwenta kutsi umutfu angaba nalesivuno lesiphilako?*

When you learnt from your parents, what did you see brings a successful harvest?

➤ Farmer: *Ngulokutsi phela uhla kule, [inaudible] uhlanyele noma kune lemvula.*

It is weeding, planting after rains.

- Interpreter: It is when you do weeding and getting enough rainfall.

- **Interviewer: Do you use information that your grandparents used?**

- Interpreter: *Lukhona lwati lwebatali bakho nobe lwebantfu bakadzeni lolusebentisako nyalo?*

Is there any information from your parents or people long ago that you use now?

➤ Farmer: *Bebalima ngetandla, ngiyakusebentisa ukulima ngetandla.* Lamabele lawa nje ngiwagalele.

They would plant using their hands, I still use my hands to plant. Even this sorghum has been hand ploughed.

- Interpreter: Yes there is knowledge that I use from my grandparents. I plough using my hoe, hand ploughing.

- **Interviewer: Ok. Can you take me through the process from beginning of the planting season right up to the harvesting period, then and now?**

- Interpreter: *Nawukhumbula kadzeni kulokulima kwakadzeni, besicela mane usicazele kutsi kadzeni makutakulinwa bekwetiswa naku besekuyalinwa, uqubek' uqubek' uqubeke sizesiyofika ekugcineni siyavuna sifake emathangeni nasifaka emathangeni nomasifaka kuphi. Usuke laphasi ukhuphuke utsi. Lobekweniswa kadzeni.*

If you can try to remember long ago how they farmed, please explain to us the process of planting they used to do then when they planted from the beginning and continue with it, like this etc. until the end of harvest and collecting to put into tanks if you used those or wherever you used to put it. Start from the beginning and go with it. From the past.

- Farmer: *Bengibabona labanye batsi bayagaba bembe tigodzi netigodzi emvakwaloko bayahlakula bahlanganise bentengatsi kulinwe ngesigulumba.*

I used to see others say they dig many holes and then cultivate the area to mix it such that it looks like a tractor cultivated it.

- Interpreter: *Qubeka uze uhlanyele umbila wakho nomemabele akho uze uyofika enyangweni.*

Continue until you plant your maize or sorghum until you reach the storage room.

- Farmer: *Kuyamila uyahlakula, ufaka manyolo usakate bese emvakwaloko nasekuvutsiwe, soyawakha umtjamba, inyango, yekubekalokudla. Besukugubela engungwini. Ingungu ngugosi lapha esibayeni, sibubeke khona laphasi, usindze kahle lephasi, besuyakubeka lokudla kwakho. Kwakulethange leSiswati.*

It grows you weed it and add manure, when it has when it has full grown you build a umtjamba, stick-like crib, to store the food in. You then dig a hole in the kraal where you will place it at the bottom. You would smear properly at the bottom and then place at the food there. That was the Swazi tile.

- Interpreter: *Ngifuna ungicazela kahle ngale ntjamba.*

Please explain the ntjamba properly.

- Farmer: *Umtjamba angitsi ngulenyango.*

Umtjamba is the crib.

- Interpreter: *O nguleligama lenyango. Sitobuye sicazane kwanyalo.* What we did, we plough using a hoes, after ploughing the whole field then we plant. Then we wait for it to emerge, after emerging then we start managing it using a hoe. After that we wait for it to be ready, when it is ready we harvest. Then we put it in our cribs which we make by sticks, just which is called Intjamba. It's almost the same cribs like the, what the old man mentioned almost, only this one is using a different name which is Intjamba. After shelling the maize or the sorghum they put it in the Ingungu which is inside the kraal. I think if I have time and go via our national archives I think they have these names.

Oh it's the name given to the crib. We will get back later to explain.

- Interpreter: *Nyalo ke awusitsatse kulokulima kwanyalo. Angitsi bowusitjela ngekwakadzeni awusicazele kwanyalo kwentiwanjani toti toti kuvunwe kufakwe etinyangweni nalamathange.*

Now can you take us through the planting for now. As you had told us about the olden times explain to us what happens now until harvesting and putting in cribs or tanks.

- Farmer: *Nyalo phela angitsi sihamba siyobadala kaRDA asilimele.*

Now we go to pay RDA for their services, and they plough for us.

- Interpreter: *Ulima ngani RDA?*

What does RDA use to plough?

- Farmer: *Ngilima nga RDA*

- Interpreter: *Ngesigulumba.*

A tractor.

- Farmer: *Besesekeyakhula ke sesiyahlakula, besesihlakula nakakhula lombila ke sowulungisile umjamba wetfu besesesiyavuna, siyatsatsa siyabeka, uyatsatsa siyavuna sifaka emathangeni. Besesesiyagudla lamabele sesifaka emaphilisi. Sentela kutsi kungaphehla.*

Then it grows and we weed, we weed as the maize grows, then prepare Umtjamba then you harvest it. You take it and put it, we harvest and place in the tanks. We weave the sorghum and add pills to preserve them.

- Interpreter: Now we pay for tractors in RDA. They come and plough.
- Co-supervisor: What does RDA stand for?
- Interpreter: Rural Development Agency.
- Co-supervisor: It is the government thing?
- Interpreter: Yes it is a government thing. We pay for tractors, they come and plough then we plant. After that we wait for it to emerge then we manage weeds. After managing weeds we wait for it to grow and it becomes ready then we harvest and put it in cribs which is called Intjamba. A crib, the name for a crib Intjamba not that it is a special name for the old cribs. It's just a crib is called Intjamba. After that we shell it, then put it in metal tanks. Then we weevil tablet to control weevil.

• **Interviewer: How did you acquire the land that you have been using to farm?**

- Interpreter: *Lenzawo leniyisebentisako kulima nayitfolo kanjani?*
How did you get the area that you use to farm?

➤ Farmer: *Siyakhonta*.

Ask from the chief.

- Interpreter: *Ukukhonta* system.
- **Interviewer: Did you choose which land you were given?**
- Interpreter: *Ngabe nakhetsa yini kutsi nifuna ninikwe lena nobe nanikwa nje?*
Did you choose which area you wanted to be given or you were just given?

➤ Farmer: *Sanikwa*.

We were given.

- Interpreter: We were given. No choosing.

- **Interviewer: What is the best land for farming?**

- Interpreter: *Ngiyiphi indzawo loyibona iyinhle ekulimeni? Uyibona ngani lekhahle kutsi lena ikahle ngingalima kuyo?*

What land do you see as good for farming? How do you see that this land is good to farm in?

➤ Farmer: *Angitsi sicala ngokutsi siyigucule uyabona lokungatsi sidzaka nje sibona ngako, ukutsi lona kuvunzile.*

We would start by turning over the soil that looks fertile.

- Interpreter: *Nyalo nanilima aniwuhloli?*

Now when you plant you do not check?

➤ Farmer: *Sisengagakayi.*

We have not gone yet.

- Interpreter: Good soil for ploughing, for growing crops is the one which is clay-loam.

- Co-supervisor: Where do you find that clay-loam?

- Interpreter: In most cases here in the Lowveld, it's clay-loam. Sometimes I call them hard-dark soil. They are very good in ploughing this one.

- Co-supervisor: What is the other name? Hard?

- Interpreter: Hard-dark soil. That's why we have a lot of sugarcane in this area, because the soil are good.

- Co-supervisor: It's good, it's just that there is a shortage of rain.

- **Interviewer: In the past were your forefathers able to choose the land to farm on?**

- Interpreter: *Kadzeni kusanabomkhulu mhlawumbe nawe usandzakuvela, bebanako kutsi bayatikhetsela kutsi bebefuna kulima lana, kutakudla tinkhomo la nobe bekwentiwa njani?*

Long ago, when your forefathers were alive possibly before your birth, did they have choice on what land they wanted; whether to farm here or rear cattle or do whatever with it?

- Farmer: *Bebavele emadlelo awodwva nemasimu awodwva.*

They had farming land separate and grazing land separate.

- Interpreter: *Bebakhona kutikhetsela?*

Where they able to choose for themselves?

- Farmer: *Yebo bebatikhetsela.*

Yes they chose for themselves.

- Interpreter: They used to separate land for livestock and then for ploughing.

- **Co-supervisor: Don't they do that now as well?**

- Interpreter: Ya, they do it now in some other areas, but in most areas there is no land that is for livestock just they are focusing on homestead. You will see how you are going to feed your livestock.

- **Interviewer: Do you plant different types of sorghum?**

- Interpreter: *Nyalo kulokulima kwakho ngabe lowalimako lamabele akho ngabe tinhlobo letihlukene nobe inhlobo yinye, nyalo?*

Now in your planting, do you plant different types or one?

- Farmer: *Nyalo bebatsite asilime inhlobo, yinye tinyoni tidle ngalana kulalawhite lawabovu titabangcono.*

Now, they said we should plant one type because the birds eat the white kind mostly so the red will be better,

- Interpreter: I plough two varieties, the modern ones.
- **Interviewer: Before using those varieties, which types of sorghum did you grow? Can you remember?**

- Interpreter: *Kadzeni kukhona letinhlanyelo tamabele lotatikho mhlawumbe bebatilima noma abanye abantfu, kutsi labebalima emabele batsi bebatilima letinhlobo?*

Do you know of the different types of sorghum that were planted long ago by people; what types of sorghum do others say they used to plant?

- Farmer: *Ngulamabele lasakata kanje, batsi ngu Mshake.*

It's the sorghum which you broadcast called uMshake.

- Interpreter: *Nitsi nguMshake?*
- You call it uMshake?

- Farmer: *Ngulesinye sigadla lesingaka.*

It is a huge lump, this big.

- Interpreter: *Ngiyabona, ngumaphi lamanye?*
- I see, which other ones?

- Farmer: *Angisawati lamanye.* [Inaudible]

I don't know others.

- Interpreter: I only remember *uMshake*.

- **Interviewer: What do you use the sorghum you grow for?**

- Interpreter: *Lamabele leniwalimile niwasebentisakanjani?*

How do you use the sorghum you have planted?

- Farmer: *Sigaya incwancwa,*

We make soft porridge

- Interpreter: *Nanilokunye?*

What else?

- Farmer: *Lokunye kuticaba niyawapheka avutfwe njengamantongomane, [inaudible] wenteliphalishi.*

Also we cooking ticaba, to boil like nuts... you do porridge.

- Interpreter: I make thin porridge, also make ticaba.

- **Co-supervisor: What is it?**

- Interpreter: Ticaba, you start by you boil the grains, then after boiling you grind them with a stone or you take that *khobola* thing, you remember that one? *Uwabica nani?*

What do you mix them with?

- Farmer: *Nestambu uyasenta.*

You can even make samp.

- Interpreter: Awukhumbuli abanye basidla sinjalo nje odwa?

Do you know of people eating it plain like that? (or eating it alone).

➤ Farmer: *Abanye basebica netinhlumaya.*

Others mix it with cowpeas.

○ Interpreter: After you grind them, you mix them with cowpeas. Or some they eat as it is.

▪ Co-supervisor: Does she still use either the wooden stamp or the grinding stone?

○ Interpreter: *Nyalo uwagaya ngani nyalo?*

Now, what do you use to grind them?

➤ Farmer: *Ngisenkayi.*

I haven't gone yet.

○ Interpreter: *Kusenteka uwagaye? Sengisho kugcina kwakho kuwagaya wagaya ngani? Yinilokusebentisako kuwagaya?*

Do you still grind them? I am at your home how do you grind them? What do you use to grind them?

➤ Farmer: *Emshinini.*

A machine.

○ Interpreter: No, *nawenta leticaba?*

When you make the ticaba?

➤ Farmer: *Litje.*

A stone (grinding stone).

○ Interpreter: *Unalo lelitje?*

Do you have that stone (grinding stone)?

➤ Farmer: *Yebo.*

Yes.

○ Interpreter: Yeah I use a stone, I have it now?

■ Co-supervisor: Can we see? Can she show it to us?

○ Interpreter: *Ungasikhombisa nje?*

Can you show us?

➤ Farmer: *Lelitje?*

The stone (grinding stone)?

○ Interpreter: *Ya logaya ngalo.*

Yes the one you use to grind with.

■ Co-supervisor: What do you call the stone in SiSwati?

○ Interpreter: *Yini igama lalelitje?*

What is the name of this stone?

➤ Farmer: *Litje.*

A stone

○ Interpreter: *Lelitsini?*

That does what?

➤ Farmer: *Angilati ligama lalo.*

I don't know its name,

○ Interpreter: *Ulibita ngani wena?*

What do you call it?

➤ Farmer: *Ngati kutsi litje lokusila.*

I just know it is a grinding stone.

- Interpreter: There is no specific name, just a grinding stone. No specific name I know.
- **Interviewer: Okay I can carry on? Okay, so if the season of planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of harvest?**

- Interpreter: Okay, *nangabe lelitulu libonakala kutsi lelitulu lalonyanka akusilo lelikhomba litosinela kahle njenga leli belivelile, yini lokwentako wena lotakulungiselela kutsi mhlawumbe utotfola sivuno utokhona kutsi uqubeka ulime utfole sivuno? Utingiselele ngani nangabe simo uyasibona kutsi lesimolesi siyabedza, yini lokwentako?*

If it looks like the rain for this year is not going to be enough like previous one, what do you do to prepare yourself so that you get a good harvest so that you can continue planting for another harvest? How do you prepare yourself when the situation presents itself tough, what do you do?

- Farmer: *Ngilimakotini.*

I plant cotton.

- Interpreter: Okay, *kulamabele yini lokwentako?*

What do you do with the sorghum?

- Farmer: *Lokutsi utinisele kahle.*

It is good irrigation.

- Interpreter: *Lokutilungisela, nawubona nje kutsi litulu ngeke line? Wenetanjani uze ugcine ulimile ubenesivuno?*

That is what you do when you see that it will not rain well enough? What do you do to have a harvest?

- Farmer: *Ngiyalima nje nomalingani kahle. Ngeta yenta konkhe.*

I just plant even if it does not rain. I do everything.

- Interpreter: Okay, which means irrespective there are no rains I just plough.

- **Interviewer: Is there any time that you let cattle or goats on to your fields?**

- Interpreter: *Sikhona sikhatsi lapho tinkhomo uyatyekela tingene emasimini?*

Is there a time when cattle get into your field?

- Farmer: *Ebusika.*

In winter.

- Interpreter: We allow only in winter.

- **Interviewer: If you do not use cattle for manure, what do you use instead, now and before?**

- Interpreter: *Kadzeni benisebentisi manyolo noma umcuba? Nangabe beningasebentisi wona beni sebentisa ini?*

Did you use manure or fertilizer in the past? If you did what did you use?

- Farmer: *Kute angisho bekute tinkhukhu.*

Nothing, we had no chickens.

- Interpreter: *Nyaloke nakute umcuba usebentisa ini?*

Now what do you use if you have no fertilizer?

- Farmer: Manyolo.

Fertilizer.

- Interpreter: Then if we have not use kraal manure, there is nothing we used but now if do not use kraal manure we use fertilizer.

- Interviewer: When in the year does sowing begin and who does it?

- Interpreter: *Emnyakeni, sikhatsi sekulima sicala nini?*

In recent years when has the planting season began?

- Farmer: *La?*

Here?

- Interpreter: Eh eh.

Yes.

- Farmer: *Sicala ngaOctober.*

We start in October,

- Interpreter: *Kulima bobani?*

Who plants?

- Farmer: *Tsine, uyatilimela nje sigulumba sivame kuta ngapha.*

Us, you plant for yourself, the tractor usually comes that side.

- Interpreter: *Sesitsi labamekulungiselela kulima kubangubani? Nguwe noma ucela bantfu, noma kuba ngubani, noma ngumkhulu?*

Who prepares (ploughs) the land for you? Is it you, do you ask people or is it your husband?

- Farmer: *Siyatilungiselela nje.*

We prepare it for ourselves.

- Interpreter: *Nguwe nemdeni wakho?* Which means season begins in October,

So it is you and your family?

➤ Farmer: If it's raining.

- Interpreter: Oh if it's raining. Which means it starts in October if it rains, in October we start planting and I do the planting with my family.

- **Interviewer: And then harvest time?**

- Interpreter: *Bese nivuna nini?*

When do you harvest?

➤ Farmer: NgaboJanuary.

Around January.

- Interpreter: Which means if we planted in October we harvest January. *Kuvuna bobani?*

Who harvests?

➤ Farmer: *Kuvuna mine phela nangilimile.*

It is me because I planted.

- Interpreter: Which means if we plant in October we harvest January.

- **Interviewer: Is there anything you do to ensure the land recovers between seasons?**

- Interpreter: *Kukhona lokwentako kutsi nangabe sekuphele yonkintfo, asesitsi sekubusika lonkwentako kutsi lendzawo bowolime kuyo kutsi iqhubeke ikukhicikele kahle emnyakeni lolandzelako?*

Do you do anything afterwards, say it is winter, do you do anything that prepares the land you had planted in to continue to yield enough in the following year?

➤ Farmer: *Ngiyayicenta ngigucule.*

I take out weeds and till the soil.

- Interpreter: Which means I practise winter ploughing.

- **Interviewer: Do people still plant using oxen?**

- Interpreter: *Bakhona labasasebentisa tinkhabi la kulima.*

Are there people who use oxen to plant?

- Farmer: *Cha kute.*

No, no one.

- Interpreter: None.

- **Interviewer: When maize was introduced did your parents and grandparents continue planting?**

- Interpreter: Ya

Yes

- Farmer: Ya

Yes

- Co-supervisor: Can I ask one question? When we said about getting a good harvest and she said she ploughs irrespective of rain, does that mean she prepares it and doesn't put the seeds, or does she put the seeds?

- Interpreter: *Nankatsi nikubuta ngendaba yekutilungiselela kutsi nangabe utilungiselela kutsi nangabe itulu alikho kahle utsite uyahlanyela nje umele imvula, uyahlanyela umele imvula? Ngifuna kubuta kutsi uhlanyela kutsi kumbe ufaka inhlanyelo noma ulima kuphela ulindze kutsi*

malina bese uyahlanyela noma wentanjani? Noma wentakutsi malina bese uyahlanyela noma ulima kuphela ufake inhlanyelo emvakwekulinile?

When I asked you about how you prepare yourself, you said you plant then wait for the rain? I want to ask do you plant as in put in the seed into the ground or just till the land then wait for the rain then you plant or what do you do? Or you wait for the rain then you plant or you just plant after rains?

➤ Farmer: *Malikitsika kancane besengiyahlanyela.*

When it rains a little bit then I plant.

○ Interpreter: *Nangabe nje lingakani ulima kuphela uhlale?*

When it has not rained you just till the land and wait?

➤ Farmer: Ehe.

Yes.

○ Interpreter: Okay which I plough and then wait for rain. If rain comes and then I plant, I put the seed.

○ Interpreter: *Kuphelile?*

It's finished?

• Interviewer: ***Sekuphelile. Siyabonga kakhulu make.***

We are done, thank you mam'.

○ Interpreter: *Siyabonga kakhulu sisifike ekugcineni.*

Thank you very much, we have reached the end.

INTERVIEW 10: FARMER 10

Co-supervisor: What year is '59?

Interpreter: Eh... watalwa nini?

Farmer: 1960.

Interpreter: Ya vele 59. Eh, kusho kutsi make ngihamba na... ngu Nandi lo, eh, uhamba namake Thembi. Basuka le eSikhwahlanti.

Farmer: Bowu two?

Interpreter: Bobabili basuka eSikhwahlanti. Bafuna kwati kabanti ngendlela yakadzeni lebekulinywa ngayo, tintfo betenteka kadzeni, nalendlela lesekulinywa ngayo namuhla kwekutsi sifika njani namuhla sisukaphi uyabona?

Farmer: Mm,

Interpreter: Batawufisa kwati nje lokwatiko wena ngaloko koja kunemibuto lela lesitahamba silandzela yona uyabona. Konkhe kutativelela nje sihamba ngalemibuto. Make ubuta ngeSingisi mine ngiyakutoligela ngeSiSwati, wena uphendvula ngeSiSwati sengiphindze ngibuyisela kuye ngeSingisi.

Farmer: Kumuphi?

Interpreter: Ku... ngibuyisela kuMake.

Farmer: Wo.

Interpreter: Na Make Thembi utakubuta imibuto naye. Uta, nangabe kunelokhuzana. Asicale, ukuna nkinga.

Interviewer: Okay. When did you begin farming?

Interpreter: Eh, wacala nini kulima?

Farmer: Kulima kuphi?

Interpreter: Kulima nje emphilweni yakho.

Farmer: Emphilweni yami?

Interpreter: Ehe,

Farmer: Ngacala... eyi, angiwati phela mine mnyaka ngitalwa.

Interpreter: Bekisa.

Farmer: Ngitalwa, ekhaya kitsi hhayi la,

Interpreter: Eh, lawacala khona nje kulima.

Farmer: Yebo. Babe wami bekanguwa 1920.

Interpreter: Eh,

Farmer: Ehe,

Interpreter: Wena watalwa '59, watalwa '60.

Farmer: Ngatalwa 60 mine.

Interpreter: Wacala nini kulima?

Farmer: Nginabo... 12 years, bekungu... [Interruption]

Interpreter: Kusho kutsi bo 70 something?

Farmer: Mm, bo 70 something.

Interviewer: '72 or so,

Interpreter: '72 or so.

Farmer: Ehe, siyacala siya... kuyalinywa, bekulinywa ekhaya kitsi. Besilima eLufutfu.

Interpreter: Kutawuvela loko sisachubeka la, sitawulandzela lemibuto utatsi utawu [Interruption]

Farmer: Okay.

Interpreter: Ya, chubeka.

Interviewer: Okay. What plants did you grow then and now?

Interpreter: Ehm, ngutiphi tilimo bowutilima kadzeni nawucala nje le kubo 70 bani bani, benilima ini?

Farmer: Besilima emabele,

Interpreter: Ehe,

Farmer: Nemfe,

Interpreter: Okay...

Farmer: Nembila,

Interpreter: Okay,

Farmer: Nematabhane,

Interpreter: Okay...

Farmer: Nabatata,

Interpreter: Ya...

Farmer: Nemjubula,

Interpreter: Mjumbula?

Farmer: Ehe.

Interpreter: Okay.

Interviewee: Nemoba,

Interpreter: Oh ya...

Farmer: Emabele ngiwabalile musi?

Interpreter: Ya, uwabalile.

Farmer: Yebo.

Interpreter: Are you okay?

Interviewer: Ya,

Interpreter: Is it okay?

Interviewer: Ya. Bengifuna ukuthi azozwakala kahle.

Interpreter: Oh okay. We were growing maize, sorghum, cassava, ematabhane, sweetcane,

Co-supervisor: What's amatabhane?

Interpreter: Ematabhane? There's this eh, it's sort of eh... potatoes. It's like potatoes but the small ones. Ya, they are uhm, it's like they are bitter when [Interruption]

Farmer: Nedonca.

Co-supervisor: Oh...

Interpreter: Eh, dvonca?

Farmer: lidvonca.

Interpreter: Okay,

Farmer: Mm.

Interpreter: Okay eh, utseni?

Co-supervisor: Maize, sorghum,

Interpreter: Maize, sorghum, cassava, ematabhane, eh... lidvonca, lidvonca... you know
[Intteruption]

Co-supervisor: Is that the one you said before?

Interpreter: Ya it's the one [Interruption]

Co-supervisor: The one you couldn't remember?

Interpreter: Ya I couldn't remember, but I [Interruption]

Co-supervisor: Let's write it again.

Interpreter: I think you know it. You see when you buy this, there are some buns which are... buns
then you find something which is white and sprinkled on top of the buns?

Interviewer: Ya.

Interpreter: That's tidvonca.

Interviewer: Oh, cinnamon?

Interpreter: Not cinnamon but it's white [Interruption]

Co-supervisor: No, something white.

Interpreter: Something white but almost like cinnamon.

Farmer: Netinhlumayo.

Interpreter: Eh [inaudible] cowpeas.

Co-supervisor: Is it a sweet thing or savory, that white thing?

Interpreter: That white thing? Ok please remind me just when you finish with this interview. I'll have
to call someone just want to ask him to remind me the name.

Interviewer: Okay.

Interpreter: Eh, lidvonca, cowpeas, sweetcane. You know sweetcane?

Co-supervisor: Is it sugarcane?

Interpreter: Sweetcane. Sweetcane it's like the sorghum tree but the head is not eaten, they only eat
the stem. That is sweetcane.

Interviewer: Oh,

Interpreter: Ya.

Co-supervisor: Is it indigenous?

Interpreter: Ya, indigenous, there's no modern sweetcane, only indigenous. Eh, nyalo senilimani nyalo ngoba kadzeni benilima lolokushito, nyalo kulinywani nyalo?

Farmer: Nyalo lokusilima, silima emabele.

Interpreter: Mabele, nani?

Farmer: Nanang' umjumbula,

Interpreter: Nemjumbulu,

Farmer: Nembila,

Interpreter: Nembila.

Farmer: Ehe. Kakhulu nyalo sesilim' emabele netinhlumayo, le seku... lesesikulima ngalelilanga, umbila hhayi

Interpreter: Okay, now we are planting eh sorghum, cowpeas and cassava.

Farmer: Nemantongomane nawo ngiyawalima.

Co-supervisor: What's cowpeas?

Interpreter: Cowpeas?

Co-supervisor: Ya, all this time I don't know what it is.

Interpreter: You don't know cowpeas?

Co-supervisor: Is it like a bean?

Interpreter: Ya it's like a bean but a small one, it is small.

Co-supervisor: Okay.

Interpreter: Ya.

Co-supervisor: Is it green?

Interpreter: It depends on the variety. Some they are green, some they are black, some they are white, ya.

Interviewer: Makhulu?

Interpreter: Small.

Interviewer: Small, small?

Interpreter: Ya, they are small.

Co-supervisor: Like mung beans? Does it look like a mung bean, that size?

Interpreter: Ya, it's almost but a bit bigger, and it has a... sort of a head, but mung beans are just round, this ones are not a round shape.

Co-supervisor: Okay.

Interpreter: Ya.

Interviewer: Cowpeas are not round?

Interpreter: Which ones?

Interviewer: The cowpeas?

Interpreter: They are not round, they are like beans but they are small.

Co-supervisor: Okay.

Interviewer: Okay.

Interpreter: Unato tinhlumayo ma, tinhlumayo nato lapho?

Farmer: Letilinyiwe?

Interpreter: Noma tingakalinywa nje, kukhona labangabona langatsi tinhlumayo uyatati.

Farmer: Tikhona.

Interpreter: Okay, sacela nasicedzile unakhuze,

Farmer: Okay.

Interviewer: Who taught you how to farm?

Interpreter: Ngubani lowakufundzisa kutsi kulinywa kanjani?

Farmer: Ngubabe wami.

Interpreter: My father, I was taught by my father.

Interviewer: Okay, what makes your harvest successful?

Interpreter: Yini nje leyenta kutsi sivuno kutsi sibe ngilesihle?

Farmer: Eh, besifaka umcuba tsine nakasifundzisa babe, and then besitsi ngekucedza kuvuna bese kukhishwa umcuba lasibayeni, sesiyatsela lamasimini. Sowuya, Siyawusakata nakuse, sesiyawugucuala kutsi ushone phasi.

Interpreter: Okay.

Farmer: Ehe, nakufika timvula lake sesi, tiyangena futsi tinkhabi tiyala... bekufatwa futsi kadzeni besingalandelel' inkhabi.

Interpreter: Mm hmm, sengisho kutsi lokwenta nje kutsi kutsiwe sivuno lesikahle.

Farmer: Mcuba.

Interpreter: Okay.

Farmer: Kadzeni besisebentis' umcuba.

Interpreter: Ok, it's application of kraal manure.

Interviewer: Do you use information that your grandparents used when you farm?

Interpreter: Kukhona yini lwati lolusebentisako lowalifundza kubatali bakho nomakubokhokho bakho lolusebentisako nyalo?

Farmer: Ngulokulima lamabele, vele ngiyawalima ngoba ngikhule ngawo.

Interpreter: Iya, I use the information.

Interviewer: What is that information?

Interpreter: Eh, growing sorghum.

Interviewer: Okay. Uhm, but like, what, what, techniques?

Interpreter: When growing sorghum?

Interviewer: Ya.

Interpreter: Oh okay. Ngiliphi, angitsi ba.... ulima mabele?

Farmer: Mm.

Interpreter: Kulokulima lamabele nguyiphi lendlela [interruption]

Farmer: Lengilima ngayo?

Interpreter: Loyisebentisako yekulima lamsbele lowayifundza kadzeni?

Farmer: Angisayisebentisi.

Interpreter: Kute loyisebentisako kuleyakudzala?

Farmer: Angitsi kadze... nyalo sesilima ngekonga.

Interpreter: Kadzeni bekungentiwa?

Farmer: Kadzeni bekufatwa. Shutsi konga kwakhona bekungulokufata yini, angati lokutsi bekwi... nyalo angitsi konga tigodzi.

Interpreter: Mm,

Farmer: Kadzeni benifata bese sekulandzelela tinkhabi seke nine anisatilandzeleli.

Interpreter: Usho kutsi nyalo kute lolwati lolusebentisako kulokulima lamabele lowalimunya kadzeni?

Farmer: Kulokulima noma ku... eyi ngikusebentisa ku... Nasengiwavuna.

Interpreter: Wo kukhona lokusebentisa nasewuwavuna?

Farmer: Yebo, nasengiwavunile sengilokuwa... uyabona lokutsi uwabhule?

Interpreter: Okay,

Farmer: Hhayi lokutsi uwabhule ngalomshini, uwabhule ngesandla njengakadzeni.

Interpreter: U... [Interruption]

Farmer: Uwashaye njengakadzeni, uwashaye ngemzaca.

Interpreter: Kukahle ngani lokuwashaya kunekubhula ngemshini?

Farmer: Angitsi lomshini (nangu ke mkhulu). Angitsi lomshini yintfo yebelungu?

Interpreter: Ya,

Farmer: Ngite ke min' umshini, mine ngati kutsi libele, bekisindvwa la ebaleni, lelibala leli nisindze bese nasekuhliwe seniyawatsela niyawashaya ngemzaca niyawabhula niyawashaya ayahhohloka.

Interpreter: Okay.

Interviewee: Mm

Interpreter: Yebo mkhulu. Awusicelele sitawukhuluma naye nasicedza la.

Farmer: Ye mkhulu! Batsi bayakucela nabacedza ngami batawukhuluma nawe, bayakucela, yenta lokwentako batabe sebayakubita.

Interpreter: Okay, yes there is a technique that I use which I learnt long time ago, on how to... during shelling of the sorghum, I use a stick as oppose to using a machine.

Interviewer: Okay uhm okay. Can you take me through the process from the beginning of the planting season right up to the harvest period, then and now?

Interpreter: Asewusichazele ke make kutsi angitsi kadzeni bekulinywa, eh uke waveta kutsi benisakata, usichazele nje kutsi kadzeni nanilima kusukela ekucaleni kutsi benilima kanje sihlanyele kanje, sichubeke kanje sivune kanje, sikubeke kanje lokudla kwetfu kuze kufike ekugcineni, likubekwentiwa kadzeni. Nawucedza kona utabes' uphindze sewusichazela lokwanyalo kutsi nyalo sekwentiwa njani

Farmer: Kadzeni besifata phela.

Interpreter: Yebo.

Farmer: Sicale tinkhabi titime tinkhabi.

Interpreter: Nifate?

Farmer: Sifate yonkhe lensimi kuyofika le, bese ke tinkhabi tita ngemuva tigcibela lenhlanyelo lesiyifatile tsine. Nakumila siyahlakula. Nekuphisw' emalimo ke kadzeni, nicele bantfu nihlakule ke, nanicedza kuhlakula tsine bantfwana besihlala lemasimini,

Interpreter: Yebo,

Farmer: Silindze letinyoni kutsi tingawadli lamabele. Akhule ke bese ayavunwa emabele, ome besayavunwa amikiswa ekhaya. Bekaboshwa kadzeni emabele, bekulikwa tintsambo.

Interpreter: Okay,

Farmer: Tintsambo telukwe telukwe bese niyawuphambatisa.

Interpreter: Tilikwa ngani letintsambo?

Farmer: Telukwa ngemsungutane, angati lapha kutsiwa yini msungutane, noma akusilo litintsi.

Interpreter: Msung... ngiyawubona mine msungutane.

Farmer: Yebo.

Mkhulu: Mhlahlo.

Farmer: Tsine besibopha... bekute umhlahlo endzaweni yakitsi. Beniluka wona ke bebaluka wona ke bomake. Naniwavuna lamabele nanibuya nawo lena emasimini, batofike bawaphambatise kanje, ngalokusikwa kwawo.

Interpreter: Mm,

Farmer: Bawente ke bawabophe ke, abekwe enyangweni kanjalo kanjalo kanjalo. Bengakabekwa nje akanje, bekahlanganiswa aphambatiswe kanje, bese ayo... nahle omi... bahle bawahlola, nase omile bebashaya etjeni.

Interpreter: Ya.

Farmer: Bawashaye etjeni beve lokutsi... (All laughing), bebawatsatsa bawashaye etjeni babone lokutsi asayahhohloka.

Interpreter: Mm,

Farmer: Bese ke boMake bayahamba ke baya [interruption]

Interpreter: Ba... lana ba... bawakhungile nabawakhungile beba...

Farmer: Abebekwa enyangweni.

Interpreter: Lenyangweni ikanjani?

Farmer: Inyango lebayakhile phela.

Interpreter: Bayakhe ngani?

Farmer: Lenyango beyingavalwa etulu, beyi beyakhiwa ngetigodvo.

Interpreter: Okay,

Farmer: Ehe, ingavalwa keja letulu. Entela... bebatsi batsi bafuna asheshe ome kusho kutsi bewahlatjwa ngulelilanga,

Interpreter: Okay,

Farmer: Mm, nasebabonake kutsi ke, boMake ke baya esibayeni ke kulandvwa bulongwe betinkhomo, kusindvwe lelibala leli lonkhe lelibala.

Interpreter: Mm,

Farmer: Lisindvwe lize licine, lokutsi nanishaya lamabele lingahhohloki lomhlaba kutfolakale anemhlaba.

Interpreter: Mm,

Farmer: Nasebobona ke kutsi sebalisindzile selicinile bese ke ayatselwa lamabele ke. Ayakhishwa ngeticu... ngalikubekwa kwawo kanje.

Interpreter: Mm,

Farmer: Akakhunyulwa. Ayabekwa, ayabekwa, ayabekwa. Entsambama nasekutfulile bese ke niyawabhula ke, niyawabhula labanye bakhipha lamakhoba labanye bayela.

Interpreter: Okay,

Farmer: Mm,

Interpreter: Bese niwabekaphi?

Farmer: Bese bawatsela etimbiteni, bekunetimbata bekute mathange kadzeni beku... angitsi uyati kutsi kadzeni bekutatjwa libumba?

Interpreter: Mm hmm,

Farmer: Bebakha timbita ke, batsi ngekuwafaka latimbiteni bese balandza bulongwe.

Interpreter: Mm,

Farmer: Betinkhomo, sebabeka intfo ke kuyavalwa kuyanamekwa lamaceleni kutsi kungangeni umoya. Lamanye afakwa engungwini. Bekunengungu yemabele, kunengungu yembila.

Interpreter: Lalafakwa lapha embiteni ahluke ngani kunalalafakwa laph' ngungwini?

Farmer: Lawa lafakwa laph' embiteni ehluke ngobe wona atophuma alibele, kani lawa lafakwe lapha engungwini atophuma ase ancote.

Interpreter: Aphuma seka sancote?

Farmer: Ehe.

Interpreter: Okay, now let's start. We, we start by broadcasting the seeds, and after broadcasting, using oxen we plough. After ploughing, we wait for the seed to emerge, after emerging we manage weeds. We remove weeds by hands. After removing the weeds, we wait for the heads to be formed. When there are heads, we wait for, we manage birds, we take care of birds and then when they are right we harvest them. We put them in cribs. The cribs were made of sticks, we, they were made of

sticks. The sticks were just put to be on a level, on a raised surface and then the heads will be put on that crib. After that we wait for them to be dry, after they are dry, we... using cow dung we smear the... on the flat surface outside the houses we smear up until there is no dust. And then we come with the heads. We beat them with sticks, we beat them with sticks, and then we take them and store in traditional, in clay pots. Some we store them in clay pots, some we store them in the ingungu. The ones which are stored in clay pots, they will come out as sorghum but those which are store in ingungu they will come out as sancote.

Co-supervisor: What's sancote?

Interpreter: Eh, sancote? Sancote is the... sancote is the... sancote is like the sorghum which has started to be, to rot.

Co-supervisor: To ferment?

Interpreter: Ya, to ferment.

Co-supervisor: Is that the one from under the kraal?

Interpreter: Yes it's under the kraal.

Co-supervisor: Okay.

Interpreter: It's called "sancote".

Co-supervisor: Okay, just let me say, some stored, it's like a clay pit right?

Interpreter: Ya, it's ama clay pots.

Co-supervisor: Huh uh but the clay pit in the kraal, is it lined with... it's [Interruption]

Interpreter: Some are stored in clay pots.

Co-supervisor: Mm,

Interpreter: Yes, and some are stored in pit inside the kraal.

Co-supervisor: Oh, okay.

Interpreter: Ya, they start by applying cow dung inside the pit, and then they store them. When they come out, they come out as sancote, not as sorghum.

Co-supervisor: Please just write it for me.

Interpreter: Sancote.

Co-supervisor: Is it like fermented?

Interpreter: Ya, fermented.

Co-supervisor: Okay.

Interpreter: Ya.

Co-supervisor: Maybe that's what the other old man was complaining [Interruption]

Interviewer: Ya when he was saying it's rotten.

Interpreter: Oh, the smell?

Interviewer and Co-supervisor: Ya.

Interpreter: And that was done intentionally.

Interviewer: Mm,

Interpreter: Because they wanted to have sancote.

Co-supervisor: To make what?

Interpreter: Sancote, sancote sinuka simnandzi usidla kanjalo noma kumbe bese wentani, nasekuphuma sancote?

Farmer: Ngiyasigaya phela, sancote simnandzi siyanukelela (laughing)

Interpreter: She says sancote is very, nice the smell in very nice.

Co-supervisor: Yes, that's what the other person said once, in the former interview.

Interpreter: Okay. Mm, nyalo ke nenta njani, nanilima nje, sichazele kwanyalo kutsi nicala ni... kube nje kube nje kube nje, toti nakhona uyoisifikisa le nase kuhhudliwe sekufakwa emathangeni nakunemathangi noma kufakwa lakufakwa khona?

Farmer: Nyalo ke angitsi kunemathange.

Interpreter: Asicale nje ekucaleni.

Farmer: Nasicala nyalo nawutolima ungeke ulime ngekonga sesingalimi ngekonga,

Interpreter: Mm hmm,

Farmer: Uyagucula.

Interpreter: Nini, ebusika noma leso sikhatsi?

Farmer: Uyagucula nje ngaleso sikhatsi keja hhay sekusondzele kulima.

Interpreter: Okay.

Farmer: Eh, uguculele kutsi kutatsi nasek' ufika timvula kuphume lol' ukhula.

Interpreter: Ya,

Farmer: Bese naselinile sewuya... ubita sigulumba uyalandzelela, nyalo sesiyalandzelela. Kutsi ngekumila sewuyahlakula.

Interpreter: Mm hmm,

Farmer: Ayabhamuka ke emabele ayakhula uyawalindza, uyawavuna abuya ekhaya uwafaka enyangweni nakhona. Nyalo ke mine ngicishe ngikwente lokwakadzeni mane angisabophi uyawaphambatisa nalenyangweni nawuwabopha. Uca... nyalo ke sewucale utsele umutsi, kadzeni bekungatselwa mutsi bekute letinangu

Interpreter: Tingobolwane?

Farmer: Tingobolwane kadzeni njenganyalo. Ucale uvuvutele lomutsi nawungakawabeki lelihawu, bese ke uyawabeka. Ngiye ngiwa... uwabeke uwaphambatise nakhona, uyawaphambatisa awuwabeki uwatsele, nakhona uyawaphambatisa. Bese ke uhle uwahlola lokutsi asanjani.

Interpreter: Laph' enyangweni?

Farmer: Ehe. Nawuwabamba lelibele nom' ulitsi liyatihhohlokela lisho kutsi selomile.

Interpreter: Mm hmm,

Farmer: Sowuyawatsatsa ke sifaka emasakeni. Tsine ke asisasindzi sesisilungu sesifaka emasakeni, sishaye ke, sishaye ke, kuhhohloke sikiphe lamaqumbu sambe siwalahle, sitsele emabele siwatsel'emathangeni.

Interpreter: Emathange maphi? Lawa...

Farmer: Lithange lelensimbi.

Interpreter: Oh lelensimbi?

Farmer: Hhayi lokwe plastiki.

Interpreter: Oh, hhayi kuyevakala.

Farmer: Mm.

Interpreter: Ok, now we pay for tractors, they come and plough. We start by ploughing then we wait for rains. When rains come we open lines then we plant. After planting we wait for germination, and then it's germinated, we control weeds using hoes and we also control pests if there are pests using chemicals. And then after that we wait for heads. When heads develop, we control birds. When they are ready to be harvested, we harvest them, we put them in modern cribs. And then we wait for them to be dry, after that we shell them using sticks. We beat them with sticks then we store them in metal tanks.

Co-supervisor: I just want to ask a question. So when people talk about controlling the birds, do they mean that they chase the birds or do they do something like this with a netting?

Interpreter: Most of them, it's like they chase the birds.

Co-supervisor: They chase them, ya.

Interpreter: Although there are some which are not chasing the birds, they just hire someone,

Co-supervisor: Mm,

Interpreter: Which will come with traditional medicine,

Co-supervisor: Okay.

Interpreter: And then that's how they control the birds.

Co-supervisor: Okay. And when they do the sticks to shell it, do they do now in plastic or what? They don't do the cow dung?

Interpreter: They do it on a big plastic

Co-supervisor: On a big plastic?

Interpreter: Ya.

Interviewer: How did you acquire the land that you've been using to farm?

Interpreter: Eh, lendzawo leniyisebentisa ekulimeni nayitfolo njani?

Farmer: Sayinikwa ngumphakatsi.

Interpreter: We were given by umphakatsi.

Interviewer: Okay, did you choose which land you were given?

Interpreter: Eh, nayikhetsa yini lendzawo kutsi nifuna kunikwa le noma na... na...?

Farmer: Asitikhetselanga, sabekwa.

Interpreter: Okay, we were just given.

Interviewer: What do you consider the best land for farming?

Interpreter: Eh, nguwuphi nje umhlaba wena lowubona kutsi uncono kuwe ekulimeni?

Farmer: Kulomhlaba wami?

Interpreter: Eh, emhlabeni, umhlaba nje nguwuphi lowubona kutsi luhlobo lwemhlaba lolubona kutsi luncono ekutseni ungalima kulo?

Farmer: Angiva mine, luhlobo lolukanjani?

Interpreter: Angitsi imihlaba ihlukene kaningi, kunalolukhetsi, kulalanjani, kunalanjani.

Farmer: Oh, okay.

Interpreter: Ngumuphi wena lowubona kutsi cha lona ngazutsi ungunombolo 1 ekulimeni?

Farmer: Umhlaba lokahle ekulimeni lovumako ngulu, sibovu.

Interpreter: Sibovu?

Farmer: Ehe.

Interpreter: Okay, which means are red soils.

Interviewer: Okay, uhm, in the past were your forefathers able to choose the land to farm on?

Interpreter: Eh, kadzeni nje kusa, kusesenabo mkhulu nabogogo bebakhona yini kukhetsa kutsi tsine sifuna kulima la? Bekuba khona letinye tindlela noma nje bebangakhoni beku... beku bekubakhona lobakhetselako?

Farmer: Bebakhona labakadzeni, bebangakhetselwa. Bebafike ba ba ba naba batsi ba, mine nje bab' wami, lapha bekakhe khona bebam... bebatsite akatikhetsela kutsi ufuna kuyokwakha kuphi. Lowo mhlaba ke lowo wakhe wonkhe. Tinkhomo tinndzawo yekudla, emasimu angala, tinkhomo tidla mm.

Interpreter: They were able to choose which land for planting and which one for livestock.

Interviewer: Okay, uhm, did they consider the type of soil they were planting on when they chose the land?

Interpreter: Eh, kadzeni nangabe bakhetsa nje kutsi tsine sitawulima la, lana kudla tinkhomo, bebakubuka yini lokutsi lomhlabatsi uluhlobo luni noma bekutsetfwa nje?

Farmer: Bebawubuka lokutsi lomhlaba lona ufanele kutsi unako kudla, bebatsi bona lomhlaba lona unako kudla, lona ute kudla.

Interpreter: Ya, okay. They did consider the type of soil. Bebawubona ngani?

Farmer: Bebawubona ngani, angitsi le kitsi kunetintsaba, mm hmm. Bebabona kutsi angeke silime laph' etintsabeni, nawu umhlaba lobekile la.

Interpreter: Okay, which means they were considering flat soil, flat land, this one is good for ploughing.

Interviewer: Okay, uhm, do you plant different type of sorghum?

Interpreter: Ingabe nawulima lamabele ulima luhlobo loluhlekene yini noma ulima lunye?

Farmer: Nyalo?

Interpreter: Eh, now or?

Co-supervisor: Both.

Interpreter: Eh kadzeni bewulima luhlobo lunye yini?

Farmer: Bengingalimi lunye, bebalima tinhlobo letintsatfu.

Interpreter: Bekung' utiphi nje?

Farmer: Beku uMshake

Interpreter: Okay

Co-supervisor: Is this then or?

Interpreter: It is then, it was Mshake. Nani lenye?

Farmer: Phela ngibhale la ngingenawakhohlwa lamagama.

Interpreter: Unganowakhohlwa uwatsetsephi?

Farmer: Ami ngiyawati phela mine kitsi besimlima Mshake.

Interpreter: Mshake.

Farmer: Na Ndvwe... na Ndvweka. Ngulawa labovu la lakhula ingatsi yimfe. Uyabona?

Interpreter: Okay, we have Mshake, we have what, Ndvweka?

Farmer: Ehe, Ndvweka.

Interpreter: Eh asesibone, itsi Mshake, sesitsi Ndvweka.

Farmer: Mathini [Interruption]

Interpreter: And Mathinikane.

Farmer: Yebo, nguloku lokufisha.

Interpreter: Eh, loMshake bekanjani?

Farmer: Ngulawa lo, ngulawa lamadze, asekhona bekawalimile, ukhona lomake waka [Surname omitted] nje lashonile bekawalimile. Madze lawakadzeni nje lamadze ayakhula engatsi imfe.

Interpreter: Okay, which means this Ndvweka is the same, is almost like the sweetcane.

Interviewer: Okay.

Interpreter: Ya, there's some, there's one who has a... who was planting this one. Then Mathinikane ke?

Farmer: Nguloku lokufisha bekungaka kumhlo... amhlophe.

Interpreter: Oh, Mathinikane is the short one, short and white one. Do you remember that Mr Kunene who mentioned Mathinikwane?

Co-supervisor: Yes.

Interpreter: Ya. Nyalo ke uyatilima ulima tinhlobo letingaki letinengi nyalo?

Farmer: Nyalo silima, oh besilima lalamhlophe kulo... nyalo sekuyashintjashintjwa. Silima lamhlophe, labovu.

Interpreter: Okay, even now I plant different types, different varieties which is the NS5511, and the Marcia.

Co-supervisor: She doesn't plant any indigenous?

Interpreter: Akhona esintfu lowalimako nyalo?

Farmer: Ini?

Interpreter: Esintfu?

Farmer: Kute.

Interpreter: None, no indigenous now.

Interviewer: Okay.

Farmer: Kute.

Interviewer: Why did you stop using the indigenous?

Interpreter: Eh, wayekelenani kulima lawesintfu?

Farmer: Kute lenhlanyelo yawo phela siyaphuma.

Interpreter: Okay, due to the unavailability of seeds, that's why I stopped.

Interviewer: So if there were seeds?

Interpreter: Kube inhlanyelo ikhona ungayilima nje?

Farmer: Ngingayilima, ngiyayifuna futsi.

Interpreter: Oh okay, if I can get it I can plant it [Masemula edit – July 2022: And she wants the indigenous variety].

Interviewer: Okay uhm, what are the advantages and disadvantages of using what she uses now and when she was still doing the indigenous, what were the advantages and the disadvantages?

Interpreter: Okay, nawusa nawusasebentisa letinhlanyelo tesintfu, yini nje lobe kukuhle ngato?

Farmer: Lobe kukuhle ngato betingangenwa yingobolwane lula njengaleti lesetikhona.

Interpreter: Okay, which means one advantage for the indigenous one, it was not attacked by weevil easily. Yini lokunye?

Farmer: La la, nalokutsi letinyoni kakhulu nje kuloMshake akusilibele lelidliwa tinyoni ngoba na, liyakhula libe lidze, li li, lona alimi nayigibela lenyoni lona liyehla.

Interpreter: Okay.

Farmer: Ingakhoni kudla, nayisuka, nayisuka liyakhuphuka.

Interpreter: Which means eh, second advantage for the indigenous, it was eh on birds. Birds were not able to eat the indigenous easily.

Co-supervisor: They couldn't sit on it?

Interviewer: Mm,

Interpreter: Eh ya, when they sit on it, it just fall down and then when they left it just...

Co-supervisor: Okay.

Interpreter: Eh kukhona lokunye lobuhle bakhona nje lamabele lamadzala, yini ke bubi bawo?

Farmer: Lalamadzala?

Interpreter: Ehe.

Farmer: Eyi, mine ngibuka lokutsi bubi bawo bekaphuta lokuvutfwa.

Interpreter: Okay.

Farmer: Bewilindza sikhatsi lesidze, kani lawa lasakhona asheshe avutfwe wona usheshe uwavune.

Interpreter: Okay, which means the disadvantage of the indigenous one they take a long time to be ready as compared to the modern one. Okay, buhle banyalo balawa lakhona yini?

Co-supervisor: It takes longer to grow?

Interpreter: Ya it takes longer to grow.

Farmer: Buhle balawa ngulokutsi nje asheshe avutfwe.

Interpreter: One, for the modern one, it takes a shorter time to be ready.

Co-supervisor: It's an advantage?

Interpreter: Ya, it's an advantage. Yini lokunye?

Farmer: Eyi, nalokutsi aswit.

Interpreter: Okay, second advantage they are sweet. Eh, yini bubi bawo?

Farmer: Nguletinyoni tiwatsandza kakhulu ngalokutsi amnandzi aswiti kakhulu kuwo atisuki kuwo.

Interpreter: Nalokuwadla tiyakhona?

Farmer: Mm,

Interpreter: Okay, which means disadvantage, birds they like this one, and due to their rigid stem they are better able to sit on them and then eat [Masemula edit – July 2022: The farmer actually says they are loved by birds because of their sweet taste. No mention is made of a rigid stalk, although this additional information may be true as per Mr Vilakati's experience as an extension officer].

Interviewer: Okay, what do you use the sorghum you grow for?

Interpreter: Lamabele lowalimako uwasebentisa kwentani?

Farmer: Siyawadla siphindze siwatsengise.

Interpreter: Eh niwadla kanjani?

Farmer: Sigay' incwancwa.

Interpreter: Kuphela?

Farmer: Neliphalishi nakut' imphuphu sehle silipheka, keja liyabahlulahlula labantfwana angitsi ngilaba banyalo.

Interpreter: Oh ya,

Farmer: Mine ngiyalati liphilishi lemabele besiphila ngalo ekhaya.

Interpreter: Okay.

Interviewee: Mm.

Interpreter: Which means we use them for thin porridge and sometimes and for porridge when there is no mealie meal and we sell some of them.

Interviewer: If the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Asesitsi nje nali litulu likhomba kutsi le season angeke ibe yinhle mani, ayilungi kahle. Yini lokwentako lokutakwenta kutsi ukhona kutsi uchubeke ulime utfole sivuno lesinconywa, yize noma kubonakala lokutsi lesimo selitulu kungatsi asifuni kuvuma?

Farmer: Lengikwentako?

Interpreter: Mm,

Farmer: Ngilokulima ngekonga, ngiloku gala tigodzi.

Interpreter: Eh it's to practice conservation agricultural techniques.

Interviewer: Is there any time that you let cattle and goats into your field?

Interpreter: Sikhona yini sikhatsi la tinkhomo utiyekela nje tingene emasimini tiyohla tingene lamasimini?

Farmer: Bayatiyekela kodvwa mine angifuni.

Interpreter: Nini?

Farmer: Ebusika nasengicedze kuvuna.

Interpreter: We allow them during winter [Masemula edit – July 2022: She does not like letting cattle into the field but others do it in winter].

Interviewer: Okay, if you do not use cattle for manuring what do you use instead, before and now?

Interpreter: Eh, kadzeni nangabe nilima nje angitsi itsi benifaka manyolo, ah ma [Interruption]

Farmer: Hm mm, umcuba.

Interpreter: Umcuba, naningakafaki wona benifakani?

Farmer: Kute, bekufakwa nje umcuba.

Interpreter: Okay.

Farmere: Kute lokunye.

Interpreter: Eh which means then, if we have not applied kraal manure, eh, there is nothing we could apply. Nyalo ke niningakafaki mcuba nifakani?

Farmer: Nyalo?

Interpreter: Mm,

Farmer: Eyi, kute lesikufakako.

Interpreter: Even now we... if we have not applied kraal manure there is nothing we use. [Masemula edit – July 2022: Now she doesn't use anything, seemingly including kraal manure].

Interviewer: Okay, uhm, okay when in the year does sowing begin and who does it?

Interpreter: Eh... emnyakeni eh... icala nini I season yekulima, la kucala khona kutsi licala kulina kucala nini? Kuphindze nakucala lokulima bobani laba labenta lokonangabe nje sekucalile kulima kwentiwa bobani?

Farmer: Kwentiwa bobani kanjani?

Interpreter: La khaya.

Farmer: Ngitsi, ngimi.

Interpreter: Okay, kusho kutsi la nikwenta nonkhe lakhaya?

Farmer: Ehe.

Interpreter: Kucala nini? Icala nini le season?

Farmer: Lokulima, kanjani?

Interpreter: Icala nini i season nje kutsi sitawucala kulima silungisela kulima ke manje?

Farmer: Sicala nga November phela.

Interpreter: Season starts in November and we do ploughing as a family.

Interviewer: And harvest time?

Interpreter: And nivune, nivuna nini, niphindze nivune nabani?

Farmer: Nangabe kukhona,

Interpreter: Nangabe [Interruption]

Farmer: Sivuna, keja, siyavuna nje nyalo lenyanga le.

Interpreter: Nini nje awubeki, usho inyanga lenivuna ngayo.

Farmer: Ngibani kani lenyanga le kodwa, ngi April? Yebo sesiyavuna nje.

Interpreter: Which means we harvest in April and I harvest with my family.

Farmer: Mm, nga July siyabhula.

Interpreter: Oh July is eh...

Farmer: Siyabhula.

Interpreter: Is shelling time, okay.

Interviewer: Okay, is there anything you do to make sure that the land recovers between the growing seasons?

Interpreter: Nasewulimile nje sewukhandza kutsi usandza ku, nawucedza kuvuna ungakalimi lokunye, kukhona lolokwentako lamkhatsisini kutsi lendzawo yakho ilunge ilungelele kutsi iphindze ulime ku season letako noma kulelihlobo letawuphindze lisuke?

Farmer: Lengikwentako emkhatsisini?

Interpreter: Eh yini likwentako lansimini kulungiselela lomhlabatsi wakho?

Farmer: Ngiye ngihlanye nje botinhlumaya.

Interpreter: Ebusika?

Farmer: Oh usho ebusika wena?

Interpreter: Eh.

Farmer: Kute lengikulimako.

Interpreter: Awenti lutfo lansimini?

Farmer: Oh lansimini uyajuba.

Interpreter: Eh bese?

Farmer: Uyakujuba loku kulale phansi phela, njengakotini.

Interpreter: Okay.

Farmer: Loku awukwenti lutfo lokwemabele.

Interpreter: Awenti lutfo nje la kumabele?

Farmer: Uyagucula.

Interpreter: Okay, which means I practice winter ploughing.

Interviewer: Okay, did you grow up around here?

Interpreter: Ukhulele lapha yini?

Farmer: Ngikhulele ekhaya kitsi.

Interpreter: Eh ngikuphi?

Farmer: KuseManyiseni, ngale eSouth Africa.

Interpreter: (Laughing) I grew up in Manyiseni in South Africa. Manyiseni is just on the left hand side on your way to Pongola, when you are on your way to Pongola, there is Manyiseni at the top.

Farmer: Ngwavuma.

Interviewer: eKZN?

Interpreter & Farmer: Ya.

Co-supervisor: Ngwavuma?

Interviewee: Mm,

Interpreter: Ya, along the Ngwavuma River.

Interviewer: Uhm, do people still plough using oxen?

Interpreter: Basekhona bantfu labasebentisa tinkhabi?

Farmer: Bakhona.

Interpreter: Ya, we still have those.

Co-supervisor: In this area?

Interpreter: Kulendzawo?

Farmer: Mm.

Interpreter: Ya, in this area.

Interviewer: When maize was introduced did your parents and grandparents continue growing sorghum?

Interpreter: Angitsi mabele abelinywa kadzeni?

Farmer: Mm,

Interpreter: Nakufika ke lesigaba or leluvuso kutsi no akulinywe mbila madoda kungene umbil' emasimini, eh benta njani batali bakho? Bayekela lamabele balima lombila noma benta njani?

Farmer: Bebalima mabele nembila.

Interpreter: Okay, they continued with sorghum and maize.

Co-supervisor: Is that your last question?

Interviewer: Was the maize focused on more or was it equal, or how was it?

Interpreter: Lokulima besekugcile kakhulu kuphi nje kuletintfo letimbili?

Farmer: La mbileni.

Interpreter: Okay, the focus was on maize.

Interviewer: Okay.

Co-supervisor: I just want to ask a question. All this, then, did she do it in her life time, like making the dung thing to hit?

Interpreter: Ok konkhe loku ngilokutsi nje utsi nawutsi nanivuna nifake enyangweni bese nitsi naniwabhula niyawa... niyasindza laphansi bese niyawashaya kanje noma nifake etimbiteni, kwenteke ngesikhatsi sakho nomakumbe uve ngako kutsi kwenteka ngaphambilini?

Farmer: Besikwenta bengikhona, phela ngikhuluma ngentfo besiyenta ekhaya.

Interpreter: Okay, it happened during my time.

Co-supervisor: Okay.

Interpreter: Ya.

Co-supervisor: Angikwati lokwakadzeni lebengingekho eh.

Interpreter: Okay, okay.

Co-supervisor: In South Africa?

Interpreter: Bekwenteka la Manyiseni?

Famer: Le kitsi, ehe.

Interpreter: Ya, eManyiseni.

Co-supervisor: Le kitsi, hhayi la.

Interviewer: Is there a reason why they started focusing more on the maize?

Interpreter: Ingabe sikhona yini sizatfu lesenta kutsi babes' ebagcila kakhulu la mbileni lamabele sebawabuka bawabuk' emuva? Utsi kwentiwa yini lokutsi bese kunakwa kakhulu umbila?

Farmer: Ngicabanga lokutsi kwentiwa ngilokutsi angitsi lokutsi kuhamba kwaleminyaka kwabese kushintja sikhatsi akusasiso lesakadzeni bantfwana sebayacala bayachwensa lokutsi libele limnyama li brown, ling' ilokunye alifanani umbila umhlophe angitsi?

Interpreter: Mm,

Farmer: Nasebadla lokudla kusho kutsi bese bibuka lokutsi, hhayi ungatsi loku akukafaneli lokutsi sikudle.

Interpreter: Mm... kusho kutsi kwandza labantfu labafuna kutsi umbila?

Farmer: Yebo. Kwase kwandza lokutsi, angitsi uyabona lokutsi intfo icalwa ngulaba labadzala bona bayitsandze, bakhule bantfwana bakhule bantfwana, bangasakutsandzi lentfo le. Ekhaya nje

sasesidzinwa ngilokutsi siyohlala ensimini sigadze tinyoni (all laughing), besesitiekela letinyoni tindle lamabele kuze titodvuba.

Interpreter: Okay, there are many reasons why the shift was on maize as opposed to sorghum. One of them was that eh... the taste for maize was a bit nicer than sorghum and another reason, the generation, they did not want to go to the field and just stay there waiting for the birds, waiting to scare the birds.

Interviewer: Oh ya...

Interpreter: So that's why they shifted to maize.

Interviewer: Okay.

Co-supervisor: I just want to ask one question, you know when she said some sorghum was stored in clay pots and the other one the other [inaudible], once with those two sorghums, do they have different uses, like are they both used for porridge or what?

Interpreter: Okay, utsi ke make ucela kubuta kutsi kulo, kulamabele beniwafaka edziweni uyabona?

Farmer: Mm,

Interpreter: Nalawa beniwafaka engungwini,

Farmer: Mm,

Interpreter: Eh, bekanemsebenti lohlukule yini, kutsi kumbe lankha nalankha [Interruption]

Farmer: Yebo, lawa bekuphindze kuhlanyelwe kucushwe kuwo nakuyohlanyelwa.

Interpreter: Okay.

Farmer: Ehe.

Interpreter: Lawa beka [Interruption]

Farmer: Kuphekwa kuwo incwancwa, lawa.

Interpreter: Lawa?

Farmer: Yebo, lawa bekwentiwa liphalishi lalesibata.

Interpreter: Sibata?

Farmer: Mm,

Interpreter: Okay, ya, there were difference in terms of, this one which was put in clay pots, it was for... that was seeds for the next ploughing season was [Interruption]

Co-supervisor: Oh!

Farmer: Kuphindze kwentiwe enyiwe nakutokwentiwa tjwala kwentiwe umtfombo.

Interpreter: Lawa?

Farmer: Lawa.

Interpreter: And another reason was that, for this one in clay pots it was when you want to make the Swazi brew we'll take from them,

Co-supervisor: Okay.

Interpreter: And [inaudible]

Farmer: Angitsi bekuphiswa tjwala kadzeni?

Interpreter: Ya,

Interviewee: Bebe, bewenyiwa emantini achunyiswe. Lemitfombo lokhandza kutsi isetitolo bebatentela emakhaya.

Interpreter: Okay,

Farmer: Abesayachuma ke kuba ngumtfombo ayasilwa ke kuvutjelwa tjwala.

Interpreter: Okay.

Farmer: Ehe.

Interpreter: Bekuvutjelwa tjwala, kwentiwe inhlanyelo?

Farmer: Yebo, kwentiwe ncwancwa.

Interpreter: Eh for thin porridge they used that from in the clay pot, but for this one, lalangalana benenta ini konje?

Farmer: Besidla liphalishi lelimnandzi.

Interpreter: Okay, this one was only for porridge which was called "sibata", sibata.

Co-supervisor: "A"

Interpreter: Spells word.

Interpreter: Yebo ya, sibata. Sekuphelile?

Co-supervisor: Ya.

Interviewer: Oh ya sekuphelile, siyabonga kakhulu.

Farmer: Heyi! (All laugh)

INTERVIEW 11: FARMER 11

Interpreter: Mkhulu, nguNandi lona la eceleni lona ngumake Thembi basuka le ningizimu Afrika. Ja, bahamba bafuna kwati ngekulima lo kwakadzeni nalo kwanyalo kutsi budlelwane kwalokulimangabe kukuphi? Nangabe kungoko sayekelelani lemuva, nangazange siyekele siqhubeka nako kanjani? Kunemibuto latayibuta make lana abute ngesingisi mina ngiyitolike ngesiSwati, wena utayiphendvula ngesiSwati mina ngimtjele ngesiNgisi.

(Grandad) I am with Nandi and Thembi, they came all the way from South Africa. They would like to know if there are similarities or a correlation between indigenous farming methods and modern farm methods. If there aren't any similarities, they would like to know why we stopped using indigenous farming methods and if they are still in use today and if not, why did we deviate from using indigenous farming methods? Nandi would like to ask questions related to indigenous farming methods in English and I will translate in siSwati, you can answer in siSwati and I will translate for her in English.

Interpreter: Unangaki yeminyaka mkhulu?

Farmer: Sengifikile ku 20.

Interpreter: Ku Twenty?

Farmer: Ehe, ngiyidlulile.

Interpreter: Okay?

Farmer: Angitsi uma ungabala, sicale nini kuhola imali yahulumeni? Uma icala ca, ngangena ekhatsi ngina 60. Uma ungabala ke ngina 60.

Interpreter: Okay.

Farmer: If you count properly, from the time I went on pension I was 60 years of age.

Interpreter: Okay, make utsi wa 1929. He was born in 1929.

Interviewer: Okay, when did you begin farming?

Interpreter: Wacala nini kulima Mkhulu?

Farmer: Ngacala ngise ngumfana nje. Sengikhula khulile nje, ngingumfana impela silima ngetinkabi.

Interpreter: Okay, eh... maybe let's add from 15 from there, or 12.

Interviewer: What plants did you grow, then and now?

Interpreter: Bewulimani kadzeni mkhulu?

Farmer: besilima Mshalane, mabele...

Interpreter: ungatisho letinhlobo talamebele. Tsani mabele nje kuphela. Nani lokunye?

Farmer: Mabele, umbhila, mantongomane, tinhlumaya and mngomeni.

Interpreter: Okay, sorghum, cowpeas, maize, mung beans, eh mung beans... Yini lenye mkhulu?

Farmer: Mngomeni.

Interpreter: Ya, mung beans. No, mngomeni. Do you know mngomeni? Can you please write it [interruption].

Farmer: Besimhlanye la ekhaya mngomeni. Bekakhona.

Interpreter: Write mngomeni. Ya, mngomeni. I have to find out the English name, mngomeni [Masemula edit – July 2022: Consultation with a few sources from Eswatini revealed that mngomeni are the same as mung beans].

Farmer: Bekakhona lomnyaka lophelile la ekhaya mngomeni, besimlimile wamtsengisa lomake.

Interpreter: Mngomeni, we have to find out after finishing this one. Nyalo senilimani mkhulu?

Farmer: Kunyenti lebisikulima wena babe kuleminyaka yeku khula kwami.

Interpreter: Qhubeka, ngatsi ungaketsa.

Farmer: Bobatata.

Interpreter: Sweet potato.

Farmer: Tindlubu.

Interpreter: Jugo beans.

Co-supervisor: Is that then?

Interpreter: It's then, ya.

Farmer: Nako besikulima, kakhulu kahulu la enhlanzeni [interruption]

Interpreter: Nyalo senilimani mkhulu?

Farmer: Nyalo silima umbhila.

Interpreter: Now, maize.

Farmer: NaMabele.

Interpreter: Sorghum.

Farmer: Kodwa akusasiwo lawa besiwalima.

Interpreter: Yini lenye?

Farmer: Umbila, mabele, tinhlumaya.

Interpreter: Cowpeas.

Farmer: Mabhontjisi

Interpreter: Beans.

Farmer: Batata, mjumbula

Interpreter: Sweet potato and cassava.

Interviewer: Okay, who taught you how to farm?

Interpreter: Ngubani lowakufundzisa kutsi kulinywa njani mkhulu?

Farmer: Lowafundzisa bobabe bami basekhona.

Interpreter: I was taught by my parents.

Interviewer: What makes the harvest successful?

Interpreter: Yini nje na lokwenta sivuno sibe ngule sihle?

Farmer: Litulu.

Interpreter: Eh, kuphela?

Farmer: Kuphela, litulu la enhlanzeni. Hhayi sitsele manyolo ha-ah.

Interpreter: Litulu?

Farmer: Ngakitsi akufuneke kuze sitsele manyolo.

Interpreter: Litulu.

Farmer: Litulu.

Interpreter: Ya, just a sufficient amount of rainfall.

Interviewer: Okay. Do you use information that your grandparents used when you farm?

Interpreter: Kuloku lima loku lima nyalo mkhulu, lukhona lwati lolusebentisako lowalitatsa kulabadzala kubobabe bakho? Unalo lolusebentisako nyalo?

Farmer: Sabalekelwa ngule nhlanyelo yalabadzala labahamba.

Interpreter: Okay, mani. Lwati angitsi nyalo nilima emabele, nilima tinshumaya bobata. Kuloko lukumako lukona lwati lakadzeni lolusebetisako kuloku lima kwako?

Farmer: Lukhona, kutsi sesilima ngeti gulumba. Yabona kucala besilima ngeti nkabi. Tinkabi bewukwati kutsi uma ufuna kufaka umsele kahle uwufake ngemsele kahle.

Interpreter: Okay.

Farmer: Yabona besihlanyela ngeti nkabi lamabele ahazizwa so.

Interpreter: Nyalo mani, ngifuna kubuta kutsi nyalo kule lwati lobolisentisa kadzeni loku hazisa nokwentani, uyalisentisa yini nyalo?

Farmer: Sesisebentisa loku landza msele, asilisebentisi.

Interpreter: Awusalisebentisi?

Farmer: Ehe.

Interpreter: We don't use [interruption]

Farmer: Asisawusebentisi.

Interviewer: So nothing at all?

Interpreter: Nothing at all now.

Interviewer: Okay. Can you me through the process from the beginning of the planting season right up to the harvesting period, then and now?

Interpreter: Mkhulu, njengoba besewucale kungicazela ase usithsathse ke nyalo kulokulima kwakadzeni, angitsi benicala nihazize ensimini usho njalo?

Farmer: Mmh hmm.

Interpreter: Awungichazele kusukela ekuhaziseni lenhkanyelo toti toti sihambe size siyoyivuna size sitawufika enyngweni nasematangeni kusti bekuba njani?

Farmer: Bekute matangi.

Interpreter: Okay, cala le ekuhaziseni uqubeke, uqubeke, uqubeke...

Farmer: Besihaziza nje ensimini sihklakule Mabele abengaka.

Interpreter: Nihazise ningalimi?

Farmer: Angitsi siyalima, tinkabi tiyalima la. Tiyalima tinkabi so, mina ngiyahlanyela la. Tiyafrica kuleyo nzima uyahlanyela kusuka la ngiyo phuma le.

Interpreter: Uhazisa ungakahlanyeli?

Farmer: Tiyalima tinkabi, tila ekhatsi.

Interpreter: Bese uyahazisa wena?

Farmer: Tiyalima mina ngiyahlanyela tila ekhatsi tiyphenduka, tiyaphenduka, tiyaphenduka iyaphela leyo nzima ngimile la ngihlanyela.

Interpreter: Qubeka la uyahlanyele kuze kumile kuze kushone le kutsi kwentekani

Farmer: Kuyamila makungaga, singena makhuba siyahlakula

Interpreter: Bese lamakhuba lawo bekakhona?

Farmer: Bekakhona, ehe. Vele, bekakhona siyahlakula sikhipe lolukhula mabele akhule kahle abete lotjani, ahlobe. Uma ahlobile ahambe mabele atsele njeyani ashakate. Letinyoni betingalindvwa.

Interpreter: Betingalindvwa?

Farmer: Betingalindvwa kula Mabele lesiwashoko la, uma ihlala inyoni bekenta nje ashone phasi itsi isasuka aphakame.

Interpreter: Ya, Qhubeka mkhulu.

Farmer: Njalo nje.

Interpreter: Eh.

Farmer: Eh, avutfe lamabele abe bovu tju! Siyavuna la ensimini siyawakhipa ngemikhwa, ngemikhwa, ngemikhwa, ngemesikela nagemikhwa siwabuyisa ekhaya.

Interpreter: Niwabekhaphi?

Farmer: imnyango leyakhiwe.

Interpreter: Iyakhwe kanjani?

Farmer: Iyakhwe ngetingodvo nala etulu ifulelwa ngetjani akusete lamatayel kangaka...

Interpreter: Aha.

Farmer: Lafulela la etulu. Abekwe mabele kahle akafucelwa nje, abekwa kahle kahle aboshiwe njengoba ashaya lomake abekwa so.

Interpreter: Ehe, qhubeka.

Farmer: Ensimini niwathola kanjalo aboshiwe bamikise ekhaya atakwe kahle la enyngweni.

Interpreter: Bese senta njani?

Farmer: Kuhambe ke, se kulungile kusindvwe libala nje nga la ebaleni. Kusindvwe ngebulongo betinkomo atselwe Mabele. Atselwe ntsambama ngetikhatsi kutawubulwa ke kuhambe kugawulwa tagila la etigangeni la etihlahleni. Kukhona lentfo lengumzaca ngala kube sirhude. Uma kusti nje sibhulo, sibhulo labeba bhula ngaso KaNgwane, kwabhulwa kanjalo la emakhaya.

Interpreter: Nanicezda kuwabhula niwenta njani?

Farmer: Bayawela, bayawela kuphuma ledodi asale amhlophe atse nke! Kuwembiwa umgodzi, umgodzi lomkhulu longingangena nje ngingene kahle.

Interpreter: Ungene wonke?

Farmer: Ya, wonke ngihlezi ngilale ngente nje ngenabe. Umbiwe lekhati umgodzi, umbiwe lekhati kahle.

Interpreter: Umbiwe kuphi lomgodzi?

Farmer: Ekhati esibayeni.

Interpreter: Bentelani esibayeni?

Farmer: Kwentelwa ingobolwane, kwentelwa kungaphehlwa kungangenwa nje tilwanyane.

Interpreter: Ingobolwane iyesaba esibayeni?

Farmer: Lekhati, lamabele aselekhati emgodzini nisdzile. Kuyashiswa ngema gqumba lamabele kuyafutfumala, niyashanyela, nishanyela kuyahloba hlwe! Sitsela emabele lokutsi angaphehlwa lemgodzini kubuya umganu, uyawubona umganu?

Interpreter: Ehe,

Farmer: Kwebula ligcolo, la ligcolo siyalishisa siyalinabisa leyanaba litsi nah. Kwakhikhiwe ngema four corner la etulu siyalisika leligcolo lingane kahle lama four corner litsi nje ngci kulomgodzi kulomlwanyane lana longena khona. Kutsi ngci kubuya bulongo betinkomo. Siyasindza, siyasindza ngci! Sibuyisa lomcuba, Mboh! Sesibekisile kutsi mase sifuna lengungu I la. Ngoba utawulahleka umbe sonke lesibaya ufuna lengungu ngoba tinkomo tilala la esibayeni, kuna litulu tiydova tinkomo atihelokosheli kuyangcingceka ngci. Kute lesimoko lekhatshi, kute into lengenakho nawe mhlazana ugwabula la. Niphendla kona hhayi ingungu nimba kahle nigwabule kahle leligcolo, kgwabu, nilibeka lapha ngeke uvete impumula lapha.

Interpreter: Kuyashisa?

Farmer: Kwenyuka, lesimoko lesi suka lapha phasi. Ungagena la uyafa, uyafa finished! Angitsi la lesimoko solo samandundzelelana langekhatsi, kute la uphefumula kona ngekhatsi, kute la uphefumula khona. Lokudla loku, utakukhipha nje uphindze ukuhlanyele kuphindze kumile lo lokuphuma la engungwini. Sitsi tsine ingungu asikwati lokwema tangi. Kwema tangi kuvala nyalo sengimdzala.

Interpreter: Okay, Siyabonga mkhulu. Okay, we started by, we plough, we broadcast the seed. And then after it has germinated, we are using hoes to manage the weeds. After managing the weeds, we went straight home because at that time there was no need for scaring of birds because the types of sorghum, birds were not familiar with eating them because when they landed on top the sorghum it would dip lower, after they take off the sorghum would go up. There was no need to scare the birds away. After it is ready, we harvest and put it in a hole which was dug in a kraal. And then to cover it we used the bark of an umganu tree. You just put it on top. You smear with cow dung to prevent air and moisture from entering. Additionally, before we put it in the hole, we put it in cribs for a while to be dry and then using sticks you hit them and then after shelling them we put inside the hole (ingungu). Something that is different about this one ingungu, when you open it make sure you do not inhale the smoke (fumes) from inside because you can die.

Co-supervisor: From the hole?

Interpreter: Ya, from the hole. It was a very poisonous smoke (fume).

Interviewer: And that hole, was it smeared with dung?

Interpreter: It was smeared with dung all over to prevent any air from getting inside.

Interviewer: Inside the hole?

Interpreter: Which means inside the hole there was no air.

Interviewer: Okay.

Interpreter: Nyalo ke mkhulu kwenteka njani nanilima? Ususe nje ekucaleni kutsi senta nje sente nje ekugcinenei sesiyofaka emtangini nasinema tangi.

Farmer: Nyalo akusasiko lokwakadzeni. Siyavuna nje uma siwavunile.

Interpreter: Ngisho la ekulemeni?

Farmer: Ekulimeni sesilima ngetigulumba. Sigucule uma ngabe siyagucula bese siyatjalelela. Lesigulumba, siyalima, niyahlangela leyonzima uyonitsatsa nome two hours itawuhlanyela yonke nalesigulumba uyahlenyele usiladzela ngemuva. Kucedza kwaso ke lapho sengicela lokweliplantela, lokweli haliki, kuyangihalikela loko kuyangigcibela. Kugcibela lamabele kutsi angahlali ebaleni.

Interpreter: Okay. Sekwentekani emuva kwaloko?

Farmer: Naka mila emabele solo mane nguloko emakhuba nekuhlakula nalomake. Emakhuba, sikhupa lotjani, sikhupa lolukhula ahlale ebaleni kusale ahlobile.

Interpreter: Nase kuhlakuliwe?

Farmer: Siyawayeke ayashakata, ayavutfwa bese siyawasusa.

Interpreter: Ayagadvwa?

Farmer: Ayagadvwa. Siyawagadza nje impela besiwalima la ngekhaya. Insimu ilendasi manje kukhashane kuvuka uye le endasi. Siyawagadza, lesiwakhiphile nje nyalo. Uyabona kulonyaka lophelile, hhayi uwashayile lomake Mabele.

Interpreter: Okay nanicedza lokuwa, nase niwavuna niyenta njani?

Farmer: Siwafaka etinyangweni.

Interpreter: Etinyangweni?

Farmer: Etinyangweni, nayi leminyango yawo ingale.

Interpreter: Okay.

Farmer: Eh, sindlala tingodvo la, bese sitfolo lokwemaneti sitsenga maneti (nets). Kukhona lokwema neti naku loku luhlata lukwenta timbuzulwane.

Interpreter: Oh, ngiyakubona.

Farmer: Kukhona lokungasiko, lokwe maneti lokukahle, sindlala kona lapha phasi kulenti ngodvo siyatakisha, siyatakisha nakhona kulapha edladleni. Siyatakishe kutsi lenyanag bekungaka pheli.

Interpreter: Okay nanicedza la asuka la enyangweni nisuke nente njani?

Farmer: Siyawabhula bese siwafaka emasakeni sesiyawa tsengisa.

Interpreter: Aniwafaki etangini?

Farmer: Asiwafaki. Sifaka umbila uma siwutfolile.

Interpreter: Okay.

Farmer: Sifaka umbila uma siwutfolile, Mabele siwafaka emasakeni baya tsenga.

Interpreter: Okay.

Farmer: Bayatsenga nje sitokwati nje kutsenga kudla ngoba lamabele akadleki njenge mswala sembila. Kulikhuni lesiswala sako loku kungcono uma utawenta lendangani, incwancwa ngisho nje...

Interpreter: Okay. Now we hire tractors, they plough, and we plant seeds while following them. Thereafter, we use a rake to cover the seeds and after that we wait for them to germinate. After germinating, we control weeds using hoes and then we wait for them to form heads (clusters of grain). As soon as they form heads, we get people to scare the birds every day until they are ready for harvest. At harvest time we put them in modern cribs, from the cribs we shell them and store them in metal tanks [Masemula edit – July 2022: maize is stored in metal tanks, whereas sorghum is placed in sacks].

Interviewer: Okay. How did you acquire the land that you are using to farm?

Interpreter: Lenzawo leniyisebentisako nayitfoli kanjani?

Farmer: Oh, lenzawo lesiyisebetisako kwakhe bona bomkhulu wami.

Interpreter: Bona bayitfoli kanjani?

Farmer: Sayinikwa nguChief.

Interpreter: They got it through the khonta system.

Interviewer: Okay, uhhh. Did you choose which land you were given?

Interpreter: Ingabe mhlawumbe unalo lwati kutsi lenzawo bayikhetsa bakhe noma banikwa nje kuphela batsi hambani bakhe la noma bakhetsa kutsi sifuna kuya lapha?

Farmer: Cha, asikhetsanga tsine sanikwa nje.

Interpreter: We were given, no choosing. Just given, just go there.

Interviewer: So, this is him, his family now?

Interpreter: His father.

Interviewer: And then him? Because that question will still come up.

Interpreter: Mkhulu kusho kutsi uhlala la bekuhlala bomkhulu bakho khona?

Farmer: Ehe.

Interpreter: This is the homestead where my parents used to stay.

Interviewer: What do you consider the best land for farming?

Interpreter: Ngumuphi umhlaba lowubona kutsi wena muhle ekulimeni? Hlobo luni lomhlaba lulobonako kutsi lulu lu number 1 ekulimeni?

Farmer: Nawuya la ngesheya la.

Interpreter: Lonjani.

Farmer: Lobovu, batsi sibovu.

Interpreter: Okay, red soils.

Interviewer: Did his forefathers consider the type of soil they were planting on?

Interpreter: Okay, mhlawumbe ngekwati kwako mkhulu, bokhokho mkhulu lomhlaba lebeba lima kuwo bebacikelala kutsi kufanele lube nje? Noma beba lima nje?

Farmer: Hha bebawucikelela, bebawucikelela njengoba ngisho nje ngitsi nawuya mhlaba lokahle. Natsi sikhule silima wona lo lolapha njena lokune libala khona.

Interpreter: They did consider the type of soil.

Interviewer: How did they...?

Interpreter: Bebawucikelela njani kutsi lona unukela kulima?

Farmer: Bewubona ngalokudla, noma litulu lingana kancane ubone ngalokudla la ulime khona kutsi hawu, lomhlaba ulingile lomhlaba lo. Ubene nagalelitulu kutsi line kangakanani. Noma line kancane kodwa lokudla ukutfole lapha ensimini, babebona kutsi nawu umhlaba.

Interpreter: Which means they used trial and error. It's like when they planted with minimal rain, but they get a big harvest they say this a good soil we have to focus on this one.

Interviewer: Do you plant different types of sorghum?

Interpreter: Now and then?

Interviewer: Okay both.

Interpreter: Kadzeni beni [interruption]

Interviewer: Okay not both, now because [interruption]

Interpreter: Okay now? Nyalo ilima tinhlobo letiningi temabele noma ulima yinye?

Farmer: Silima yinye wena wekunene ngoba lenhlobo lenye lebasinika yona, eh itsandvwa kakhulu ngulokweti nyoni. Vele nje hawu ngeke ulale, le lesiyilimako hha ibetele (its better).

Interpreter: Okay, we plant one variety now.

Interviewer: Okay, which is that one?

Interpreter: Nguyiphi loyilimako nyalo? Ngule lebovu?

Farmer: Ngule lebovu.

Interpreter: Which means ngule NS5511.

Interviewer: Okay, so before using the hybrid varieties which sorghum did they grow?

Interpreter: Ngaphambi kokuba nisebentise letinhlayelo tesilungu, tikhona tesintfu lebenitisebentisa?

Farmer: Hha kusese kute.

Interpreter: Ngisho kadzeni?

Farmer: Hhayi kute wekunena.

Interpreter: Sengisho kadzeni.

Farmer: Kute!

Interpreter: No, kadzeni?

Farmer: Ngisho tona.

Interpreter: Sekute [inaudible]?

Farmer: Ha sekute. Siyatifuna kutsi singatitfolo kuphi kute lesingatitfolo khona.

Interpreter: Angitsi kadzeni beniwalima emabele?

Farmer: Kakhulu futsi.

Interpreter: Beniwalima lawa esilungu?

Farmer: Besilima la wesintfu.

Interpreter: Ngisho wona ke.

Farmer: Ehe, sifuna wona lawa wesitfu.

Interpreter: Ngutiphi letinhlobo lewube utilima kadzeni?

Farmer: Hhawu, Kwaphela! Agisho liqiniso kutsi kwaphela.

Interpreter: Kwaphela bekungutiphi?

Farmer: Bekungu Mshalane.

Interpreter: Okay, Mshalane.

Farmer: sekungu lelidze libele sitsi, ngubani na? Tinhlobo letintsatfu tona. Mushalane, ngule lelidze kube ngelilidlula loMshalane kancane bese nguleli fishane Mathinikwane.

Interpreter: Okay, it's Mshalane, Mathinikwane...

Farmer: Nayi le, bengikhumbulile nje. Tinhlobo letindze lebesiti lima, tintsatfu.

Interpreter: Soyikhohliwe?

[Inaudible talk]

Interpreter: He can't remember the last one.

Interviewer: Why did you stop using them?

Interpreter: Angitsi benitihlanyela kudzala lenhlanyelo leyo?

Farmer: Ehe.

Interpreter: Natiyekelelani?

Farmer: Atiyekelwanga, angifuni kuphutsela entfeni lengingatoyi qinisa. Atiyekelwanga kwasuka kwaphela tona, taphela ngendlela longeke uyati tiphela njani. Angifunu ukuqamb' emanga. Kube namanje anagati tacedvwa yini ngoba yonke lemiti beywalima lamabele kodvwa kute nyalo lakitsi longawa tfole khona.

Interpreter: Okay, we didn't stop actually, but the varieties just disappeared.

Interviewer: Okay. What are the advantages and disadvantages of using indigenous sorghum when they were still using it? What are the advantages and disadvantages of what they are using now?

Interpreter: Bekuyini buhle betinhlangano tesintfu Mkhulu kadzeni, bekukuhle ngani?

Farmer: Hha, bekukuhle. Ngoba, eish ngitawubala into [inaudible]

Interpreter: Bala kuright.

Farmer: Bomake, bebabuka kutsi na lamanye mabele aMshwane. Bowaganz' ekhovini. Uyalibona likhovi?

Interpreter: Ngiyabona.

Farmer: Njengoba uganza sitambu?

Interpreter: Mm...

Farmer: Baganzebaganze kuphume letinto letimhlophe letobovu asale amhlophe atse nke, bese bayawapheka. Ayadleka ke lawo angakasilwa la etiko byawapheka avutfe ufake noma ngulamantongomane. Batsi ke, kukhona ligama lesintfu, ligama lako nje. Besikudla kudleka lapho. Kufana nje nokutsi ugandze stambu.

Interpreter: Okay, one advantage is that they were good in taste.

Co-supervisor: Is this the indigenous one?

Interpreter: Ya, the indigenous one they were good in taste.

Interpreter: Yini nje lokunye lokuhle kwako lokukhona?

Farmer: Bekamahle ngoba netinyoni betingadli mabele kangaka, tinyoni betikhona kodwa betingawadli kufana kufana nalawa.

Interpreter: Okay, another advantage is that the birds were not that much in favour of eating them.
[Asks Mkhulu a question] Yini lokuhle, okay noma yini lokubi ngetinhlangano takadzeni?

Farmer: Kute lokubi ngato lengikunyanya ngako, kute! Ngoba, nanyalo uma ingavela lenhlangano singayekela konke loku silime wona.

Interpreter: Which means there is no disadvantages as far as I know for the indigenous one.
[Masemula edit – July 2022: In fact, if we got hold of the indigenous varieties now, we'd stop growing the modern types and grow the indigenous ones].

Co-supervisor: Okay, good.

Interpreter: Yini buhle baleti?

Farmer: Le lebovu, yinhle ngoba tinyoni tiyayidla kodvwa atinofana nalelelemhlophe.

Interpreter: Okay, buhle bawo yini?

Farmer: Yinhle nje, uyabona nje uma ungasho uma uwabhulile lamabele uwabuka mahle, uma umuntfu ewatsenga utsenga intfo lenhle.

Interpreter: Okay, one advantage they are good for the market. Yini lenye, buhle bakhona kulama mabele esintfu unace ekhatsi nalalamhlophe?

Farmer: Ah, kuyefanana. Kuyefanana ngoba emabele anakudla.

Interpreter: Okay, yini bubi bawo lawa esilungu?

Farmer: Kute bubi bawo. Hhayi kute, mahle kumane lawa lamhlophe bubi bawo tsine sisitsi ngulokudliwa tinyoni kodvwa amnadzi kudlula lawa. Mase uwadla amnadzi kudlula lawa labovu. Amnadzi lalamhlophe.

Interpreter: There is one disadvantage, the birds, they are very easy to be eaten by the birds.

Co-supervisor: Is this good for market 'cause it's a high yield?

Interpreter: It's high yield, other than the high yield when you look at them as a customer you can just be tempted to buy as compared to the Mshalane by mere looking they are not that much good. [Masemula edit – July 2022: The old man didn't actually mention Mshalane as less aesthetically pleasing].

Interviewer: What do you use for sorghum you grow for?

Interpreter: Ehm, lamabele leniwalimako niwasebentisa kwentani?

Farmer: Siwasebentisa encwancweni, siwatsengise.

Interpreter: We use them to make thin porridge and we also sell them.

Interviewer: Okay, if the season for planting does not present ideal conditions what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Asistsi nje mkhulu nali itulu ukandza kutsi alivumi kahle ubona kutsi hhayi khona this season imatima. Yini lokwentako wena kutilungselela mhlawumbe wagcina ulimile watfola sivuno lesingcono?

Farmer: Cha la emabeleni wena babe kungcono kakhulu.

Interpreter: Yini lokwetako nagabe ubona kutsi simo asivumi kute utfole lesivuno?

Farmer: Kute lengikwetako ngulokuwahlakula ngiwagadze kutsi ngitawatsini ngoba kute longanisela ngako kute sigadze loku lesinikwe nguNkulunkulu.

Interpreter: That means there's nothing we can do. We just wait for the rains.

Farmer: Kodvwa ahlobe, ahlobe langaphasi kubete lotjani, ngoba lotjani kubese buyashisa. Kandzi uma lingana litulu sewuhlakulile atawuhamba kahle ahlobile. Ahamba kahle lawa nje uma kubuya lilanga nje besiwahlakula batsi batfu bahlakulelani labantfu satsi tsina hha...

Interpreter: He was just explaining that you have to do proper weeding so there will be no competition between the plant and the weed.

Interviewer: Is there any time when you get cattle and goats into the field?

Interpreter: Kukhona yini laphe tinkomo tingena emasimini netimbuti?

Farmer: Lasilime khona?

Interpreter: Emnyakeni nje wonke tivumelekile tinkomo kutsi tingene emasimini?

Farmer: Yonke iminyaka ativumeleki uma sekunekudla laemasimini.

Interpreter: Tivumeleke nini?

Farmer: Tivumeleka ebusika sebakhiphe konke ukudla kwaba bantfu nome kute noma kukhona sekuyakhululwa kutsi tiyekeleni tinkomo tibhule laemasimini.

Interpreter: Okay, they are allowed only in winter.

Interviewer: If you do not use cattle for manuring what do you use instead, before and now?

Interpreter: kadzeni nagabe nilima beniwusebentia umcuba?

Farmer: Asiwusebentisi.

Interpreter: Ngisho kadzeni?

Farmer: Ngisho nakadzeni besingakwati kutsi umcuba uyatselwa.

Interpreter: Nanyalo?

Farmer: Nanyalo, kuphela imvula lakhitsi babe. Manyolo asimati kusukela.

Interpreter: We never used cow manure, even now we are not using kraal manure. We just depend on the rain to get a good harvest.

Farmer: Singaze sitsele manyolo silime kotini kuphela.

Interpreter: Hhayi mabele.

Farmer: Hhayi kudla. Asitseli lutfo.

Interpreter: When in the year does sowing begin, and who does it?

Interpreter: Emnyakeni kucala nini kulima? Inyanga nje yokucala nje?

Farmer: Kucala nje uma kungena luhlobo litsi liyangena luhlobo.

Interpreter: Nini, nguyiphi lenyanga?

Farmer: Eish, maye phela mina angitati nalitinyanga takhona ngivele ngibone nje kutsi nyalo sekusehlobo sesiyalima nyalo.

Interpreter: Awutatinje letinyanga?

Farmer: Angitati.

Interpreter: Kona kwentiwa ngubani loko?

Farmer: Kwentiwa ngitsi nje bantfu.

Interpreter: La ekhaya kwentiwa ngubani?

Farmer: Kwentima ngimi, kutsinyalo asiguculeni noma siyahlanyelale kukitsi loko. Kuhlanyelela ngulokutsi ulime uhlanye. Kugucule ngulokutsi uguculele ungakahlanyeli. Ugucule, ugucule, ugucule uyeke lamagadzi. Kutawutsi ngemuva kwesikhashana bese uyangena la emagadzine bese uyahlanyela.

Interpreter: There is no month that I know because I don't know when it is January or February or what. I just look at the sky and say now it's about summer then we do the planting with my family.

Interviewer: When do you harvest, and who does it?

Interpreter: Ekuveneni nivuna nini?

Farmer: Siyavuna nje nyalo lokuvutswe siyakususa.

Interpreter: Kuvuna nina nemdeni wakho?

Farmer: Kuvuna tsine nalomake.

Interpreter: Okay, the harvest depends on when the crop is dry (ripe) then we harvest as a family.

Interviewer: Is there anything that you do to make sure that the land recovers between growing seasons?

Interpreter: Kukhona yini lokwetako mkhulu nagebe sewuvinile kungaka fiki luhlobo kutsi lensimi yako iphindze ibuyele iphindze ulungele kulima kulokulandzelako?

Farmer: Nasesicedzile kuvuna ngiye ngingene ngibuke tihlahla njengalapha kutawungena tinkomo uma setingena tibhule ngibuka tihlahla nekutsi sihlahla sisukile ensimini uma sengilima. Noma nginge ngesigulumba noma sisuse tihlahla ngabo celemba.

Interpreter: Yini loko lenikwentako?

Farmer: Kunyenti, ngoba nesibaya ngiyasakha...

Interpreter: Ngisho emasimini.

Farmer: Kute, uma sengigawule letihlahla kubuya dalada wami, ngifaka dalada wami aqine inkomo ingakwati ukungena ekatsi.

Interpreter: What I do is remove all the trees and then prepare my fencing properly.

Interviewer: Okay, he grew up around here neh?

Interpreter: Ya.

Interviewer: Okay. Do people still plough using oxen?

Interpreter: Bakhona yini labasasebentisa tinkabi la?

Farmer: Hha sekute.

Interpreter: Sekute la?

Farmer: Sekute, ngisho munye nje kuphela naye uyafika nje. Ungala, uyatisebetisa tinkabi.

Interpreter: There's only one person who is still using oxen and he is a newcomer in this area.

Interviewer: When maize was introduced did your parents and grandparents continue growing the sorghum?

Interpreter: Uma kufika umbila benta njani ebatali bakho noma abomkhulu? Bayekela lamebele baya embileni noma bebahamba nako kanye kanye?

Farmer: Bebahamba nako abazange bakuyekele. Bebalima umbila balima emabele.

Interpreter: Ngalokulingako?

Farmer: Ngelokulinganako kakhulu koja bebalima lombila insimu yemabele ibe yodvwana. Kakhule bebalima lombila. Insimu yemabele ibe yodvwana uba wodvwa. Kodvwa klakhulu ngulombila.

Interpreter: They did not stop sorghum, but the main focus was on maize.

Interviewer: Does he remember how maize was introduced to his family specifically?

Interpreter: Ingabe usakhumbula mkhulu kutsi umbila la ekulimine nje ekulimeni la'khaya wafika njani?

Farmer: Eyi, babe ngawukhandza ukhona umbila kodvwa bekungasiwo lolesiwulima nyalo wesilungu, bewuwesintfu.

Interpreter: Nawo lowesintfu awati kutsi wafika njani?

Farmer: Angati kutsi wafika kanjani ngakandza ukhona.

Interpreter: But bongasimnyeti kahulu?

Farmer: Bosomnyeti ngoba tinhlobo letinje, Ukhona losintfu lomnyama.

Interpreter: Ngiyabona.

Farmer: Ukhona losintfu nanyalo la'khaya nje kumane kwalila lonyaka ngekutsi litulu kute besi zamzama kulima wona lowesintfu. Awumhlophe, vele uyawubona kutsi usintfu. Akusiwo lomnyama kwishi!

Interpreter: Which means back then when I grew up maize was already introduced.

Co-supervisor: Okay. Is that it?

Interviewer: Yeah,

Interpreter: Kuphelile?

Interviewer: Sekuphelile.

INTERVIEW 12: FARMER 12

Interpreter: Lo seceleni kwami nguNandi, lo ngumake Thembi.

Farmer: Make Thembi, Nandi.

Interpreter: Ngubabe Sifundza. Kodwa unangakaki yeminyaka?

Farmer: Iminyaka ngina 67 years ngatalwa nga 1952 January, 67 years.

Interpreter: Laba njengoba ngishilo bafuna kukwati ngelwati lakadzeni ngekulima. Batawubuta mibutu bese ngiyitolike ngesiSwati. Ngicela uyiphendvule ngendlela leyikhululekile bese ngiphindze ngiyibusela emuva ngesiNgisi. Kusho kutsi lenkulumo yetfu uyayicopha. Uyicophele kutsi nasebalena bakhone kukhumbula kuts bewutsi ngoba lukunye lesiku khuluma lana singase sikhohle. Make ngala uyabhalabhala mhlawumbe kungalahleke lokukhona. Kute nkinga, ungalala.

Interviewer: When did you begin farming?

Interpreter: Wacala nini nje kulima empilweni yakho? Nawuthi ucala kulima?

Farmer: Kucala kilima ngikhulele kuko kulima.

Interpreter: Nini? Nawungabekisa nje iminyaka nje, ungabekisa kutsi bese ngingaka.

Farmer: Cha, kulima kadzeni kulima mtfana kethu kubobaba akusiko kwanamuhla.

Interpreter: Eh, bewungakanani?

Farmer: Ngibekisa kutsi bengina 12 years kanje.

Interpreter: Kusho kutsi '52 sitsi 12 kusho kutsi maybe bo '64.

Farmer: Ngoba futsi nase skholweni angiyanga ngikhulele khona etinkomeni ekweluseni.

Interpreter: Awuyanga ngisho kanye?

Farmer: Angizange ngiye eskholweni ngikhulele la ekweluseni tinkomo silima kukhale siswebu la nabasibita sibafan sitsi bhu! Ngiyasati kutsi lisiswebu sakitsi nhikhuphuke netinkabi siyolima.

Interpreter: He is just explaining that he never attended school. He started looking after cattle at an early age.

Interviewer: What plants do grow now and what plants did you grow then?

Interpreter: Nawucala kulima le nawucala nababe bakho nabo Mhkulu, benilimani, ngutiphi tintfo longati bala?

Farmer: Kwakulinywa qish' konke.

Interpreter: Kubekise qishe konke.

Farmer: Umbila,

Interpreter: Maize.

Farmer: Emabele,

Interpreter: Sorghum.

Farmer: Bekulinywa tinshumaya,

Interpreter: Cow peas.

Farmer: Mngomeni bekalinywa,

Interpreter: Mung beans.

Farmer: Ludvonca belulinywa.

Interpreter: Ludvonca?

Farmer: Eh ludvonca belulinywa. Luhwabha (watermelon) lolukudla nje kungaka ukhipe nje kunetintsanga. Nyalo sengikubona la eti-market bakutsengisa.

Interpreter: Kubovu laphakatsi?

Interviewer: Eh kubovu laphakatsi.

Interpreter: Do you know Luhwabha?

Farmer: Sengidlule lapho, emaselwa.

Interpreter: Watermelon.

Interviewer: Oh watermelon.

Interpreter: Jah, its watermelon.

Interviewer: I was even thinking of grapefruit 'cause it's red inside.

Interpreter: Jah, watermelon.

Farmer: Inkinga ke emaselwa kulinywa sidla.

Interpreter: Okay, pumpkin. Nyalo nilimani?

Farmer: Nyalo ke ngekuhamba kwelitulu, nyalo sizama wona lombila.

Interpreter: Maize now. Nani lokunye?

Farmer: Bese sizama na lamabhotshisi kuwalima bese sizama naleti nhlhumaya,

Interpreter: Beans, cowpeas.

Farmer: Bese siphindza sizama naleti ndlubu. Nyalo nje [interruption]

Interpreter: Jugo beans. Emabele kute?

Farmer: Emabele akhona kulabo nalabo labawalimile.

Interpreter: Okay, also sorghum. Haai, cha asiqhubeka babe.

Interviewer: Who taught you how to farm?

Interpreter: Ngubani lowakufunzisa kutsi kulnywa kanje, kulima ukufundzephi?

Farmer: Angiyanga kuletekufundzela kulima. Mina nje [interruption]

Interpreter: Kusho kutsi loku cala kwakho kulima bowuna 12 years, wafundziswa ngubani?

Farmer: Ngafundziswa ngubabe nabo Mkhulu.

Interpreter: Okay, father and grandfather.

Interviewer: Is rainfall important for a good harvest?

Interpreter: Ingabe litulu limcoka kutsi kube nesivuno lengatsi siyaphatseka?

Farmer: Litulu limcoka kakhulu lokutsi line utawtfola sivuno lesiphatsekako ngekutsi liyana.

Interpreter: Yes, rainfall is very important so that you can get a good harvest.

Interviewer: Is there anything else that could be important to get a good harvest?

Interpreter: Kukhona lokunye ngapahndle kwalelitulu lokwenta kutsi muntfu atfole sivuni lesiphatsekako?

Farmer: Lapha babe njengoba ukucaza kanjalo sivuno sikhona naso busika neluhlobo ngoba kuyashisa, akusiyindzawo leba makhata. Lana nje sidla busika nehlobo kute busika laEnhlanzeni. Lana nje beku nengadzi lenkulu kunetilimo letinyenti nayalo siyadla.

Interpreter: Okay, sewusho njalo kutsi uyabona kutsi litulu liyana kutsi kutawakhula. Yini lokunye lengatsi uyakufaka la emhlabatsini kute sivuno sijabulise?

Farmer: Lalela babe ngifuna kucaza naku, lokumcoka la Enhlanzeni ngemanti, that's all. Ngemanti uma kungatfolakala emanti kuphelile. Besinawo bekudliwa ebusika neluhlobo kuphelile.

Interpreter: Okay, other than rainfall there's nothing.

Interviewer: Okay, ubaba mentioned something about ukushisa?

Interpreter: Okay, he mentioned that here in this area we don't have winter and they don't summer. Just heat.

Co-supervisor: Heat?

Interpreter: Yes, heat. It is not exactly heat as he mentioned. It is warm you plant anytime.

Farmer: Lalela ngitokucocela nasi indzaba anikateli yona. Itsite inkosi (Sobhuza) naybeka i-VIF lapha kwengubulwane batsi bantfu labatawulidla lukodliwako baka Nkosi kuphela labangalidla litsanga emahlobo ethfu lawa. Kodwva wonke umuntfu angakudla loku singakusebentisa loku. Sayibona i-VIF yasebenta yaba nesivuno lesihle yasiniketa natsi saba naso sivuno lesihle. Line litulu lidrainer (drained) emanti aye lapha etulu ekhala kahle atsi nasekayehla aye lapha endasi anisele ahambe phasi.

Interpreter: Okay, kuyevakala.

Farmer: Siyakhutfolela ukudla strong.

Interpreter: He was trying to emphasise the importance of water that it makes a good harvest.

Interviewer: Do you use information that your grandparents used when you farm?

Interpreter: Likhona lwati lolusebentisa kulo kwakadzeni?

Farmer: Ngilana kunje.

Interpreter: Kukhona lokusebentisa kulo kwakadzeni?

Farmer: Kulo, sukela kadzeni?

Interpreter: [Inaudible] nyalo. Kukhona loku oqhubeka nalo?

Farmer: Ngichubeka nomcuba nyalo.

Interpreter: Which means they are using cow manure.

Farmer: Manyolo la asimsebetisi, sisenbetisa umcuba siphindze senta kutsi njengoba kwene kanje sisheshe sifake phansi.

Interpreter: I use cow manure and practise winter ploughing.

Farmer: Labo labafundzile ke baye basitjele labanye kutsi loku kwedodi lesikufaka lapha phansi. Masicedza kukufaka lapha phansi kungabola lapha phansi uma usti ugubha ukhandze kunemsundzu ngasikhtasi.

Interpreter: Lapho kutawuba nemsakama?

Farmer: Ehe, lapho kunemsakama ngoba lotshani kungiso sembelelo.

Interpreter: He's mentioning that they do it after they have a lot of compost.

Interviewer: Can you take me through the process right from the beginning of the planting season to the harvest period, then and now?

Interpreter: Njengobe kulima wacala kadzeni. Ingabe ungakhona kungichazela nakulinywa kadzeni besicala siyente nje. Sihlanyele kuqubeke kukhuke lesikulimile kufike esigabeni sekuvuna, sikubeke kuphi uma sekufika sikatsi sekubeka lapho kufanele sikubeke khona. Uma sibhula sikwenta njani? Qala ngaloko lebenikwenta kadzeni.

Farmer: Kadzeni, besitsi uma silimile [interruption]

Interpreter: Cala nje sicale cala singakalimi besentani?

Farmer: Nasicala cala singakalimi?

Interpreter: Ehe,

Farmer: Nangabe kudingakala kutsi sigucule, sigucule.

Interpreter: Okay, nakusebusika?

Farmer: Ehe, ebusika. Emuveni kwaloko ke lingana litulu sesiyaphuma, yokucala inhlanganyelo lesiphuma nayo entitweni tonke sicala siphuma nemantongomane siyohlanyela wona.

Interpreter: Ekucaleni?

Farmer: Ekucaleni nje. Bese-ke kuba netisimu letinye futsi kwekutsi leti sesitawucala kwendulelisa kuto futsi.

Interpreter: Awusengitsi nje uma uhlanyela emabele kutsi bekwetiwa njani kadzeni.

Farmer: Uma uhlanyela emabele-ke bekufika kutsi uma sitawucala kuhlanyela Mabele nangabe besingaka kugculi sitawungene sifate bekungeko lentfo yemalayini.

Interpreter: Nifate nje kungakalinywa?

Farmer: Namgabe luhlana nje tinkomo tibhubhushile sifate sifate sifate... bese tibuye tiyangena tinkabi.

Interpreter: Okay, chubeka nasitingeni kwentekani?

Farmer: Tinyangena tiwafaka phasi emabele ayathula asuke kona lapho emabele atsi vumbu. Emabele akafani nembila, emabele akahlakulwa kakhulu.

Interpreter: Akahkakulwa kakhulu?

Farmer: Akahlakulwa Mabele.

Interpreter: Kusuka kwente njani nakahlakulwa?

Farmer: Nakwentekile kuhlakulwa kwemabele kukhokhelwa nje.

Interpreter: Ususa ngetandla?

Farmer: Kukhokhela ngetandla ngoba yintfo lehlange.

Interpreter: Akusiwo emalayini intfo lehlange kusakatile?

Farmer: Ak'si malayini.

Interpreter: Okay qhubeka.

Farmer: Se uyafika nje siyakhokhela loko noma ke sihlakula nje sitawuhlakula ngokuthi mhlambe se-angaka. Sesiyaahlakulo siyalibona likhula, siyawabona emabele, siyayibona imfe konke nje siyak'bona. Siyahlakula, siyahlakula, siyahlakula kanye!

Interpreter: uma akhuphukile bese niwenta njani?

Farmer: Uma akhuphukile nje ayahambe afike elibangeni ayavutfwa. Sekuyalindvwa tinyoni nasekacala kuquma ngoba tiyadla letinyoni. Sekuyalindvwa ke sinetidubulelo. Sidubulelo nangisifaka nje ngingasakha ngesikhwambatthi. Prrrr! Bhuuu! (Expression of using sidubulelo or sling) ayawa emahlahla tiyabaleka tinyoni.

Interpreter: Tiyabaleka.

Farmer: Kukhona nohehleze (kwetle! kwetle! kwetle!) futsi kukahle manje ngoba kuneti ntsambo letinyenti. Kunohehleza nagigihleti la (wah! wah! wah!) ngifake matje kuleti khotela tetifishi sifake matje khona bese sikhungela intsambo (weh weh weh; they shake the tins filled with stones) tiyefuka tinyoni tiyabaleka.

Interpreter: Naseka vutsiwe ke?

Farmer: Sekavutsiwe emabele ke, awusuki wena uwajube kungaka phumi simemetelo.

Interpreter: KaNgwane?

Farmer: KaNgwane, besingawajubi. Njenganjalo nje seabajubile bayacala.

Interpreter: Kujuba lenhloko.

Farmer: Lokuvuna nje emabele.

Interpreter: Akavunwa kungakavunwa.

Farmer: Akavunwa kungaka menyetwa le. Kucala kumenyetwe le bese siybuya siyavuna.

Interpreter: Kumenyetwe kutsi niye le?

Farmer: Kumenyetwe kutsi kuyiwe emebeleni kuyovunwa Mabele eNkhosi.

Interpreter: Seniyavuna ke.

Farmer: Sesiavuna ke. Lo losishiyele nale emuva luyavunwa. Labakhupukako nje ngatsi siyakuphuka siye eNkhosini.

Interpreter: Naniwavuna niwenta njani?

Farmer: Nasiwavuna ke, naku etulu uyabona, la etulu hhayi endlini.

Interpreter: Etulu esihlahleni?

Farmer: Etulu esihlahleni noma kutawu wakhiwa inyango kutawuwakhiwa tingodvwo temaphaca tiyagaceka, tiyagaceka se atstfa abekwa lapha etulu la mabele.

Interpreter: Yini ligama lalelinyango lapha etulu?

Farmer: Lelinyango kutsiwa incolobane.

Interpreter: Le leba la utulu?

Farmer: Eya, incolobane.

Interpreter: Nasuka la etulu niwenta njani?

Farmer: Na asuka etulu se kuyaphiswa ngetjwala kuyatiwa kutsi kabani kuyobhulwa emabele kuyamenyetwa...

Interpreter: Kuba sort of kuba lilimi?

Farmer: Kuba lilimi. Siwacala ebusuku kuwabhula.

Interpreter: Abhulwa ebusuku?

Farmer: Abhulwa ebusuku ekuseni ngaleti khatsi bayela bomake.

Interpreter: Akabhulwa ngani emini?

Farmer: Angibutanga nami loko.

Interpreter: Nase sekabhuliwe bese niwenta njani?

Farmer: Nase sabhuliwe ke, kunetingungu.

Interpreter: Tikuphi letingungu?

Farmer: Tingungu tisekhatsi esibayeni.

Interpreter: Oh, tisekhatsi esibayeni?

Farmer: Tikhona tingungu la ekhaya esibayeni.

Interpreter: Tikhona?

Farmer: Ekhaya beyikhona ingungu noma yaphunyuka angiyati.

Interpreter: Beyikhona la?

Farmer: Ja ifanele. Ngahamba kadzeni bengise Joburg. Se siyabhula lamabele ingungu ungena phakatsi wena wonke utsi njo ufike ivulwe le phakatsi se se-ke siyabhula lamabele. Ingungu ungene wena phakatshi wena wonke utsi nje, ufike ivulwe lephakhatsi bese niyawabeka niyabuyisa nawu umcuba niyayivala lengungu niybeka kahle nanivalile nyabusyisa umcuba nibuyisa litje lelishoko kutsi nayi lengungu, liyabekwa la e-centre. Ayawukishwa ngaleso sokhatsi kufenele ngaso bayawafuna noma kudla.

Interpreter: Wonke afakwa lapha engungwini kute labekwa eceleni?

Farmer: Kutawbekwa eceleni loko loku lingene ngoba negek ivulwe sonke sikhatsi ingungu.

Interpreter: Oh!

Farmer: Uma sekuphelile sekuyayiwa engungwini. Sekuphelile kudla mhalwumbe sibeke ma-drum noma ayi-2 agcwele lama-drum loku lokuningi siyokufaka engungwini. Ngekuphela kwalama-drum sesiyovula engungwini. Kuyobikwa kumkhulu kutsi kudla sekuphelile, utsatsa tikhiya utsatsa imvume mkhulu uyvula ingungu lilanga lonke kusukela ekuseni nayivulwe ekuseni lilanga lonke. Kutawucala kukhishwa ntshambama lilanga selingala sekushaya umoya ngoba uma ngabe utsi usandza kuyivula bese unyangena la 'khtasi utakufa.

Interpreter: Utakufa, ubulawa yini?

Farmer: Ngule simoko.

Interpreter: Kuyashisa?

Farmer: Kuyashisa.

Interpreter: Cha, Siyabonga. Maybe can we start? Okay. Eh... what did then if we are not ploughing during winter we wait for the beginning of summer, we wait for rain. When rains come, we take the seed we broadcast the seed before ploughing. After broadcasting then you plough, after ploughing you wait for the seeds to germinate. After germinating you... when they are about 30cm or so you start weeding. The weeding was not done using a hoe but, it was done like just removing grass with your hand or you just dance inside the field like they are doing in the king's field because in the king's field you are not supposed to carry a hoe.

Co-supervisor: Oh really?

Interpreter: You just sing songs inside the field and dance then you suppress the weeds, some you remove by hands. The long ones you remove by hands but inside the lines you just dance to suppress the weed. After weeding we... comes the time where the heads are formed that's the time where we control birds. We use a network of strings; we design a network of strings inside the field where we've put some stones in tins. Then we tie the tins in the network of strings when you touch it once the sound the network of strings is all over the field then the birds fly away. When they (Sorghum) are ready we harvest them and put them in a storage which build on a tree. The storage was built on a tree which means we were just having some poles. We designed some poles on a tree and you put all your harvest on that tree. Then when they are ready you will prepare Swazi brew, you call your neighbours and slaughter a goat if you have. During the night comes the neighbours you take all your harvest from that tree you just put it down where you have smeared cow dung and then you beat them during the night. You don't do this during the day because your body will be itching all over.

Co-supervisor: Your body?

Interpreter: Ja your body. Ja you beat them during the night. In the morning you have finished beating them you store them in ingungu which was dug inside the kraal, you store them. How to close the ingungu you use a big amarula tree bark, that's how you close the ingungu. You don't put all your harvest inside the ingungu because the ingungu is opened maybe once in two months or is opened when the food has been finished. You store some which you are going to use every day, and then when the food is finished you go to the elder and ask permission to open the ingungu and then you open it during the... early in the morning you open the ingungu. No one is getting inside until it's late during that day because if you get inside right after opening you may die because it is too hot. The gas that is produced inside the ingungu it is too dangerous because most of them has carbon monoxide. Not carbon monoxide, ammonia which is dangerous. So, you get inside the ingungu later during that day then you take what youre going to use [Masemula edit – July 2022: Further consultation points to carbon dioxide].

Co-supervisor: So, once they take what they're going to use they take all out at once?

Interpreter: Uma senikhipha lokudla lapho engungwini benikukhipha konke noma benikhipha nje loko lenitawu kusebentisa?

Farmer: Kutawukhishwa loko lokutawulingana leya migcomo lebeyi pake loko lobekukhona, masekuphelile.

Interpreter: Okay.

Farmer: Ngoba sekuphelile. Sitawutshi uma sesibuka sekuphelile kulomgcomo sekuyahanjwa kuyongetwa futsi ngoba lengungu.

Interpreter: Nasetindziweni benikufaka?

Farmer: Yes, nasetindziweni. Lengungu babe bekungilo lithangi futsi akusiyo intfo lebeyifakwa emaphilisi namuhla sekufakwa emaphilisi ekudleni.

Interpreter: Okay.

Farmer: Kwakungana philisi longahle ulifake la engungwini.

Interpreter: We were taking what we were going to put inside our clay pots, our big clay pots because the ingungu you are not supposed to open the ingungu everytime. You just open it once you take some we store in the clay pots and then you eat and after some time you open the ingungu.

Co-supervisor: So, you do re-seal it again in between?

Interpreter: With what?

Co-supervisor: When you do open it again and they take some and they close it again?

Interpreter: Ja, they seal it.

Farmer: Doesn't it do something to the seeds the longer it stays there?

Interpreter: Nangabe asitsatse kutsi naku lokudla kwako se uku beke lapho, nangabe kuqubeka kuhlala sikatshi lesidze, kucubeka kwentekeni?

Farmer: Akuboli, angeke ukubone nje kutsi kubolile naku labatsi batsi sangcote. Lamuhla labantfwana banamuhla batsi kuyanuka, tsine sasingati kutsi kuyanuka.

Interpreter: Ngokwenu bekunga boli?

Farmer: Bekunga siwonakaleli futsi bekunga siniketi inkinga.

Interpreter: There was no change whether you store it long or store it short.

Co-supervisor: You know when first come back like, when they first beat it with sticks you say keep some and some you put in the pit right?

Interpreter: Yes.

Co-supervisor: That one you keep and put it in the clay pots, is it seeds for the next harvest?

Interpreter: It's also seeds for the next harvest.

Co-supervisor: Okay.

Interviewer: And then the same of that bark to cover?

Co-supervisor: I actually left a space so we can write it.

Interpreter: Bekungubani ligama la leli qembe lebenivala ngalo?

Farmer: Mganu, umganu - amarula.

Interpreter: Mganu.

Co-supervisor: Is it amarula?

Interpreter: Amarula bark.

Co-supervisor: Oh.

Farmer: Kugegebulwa lomganu lomkhulu.

Co-supervisor: In SiSwati?

Interviewer: Umganu.

Interpreter: Umganu. He mentioned that they had something which is ingungu here, I'm not sure if it still existing but...

Co-supervisor: Ask him, yeah. That's the one we're interested in.

Interpreter: Maybe we'll find something like ingungu we are not sure but maybe.

Co-supervisor: Let me just make a note that he said it.

Interviewer: Now, what do they do now?

Interpreter: Nyalo senosebenta njani? Angitsi lesa sikhatsi benisebentisa indlela yakadzeni. Nyalo sekweniwa njani?

Farmer: Oh, nyalo sesihlangana nenkinga vele lokuhlanyela ngingacala khona la emabeleni.

Interpreter: Hmm, cala ngekutsi uma nitawulima niyenta njani?

Farmer: Nyalo bayawahlanyela ngalamalayini.

Interpreter: Cala usiqazele nabilima kusti beyenta njani?

Farmer: Bacala balime.

Interpreter: Kulinywa ngani?

Farmer: Ngesigulumba, bese balime ke, bese bayabuya ke badwvebe malayini.

Interpreter: Akusa sakatwa?

Farmer: Ehe, akusafani. Sebayabuya ke bafaka la emalayinini sebayuyisa lehhariki kwenteka njalo.

Interpreter: Okay, Qhubeka. Uma sekumilile niyenta njani?

Farmer: Uma sekumilile ke eamlayini siyabuya siyahlakahla.

Interpreter: Ngemakhuba?

Farmer: Kusebenta emakhuba.

Interpreter: Okay, Qhubeka nje size sifike [interruption]

Farmer: Kusebenta emakhuba toti ke aze ayovu... wona ahlakule, ahlakulwa kanye bahambe baye phambile se ayavuthwa ke se bayowa juba. Njengoba bawajuba nje akusikhahle kuwrrong, licala, akukaphumi simemetelo kutsi kuyavunwa sekuba licala.

Interpreter: Okay, bawavuna bawente njani?

Farmer: Nyalo bayavuna bawabeke lamalokhwanyana ngaleti nqumbi kuwahlanaganisa nje. Uyakwati wena [inaudible]. Bayawabeka naseti nqolobaneni njenga lena bayawafaka.

Interpreter: La ekhatsi?

Farmer: Ja.

Interpreter: Uma sebawa bhula ke, bawabhula kanjani nyalo?

Farmer: Bawabhula angisati ke nyalo benta njani, kutsi nyalo nasebawa bhula akusentiwa lentfo yokumenywana.

Interpreter: Sekuvele kubhulwe nje?

Farmer: Sekuvele muntfu atingenele nje nebantfwa bakhe atibhulele.

Interpreter: Bese bawa beka 'akphi njyalo?

Farmer: Angibati. Labanmanje angibati.

Interpreter: Awukase uwalime manje?

Farmer: Angikase ngiwalime.

Interpreter: Wagcina kudzala?

Farmer: Ngagcina kudzala. Labanyalo kutsi bawabeka 'phi noma bawabeka emasakeni, kodwva lengikholwa kona njengoba kwaba nemasaka babeka emasakeni.

Interpreter: Okay, maybe before we start by this one lets add something on the... before harvesting the sorghum we were not supposed to harvest sorghum unless an order from the king has been given that people they must harvest now, before that order no one was allowed to harvest.

Farmer: Benta licala.

Interpreter: They were taken to task.

Co-supervisor: What was that called in SiSwati the order or something?

Interpreter: Kodwva yini leligama lokubikwa lenkulumo lebuya lendasi?

Farmer: Kumemeta. "Uyezwa nah?!" Kumemeta.

Interpreter: (Laughs) Okay, ngikubhale kuphi?

Co-supervisor: Just underneath.

Interpreter: Uyezwa nah?! Like "Uyezwa nah?!"

Farmer: "Uyezwa nah?!" iNkhosi imemetile.

Interpreter: Bese kuba nema exclamation something like that.

Interviewer: Yeah like... [Writes it down]

Interpreter: Ya, kuba kanje.

Co-supervisor: Why do we put that?

Interviewer: 'Cause it's like they are asking if you heard.

Co-supervisor: Oh.

Interviewer: But then it's like an exclamation cause it telling you that its time.

Co-supervisor: Okay.

Interpreter: Jah.

Co-supervisor: Please can you give us the name of the hole in kraal.

Interviewer: In SiSwati

Co-supervisor: That hole that they dig to store what's it called?

Interpreter: Ingungu?

Co-supervisor: Yes.

Interpreter: Oh.

Interviewer: Ngicela ukubuza before u-explaina. Uthe baba be-harvesta for the king they aren't allowed to use the hoes.

Co-supervisor: Yes, I also want to know.

Interpreter: When they weed?

Interviewer: I mean they weed, jah. Why is that? Why don't they use the hoe?

Interpreter: Okay, asengibute babe mhlawumbe... Le KaNgwane uma bayo vuna akuhlakulwa ngemakhuba bacula tingoma la ensimini?

Farmer: Kwaswelakala emakhuba bayahlakula ngawo iNkhosi idhoda emakhuba. Nawo ayahlakula nakhona. KaNgwane kunje njengoba ubekisa, letinyawo takho tingu-poison

Interpreter: Okay, tingu poison?

Farmer. Jah, letinyawo takho nawe nje ekhatsi ensimini kakho namo ngabe lomkhula somkhulu wahamba watsi angiphatsi waze waphindza kabili tinyawo takho tingushevu lotjani akusuki lesosikhatsi kuhlala phansi.

Interpreter: Which means long time ago there were no hoes hence they used to dance inside the field and your movement inside the field was considered poison.

Farmer: Buka-nje ngitokucocele nayi inzaba awukayibuti. Uma sifika nje sikhandza kutsi lolukhula la kule ndzawo lusimele, bayavalwa labantfu angati kutsi wake waya [inaudible]?

Interpreter: Ngakhe ngaya.

Farmer: Bayavalwa labantfu kutsi hoo! Bayema. Lokuma kwetfu la, sibuka lokutsi likhula lungalanani. Kufanele sicule (interviewer sings and claps imitating what they did when stomping the weeds) asikemi ndzawonye sizama kusti tjani bushone phansi. Asicondzani nemabele, kancane kancane siyakushaya alinakakhuphuka likhula manje litawutsatsa sikhatsi kuhambe wona emabele aye etulu.

Interpreter: Okay, which means if they weed intensity is high, we were stomping where the weed intensity is high and then we sing a song we dance on top of the weed until the weed is suppressed. Okay, what we do now we higher a tractor. It ploughs for us we open lines, and then we plant. After planting, we wait for germination, when it germinates just when it's about near (or knee?) height, we start weeding. Now we are using hoes instead of dancing inside the field or using our hands. After weeding, we wait for the birds and we scare the birds. After scaring the [interruption]

Co-supervisor: How do they scare the birds now?

Interpreter: Nyalo letinyoni tentiwa njani?

Farmer: Kuyinkinga ngoba [interruption]

Interpreter: Ngisho kutsi ticoshwa njani ensimini ngoba kadzeni beku netidubulelo nanyalo tisekhona leti dubulelo?

Farmer: Eh, tidubulelo tikhona tatentiwa bantfu tidubulelo nawe ungaseta kutsi nyalo sikhatsi lesinengi sekute labantfu labanekulindza letinyoni njengokuba kucala bantfwana bebakhona kodvwa sebaya eskolweni.

Interpreter: Oho, sekuyashoda.

Farmer: kusti bantfwana batawuhamba bayo khuta tinyoni bayoshaya tinyoni. Manje ke nyalo bantfwana ke bonke base skolweni kungako nje ukandza kutsi lamabele adliwe tinyoni se utfola kushaya lonke lelilunga kusele nje nedi la.

Interpreter: Okay. Now we... there's no systematic way to control the birds because most of the kids are in school. We just go once to the field just to check. That's why now the birds are eating a lot of this sorghum and then after watching the birds we are ready to harvest. We put the sorghum in modern storages. They are not built now on trees just built on the ground using the modern style. And after that we leave them to dry, after drying we shed them, we beat them during the day now. We don't even call people to come and help you, we just do as a family we beat them. You take them and store them in metal tanks.

Farmer: Nayi lenfeto lesitawu khulumela etikwayo. Uyabona inyoni nayidla emabele, uyabona la idlile akusena Mabele la, idlile. Uma se ala, kulesi gaba lesi tinyoni tidlile. Nanyalo lawo ngabe ukhandza kutsi aphele onke ngekhutsi lamabele manyenti kulenzawo. La, yafika la lenyoni ayisadli la.

Interpreter: Leni?

Farmer: Ayikhoni, itawumaphi? Itawumaphi ngoba phela uyakubona la. Ishaya la ishayela manje kwaze kwefika la ayisadli lenyoni nje sekuphele la lana iyadla. Itsi cwa cwa cwa kwafika kuleli banga leli ayisakhoni. Se utfola kutsi sesitfolo le half nje tsine sesitfolo le quarter nje.

Interpreter: Oho.

Farmer: Konke la icedzile lenyoni buka nje. Angitsi uyabona?

Interpreter: Ngiyabona.

Farmer: Lana ngeke iwadle se ngemajoli ke lawa ngiwo lesiwatfolako.

Interpreter: Sekuyevakala.

Co-supervisor: Can I take a picture of that sorghum.

Interpreter: Ehm, which one?

Co-supervisor: To show where the birds have eaten.

Interpreter: Oh, you can take.

Co-supervisor: Do you want to hold it for me Nandi?

Farmer: Lijoli sekulimele le'tulu.

Co-supervisor: Just turn it a bit.

Interpreter: Siyabonga singaqhubeka.

Co-supervisor: So, the birds can sit on the top they can't sit on the bottom?

Interpreter: they can sit on top they can't sit at the bottom. Once they eat up until this far, they are not able to sit at the bottom that's why we call the part lijoli.

Interviewer: Oh, this bit here?

Interpreter: Ya. Where it is left, it's called lijoli.

Co-supervisor: Does that describe the part where the birds have not eaten?

Interpreter: Yes, it's the part where the birds haven't eaten. Lijoli.

Co-supervisor: What?

Interpreter: Okay, asiqhubeke.

Interviewer: Oh yes, how did you acquire the land that you have been using to farm?

Interpreter: Lenzawo lolima kuyo wayitfolo kanjani?

Farmer: Yababe, ya-quotela ngubabe.

Interpreter: Okay through the quota system.

Co-supervisor: Can I just ask why does he think things changed like he said now you beat during the day, you weed with the hoe, why did things change?

Interpreter: Okay ngibuta kutsi... angitsi kadzeni lamabele beniwabhula kusihla?

Farmer: Yebo,

Interpreter: Yini lekutsi bantfu bawabhule emini?

Farmer: Angikwati angikababoni, bayakwenta emtini yabo.

Interpreter: But awukwati lokutsi leni?

Farmer: Angikwati lokutsi leni. Kodwva le KaNgwane kwentelwa kusti le emini akubhunyi kakhulu emini.

Interpreter: Ebusuku?

Farmer: Ebusuku kuyenteka ngoba nale KaNgwane Siyaya siyowabhula kwekutsi siqala ngabo 4.

Interpreter: Lapho kune matolo?

Farmer: Sicala ngabo ma 4 kwentela lokubhunya, nangibuta batsi kwentela lokutsi akubhunyi kakhulu.

Interpreter: Okay, nyalo awati kutsi bavimba ngani?

Farmer: Wena le kwakho angati kutsi bakwente lani lokuwa bhula ngalesikhatsi.

Interpreter: Okay, they don't have a specific reason why people decide to beat them during the day, but I know why we were beating it during the night. During the night there would be no dust because there would be some dew all over the harvest.

Interviewer: Okay, did you choose which land you were given?

Interpreter: Lenzawo uma niyo-quota nemphakatsi nakhetsa kutsi sifuna leya noma nanikwa?

Farmer: Nawufika endzaweni wena mngani, uyabuka kutsi lenzawo iyawuhola yini uyayitshandza.

Interpreter: Bese bakunike leyo loyitshandzako?

Farmer: Bese ngicela kukhonta la kulenzawo. Bayabuta, uyibonephi lenzawo loyitshandzako? Usho kutsi hawu bekungaba lapha.

Interpreter: Bese bayakuni khona.

Farmer: Bese bayakunika bantfu betakamiti kutsi hamabani niyomgalela lo kuleyo ndzawo. Kadzeni bekweniwa nje bewungabuki ngemehlo kutsi ngiyayitshandza lenzawo sengifuna kwakha. Bewugalelwa njengokusuka kuleli khaya leli ujigijele mjigijelo wakho utsi 1, uphindze utsi 2, uphindze utsi 3.

Interpreter: Uma ujigijela uphindze ubutse nome ume ndzawonye?

Farmer: Buka la, uyajigijela bona. Uyabona kuphelelephi?

Interpreter Yebo.

Farmer: Sitawuhamba siyokuma lapha, sitshatshe kona lokwa futsi, siphindze futsi kanjalo kanjalo kanjalo... Ushilo kutsi umdeni wakho kutsi mkhulu kanganganani utati kalele wena.

Interpreter: Vele ninikwa emetfuba lamatshatfu?

Farmer: Hehhe, akusimatfuba lamatshtfu, ngokwemtsetfo uma ukunika kusuka kulomunye uyakalelelwe ematfuba lamane ajikilele 4 kusuka kulomunye kuya kulomunye. Kahle kahle bekungulwelwa tinkukhu kutsi inkukhu yakakho ayingayi kami. Kufanele kutsi nangabe kuya inkukhu yakakho kami, ibe yendvwodzana yami hhayi yemuntfu locamuka nhaphandle ngobe ingahamba ize itawufika la. Laba labakhishwa lesitutjana ngekutsi tinkukhu tingahambelani, bekuyindvwodzana nange family inje kutsi siyatana lakwakho nikhule kanye njani nantfwana babo gogo bekunjalo.

Interpreter: It means the... it's sort of like they were using because when you go to the chief and ask for the land. The chief he'll ask you which one have you seen? And then you will suggest that you've seen this one. And then he'll give two or 3 people that will go and allocate you the land. When you reach to the land, you'll be, you'll stand to the nearest homestead then you throw stones at least 4 times that's the way of demarcating your area.

Farmer: Wena muntfu lomkhulu, uma usuka la ngoba asikwati ungumuntfu lonjani singawajikijela ematje size siyofika endasi lapha siyakucosha la kitsi ungabi dvudane natsi ngoba wena asikwati la

usuka khona kutsi uyeba kumbe njani kufanele sihlale nemuntfu lesatanako naye, nguye lowa 4 kutsi lo satane naye. Wena singawa jikijela singaya siyoku lahla phansi le.

Interpreter: Okay, which means the throwing of stones 4 times it was done for someone you are familiar with either family or someone you're familiar with. If your new in the area, they will throw a stone a lot of times trying to push you away from them.

Co-supervisor: Okay (laughs).

Interpreter: Ungaqhubeka.

Interviewer: Okay, what do you consider the best land for farming?

Interpreter: Ekulimeni kwakho nje sowuze ube ngaka, ngiyiphi indzawo luyibona kungiyona lelungile ekulimemi? Ile kanjani?

Farmer: Ngishilo kuwe ngatsi le ngiytsandza kufa nekuphila qha intfo lekhona ngemanti kuphela.

Interpreter: No, sengisho ngifuna kutsi umhlabatsi. Indzawo nje kutsi kuba ngulenjani angitsi letinye tine ntsaba letinye tine mahlati nguyiphi loyiba ngatsi iright ekulimeni khona khona la? Angitsi letinye tindzawo kulapho kudla tinkomo?

Farmer: Lalela, ngitakutsi kuwe lendzawo yonke le iright ekulimeni ngesikhatsi lokufanele ngaso njengoba ngishilo kutsi litulu. Kute nje la incaba khona, tonke letilimi iyativuma. Batata iyavuna kute lengakuvuni, ngiko lengikushoyo kutsi ngemanti that's all.

Interpreter: Okay, according to me this land where we live is good for farming.

Farmer: Ikabili. La kuse plazini letinkomo uma ubona lodarada kuse plazini letinkomo imnandzi sterek ngala etinkomeni lokubihlungu kwakhona kunye kutsi sesandzelwe tihlala. Letihlahla setinengi, letihlahla leti lotjani abosabu tfoli umoya sebhulala bufutumele, lokufutfumala kwako laphansi abusahambi buye etfulu.

Interpreter: He was just explaining that we are now having a lot of trees hence they are losing grass for livestock.

Farmer: Futsi ngitokucocela, ngitokutjela, la asi spend imali leningi kakhulu kwekutsi silahlekelwe njengawe esebente uwase Nkangala, ufike utsenge manyoro, utsenge ma cabbage tonke letintfo leti la akusebenti loko. Kusebenta emanti kuphela kusti uma kumanti wafakaumcuba kulungile.

Interpreter: Okay, he is talking about that this land is fertile you don't need any fertilizer. Just nje water.

Interviewer: Okay, next question is, were you forefathers able to choose the land you're from. What he just explained about throwing the stones. Was that before was that long ago?

Interpreter: It was a long time ago.

Interviewer: Okay, I need to ask for now.

Interpreter: Okay, kadzeni angitsi bekujigijelwa ematje, nyalo kwentiwa njani?

Farmer: Nyalo loku lokukhona ngikhandza kutsi nje kubusa imali kusti uma unemali wena utawufika utsi ngoba nginemali ufika usike indzawo loyitsanzako ngaphnadle kwetfu kubusa imali.

Interpreter: Okay, now people they are using money, if you have money, you'll have the land that you want.

Interviewer: In the past, did they consider the type of soil they were planting on?

Interpreter: In the past?

Interviewer: Ya.

Interpreter: Okay, kadzeni kusa nabom' mkhulu, bebacikelela lokutsi batawulima la tinkomo tidle la. Bebawubuka lomhlaba la batawulima kuwo kutsi ngulo njani?

Farmer: Ja, bebawubuka bekune, lentfo yemadlelo indzala.

Interpreter: Ngisho loluhlobo lomhlabatsi kutsi lolu vumayo nali?

Farmer: No, umhlaba kwakuvele kuwumhlaba.

Interpreter: Wavuma vele wonke?

Farmer: Wawuvuma wonke umhlaba but bekufuna nje kutsi niyatibonelela tilwane kwekutsi le singabeka tinkomo nekutsi la singalima njengoba nje utibonela nje. La akuzange kulinywe la kusukela sengigugil. La akwatiwa likhuba kusebaleni ebaleni akuzange sekulinywe bekune muti la wawukhona kulemiganu leya wakohona ngale le ndasi kuyoshona le imiti kufike le esigodzini ngesheyakodwva bebevela banalo li sight kutsi ngala solima.

Interpreter: Okay, which means they did not consider much that this land is for ploughing this one is for livestock they just decided let's farm this side and let's put livestock this side.

Interviewer: Okay.

Interpreter: Without taking into consideration the type of soil or what. They think that the soil is just the same.

Interviewer: Okay, do you plant different types of sorghum now?

Interpreter: Uke walima emabele nyalo?

Farmer: Cha.

Interpreter: Ugcine nini kuwalima?

Farmer: Ngichazile kuwe, ngatsi nyalo bangiphile.

Interpreter: Awukawalime?

Farmer: Angikawalimi.

Interpreter: Wagcina kulima kadzeni?

Farmer: Mina nje kusti kadzeni ngilime bogogo siwalime ekhaya. Besiwalima ngendlela lengikutjele ngakhona kute nje kutsi special for mine ngicondze kulima mabele. Kung'khani lonyaka ngicala kusti ngingalima mabele, tonke tilimo ngiyati lima ngaphandle kwawo lamabele ngikani ngitawucala kulima lamabele mina.

Interpreter: This year, I never planted sorghum. I only planted sorghum a long time ago and I shifted to another crop. Then maybe next year I'll start.

Interviewer: Which type of sorghum did they grow?

Interpreter: Kadzeni benillima tiphi tinhlobo temabele na'ngangibalela kusti besilima lenje?

Farmer: Bekuna Mshake,

Interpreter: Mshake,

Farmer: Bese kuna Mshalane,

Interpreter: Mshalane,

Farmer: Se ke kuba na lafika emuva nanka lamhlophe. La fika emuva labovu tole kutsi ayalenga nanka emabele ayalenga.

Interpreter: Yini ligama lamabele lamhlophe lawa lafike emuva?

Farmer: La lamhlophe ngicale kuwabona nase ngile kumbane, lamhlophe angatsi kwatsiwa ngugama bani. Tinyoni tiyawatsandza strong.

Interpreter: Okay, and another variety the white one but I don't know the name, this one birds they like them too much.

Interviewer: Why did you stop using them?

Interpreter: Ehm, nagabe kadzeni beniwali lamabele njengoba usho, nayekelani kuwalima, wena nje wayekelani tot kuze kube nyalo wachubeka naletinye tilimo?

Farmer: Eh, emabele kahle kahle lokutsi siwayekele asuka abe bete lesivuno ngetinyoni ngesikhatsi lesiningi. Njengoba bengikubekisela la.

Interpreter: Lokunye kungaba yini?

Farmer: Kwaba bete lesivuno kwekutsi akusiyo nentfo levamiseke nekutsengiseka nangabe unawo ukhandza kusti utawushoda ngale market kuwatsengisa tintfo letinjenga leto nje. Akusiyo intfo lebayinakile bantfu kakhulu.

Interpreter: Okay, there are two reasons why is stopped growing them. One, is because of the birds, they were eating a lot of them I ended up not having a good harvest. Second one, even if I can have a good harvest, there's no one interested in buying them so that's why I changed.

Co-supervisor: When he was talking now with the birds eating them a lot, is the indigenous type or the new type?

Interpreter: It's the indigenous type especially the white one which he mentioned.

Interviewer: Okay so back then when he was still growing the sorghum what was the advantages and disadvantages?

Interpreter: Kadzeni uma uwalima lamabele nje, angitsi bekalinywa abe maning, bekuyini buhle bekuwalima?

Farmer: Buhle bekuwalima babe kwakukunengi, ngoba bekufike siyati kutsi mdoko sitawutfo, netjwala bunemvubelo itfolakala khona la emabeleni. Bese kube nje lele palishi nalo sasilidla lelo palishi ngawo lamabele. Nyalo sebatsi libi kumnyama bayaliqwenza akusikahle loko.

Interpreter: Okay, one of the advantages is we were able to make soft porridge using sorghum and we were also able to make a Swazi brew and we were able to make porridge. [Asks the Farmer a question] Bubi bako bekuyini? Bubi balamebel nje kukhona lokubi ngawo?

Farmer: Kute bubi bemabele babe. Ngoba uma uva emabele intfo ledliwako angitsi uyabona.

Interpreter: There's no disadvantage.

Farmer: Kute bubi bemabele sengulensha lecwensa lamabele batsi liphalishi lakhona limnyama. Tsine besingenankinga ngoba nemahewu nangabe nje sine mabele kwentiwe mabele, kusilwe mabele

nemahewu akhona ehla nje. Noma uyagula ubonakalisa kusti mhlawumbe kune kufa lokutsite kumbe awusadli bebatstsa lamabele basile batsatse speit bakufake langemuva betsi uma ungasadli.

Interpreter: Okay, maybe (laughs) we can talk about the uses of them.

Farmer: Nguk'tshela qiniso phela mine, [inaudible].

Co-supervisor: The uses?

Interpreter: Ya, the uses.

Co-supervisor: The uses of the indigenous plants?

Interpreter: Ja, the uses of the indigenous plants. It was used for when you're sick it's like your stomach has a problem, they used to clean the colon. It was a grinded and made soft and mixed with water and then using a cow's horn (liphondo) they would irrigate the colon.

Co-supervisor: Is it phondo?

Interpreter: Ja, liphondo.

Co-supervisor: How do you write it? (Spells 'Liphondo')

Interpreter: Ehe.

Co-supervisor: So shall we do the uses? Oh we've done the uses?

[Inaudible talk, dog barking]

Interpreter: Thin porridge [interruption]

Co-supervisor: These are the uses?

Interpreter: Ja, these are the uses.

Interviewer: When you start using the sorghum again what would you use it for?

Interpreter: It's like he will start next year.

Interviewer: Ja but this question, "what do you use the sorghum for now?" So he's going to start using the sorghum.

Co-supervisor: The modern variety.

Interpreter: Asitsi, lamabele njenga lamanje bawasebetisa kwentani nangabe utawubuyela le angitsi utsi utawubuyela uhlanyele le ekhaya, uwasebentisa kwetani wena?

Farmer: Mine ngiwatsandza kakhulu endenganeni,

Interpreter: Thin porridge,

Farmer: Ngiwatsandza kakhulu emahewini, ngiwatsandza kahulu nakhusho kusti tjwala bemsebenti,

Interpreter: Making Swazi brew,

Farmer: Ngente lemvubelo bese ngiyatsengisa lemvubelo. Ine mali ke yona lemvubelo.

Interpreter: Ja, it's porridge and Swazi brew, and they also sell. There is this thing, which is made if you want to make alcohol, there's this which is the strongest part... the 100% content of alcohol. They make it and then sell to the people which is mixed with water. It's like they sell the concentrate.

Co-supervisor: The concentrate of alcohol.

Interpreter: Ja, the concentrate of alcohol which is made from the sorghum.

Interviewer: Yiwo lama rhewu?

Interpreter: Which one?

Interviewer: Marhewu?

Interpreter: Mahewu is like thin porridge that you drink.

Farmer: Akhona nje nalapho estolo ayatsengiswa, abawati labantfwana ubobakhombisa.

Co-supervisor: What's this concentrated alcohol, the Swati name?

Interpreter: Yini ligama lalemvubelo?

Farmer: imvubelo.

Interpreter: Oh, yimvubelo.

Farmer: Wenta ngani wena utenta liShangaane?

Interpreter: (Laughs) Ngifuna kuva ngawe.

Farmer: Imvubelo.

Interpreter: Imvubelo. This is the concentrate.

Interviewer: Okay uhm, if the season to start planting does not present ideal conditions what steps or adjustments do you make to increase your harvest?

Interpreter: Ase sisti uyalibona litulu kutsi liyaceketela maan, wenta njani kutilungiselela kutsi uqhubeke ulime [inaudible], lesimo lesi ngathi sinjeyana? Yini le oyentayo la emasimini akho ukuti lungiselela kutsi [inaudible] nigcine nihlanyela? Noma tindlela oti sebentisayo tetiyenta kutsi ugcine [inaudible]?

Farmer: Indlela kute mntfana ketfu lesiyentako. Siyagucula, sente konke lesikwentako kodvwa [interruption]

Interpreter: Nigucula ebusika noma ngesikhatsi sasenhlobo?

Farmer: Sigucula ehlobo. Nakucala letimvula tekucala sigucula sesiyacala.

Interpreter: Niyahlanyela noma niyema?

Farmrt: Asihlanyeli siyema siyalindza kuyabola loko loku lapho, nasekuohindza ke sesiyacala.

Interpreter: Okay, so what we do during the first rains we plough but not planting. When it comes second one, it is when we can plant. Which means we wait for the second rains.

Interviewer: Ah, is there any time that you let the cattle onto your field?

Interpreter: Kukhona yini lapho ukhandze kusti niyekele tinkomo tibuye le emadlelweni titawudla la emasimini?

Farmer: Kuyamenyetelwa lana tinkomo kumele tiye edam. Uma kucala litulu lokucala lina bayamenyetwa batjelwe kutsi tinkomo atisale tiphuma emasimini.

Interpreter: Sengisho uma, niye nitifake ke koje?

Farmer: Emasimini?

Interpreter: Ehe?

Farmer: Njenganyalo titawungenu angtsi sesicedzile kubhula titawungena emasimini.

Interpreter: We allow them during winter but before, it's not like someone just allows them to enter. There must be an announcement that cattle now can get to field and they will be an announcement that [interruption]

Co-supervisor: Who makes the announcement?

Interpreter: The chief that now the cattle everyone should take out his cattle.

Interviewer: If you do not use the cattle for manure, what do you use instead?

Interpreter: Ekadzeni uma nivundzisa emasimini benifaka umcuba?

Farmer: Yebo, besi faka umcuba.

Interpreter: Uma ningawufaki benifakani?

Farmer: Kute.

Interpreter: Other than cow manure, none.

Interviewer: Okay.

Interpreter: Nyalo ke nangabe ningaka faki mcuba nifakani?

Farmer: Kute. La Enhlanzeni, kute.

Interpreter: Even now there's no cow manure we don't use anything.

Farmer: Angawufaka lanawo labafana [inaudible] uyawufaka manyolo, namakhabeni uyawufaka.

Interpreter: Some, those who have money they can use the synthetic fertiliser but it's not necessary.

Interviewer: When in the year does the sowing begin and who does it?

Interpreter: Kucala nini kulima?

Farmer: Ngitsite mina site lihlobo la site busika.

Interpreter: Okay, nicala nini lokulima?

Farmer: Sicala ngekuna kwelitulu.

Interpreter: Which means we start after the first rains.

Interviewer: And harvest time?

Interpreter: Bese nivuna nini, mhlawumbe kungaba inyanga noma sikhtasi?

Farmer: Kuya ngekwoma kwembila kutsi lombila sowomile ngoba lesi suka sibe nako njengoku khuluma nje. Ngitsite kuwe watsi utawu shehsisa nyalo nje umuhlwa uyajuba kunemuhlwa lahlatsini, muhlwa uyajuba uyalala phansi manje uma kuwomile ngiya khwela.

Interpreter: Okay, it happens when the crop becomes dry, once it is dry, we harvest there's no time for harvesting.

Interviewer: And is he the one doing the harvesting?

Interpreter: Kuvuna bani?

Farmer: Kuvuna mina njengoba ngikhona la.

Interpreter: Nbasekhaya?

Farmer: Nbasekhaya namgabe bakhona kodwa ngiyimpohlo nje ngitivunela ngiyi one.

Interpreter: Okay, kuphindze kuhlanye wena uwedwa?

Farmer: Ngincuse lomunye kutsi angincdzise ngihlanyelise lona musa angihlanyelise lote ahambe.

Interpreter: Ute bantfana?

Farmer: Bantfana bahambe base skolweni badzala awubati.

Interpreter: Okay, which means during planting I do it myself because I don't have someone to help and harvesting I do it myself.

Interviewer: Is there anything that you do to make sure that the land recovers between the growing seasons?

Interpreter: Nangabe sekuvuniwe nje uyabona, sekusebusika kukhona lokwenatko la ensimini kutsi nakusuka nje kulima insimu yako ebu mnandzi kutsi utawutfole sivuno?

Farmer: Kuye kube nokwekutsi la bengihlanye khona kudla kwami kulimele kufuka kutsi ngifake umcuba. Nangabe ngiyabona kutso hho, ngilinyetwe kutsi mhlawumbe kulimeke kabi noma mhlawube njengoba la kunetihlahla ngigawule leto tihlahla.

Interpreter: Okay. It depends on what I saw during the summer. Maybe there might be some patches where the soil is not fertile, I'll apply manure and where there are trees, I just cut the trees.

Interviewer: Where did you grow up?

Interpreter: Ukhulelephi mkhulu?

Farmer: Ngikhulele khona la.

Interpreter: I grew up here.

Interviewer: Okay, do people still plough using oxen?

Interpreter: Bakhona labalima ngetinkabi?

Farmer: Tafa taphela ngesomiso.

Interpreter: No one, we lost them during the dry season.

Interviewer: So, before they were?

Interpreter: Ngaphambi kwale somiso betisebenta?

Farmer: Ngaphambi kwesomiso besiti sebentisa ngemajoka.

Interpreter: Just before the dry season we were using them these are... I don't how to call this.

Co-supervisor: Is that the plough for the Oxen?

Interpreter: Ja, it's for the Oxen maybe they call it jocks(yoke) or what. That's which is put...

Co-supervisor: In there?

Interpreter: Ya.

Co-supervisor: So why? Does he own cattle now or doesn't own oxen?

Interpreter: Tikhona tinkomo lonato? Unato tinkomo?

Farmer: Nyalo taphela babe ngesomiso.

Interpreter: He lost all of them.

Farmer: Tikhona tababe lakhaya.

Interpreter: Okay, he lost them during the dry season.

Co-supervisor: If he gets more cattle will he use it again?

Interpreter: Na ungatitfoli tinkomo netinkabi unga phindza...

Farmer: Wuu, anginivisi buhlungu wena. Ngimgajabula kakhulu phela. Ngitsenge sigulumba nasiya lapha angisakhoni kusibhadala.

Interpreter: Hawu, which means if I can get them, I will use them.

Interviewer: When maize was introduced did your parents and grandparents continue planting sorghum?

Interpreter: Uma ukhumbula kahle mkhulu angitsi kadzeni umbila wawungekho, umbila ufike nini? Kwakuna la Mabele?

Farmer: Kwakuna la mabele.

Interpreter: Uma ufika umbila kwentiwa njani?

Farmer: Wawukhona umbila nenhlanyelo nje yayisintfu nje yayimnyama. Wawukhona umbila mina ngawukhandza, ngeke ngisho ngitsi angiwukhandzanga.

Interpreter: Wawukhandza kusti bikhokho mkhulu baqubeka balima lombila nalamabele kanye kanye?

Farmer: Kanye kanye bekukhona konke.

Interpreter: Kute kutsi besebanakekela umbila Mabele badvonsele emuva?

Farmer: Bebalima konke one skhathi.

Interpreter: Bebakunaka konke?

Farmer: Bebakunaka konke.

Interpreter: Okay. Which means there was no shift, they were ploughing maize and sorghum.

Co-supervisor: Please just remind me when was that drought?

Interpreter: Here we have two droughts, the first one was in 1994 which was the most extreme one and the recent one was in season 2015/16.

Co-supervisor: Did he lose his cattle in the '94 [interruption]

Interpreter: Letinkomo takho tabulawa ngusiphi somiso ngulesi sanyalo noma sakadzeni?

Farmer: Nasi.

Interpreter: 2015/16.

[Talk]

Interpreter: Sesicedzile?

Interviewer: Ehe, sesicedile.

INTERVIEW 13: FARMER 13

Interpreter: Konje uthe owa 1940?

Farmer: Iye, kunjalo.

Interpreter: Indvodzana yakho lesuka la?

Farmer: Ehe, indvodzana. Italwa ngimina ngedvwa.

Interpreter: Okay, uMkhulu wa 1940.

Interviewer: Okay. Unga explainer ku Mkhulu ukuthi kuzosebenza kanjani?

Interpreter: Okay. Eh, Mkhulu. Njengoba bengike ngafika sakhuluma; lona ngu Nandi lo. Loya ke ngu Make Thembi.

Farmer: Oh!

Interpreter: Ehe. Bafuna ke ukwati nge ku lima kwa kadzeni, ukwati nje ngok'lima kwa kadzeni nale lanyalo. Le timilo beti linyiwa kadzeni nale beti linyiwa nyalo. Kulomshini abawu phethe lana, kunombuto abatawo buta. Lomshini ungesilungu. Batawu buta ngalesilungu, mina ngitawu tolika ngalesintu.

Farmer: Utawu tolika wena, okay.

Interpreter: Wena utawu phendula ngalesintu, mina ngiphinde ngitolike mina ngubusele emva. Itaba nje kanjalo. Ayisinengi Mkhulu lembuzo [inaudible]. Manje lo mfo ngalana, yeyi bekacoca ley'ndzaba letinengi [inaudible]

Farmer: [Laughs] Ngyamati ke loyo.

Interpreter: [Laughs] Itaw'ba kanjalo ke Mkhulu. Asicaleni ke babute.

Interviewer: Okay.

Interpreter: Ubalile angitsi 1940?

Interviewer: Eh

Interpreter: Ngowaka Sifundza. The surname is Sifundza.

Interviewer: Oh! The surname is Sifundza.

Okay, when did you begin farming?

Interpreter: Eh, wacala nini Mkhulu ukulima? Nawutelwe nje 1940, ukulima ukucala nini?

Farmer: Ah lapho ke angeke ngicambe manga ukutsi ngicala nini.

Interpreter: Mm,

Farmer: Kulima nje sakhula sakhandzwa kulinywa lakhaya.

Interpreter: Sengisho ukutsi amehl'akho avuleka nini ukubona ukuthi kulinywa kanje?

Farmer: Hai ngeminyaka anyeke ngati.

Interpreter: Awubekise ukuthi nje wawungakanani – libobodlelana noma wawungakanani?

Farmer: Ah, besingiyi bobodlelana.

Interpreter: Oh!

Farmer: Ehe.

Interpreter: So sothi njena, eh, maybe from 1940... about 15 [around age 15]

Farmer: Ja! 15, kanjalo nje.

Interpreter: Waya eskolweni Mkhulu?

Farmer: Eskolweni ama ngiya, be[inaudible] sete neskolo.

Interpreter: Okay.

Farmer: Sikolo sichamuka muva.

Interpreter: Okay. Chubeka.

Interviewer: Okay,

What plants do you grow now, and what plants did you grow then?

Interpreter: Eh, kadzeni nawucala Mkhulu mhlampe nalaba'bo Koko bakho nabo Baba abkho bebakhona, benilimani? Kadzeni?

Farmer: Bes'lima amabele

Interpreter: Sorghum,

Farmer: No'mbila,

Interpreter: Maize,

Farmer: Nemabontshisi,

Interpreter: Beans,

Farmer: Sokuyahamba, sekuvela naku lokuthiwa...lamabele kuthiwa uMshalane

Interpreter: Oh okay, we've written sorghum so he's just mentioning a variety [of sorghum].

Eh, nyalo nilimani ke Mkhulu?

Farmer: Nyalo silima umbila,

Interpreter: Maize,

Farmer: Silima mabele,

Interpreter: Sorghum,

Farmer: Silima emabontshisi,

Interpreter: Beans,

Farmer: Netindlubu,

Interpreter: Jugo beans,

Farmer: Netintongomane.

Interpreter: Groundnuts. Okay.

Interviewer: Okay.

Who taught you how to farm?

Interpreter: Ubani lo wak'fundisa ukulima Mkhulu?

Farmer: Savundza ku Babe [inaudible]

Interpreter: From my father.

Interviewer: Okay.

Is rainfall important for the harvest?

Interpreter: Eh Mkhulu, ngeku lima kwakho nje mawu buka, itulu limcoka yini kutsi umuntu athole isivuno lesikhulu? Ngabe itulu limcoka yini?

Farmer: Ilona lelimcoka kakhulu ngoba nyeke ulime kute imvula.

Interpreter: Yes, [rainfall] is the most important for a good harvest because with it you can't harvest

Farmer: Iyabuya lemvula, iyana singen'emasimini.

Interviewer: Okay. Is there anything else that is [important for a good harvest]?

Interpreter: Kukhona yini lokunye ngaphandle kwa leli tulu kutsi... khona lokunye okumcoka lokwenta umuntu athole lesivuno lesiphiyo?

Farmer: Bekusengakefiki, kufika muva. Les'khatsi kufika lama Bhunu la kaNgwane.

Interpreter: Mm,

Farmer: Ehe, lama Bhunu safika nala manyolo.

Interpreter: Okay, kadzeni [benisebentisani]?

Farmer: Kitsi besisebentisa mcuba.

Interpreter: Meaning [in the past] it was rainfall and kraal manure and now [after Europeans arrived in Eswatini] it's rainfall and [synthetic] fertilizer.

Interviewer: Okay. So does [he think kraal manure is important now]?

Interpreter: Now?

Interviewer: Yes, now.

Interpreter: Nawucabanga Mkhulu nyalo umcuba ungakwentela sivuno lesphilayo?

Farmer: Uyakwentela masithole invula.

Interpreter: Yes, it gives good harvest only when there's rainfall.

Interviewer: Okay.

Do you use information that your grandparents and parents used when you farm?

Interpreter: Eh, kulokulima nyalo...angithi uyalima nyalo?

Farmer: Ehe,

Interpreter: Ukhona ulwati olusebentisayo lo walithatha kubo Babe bakho noma kubo Mkhulu bakho kadzeni? Lo solusebentisayo nyalo?

Farmer: Ja, ulwati lami. Ukucala nje ukulima la kaNgwane abekungalinywa ngetinkabi. Abekulinywa ngetandla.

Interpreter: Sengitsho kutsi usali sebentisa lelwati nyalo ukutsi ugale nyalo?

Farmer: Ngisalisebentisa.

Interpreter: Okay, there is [information] that I use,

Interviewer: Okay,

Interpreter: Which is ploughing by hand.

Interviewer: Is that all?

Interpreter: Kukhona lokunye?

Co-supervisor: What do you mean ploughing by hand?

Interpreter: Using a hoe.

Co-supervisor: Oh!

Farmer: Lokunye...kute.

Interpreter: [I don't use anything else] besides ploughing using my hands.

Farmer: Ngoba thine sicale kulima bek'sete inakhu...Mine nje ngikhule ngibamba intsambo kulama Bhunu ukufika kwawo la.

Interpreter: Okay.

Farmer: Ehe, si bangalimi labantu, balima ngetandla.

Interpreter: It was only hand ploughing.

Farmer: Kufika kwalama Bhunu sas'fundzisa ke lo [inaudible], sesiyabophela.

Interviewer: Okay.

Can you take me through the process from the beginning of the planting season to the harvesting period, then and now?

Interpreter: Eh nawukhumbula Mkhulu kadzeni, ukulima kwakadzeni usabamba intsambo, ungakhona yini ukung'chazela kutsi kadzeni bekwentiwani ngaphambi koba ku, ensimini...bekwentiwani la ensimini? Bese uchubeke nentlanyela, sekuhlanyeliwe toti toti kuvunwe. Nasekuvuniwe kubekwephi lokhu okuvunilwe? Nasekubekwe lapho sekufakwa kuphi kutsi uthok'wonga?

Farmer: Uk'wonge.

Interpreter: Eh lokucala kwakho nje [inaudible] ucale kadzeni kutsi benicala nyende nje, nyende nje, nyende naku toti toti siyovuna.

Farmer: Eh, siyalima, sihlakule,

Interpreter: Nilima kanjani? Ngicazele.

Farmer: Silima sifata,

Interpreter: Okay, benifata? Ningaka limi nifate k'cala noma benilima k'cala?

Farmer: Uyasika la. Ihamba kanye lentinkabi,

Interpreter: Oh!

Farmer: Lijike. Seyasala le [inaudible], sowuya ngena ke wena ngalentlyelo. Uyaquba, uyafata. Uyafata, uyafata, uyafata, uyophuma le. Setiyangena letinkabi ke, setiyalalisa.

Interpreter: Chubeka nje Mkhulu, naseku milile nente njani?

Farmer: Nasekumilile sesiyangena, kuyahlakulwa.

Interpreter: Kuhlakulwa ngani?

Farmer: Kuhlakulwa ngetandla.

Interpreter: Ngetandla?

Farmer: Ehe. Kute makhuba.

Interpreter: Oh ja. Uchubeke, nasekuhlakuliwe kwentekeni?

Farmer: Eh, nasesihlakulile sekuyavuthwa. Uyavuthwa umbila.

Interpreter: Na ku ngamabele ke?

Farmer: Naku ngamabele ayavuthwa mabele. Kuvuthwa kwamabele, sataw'jujwa

Interpreter: Kute lo kutsi nasawavutsiwe sagadvwa?

Farmer: Kuyagadvwa tinyoni!

Interpreter: Gadvwa ngani?

Farmer: Kugadvwa ngetidubulelo. Kwakhiwa nje lugogo. Lolugogo bese kuba (nesiceketo?) le sitaba nje, ufaka lelitje khona. Bese uyajik'jela.

Interpreter: Okay, kuletintambo lalesidubulelo kuba...kwakhiwa ngetjani?

Farmer: Kwakhiwa nge naku, nge ntiya...isgwenga.

Interpreter: Tiya? S'gwenga?

Farmer: Mm,

Interpreter: Please take care of the word "Sigwenga".

Interviewer: Isigwenga?

Interpreter: Ja.

Interviewer: What do you mean "take care of it"?

Interpreter: I mean...please remind of the name “sigwenga”.

Farmer: Sigwenga nje naso khona lapha [inaudible]. Sila eceleni.

Interpreter: Sikuphi [inaudible]?

Farmer: Lapha usebenta khona. Nawubeke [interruption]

Interpreter: Yini, kuyis’hlahlala?

Farmer: Cha kwakha...kwakha nemafutha. Nyalo bebakusebentisa kwakha mafutha nyalo.

Interpreter: Kuphi, kusihlala?

Farmer: Ak’siso sihlahlala. Kuyakhula nje kube sigwabugwabu.

Interpreter: Oh ngathi kwiynhlaba?

Farmer: Ehe! Lapha nje nawuphuma ubeka le [inaudible], naku khona la enzaleni taka [Surname omitted].

Interpreter: Oh! Do you know [the] sisal [plant]?

Co-supervisor: Yes! Sisal.

Interviewer: Hm mm.

Interpreter: Yes, what is it?

Co-supervisor: It’s that plant that grow so sharp.

Interpreter: That’s isigwenga.

Co-supervisor: Is this sigwenga?

Interpreter & Farmer: Ja!

Co-supervisor: What did they use it for?

Interpreter: It was used to make a gun for scaring birds.

Okay, as’chubeke Mkhulu. Sesiti shayile tinyoni ngalokhu kwes’bamu. Eh, sesiyavuna. Sivuna kanjani?

Farmer: Eh, sesiyavuna, ayajujwa lamabele. Sowulungisile incolobane.

Interpreter: Ikuphi le incolobane?

Farmer: Incolobane ila ekhaya. Utawavuna le ensimini uwa [interruption]

Interpreter: Uyakhe kuphi lakhaya?

Farmer: Emva kwetindlu.

Interpreter: Kandzeni? Ngisho kadzeni.

Farmer: Ehe, emva kwetindlu!

Interpreter: Mm, ayikho es'hlahleni?

Farmer: Hayi es'hlahleni! Ugawula nje lamaphaqa abeng' 4.

Interpreter: Ja,

Farmer: Sen'tawu tsatsa tingodvo niya gaqa, niya gaqa letingodvo. Senibuyisa letinye niyagaqa, niyagaqa. Senitsela letingodvo la. Kutsela kwenu letingodvo, senibuyisa tinhlanga talamabele. Niyagawula, niyagawula, niyagawula, niyabuya niyatindlala la. Senibuyisa amabele niyatsela. Kutsela kwawo lamabele, ayahlonywa. Ahlonywa so [demonstrates], njengendlu, tindlu tetjani. Ahlonywa kanjalo kutsi malina letulu, lamanti agijime. Ahambe lamanti, anga [inaudible].

Interpreter: Okay. Naseseni...avutsiwe ke, sekawomile ke. Seniyawabula ke niyenza njani?

Farmer: Sesi, singena ehlatsini siyofuna tibhulo. Letibhulo leti ku sigila. Kukhandza nje [inaudible] koja kuhlel'ekodweni [inaudible]. So fanele kutsi ujube la, ujube la. Usale lo [inaudible]. Uloko ushaya phela.

Interpreter: Mm, yini igama la le [inaudible]?

Farmer: Eh, naku liyangibalekela...hayi hayi hayi. Vele silibita tibhulo tsine.

Interpreter: Okay! Chubeka ke Mkhulu. Naseniwa bhulile?

Farmer: Ses'bhulile. Sesakha ingungu,

Interpreter: Ingungu?

Farmer: Ehe, la ekhadzi es'bayeni.

Interpreter: Ja,

Farmer: Semba, semba. Umba ukale le lom [inaudible] wakho ukutsi utaw'ngena undlale lamabele lapha phansi. Se seniya kumba ke nimba lishafu. Sengishonile mine, seniyakumba lapha lishafu. Nikhipha lomhlaba, nikhipha lomhlaba. Kusuka kwakhona, kubuya bulongo. Bulongo betinkomo.

Sekuyasindvwa la ngekhadze. Kuyasindvwa, kusindvwa nala etulu. Sayabuya ke lamabele, sayatselwa. Ayatselwa. Noma'ngaba 50 emasaka, noma'ngaba 100 emasaka. Umakha phansi lo 100 kutsi mangitsola 100 emasaka emabele ayenela engungwini. Sowafakile engungwini, seyigcwele ingungu yakho. Uhamba uyofuna ligcolo. Leli gcolo lemganu. Sekufike leli gcolo, ushaye so [demonstrates] uphinde ushaye ngaphansi. Ugece nje [inaudible]. Sowufuna tikhongwana, ubata tikhongwana takho lo tatshayela la kuleli gcolo. Bese leligcolo lito phuma kahle. Ushaye, ko ko ko ko nge litje. Seyagwagwabuka leligcolo, seyagwagwabuka leligcolo. Ubuyela ngale uyashaya, uyashaya, uyashaya. Liyagwagwabuka leligcolo, gu phansi. Sowuyali [inaudible] ke lapho, ubasa umlilo. Ubase lomlilo wakho ubem'khulu.

Interpreter: Uwubasa kuphi lomlilo? Ushisa leli gcolo?

Farmer: Ja! Ulibasa khona le ehlathini, la ugawule khona. Sowuyalifaka legcolo. Liyasha! Kusha kwalo uyalikhipha, sowuyali nyatsela [demonstrates]. Uyalinyatsela, uliyenta flat. Flat, kube flat, flat flat. Sowuyalapha ku ngungu yakho. Inje le ngungu. Ukala lesivalo, usifaka so [demonstrates]. Sitawuvala la, koja funa la sibe la [demonstrates, lapha sibe la [demonstrates]. Sibalekele manti angangeni.

Interpreter: Oh ja,

Farmer: Mm hmm. Sesibuyisa les'valo siyavala. Sesibuyisa lob'longo. Siyanama la eceleni, la eceleni. Sesibuyisa umcuba siyatsela, siyayekela.

Interpreter: Okay. Eh, beyikhona lengungu lakhaya?

Farmer: Beyikhona ekhaya le langisuka khona le kaShewula.

Interpreter: Ayikabi khona la?

Farmer: Lapha, hayi. Abayati nje nalaba la ingungu ba ngiba buka.

Interpreter: Le kaShewula ikhona le esingayikhandza? Ukutsi bekayilana sibone?

Farmer: Ja, kule tibaya letidzala. Babangaka limi, yemadoda. [Inaudible] lolukhona nyalo. Kugcine kitsi lokhu. Manje letindzawo mangitibuka long'ihleli la, ang'sati boni kahle ukutsi kukhona lo kungaba ngumbala eish, hai man. Letindzalani sekwa valeka. Eh, ngatsi kabana? Nangabe kungafunakala ngaze nifike noma ka Mabila.

Interpreter: Ka Mabila letulu nawuya Emajembeni?

Farmer: Ehe, eskolweni Emajembeni.

Interpreter: Nyabona lapho. Okay, no sekuyavakala Mkhulu.

Farmer: Lapho ke kuyo lendzawo ngibuka lamadodza, labakhona ukutsi lapha la ngikhona khona mina la ngibala khona ngoba umphakatsi ngangu emva. Lamadodza banetingungu lapho.

Interpreter: Ja, sitake siye siyohlola.

Farmer: Ja. Kufuna ke vele kutholakale la badzala ngoba labantwana kute lento abayatiyo.

Interpreter: Okay.

Farmer: Mm.

Interpreter: Hayi, siyabonga Mkhulu.

Eh, I was just asking if we can see the ingungu. He says they don't have [it] here but [they do have them] along [Shewula]. Maybe can find it there. I'll go there some time and take some photos of the ingungu. There is a homestead he thinks still has the ingungu.

Co-supervisor: Okay.

Interpreter: What we did long time ago is that we started by broadcasting the seeds in the field. Then we plough using oxen, after which the seeds germinate. After germination, we checked for weeds and weeded manually [using our hands]. We also did thinning if there were plants that were too close to each other. Then we waited for the heads to form. Once formed, we went to the fields to scare the birds every now and then, using a gun made from the sisal plant. After that we harvest and then take our harvest to storage. Some of the storages were made on the trees. Other storages were built at the back of the houses using logs. Then you pack your harvest. There's a certain way you packed your harvest: the heads have to be faced upwards for allowing air to get inside. After that you thresh your harvest.

Beniwabhula ngani Mkhulu?

Farmer: Ngetibhulo.

Interpreter: Ebusuku noma emini?

Farmer: Ebsu, emin...ucala ntsambama. Ubula ubusuku bonke.

Interpreter: Okay, we threshed our harvest during the night. There are certain sticks, not just any sticks that you use. There are certain sticks that were taken from the forest. You take the certain stick and then during the night, when there's the moon you just beat them. In the morning when you've finished threshing them that's when you take them to the ingungu to store them. The ingungu was made by digging inside the kraal and then depending on the quantity of the harvest,

let's 50 or 100 bags, you'll dig a hole to fit the quantity of that harvest. Then you smear cow dung inside the pit, the ingungu, and you put all your harvest. Next, you take the bark of the umganu. Before taking the bark to close as a lid, you'll burn the bark until it's hard and then you close. Once closed, you smear cow dung around the entrance to prevent air from going in. That's how you store your sorghum.

Farmer: Nalombila njalo siwufaka engungwini.

Interpreter: Even for maize you use the same technique.

Farmer: Siyawabula nje, singen'enguungwini. Amathange.

Interviewer: And then when they, baba bhula where do they [interruption].

Interpreter: Baniwabhula beniwabekaphi? Beniwabeka emhlabathini noma [interruption].

Farmer: Kuyasindzwa. Uthatha lobulongwe, kusindzwe ngalob'longwe.

Interpreter: la ebaleni?

Farmer: La ebaleni.

Interpreter: Ububhula nabani?

Farmer: Ucela abantu.

Interpreter: Oh, bete lakhaya?

Farmer: Anyeke ubhule wedwa. Nje thine sikhulele'mphakathi.

Interpreter: Oh!

Farmer: Abekutsi bangabe kutawu bhulwa emabele, ku bitwe Nduna. "Nduna, emabele sewa bhulwa". Nduna abite madodza bete baphelele entsambama. Kutsi ke baku shona lilanga sebayangena ke. Bayawashaya ke, bayawashaya ke, bayawashaya ke toti kuze ba[inaudible].

Interpreter: Oh, okay! Before threshing the heads, we will just smear the whole ground. Smear it such that there is no dust from the soil. I was raised in the chieftaincy, and the Induna would ask the men to come during the night and they would thresh the sorghum. In the morning they would be given Swazi brew and meat as payment.

Nyalo ke Mkhulu, niyenta njani nyalo? Awusithathe nyalo kutsi...Nyalo angitsi ukulimi soloko kukhona?

Farmer: Mm,

Interpreter: Niyenta njani nyalo? Nilima kanjani nyalo? Nkhona kube nje u [interruption].

Farmer: Nyalo sesiya guqulu.

Interpreter: Eh, niguqula nini?

Farmer: Ngalomtseto nje masicedza kuvuna.

Interpreter: Fanele niguqule?

Farmer: Fanele siguqule.

Interpreter: Okay, bese nakusuka lihlobo nente njani?

Farmer: Bakusuka lihlobo sowuya ngena sowusika emalayini.

Interpreter: Okay, awulimi? Walima kadzeni?

Farmer: Awulimi, sengisika ngidweba emalayini, ngidweba emalayini, ngidweba emalayini.

Interpreter: Uchubeke ke u [interruption].

Farmer: Ngichubeke sekuya hlanyelwa.

Interpreter: Mm, chubeka Mkhulu. Basekuhlanyeliwe?

Farmer: Basekuhlanyeliwe, uyamila umbila wakho. Uyawubona ukutsi heyi, ufumbele lombila.

Interpreter: Mm, noma lemabele?

Farmer: Noma lemabele. Amabele awana nkinga.

Interpreter: Nawafumbele?

Farmer: Ehe, awana nkinga.

Interpreter: Oh!

Farmer: Ngu mbila lohluphayo,

Interpreter: Mm hmm,

Farmer: Ngoba funeke uhambe uyawukhokha.

Interpreter: Okay, asesikhulume ngalamabele ukutsi nakungiwo kuyentwa njani.

Farmer: Amabele noma angaminyana ayetinkinga ngoba ataw'tsela.

Interpreter: Sekatselile ke nawa. Sewamilile, aminyene. Niyenta njani, niyahlakula?

Farmer: Kuyahlakulwa.

Interpreter: Kuhlakulwa ngani nyalo?

Farmer: Ngetandla.

Interpreter: Solo awasebenti lama [interruption].

Farmer: Oh nyalo kuhlakulwa nge makhuba njalo.

Interpreter: Okay.

Farmer: Mm. Nyalo nje amile uwabona sengaka sengenwa lukhula, angenisa' bantu ngom'khuba.

Bayahlakula, bayahlakula, bayahlakula.

Interpreter: Okay, asichubeke. Sesihlakulile ke nyalo, sesiyachubeka.

Farmer: Eh, sesibita abantu sesitovuna.

Interpreter: Awagadwa nyalo?

Farmer: Oh Okay, ayagadwa. Masavuthwa sokufanele kuhlale muntu la, latawu phatsa lesidubulelo,

Interpreter: Lesifana nalesa?

Farmer: Ehe, sifana nalesa.

Interpreter: Okay.

Farmer: Ehe, athi masibona noma siyatseleka lapha bese ufaka litje sowuya jik'jela.

Interpreter: Uyati cosha?

Farmer: Uyati cosha.

Interpreter: Eh, nawa sewavutsiwe ke...

Farmer: Sesiyangena mase avutsiwe. Ses'yawa juba,

Interpreter: Ja,

Farmer: Siyawa juba. Ayathwalwa ke abuy'selwe ekhaya. Le khaya senakhile. Eh, thatha letingodvo uthi 1, uthi 2. Tiba ngu 4.

Interpreter: Uwakha ini lapho, inyango?

Farmer: Inyango.

Interpreter: Niyakha ngaledlela yakadzeni noma sey'hlukile?

Farmer: Cha ke, ay'sa ngakehluki. Wena ke uvese ulandza letingodvo uyatsela la etulu. Ustele letingodvo tihlangane. Ubeseke uphindze ujuba lama, letinakho...leticuta lamabele. Ujuba lamabel'akho uyawabeka lapha. Uyagawulam uyagawula, uyagawula letinhlanga, guawula letihlanga. Sowuyahamba uyotsela. Sowubuyisa lamabele, sowuyawa butsiso lamabele. Lok'wa butsiso kwakho lamabele [inaudible] ngoba afuna uk'hlonwa.

Interpreter: Mm,

Farmer: Ahlonywe. Akhuphuke, akhuphuke njengendlu mayifulelwa yesintfu. Akhuphuke kuliqubu nje, ithi noma lyana lemvula lamanti agijime.

Interpreter: Okay, sewuwabekile enyangweni ke. Ukuwabhula?

Farmer: Sekufika ku s'khatsi sok'bhula emabele, ses'yabhula. Ngemsetfo yethu thine la kithi kaNgwane, silalela le. Awubuli emabele, awujubi emabele iNkosi I [interruption]

Interpreter: Nanyalo kusasebenta?

Farmer: Kuyasebenta, ak'sa sebenti kahle.

Interpreter: Ak'sa sebenti kahle?

Farmer: Ja, bek'sebenta lokwa.

Interpreter: Okay, nase niwavunile, niwabhulile nyalo niwabekaphi?

Farmer: Angen'engungwini.

Interpreter: Isekhona lengungu nyalo?

Farmer: Nyalo kute. Ingungu sengama thange.

Interpreter: Oh nyalo sen'faka emathangeni?

Farmer: Sifak'emathangeni.

Interpreter: Okay.

Farmer: Ehe.

Interpreter: Eh, ikhona lenyango nyalo le namabele lendlela oyibeke ngayo?

Farmer: Kuphi? Ya lamabele?

Interpreter: Ja, nyalo?

Farmer: Ah, kute.

Interpreter: Kute lakhaya?

Farmer: Kute lo limako vele, angisho njalo.

Interpreter: Nawa lawa...nawa.

Farmer: Akusiwo wok'lima lawo, mani baya testa nje...Ba testa nje. Kulima lima nje ak'si neli hour.

Interpreter: Ja,

Farmer: Ehe...maw'a lima wona kufuna uyente noma 2 hours,

Interpreter: Okay.

Farmer: Mm. Ulim'emabele.

Interpreter: Kuyavakala Mkhulu.

Okay, now what we do: We pay for tractors. It is either you plough, you plough during winter. If you plough during winter, when the season start there's no ploughing. You just open lines. After opening lines, you plant your seeds. You plant your seeds, and then they emerge. If the, once they reach the, almost the knee height size, you manage weeds using hoe in your field. And then after that they develop heads. And then someone has to take care of the birds, although there are no kids now to take care of the birds. If there are, they use the same gun which was designed by the, using the sisal...in the field to scare the birds. And then when they are ready, you just cut the heads. You just cut the heads when they are ready, without anyone having to announce that now everyone should cut. Long time ago there was someone who was supposed to announce that now we can cut. Then we cut, we take them, we store them in the storages. The storages that we use is not much different as compared to the one we used long time ago, especially the one which was built or which was just raised up the ground using some sticks. We just build like that. And then you thresh them. Now you thresh them any time; either you do it in the morning or during the day, there's no problem. And then you take them, you store them in metal tanks.

Interviewer: Now why isn't it a problem to do it during the day, according to him?

Interpreter: Eh, nyalo laba'bhula mabele nje kube bawasukela bawabhul'emini. Yini kut' bawabhul'emini kani kadzeni bewabhulwa k'sihlwa?

Farmer: Awu vumi lomtsetho kubhulwe emini. Umtsetho [interruption]

Interpreter: Ngisho nyalo, angithi nyalo bawabhul'emini?

Farmer: Ak'siko lokukahle,

Interpreter: Ja,

Farmer: Ehe, akabhulw'emi. Lokwenta nje lokhu sesilahle lobuve/lobufe,

Interpreter: Benu,

Farmer: Bethu. Loku besukwenta, sebaya'kwishiza ke labantwana. Ngemtsetho liyashona balindzele bantu solo bahleli. Malishona sadzilitiwe mabele. Sebaqal'ingoma, qal'ingoma bahlabele. Bahambe, bawatselile la, bahambe bajike so [interruption]

Interpreter: Bahambe phakatsi kwawo?

Farmer: Bahamb'eceleni, bahamb'celeni. Eh, malitsi nje litsi gcwi ses'ya khala ke isbhulo. Malishona lelilanga, awubhuli lingaka shoni. Lifuna mawutsi liyashona lapha, bayaqala bhu! bhu! bhu! bhu!

Interpreter: Eh, it's because people now they've lost their culture. That's why they just thresh them during the day. Because long time ago eh, when the sun was about to...it was maybe around 6...5, 6...the people would just sing songs around the sorghum which was placed on the smeared ground. They just sing songs around, waiting for the sun to set. And then after the sun has set, they start the beating. Not before sunset. It was considered as culture.

Interviewer: Okay,

How did you acquire the land that you've been given to farm?

Interpreter: Eh, lendzawo le lenilima kuyo nayi thola njani?

Farmer: Sanikwa umphakatsi.

Interpreter: We were given by the chief.

Interviewer:

Did you choose the land you were given?

Interpreter: Nay'khetsa yin' lendzawo kuthi nifuna nayi, noma navele, wathi umphakatsi hambani?

Farmer: Asiy'khetsanga.

Interpreter: We did not choose.

Interviewer: Uhm,

What do you consider the best land for farming?

Interpreter: Eh, indzawo nje yok'lima Mkhulu ngiyiphi lobo, lotsi yabona lentlobo le yendzawo noma le...lomhlabatsi uwona lonjena ulung'eklimeni? Ulokanjani? Noma indawo lenjan' nje? Leng'yona kutsi hayi no ek'limeni number 1?

Farmer: Mine nje lala ng'lima khona bang'beke esbomvini, lomhlaba lobovu, is'bovu

Interpreter: Ngiwo lo lobona kutsi uright?

Farmer: Eh, maybe ufuna lomcuba. Mawu kute lomcuba [inaudible], nje nga nyalo.

Interpreter: Okay, which means red soils, I consider them good for ploughing but eh even though I have to add a bit of eh...kraal manure.

Interviewer: Okay, uhm

In the past, were you forefathers able to choose the land to farm on?

Interpreter: Eh, kadzeni ke k'se nabo Khokho-Mkhulu bona bebakhona yini uk'khetsa kutsi eh, ja indzawo le mine ng'funa uk'lima kuyo ngi nayi, lena ng'funa kuts' tinkomo tibe la, lana ng'funa [inaudible]? Noma nje, bebanga khetsi bek'vele nje k'bhicwe?

Farmer: Cha, bek'bhicwa nje.

Interpreter: Okay, there was no, no choosing.

Farmer: Ja kusho kutsi indzawo yemadlelo nje ngale kitsi, kune ndzawo yakhona. Masek'tawu linywa tiyaphuma tinkomo emahlangeni [interruption]

Interpreter: Ime kanjani lendzawo lelidlelo?

Farmer: Njenga nali nje [points], yindlelo nje leli.

Interpreter: Okay,

Farmer: [Inaudible] om'bonako nje la, ukhipha tinkoma tihambe tibeke le, tingayi lapha.

Interpreter: Oh, okay! There was no choosing based on the type of soil. We just decided, no this one...let's reserve this one for grazing, let's reserve this one for ploughing.

Farmer: Mm.

Interviewer: Okay,

Did they consider the type of soil they were planting on?

Interpreter: Mm, ingabe lomhlabatsi lona balima kuwo bawu cikelela yini kutsi kufuna kube yinhlobo nayi le es'taku lima kuyo, la bakadzeni laboMkhulu noma boBabe? Bebanako lok'cicekela kutsi hayi sifuna ku lomhlabatsi loluhlobo lolu kanje? Noma beba lima nje?

Farmer: Cha beba cela.

Interpreter: Sengisho kutsi, bebanako lokutsi sifuna kutsi nasilima silime emhlabatsini lo kanje?

Farmer: Ehe, bebanako loko kutsi lomhlabatsi lo ba'wati ukutsi unokudla.

Interpreter: Yes they did consider.

Farmer: Lona nje utsi ungak'faka lana uphetseni utawunisela [inaudible]

Interpreter: [Laughs] Okay,

Farmer: Ngoba kufunakala la kunomhlaba khona. Nawungangi beka nje [inaudible] fanele um'beke lapha la uthatsanda khona. Umhlaba wala umnyama, lo es'nawo la. Manje usidzaka. Uyawubona lo lobovu, awusiso sidzaka. Lapha nje emva'kwe tindlu malina kakhulu la, awungeni.

Interpreter: Mm,

Farmer: Awungeni malina la,

Interpreter: Okay,

Farmer: Ehe, lamanti ayakhuphuka. Kani loku okusibovu uyawalahla uwabhekisa phansi, awayi tulu.

Interpreter: Okay let's, the next question, maybe. What was it?

Interviewer: Uhm, the next question is, do you plant different types of sorghum?

Interpreter: No, it's like eh, what was the previous question?

Interviewer: Uhm, in the past were your forefathers able...oh! The one that I, you were [interruption]

Interpreter: Yes! They were able to choose...

Interviewer: Did they consider the type of soil they were planting on?

Interpreter: Yes! It's like, the answer is yes. They did consider.

Interviewer: How?

Interpreter: How? Eh, Sandy soil were avoided,

Interviewer: Okay,

Interpreter: Eh, black clay soil was also avoided. Only red, red soils were considered good for, for ploughing.

Interviewer: Oh, did he say because the red soil...does what to the water?

Interpreter: It has a good water holding capacity.

Interviewer: Okay!

Interpreter: Yes.

Interviewer: Okay!

Do you plant different types of sorghum?

Interpreter: Eh, Nyalo ke nilima'mabele nje, [inaudible] ngabe nilima tintlobo etihlukene yini? Nyalo?

Farmer: Nyalo kulinywa wona nawa la amafisha.

Interpreter: Khona loku?

Farmer: Mm,

Interpreter: Okay,

Farmer: Awusekho lo'Mshalane.

Interpreter: Okay, which means now it's only one variety.

Kadzeni ke? Nilima tintlobo le tingakanani?

Farmer: Kadzeni, besilima wona lawa. Silima umshalana,

Interpreter: Okay, which means long time ago we use to plough Mshalane,

Nabani omunye?

Farmer: Eh se...seng'naku, naku ng'khohlwa...

Interpreter: Sok'khohliwe?

Farmer: Mm, seng'ku khohliwe.

Interpreter: Okay. Eh...inhlobo yinye le oy'khohliwe noma tinengi?

Farmer? Hayi, ise yinhlobo lenye.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: Now I forgot [interruption]

Farmer: Angitsi njena lamabele awodwa, nalo'mshlalana uwodwa,

Interpreter: Yebo,

Farmer: Uyakhula wona ubesetulu, amabele awakhuli aba ngaphasi. Utsele nje kwente livitsi.

Interpreter: I've forgotten the other variety but the way it...the head it's like this one, like this [indicates]

Farmer: Ja! Wenta njalo ke, kandza nje wente nje!

Interviewer: Okay, uhm...the one variety they grow now, what's the name of it?

Interpreter: It's the N, the NS5511 this one.

Interviewer: Okay. Okay uhm...

Why did you stop using the variety, the indigenous variety?

Interpreter: Eh, lo'Mshalane naloku okunye lo sothi sowakhohliwe, nawayekekelani uk'wa sebentisa Mkhulu? Kadzeni?

Farmer: Kwabe sokuya hamba nje, as'wati kwahamba njani. Kwase seku ngena lamabele [interruption]

Interpreter: Kwase k'phela lenhlanyelo?

Farmer: Kwadliwa lenhlanyelo, yaphela.

Interpreter: [Laughs]. We got lost of the varieties. The last variety... the last seeds we have, we ate them. That's where we lost everything.

Interviewer: Okay.

Farmer: Aseng'bute loGogo lo.

Interpreter: Leti'ntlobo?

Farmer: Mm.

[Background talk]

Farmer: Yeyi, we [inaudible]. Loku okutsandvwa tinyoni kodwa beku [inaudible]?

Woman: uMgcobane!

Farmer: Mgcobane!

Interpreter: Oh! He's now, he's forgotten the varieties but seemingly the grandmother might have something.

Co-supervisor: Okay.

When people say like he said he ate [interruption]

Farmer: uMgcobane!

Co-supervisor: ...the last seed he had, do you think it's because it was a time when food was scarce?

Interpreter: Ja, it was the time when food was scarce.

Farmer: Ha, sek'khumbulekile. uMgcobane.

Interpreter: Oh, Mgcobane?!

Farmer: Mm!

Interpreter: Eh, it was Mshalane and Mgcobane.

Farmer: Awusekho nje, ang'sawu boni.

Interpreter: uMgcobane?

Farmer: uMshalana, uMgcobane.

Interpreter: uMgcobane ukhona, nguwo tholile ka eh, Make Maliba ka Shewula.

Farmer: Le ka Sbali?

Interpreter: Ja!

Farmer: Sow'hambe wafike le ka Sbali wena?

Interpreter: Ng'yafika mine lapha.

Farmer: [Laughs]

Interpreter: Ung'phile nje inhlanyelo ya'Mgcobane.

Farmer: Uphywa ngulo Sbali?

Interpreter: Ja. Okay, you can continue.

Interviewer: Okay,

What are the advantage and disadvantages [of using the indigenous sorghum and the modern ones?]

Interpreter: Yini lobuhle bok'lima lamabele, bekuyini ubuhle bok'lima lamabele esintfu Mkhulu?

Farmer: Mm, abeku kudla, loku'natsakwo, kuphiswe. Kubitwe ke abantfu bete ke bantfu bato natsa ke bajabule.

Interpreter: [Laughs] The advantage is that it was eaten as thin porridge and it was eaten as Swazi brew where you'll call people and come to your homestead. They will drink, they will socialize. That was the advantage of having sorghum.

Interviewer: Okay, and the disadvantages?

Interpreter: Eh ububi bakhona bekub yini ke?

Farmer: Ububi?

Interpreter: Mm,

Farmer: Abesingabu boni phela tsine.

Interpreter: There was no disadvantage.

Farmer: Tsine bes'bona kukuhle nje.

Interpreter: Ja,

Farmer: Mm.

Interviewer: So in terms of how the sorghum grew, and the environment in which it grew, what are the advantages and disadvantages?

Interpreter: Okay Mkhulu nje, lendlela lamabele akadzeni beka khula ngayo, nala...lok'khula wawo nje, bek'kute nje bekun'khatasta ngawo? Mhlampe naloku... Bek'kute bekuhlupha naniwalimile? La nikhatsateke ngawo?

Farmer: Ngaphandle kwe tinyoni k'phela.

Interpreter: Okay, it was only birds which were a problem.

Interviewer: And then the advantages?

Interpreter: It's the, it's the advantages he mentioned. The drinking part of it.

Interviewer: But in terms of growth. In terms of [interruption]

Interpreter: Okay, oh!

Ubhle bakhona Mkhulu nawubekisa nje kulawa eniwa lima nyalo, uyawabona lawo?

Farmer: Ehe,

Interpreter: Ubhle walawo uk'khula kwawo naloku nakekela kwawo emasimini beku [interruption]

Farmer: Abakhula abese tulu.

Interpreter: Kunalawa?

Farmer: Kunalawa.

Interpreter: Yini, lobhle bakhona bekuba yini ukuthi abese tulu?

Farmer: Uk'faka nje ticwanga tibonakale.

Interpreter: Oh, okay! Kunalawa?

Farmer: Kunalawa.

Interpreter: Okay, the old ones were, they will grow up...they will have a big stem and hence they will have big heads, as compared to this one [points]. This one, they have eh thin stem and the head is also thin. Which means there was more harvest to the indigenous one as compared to this.

Interviewer: Okay, so for this one, okay now you've mentioned that one.

Interpreter: Mm hmm,

Interviewer: What are the disadvantages? I mean [interruption]

Interpreter: Yini ububi balo?

Interviewer: Wait, now it was what-the disadvantages of now? Of the thin and whatever,

Interpreter: Ehe,

Interviewer: What are the... Are there any advantages for him?

Interpreter: For which one?

Interviewer: For this [points] now?

Interpreter: Kukhona yini ubuhle bala amasha Mkhulu eniwa lima nyalo? Ubuhle bawo nje laph'ensimini kutsi yeyi kuhle ngaloku loku loku kusakhula?

Farmer: Eh, masa tselile nje, kuba nemhlolo ngoba utsi ungabuka la ensimini, ubone buyavilita nje bungaka [demonstrates]. Manje lawa etfu besiwa hlanyela ale etulu,

Interpreter: Mm,

Farmer: Ube unga boni lutho. Lona nje mawufika lapha ungak'tsatsa nawe waku [inaudible] kubomvu kahle, kuyi level futsi.

Interpreter: Aku...shutsi, shutsi kuvutswa kanye kanye loku.

Farmer: Ah, kuvutswa kanye kanye.

Interpreter: Lok'ya...bek'nga vutsi kanye kanye loku ok'semva?

Farmer: Cha ke, abek'landzela nje.

Interpreter: Oh okay.

Ah, for this one there's a uniform in terms of being ready.

Co-supervisor: The color?

Interviewer: Oh, in terms of the [interruption]

Interpreter: Not exactly the color.

Interviewer: They are ready at the same time?

Interpreter: They are ready at the same time.

Co-supervisor: Oh I see!

Interpreter: As compared to that one. That one will just harvest maybe a head here, a head somewhere, a head somewhere.

Interviewer: Ja, okay.

Interpreter: But this one you just harvest one day.

Farmer: One day.

Interviewer: Okay.

What do you use the sorghum you grow for?

Interpreter: Eh, lamabele lawa Mkhulu en'wa limile niwasebentisa ukwentani?

Farmer: Siyadla,

Interpreter: Nidla ini?

Farmer: Incwancwa.

Interpreter: We eat thin porridge,

Eh yini lenye?

Farmer: Nokunye siyenda tjwala.

Interpreter: We also make eh, brew'

Yini lokunye?

Farmer: Sokute lokunye.

Interpreter: Okay. We only do these 3.

Interviewer: Okay.

Co-supervisor: What are the 3?

Interpreter: This one is eh, porridge and Swazi brew. Oh, only 2, ja.

Co-supervisor: Okay.

Interviewer: Okay,

If the season to start planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Eh Mkhulu nangabe itulu li... libonakala ngatsi hayi letulu lalonyaka alisilo leli caca kahle man koja nje nako izeason sey'sukile, mele ngabe kuya calwa kuya linywa ihlobo licalile. Yini lokwentako wena ukuti lungiselela kutsi mani ugcine kubekhona loku ukulimako utokhona k'thola thola? Nanoma ngabe lesimo sibonakala ngatsi hayi khona siyaphikisa?

Farmer: Eish, lo lokuya esiswini kuba ngu mbila.

Interpreter: Seng'shola lokwenta la masimini uk'lungiselela lesimo les [inaudible]

Farmer: Eh, la emasimini kunendlela kutsi ungawafake ema [inaudible] nje, sifake nemabonjtisi khona la ekhadzi.

Interpreter: Oh!

Farmer: Ufake la le, noma la lembila [interruption]

Interpreter: Oh! Wentelani lok'faka lombila nemabontjisi?

Farmer: Ng'funa loku phila, ng'kwati kutsi ngidle kudla okutangi philisa.

Interpreter: Oh! Okay which means I practice mixed farming whereby [interruption]

Farmer: Ngoba lomunye kulibala kukhula letulu, manje lomunye luba ngaka [demonstrates] so [inaudible].

Interpreter: I practice mixed farming whereby I will plant eh, cereals and legumes. I know legumes they take a shorter time. In case there are no rains I will harvest the legumes. And then for the cereal [inaudible]

Interviewer: Okay,

Is there any time that you let cattle onto your fields?

Interpreter: Eh, sikhona yini iskhatsi la tinkomo tiyekelwe tihamba tiye'masimini noma timbuti?

Farmer: Kunesikhatsi.

Interpreter: Nini lapho?

Farmer: Mana ang'sa khumbuli [interruption]

Interpreter: No sengisho, mhlambe eminyakeni kutsi ngales'khatsi lesi tinkomo tivumelekile tiyokudla emasimini.

Farmer: Hmm, suka ke lapho ang'bekisi kahle ngoba kutsi mak'qala nje lokubandza...eh, sebayavula. Angitsi nyalo siyakweta nyalo?

Interpreter: Mm,

Farmer: Ehe, atawutsi le nyanga le etako,

Interpreter: Bese tiyavumeleka.

Farmer: Bese tiyavumeleka.

Interpreter: Which means he allows them only during the winter.

Interviewer: Okay,

If you do not use cattle for manuring, what do you use instead? Before and Now.

Interpreter: Eh, kadzeni Mkhulu angitsi benisebentisa manyolo emasimini enu?

Farmer: Ah bekute manyolo.

Interpreter: Ha-ah ngifuna kutsi benisebentisa mcuba,

Farmer: Ehe,

Interpreter: Nangingaka faki lomcuba benifakani?

Farmer: Abekute.

Interpreter: Eh, nyalo ke? Nangingaka faki mcuba nifakani?

Farmer: Ngifaka manyolo.

Interpreter: Okay, then when you have not used kraal manure there was nothing.

Farmer: Mm,

Interpreter: But now if we have not used kraal manure you use the synthetic fertilizers.

Interviewer: Okay,

When in the year does sowing begin, and who does it?

Interpreter: Eh, kulima k'cala nini Mkhulu? Nasithi nje ihlobo nali liyacala nyalo sicala kulima, kucala nini futsi kwentiwa ng'bani? Ng'bekisa nje lakhaya. Kutsi k'cala, k'cala nini kulima be, ngubeni futsi longenako?

Farmer: K'cala mine, ngihambe ng'yo hlanyela ensimini.

Interpreter: Nini?

Farmer: Ek'seni,

Interpreter: Sengisho kutsi mhlampe inyanga noma s'khatsi ungabekisa nje kutsi inyanga nayi la k'cala khona kulima?

Farmer: Oh! Yati ang'bekisi kahle.

Interpreter: Aw'tati tinyanga abo Jan- abo February, abo March.

Farmer: Cha bo [laughs], awu...

Interpreter: Ubona ngani kutsi naku'nyaka utaw'cala?

Farmer: Sibona ngetulu.

Interpreter: Oh kwentiwa ng'bani nase itulu nil'bona?

Farmer: S'bona ngeli tulu.

Interpreter: Bese kwenta bani lakhaya? [Interruption]

Farmer: Line lelitulu! Litsi lingana seng'ya phuma mine,

Interpreter: Ehe,

Farmer: Ngitsatse inhlangelo. Eh, batafike badwebe, ngihlanye mine.

Interpreter: Okay!

Farmer: Ehe, ngihlanye mine, ngyophuma naleli layini.

Interpreter: Ukwenta wedwana loko?

Farmer: Seng'ya yekele uktsatsa abantwana.

Interpreter: Oh, okay! I do the farming with, as a family. But there's no specific month for the start of the season. You just look at the rain. When the rains come then you say now the season has started.

Interviewer: Okay,

And harvest time?

Interpreter: Eh, ek'vuneni ke Mkhulu nivuna nini?

Farmer: Kuvuna, kusho lokudla kwakho.

Interpreter: Kutsi ku- sekuvutswa nini?

Farmer: Sek'funa kukhishwa.

Interpreter: Kuvuna'bobani?

Farmer: Kufuna ufune ebantfu [interruption]

Interpreter: Nicasha'bantu?

Farmer: Nawu nebantwana ukhuph'abentwana.

Interpreter: Sengisho lakhaya nje ni- ni- [interruption]

Farmer: Sichasha-, sice'abantu.

Interpreter: Oh, nibabadale?

Farmer: Ehe,

Interpreter: Eh, there's no specific month for harvest. It depends on the time when you planted. And then here at home, we hire people to harvest.

Interviewer:

Is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Nangabe sowulimile nje Mkhulu, aseng'bekise nje ses'vunile. Kukhona lok'yentako la ensimini kulungiselela lomhlabatsi wakho kutsi kule hlobo leli elitako ngiphindze ngilime ngithole lokudla lokwanele? Lokwenta la ensimini.

Farmer: Njenga nyalo ngoba sesine tinkomo ngacedza kulima, ngazovuna... eh, sengiya lungiselela nangabe kuneti nhlanga, ngigawula letinhlanga tibudziswe.

Interpreter: Ehe,

Farmer: Mm, kutsi zitfole tinhlanga. So ke uyati butsa bawuna letinkomo uzok'tsela lakhaya, tidle letinkomo. Sowuya guqula le.

Interpreter: Okay, I practice winter ploughing but before ploughing, I cut all the crop remainings. I take them outside for the cattle then I plough.

Interviewer: Okay,

Where did you grow up?

Interpreter: Ukhulelephi Mkhulu?

Farmer: Tshewula [Shewula].

Interpreter: I grew up in Tshewula [Shewula]. Tshewula is along the, the altitude is along the plateau. Ja, when you are in Shewula, you know [interruption]

Co-supervisor: It's where there's a camp now, right? Like a community thing?

Interpreter: Ja, ja! That one. There's a camp. That's Shewula. Have you ever been to the camp?

Co-supervisor: I haven't.

Interpreter: Ah, it's nice.

Co-supervisor: But I've heard about it.

Interpreter: Ja, that is where there's a camp.

Co-supervisor: Okay.

Interviewer: Okay, uhm

Do people still plough using oxen?

Interpreter: Kukhona yini laba abasa sebentisa tinkabi nyalo?

Farmer: Ja, basekhona.

Interpreter: Ja, there are some who are using.

Interviewer: Okay.

Farmer: [Laughs] Basekhona. Sengitsi nje sayekela ngoba kwabati bantwana.

Interpreter: Oh! Otherwise unato tinkabi wena lakhaya?

Farmer: Awu, tacedwa lilanga.

Interpreter: oh okay.

Farmer: Mm.

Interpreter: As for me, I don't have oxen because during the dry season they died.

Interviewer: Okay.

Farmer: Nyalo nje setiya buya buya, [inaudible] lapha etulu.

Interpreter: Okay.

Interviewer: **When maize was introduced did your parents and grandparents continue growing the sorghum?**

Interpreter: Eh, nak'fika ke Mkhulu ngoba umbila siyati kutsi umbila wawungekho kangako lana, beku nalamabele kadzeni nje.

Farmer: Mm,

Interpreter: Nak'fika lokutsi heyi bafaka lombila, benta njani boKhokho bakho noma boBabe bakho? Bayekela lamabele bay'embileni noma bayenta njani?

Farmer: Bavele bak'yenta konke.

Interpreter: Okay.

Farmer: Ngoba bek'ngeke bahluke phela lapha.

Interpreter: Bakwenta-, kukhona yini lo kwasekhuthiwa no asiyenteni kakhulu umbile, emabele ayemancane? Noma bakwenta kufana?

Farmer: Cha, bek'fana kulama dodza. Bek'fana.

Interpreter: Okay, which means there was no shift eh, to maize over sorghum. It was planted at a-, all of it.

Interviewer: Okay, sek'phelele.

Interpreter: Okay. Eh, cha sesi- sesicedzile Mkhulu. Siyabonga.

Farmer: Siyabonga. [Inaudible]

Interviewer & Co-supervisor: Siyabonga.

Interpreter: Oh! Lo ngu Nandi, lona ngu Thembi.

Farmer: Oh!

Interpreter: Ehe.

Farmer: Okay, siyabonga.

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Interpreter: Lenkulumo yetfu siyayitfwebula sentela nasebangekho labantfu letihlobo tenkosi uma setifika le uma setiyilalela tikhone kuva kutsi hawu nayi lenkulumo layikhona. Eh, bacela kutsi batomane bati nje kunelwati labaludzingako ikhakhulukati kulaba labadzala, tsine asati lutfo tsine sitelwe itolo. Laba labadzalalabekadze balima, eh bekulinywa phela kadzeni.

Farmer: Kulinywa ngemkhono.

Interpreter: Hawu kahle kakhulu nje lapho. Bafuna lokwati kutsi kadzeni bekulinywa njani? Sifika njani la kute kutsi sitolima, sesicasha tigulumba sesinjeya sesilima ngato? Sesiyekele emabele sesilima.

Farmer: [Talks to a child]

Interpreter: Eh lenkulumo le, utobuta imibuto sesi ngala. Lemibuto yakhe ingesilumbi mine ngitayitoliga ibe ngesiswati. Nawe uma uphendvula ungaphendvula ngesilumbi nangabe uyasati nobe ngesiswati. Ngitabese ngiyatoliga ngiyibuyisela emuva ngala. Ngeke nje kube imibuto

leminyenti, sitawutsi nje sikhashananyana sisheshe siyicedze eeh nawe utochubeka uphumule, natsi sitochubeka ngobe bakhona lesisaya kubo embili.

Farmer: Imphela ngitosheshe ngiphumule ngobe nje akuvumi ngihlale, kwalusa.

Interpreter: Hawu, okay. Sitosheshe sicedze, eeh asicaleni.

Farmer: Calani.

Interviewer: Ngicela ubuze uGogo ukuthi uzalwe nini?

Interpreter: Eeh utalwe nini Gogo?

Farmer: '42

Interpreter: 1942.

Interviewer: Okay, when did you begin farming?

Interpreter: Nangabe ungakhumbula lokutalwa kwakho nga '42, wabese ucala nini nje lokutsi, ulime uma angabekisa nje ngesikhatsi?

Farmer: Eeh kulima ngicale nyalo uma sengikhulile.

Interpreter: Eh, sengisho kwati kulima mje nobe nasekhaya bekulinywa, nawe ukadze umatasa nabo lakhaya?

Farmer: Lakhaya kitsi kwakulinywa.

Interpreter: Nangabe ungabekisa nje intfo yanini? Nobe bekadze unganani ekutalweni kwakho nangabe ungabekisa leso sikhatsi.

Farmer: Eh, umnyaka, umnyaka nje wekucala kutsi tsine sisebente silandzele nje Make, kusho kutsi nje la kwakungu '48. Tsine ke Makwashwashaku lomntfwana nje ngabe sesihamba naye emasimini.

Interpreter: Lo?

Farmer: Ya.

Interpreter: Okay, according to her this one at their time, this one was also on farming. Now started farming following the parents.

Co-supervisor: In 1948?

Interpreter: Yes it was around 1948, it was around six.

Co-supervisor: Six year? Yeah

Interviewer: Okay, what plants did you grow then and what plants are you growing now?

Interpreter: Kulungile, manje kulesikhatsi sekulima sabomake wakho ubalandzela kulabo '48 bekadze balimani? Uma ungatsi uyakhumbula nje kutsi naku besikadze sikulima; tilimi lebesitilima bekuyini?

Farmer: Lekitsi lekaShewule besihamba siya nakuya entsabeni, sesilima laNhlanzeni sisuke leNhlanzeni sitolima la.

Interpreter: Sengisho benilimani kadzeni?

Farmer: Bekulinywa umbila.

Interpreter: Eh, maize.

Farmer: Nemabele.

Interpreter: Sorghum.

Farmer: Lamabele ke vele lawa eMshake lamadze; aye atsi [demonstrates].

Interpreter: Okay, kunemibuto lesitokubuta yona embili kwaloyo. Nyalo ngicela ungichazele letilimi bekadze ulima tona bolima emabele, ilime ummbila nani lokunye?

Farmer: Nemantongomane.

Interpreter: Groundnuts. Nani lokunye?

Farmer: Netindlubu, nawutfuke watitfolela indzawo yato.

Interpreter: Jugo beans.

Farmer: Ngoba yona yebo, manje ke tsine besesivele sibantfu bangala etulu. Yayifuna tsine ekhabomake bekadze kungikhona la Simunye; lapha basi [interruption]

Interpreter: Lapha banisusa khona?

Farmer: Mm (laughs)

Interpreter: Ngyabona lapho.

Farmer: Manje ke tsine besi [inaudible]

Interpreter: Okay, yiko kuphela benikulima?

Farmer: Manje besikulima nje tsine loko kulinyelwa kutsi kuliphalishi.

Interpreter: Yeah.

Farmer: LoMshaki uyakhotjolwa.

Interpreter: Hayi, kukhona imibuto letako nje yaloko. Nyalo nje bengifuna nje kuva kutsi bekadze nikulima. Nyalo ulimani nyalo?

Farmer: Nyalo ulima nobe ngabe yini loyilimako, kodvwa [inaudible, clears throat] ke mina bengilima mbila,

Interpreter: Maize, now its maize.

Farmer: Emantongomane.

Interpreter: Groundnuts.

Farmer: Nato ke letindlubu ngitilimile.

Interpreter: Jugo beans.

Farmer: Emabhontjisi angikase nje walime angiwatfoli.

Interpreter: Emabele ke wona bowalima?

Farmer: Hayi ke lentfo leyo bengiyilima.

Interpreter: And sorghum.

Farmer: Bengitilimela ngititsengele leyo madlana nje ngentansi nayi beyimabeleni.

Interpreter: Yonke leya?

Farmer: Mm, lapha ke, lapha ngenhla kungummbila, insimu yasekhaya [interruption]

Interpreter: Okay, asichubeke. Uzasivetela loku kwe mbila, sitofika lapho mele usivetele loko.

Farmer: Ehe.

Interviewer: Who taught you how to farm?

Interpreter: Njengobe ucale kulima ulapha kulesigaba, ngubani lowakufundzisa kulima?

Farmer: Ngumake.

Interpreter: Eh, my mother.

Farmer: Babe bekadze asibalekele (laughs).

Interviewer: Uhm okay, is rainfall important for the harvest?

Interpreter: Eh, ngekubuka kwakho nje solo wacala kudzimate kube sikhatsi sanyalo, ingabe kuna kwelitulu kunabo bumcoka esivunweni sakho?

Farmer: Eyi lesikhatsi bekadze lina ngaso bekuba kuhle nakadzeni kodvwa, nyalo sekute, buka nje nayi insimu yami ayikalinywa nasekhaya.

Interpreter: Indzaba ngulelitulu?

Farmer: Alilinye, onke. Onke nje ngemalunga lawa.

Interpreter: Yes it's important.

Interviewer: And is there anything else you think is important?

Interpreter: Eh, ngaphandle kwelitulu lelente ke kutsi mhlawumbe sivuno ubenaso, kukhona yini lokunye lokungenta nobe kubenemtselela ekutseni sivuno sakho sibencono? Ngaphandle kwelitulu?

Farmer: Besifaka umcuba.

Interpreter: Okay application of kraal manure.

Interviewer: Okay, do you use information that your grandparents used when you farm?

Interpreter: Okay kulokulima mhlawumbe lolima kona nyalo njengobe ungasakhoni kuhamba soyathumela, kukhona yini lwati lolusebentisa nyalo? Lowalumunya kadzeni lee lekubokhokho bakho nobe bomake wakho?

Farmer: Nyalo kusho kutsi ngabe selunyenti ngabe ngiyaphila, manje nje nyalo sekute sengilima ummbila nje kutsi ngitowudla, nalamabele bengiwalima bayabaleka nje ebantfwana batsi bona ngeke bawadle.

Interpreter: Okay ngyakuva kutsi ulima loko kepha ke, lekulima lamabele kanye nalommbila kutsi umbila uma uwulima ulima kanje nemabele uma ulima walima kanje nobe uma ulima loku ukulima kanje. Kukhona yini lwati lolusebentisako eeh nyalo lowalumunya kadzeni?

Farmer: Alusekho lolwakadzeni lwaphuma.

Interpreter: Awusalusebentisi lolwakadzeni?

Farmer: Hawu kutsi alusasetjentiswa ngitsi. Kundzindza nje njengobe litulu litsi hhahla hhahla. Lomntfwana nje lo wakhe lapha, ulima lomsebenti lesiwente kadzeni. Niyalima nigcatse nisacala, nitsi uma senicalile ke lapho nangu nje sewukhwela tukwemhlaba, uyaganga.

Interpreter: Ngalesikatsi usaphilile usakhona kutihambe bekadze uganga?

Farmer: Hayi mine ngangisuka kutsi kuyangibambelela kuncane yati. Ngenta lokuncane.

Interpreter: Okay, I am not using anything from the past because I thought that was for the small area not a big one

Co-supervisor and interviewer: Okay.

Interpreter: Like hand ploughing we only do it in a minimum land not big one.

Interviewer: Okay, can you take me through the planting season from the beginning right to the harvesting period, then and now?

Interpreter: Akesitsi nje make kadzeni kusalinywa usabalandzela vele nabo ubabona bomake, ungakhona kungichazele kutsi kadzeni uma sitolima besicala sente naku, sihlanyele uma sihlanyela, kutsi kunga mila emabele sente naku uma sekavutsiwe kwentiwe nje, uma sekuvunwa kwentiwe nje sekavuniwe kwentiwe nje. Usuke nami nje ekucaleni lokwa kadzeni.

Farmer: Angati nekutsi ngingachaza kanjani, ngobe tsine sehla ngale nakuya nje kuyabonakala kuyakhanya lapha.

Interpreter: Ya, icala nje sihamba kanye kanye.

Farmer: Manje nyalo kumnyama nje.

Interpreter: Ungafuni ute ukubone.

Farmer: Manje njengobe belina kanje lonyaka, losidlula liyana nje.

Interpreter: Kadzeni benicala nente njani uma lina?

Farmer: Ah besitsi lingavese line nje sitsi lapho itosibeka khona iNkosi. Sime sibuyele emuva uma ngabe sekunelukhula.

Interpreter: Make, mani siyicala kabi lento le. Asicala nje lasitsi nayi insimu yakho nayi,

Farmer: Mm,

Interpreter: Kulesikhatsi sakadezeni, ufuna kuyilima,

Farmer: Ya,

Interpreter: Bocala wenteni?

Farmer: Tsine lapha bekusehlatsini lapha besihlala khona.

Interpreter: Ehe, uma sogawulile sekuyinsimu, ngifuna sekuyinsimu.

Farmer: Ufuna sekuyinsimu kambe?

Interpreter: Ehe, ucala wente njani?

Farmer: Eh ngisho njalo ke. Bekutsi nje kungahlotjiswa kutsi chwe!

Interpreter: Mm hmm,

Farmer: Lana nje sitfwale emakhuba siye ensimini, siyolima sigale.

Interpreter: Niyagala?

Farmer: Mm hmm, niyagala.

Interpreter: Ikuphi inhlanyelo ngaleso sikhatsi?

Farmer: Ikhona, labangangatsi nje laba ngabo labafaka lenhlanyelo.

Interpreter: Oh bayayisakata?

Farmer: Bayitsi [demonstrates], bayigcibele. Lapho ngangikubona ngisakhula khula ngisakhona kuhamba. Bebefika bawusakate lommbila [interruption]

Interpreter: Bese niyabuya niyagala manje?

Farmer: Tsine sibesilima langemuva.

Interpreter: Kusho kutsi ngikuphi lokucala kucala?

Farmer: Lokugaba nekusakata akusiko. Laphaya nawu usakata ngulendzwo letfuke ibenemena, angeke usakate ute tinkabi nje. Uma usakata ucala ufake tinkabi.

Interpreter: Oh, ulime bese uyasakata?

Farmer: Ulime, bese uma kwene kancane ucala usakate nisakate nisakate bese uyabuya ke uyashaya ngalamakhuba lapho kadze kwene kancane.

Interpreter: Okay.

Farmer: Nishaya (x3) lap bekuhamba kusale ebaleni khonanishaye, nishaye. Nisuke lapho ngalesikhatsi sekubala khona ngiya encenye ke kutsi chwe!

Interpreter: Okay uma sekumila ke nenta njani?

Farmer: Oh sekumilile?

Interpreter: Asitsi vele mabele uma sekamilile nenta njani?

Farmer: Awu ke emabele vele nanayalo ayinkosi.

Interpreter: Okay, ngiyabona.

Farmer: Kodvwa ke uma kwenile fanele ulime, ulandele (x3) letinkabi takho,

Interpreter: Okay,

Farmer: Cala wone (x3) bese ekugcineni uyahlanyela.

Interpreter: Okay akesitsatse kanje. Angitsi sihlanyelile nyalo. Sicalile sahlanyela?

Farmer: Ehe.

Interpreter: Sekumilile nenta njani lapho, uma sekumilile?

Farmer: Siyahlakula (x4).

Interpreter: Nihlakula ngani?

Farmer: Ngelikhuba kanye netandla.

Interpreter: Kadzeni bekadze akhona emakhuba?

Farmer: Angati ke kandvulo njengobe ngishilo kutsi kandvulo kodvwa tsine bekadze sekakhona.

Interpreter: Ohh besekakhona ngaletikhatsi tenu nga '48?

Farmer: Kodvwa nanali lelitsi nje belikhona kodvwa sabese sitsengelwa lawa ngobe batsi alula lawethu.

Interpreter: Okay, manje uma senihlakulile benibese nenta njani uma sekumila inhloko?

Farmer: Uma sekumile lamantongomane?

Interpreter: Lamabele uma sekanetinhloko?

Farmer: Uma sekanetinhloko, ayahlala ke abeluhlata, abeluhlata. Uma asatsi kubonakala tinyoni nati setinje.

Interpreter: Ya,

Farmer: Kufanele lomunye ayohlala le, lomunye le, lomunye le sihlangane lakhatsi.

Interpreter: Nigadze letinyoni?

Farmer: Mm, lapho ke [interruption]

Interpreter: Nigadze ngani letinyoni?

Farmer: Bebasidubulela labalasebakhulu tsine besibancane siyajikijela.

Interpreter: Besakhiwa ngani lesidubulelo?

Farmer: Kwakwelukwa naku ireke, uyayibona ireke?

Interpreter: Okay.

Farmer: Noma ke uma ute mbamba beyiyinkulu lensimu, uluka loku kwelugodvo. Uliluke (x3) bese uhhaka lapho utobeka lamatje kutsi uma ujikijela kutsi haaa! Indzawo lenkulu.

Interpreter: Umasetinyoni tigadziwe sekavutsiwe emabele nenta njani?

Farmer: Sibese siyawajuba siwabeke kundzawo yawo lapha etulu.

Interpreter: Lokuwajuba benisukela niwajube nobe beniwajuba njani, nalona ativunele nobe bekukhona loshoko kutsi nivune?

Farmer: Hayi, uma ulime kakhulu bekufanele vele wente lilima.

Interpreter: Oh, kube lilima?

Farmer: Kube lilima

Interpreter: Okay.

Farmer: Bacele ke, ubacele (x3), batsandza ke nabo kutsi bete. Kudliwa kudla, uyahlaba ke nawe nome uyapheka bayadla lokudla kube kuningi .Manje ke kusho kutsi kwakuba kuhle nje sihlanganyele.

Interpreter: Okay, nase seniwavuna niwabekaphi?

Farmer: Siwatfwala siwayise ekhaya. Sekhutawukwelwa ke labakhwelako, baniketane. Batake (x3).

Interpreter: Bataka kuphi?

Farmer: Esiteni, etulu.

Interpreter: Etulu? Etulu, kuphi ke etulu?

Farmer: Esiteni. Bakha, nathi itingodvo. Uyatibona letingodvo?

Interpreter: Ehe,

Farmer: Nalolwa, nalolunye lolulapha nalolunye lungala. Bese ke bayakha letulu kutsi ke letingodvo kufanele tiphumele ngale.

Interpreter: Ibe yindze, kube kudze lentfo?

Farmer: Ehe, kufanele kube kudze kuphumele lapha bese ke bayakhwela ke bese bayabeka (x3). Sebacala phansi nje lakuhleti khona lomjako wabo labawujabekile. Uyawati? Angeke uwati. Uyawati umjabeko?

Interpreter: Yini umjabeko?

Farmer: Lekutsi singabeke letingodvo sitente nje kanye dvutane

Interpreter: Mm,

Farmer: Sitawutsi uma sicala, lamabele nalona ahlome ngala kutabese kuyandza kuyandza (x4) kubese kucedza lendzawo le.

Interpreter: Okay, lomjabeko ke ufana nehhoi?

Farmer: Angiyati ke nami lehhoi.

Interpreter: Lolokwakhile kutsi utokhona kubeka emahlanga kutsi atowaneka kuko uma sekusebusika.

Interviewee: Ya, ngiko ngitsi angiyati nalehhoi ngike ngeva ngemfundzisi afundzisa afundzisa lapha ngamangala kutsi hhayi ingabe seyini ke leyo. Ngitsi nyalo nje ngabe sengiyini uma ngifuna kutakha ngabe sengishesha ngiyachwala.

Interpreter: Okay, nangabe seniwabekile lapha seniwabhula, bekwenteka njani nje sichazele kutsi bekuba njani?

Farmer: Kuphindze nakhona kube nemmemo

Interpreter: Nimeme ebantfu?

Farmer: Simema ebantfu kutsi batobhula. Ngemgcibelo nje sihamba siyobhula ummbila, noma emabele nobe ummbila.

Interpreter: Abebulwa nini emabele? E

Farmer: Ebusika.

Interpreter: Sengisho phela kutsi abhulwa emini nobe ebusuku?

Farmer: Ebusuku.

Interpreter: Yini abhulwa ebusuku?

Farmer: Kusatjwa lokuluma kwawo. Ayalumana.

Interpreter: Oh ayalumana emini?

Farmer: Kubhunya lelokuza, kubhunya kubhunya, lentfo yasutelana.

Interpreter: Nase seniwabhulile nenta njani?

Farmer: Abese ayeliwa ke. Kulapho sekayatakiliwa emini abese ayatakeshelwa ke lapho. Kufanele vele eliwe.

Interpreter: Uma ahlonishelwa kusuke entwa njani?

Farmer: Ahlonishlewa?

Interpreter: Ehe,

Farmer: Akufanele uwacale ebusuku.

Interpreter: Ukwelwa?

Farmer: Ehe. Angati kutsi kunani angati vele ngobe ungabuta batsi ufuna kwentani (laughs).

Interpreter: Uma seniwawelile nibese niwenta njani? Niwabekakhi?

Farmer: Sibese siwafaka etigungwini.

Interpreter: Tikuphi letigungu?

Farmer: Le esibayeni.

Interpreter: Oh, esibayeni?

Farmer: Ehe.

Interpreter: Beniwapaka onke esibayeni nobe akhona lebekadze ningawafaki?

Farmer: Onke kufanele anukelele nje nase uwadla.

Interpreter: Oh, uma angakangeni lapha awekho mnandzi?

Farmer: Abaweve bunandzi.

Interpreter: Ah, okay.

Farmer: Tsine nje umangendza la, bebawafaka nje lapha ekhaya kami lapha ngesheya.

Interpreter: Ikhona nje ingungu lapha?

Farmer: Aah ngatsi sesigugile tsine besisebelumbi singasa [inaudible].

Interpreter: Beyikhona yini?

Farmer: Ikhona

Interpreter: Ngikuphi lapho?

Farmer: Kwase kuyekelwa lamabele.

Interpreter: Ngikuphi lapho?

Farmer: Nakhuya ekhaya

Interpreter: Lapha?

Farmer: Mm, labafana nje angiboni kutsi bayayati ngobe tsine make khona lapho layembe khona la ayocela, avele ayocela ufune kudla lokunukelela (laughs). Nawusatsi uyadla udla yedvwana.

Interpreter: Oh okay. Eh it's like this one, her family they were enjoying the smell. It was rare to see someone eating sorghum raw [Masemula edit – July 2022: Raw does not mean uncooked in this case. It means sorghum that is not kept in ingungu to ferment]. They would take it to the ingungu, once they are in the ingungu that is the smell they want and the taste.

Farmer: (Laughs)

Interpreter: And it's like in that homestead they used to have ingungu, that one yeah. I'm not sure whether... she's not sure whether now but they used to go there and ask for some space.

Co-supervisor: Oh really?

Interpreter: Ya, which means sometimes I have to check there. Okay maybe let's start from the beginning. Eh, they were using oxen to plough, after ploughing they would broadcast the seed, broadcast the seed everywhere and using hoes they would see whether the seed is it all underground or if there is something that is remaining, if there is something remaining. They would make sure the seed is underground using the hoe. Then after germinating, they would control weed using hoes. They will wait over the seed then when the heads are formed, they would take care of the birds. Someone would be, they would go in groups in the fields and stay there the whole day. Which means the whole period of the heads after they have started to ripen they stay the whole period. Taking care of the birds using almost the same gun that man is using. After scaring the birds

when the heads are okay they would cut them and then they would put them in storages. They would build storages. They would raise it about 4 or 5 metres because in my homestead we used to have such storages as she mentioned. You raise it up from the ground and using logs, then you pack everything on top up until it is dry. After drying you'll ask people, your neighbours will come in your homestead at night just to shell the heads. Before you take them from the storage you just smear. On the ground you just with cow dung and during the night you shell your heads. After shelling you not supposed to... because there is this thing called uhm maybe you can help me the name ukuwela, just to remove the dust.

Interviewer: Bayibiza ukuwela?

Interpreter: Ya after uwa shell(e), then you remove the dust by allowing the air to move.

Interviewer: Oh I don't know how to put that in English.

Co-supervisor: Do they use things to throw it?

Interpreter: No eh, yes they use buckets to throw it like this. You were not allowed to do that at night. It was the culture, you do that during the day. Where everyone will be respecting that process, it was respect. And then after we have shelled them, we put them inside the ingungu. [Asks the Farmer a question], ase ngibute nje make kutsi utsi lengungu mele yakhiwe esibayeni kunekutsi ningagubha nobe lapha ebaleni, yakhiwelwani esibayeni?

Farmer: Kufuneka lapho kulalal tinkomo khona, angisho kunemcuba khona.

Interpreter: Leni kufanele kwakhiwe emcubeni?

Farmer: Litonukelela leliphalishi lakhona.

Interpreter: I was asking, what was the main reason to build the ingungu inside the kraal rather than to build it anywhere. She said they wanted the manure, that's where they get the smell, the nice smell.

Co-supervisor: Mm.

Interpreter: Ake sitsi nje nyalo ubese soyasuka etindzaweni takadzeni soyatilimela la?

Farmer: Ehe.

Interpreter: Awustoligele ke, usitoligele usitjele kutsi nyalo bolima kanjani, awusayi nyalo. Bolima njani nyalo ngobe nawa nemathange siyawabona. Sitoligele kutsi nyalo bolima njani nyalo? Nyalo ulima ngani, ulime kanjani, silimo sakho sichubeke njani lensimini sinjani, nisivune kanjan, nisibeke

kanjani, nisifake njani nangabe kunemathange nangabe kungenawo emathange nisibekaphi kudzimate nidle?

Farmer: Eh, angati abekwa njani ngobe [interruption]

Interpreter: Okay asesicale ekucaleni kutsi benicala kanjani, benilima kanjani kadzeni nangabe nitohlanyela?

Farmer: Angati konke [interruption]

Interpreter: Nyalo, nilima njani nyalo?

Farmer: Nyalo silima ngekutsi uma sitohlanyela sicashe le RDA.

Interpreter: Okay.

Farmer: Siyolima litsi lingana kakhulu, vele kodvwa nyalo sesiyahlupheka. Litsi lingana kakhulu kungulapho siyobita i-RDA. Ifike RDA itsi sitokulimela two hours. Hawu, two hours njengobe ngifaka four hours ngentela lokutsi kutolinywa phela. Loku futsi phela anisasifakeli nalomushini usilandzelele tsine ngatsi nje mina ngilima two hours nyalo, ngiphindze ngibuye lime two hours. Basitjele loko make angeke sente lutfo sitovume sibese siyatihambela siphetho.

Interpreter: Okay, ake sitsi nyalo solimile, nawu ulima nyalo ubese uhlanyela kanjani?

Farmer: Siyacasha labo labasihlanyelelako.

Interpreter: Bahlanyele ngalesigulumba?

Farmer: Bahlanyela ngalesigulumba, nyalo phela kute lokunye phela. Nyalo ke tinkomo ngingatilusa ngani ngatyekela tonke.

Interpreter: Okay lenhlanyelo uma seyimilile bese niyenta njani nyalo?

Farmer: Kute ngobe nyalo nalokukofola asisakofoli, sekuyala umtimba.

Interpreter: Bese nenta njani anihlakuli nyalo?

Farmer: Siyahlakula.

Interpreter: Kuhlakulwa ngani?

Farmer: Sihlakula ngato letinkomo.

Interpreter: Okay, nase senicedzile lokuhlakula nibese nichubeka nenta njani?

Farmer: Umndzindzo nje njengoba ubona mine lakami bokadze ubona nje lamugwaceni kuhlakuliwe kuhlobe kutsi chwe.

Interpreter: Okay, ake sitsi naku senihlakulile nibese nenta njani?

Farmer: Sesiiovuna phela uma sowomile.

Interpreter: Oh beningawagadzi nine lamabele?

Farmer: Emabele? Ha, angisawenti lutfo vele ngobe sekute umuntfu lotolima. Kodvwa nje nyalo uma ngigcina, ngobe bengiwentela lakhaya.

Interpreter: Ehe, ngiyifuna lapho ke.

Farmer: Bengiwalima khona lakhaya ngingasayi khashane, ngiwalima la nati tesidzala nje nati bese ke lapha ngilima ematongomane.

Interpreter: Mani, bowagadza yini nyalo uma uwalimile, tinyoni?

Farmer: Ngiyawagadza.

Interpreter: Uwagadza ngani?

Farmer: Ngiwagadza ngetandla.

Interpreter: Akusanatidubulelo nyalo?

Farmer: Tingafikaphi?

Interpreter: Okay, nangabe sekagadziwe seniwavuna [interruption]

Farmer: Bengifa kuhamba nje lanangijikijela tiyowadla avutfwe kodvwa nje vele bekadze sekamosheka nyalo ngoba betidla nangabe tingibona ngibheka le tona tiya le tona.

Interpreter: Okay, nase sekavutsiwe ke [interruption]

Farmer: Ngingajika le ngibuyela le, tiya le tona.

Interpreter: Okay nase sekavutsiwe niwavuna njani nyalo?

Farmer: Nangabe siwajubile?

Interpreter: Nase sewavutsiwe niwenta njani?

Farmer: Bekutfuke uhm nakhona sabona laba labaphambil nangabe leligodvo seliba ngaka kuhlonywe la, utihlome kuyaphansi.

Interpreter: Tani letigodvo?

Farmer: Talamabele nenyango yakhona.

Interpreter: Beniwavuna njani nyalo?

Farmer: Siyajuba.

Interpreter: Oh nijuba lenhloko?

Farmer: Ehe.

Interpreter: Bese niwafaka enyangweni?

Farmer: Ehe.

Interpreter: Lenyango injani yona?

Farmer: Lenyango nayo ngiyo yona le.

Interpreter: Iyona le?

Interpreter- Ikhona lakhaya?

Farmer: Hayi senginesikhatsi lesidze.

Interpreter: Okay, nangabe sekomile nibese nenta njani nobe bowenta njani kugcina kwakho?

Farmer: Bengiwabhula khona la, lelibala nje belihlala litse chew [inaudible]

Interpreter: Bowulisindza yini?

Farmer: Bengingalusindzi.

Interpreter: Bowubekani?

Farmer: Bengibeka emaseyila.

Interpreter: Oh, emaseyila?

Farmer: Mm, nobe kunemuntu bengihamba ngiyoboleka newakani nje bekadze akhona.

Interpreter: Sowuwa bhula nini, emini nobe ebusuku?

Farmer: Bengiwubhula emini.

Interpreter: Oh, bowubhula emini?

Farmer: Emini. Ebusuku [inaudible].

Interpreter: Okay. Nase sowabhulile bewuwabekaphi nyalo kugcina kwakho? Kuphi, lapha kulelathange?

Farmer: Lesisita semmbila lesi langenhase besitawulela nangu emabele lawa nalommbila uma sengiwuhhudlile sengitsi.

Interpreter: Kodvwa lifana naleli?

Farmer: Ligaraji nje leli?

Interpreter: Sengisho lelithange lobeka kulo, ubeka ethangini nobe bophindze ubeke [interruption]

Farmer: Emathange ungatsi kusaphila umuntfu kandzi kute.

Interpreter: Okay, ufaka emathangeni?

Farmer: Ehe.

Interpreter: Okay. Eh, cabanga ngatsi it's almost finished. Okay mm, now we use tractors. We pay tractors from the rural development agency, from government rural development projects and then we wait for rain. When rain come then you tell them now rain has come I want to plough then they come and plough. After ploughing you...after ploughing they plant using a planter. I either I hire a private tractor or use the same tractor from government to plough, to plant the seeds. Then after planting they emerge and then if there are weeds using a hoe, I weed. Now I weed with my family not to ask people to weed with me because people now no longer want to come and weed for free. After weeding I wait for the heads, then when there are heads I go to the field and scare the birds. Now I go alone to scare the birds. I don't use now that gun. I just moves around the field trying scare the birds. When the sorghum is ready, I cut the heads and store them in the storage which is almost the same as that one which we used long time ago which was built by long rod and some logs that where put horizontally. After that I shell the heads during the day and then store them in metal tanks like that one [points to a metal tank].

Interviewer: Oh okay, I just want to ask one question. You know when she said that she takes out sorghum and asks other homestead to maybe store it in the kraal, how long ago did she last do that, approximately?

Interpreter: Eh nangabe ungakhumbula kahle lakhaya benike nicele kutsi bahle banifakela lapha kulengungu yabo nangabe nje nicele kuyofaka yabona, nangabe nilimile kukunyenti nicele kuyofaka ungakhumbula kutsi mhlawumbe kunini lapho? Ubekise nje umnyakakube leminyaka nayi kutsi nje beseyitelwe iNkosi kumbe bekunjani Kutsi kunini lapho benicela kutsi banibekeloko umangatsi uyabekisa?

Farmer: Asizange nje sike siwafake tsine angisho vele asiwatsandzi lafakwe la emgodzini, tsine nje uma sesisuke lapha sesilana kute ngisho lobekadze asamsilele nje lomake.

Interpreter: Sengisho phela kutsi bekunini lapho Acela khona loko?

Farmer: Mm 1950... 3 nangendzako.

Interpreter: '53?

Farmer: Mm.

Interpreter: Wendze 53 la, which means around 1953.

Co-supervisor: Okay.

Farmer: Angati, vele angati kahle.

Co-supervisor: Around the 1950s?

Interpreter: Ya, around the 1950s

Farmer: HHayi angikahlali sikhatsi lesidze lapha.

Interpreter: Okay, singachubeka.

Interviewer: How did you acquire the land that you are using to farm?

Interpreter: Uhm lendzawonjengakeya loyikhombako lapha loyilimako wayitfolo kanjani?

Farmer: Ngayitfolo, eh lapha uma ngendza bengiwekucalakwemfana lohlala ekhaya bangipha nje tona leti, bekutabo njetonke leti,

Interpreter: Okay ngisho nalena loyilimako wayitfolo kanjani? Nayitfolo kanjani lapha ekhaya?

Farmer: Tonke nje lebanginika tona leti. Nganikwa basekhaya. Nalelana ngendansi ngala yasekhaya. Kute lenye lengaphindza ngayitfolo ngaphandle kwaloko. Kute yasebukhosini lesaya kuyoyicela kodvwa tacekwa ngummkhulu nje.

Interpreter: Oh! Okay, which means the area I'm using it was given to my grandfather by the chief. And then the grandfather gave it to us.

Interviewer: Uhm did you choose which land you were given?

Interpreter: Eh njengalenzawo lenaniketwa ngumMkhulu, angitsi naniketwa mgumkhulu?

Farmer: Mm,

Interpreter: Nakhetsa yini kutsi “mkhulu mhlawumbe sinike lapha? Nobe yena waste yeyi tsatsa la?

Farmer: Cha! Awutikhetseli.

Interpreter: Okay, we were not choosing, we were just given.

Farmer: Uyabuka nje kutsi lokusebenta kwenu kutsi kuyaninela yini nobe akunineli abese anikhomba.

Interpreter: We were not choosing, we were just given.

Interviewer: Okay. What do you consider is the best land for farming?

Interpreter: Ekulimeni kwakho nje, ingabe ngumuphi umhlaba lobona kutsi lomhlaba lo, ulungile ekulimeni, ungunombolo 1 ekulimeni uright? Uluphi loluhlobo lwalomhlaba?

Farmer: Uvunyelwa kutsi umcuba siwutsele kahle.

Interpreter: Sengisho loluhlobo lwalomhlabatsi, kutsi loluhlobo lolunje [interruption]

Farmer: Ngulolu olubovu.

Interpreter: These are red soils.

Interviewer: Okay and also the manure, did she mention manure?

Interpreter: Ya, red soils but where you have applied manure.

Interviewer: Okay in the past were your forefathers able to choose the land to farm on?

Interpreter: Kadzeni kusanabomkhulu bakho nobe bokhokho bakho ulima nabo ngesheya bebakhona yini kukhetsa kutsi kulomhlaba lo sifuna loku, lana sifuna kwenta loku nobe bekutfolakala kutsi kute labangakhetsa khona? Bebakhona yini kukhetsa?

Farmer: Cha bekunga khetfwa, bekukhetsa tona leti.

Interpreter: Sengisho bona labaniketwe yona umphakatsi, beba khona yini kuya kuyo lendzawo basho kutsi leya siyayisebentisa ekulimeni, bebakhona?

Farmer: Yebo bebakhona, lapha nje kusuka lapha etihlahleni kutofika ngala solo nje yakantjalaladi.

Interpreter: Beyekulima leyo? Yetinkomo ikuphi?

Farmer: Yetinkomo angati kutsi bekakwenteni yini kodvwa nyalo nje kusuka lapha phansi utsi yabayaba yaba ugudle nje lendzawo lelana bekuyekulima yodvwa bebangafuni kwakhe ebantfu.

Sebachamuka ngala ngatsi kumbe bavunyelwe ngibo bukhosi lalana sabachamuka sewulima nje lapha phansi ngakhona.

Interpreter: Okay which means they were able to choose.

Interviewer: Okay did they consider the type of soil they were planting on?

Interpreter: Nabakhetsa nje lendzawo, lena sitoyisebentisa ekulimeni, leya tinkomo titodla ngala tsine sitodla ngala, bebakunaka yini lokutsi hlobo lumi lwemhlabatsi lebatolima kulo nobe nje bebabukani kutsi lena iyalinywa, lena ayilinywa?

Farmer: Angati, wena ingabe walapha kaNgwane?

Interpreter: Yebo ngalapha kaNgwane.

Farmer: Ngesikhatsi saMshelefi sekukhetsa, angati ke kutsi bekenta njani.

Interpreter: Bebabuka lukhetfo?

Farmer: Bebabuka lukhetfo, lelakitsi nje lakhetfwa nguMshelefi.

Interpreter: Okay ngifuna lolu lwabokhokho mkhulu wakho nje kutsi bebalubuka yini kutsi hlobo luni lwemhlabatsi lebatowulima?

Farmer: Ngobe kusele kancane ebantfu labasele la, nobe nje tinkomo tisuke titsele ngale kwemfula.

Interpreter: Sengisho kutsi lomhlabatsi labalima kuwo, bekadze banaka yini kutsi sitolima emhlabatsini lonjena nobe bebalima nje?

Interviewee: Bebalima nje.

Interpreter: Which means they just plough not considering the soil.

Farmer: Bebalima nje babone ngalombila kutsi utfolakala noma hhayi emamabele atfolakala lapha.

Interpreter: Oh! Okay, it's like they were just ploughing, after that they will see the harvest. If the harvest respond very well then they will see whether this one is good for sorghum and this one is not good for sorghum.

Farmer: Kodvwa ke lamabele bekancono kuto tonke tindzawo, ubalekele tinyoni indzawo letondzwa tinyoni ngobe lapha kunetihlahla khona titsandze kabi, tidle lapha tigijime (laughs).

Interpreter: Oh okay ungachubeka.

Interviewer: Do you plant different types of sorghum?

Interpreter: Eh ekugcineni kwakho kwekukima njengobe bekadze uwalima emabele, wagcina ulima tinhlobo letingaki temabele?

Farmer: Angati phela ngemagama mine ngigcine nje sengilima lawa labovu ngobe wona lawa lenta nje (demonstrates) ngobe wona...

Interpreter: Ngulawa esilung logcine ngawo?

Farmer: Mm, ngobe wona [interruption]

Interpreter: Bosulima wona labovu kuphela yini?

Farmer: Lomshaki bosophele lamandla ekukhobola angatsi tsine satsi ayadliwa?

Interpreter: Okay. Kodvwa bokadze solima lawa labovu nje kuphela?

Farmer: Besengilima labovu kuphela. Angitsi loshukela ufuna udle lendengane neliphalishi lakhona angilitsandzi liphhalishi lwemabele (laughs).

Interpreter: Okay, which means I was just ploughing one variety.

Interviewer: Okay. The modern ones?

Interpreter: Ya, the modern ones.

Farmer: Lemhlophe angiyifuni ibanga tinyoni! (Laughs).

Interviewer: Okay before using the hybrids which types of sorghum can you remember?

Interpreter: Ngaphandle, uhm ungakasebentisi lanka labovu, lawa esilungu ngiyawabona, akhona yini lawa asemuva esintu lobokadze uwasebentisa?

Farmer: Ehe, ngiyawati.

Interpreter: Kukhona longakhona kuwakhumbula kutsi ngulawa?

Farmer: Angiwati emagama awo angitsi vele, bengilime nje [interruption]

Interpreter: Hawu kute neligama nalinye longalikhumbula?

Farmer: Ngati Mshake nje mine, ngobe loMshaki ujikile. Manje angitsi laba bakitsi bebangadleli kutsi alaphani nekutsi abanga kutsini besidla nje liphhalishi.

Interpreter: Okay, lalamanye lakhona awusakhumbuli emagama kodvwa akhona lawa bekadze uwalima nedi awusakhumbuli lamagama?

Farmer: [inaudible] wesilungu angitikhumbuli.

Interpreter: Cha, tesintu?

Farmer: Esintu ngati nje lawa labovu.

Interpreter: Lomshaki kuphela?

Farmer: Mshaki bekabovu.

Interpreter: Sengisho phela lawa esintu ukumbula loMshake kuphela?

Farmer: Ehe.

Interpreter: Okay this means I can only remember one variety, Mshake.

Interviewer: Okay, can she only remember [interruption]

Farmer: Akhona lamabele lawa lamadze. Lamadze esiswati.

Interpreter: Kungasiwo loMshake?

Farmer: Ehe, esiswati.

Interpreter: Awuwati lamagama?

Farmer: Angilati ligama lawo.

Interviewer: Maybe describe.

Interpreter: Awungitoligele wona ngifuna kuwabona lapha emcondweni lawa lamadze lobekadze ungawati ligama ukutsi abe kanjani.

Farmer: Abengangalo Mshake,

Interpreter: Abengangalo Mshake?

Farmer: Kodvwa wona ke uma sekatsi atsi nje (demonstrates)

Interpreter: Ayema nje abheke etulu.

Farmer: Ehe, njengalawa labovu nje.

Interpreter: Oh okay njengemfe?

Farmer: Mm, eme nje abheke etulu).

Interpreter: Okay, the variety I don't remember the name but I can describe it as it's like same as Mshake,

Interviewer: Okay,

Interpreter: The height is the same as Mshake, but the head does not fall down like the one for Mshake. They just stand upright.

Interviewer: Okay.

Interpreter: Etinyonini bekanjani lawa kunalo Mshake?

Farmer: Akadliwa nje, hhayi kufana nalawa.

Interpreter: Betingawadli kakhulu yizo eme kanje?

Interviewee: Ehe. Kusho kutsi tibona lokutsi uma ngitizindlela, tibona kutsi makhulu lawa ebelungu nawo langaka lacondzile nje.

Interpreter: Oh.

Farmer: Ya, manje futsi nalabantfu ngeke bakubone uma kuhlala kutsi shaa ngobe kudvutana kuphansi yabona. Lawa lalapha etulu avele abonakale kutsi lesitfunti lesilapha sengiko kugijima [inaudible].

Interpreter: Okay, I was asking how the birds behave in that variety because it's like the head was always rigid and she said that they were not that much eaten by birds.

Co-supervisor: They didn't like it?

Interpreter: Ya it's like the size was big.

Co-supervisor: Oh.

Interviewer: The size of the [interruption]

Interpreter: The size of the grains were big.

Interviewer: Oh okay, why did you stop using the indigenous ones?

Interpreter: Kugcine kwakho bosolima lawa esilungu?

Farmer: Yebo.

Interpreter: Wawayekelelani lawa esintfu?

Farmer: Abe... lokutsi, awukhoni lokutsi... ngoba setinhloko, setintsamo,

Interpreter: Awukhoni kwentani?

Farmer: Loku kwekuyalukisa emehlo nje yabona?

Interpreter: Cha ngifuna lawa esilungu, lawa esintfu wawayekelelani lawa esintfu kuwalima?

Farmer: Oh cha, atiphelela nje utfuke utsi uyotsenga ukhandze sekute.

Interpreter: Okay ngike ngeva utsi wena bewadzinga kukhobolwa, kantsi lawa kwakhobolwa?

Farmer: Cha, nguMshake loyo.

Interpreter: Lodzinga kukhobolwa?

Farmer: Ehe.

Interpreter: Ngisho wona uMshake wawuyekelelani uMshake?

Interviewee: Mshake sawekelela kutsi nje uhlupha nangekutsi uma ufuna kumbamba utfuke uwe

Interpreter: Oh!

Farmer: Yabona nje nobe utsi nje uyachubeka uyahamba.

Interpreter: Eh okay, one of the reasons is that the variety, we lost the varieties. The second one, for instance Mshake, it is difficult to harvest because it is tall. In order for you to cut the head, you have to grab it first then you cut the head. Eh, but this modern varieties, it is short you just cut the head without grabbing it. And another thing is that Mshake, in order for you to eat Mshake you have to grind it first and it is very hard that seed as compared to the modern ones. That's why people said no this one is very hard, the head.

Interviewer: Okay uhm what are the advantages and disadvantages of using the indigenous sorghum as the same for advantages and disadvantages?

Interpreter: Eh, ake usichazele kutsi lobuhle, yabona letinhlanyelo takadzeni bomshaki lokhuluma ngato umsebenti wekulima tona. Bekuyini nje buhle bekulima tona leti takadzeni? Usho kutsi leti takadzeni besifike sitincome lana ehh bekadze kungukuphi nje?

Farmer: Eh asati tsine labancane lokwenteke kadzeni phela.

Interpreter: Sengisho ukhumbula ngobe phela tiphele sewukhona nawe letinhlanyelo, yini lokubonile [interruption].

Farmer: Bongatsandzwa tingobolwane, [inaudible] nje wakadzeni bongatsandza ingobolwane.

Interpreter: Yini lekwentu kutsi tingobolwane tingatitsandzi leti takadzeni?

Farmer: Angati kutsi yini.

Interpreter: Akusikho lokutsi uMshake bocinile?

Farmer: Ngisho njani kwekutsi, angati nekutsi nalommbila wakhona lekitsi angati lapha. Lapha ngifike sebahlangela, manje lena kitsi lommbila uma uwuvuna ushiya nalamacembe awo ubese uyowubeka. Uhlala nje unalamacembe.

Interpreter: Okay, sengisho loMshake ke. Buhle bakhona utsite kutsi tinyoni betingawuncibilikeli kakhulu?

Farmer: Ehe.

Interpreter: Yini lokunye lokungaba kuhle kwaleti nhlanyelo takadzeni temabele?

Farmer: Nato beyingayitsandzi ingobolwane.

Interpreter: Oh, ingobolwane beyingayitsandzi kahle?

Farmer: Heh-eh nase siwucata lommbila wakhona [interruption]

Interpreter: Hhayi, mina ngifuna kakhulu lapha kulamabele.

Farmer: Ngifuna kukubekisele kona,

Interpreter: Oh!

Farmer: Kutsi kukhona kwemmbila labasineke kona lomnyaka lophelile kwesilungu kulapha kuhlula kona nje ayi kubuhlungu nobe ukukhuthula. Manje ke kodwa kusheshe kuvutfwe

Interpreter: Oh!

Farmer: NaloMshake ngiwutsandzela kutsi tinyoni atihluphi. Leti wondze ube nje (demonstrates).

Interpreter: Ugadza tinyoni?

Farmer: Ugadza tinyoni, enhle endansi, enhle endansi manje leti tiyasebentisana. Lawa lamhlophe kumbe afike uwakhandze amnandzi angiwati, ngize ngatsi nje kube bengisaphila ngabe ngitsi letinkhwa tawu ngibone kutsi anjani manje aah sengenta indengane kuphela nje.

Interpreter: Oh okay one advantage for the indigenous one, it was for the birds. It was not favourable for the birds. The second one, due to the hardness of the seeds weevil were not that much in favour of eating them because the seeds were a bit hard as compared to this one. Eh which means the disadvantages of the modern one is that they were easily accessible to the weevil and the birds like them too much. The disadvantages for the indigenous one, the height when harvesting

you'll have a problems if you are short. Then you have to cut the whole plant so that you can harvest but the modern one you just easily harvest.

Interviewer: What do you use the sorghum you grow for?

Interpreter: Lamabele lobewalima ngekugcina kwakho kulima emabele bowasebentisa kuwentani?

Farmer: Ngidla wona nje.

Interpreter: Udle ini?

Farmer: Indengane.

Interpreter: Eh which means its thin porridge. Yini lenye?

Farmer: Kube bengitiphilele ngabe ngiyatisilela ngente leliphalishi.

Interpreter: Porridge. [Asks the Farmer a question] Usile wakhe ini uma usila?

Farmer: Ngakhe tinkhwa.

Interpreter: Oh bewusila ngani?

Farmer: Bengisila ngelitje.

Interpreter: Oh likhona lona?

Farmer: Angati nobe lisakhona yini khona ngala emagumeni akhona.

Interpreter: Okay which means some of it I grind it to be very fine then I make bread.

Interviewer: If the season of planting doesn't present ideal conditions, what steps or adjustments do you make to increase the chances of a successful harvest?

Interpreter: Eh uma ugcine kulima usakhona kutihambela ukhandze kutsi uma litofika luhlobo ukhandze kutsi timvula atifuni kubonakala tifika kahle, akusito letihle bewutilungiselela njani kubonakale kutsi nobe ngabe simo selitulu singavumi kodvwa utokhona kutsi ugcine ubenesivuno lesiphatsekako yini nje lobekadze uyenta?

Farmer: Besigucula nje sibeke.

Interpreter: Benigucula nini, ebusika?

Farmer: Cha hhayi ebusika kodvwa uma lina nje

Interpreter: Oh, nalina nje niyagucula?

Farmer: Siyagucula, sigucule sigucule. Sibese ngenteka ngitfole leyo nhlanyelo kukhona ke ngitsi lenhlanyelo yami le [inaudible].

Interpreter: Uhlanyele nangabe ugucula?

Farmer: Cha.

Interpreter: Uhlanyele nini?

Farmer: Bengihlanyela ngala.

Interpreter: Okay which means during the first rain I plough, then wait. When the second rain comes, then I plant.

Interviewer: Oh bengifuna kubuza kuthi, does she use any manure?

Interpreter: Uyawusebentisa umcuba?

Farmer: Nawukhona kodvwa nyalo sengite nemandla, uma ukhona uyasebenta.

Interpreter: Nanyalo?

Farmer: Mm.

Interpreter: Okay I use it even now if it is available.

Farmer: Manje ngalokutsi naletimali setikhula kakhulu sibese sicolela kuyotsenga lomanyolo.

Interpreter: Timali tani letikhula kakhulu?

Farmer: Nobe ungatsi ucela kutsenga lomanyolo wakho lo utohlaba lenye imali.

Interpreter: Lomcuba? Uyabita lomcuba?

Farmer: Haaaa! Akusiko kadzeni lapho besitsenga khona lula. Kadzeni besiwutsenga lula.

Interpreter: Hawu?

Farmer: Ehe,

Interpreter: ku tibita kangaka [inaudible]?

Farmer: Angitsi vele nabo laba babona kutsi awusatsengwa lo [inaudible].

Interpreter: Okay she's saying now we use the manure if you have money because now the kraal manure is more expensive than a fertilizers.

Interviewer: They buy?

Interpreter: Yes, they buy. If you don't have cattle then you have to buy and due to the fact that the number of cattle has reduced drastically, those who have cattle they sell the manure at a high price.

Interviewer: Okay, because this question I was asking it in connection to, if the conditions are not ideal, in addition to the ploughing does she add manure or does she just ploughs?

Interpreter: Kutsi if the conditions are not conducive?

Interviewer: Yes, ideal.

Interpreter: Does she add manure or fertilizers?

Interviewer: Ya.

Interpreter: Okay nangabe nje simo singavumi ubona kutsi asilungi, ufaka umcuba yini uma solimile nobe ufaka manyolo?

Farmer: Nyalo nangabe ulekelelwe ngulomanyolo, nangabe unemali kufanele uphindze ulandzisa ngalamakhabeni.

Interpreter: Okay which means now I [interruption]

Farmer: Ngihlanyela manyolo, ngihlanyela umanyolo.

Interpreter: If the conditions are not ideal I have to put fertilizer, the synthetic one. The NPK, then followed by the LAN.

Interviewer: Okay is there anytime you let cattle onto your fields?

Interpreter: Kukhona yini lapho ukhandza khona kutsi tinkomo nje, angisho yabona kutsi lapha uvalile, kukhona yini lapho kutsi nitivumele kutsi tingene emasimini?

Farmer: Mm hmm.

Interpreter: Nitivumela nini?

Farmer: Uma sewuvunile phela nyalo kusasemanti umbila. Nyalo futsi lombila ngalesikhatsi sawo ome, onke lamasimu amanti.

Interpreter: Okay we allow them just after harvesting.

Interviewer: Okay. If you do not use cattle manure what do you use instead, then and now?

Interpreter: Eh kadzeni njengobe... angitsi kadzeni benisebentisa umcuba?

Farmer: Mm hmm.

Interpreter: Nangabe ningakafaki umcuba kadzeni benifakani? Kunonga lendzawo yenu?

Farmer: Beseyisha nje bekunonga yona.

Interpreter: Bekute lebekadze nikufaka?

Interpreter: It means other than kraal manure, there is nothing we put.

Interpreter: Nyalo ke, nangabe lendzawo nibona kutsi umcuba anikawufaki, yini leniyifakako esikhundleni salomcuba?

Farmer: Kute, utotfolo kuncane nje kudla.

Interpreter: Yini leyo?

Farmer: Kudla.

Interpreter: Sengisho kutsi nawu ngakafaki umcuba nyalo ufakani?

Farmer: Kute nje esikufakako ngoba phela [inaudible].

Interpreter: Nangabe ungaka [inaudible]?

Farmer: Kufanele ufake umanyolo.

Interpreter: Okay now if you have money, you buy fertilizers, if you don't have then theres nothing you put.

Interviewer: Okay, uhm when in the year does sowing begin and who does it?

Interpreter: Emnyakeni nje uma kusuka luhlobo, luhlobo lusuka nini kute nitilungisele kutsi siyalima ke nyalo. Kucala nini kulima?

Farmer: October, November, December.

Interpreter: October, November, December?

Farmer: Ehe.

Interpreter: Kulima bani?

Farmer: Kulima lengibacashako ngesigulumba.

Interpreter: Oh, kulima wena, kusho kutsi nguwe lowentako?

Farmer: Eh,

Interpreter: Or ucasha bantfu?

Farmer: Bayalisa ebantfu nyalo.

Interpreter: Okay this is the start is October, November or December. I hire people to do the ploughing.

Farmer: Uma kute nje umntfwana wesikolo lofundza alale lakhaya, angeke ute uhlanye. Naku uyabona lomeno lolapha? Lapha bentiwa kuphikisana lomunye akafuni kusebenta, lomunye ubese uyahlala nalolomunye.

Interpreter: Mmm she's just explaining the frustration that if you don't have a child, who is staying around at home, you have a problem when ploughing.

Interviewer: Okay then when is the harvest time?

Interpreter: Eh nibese nivunana nini nangabe nje ihlobo lenu licala ngaNovember... October, November, December bese nivuna nini?

Farmer: Njengobe sesicalile.

Interpreter: Nini, uma ubekisa inyanga nobe ubekise sikhatsi?

Farmer: Ngibekise sikhatsi? Koma nje uma ngilambile sengiyagudvula.

Interpreter: Kuvuna bani?

Farmer: Ngicela umuntfu.

Interpreter: Oh uyacasha?

Farmer: Ehe.

Interpreter: Which means just after the maize is dry I harvest and also hire people to harvest.

Interviewer: Okay, is there anything you do to make sure that the line recovers between growing seasons?

Interpreter: Nangabe solimile nje, atsi sibekise njenganyalo soyavuna emuva kwekuvuna, kukhona yini lokwentako kulungiselela lendzawo yakho kutsi uma kucala lihlobo lelilandzelako ibe ilungile kutsi ulime? Yini nje loyentako lansimini?

Farmer: Ayi nyalo njengobe ubona sengahlala nje. Kute.

Interpreter: Bowentani ungakahlali?

Farmer: Lapha nje nanyalo njengobe beselina nje, nyalo ngabe tihlumaya tilimile.

Interpreter: Sengisho uma socedzile kulima sekuphelile kwa [interruption]

Farmer: Kwako nya?

Interpreter: Ehe,

Farmer: Ngiyavuna nje mine.

Interpreter: Bese?

Farmer: Ngihlale nje netinhlanga tako.

Interpreter: Ungeyenzi luthu bese uyalima uma sekusondzele kulima?

Farmer: Nangabe ke utfole umuntfu lokhutsele, amane akusite utsi emntfwanami mane ungihhashele nati tihlahla nati.

Interpreter: Okay there is nothing I do unless who can, who I can ask to cut the trees if there are trees.

Interviewer: Okay, where did you grow up?

Interpreter: Eh ukhulelephi, kukhula kwakho nje lapho ukhulele khona?

Farmer: Ngisuke lekitsi kaShewula ngabese ngita laSiteki.

Interpreter: I grew up in Shewula then I move to Siteki. Wase uta la?

Farmer: Ngase ngiyenza ngendzela lapha sengakha la.

Interpreter: Oh okay. I grew up in Shewula then I moved to Siteki then after Siteki I build here.

Interviewer: Do people still plough using oxen?

Interpreter: Basekhona labasasebentisa tinkabi landzaweni? Noma nje lobatiko?

Farmer: Angibati, ngobe laba labadzala sebafe bonke. Noma bakhona kodvwa ngatsi sekute ngoba nalaba sebaba bobabe nje abakalimi. Umuntfu lonetinkabi ngalesikhatsi lesa ufaka inkabi.

Interpreter: Okay which means that there [interruption]

Farmer: manje nyalo uyatihlanyela nje.

Interpreter: There are no people using the oxen now that I know.

Interviewer: Okay when maize was introduced did your parents and grandparents continue growing sorghum?

Interpreter: Eh kadzeni angitsi benilima emabele, abamaningi kwase sekufika umbila?

Farmer: Be... angati kwakwentiwa bobabe loko, angikubonanga tsine sicale sesenta lombila kulima.

Interpreter: Lamabele sekahambe muva?

Farmer: Ehe. Nami nje kube akusiko kugula ngabe... kusho kutsi lokugula kwakukufa ngobe ngangitsi ngabe nginawo ngingawatsengisi onke.

Interpreter: Kodvwa nje labobabe uma sekufika ummbila, bacondza kakhulu lakulommbila lamabele abese eta ngemuva?

Farmer: Ehe.

Interpreter: Which means there was a big shift from sorghum to maize.

Interviewer: Uhm does she know why?

Interpreter: Ingabe yini nawubuka yini lenta kutsi lamabele bawadvonsele emuva babese bachubeka nalombila?

Farmer: Base babanjwa ngalokukholwa.Emabele bebenta ngawo tjwala (laughs)

Interpreter: Oh eish (laughs). Many people joined christainity which means that is where they decided not to grow sorghum because mainly sorghum was used for the sorghum brew. So when people decided to be Christians they left everything that has to do with the Swazi brew which was the main reason people grew sorghum.

Interviewer: Is there anything else?

Co-supervisor: Hmm mm.

Interviewer: Sesicedile.

Interpreter: Awu siyabonga make sesifike ekugcineni kwemibuto yetfu. Sibongile kusinika sikhatsi sakho losinikete sona sibutabute lemibuto.

Farmer: Yabona, sakho sibongo?

Interpreter: Eh nguVilakati ungishayele ekuseni, lengiphuma naye ngumake Mkhabela.

Farmer: Kuyaphuma phela langcondvweni, shukela phela awumati shukela. Wena nje ungatitfolela yena nje.

INTERVIEW 15: FARMER 15

Interpreter: Heyi, ninjani Make?

Farmer: Sikhona,

Interpreter: Heyi, izolo walindza waze walokhuzana. Kube sindlule la, net beses'shesha itolo.

Farmer: Hawu beseku late.

Interpreter: Us'bonile?

Farmer: Angan'boni.

Interpreter: Okay.

Farmer: Mm hmm.

Interpreter: Eh, uMake, eh ngihamba- uNandi lo ngala'celeni. Bese lona ngu Make Thembi.

Farmer: Make?

Interpreter: Thembi.

Farmer: Thembi? Oh!

Interpreter: Ak'jwayeleki kutsi Thembi?

Farmer: Cha!

Interpreter: Now'cabanga kutsi ngitawusho lesilungu?

Farmer: Ehe, bengitsi utaw'sho sibongo lesi tong'hlula nje.

Interpreter: Sikhona sbongo, saka 'Russell'. [Inaudible]

Farmer: Oh!

Interpreter: Ehe, lo uMake [Surname omitted]. Unangakhi iminyaka?

Farmer: Ngina 52.

Interpreter: Una 52.

Interviewer: Okay.

Interpreter: Heyi, njengoba bengishito lela langa ke kutsi utawu... eh, batawu fika bafuna ulwati nje lihambelana nok'lima kwa kadzeni nol'wa nyalo. Kungaba ku lima kwa mabele noma mhlambe nok'we mbila, ungaku bhicanisa kute inkinga. Koja nje, lokuningi kwakhona ngulo kuhambelana

nemabele la [inaudible] koja lokunye lok'lima kwa kadzeni kute inking. Kunemibuto batawu buta yona ke lapha. Inges'lungu mine ngitaku tolikela nga lesi Swati.

Farmer: Oh!

Interpreter: Loku abaku beke laphantsi le nkulumo yetsu bayayi recorder kutsi bato, nasebahleli phantsi bayi cubungula bakhona kuyi, kuhle bayilalela kutsi lenkulumo ikanje yabo?

Farmer: Oh!

Interpreter: Ngoba lokunye tinta bese siyak'khohlwa kutsi beti tsini.

Farmer: Yebo!

Interpreter: [Inaudible].

Interviewer: Hm?

Interpreter: [Inaudible].

Interviewer: Ini?

Interpreter: Is it okay, or?

Co-supervisor: Mm. It's on, right?

Interviewer: Ja, it's on now.

Interpreter: Sengisho kutsi I'm not too far?

Co-supervisor: Oh!

Interviewer: Uhm, okay I can just move it a little bit here.

Co-supervisor: Ja. Or maybe you can sit here and I'll move here. What do you think? We'll swap places.

Interpreter: Okay.

Co-supervisor: Because then I'm not the one talking.

Interpreter: And what is this? Ufunani lomtwana, ulambile?

Farmer: Yebo, ulambile. Wafelwa nguMake.

Interpreter: Hawu?!

Farmer: Mm,

Co-supervisor: Where's the mother?

Interpreter: Hamba nako mfana ubuye nako [inaudible]

[Talk from Farmer and interpreter]

Interviewer: Okay, singacala?

Interpreter: Ehe, singacala.

Interviewer: Okay,

When did you begin farming?

Interpreter: Eh, wacala nini kulima nje? Angitsi watalwa, una 52...Wacala nini kulima? Cala nje nca kulima noma nga yini empilweni yakho?

Farmer: Sekulima mina hayi Batali?

Interpreter: Eh, noma ulima nabo akuna nkinga. Noma nilima kanye nabo.

Farmer: Hmm, ngo 1978 labeseng'khona kubona k'lima. Kodva bek'sa lima batali.

Interpreter: Okay, 1978.

Interviewer:

What plants did you grow then, and what are you growing now?

Interpreter: Eh, bek'linywani leso skhatsi sabo 1978?

Farmer: Bek'linywa kakhulu umbila, belisana litulu.

Interpreter: Okay, maize. Nani lokunye?

Farmer: Le kitsi ke kwabe sek'linywa leli bele.

Interpreter: Sorghum. Nani lokunye? Kubale nje make [interruption]

Farmer: Bese kube ndongomane,

Interpreter: Eh, groundnuts,

Farmer: Kulinywe eh, libontjisi,

Interpreter: Beans,

Farmer: Sek'linywa tinhlumaya.

Interpreter: Cowpeas.

Nyalo ke nilimani ngoba kadzeni sok'shilo. Nilimani nyalo?

Farmer: Mine [interruption]

Interpreter: Ni limani nyalo?

Farmer: Mine nyalo la ng'lima lombila nalelibele. Namandngomane, lonyaka ang'ka khoni kwase kwaphuta kuna litulu.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: Sorghum, maize, groundnuts.

Awuk'bali loku? Kulapha loku? Tinhlumaya?

Farmer: Nako lokhu nyak'lima loku kweti'nhlumaya.

Interpreter: And cowpeas.

Interviewer: Okay,

Who taught you how to farm?

Interpreter: Ubani lo wak'fundzisa kulima nje nawucala kwakhona kutsi wafundziswa ubani?

Farmer: Sak'fundziswa nguMake.

Interpreter: Eh, I was taught by my mother.

Interviewer: Okay,

Is rainfall important for the harvest?

Interpreter: Eh ingabe nawu lima nje ngabe itulu limcoka yini ek'limeni?

Farmer: Limcoka, limcoka.

Interpreter: Eh, Yes, it is important.

Farmer: Is there anything else she thinks is important?

Interpreter: Kukhona lokunye okum'coka ek'limeni? Sowushito kutsi litulu limcoka. Kukhona ngabe lokunye okum'coka nako loku faka sandla ek'tseni sivuno sibe lesiphatsekayo?

Farmer: Hmm. Lokunye kwenta uthole nje into oyilimile ilokutsi unakekele umhlaba utokhona ukutsi mawu lima loku okulimako kujabule ke uvune [interruption]

Interpreter: Uk'nakelela njani mhlawumbe?

Farmer: Unakekela ngalokutsi mase nguhlolisile bese ngenta lelok'phumile kutsi kufanele ng'kwente kulomhlaba.

Interpreter: Okay,

Farmer: Ma sewu lima ke lapho, mangabe nje ngiyohlolisa ngitsi ngifuna kufaka tinhlumaya lemiphumela le ebuyile mangiyenta tiba tinhle. Noma ngang'lime indzawo lencane nje ng'ya khona kuti thola.

Interpreter: Which means also soil management is important in getting a high harvest.

Interviewer: When you say soil management [interruption]

Interpreter: Soil management which include soil testing. When you know how is your earth then you know what to do in your soil.

Interviewer: Okay,

Do you use information that your grandparents used when you farm?

Interpreter: Eh, kuloku fundza, kuloku cala kwakho kulima ko '78 khona yini ulwati lolu ulu sebentisayo lo'wali thola lapha kubatali bakho lolu'sebentisako nyalo?

Farmer: Lakhona,

Interpreter: Yes, there is.

Interviewer: Which is it?

Interpreter: Eh ngeliphi nje? Awusitshela utsi nali ngalithatha kubatali bami nyalo solo ngiyali sebentisa?

Farmer: Ngilok'okutsi nangabe lendzawo le ngifuna kuyi lima ayineli letinto le ngifuna kuti lima, bese sengitsi nangilima lokunye lokhunye nguku fake emalayinini aloku okunye,

Interpreter: Oh okay,

Farmer: Ehe, loku beyenta njalo uMake.

Interpreter: Yini lokunye?

Farmer: Na nje... lokhunye ngabona kusita kulima umhlaba nge ngokutsi ngigabe [interruption]

[Child greets]

Farmer: Yabona lo ko kutsi lendzawo lihlanga leli,

Interpreter: Mm,

Farmer: Bese ke ngonyaka lo landzelako Make aka, ak'sa fakwa tinkabi. Sowukala ngetandla, ngemkhondo. Ugala la ku fakwa inhlangelo, ugal-, la emkhatsini angitsi ak'ka linywa,

Interpreter: Ja,

Farmer: Ehe [interruption]

Interpreter: Kadzeni bekweniwa lokho?

Farmer: Ha, vele tsine sikhule sisebentisa lomkhondo.

Interpreter: Okay,

Farmer: Ehe, ek'limeni.

Interpreter: Okay, there are 2 things that I use, that I- 1) Is to, mixed farming.

Interviewer: okay,

Interpreter: Whereby I mix legumes and cereals, or I mix legumes with legumes, depending on the crop that I, the crops that I have. And then also I practice conservation agriculture practices, which one of them is to do pot holing whereby you just dig. You don't plough all over the field, you just dig a hole. You just dig where you are going to plant.

Interviewer: Okay,

Can you take me through the process from the beginning of the planting season right up to the harvesting period – then and now?

Interpreter: Ases' us'tshele nje kutsi kadzeni, angitsi uyasho kandzeni kutsi beni lima nganayi indlela nayi? Ungas'cazela kutsi kadzeni besi lima- kadzeni besicala siyente nje nasi tawu lima. Siyente naku, silime, kukhule, sivune, sekube lasiku beka khona, sikubhule, sik'beke la sik'beka khona. Usichazele nje kutsi benicale niyente nje toti toti siyofika la k'theni naku senik'faka la nik'faka khona. Eh, ngales'katsi sa kadzeni, hayi le sanyalo.

Farmer: Shutsi k'cala litulu nje masikhulako tsine, bek'cale kuhlanyelwe ngabo October. September, ehe, September. Bekutsi ke nak'cala, kube netindzima loku [inaudible] ngato. Ngiyabekisa ke

mhlambe kunenzima bek' setelwe kutsi ama hour lama ngakhi. Kunenzima nje, kufakwe loyo mbila [interruption]

Interpreter: Ase usitsatse lapha, endzimeni le beyi faka emabele kutsi benilima njani yona.

Farmer: Indzima le sifake mabele besilima bese sesiya gaba ke la katsi noma eh le sik'gabayo leyo nhlanyelo lekhona [interruption]

Interpreter: Beni lima k'cala?

Farmer: Besicala ngayo nje, yona ne mandongomane.

Interpreter: Eh ngifuna lokutsi maseni la ensimini senilima ningakayi faki lenhlanyelo nicala ngaloku lima k'cala?

Farmer: Heyi, beku sakatwa.

Interpreter: Oh, beni sakata?

Farmer: Bek'sakatwa bese singena ngemi khondo.

Interpreter: Oh, ngom'khondo?

Farmer: Ehe, bekunga linywa ngeti nkabi.

Interpreter: Betikhona yini tinkabi?

Farmer: Betikhona, sekutsi nje angati sikhule sikhandza kutsi bekulinywa la lemikhondo vele.

Interpreter: Hayi tinkabi?

Farmer: Hayi tinkabi. Tinkabi betilima encatfeni na na bes'funa k'faka tindlubu.

Interpreter: Oh!

Farmer: Ehe, mase ku lihlanga nje besingali sebentisi.

Interpreter: Okay. Senilimile ke naku bese awusi chubekise ke lapho sichubeke sibeke [inaudible]

Farmer: Nases'sakatile sa, sa [interruption]

Interpreter: Nahlanyela, kwamila,

Farmer: Shutsi na seku mila ke, seku ncanyana sesiya hlakula ngoba angitsi sifuna k'faka something la'mkhatsini, loku losingak'faka.

Interpreter: Oh, nifuna k'hlangela loku, loku okunye kutaba la'mkhatsini?

Farmer: Loku okunye kutaba la'mkhatisini?

Interpreter: Beni hlakula ngani?

Farmer: Besihlakula nje ngamakhuba.

Interpreter: Okay.

Farmer: Ehe,

Interpreter: Chubeka ke.

Farmer: Mangabe ke sekukhulile njalo- kwakute ke lo kuwa futsa nje nga nyalo.

Interpreter: Bekute?

Farmer: Ekhaya azange ngibone kufutfwa. A bekhula nje. Sesi fika sigaba sekutsi se ka shakatile se ka betintlavu siyawa kadza ke. Koja loku gadza kwakhona angibekise nje; abe ku linywa tinhlobo tembili ekhaya. Nangabe silime lamafisha, besingawa...besiwa gadza gadza. Koja nasimile, kulinywe lo Mshake la madze le bese lomtfwana khona uya [inaudible], sasi ngawa kadzi kakhulu ke lawo.

Interpreter: Okay,

Farmer: Ehe, angati kutsi tinyoni- behlala titsi bhu! Tisuke. Angati bengu kutsi madze bese ayatsheka natihlala, angati.

Interpreter: Okay, asi chubeke ke. Sesindlulile e kwa kadzeni.

Farmer: Ses'yawa vuna.

Interpreter: Niwa vuna ngani?

Farmer: Sasivuna nge sikela.

Interpreter: Oh, ngama sikela?

Farmer: Ehe.

Interpreter: Manicedza uk'wa vuna niwabekephi?

Farmer: Sasiwa mikisa ekhaya enyangweni. Lapho kwaku boshelwa ke sihliphi.

Interpreter: Ehe,

Farmer: Ehe, sivunele esihliphini.

Interpreter: Ekhaya niwafaka enyangweni,

Farmer: Bese siwabeka enyangweni.

Interpreter: Ikanjani le nyango?

Farmer: Eh, yayakhiwa ngeku phicwa. Yayakhiwa ngetigodvo nje,

Interpreter: Oh,

Farmer: Bese kuya phicwa njengana kuphicw'indlu. Koja ke la etulu bese seyiya fuyelwa ngama khenya. Koja [interruption]

Interpreter: Ifulelwa ngema... ikhenya ngilo engazuthi ku...

Farmer: Lotjani lobovu. Bobuba bufisha bona hayi njenge licunga. Kuba bufisha.

Interpreter: Okay,

Farmer: Kuba bovu.

Interpreter: Kuba bovu.

Farmer: Yebo, kube nesikhala. Lok'phica kuhambe kugcina. Logodvo luchubeke, sekuya fulelwa etulu. Ubese kubanesi khala lesinga phicwa... e bebasishiya. Sesiwa faka khona.

Interpreter: Okay, nasese seka, se womile niyente njani?

Farmer: Sesiya bhula. Kusindvwa liguma ka Gogo.

Interpreter: Beniwa bhulela ka Gogo?

Farmer: Ehe, hayi endlini, egumeni. Kwaku sindvwa leli guma. Yali bona legume embi kwendlu?

Interpreter: Ah, liguma?

Farmer: Liguma, angitsi [interruption]

Interpreter: Ngiyalibona.

Farmer: Angitsi nge siSwati kuba nendlu bese kuba ne [inaudible] le embi kwendlu, liguma. Kwaku sindvwa ke la egumeni. Abekwe khona sibe yi round, siwashaye ngeti ntfuku.

Interpreter: Niwashaya nini?

Farmer: Mase kuphele matulu.

Interpreter: Ek's- emini, ek'seni, eb'suku?

Farmer: Sasiwa shaya ek'seni ngalo kutsi aya lumana abese ayabunya.

Interpreter: Oh, ek'seni?

Farmer: Ek'seni, noma ke nantsambama. Abe bunya bese niyati nwaya.

Interpreter: Okay.

Farmer: Ehe.

Interpreter: Ebese niya- chubeka ke. Nawa sewa bhuliwe.

Farmer: Lawa esiwa bhule ngalelo langa ke, nak'goba lilanga sesiyawela.

Interpreter: Mm,

Farmer: Sesiyawela ke. Asayo bekwa ke. Kwa kuya ngalelo khaya kutsi libekaphi kudla kwawo.

Besek'ngabi khona lamathange.

Interpreter: Bek'bekwaphi?

Farmer: Kwaku nento yay'akhiwe ekhaya. Iyakhiwa ibe sa nyango noma ngatsi iba sanjani? But la nge khadzi ibhacekwe iphindze ihucwe. Sasi tsela khona.

Interpreter: Ibe, ibe [inaudible]?

Farmer: Kwa'cale k'wakhiwe ngatsi k'wakhiwa lilonto.

Interpreter: Ngatsi k'wakhiwa indlu?

Farmer: Ja, ngatsi k'wakhiwa indlu.

Interpreter: Mm,

Farmer: Bese ke se, la nge khadzi sek'phindze kube ne ndlwana. Shutsi lendlu yok'cala yi shelter.

Lendlu yes'bili ke seku ngikho loku k'woku tsela. Kuya phicwa, kubhacekwe, ku kucwe kahle kutsi akunok'phuma loku lok'tsele la khadzi. Sasitsela khona ke.

Interpreter: Kuvalwe ngani la etulu?

Farmer: La etulu kuvale leli lonto. Leli elakhiwe ngaphandle.

Interpreter: Ingobolwane beyingahluphi?

Farmer: Hayi, beyihlupha ke. Beyihlupha, koja angikhumbile nje kutsi yayi lingisa nyalo kutsi... noma ngitsi yayi ngaphangisi ngoba kwaku hambe k'hambe nase khume kahle le, seba sure kutsi sek'wome kahle. Bese sekuya tingungwini.

Interpreter: Le tingungu beti kuphi?

Farmer: Betise sibayeni.

Interpreter: Oh! Lapha la kuhlala khona lapha ku lendlu kuhlalele kutsi naku suka lapho kuya tingungwini?

Farmer: Ku hlalele kusuka kuye etingungwini. Ngaba umbila, ngaba libele but nje litogcine litengungwini.

Interpreter: Bet'akhiwa kanjani le tingungu?

Farmer: Be ku mbiwa umgodzi le sibayeni. Shutsi na kwakhiwa sibaya kwa kucale ku bukwe lomhlaba kutsi ukanjani. Sasinga khiwa noma kanjani, kwentela le tingungu.

Interpreter: Oh, la kutaw'gujwa khona?

Farmer: Ehe, kutokhona uku gubeka khona. Lom'godzi lo uyaphasi, lotatsi nawu fika phasi ube ngatsi sekwakhiwe, ngatsi sengatsi yini la ekhadzi? Li grawondi [ground] le phasi. Kani la etulu kube nje umgodzi wehla, le phasi sek'ba li grawondi lokutsi nase ku ngeniswa lokudla ukhone nok'khwacela. Ukhwacele noma ngenteka nge li phutsa, la etulu kumbe kwentekeni kungehleli kulokudla kube le, le.

Interpreter: Okay, kuvalwa ngani la etulu?

Farmer: Angikwati ligama la lento ngoba nga ngisemcane kutsi yini but kwa kuba li, ekhaya beba beku bas sa yinto leligqulu lelikhulu!

Interpreter: Mm,

Farmer: Ehe, libe libekwa lana, acale asuse lomcuba Babe bese uyaku beka ke. Bese sekuba netfo futsi le abekayi sebentisa yoku nasheka ngo kutsi ku nga ngeni moya. Anasheke bese ubuyisa umcuba. Sek'buya litje ke lelikhulu! Lithi nqi! Etulu.

Interpreter: Sikhona yini isizathu sok'wakha lesibaya [ingungu] esibayeni ungasakhi nje noma nguphi?

Farmer: Heyi yati ang'condzi le kokutsi injongo yokutsi ku yentilwe esibayeni kwa ku yini but nje sikandze le tingungu batakhe, betimbe esibayeni. Azange se ngibone bayisukele nje ebaleni, bayakhe khona. Azange sengi bone.

Interpreter: Okay. Cha, kuyevakala.

Okay, what we did long time ago, you start by broadcasting the seeds in the field. Eh, okay just after we receive the first rain we broadcast the seed and then we plough using hands and hoes, no

ploughing of eh, using oxen. Just plough using hands, the whole field. And then we wait for germination. After germinating, at a certain height we go into the field, we weed. Because we were practicing mixed farming, we weed such that we will be able to plant another crop next to, next to the sorghum crops. Then after planting that certain crop, we will wait for the sorghum to form heads. At that time there were no pests which were a problem in the field, only birds. We'll wait for the birds then we scare the birds.

Eh, benisebentisa ini kushaya le tinyoni?

Farmer: Tidubulelo.

Interpreter: Okay, we'll scare the birds using certain, certain guns which were almost like, were made by the, like the sisal one. We scare the birds and then after that the harvest, the sorghum will be ready. We will harvest them. We will store in a storage which was made of only stick. We just cut small, medium and big sticks and we make the storage. You store it there up until it is dry.

Co-supervisor: Is it a raised one?

Interpreter: Ja, it is the raised one.

After storing, after it is dry we will take it. There was a... in a rondavel, in a rondavel there was something which was built in front of the rondavel, in front of the door of the rondavel, something which was built using, eh...

Koja yini loku okuwakha lokhu? Loku kwok'akha leli guma?

Farmer: Kuya shiyana.

Interpreter: Abanye bak... Nina beni'kwakha ngani?

Farmer: Sebentisa umhlanga.

Interpreter: Which was built by using the reeds. You know the reeds?

Co-supervisor & Interviewer: Ja,

Interpreter: Which were... it was built using reeds in front of the rondavel. That is where we will shell our sorghum.

Co-supervisor: So you shell them on top of the reeds?

Interpreter: No, the reeds was put inside that [interruption]

Co-supervisor: Like a fence?

Interpreter: Ja, like a fence, it was [interruption]

Co-supervisor: Around the, around or outside the rondavel?

Interpreter: Around the front door like a fence.

Co-supervisor: A reed fence.

Interpreter: And then inside, we'll smear inside that area using cow dung. And then early in the morning, we'll thresh the sorghum using sticks. After threshing the sorghum, we will take them to a temporary storage which was built like a house. It was built like a house and thatched with a certain grass which was almost red, reddish grass. This is temporary storage. And then when we see that now it is totally dry, we'll take them to ingungu. That is where we will store it up until we use it later.

Supervisor: Okay. So all of this she saw it in her lifetime?

Interpreter: Konke loku lokushoyo wak'bona?

Farmer: Nge le besiphila ngako nje ekhaya.

Interpreter: Ja, this is what we were doing.

Maybe ase ngi bute sizathu sokutsi yini lokutsi kube nala kucale kufakwe khona ngaphambi kokufaka lapha engungwini kani vele uk'suka lapho enyangweni seku womile? Nik'fakelani lapho?

Farmer: Okay, bekuba nokutsi ku bantfu la badzala ngoba lamabele abe kule tigcwambe, ku ngenteka kutsi [inaudible] ku ngomi kahle. Bafuna na sa sabhuliwe akho kule tigcwambe ake ahlale, banetiseke ngalok'oma. Ungatsi na'wa faka angaka womisisi kahle ingatsi angabe awonakala.

Interpreter: Le phasi?

Interviewer: Yebo, lahlala engungwini. Mele babe sure kutsi awomile.

Interpreter: No, I was asking why was there a need for temporary storage before the actual storage.

Co-supervisor: Yes,

Interpreter: She said, it's like they were not sure from their... where they stored them after harvesting. They were not sure whether they are totally dry or not. Then they will, after threshing they will take them to the temporary storage,

Supervisor: To make sure they're dry,

Interpreter: Yes, to make sure that they are totally dry.

Eh, awusi chazele ke kutsi nyalo, nyalo niyenta njani nyalo? Kulima kwa nyalo. Angitsi kadzeni usichazezile kutsi be nisakata nitsi? Nyalo ke ku kanjani nyalo? Us'suse ek'limeni kwa nyalo cala toti toti nakhona size sifike la ek'tseni siyaku... angitsi kadzeni benifika etingungwini? Nanyalo usifikise lapho.

Farmer: Oh, nyalo ngifaka sigulumba,

Interpreter: Yebo,

Farmer: Sigucule. Before bes'gucula, noma ses'hambe singagucule. Bes'gucula, bese nase ngihlanyela ngilandzela les'gulumba. Ng'yahlanyela. Kuyamila. Mangabe ke, beng'nga-, lapha ke mine seng'khulile beng'a kwenti lok'bica leti limi. Bengi lima nje i-hour la lombila. Sengiya lima noma i-hour ne half lamabele ami, seng'faka mandongomane, seng'ema ke angitsi libontjisi ngitali faka later ku bo January.

Interpreter: Okay,

Farmer: Yebo. January noma February. Kuya nge simo sekutsi lina kanjani. Seng'ya faka ke tilimo leti, boma bontjisi. Khona ke la, nase kuvutsiwe loku engik'limayo... nakhona nje ngiya chubeka ngiyawa gadza emabele [interruption]

Interpreter: Okay uyenta njani, ekuhlakuleni niyenta njani nyalo?

Farmer: Ngiyahlakula. Kuhlakula mine ngemakhuba. Angise ngikawu sebentisi um [inaudible]. Ngihlakula ngama khuba nje. Kufike ekuvuneni [interruption]

Interpreter: Nanyalo solo ayagadvwa?

Farmer: Lamabele?

Interpreter: Kunjani lok'gadza kwa nyalo kuna lo kwa kadzeni?

Farmer: Kulawa nje, lawa ukugadvwa kwawo kuyafana nalok'gadvwa kwa Mathinikwane le beka linywa ekhaya kadzeni. Nay'amfisha.

Interpreter: Mm, okay.

Farmer: Kuyafana but ke yena la Mathinikwane abeba'mhlophe kanti lawa abovu. Lo Mshake uhlukile uku gadvwa kwawo kunalawa ngoba lo Mshake, leti nyoni betitsi tiyahlala titepetele bese setiya suka titsi bhu! Setiya la kula amafisha. Shutsi nje bes'gadza kakhulu la mafisha. Nyalo lawa, hayi agadvwa kakhulu lawa. Tiwadla ugadza, ulapha ensimini.

Interpreter: Mm,

Farmer: Ehe.

Interpreter: Ugadza ngani nyalo?

Farmer: Kute ngi jikjela amatje nje noma ngifune igqomo ngifune matjane luketse,

Interpreter: Ukhohlotise?

Farmer: Ehe.

Interpreter: Okay, asichubeke ke sowuwa gadzile,

Farmer: Ayavutfwa ke, lawa la ting'shiyele tona tinyoni seng'yawa sika nge sikela ngiwaletsa la enyangweni.

Interpreter: Le nyango sek'le yes'lungu?

Farmer: Cha, okwami nje engak'yentela kona.

Interpreter: Okay.

Farmer: Ngiwaletse engyangweni ke, sengibuka leskhatsi kutsi ngiwa fake nini. Ivama, ayahlala noma 2 months.

Interpreter: Mm,

Farmer: Mm, Ngi ngekawa bhuli. Angikhoni nalok'bona kutsi se'omile, ng'ke ngibone ngalo kutsi ngiwafaka esakeni ngishaye atsi ke saka! Ngibone kutsi cha na wasaphuma lula ke shutsi se'omile, seng'yawa bhula ke. Nyalo angisa bhuleli le la bengishito khona egumeni, seng'bhulela emasakeni.

Interpreter: Ufake la khadzi esakeni ushaye le saka?

Farmer: Ngishaya esakeni, ngishaye lisaka. Sengi [inaudible], sengiyalahla.

Interpreter: Oh!

Farmer: Ehe. Mang'cedza ke nyalo ng'wela ngiwafake ethangeni.

Interpreter: Oh!

Farmer: Ehe.

Interpreter: Uwela uwafake ethangeni?

Farmer: Ehe.

Interpreter: Sek'phelile nje kanjalo?

Farmer: Awu, seng'cedzile kanjalo.

Interpreter: Okay. Okay now I use a tractor, I plough and then sometimes during ploughing I follow the tractor. I follow the plough, planting. And then after planting, I wait for it be, to grow to a certain height and then I weed using a hoe. After weeding, I wait for the heads to be formed. Now sometimes there are some pests like aphids and full armyworm. I wait for the pests, if there are pests I control them using chemicals, and then if there are not I wait for the heads. When the heads are formed, I start to scare the birds. Now it's a bit difficult to scare the birds because it's like they like this sorghum too much. I use eh, I don't use that gun now. I just put some stones inside a container and then try to shake them to make a certain noise. The birds, they run away for a short period of time then they come back quick. And then after that, I harvest. After harvesting, I put them in a storage. I built a certain storage, I have a storage that I built. And then eh, after they are ready I put them inside a sack then I thresh them, thresh them inside the sack and then put them in a metal storage.

Interviewer: Uhm,

How did you acquire the land that you've been using to farm?

Interpreter: Lenzawo le enilima kuyo lena nje le, nayithola kanjani?

Farmer: Sayinikwa umphakatsi.

Interpreter: We were given by the chief.

Interviewer:

Did you choose which land you were given?

Interpreter: Nakhetsa yini lokutsi nifuna kuto nikwa la, noma kumbe na nikwa nje?

Farmer: Sakhetsa.

Interpreter: We chose this land.

Interviewer: Okay, what did she-, what were the things that she was considering when she was choosing the land?

Interpreter: Nawuketsa len-, naniketsa lenzawo lena nje yini le naku buka kutsi hayi sifuna leya? Naniy'funa ngoba inani? Kunaleli etinye?

Farmer: Yayibonakala ivunzile.

Interpreter: Yayibonakala ivunzile?

Farmer: Mm hmm.

Interpreter: Okay, this one was, seemed like it is fertile.

Interviewer: Is there something specific that she saw that showed that it was fertile or [interruption]?

Interpreter: Nabona ngani lokutsi ivundzile le ke?

Farmer: Ngang'buka le, lotjani bakhona nas'hamba sibuka tindzawo. Tinengi le sati buka. But la ngafika ngabuka lotjani bakhona nje. Lokhula lwa khona lalu khombisa ku kutsi kukhula la kukahle khona.

Interpreter: Okay, I saw the type of grass that was here and it convinced me that this area, it is fertile.

Interviewer: Okay,

What do you consider the best land for farming?

Interpreter: Eh, indzawo le lekahle nje ek'limeni wena uke ubone kutsi ile ekanjani? Nawu tawulima nje utsi hayi no, lena number 1 ek'limeni? Kube kuyile ekanjani?

Farmer: Noma ingasiyo le koja ngike ngibuke ngatsi sidzaka. Angitsi uyayibona le ndzawo engatsi yis'dzaka, ngibona ngatsi ikahle.

Interpreter: Oh, les'dzaka?

Farmer: Mm.

Interpreter: I look at an area which has a clay-loamy soil. Ja, clay-loamy.

Interviewer: Okay,

In the past were your forefathers able to choose the land to farm on?

Interpreter: Eh, kadzeni ke kusaphila nabo Khokho bakho noma nabo Make bakho boBabe bakho, bebakhona bona kuti khetsela kutsi... kukhetsa kutsi eish tsine sifuna uk'lima, nayi ke indzawo yok'lima inayi. Lena angeke kube yok'lima, kutawu setentshiswa nayi ekulimeni. Bebayi khetsa noma beba lima nje?

Farmer: Engatsi bekhuba nje kutsi ba khomba la, bese sewuya lima. Sekutsi ken aba khombile [interruption]

Interpreter: Okay, naseba khombile wena sowula kule ndzawo yakho, bowukhona yini uku khetsa kulenzawo yami kutsi hayi nayi le [interruption]

Farmer: Le limekako?

Interpreter: Ehe, le engifuna kuyi lima?

Farmer: Bekakhona Babe kubona [inaudible], lelungela silimo. Angibekise ufuna kulima tindlubu; abesitshela kutsi kufuna ibe lukheshana, tindlubu titsandza lokho. Abenta njalo naka khetsa ke. Noma ato lima batata nje bekayi khomba incenye tsite yalenzawo, atsi “hawu ungam’faka batata, ngala anyeke alunge”. Mane ke lokunye nge’ngati kutsi abebona ngani but nje ngikhumbula leti ndlubu [interruption]

Interpreter: They were able-, they were choosing the type of soil they were going to plant. For instance like jugo beans, my father used to say sandy soil is good for jugo beans. And even for sweet potato, he will tell you that this land is very good for sweet potato.

Interviewer: Okay,

Do you plant different types of sorghum?

Interpreter: Eh, lok’lima kwakho ke, loku lima nyalo ngabe ulima tinhlobo letihlukene yini etihlukene tamabele?

Farmer: Ngike ngati lima ngase ngiya yekela. Beng’lima lelimhlophe naleli elibovu, ngase ngiyali yekela elimhlope ngoba kute besik’vuna.

Interpreter: Okay, I used to plant 2 varieties and then I decided to drop the other one. Then I’m focusing on this one which is the brown one because the white one, the birds they liked it too much so I ended up harvesting nothing.

Interviewer: Okay, so that’s the modern one?

Interpreter: Ja, these are the modern ones.

Interviewer: Okay,

Before using the hybrids which types of sorghum did you grow? Can you remember?

Interpreter: Ngaphambi kokuba ke sisebentise le tinhlanyelo leti sesilungu, tikhona yini, ungakhona loku okukhumbulayo le beni tisebentisa kadzeni? Le tingasi silungu?

Farmer: Ehe, kukhona,

Interpreter: Ungakhona kuti kusho nje kutsi nayi?

Farmer: Bek'khona lena bek'tsiwa ngu Mshake,

Interpreter: Eh, one is Mshake,

Farmer: Beyikhula ibe yindze,

Interpreter: Okay,

Farmer: Ibe bovu. Bese kubakhona ke le enye beliba mfisha, angati sengikhohliwe ligama layo ke. Ng'cono ngingene endlini.

Interpreter: Kukhona lok'bale endlini?

Farmer: Ehe, angiti sengiti khohliwe vele. Beng'se ngumtfwana.

Interpreter: Okay, she has forgotten some varieties but she has something written down. She's going to get something.

Co-supervisor: You know with this, when they store the sorghum, is there a problem with things like mice, rats? In those open things?

Interpreter: Oh, mice and rats, they like sorghum very much!

Co-supervisor: So how come... how do they protect it?

Interpreter: I'm not sure, maybe we'll ask [interruption]

Co-supervisor: I know they have cats, but maybe in the past they didn't have cats. Because the cats will be the ones who keep them away.

Interpreter: Maybe [interruption]

Co-supervisor: Ja, let's ask.

Interpreter: Sowutholile?

Farmer: Ehe, lena emfishane beyilinya ekhaya kuthiwa Mathinikwane.

Interpreter: Which means Mshake and Mathinikwane.

Ngile ting' 2?

Farmer: Ah, besilima 2 nje.

Interpreter: Okay. Mhlambe ngi bute Make kutsi njalo benitsatsa lamabele beniwa gcina lapha kulendlu angakayi lapha kulengungu,

Farmer: Yebo,

Interpreter: Angitsi mabele siyati kutsi magundwane ayawadla?

Farmer: Ayawatsandza.

Interpreter: Eh, ben'yenta njani ku lama gundwane kutsi angadli?

Farmer: Heyi, kwa kunetfo le beyisentshentsiswa le ngasa khumbuli ebuntwaneni bami kutsi kwaku tsiwa yini. Yayitsi mase alapha lamabele bese uyahamba uyoyikha Make. Yayimila entsabeni, abuye ayihlome la ema koneni ala.

Interpreter: Mm,

Farmer: Mhm, bese awasondzeli lama gundwane. Kwaku yinto nje etisebentiswa ekhaya kwe tindalo. Yabona kufana nje neti mbuzulwane?

Interpreter: Kwaku nesihlahla besikhiwa ekhaya. Manilele bese ses'ya bekwa la emacembe la ecelen' kwama cansi. Ngeke sondzele imbuzulwane. Kwak'sebenta kanjalo. Mane ang'sati legama.

Interpreter: Awusati legama la les'hlahla?

Farmer: Seng'khohlwe legama la les'hlahla kutsiwa yini.

Interpreter: There was a certain tree eh, that was used which was found in the mountains. When we were storing them [sorghum] my mother used to go there and just pick the tree and just put some of it inside the [inaudible]. The rats and mice would not come next to that.

Co-supervisor: Okay, and she can't remember it?

Interpreter: Not remembering the tree but she's also mentioning another tree which was used for mosquito.

Co-supervisor: Okay.

Interpreter: Ja,

Co-supervisor: And then today what does she do?

Interpreter: Nyalo nisebentisani kubalekisa magundwane?

Farmer: Sengike ngibeke loku ok'tsengwako nyalo. Loku ok'tsengwako kudla lokubulala le magundwane. Sesiye sibeke wona ngeti [inaudible] ke. Lama...

Interpreter: Okay,

Farmer: Ehe.

Interpreter: She's now, she's using rat killers.

Co-supervisor: Okay.

Interpreter: There are those chemicals which kill rats. And so...

Interviewer: Okay,

Why did you stop using the indigenous sorghum?

Interpreter: Eh, njengoba nyalo sowulima lanka esilungu n je, lenhlobo tesilungu, watiyekelani le tesintfu?

Farmer: Awu, le tesintfu atisa tfolakali. Koja le endze, le ngitsi ngu Mshake,

[Children greet]

[Continues] LoMshake, mangim'catsanisa naleli lesilungu abete... shutsi lecwambu takhona, mawungatsi uyati bhula sewubhula leti [points at sorghum], ku ngenteka leli ligcwale lenkomishi masinya. Kantsi lomshaki letintlavu betiba mbalwa, kutsi nje betikhuluphala.

Interpreter: Oh!

Farmer: Ehe, betiba mbalwa tona.

Interpreter: Okay. There are 2 reasons why we drop them. The first one, we lost the varieties and another one is that the modern varieties, they have more harvest as compared to the indigenous one,

Co-supervisor: Why did they [interruption]

Interpreter: Because the heads they were bigger than the... the modern heads are bigger than the indigenous one.

Co-supervisor: Why did they lose the varieties?

Interpreter: Nawutsi lenhlanyelo [inaudible] letinye takona tanyamalala, tanyamalala njani?

Farmer: Asitati ngoba nje sitse nasichubeka sikhula le emakhaya, kwa sese kuba bete lonato. Angati lokutsi kwaba lahlekelana njani bantfu badzala.

Interpreter: Okay, there's no reason, she doesn't remember any reason why they lost them.

Interviewer:

What are the advantages and disadvantages of using the indigenous sorghum, and what are the advantages and disadvantages of using what they use now?

Interpreter: Okay. Awuse usitshela ka fisha nje kutsi ku, ngu buphi buhle yoku sebenzisa lenhlanyelo lendzala? Ngoku buka, ngoku khumbula kwakho ubuhle bato betiba, betifike tibe tihle nase kung'kuphi?

Farmer: Nangabe kule lenze, buhle bakhona wa wuyi vuna ing'ka dliwa kakhulu. Angisho kutsi yayi ngadliwa but yayinga dliwa nje nga le lemfisha. Yayi yinhle ngaloko ngoba hawu yona nje, wawu gadza nje lomfisha ukhululeke nga leli elidze.

Interpreter: Okay.

Farmer: Mhm.

Interpreter: Lesinye sizathu ku ngaba yini? Le besi khomba kutsi ubuhle ba leta ta kadzeni?

Farmer: Ubuhle bato lobunye kutsi ta tinga futhwa,

Interpreter: Mhm,

Farmer: Mhm, sasihlanyela nje kwa kute kutsi seku mele ku futfwe sicencane sek'mele si njani njani. Asikwati.

Interpreter: Okay, kukhona lokunye buhle bato ongaku khumbula?

Farmer: Awu, nami loku okunye sengak'khohlwa ngoba vele ku kadzeni.

Interpreter: Okay, one advantage was that [interruption]

Co-supervisor: For which one?

Interpreter: The indigenous one. Like the tall one, birds were not that much a problem on them because they will fail to eat them. Once they land on them this, the plant will just fall then the birds will move away. Another one is that eh, the aphids, the pests there were no problem[s] in terms of pests. Pests were not that much familiar with the variety, the indigenous one.

Eh, bubi bakhona beku yini?

Farmer: Heyi, angi kwati. Angeke ngi conze kahle man ngo kutsi bengi semcane koja nge ku buka kwami, ngibona ngatsi abe phutisa ku nalawa. Sasi kadza isikhatsi lesidze khona.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: One disadvantage is that they took a long time to be ready such that we'd scare the birds for some time.

Awusi tshale ke ubuhle baleti, ta nyalo.

Farmer: Ha lena ineti cwambu le tinkulu.

Interpreter: Eh, the advantage of the modern one is uhm, the heads are big.

Yini lo kunye?

Farmer: Iya shesha. Wa cala nje kutsi iyenta ti nhlavu sowuyayi gadza, mas'piti seyishintshile seyi bovu, mas'piti iye'nyangweni [interruption]

Interpreter: Okay, it takes a shorter time to be ready.

Eh, lenye kungaba yini, lobuhle bakhona? Okay, bubi ke yini?

Farmer: Heyi, bubi idliwa kakhulu.

Interpreter: Idliwa tinyoni?

Farmer: Tiwa tsandza kakhulu.

Interpreter: Disadvantage, birds they like them too much!

Co-supervisor: The birds?

Interpreter: Ja.

Eh, yini lokunye?

Farmer: Hayi, angi kwati.

Interpreter: It's like eh, there's only one disadvantage. [Masemula edit- Nov 2022: She doesn't know]

Interviewer: Okay,

What do you use the sorghum you grow for?

Interpreter: Lamabele la owalimako uwasebentisa lwentani? Nje nga lawa asensimini, uwasebentisa ini?

Farmer: Ngiya hamba ngiye le tinzaweni la lisana kahle khona ng'yo cela laba limi la basakhona ku lima mbila sitjintjiselane. Angitsi mine angikhoni kutfolo umbila, so ke kune buhle bokutsi mine na ngi camuka ne le ligogogo lamabele yena unginika mabili embila. Mine nje ngitfolo kanjalo mbila.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: Lukunye yini?

Farmer: La lokutsi ke ngiyakhona kwa dayisa, bese ngikhona k'tfolo [interruption]

Interpreter: Uwayise nge mali?

Farmer: Nge mali.

Interpreter: Eh, lokunye ku ngaba yini?

Farmer: Eh! Aku lanjwa lakhaya, siyawadla natsi [laughs].

Interpreter: Niwadle abe kanjani?

Farmer: Siwadla ku, ekwenteni sidlo sase'kseni, incwancwa,

Interpreter: Okay,

Farmer: Siphindze njalo siyente emahewu,

Interpreter: Oh okay,

Farmer: Ehe. [Inaudible] litje ke, beng'yenta neticaba sivube masi. Nyalo nje sinema tfole siya senga.

Interpreter: Niyenta ngani ticaba?

Farmer: Ehe ngiyasi, ukutsi sase sigamukelwa yi lelitje bengi nalo seng'te litje angisakhoni.

Interpreter: Okay. Eh, I use them in making 'ticaba'. Ticaba you...

Uwapheka k'cala before uwagaya?

Farmer: [Inaudible]

Interpreter: Okay, I use them to make 'ticaba'. Ticaba you just, you cook them first and then you grind them. Then you eat them. They are called 'ticaba'.

Co-supervisor: Do you cook it?

Interpreter: 'Ticaba'.

Co-supervisor: Oh, you cook them first and then you grind them?

Interpreter: Uwa phica nani?

Farmer: Kute.

Interpreter: Okay, you cook them first and then you grind them, then you eat. You eat the powder.

Co-supervisor: Oh ja,

Interpreter: Ja, it's called 'ticaba'.

[Sort out spelling]

Interpreter: And then I sell them. I also make thin porridge. I also do bartering with someone who has maize.

Co-supervisor: Oh, bartering?

Interpreter: Yes because the ratio for bartering is 1:2.

Co-supervisor: Sorghum's more valuable?

Interpreter: It's more valuable than maize.

Interviewer: Okay,

If the season to start planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Eh, asesitsi ke Make nali itulu mhlambe, le lesimo setulu sikhomba kuba... asiso le sihle kahle,

Farmer: Yebo,

Interpreter: Kukhona yini lo'kwentalo kuti lungiselela kutsi mhlambe use ucine ulime, ulimile uthole leso sivuno ositholayo? Kukhona yini loku ok'wentako? Nangabe nje uyabona kutsi heyi lesimo asivumi uyentani nje ukuti lungiselela uto gcine ilimile?

Farmer: Nangabe isimo si, litulu ali [inaudible], hawu name angilimi.

Interpreter: Nangabe nje sibonakala singa siso le sihle kahle, uyema unga limi?

Farmer: Awu, angilimi.

Interpreter: Umele sona le simo se tulu ukuze sibonakale?

Farmer: Eh seng'kutsi akukaka yenteki lokutsi singakhoni lok'lima libele. Siye siyekele lombila na simo sibedza.

Interpreter: Okay.

Farmer: Mhm.

Interpreter: Okay, for sorghum there's no time whereby we don't plough, we don't plant sorghum. Only the other crops [Masemula edit – October 2022 – when the conditions aren't good, it is maize that she doesn't plant] that, when the climate is not good I just leave them. But sorghum I just plant it every time and there's something I get in sorghum.

Interviewer: Okay,

Is there any time that you let cattle onto your fields?

Interpreter: Kukhona yini la uyekela tinkomo ti, tinkomo nje bese ti ngen'emasimini? Ni tiyeke tingen'emasimini?

Farmer: Nyalo ang'sati faki. Bengiti faka cala, ngaku tfole la eti... tifundziswe ngite ba limisi kutsi ak'si kahle lo kuti faka.

Interpreter: Okay.

Farmer: Nyalo ngize ngi gucule nje, ngi gucule nje, ngi gucule ku soloko ku ne mena.

Interpreter: I used to allow cattle especially in winter to, to roam around in my field. But now I don't allow them to get inside my field because I'm practicing conservation agriculture.

Interviewer & Co-supervisor: What do they do?

Interpreter: Eh, what do they do?

Co-supervisor: To the conservation that's bad?

Interpreter: Okay it's because conservation agriculture, one of its principle eh, every time you must have soil cover.

Co-supervisor: Soil cover?

Interpreter: Soil cover. Which means [interruption]

Co-supervisor: Oh, so you don't want the cows to eat?

Interpreter: Yes, they will eat and remove the soil cover. That's why we are not, we don't allow them to get inside.

Co-supervisor: Oh!

Interviewer: If there's soil, if there's no soil cover what happens?

Interpreter: You'll lose moisture quickly.

Interviewer: Okay.

Interpreter: Yes.

Co-supervisor: But then you lose out on the natural fertilizer.

Interviewer: Yeah.

Interpreter: From the cattle?

Co-supervisor: Yeah,

Interpreter: Which means they will just, they'll just bring it with wheelbarrows.

Co-supervisor: Okay,

Interpreter: Ja, I think so. Some they do like that.

Co-supervisor: Oh.

Interpreter: Ja.

Co-supervisor: I just wanted to ask her a question, why sorghum is more valuable than maize?

Interpreter: Eh, Yini loku lok'wenta kutsi emabele abe, nangabe nje ushinshisa igogogo lamabele umuntfu nak'fanele aku nike umbila liba ma gogogo la ngi 2? Kwentiwa yini? Yini angak'niki 1, nitsi 1, 1?

Farmer: Yindlela le safundziswa ngayo. Angati kutsi yini.

Interpreter: Yindlela na fundziswa ngayo?

Farmer: Safundziswa ngayo nje kutsi emabele manengi kune mbila. Nasi tjintjiselana mele ku nga lingani. Ngilok'chubeka si soloko si fundza nje. Nami seng'khohliwe kutsi safundziswa kuphi but yindlela le sifundziswa ngayo.

Interpreter: Nge tiko le tok'lima?

Farmer: Mm.

Interpreter: Okay. Which mean this is eh, we use the information from the Ministry of Agriculture that sorghum is more valuable than maize.

Co-supervisor: Okay.

Interviewer: Okay,

If you do not use cattle for manuring, what do you use instead? Before and now.

Interpreter: Eh, nangabe ungawu sebentisi ke umcuba... okay kadzeni angitsi bek'setshentiswa umcuba?

Farmer: Yebo,

Interpreter: Na bangaka sebentisi umcuba kadzeni be bafakani la uk'vunzisa emasimini?

Farmer: Hawu be kutsiwa nje ku guqulwa ti, emasimini tinhlanga ti buyele nge phasi ti tovunzisa.

Interpreter: Oh okay, eb'sika?

Farmer: Ehe.

Interpreter: Okay. Other than putting manure, in winter they will do winter ploughing to allow the crop remains to fertilize the field.

Interviewer: Is this now or [interruption]?

Interpreter: Nyalo... He-eh, long time.

Interviewer: Okay.

Interpreter: Nyalo ke niyenta njani nani ngaka faki mcuba? Nifakani?

Farmer: Cha, kute.

Interpreter: Ah, there's nothing other than [interruption]

Farmer: Kute, siyam'saba manyolo. Nak'camuka lilanga phanse ti sek'shisa kakhulu bese kuyasha.

Interpreter: Oh, kuyasha?

Farmer: Mm.

Interpreter: Okay now other than kraal manure there's nothing we use because these synthetic fertilizers, once there eh, there are not much rains and it is too hot hawu the crop will burn.

Interviewer: Okay, uhm [interruption]

Co-supervisor: Because you spray it? Because you spray this... where do you put the synthetic fertilizer?

Interpreter: Eh,

Co-supervisor: Into the ground?

Interpreter: Ja, into the ground, same time when you are planting.

Co-supervisor: Okay.

Interpreter: Yes.

[Inaudible talk]

Interpreter: [Laughs] No, maybe we'll chat later.

Interviewer:

When in the year does sowing begin, and who does it?

Interpreter: Eh, enyakeni nje ku lima kucala nini? Kwentiswa ngubane futsi nje, ubekise lakhaya? Na, eminyakeni kucala nini ku lima, bese k'wentiswa ng'bani?

Farmer: Uk'hlangela nje, si vama ku hlanyela ngo November.

Interpreter: Okay, bese k'wenta bani?

Farmer: K'wenta mine.

Interpreter: Okay, we start in November then I'm the one who's doing it.

Interviewer: Okay, and harvest time?

Interpreter: Eh, bese nivuna nini ke nangabe nihlanyele ngo November?

Farmer: Ku vama kuba yilo April.

Interpreter: K'wenta bani?

Farmer: Ku vuna mine.

Interpreter: Okay, we harvest in April and I'm the one harvesting.

Interviewer: Okay, is there any [interruption]

Co-supervisor: [inaudible] alone?

Interpreter: Uk'wenta wedvwa?

Farmer: Ehe, ngi vuna ngedvwa nje, abantfwana bese bang'tsutsela na babuya eskolweni.

Interpreter: Ja, I do it alone but the kids they will help me in taking the harvest home, but I harvest alone.

Interviewer:

Is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Nangabe se-, tfola kutsi bowu limile nje, nje nga nyalo angitsi nilimile se nitawu vuna?

Farmer: Mm,

Interpreter: Kukhona yini lok'wentako nase wuvunile toti toti kuze kuyo linywa ku lungiselela lo mhlabatsi wakho kutsi ube sesimeni sesi, utfole uphile kahle ku lo, nawu cala kulima?

Farmer: Hawu kute ngaphandle nje kutsi ngi gucule. Nase ku phele konke, bese ngiya gucula nje kuhlale ku guculekile.

Interpreter: Okay, there's nothing I do other than winter ploughing.

Interviewer: Okay,

Where did you grow up?

Interpreter: Eh, ukhulelephi ke?

Farmer: Ngi khulele khona la e[inaudible], indzawo kutsiwa k'se Ndobandoba.

Interpreter: Ja, I grew up in Ndobandoba. Ndobandoba is almost, and this even hotter than this. It's close to Lavumisa.

Interviewer: Okay.

Interpreter: Ndobandoba.

Co-supervisor: Does she still practice winter ploughing, or only in the past?

Interpreter: Usa yenta na nyalo le, lok'lima eb'sik- , ehl-, eb'sika?

Farmer: Kulima...?

Interpreter: Na ngabe nje kuse'bsike uya gucula na nyalo?

Farmer: Heyi, nga leti fundzisa tinta le tinengi sesiyati yekela.

Interpreter: Sengisho nyalo, usakwenta nyalo?

Farmer: He-eh, nyalo nje nje ngoba ngilimile beng' ka guculi, ngavele nga lima.

Interpreter: Ah! Naku sengi bala something else.

[Inaudible talk between co-supervisor and interpreter]

Interpreter: Ja!

Co-supervisor: And what did she say about winter ploughing?

Interpreter: Eh, now she's not practicing winter ploughing now as of this year, but along she was doing it.

Co-supervisor: Okay.

Interviewer: Okay,

Do people still plough using oxen?

Interpreter: Bakhona laba abasa lima nge tinkabi? Lo batiyo nyalo, mhlambe la endzaweni?

Farmer: Mm, noma nga boni lonyaka abak'sebentisile bakhona. Kune likhaya le lingale.

Interpreter: Okay, there are those who are still using it, oxen.

Interviewer:

When maize was introduced did your parents and grandparents continue growing sorghum?

Interpreter: Eh, nangabe ke... angitsi uyakhumbula kadzeni beni lima kakhulu emabele?

Farmer: Yebo,

Interpreter: Nak'fika umbila ke, k'wenteka njani? Na ngombe Batali bakho noma boKhokho bakho bashinsha bayekela amabele kwa yiwa embileni noma kwa chujekwe kanye kanye?

Farmer: Bachubeka nako kok'bili. Sekutsi le libele beli sentjentiswa kakhulu kuna... angitsi [inaudible] bebasadla emasi [inaudible] nalamabele, manje bel'linywa kakhulu lona na lombila.

Interpreter: Okay, there was no shift. Most of them, they grew more of sorghum than maize as they were using it to... they were eating sorghum with, mixed with emasi.

Interviewer: Okay. Anymore questions?

Co-supervisor: No.

Interviewer: Okay.

[Talk]

Interviewer: Siyabonga kakhulu Mama.

INTERVIEW 16: FARMER 16

Interpreter: Uwutfolile ilokhuza, mlayeto ngaMake

Farmer: Eeh-e.

Interpreter: Uwutfolile?

Farmer: Ngiwutfolile.

Interpreter: Ohoo!

Farmer: Sengimangele ngibona lilanga liyashona ngitsi uyati ngabe sengihambe ngavusela emabandla la. (Laughs)

Interpreter: Hheyi solo siyaphitsitela la.

Farmer: Niyaphitsitela?

Interpreter: Siyaphitsitela solo sicale ekuseni nje solo umsebenti uyahamba uyagicika.

Farmer: Yebo,

Interpreter: Yaah! Eeh ngihamba nanati tihlobo teNkosi letimbili, lona nguNandi lo, lona nguThembi.

Farmer: Eehe.

Interpreter: Yebo, basuka le eNingizimu Afrika.

Farmer: Eehe, ngakuphi neNingizimu Afrika?

Interpreter: Basuka eJozi.

Farmer: Ohoo!

Interpreter: Uyayati iNingizimu Afrika waze wayibuta kutsi ngakuphi?

Farmer: (Laughs)

Interpreter: Uke wahlala khona?

Farmer: Cha! Angihlalanga. Sengisho ngoba nje nasewuphumele ngale sewuse Ningizimu Afrika?

Interpreter: Ya noma ngabe uyala ePongola solo ng'khona.

Farmer: Eeh-e noma ngabe ungala solo ukhona.

Interpreter: Okay, Eh bafuna lwati ngekulima kwakadzeni nekwa nyalo.

Farmer: Yebo.

Interpreter: Kutsi kadzeni kwakulinywa nati tilimo leti nje nyalo kulinywa kanje.

Farmer: Eeh-e,

Interpreter: Kwakulinywa emabele, bekalinywa kanje nyalo alinywa kanje.

Farmer: Eeh-e,

Interpreter: Yinkhulumo nje lekanjalo lelebacela kusitakala ngayo.

Farmer: Eehe.

Interpreter: Lenkhulumo yetfu ke nasiyikhuluma iyarekhoda.

Farmer: Irekhoda itawutsini yewena?

Interpreter: Irekhodelwa kutsi naseba le laba ...nasebahleti phansi bayakhona kuhle balalela kutsi oho...

Farmer: Bekatsi!?

Interpreter: Bekatsi! Ngoba nasingakhuluma nje kanje batawutsi bafika le eMpolonjweni sebakhohliwe. Bangingi labantfu lesikhulume nabo kusukela kusa.

Farmer: (Laughs)

Interpreter: Loko kutsi si... sesentela kutsi ingato khohlwakala.

Farmer: Eh oho!

Ngoba nasingakhuluma nje singarekhodi, sitawusuke sikhulume sikhohlwe. Nami nje lesicale ngabo sengikhohliwe kutsi bebatsini.

Farmer: Yebo.

Interpreter: Nangifuna kutikhumbuta ngoba nami ngitawuhle ngilalela la kusti whoa! Okay kwakulinywa kanje, kanje.

Farmer: Eeh-e.

Interpreter: Kunemibuto ke nangu make utakubuta umbuto ngesingisi, utawubuta wena lemibuto ngesingisi koja nakayibuta ngesingisi mina ngitayi tolige ibe Siswati.

Farmer: Yebo.

Interpreter: Wena utayiva seyisiSwati nawe uyiphendvule ngalendlela loyiphendvula ngayo, ngiyibuyisele emuva seyisiSwati.

Farmer: Mina ngitayiphendvula ngeSiSwati ngoba angikhoni, angifundzanga.

Interpreter: Hhawu! Awufundzanga? Awuyanga ngisho kanye?

Farmer: Ngaya kanye ngajika.

Interpreter: Lokwa nisafundza ngetileti.

Farmer: Eeh-e (Laughs).

Interpreter: Unangaki minyaka?

Farmer: Ei angiyati ngaphandle kwekutsi singabuka I ID.

Interpreter: Okay, ingabe idvutane nyana yini?

Farmer: Eeh-e ngiyiphetse.

Interpreter: Sicela kubuka yona ngoba kutawusita nalokutsi sati kutsi sikhuluma nemuntfu longakanani. Ngoba nabanga khuluma nami njevele ngimncane.

[Talk between Interpreter and Co-supervisor]

Interpreter: Koja make ngu make bani?

Farmer: Eeh-e sekwenza.

Farmer: Eeh-e vele kusebenta yena.

Interpreter: Okay!

Co-supervisor: 1942.

Interpreter: 1942, nyalo is how old?

Interpreter: Yes! Yaah. It is 2022 you will be...

Co-supervisor & Interpreter: [Inaudible].

Co-supervisor: 70! She is under 70...she is 67.

Interpreter: It might be 70 something.

Interviewer: The other grandpa, the last one who was showing [inaudible]. Yena he was born in 1940 and he was 79.

Interpreter: Yes.

Co-supervisor: Oh ya she is 77, sorry!

Interpreter: Because my mother was 1945 and this year, she is 70 something

Co-supervisor: Ohw I just did my Maths here.

Interpreter: Aah! To be sure.

Co-supervisor: That's it.

Interpreter: Okay, sesitwucala ke make silokhuze, sitawuba bafishane nje, utokhona nawe usheshe ukhululeke utawuyo hlola emabandla.

[They all laugh]

Interpreter: Okay,

Interviewer: Okay, when did you begin farming?

Interpreter: Eh wacala nini nje kulima empilweni yakho kutsi ngyacala kulima noma kumbe usese ekhayakini ungakafiki lana, wacala nini nje kutsi naku sengyalima sengiyabona kutsi kulinywa kanje?

Farmer: Ngacala lakulenzawo le, ngafika 1962 December. Ngafike ngacala kulima.

Interpreter: 1962?

Farmer: Eeh-e.

Interpreter: Yah ei December.

Co-supervisor: She was here?

Interpreter: Yah 1962, she started in 1962 December when she arrived here.

Interviewer: So, before that?

Interpreter: Ngaphambi kwekufika la bewungalimi?

Farmer: Cha! Bengingalimi.

Interpreter: Okay.

Farmer: Bengisuka ngale.

Interpreter: Eskhwahlane?

Farmer: Eeh-e.

Interpreter: Ohoo.

Interviewer: Okay, what plants do you grow now?

Interpreter: whoa! Bebangalimi nalabadzala nabo?

Farmer: Bebalima nje hhayi kakhulu.

Interpreter: Okay.

Farmer: Njenga la.

Interpreter: Okay lekadzeni... do you have a question?

Co-supervisor: No.

Interpreter: Lekulo 62 benilima ini?

Farmer: Besilima umbila,

Interpreter: Yebo,

Farmer: Silime emabele,

Interpreter: Yebo,

Farmer: Sitjale netinhlumayo ngaphansi kwembila,

Interpreter: Okay.

Farmer: Eeh-e, netindlubu.

Interpreter: It was Maize, Sorghum, Cowpeas and Sugar beans. Nyalo ke ulimani nyalo?

Farmer: Eeeh! Nyalo akusalimeki ngendlela lekahle.

Interpreter: Koja nje loku lokulimekako nje, khona ulimani?

Farmer: Nyalo nje ngiye ngilime umbila.

Interpreter: Kuphela?

Farmer: Ngitjale netintsanga njengoba ubona netinhlumayo ke ngititjale, nemabele ngike ngawalima eminyakeni lendlule.

Interpreter: Okay, now it is Cowpeas, Sorghum, Maize and Sugar beans and Pumpkins.

Interviewer: Uhm when her parents were still...the little farming that they did what were they farming?

Interpreter: Okay nabatali bakho lekhatshi usese ngale usesemncane, kuloku lokuncane lebebakulima bebalima ini?

Farmer: Bebalima emantfongomane, bekusendzaweni lesihlabatsi edvutane nelwandle.

Interpreter: Ng'kuphi lapho?

Farmer: Kuse mawehla eHluhluwe noma eMatuba.

Interviewer: Okay, KZN.

Interpreter: (Laughs).

Farmer: Eeh-e, elwandle.

Interpreter: Okay, they [interruption]

Farmer: Kunesihlabatsi kakhulu.

Co-supervisor: Is that where her parents lived at Hluhluwe?

Interpreted: Yaah! At Hluhluwe they were planting Sor...ohw no ground nuts because that area was sandy soil.

Interviewer: Okay.

Interpreter: You know Hluhluwe?

Interviewer: Yaah!

Interpreter: It's Greek!

[They all laugh]

Interpreter: Eh chubeka.

Interviewer: Okay, uhm who taught you how to plant?

Interpreter: Eeh kuloku loku limako nje noma kulima kwakho kusukela nga62 wafundziswa ngubani kutsi kulinywa kanje?

Farmer: Ngakhandza layikhaya kulinywa, laba lengabakhandza layikhaya.

Interpreter: Usho kutso wakufundza layikhaya?

Farmer: Eeh-e nasekulinywa ngetinkabi ngangingakwati mina.

Interpreter: Okay, layikhay ng'la wafika khona watokwendza khona ngalo62?

Farmer: Eeh-e.

Interpreter: Oho! Kusho kutsi wakufundza layikhaya?

Farmer: Eeh-e.

Interpreter: Wakufundza kubani?

Farmer: Babe [husband]

Interpreter: Ohk which means I learnt this from... (How do you call babetala?)

Farmer: Hhe-e babe wakwami abenguye babe libophele.

Interpreter: Ohh ngubabe wakakho?

Farmer: Eeh-e.

Interpreter: Okay I learnt this from my husband.

Interviewer: Okay, what makes a good harvest? Oh okay no not that one. Is rainfall important for the harvest?

Interpreter: Eeh ngekubuka kwakho nje kulokulima ingabe litulu limcoka yini?

Farmere: Limcoka kakhulu.

Interpreter: Okay, it is very important.

Interviewer: Is there anything else she thinks it is important?

Interpreter: Kukhona lokunye lokumcoka ekulimeni ngaphandle kwanali litulu? Okay siyeva kutsi litulu limcoka kukhona yin lokunye lokubonga ngazutsi kumcoka nawutawulima nje?

Farmer: Esikhatsini sanyalo angati kutsi ngingatsi yini ngoba tsina lokwa silima.

Interpreter: Yah! Ngisho nalokwa, akunankinga

Farmer: Sasilima ngetinkabi kunetinkomo.

Interpreter: Eeh-e

Farmer: Ehhe sigucule ngabo June, July siyagucula August nalisheshe lana sesiyacala siyatjala.

Interpreter: Okay, eeh shokutsi lokulima ebusika ukubona kumcoka?

Farmer: Kusuke kunesikhatsi.

Interpreter: Kunesikhatsi?

Farmer: Eeh-e kulima ungakajaki, kutsi sengijake umdzaka namuhla ugucule nje uyekele kubole, kubole lotjani lengaphansi lobuguculile wena.

Interpreter: Shokutsi nako ng'lokunye lokumcoka?

Farmer: Nglokunye lokumcoka loko, labo babe tala nje bebagucula nasicedza kuvuna.

Interpreter: Okay.

Farmer: Bese bagcibela letinhlanga.

Interpreter: Okay, winter ploughing is also important.

Interviewer: Okay, do you use information that your grandparents used when you farm?

Interpreter: Eh kulokulima lokulimako nyalo ingabe lukhona yini lwati lolisebentisako lewalitfolo kungaba kumbe nasewufike lakhaya, angitsi layikhaya bekakhona babetala?

Farmer: Eeh-e.

Interpreter: Eeh noma namkhulu wakhona beka sesekhona, Lukhona yini lwati lolusebentisako nyalo lewalitfolo kulabo bomkhulu nabo babetala bakadzeni?

Farmer: Nglokulima.

Interpreter: Hhe-e ngisho lwati lwale ekulimeni.

Farmer: Oho!

Interpreter: Le lwati likhona lawulisebentisa ekulimeni lewalitfolo kubo, indlela lebeba lima ngayo bona?

Farmer: Eeh-e nginalo lwati lwekulima.

Interpreter: Uyalusebentisa kukhona lokusebentisako?

Farmer: Cha angili sebentisi ngoba akusekho lokwekulima, sekufuna ulime kanye kanye konkhe, kantsi lolwati lwami lwalwati kutsi kuyaguculwa.

Interpreter: Ohk eeh! There is none that I use now.

Interviewer: Can you take me through the process from the beginning of the planting season up to the harvesting period then and now?

Interpreter: Okay kulokulima kwakho nawufika lakhaya,

Farmer: Hhm,

Interpreter: Ngyabona usakhumbula kusti nani lima benicala nenteni?

Farmer: Hhm,

Interpreter: Nichubeke nenteni, eh kukhule lenikulimile,

Farmer: Hhm,

Interpreter: Eeh toti toti niyokuvuna nikuyise etincolobaneni noma etinyangweni noma kuphi latibekwa khona kuze kuyodliwa, Usakhumbula?

Farmer: Ngyakhumbula.

Interpreter: Ngicela ungitjele ngalamabele, angisho mabele beka khona nawo?

Farmer: Hhm, bewakhona.

Interpreter: Ase uke ungitjele ngawo nje kutsi nanicala beniwenta nje, nitsi nitsi, ucale nje ekucaleni.

Farmer: Emabele abeguculwa lakutawu linywa lamabele khona.

Interpreter: Kuguculwa ebusika noma?

Farmer: Eeh-e kulobusika litsi naselina ke litulu. Kuguculwa komile litsi ke naselina litulu ngesikhatsi selina ke sesiyatjala ke.

Interpreter: Anilimi?

Farmer: Hhe-e.

Interpreter: Nitjala ngani?

Farmer: Nangabe kungakamili tsani langetulu, angisho ebusika abumili tjani, sifaka iharigi. Bafate, bafate.

Interpreter: Ohoo niyawafata niwafate besekubuya liharigi?

Farmer: Eeh-e.

Interpreter: Okay asichubeke-ke senihlanye.

Farmer: Sesiyaahlakula ke nasekumilile. Sesiyaavuna kwakhiwa tincolobane.

Interpreter: Eeh lamabele nangabe amila, bekangagadvwa yini?

Farmer: Amila phasi?

Interpreter: Seka milile nje sekakhulile nati tinhloko setiyavela, benenta njani lapho?

Farmer: Bekakhona labeka gadvwa, akhona labekanga gadvwa.

Interpreter: Ohw bekakhona labeka gadvwa, akhona labekanga gadvwa?

Farmer: Eeh-e!

Interpreter: Okay. Nasekavutsiwe ke seniwagadzile nyalo, amanye awakagadvwa ke nibese senenta njani?

Farmer: Siyawavuna.

Interpreter: Kanjani? Sichazele nje.

Farmer: Naseka vutsiwe utsatsa lisikela usike usike usike ubeke ndzawonye ngkhatsi-ke uyowabeka ekhaya.

Interpreter: Yebo, ekhaya nibese niwabeka kuphi?

Farmer: Siwabeka phansi endlini noma ngaphandle lakusindzwe khona.

Interpreter: Asuke sekasuka ensimini lapho?

Farmer: Asuka ensimini!

Interpreter: Oho okay!

Farmer: Anekwa langaphandle lakusindziwe.

Interpreter: Anekwa sikhatsi lesingakanani?

Farmer: Anekelwa kutsi kome, angitsi lesinye sikhatsi kungenwa ekuseni?!

Interpreter: Ohoo!

Farmer: Ngoba yintfo lelumanako.

Interpreter: Okay!

Farmer: Kusindzwa lapha kubuye kuphulwe lapha. Incolobane nayiya laphayana. Sekomile ke kutsatfwe kufakwe encolobaneni.

Interpreter: Iba kanjani lencolobane? Ase usichazele yona leyakadzeni.

Farmer: Kumbelwa emaphaca abengu4, abengu6. Kuya ngawe kutsi lencolobane yakho,

Interpreter: Ufuna ibe ngakanani?

Farmer: Ufuna ibe ngakanani!

Interpreter: Okay.

Farmer: Eeh-e. Umbela emaphaca bese ugaca tingodvo bese uyatindlala-ke letinye etulu kwaleti lotifake emaphaceni.

Interpreter: Yah!

Farmer: Letinye se uyatimisa wentele kutsi nakakhuphuka lamabele ukhuphule naletigodvo tize tifike lakuphelela khona lamabele.

Interpreter: Okay, nasekomile ke laphaya enyangweni kulencolobane?

Farmer: Yebo-ke kuphindvwe kuyasindvwa lakulelibala, lelibala liba likhulu kusindzwe nje yonkhe lendzawo le, sisindzwe kusindzwe kusindzwe.

Interpreter: Yah!

Farmer: Kome. Kusindvwe namuhla kusasa. Ekuseni sekomile. Sivuka sitfwale emabele siwafake lephasi laphaya kusindzwe khona. Ekuseni kusasa siyawafaka lapha bese sekuyabhulwa ke.

Interpreter: Kubhulwa nini, ekseni noma emini?

Farmer: Imvama bekubhulwa ebusuku.

Interpreter: Whoa! Kubhulwa ebusuku?

Farmer: Ngoba kuyalumana.

Interpeter: Okay.

Farmer: Nakunenyeti nje, uyabona inyeti nayitsi phasha laphaya, kuyangenwa ngekubhulwa.

Interpreter: Kubhula bobani?

Farmer: Kubhula bobabe.

Interpreter: Hhayi bomake?

Farmer: Hhayi bomake.

Interpreter: Leni?

Farmer: Cha kwakuvame loko nje kutsi kubhula bafana, bantfu nje labadvuna nebafana ngoba asuke phela mhlawumbe amaningi nangabe amaningi.

Interpreter: Okay.

Farmer: (Nods).

Interpreter: Eh nasebahulile ke bese sekwentakalani?

Farmer: Sekuna bomake ke.

Interpreter: Bentani bomake?

Farmer: Bomake bayashanela kahle ngemishanelo bayakhetsa balahla lokwa. Babuya lapho nangabe umoya usho kutsi bayawela, bayawela (x3). Kwakunetingungu mntfwanami ngoba kwakungekho loku kwemathange.

Interpreter: Tingungu tikanjani?

Farmer: Ingungu isesibayeni, imgodzi lakutawutselwa khona.

Interpreter: Isesibayeni?

Farmer: Eeh-e yakhiwa esibayeni.

Interpreter: Batsi leni yakhiwa esibayeni?

Farmer: Yindalo yayo nje, yakhiwa esibayeni.

Interpreter: Kumele ibe laphaya esibayeni?

Farmer: Eeh-e kumele ibe sesibayeni. Ingungu yembila, ingungu yemabele kulaphaya esibayeni.

Interpreter: Awusi chazele ngalengungu ikanjani? Kutsi yakhiwa kanjena kumbe mhlawumbe inje?

Farmer: Eeh imane seyigcibelekile lapha ngabe siyoyibona.

Interpreter: Ikuphi? Beyikuphi?

Farmer: Beyilaphaya esibayeni.

Interpreter: Kukhona lesingakubona lokuncane kwayo?

Farmer: Ngeke ngoba kwasuke kwangena inkomo.

Interpreter: Mani, usho nalokuncane nje kute lesingakubona?

Farmer: Ngingani... ngingasho nje kanje lokokutsi kuba yintfo lekanje, umlomo lo bese kuba nentfo lekanje, lolunye lugidzi angisho njalo ngeSiswati.

Interpreter: Eeh-e,

Farmer: Nina lenita nalemitfwalo yalokudla nifike niyibeke la, bese-ke lolo la uyatsatsa utsela kulomlomo lephasi, loku lephasi kumbiwe kukhulu.

Interpreter: Laphaya nakungena inkomo kwase?

Farmer: Kwase kuvulekile, kuhhohloke loku bekumbonywe ngako la.

Interpreter: Ngeke nje sibone nembotjana?

Farmer: Lapha bekukhona khona?

Interpreter: Eeh-e,

Farmer: Singabona.

Interpreter: Oho ladvutane?

Farmere: Lapha esibayeni.

Interpreter: Ohw at least.

[They all laugh]

Co-supervisor: (Inaudible)

Interpreter: She is trying to describe how they made Ingungu, they have one.

[They all laugh]

Interpreter: Maybe we can see ingungu today.

[Inaudible conversation]

Interpreter: Okay, sewucedzile nje, Naseniwafake laphaya?

Farmer: Nasesiwafake laphaya phasi ke sitsatsa intfo, kunentfo yekumbonya la kulomgodzi lo. Siyambonya kuye kube ligcolo lemganu,

Interpreter: Yah.

Farmer: Ngalesinye sikhatsi, ngalesinye sikhatsi nakunemkhiwa lonempandzi letsite lemile. Angitsi uyakubona loko? Kutsi umkhiwa uba nempandze lemile ujuba ngale uyijube ngala bese kuba yintfo leligembezi bese uyabuya ukubeka la.

Interpreter: Kuba sivalo?

Farmer: Kuba sivalo.

Interpreter: Yah.

Farmer: Bese utsatsa bulongo uyafaka la uyafaka laphaya eceleni kwalesivalo

Interpreter: Onkhe lamabele leniwabhulile beniwafaka la?

Farmer: Onkhe lamabele.

Interpreter: Kute lasala ngaphandle?

Farmer: Kusala lawa lesitawadla nje.

Interpreter: Oho okay.

Farmer: Ee, seke siyambonya ke sesibuyisa umcuba sibuyisa umcuba siyagcibedzela bese sibeka litje la.

Interpreter: Tinkhomo natihamba akuhohloki?

Farmer: Akuhohloki.

Interpreter: Okay now let us start, what we use to do as I have mentioned we practice winter ploughing. We plough during winter then when summer comes just when we receive the first rains, we go to the fields we broadcast the seeds. We take a rake using oxen then we pull the rake all over the field trying to close the seeds. After that we wait for the seeds to germinate and then after germinating at a certain height, we control weeds it's we use... [Asks the Farmer a question]

Nanihlakula benisebentisa ini?

Farmer: Sihlakula ngemakhuba.

Interpreter: We use hoes in managing weeds. Eeh tinyoni ke? Lebetiwadla benitenta njani?

Farmer: Betilindvwa labatilimile, mane layikhaya betingakavami kulinywa kakhulu.

Interpreter: Okay, for... then comes a time when their heads, some varieties like the one which is white we had to scare the birds but some varieties there was no need for scaring birds for birds where not a problem in them. When they are ready for harvesting, we would harvest them we take them to our storages which were built with poles, either there are 4 or 6 poles depending on your harvest. The poles are raised upwards then some logs are put horizontally and then you pack all your harvest. When you see that they are ready, using cow dung you smear all over the yard then during the day you will take your heads, you put them down where you have smeared with cow dung. And then at night when there is moon only men they will go and thrash the heads. It was done by men; the thrashing was done by men, no female.

Co-supervisor: Did she say when it's moonlight or at night?

Interpreter: At night but when there is Moon.

Co-supervisor: Okay.

Interpreter: Yah! When there is moon that is when they are...they thrash the heads. And then after that they will take them to/ store them inside the Ingungu. Eeh which was a pit that was built inside the kraal. The Ingungu was covered either you use Umganu bark or you use a big root for Umkhiwa.

Co-supervisor: Or what?

Interpreter: A big root for Umkhiwa, there is a certain tree, very same tree that old men used as matches.

Co-supervisor: Ohw yah!

Interpreter: It has big roots; you can cut a root then you use it as a lid for the Ingungu.

Co-supervisor: Just tell me, did you write the name of the tree? I think you did. I am just writing it again.

Interpreter: Umkhiwa?

Co-supervisor: The tree with the big root?

Interpreter: Umganu?

Co-supervisor: Hm, you know that story!

Interpreter: Ohw the big one which is the Umkhiwa.

Co-supervisor: Then that place where they store with 4 poles, or 6 poles does it have a thatch roof?

Interpreter: Laphe nyangweni yenu leba netigodvo letingu 4 noma letingu 6 langetulu...kuyavalwa langetulu?

Farmer: Akuvalwa langetulu.

Interpreter: There is no cover on top. And then with this drawing she is trying to describe how to make the Ingungu.

Co-supervisor: Yah.

Interpreter: Yah and you see the small circle? This is the entrance and then the bigger circle this is sort of like showing how... showing the total radius for the Ingungu.

Co-supervisor: So, do you go in and under?

Interpreter: Yes, you go in, like this. There is an Ingungu in that kraal but now you cannot see it that much because a cow fell inside, but you can see something.

Co-supervisor: Ohw but you can see it a bit?

Interpreter: Yah! Eeh sesivile ke kutsi kadzeni [interruption]

Co-supervisor: So, do they still use it today?

Interpreter: Niyayisebentisa yini lengungu nyalo?

Farmere: Asisayi sebentisi, ngiko phela utse, Konje ngubani?

Interpreter: Vilakati.

Farmer: Vilakati ngiko seyonakala, bantfwana nangifake lapha engungwini abakudli (Laughs).

Interpreter: Uke wayisebentisa kufaka lokudla?

Farmer: Eeh-e besiyisebentisa kakhulu.

Interpreter: Ugcine nini kuyisebentisa?

Farmer: Ei angisati kutsi ngigcine nini ngoba kuyintfo lebengingakayinaki.

Interpreter: Awubekise nje kutsi mhlawumbe, longakhumbula ngako lokwenteka lakangwane nekutsi kwakunjena nawugcina kuyisebentisa?

Farmer: (Laughs) Kwakwentekani Konje? *thinking* Uhm lekubo...

Interpreter: Besekafikile Zamqolo?

Farmer: Zamqolo wabo eighty?

Interpreter: Eeh-e.

Farmer: Hhe-e nyalo emuva kwaZamqolo.

Interpreter: Ohw okay!

Farmer: Eeh-e.

Interpreter: Uyasikhumbula lesomiso lesike saba sikhulu lekubo Ninety?

Farmer: 1992?

Interpreter: 92.

Farmer: Eeh-e.

Interpreter: '92 nje kuya ku '94 beyi sekhona?

Farmer: Emva kwabo '92 ke lina litulu.

Interpreter: Eeh-e,

Farmer: Ngitfoli umbila.

Interpreter: Uyawufaka?

Farmer: Ngiyawufaka engungwini.

Interpreter: Bala kuwudla?

Farmer: Bala batsi uneliphunga, angitsi kufuna kutsi ulalise letinkomo nawente loku lapha esibayeni

Interpreter: Eeh-e,

Farmer: Kwentele lutsi kungakhutsi, uwukhokha nje unjalo umane leliphunga lawo alibe lisafanana nalo besolo ungaphandle.

Interpreter: Ohw okay. No, I was just asking when she last used the Ingungu. She is saying after...around '94/'95, she last used it at that time. The reason is because she got a harvest and stored some there and the children boycotted the food, they say no this one is not good.

Co-supervisor: Ohw they did not want to eat the food?

Interpreter: That is when she decided not to use the Ingungu anymore.

[Farmer & Co-supervisor laugh]

Interpreter: Otherwise maybe by now we would see it in a good condition if that was not the problem. Yaah nyalo awusichazele kutsi nyaloke kukanjani ngoba kadzeni sewusitoligele kutsi bekuba njekube kanje. Nyalo-ke kwentakalani noma mhlawumbe nje ekugcineni kwekulima kwakho emabele noma kulima lokulimile besenenta njani? Nyalo nje.

Farmer: Ngike ngawalima, angisati nini kungamuphi umnyaka. Akhona lengike ngawalima la nangicala kuwalima.

Interpreter: uhm-m,

Farmer: Basemukelisile emaphakethe.

Interpreter: Lawe double vision?

Farmer: Eeh-e.

Interpreter: Ehhe awusitoligele kutsi lapho wawenta njani?

Farmer: Ngangite lenhlanyelo ngalelo langa ngilima la, yembila. Ngiye ngivame kulima umbila langekhatsi.

Interpreter: Ladvutane?

Farmer: Eeh-e!

Interpreter: Awusitoligele ke kutsi wenta njani?

Farmer: Ngase-ke sengibuka lokokutsi nayi imali ngiyayitfolo yekulima kuncono ngilime emabele la.

Interpreter: Yebo sitoligele kutsi wawalima njani, kucala kwakho ekucaleni nje.

Farmer: Angiguculanga ngoba kwasekusheshisa.

Interpreter: Okay.

Farmer: Ngawalima kungu October.

Interpreter: Okay.

Farmer: Lakhiva, lana ngaOctober ngawalima la.

Interpreter: (Nods)

Farmer: Ngatsi nagiya e...

Interpreter: walima ngani?

Farmer: Ngesigulumba.

Interpreter: Lesaka RBA?

Farmer: Cha-ke! Lesi...

Interpreter: Lesi saka [Surname omitted]?

Farmer: Eeh-e leti tabo [Surname omitted].

Interpreter: Ohw okay!

Farmer: Ngatsi nangiya ebuganwini ngoba ngake ngabasebentisa bomake laphemphakatsi.

Interpreter: Wahamba waya emkhosini webuganu?

Farmer: Ngaya emkhosini webuganu ngaya sengiwavunile.

Interpreter: Okay ngifuna ke mina ungitoligele kutsi nawuwa hlanyela uhambe nawo toti toti uwavune uze uyowabeka enyangweni noma uze uyowabeka la uwabeka khona.

Farmer: Eh-hhe.

Interpreter: Ngifuna ungitoligele njenga lokwekucala.

Farmer: Ngawavuna mina ngandlala liseyila kuyo lendlu le.

Interpreter: Asitsi nganka uyawahlanyela,

Farmer: Eh-hhe

Interpreter: Naseka milile uwenta njani?

Farmer: Ngiyahlakula, ngiyawakhokhela.

Interpreter: Uhlakula ngemakhubai? Ohw uyawakhokhela?

Farmer: Eh-hhe!

Interpreter: Se uwalima nyalo, uyasakata noma angemalayini nyalo?

Farmer: Angisa sakati nyalo ngenta lilayini.

Interpreter: Angemalayini?

Farmer: Eh-hhe.

Interpreter: Ulandlela lesigulumba?

Farmer: Eh-hhe.

Interpreter: Okay, sekamilile uyahlakula ke uchubeke uye embili.

Farmer: Eh-hhe, ngiyalima. Uma ngiwatjala mina ngalelilanga ngitjala ngiwatsela sihlabatsi.

Interpreter: Uwatsela sihlabatsi?

Farmer: Eh-hhe.

Interpreter: Leni?

Farmer: Eh-hhe umhlabatsi lokwekutsi angabi dvutane kakhulu ngingtowa khokhela kakhulu.

Interpreter: Awungibekisele nje kutsi nakuyi nkomisho yemabele, sihlabatsi siba ngakanani?

Farmer: Uma kuyinkomisho yemabele ngifaka 2.

Interpreter: Wesihlabatsi?

Farmer: Wesihlabatsi angeke-ke ngiwakhokhele kakhulu mangente kanjalo.

Interpreter: Ohoo Okay! Hhayi-ke asichubeke. Nanka sekamilile.

Farmer: Sekayamila-ke ngiyawabuka kutsi lamanye akahle lamanye awasikahle ngiyawakhokhela ngiwafaka phambili nangabe lina litulu. Ayakhula emabele ami ngiyahlakula.

Interpreter: Okay.

Farmer: Ngiyawavuna, ngindlala liseyila.

Interpreter: Ungakawavuni lena ensimini kuba bete tinyoni? Atiluswa-ke maje?

Farmer: October azenge sengiwalindzwe lawo.

Interpreter: Nawusheshe wawalima awuwalindzi?

Farmer: Hhe-e.

Interpreter: Leni?

Farmer: Ngulawa labovu luhlobo.

Interpreter: Tishonaphi letinyoni atibikhona?

Farmer: Cha! Atibikhona. Angizange nje sengiwalindze ngisho kanye. Ngalima nje ngahlakula ngacedza ngachubeka naleminye imisebenti.

Interpreter: Atibikhona tisuke tikuohi ngoba tinyoni kumelwe tihlale tikhona?

Farmer: Angati (laughs) angitati phela kutsi tisuke tikuphi. Atizange se imphela tiwadle lamabele. Ngavuna nje tiphombonono amakhulu angaka. Abekhona yonkhe irawondi lakhaya.

Interpreter: Okay, Cha! Chubeka sewuyawavuna uwabekaphi?

Farmer: Ngindlala liseyila-ke la.Ngalokutsi sekwababete labantfu labakhona kwenta leti nqcolobane.

Interpreter: Letinyango?

Farmer: Letinyango. Ngavuna ngabeka la ngangenisa ematje layindlini ngabeka tigodvo layitulu kwalamantje ngenta lamaphaca lengiwashito akadzeni kutsi beba mbela emaphaca. Ngangenisa tigovo layindlini ngangenisa ematje ngendlala (x4). Sekwatsi nasengiwabopha la ngiluka luka intsanjana yetjani icishe ifike emitheni, ayifiki emitheni, ngiyabopha ngenta umtfwادلانا(x4). Ngibese ngitsatsa ngalemitfwادلانا ngibeka enyangweni, ngitsatsa ngibeka enyangweni(x3) langekhatsi endlini.

Interpreter: Lenyango lewuyakhe ngematje?

Farmer: Ngiyakhe ngematje.

Interpreter: Wabese undlala tigodvo?

Farmer: Eeh-hee!

Interpreter: Nasewuchubeka, sekomile wenta njani?

Farmer: Nasekomile ngiphindze ngiyasindza nje khona la.

Interpreter: Labaleni?

Farmer: Eeh-e labaleni, ngiyawakhipha lapha ngiwabeka la.

Interpreter: Awusawabeki eseyilini?

Farmer: Ngiyawabeka eseyilini.

Interpreter: Ohoo okay.

Farmer: Eeh-e siyawabhula-ke nebantfwana ngoba bantfu sebaphucuka bonkhe, nawubanjela nje kutsi kubhulwa emabele abaseti.

Interpreter: Uwabhula nini ebusuku nayalo?

Farmer: Eeh-e siwabhula ebusuku, ayalumana phela emabele emtimbeni.

Interpreter: Ayalumana?

Farmer: Eeh-e lom'hungu.

Interpreter: Okay.

Farmer: Eeh-e.

Interpreter: Sewubhulile-ke asichubeke lapho.

Farmer: Ngawela ngawalungisa, ngijwayele ke lokuwalungisa. Ngawenta kahle(x2), ngawela(x2).

Ngabuyisa imidramu ngawatsela.

Interpreter: Wawafaka emdramini?

Farmer: Eeh-e.

Interpreter: Hhayi nyalo engungwini?

Farmer: Hhayi nyalo engungwini.

[They all laugh]

Interpreter: Okay, sekaphelile. Sewufike ekugcineni kwawo.

Farmer: Sengiyagaya kuphela sengiyadla.

Interpreter: Okay. Eh what happens now... because I no longer practise winter ploughing, I wait for the rains. When the rains come, I hire a tractor, I plough. During ploughing I follow the tractor with my seeds, after mixing it with sand in a ration 1:2 which means 1 for the seeds and 2 for the sand, the reason why I mix it with the sand is just to control spacing. I plant...

Co-supervisor: So, she can see it as she is planting or what?

Interpreter: Eeh, mix it before planting.

Co-supervisor: Yah!

Interpreter: Yes, with the sand.

Co-supervisor: Okay.

Interpreter: Just to control spacing, after germinating then they grow to a certain height and they I start weeding, during weeding time I also thin them, I also do thinning.

Co-supervisor: Does she weed with a hoe?

Interpreter: Yes, with a hoe. And then when I have planted in October there is no need for scaring of birds, there will be no birds at that time when heads are formed.

Co-supervisor: Why?

Interpreter: When we planted in October there will be no need for scaring the birds because there will be no birds at that time the heads are formed but when you plant later you have to take care of the birds. Then when they are ready, I cut the heads. I have a big plastic. I put them on top of that plastic then I prepare a storage inside my rondavel using stones. I put stones then on top of stones I put some logs just to raise it up the floor then I put my harvest on top such that after it has been dry, with my children we smear the ground with cow dung and then at night we will thrash the heads. We will beat them up until they are alright and in the morning I will put it in my storage which now I use drums instead of ingungu.

Co-supervisor: Hmm,

Interpreter: Yes.

Co-supervisor: I just wanted to ask a question, then when they still used that kraal pit then, did they keep some of the seed for the next season?

Interpreter: Okay, nanisa sebentisa le ngungu kadzeni beniyibeka yini inhlanyelo lenitayisebentisa emnyakeni lotako kutsi lena yinhlanyelo noma nayo beniyifaka lapha phakatsi engunwini?

Farmer: Besiyifaka lapha phakatsi ngoba akuphehlwa.

Interpreter: Beyi...?

Farmer: Beyiphuma ikahle.

Interpreter: Okay, we all store it in the ingungu there will be no problem.

Co-supervisor: Okay.

Farmer: Nembila nje nawo besiwenta kanjalo.

Interpreter: Ohw okay! Chubeka.

Interviewer: Okay uhm how did you acquire the land you have been using to farm?

Interpreter: Okay lendzawo-ke lena lenilima kuyo nje lena nayitfolo kanjani?

Farmer: Sakhonta.

Interpreter: We got it through Kukhonta system.

Interviewer: Did you choose which land you were given?

Interpreter: Eh nanisakhonta la, lokukhonta kwenu... Naniya le emphakatsi niyokhonta natikhetsela kutsi hheyi sifuna nayi lele ngale noma nani...

Farmer: (Laughs) angati ke mina ngoba ngangingekho mina ngaleso sikhatsi.

Interpreter: Okay, at that time I was not there I do not know what happened.

Co-supervisor: Okay.

Interviewer: What do you consider the best land for farming?

Interpreter: Kulokulima nje loku nguyiphi indzawo loyibonako kutsi ngiyo le right ekulimeni le? Kulendzawo yonkhe lonayo kusti ngulena le right ekulimeni.

Farmer: hhayi ikahle nje yonkhe indzawo lenginanyo ngoba emnyakeni lolandzelako nje bengiwalime ngala.

Interpreter: Sengisho kutsi yonkhe lendzawo lonayo nje ilungele kutsi...

Farmer: [coughs] Ngiyalima.

Interpreter: Hmm.

Farmer: Angati ke kutsi usho kanjani?

Interpreter: Can you repeat your question.

Interviewer: What do you consider the best land for farming?

Interpreter: okay, nguyiphi indzawo lenguyona lekahle ekulimeni?

Farmer: Ivundzile?

Interpreter: Yah! Lena I right ekulimeni, luhlobo lwemhlabatsi noma leyo ndzawo ngulekanjani?

Farmer: Indzawo lelakitsi,

Interpreter: Yah!

Farmer: Ngobasenginesikhatsi mina ngila, ifunakutsi uyilime(x2) bese uyayiphumita.

Interpreter: Ngisholo kutsi nawutawulima nguyiphi nje loyibona kutsi ikahle kutsi ngingalima kuyo, ngulekanjani?

Farmer: Indzawo lete matje, lesidzaka.

Interpreter: It is soil that does not have stones or rocks, and which is loamy clay.

Interviewer: Okay, Uhm in the past were your forefather able to choose the land to farm on?

Interpreter: Eh kadzeni-ke nawufika lana ngabe mhlawumbe labomkhulu bebanako yini kutsi bayikhetse indzawo kusti hhayi lena sifuna kuyisebentisa ekulimeni le, lena batayisebentisela kwentani?

Farmer: Eeh-e bebayikhetsa.

Interpreter: Yes, they do.

Interviewer: Did they consider the type of soil they were planting on?

Interpreter: Ingabe nabayikhetsa bebaba nako lokucikelela kutsi bafuna umhlabatsi loneluhlobo lolunje?

Farmer: Eeh-e bebanako, bebakhetsa indzawo lenesidzaka.

Interpreter: Okay, they did consider clay loamy soil.

Interviewer: Do you plant different types of sorghum?

Interpreter: Kugcinakwakho kulima emabele, tinhlobo temabele betihlukene yini noma bewulima yinye?

Farmer: Bengilima yinye nje.

Interpreter: Yah it was just one. Nguyiphi nje lebewuyilima nyalo?

Farmer: Angawati mina ngiwo lawa labasiniketa wona ka WeVision.

Interpreter: Okay, which is the NS5511. Kadzeni ke?

Farmer: Bekulinywa boHomeni.

Interpreter: Lamabele akadzeni?

Farmer: Lamabele lamafisha nalalamadze batsi Mshake lalamadze.

Interpreter: Okay the following question was to ask this. One variety was Mshake. Lenye nguyiphi?

Farmer: Angati bayibita batsini nguMshake, ei loku Homen mafisha.

Interpreter: Homeni?

Farmer: Eeh-e.

Interpreter: There is another variety Homeni. Yini lisi...

Farmer: Mafisha, angati noma lisilungu noma lisingisi.

Interpreter: Homen! It is like an English one. LiHomen!

Farmer: Batsi yini, Mathinikwane.

Interpreter: Ohoo Homen ngulo Mathinikwane?

Farmer: Eeh-e!

Interpreter: Ohooo!

[They all laugh]

Interpreter: Ohw no! It's Mathinikwane.

Co-supervisor: What is the Homeni?

Interpreter: It's the same as Mathinikwane. Yinilenye nje loyatiko, nguloMshake naMathinikwane nabani lomunye?

Farmer: Hhawu kute lomunye.

Interpreter: Okay, I only know the 2 varieties which is Mshake and Mathinikwane.

Interviewer: Okay, why did you stop using them?

Interpreter: Eeh letinhlobo letimbili lotibalile watiyekelelani kutisebentisa utosebentisa nanka lophiwa wona nalo?

Farmer: Kwase kute letinhlanyelo ngananasi somiso lokutsi kuhle kuvela somiso.

Interpreter: Ohoo!

Farmer: Tindhanyelo tiphume.

Interpreter: Oho okay. Due to the draught, we experienced, that is when we lost most of the varieties.

Co-supervisor: Which draught?

Interpreter: Ngusiphi lesomiso lesakulahlela lenhlanyelo??

Farmer: (Laughs) nasi nje sa92.

Interpreter: Okay the '92.

Co-supervisor: '92?

Interpreter: 1992.

Farmer: Hhayi kwakomise kakhulu.

Interpreter: Kwakumatima lapho kwendlula lo 2015?

Farmer: Hhayi '92!

Co-supervisor: See that is what I was suspecting, I think it is that other draught that really wiped out these varieties because we see people have forgotten [interruption]

Interpreter: 2015 there was not much draught.

Co-supervisor: It is too [interruption]

Interpreter: There was draught but nje it was not [interruption]

Co-supervisor: This must have been the bad one.

Interpreter: This one was intense, 1992.

Co-supervisor: It must have been because it seems like it must have been when the varieties got lost.

Interpreter: Hmm.

Co-supervisor: So, when...so basically did they lose them because the plants died maybe?

Interpreter: Letinhlanyelo talahleka njani nga1992, nalima kwafa noma nalima nabese niyakudla nangasakulimi?

Farmer: Kwalinywa, kufela lamasimini. Liyakhiva, sitjale sitsi mhlawumbe kutawuba khona.

Interpreter: Kuphele konke?

Farmer: Kuphelele phansi konkhe.

Interpreter: Which means we planted and then there was no rain [interruption]

Farmer: Sewuhlakulile.

Interpreter: Then we lost everything.

Interviewer: **Okay, uhm what are the advantages and disadvantages of using the indigenous sorghum and the modern one?**

Interpreter: Nawungakhumbula mhlawumbe kulamabele labeniwalima ng'buphi nje buhle longabusho bawo lawa akadzeni lowakhumbulako kutsi ei lawa bekamahle kanje?

Farmer: Lawa akadzeni bekamahle nanka lengiwashoko batsi nguMshake.

Interpreter: Lobuhle bakhona bebukanjani nje, sitoligele kutsi ei lanka bekamahle kanje bekakahle nganaku nanaku.

Farmer: Abekahle ngalokokutsi bekangadliwa natinyoni.

Interpreter: LoMshake?

Farmer: LoMshake. Kantsi futsi nalokutsi nalina litulu awamili ngoba lawa latsite, litsi nalina litulu kungene manti la.

Interpreter: Amile lokwa la?

Farmer: Amile lokwa lapha. Kantsi lawa lengiwashoko loMshake utsi [demonstrates].

Interpreter: Manti ehle atsi [demonstrates]?

Farmer: Emati ehlele phasi.

Interpreter: Okay there are two advantages for the indigenous one, the birds are not much of a problem in them and two [interruption]

Co-supervisor: Because of the floppiness?

Interpreter: Yah it is because of the floppiness. Two, during rain the modern ones easily germinate or sprout when we have not harvested them but this one, they easily lose the water because their ability to flop during rain, the rain will just fall

Co-supervisor: Is that an advantage?

Interpreter: It is an advantage for the indigenous one.

Co-supervisor: When it rains the rain just gets off them?

Interpreter: Yes, but these modern ones the rain just sticks there until it germinates.

Co-supervisor: Okay.

Interpreter: Bubi bakhona yini lamabele akadzeni? Lowakubona nje kutsi ei naku bekuhlupha la,

Farmer: (Laughs) Angikubonanga bubi kwawo.

Interpreter: Okay which means there is no disadvantage.

Interviewer: Okay.

Interpreter: Eh buhle balawa esilungu ke?

Farmer: Lawa lasahlanyelwa nyalo?

Interpreter: Eeh-e buhle bawo nje longatsi naku?

Farmer: Lawa anyalo kube akadliwa yinyoni, ei mahle man ayatsela.

Interpreter: Uhm kusho kutsi sivuno sakhona sikhulu?

Farmer: Eeh-e.

Interpreter: Okay, yini lenye?

Farmer: Mahle kakhulu, eeh bese kuba ngloko nje ngulokutsi abese adliwa tinyoni bese uva buhlungu.

Interpreter: Okay which means one advantage is that you get a lot of harvest if we were able to control the birds. Which means the disadvantage is that birds like them too much.

Interviewer: Okay, what do you use the sorghum you grow for?

Interpreter: Eh lamabele lowalimako uwasebentisela ini nje. Nawungasho kutsi siwasebentisa naku

Farmer: Ngiyawagaya ngete incwancwa.

Interpreter: For thin porridge. Yini lenye

Farmer: Noma ke nakunemsebenti lakhaya siyabilisa sente timvubelo.

Interpreter: Nente tjwala?

Farmer: Eeh-e sente tjwala.

Interpreter: Secondly, we do Swazi brew when we have a ceremony just to celebrate with our ancestors.

Co-supervisor: Can she use the modern variety for this?

Interpreter: Nawenta lomsebenti kuyavumeleka yini kutsi ungahamba uyosebentisa lanka esilungu noma kufuneka lawa akadzeni?

Farmer: Nalawa esilungu ayasebeta.

Interpreter: Oho meaning the modern varieties can be used even during the ceremony. Yini lokunye? Sewukubalile kutsi nakunemsebenti, nencwancwa ekuseni...

Farmer: Cha kute lokunye.

Interpreter: Which means this are the only two.

Co-supervisor: Okay.

Interviewer: If the season to start planting does not present ideal planting conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Ase sitsi nasi ke simo selitulu sikhomba kutsi hheyi akusiso lesimnandzi, yini lokwentako wena kutilungiselela kutsi lokungenani ulime ugcine utfolile sivuno lositfolako? Lokwentako la ensimini. Noma kungasiko la ensimini koja lokwentako nje kutilungiselela lokulima kutsi lokungenani ugcine ulimile uma simo sibonakala kusti akusiso lesikahle.

Farmer: Ei ngibakhona layikhaya nje ngiluka luke licansi.

Interpreter: Hhayi ngisho lokwenta lena emasimini.

Farmer: Ohoo kulungisela lensimini?

Interpreter: Eeh-e.

Farmer: Lamasimu etsu ke babe lanka ayabiywa. Tiningi kakhulu tinkomo la netimbuti.

Interpreter: Okay asesitsi sewubiyile, ulungiselela ubona simo selitulu kutsi nani akusiso kahle. Ungatsi njena akusiso lesitawuvuma, yini lokwenta lansimini kulungiselela lokulima? Kutsi kuze kugcine kube khona lengitakutfola kube sivuno lesinconywana.

Farmer: Lokunjengekulima?

Interpreter: Kulungiselela nje lensimu.

Farmer: Lensimu?

Interpreter: Yebo noma kutilungiselela wena.

Farmer: Eeh-e kute lengikulungisako.

Interpreter: Uyalindza nje kuze kuyobonakala kutsi kuchubekani?

Farmer: Ngiyalindza nje kutsi ingabe liyana noma ayini.

Interpreter: Nalingani uhle uyekele?

Farmer: Inkinga yetfu vele sesaba neluvalo lekutsi alini noma-ke liyana line utjale ugcine ungakavuni.

Interpreter: Okay.

Farmer: Manje-ke sesigcine siyatfotfobala nje.

Interpreter: Nibuke nje?

Farmer: Sibuke nje kutsi kulonyaka liyana noma alini. Kulonyaka nje line late besesivele nje sesigoce tandla.

Interpreter: Okay which means there is nothing we do; we just wait for the rain. If it comes, we plough if not we just wait.

Interviewer: Okay, is there any time you let cattle into your fields?

Interpreter: Kukhona yini la mhlawumbe emnyakeni lanitivumela khona kutsi tingene emasimini?

Farmer: Tiyangena ebusika, hhayi ehlobo.

Interpreter: Ohk we allow them only in winter.

Interviewer: If you do not use cattle for manuring what do you use instead, before, and now?

Interpreter: Eh kadzeni nisacala lokulima angitsi beniwusebentisa umcuba?

Farmer: Eeh-e.

Interpreter: Naningakafaki umcuba benifaka ini lokutawuvundzisa laphe masimini?

Farmere: Lenzawo lena babe uma ufaka uncuba kusha kucala.

Interpreter: Ohk. Beniwufaka kopha?

Farmer: Labanye bebawufaka kodvwa nje kusha kucala nawufake umcuba.

Interpreter: Kusho kutsi nawungakafaki umcuba awufaki lutfo?

Farmer: Kuyashisa, awufaki lutfo. Kufuna ungafaki lutfo. Phela lokwelapha besilapha ngalokugucula.

Interpreter: Ohoo!

Farmer: Eeh-e, mizamo yetfu kwakuba nguloko.

Interpreter: Okay.

Farmer: Angitsi etigulumbeni ekulimeni besinga bhadali tinkabi besinato titetfu. Bewu dvweba dvweba nakusasa udvweba dwebu umbonye lotjani naletinhlanga bese letinhlanga tiba yimvudvo lengaphansi. Ngalesikhatsi sewutjala nasewubona kutsi liyana kuba kahle.

Interpreter: Other than using kraal manure we would use crop residues or compost.

Co-supervisor: Is that then or now?

Interpreter: It is then.

Co-supervisor: Okay crop residues and compost.

Interpreter: But it was not advised to use cow manure because when the heat comes your crop will be the first one to die. [Asks the Farmer a question] Nyalo ke naningaka faki umcuba nifakani? Nenta njani?

Farmer: Siye siwufakafake lomanyolo, siwufaka fake ngekucopelela.

Interpreter: Okay we use synthetic fertilizers.

Farmer: Ungawutseli nje sinoma kanjani.

Interpreter: Okay,

Co-supervisor: Do they ever use kraal manure?

Interpreter: Umcuba nje nike niwusebentise?

Farmer: Asiwusebentisi.

Interpreter: La kakho noma bonkhe bantfu bendzawo?

Farmer: Bonkhe nje bantfu bendzawo la.

Interpreter: Ngalokushisa?

Farmer: Ngalokushisa. Labalela namuhla nakusasa kuphelile, ungalala idumbile.

Interpreter: Okay we do not use kraal manure.

Co-supervisor: Because of that heat?

Interpreter: Because of that heat, yes.

Interviewer: When in the year does sowing begin and who does it?

Co-supervisor: She told us October.

Interpreter: Ohw yah(x2) she said October. Okay nakucala lokulima...bobani angitsi utse ucala ngo October?

Farmer: Eeh-e.

Interpreter: Kulima bani?

Farmer: Layikhaya?

Interpreter: Eeh-e.

Farmer: Kulima mina.

Interpreter: Wedvwa?

Farmer: Cha-ke bakhona bafana.

Interpreter: Okay I do it with my family. Bese Uvuna nini?

Farmer: Uma noma ngilime umbila mhlawumbe kuvutsiwe mhlawumbe ngala kubo December.

Interpreter: Ulime October?

Farmer: September, October, November, December uvutsiwe.

Interpreter: Ulima ngaSepetember?

Farmer: October.

Interpreter: November, December is two months.

Farmer: Hhayii! October, November, December. Whoa hhayi man (laughs) sengikhulume kakhulu!

[They all laugh]

Farmer: Utsite kutawuba kuncane nyalo sekadze sikhuluma.

Interpreter: Sekuyaphela sekusele one.

Farmer: (Laughs)

Interpreter: Se awukhumbule lokokutsi uvuna nini?

[They all laugh]

Farmer: Sivuna nga... angitsi nyalo ngu April?

Interpreter: Eeh-e,

Farmer: Ay, May kuyavunwa nangabe ulime kahle.

Interpreter: NgoMay?

Farmer: Eeh-e, May kuyavunwa nje kuya ekupheleni futsi.

Interpreter: Kuvuna bani layikhaya?

Farmer: Kuvuna mina.

Interpreter: Wedvwa?

Farmer: Nalabantfwana

Interpreter: Okay, we harvest in May, and I harvest with my family.

Interviewer: Okay, is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Ase sitsi naku sewuvunile njengoba utawuvuna nje, ungakalimi kukhona lokwentako layinsimini yakho kulungiselela kutsi nasewulima tintfo tihambe kahle layinsimini?

Farmer: Hhawu kute ngaphandle kwekutsi nje kwekutsi ngifune sona lesa sigulumba singilimele, sigucule simbonye lotjani.

Interpreter: Okay I do winter ploughing.

Interviewer: Okay, where did you grow up? Ohw, she answered that one. Do people still plough using oxen?

Interpreter: Bakhona nje labasasebentisa tinkabi la?

Farmer: Sekute.

Interpreter: Ah there are none.

Interviewer: Okay when maize was introduced did your grandparents continue planting sorghum?

Interpreter: Eh ngesikhatsi ke kadzeni, angitsi bekulinywa kakhulu emabele?

Farmer: Eeh-e,

Interpreter: Nasekufika lesikhatsi sekutsi akulinywe umbila eh kwenteka njani, nina nenta njani naba mhlawumbe labo khokho nabo babe noma bobani, benta njani bayekela lamabele baya embileni noma bachubeka ngako kokubili?

Farmer: Bebakulima konkhe, umbila nemabele.

Interpreter: Kute lokutsiwa nyalo silima kahulu naku loku sekuta ngemuva?

Farmer: Lobekuhamba kakhulu embili bekungulombila ngoba labantfwana besebacalile loku hamba tikolosebacale kutsi nawupheke nje lipalishi nali lembila lomnyama angitsi uyawubona.

Interpreter: Eeh-e,

Farmer: Kwakunembila lomnyama bacale balibuke lelipalishi (laughs).

Interpreter: Ohoo!

Farmer: Kwase kwandza-ke nawumbila lomhlophe.

Interpreter: There was a shift from sorghum to maize, but they continued with sorghum.

Concentration was on maize because some of the children were now attending school, they came with many ideas based on what we were planting then from school. Some of them they said they do not like this thing, maybe they learnt from school.

Co-supervisor: Okay, they did not like the sorghum porridge?

Interpreter: Yah the sorghum porridge even the indigenous maize porridge, see this one has some black spots, so they did not want to eat.

Co-supervisor: Ohw! I just want to ask another question, uhm how does she grind the sorghum now and then?

Interpreter: Okay lamabele nyalo... kucala bewu wagaya kanjani?

Farmer: Besiwagaya etjeni.

Interpreter: Leleli so?

Farmer: Eeh-e.

Interpreter: Nyalo ke?

Farmer: Nyalo agaywa emshinini.

Interpreter: Esigayweni?

Farmer: Eeh-e.

Interpreter: Okay then we grind them using a stone and now we grind them in Millers, there are millers around.

Co-supervisor i: She takes it to the miller?

Interpreter: Yes, she takes it to the millers then you pay.

Co-supervisor: Okay, with the birds that ate the sorghum, is it a particular type of bird?

Interpreter: Eh letinyoni letidla kakhulu lamabele, ingabe luhlobo lolutsite lwetinyoni noma nje yonkhe inyoni lekhona idla lamabele?

Farmer: Ei, angitati letinyoni ngoba tinesikhatsi, ngalesikhatsi njengoba ngisho kutsi ngivama kulima boOctober tisuke titse nya. Batsi tisuke tiyotalela. Setiyabuya-ke setita nebantfwana bato.

Interpreter: Luhlobo lolutsite lwetinyoni noma nje tonkhe?

Farmer: Kuba luhlobo nje lolutsite lwetinyoni letidumako, engatsi kuduma litulu natikhona la (laughs).

Interpreter: (Laughs) it's a certain type of birds which they usually fly in a group.

Co-supervisor i: Ohw yes!

Interpreter: yah when they just pass you say yah it's a thunderstorm.

Co-supervisor: Ohw yeh, yah okay!

[Inaudible talk]

Interpreter: Sesicedzile. Sicela ukuyobuka lapha, the hole.

INTERVIEW 17: FARMER 17

Interpreter: Nyalo ke nilima kankani nyalo, lokuhluka kwakadzini nasemuva. Koya ke kuna nangu make ngala nguNandi lo, lo nguThembu bachamuka le Ningizimu Afrika. Yah batawubuta ke imibuto, utawubuta sisi ngala utawubuta ngeSilumbi. Uyasiva Silumbi?

Farmer: Hhayikhona, Siswati!

Interpreter: (Laughs) Utawubuta ngeSilumbi mina bese ngiyakutjela ngaleSiswati kutsi ubutani, nawe soyaphendvula ngeSiswati bese ngiyabuyisela kuye ngaleSilubi, sitawubuta nje kutawuba sikhanyana ke ngekesibe sidze kakhulu. Stawubuta imibuto nje eh sibute sibute sitfole loko lokwatiko

Farmer: Oh!

Interpreter: Batokhona kutsi tihlobo teNkosi titotfutukisa live eh siye embili. Eh unangaki minyaka gogo?

Farmer: 81.

Interpreter: Watalwa nini?

Farmer: '37.

Interpreter: '37?

Farmer: (Nods) Eeh-e,

Interviewer: 1937.

Interpreter: Born in 1937.

[Talk between interviewer and co-supervisor]

Interpreter: She is around 81. Hheyi, sewukhulile gogo! Koja usatihambela?

Farmer: (Nods) Eeh-e.

Interpreter: Hhaa hheyi hhaa, sewukhulile. Okay cha singacala, sesingacala.

Interviewer: Okay, when did you begin farming?

Interpreter: Eh, mani gogo kufune uyabona ubuke ngala. Uyabona lemicibisholo le, lemicibisholo lena itfwebula lenkulumo yetfu sitikhona kutsi nasebangekho la batohle bayilalela kahle bakhone kuyicubungula kahle kutsi beyitsi, beyitsi bangaze bayikhohlwe uyabona. Ehh ubuta ke sesi kutsi kulima wacala nini nje emphilweni yakho?

Farmer: Ngacalwa ngumakoti, ngacala ekhaya.

Interpreter: Yah yaah wacala ekhaya? Kungaba kunini nje? Kukhona longakukhumbula ubekise kutsi mhlawumbe Kwaku nje noma ngangingaka? Awubekise kanjalo.

Farmer: Eh ngikhulele ekhaya phela ngaba yintfombi mina ngibuka labadzala nabentako.

Interpreter: Wase nawe wenta khona lapho?

Farmer: (Nods) Eeh-e.

Interpreter: Waba yintfombi koja intfombi beyine minyaka lemingaki?

Farmer: Hhawu, angisakhumbuli ngikhulele emisebenti nje ekhaya. Ngabe ng'sacodza ke kutsi iminyaka beyimingaki.

Interpreter: Okay.

Farmer: Ebuntfombini bami.

Interpreter: Okay, I'm not sure how old I was but, eh let's add maybe 20 on top of that, let us say from 1937 add 20.

Co-supervisor: 57.

Interpreter: Okay.

Interviewer: Okay, what plants do you grow then and now?

Interpreter: Eh nawucala ke lokulima lowakulima useyintfombi, nanihlanyela ini nje? Tilimo longatisho nje kutsi bekungu naku.

Farmer: Sasihlanyela ematfongomane,

Interpreter: Groundnuts.

Farmer: Tindlubu,

Interpreter: Jugo beans.

Farmer: Mkomeni,

Interpreter: Mung beans.

Farmer: Tinhlumayo,

Interpreter: Cowpeas.

Farmer: Bhatata,

Interpreter: Sweet Potato.

Farmer: Umbila,

Interpreter: Maize.

Farmer: Mabele.

Interpreter: Sorghum.

Farmer: Kute lokunye.

Interpreter: Hhayi kute inking. Nyalo ke senilimani?

Farmer: Nyalo?

Interpreter: Yaah nyalo, sitjele kwanyalo losekulinywa nyalo. Senilimani nyalo?

Farmer: Silima lombila. Nemabele sisawalima.

Interpreter: Maize and sorghum, okay.

Interviewer: Who taught you how to farm?

Interpreter: Eh kuleminyaka nje lokulima lokulimako noma loku bokulima kadzeni, wafundziswa ngubani?

Farmer: Lokulima?

Interpreter: Yebo.

Farmer: Ngafundza ekhaya langitalwa khona, nguMake.

Interpreter: I learnt it from my mother.

Interviewer: Okay, uhm is rainfall important for harvest?

Interpreter: Eh ngekubuka kwakho kulokulima solo wacala kulima ufundziswe ngumake, eh ingabe litulu, kuna kwelitulu kumcoka kakhulu yini nawulima ungu mlimi?

Farmer: Abelina kucala, alisani kahle nyalo.

Interpreter: Sengisho nje nangabe kuliminywa, litulu limcoka yini vele?

Farmer: Limcoka litulu.

Interpreter: Okay, rainfall is very important.

Interviewer: Is there anything else she thinks is important?

Interpreter: Ngaphandle kwelitulu nje kutsi line litulu, kukhona yini lokunye lokumcoka ekulimeni? Ngaphandle kwelitulu nangabe nje umlimi atsi ufuna kukhicita kahle [interruption]

Farmer: Abewufaka mcuba wetinkhomo.

Interpreter: Okay! The other thing is cow manure.

Farmer: Manyolo wakhona kwaku ngulomcuba.

Interviewer: Okay, do you use information that your grandparents used when you farm?

Interpreter: Eh kulokulima lokulimako noma nyalo kukhona yini nyalo nje lokulwati lolusebentisako lowalitfolo kadzeni kubo make bakho lolisebentisa nyalo?

Farmer: Hhayi kute phela ngoba nyalo, phela kucala kwakulinywa lomcubo vele lalina lelitulu.

Interpreter: Yah! Okay.

Farmer: (Nods) Eeh-e manje nyalo kute lesikwentako ngoba nawungalima ngalomcuba vele kungasha ngoba libalele.

Interpreter: Ohoo.

Farmer: (Nods) Eeh-e.

Interpreter: Which means there is none of the... there is no technical use now.

Interviewer: Okay, can you take me through the process from the beginning of the planting season to the harvest period then and now?

Interpreter: Eh nawungatsi uyakhumbula kahle nje gogo kadzeni. Angitsi kadzeni nawusalima useyintfombi bewuhamba ulima nabomake uyakhumbula?

Farmer: (Nods) Eeh-e.

Interpreter: Ungangichazela yini kutsi besitsi nasilima besenta nje kusuka ekucaleni nje utsi nasilima besilima sihlanyela sitsi nasesihlanyelile kuyakhula lokukhulako kube nje kube nje. Sifike sikuvune sitsitsi nasivuna sikuyise entinyangweni nakuntinyango sikubeke lasikubeka khona, ungicala nje ekucaleni sihambe sitsi.

Farmer: Sasilima phela ngetinkabi tsina.

Interpreter: Yes.

Farmer: Sikuvune kudla.

Interpreter: Hhee-e

Farmer: Sikuhlakule.

Interpreter: Mani, mani ke! Benilima ngeti nkabi, benihlanyela njani aitsi nje.

Farmer: Besilandzela letinkabi.

Interpreter: Nakumabele benenta njani?

Farmer: Emabele bebefumba nje ndzawonye.

Interpreter: Ohoo benicala nilime kucala nobe benifumba kucala?

Farmer: Cha! Bekungena ndzaba nekugukulwa kucala, bebatsela nje.

Interpreter: Bese sebayalima?

Farmer: (Nods) Ehe-e.

Interpreter: Okay asichubeke sekumilile ke bese nenta njani?

Farmer: Bayahlakula.

Interpreter: Kuhlakulwa ngani?

Farmer: Ngemakhuba.

Interpreter: Oh beseкахona makhuba?

Farmer: (Nods) Eeh-e.

Interpreter: Okay.

Farmer: Akhona phela, nayalo sihlakula ngemakhuba phela natsi.

Interpreter: Okay ngemakhuba, bese nasekuhlakuliwe kuchubeka kwentekani?

Farmer: Kuyakhula phela kudla.

Interpreter: Eeh nakumabele?

Farmer: Kuyavunwa.

Interpreter: Eh kungakavunwa nakumabele beniwenta njani?

Farmer: Nawo bekahlakulwa lamabele.

Interpreter: Eh nakufika sikhatsi sekutsi nati tinhloko setikhona, benenta njani?

Farmer: Beka lindvwa nasatselile.

Interpreter: Alindvwa? Agadzwe... letinyoni?

Farmer: Eh uwagadze tinyoni tingawadli.

Interpreter: Beniticosha ngani letinyoni?

Farmer: Bewuhamba nje lansimini ukhute, ukhute nje lansimini.

Interpreter: Lilanga lonkhe uhleti la?

Farmer: Huh?

Interpreter: Uhlala lilanga lonkhe la?

Farmer: (Nods) Eeh-e, lilanga lonkhe.

Interpreter: Okay.

Farmer: Wawukula lesikhatsi ekuseni tatiba tiningi, emini tibe ncono.

Interpreter: Okay.

Farmer: Tiphindze tibuye emini ya ntsambama.

Interpreter: Kusho kutsi nawugadzile ekuseni nje noma emini ungahamba uyobuya ntsambama bekute inkinga?

Farmer: Hhayi.

Interpreter: Okay, nasenicedzile kuwagadza sekavutsiwe bentena njani?

Farmer: Ayavutfwa phela ayavunwa.

Interpreter: Avunwa ngani?

Farmer: Siyawasika.

Interpreter: Ngani?

Farmer: Ngemasikela.

Interpreter: Masikela?

Farmer: (Nods) Eeh-e

Interpreter: Bese niwabekaphi?

Farmer: Sesiwabeka-ke lapha siwabeka khona, sitsatsa-ke siluka tjani, siluka umusi sigawula umusi bese siyabopha.

Interpreter: Ohho Umusi? Yini umusi?

Farmer: Hhoboo!

Interpreter: (Laughs)

Farmer: Angitsi sasisika tjani sibuluke.

Interpreter: Ohh nibuluke?

Farmer: (Nods) Eeh-e.

Interpreter: Okay.

Farmer: Base senta tintsambo.

Interpreter: Yaah.

Farmer: Bese siyabopha-ke lamabele, siyabopha lamabele siwabeka kahle titaki.

Interpreter: Tincumbi?

Farmer: (Nods) Eeh-e.

Interpreter: Niwabeka kuphi?

Farmer: Siwabeka enyangweni. Tinyango nje kwakwaxhiwa tigodvo bese ifakwa tigodvo kahle langetulu timiswe tigodvo sekubekwa-ke langetulu.

Interpreter: (Nods) Eeh-e Okaya! Naseniwabekile-ke nasekoma nibese seniwenta njani?

Farmer: Siyawatsatsa-ke bese ayabhulwa.

Interpreter: Abhulwa nini?

Farmer: Abhulwa ngabo bani nje?

Interpreter: Sengisho mhlawumbe lokuwabhula niwabhula njani?

Farmer: Abhulwa ngaleti nge... kugawulwa imizaca kushaywe ngayo.

Interpreter: Kushaywa nini ke?

Farmer: Asomile lamabele

Interpreter: Emini, ebusuku, ekuseni?

Farmer: Cha, nasebusuku nje bekushaywa.

Interpreter: Kodvwa lokung'kona lokuhamba embili, beniwabhula nini?

Farmer: Bavame kuwabhula ebusuku.

Interpreter: Abhulwa ebusuku?

Farmer: (Nods) Eeh-e bayabhula ebusuku kuse nje ekuseni sebawabhulile.

Interpreter: Oho niwabhule netipoko?

Farmer: (Nods) Eeh-e.

Interpreter: Okay, naseniwabhulile bese niwabekaphi?

Farmer: Sekaya engungwini.

Interpreter: Bebayiba kuphi lengungu?

Farmer: Isesibayeni.

Interpreter: Isesibayeni?

Farmer: Esibayeni setinkhomo, kumbiwe ilokwanyana, umgodzi loya le phasi.

Interpreter: Wake wawubona lomgodzi?

Farmer: Ngiyawati phela! Kufakwe-ke lokudla langekhatsi bese kuyagcitjelwa.

Interpreter: Kuyagcitjelwa?

Farmer: (Nods) Eeh-e.

Interpreter: Kufakwa konkhe noma kukhona lokusalako ngaphandle?

Farmer: Kutawusala lenitakusebentisa phela niyakufaka loko lenikufakako.

Interpreter: Okay.

Farmer: Eeh-e lolokuningi, kwakung'loni lithange.

Interpreter: Ohoo, bekulithange?

Farmer: Eeh-e.

Interpreter: Ikhona yini ingungu loyatiko nyalo?

Farmer: Hhawuu sekute tingungu nyalo, tagcina kadzeni.

Interpreter: Sekute nyalo?

Farmer: Kute. Sekute lakitsi, atisentiwa vele.

Interpreter: Okay. Cha! Siyabonga. Sengitawutoliga-ke mina ngitoligele ngesilumbi kulabekunene.

Farmer: (Nods) Eeh-e batjele laba bekunene.

Interpreter: We started by broadcasting the seeds. In case of Sorghum, we broadcast the seeds and then we plough, after ploughing...

Co-supervisor: Ploughing with?

Interpreter: We plough using oxen and then after ploughing we wait for germination. After germination at a certain height we start weeding, we weed using hand hoe and then after weeding we wait for the formation of heads. After the heads have formed we now start to scare the birds. How do we scare the birds? In most cases we wake up early in the morning, there will be many birds in the morning then you scare them. During midday there will be no birds then you go back home and then late afternoon you come back because the birds will come back afternoon then we scare them. When the sorghum is ready you harvest it then put it in storages where it was built by logs. Eh big logs, and then some small ones which were put horizontally and then you pack everything. You pack your sorghum [interruption]

Co-supervisor i: Was it a raised thing?

Interpreter: It was raised and then you sort off have to make something like a rock using grass and then you tie all your heads, tie using the rope and then you pack it on top of the storage. After that you wait for them to be dry. When they are totally dry you thresh them during the night using sticks and then when you finished threshing them you take them to the Ingungu which was dug inside the kraal.

Co-supervisor: Did that storage for sorghum have a roof?

Interpreter: Kulenyango yenu yemabele, angitsi kadzeni beniyakha bese nisimisa tingodvo. Beniyifulela yini?

Farmer: Yayingafulelwa.

Interpreter: There was no roof. Bekangaboli lamabele?

Farmer: Cha, bekangaboli.

Interpreter: Okay.

Co-supervisor: Did they thresh them on that cow dung thing or she did not mention that?

Interpreter: She did not mention that.

Co-supervisor: Just ask here what did they thresh on?

Interpreter: Naniwabhula lamabele beniwabhulela tikwani?

Farmer: Sasi sindza kube libala nje bese kuyatselwa lamabele bese ayabhulwa.

Interpreter: Okay, they start smeared cow dung and then they threshed the sorghum eeh angitsi lobo. [Asks the Farmer a question] Okay, angitsi loko bewusichazela kona bekukwangesikhatsi sakadzeni?

Farmer: (Nods) Eeh-e.

Interpreter: Ingabe nyalo wena kwentiwa kanjani? Sicale nakhona ekulimeni sihambe sihambe size sivune sihambe siyokubeka lasikubeka khona njengakucala, angitsi njengakucala benibeka etingungwini. Cala nakhona ekucaleni kutsi sitobona kutsi kuhluke ngani lokwentiwa nyalo kunaloko bekwentiwa kudzala.

Farmer: Nyalo phela sekuyaguculwa.

Interpreter: Kuguculwa ngani?

Farmer: Kuguculwa ngetigulumba, tinkabi sekute.

Interpreter: Yah! Sekute tinkabi.

Farmer: Tigulumbake siyagucula ngato, kumbe uticele uhlanye ngato.

Interpreter: Lesigulumba?

Farmer: Letigulumba.

Interpreter: (Nods) Eeh-e asichubeke sesihlanyelile kuyamila, asichubeke lapho.

Farmer: Sibese siyahlakula phela!

Interpreter: (Nods) Eeh-e.

Farmer: Ngalamakhuba.

Interpreter: Ooh! Ngalamakhuba solo?

Farmer: (Nods) Eeh-e.

Interpreter: Eh okay, sesihlakulile bese sesenta njan?

Farmer: Sitawuvuna phela nangabe...mane-ke simoshwa ngulelitulu. Siyavuna phela kudla.

Interpreter: Sengisho phela nakungu lamabele, nisawalindza nanyalo?

Farmer: Aw! Nyalo aksasalindvwa sesi... aah siyalindza kona-nje asiphuti nje sikhashane.

Interpreter: Ngaphandle koja akusasiko lokulindza kwekutsi kadzeni kwakungumgomo?

Farmer: Akusasiko loku bevele beku ngumgomo.

Interpreter: Hhoo! Konje [interruption]

Farmer: Nyalo konje uyatilindzela ngoba kutsi ufuna kutfolala lokudla.

Co-supervisor: Aren't the goats going out?

Interpreter: Ai letimbuti kumelwe tiphume?

Farmer: Hhayi tilungile babe!

Interpreter: Kufuna sivale leligede uyabona?

Farmer: Hhayi atikavaleleki lapha.

Interpreter: Ohoo! Litawuvalwa leligede, nangu utalivala.

Interpreter: Nasesicedzile-ke kugadza tinyoni bese niwenta njan?

Farmer: Phela sibese siyawavuna!

Interpreter: Niwavuna ngani?

Farmer: Ngalo lelisikela.

Interpreter: Oh! Ngalo lelisikela. Eh bese niwenta njani? Niwabekaphi tinyango tenu nyalo niwabeka etinyangweni noma nenta njani?

Farmer: Sesiye sikubeke nje nomaphi, noma kungaba sendlini.

Interpreter: Loku lokubuya ensimini?

Farmer: Angitsi sekute letinyango.

Interpreter: Sekute letinyango?

Farmer: (Nods) Eeh-e sekute letinyango sesiyabeka nje lasiku beka beka khona.

Interpreter: Okay, nasewucedzile ke kukubeka lawubeka khona, nasenikubhula nikubhula kanjani nyalo?

Farmer: Sibhula ngalemizaca phela.

Interpreter: Nisindze solo?

Farmer: (Nods) Eeh-e, bese siyawenta.

Interpreter: Bese niwabekaphi nyalo?

Farmer: Lamabele?

Interpreter: Yebo.

Farmer: Siyawabeka nje noma kusemigconyeni phela.

Interpreter: Sekute tingungu anisabeki emathangeni noma etingungwini?

Farmer: Sekute tingungu phela nyalo.

Interpreter: Oh okay! Okay what we do now, we pay for tractors. Ee hire tractors they come and plough. During ploughing we follow the tractor in the process of planting, we follow the tractor with seeds. We plant or we hire the tractor. We use the tractor to plant the seeds and then after that we wait for...

Farmer: Hheyi lelgedede! Aai kodvwa akunandzaba.

Interpreter: Okay, we wait for germination and then at a certain height if there are weeds, we control weeds using hand hoes. And then we wait for heads to be formed. We sometimes scare birds and we sometimes not because now there are no people who are available to go and scare the birds. Hhayi you just shout just you wait next to the field just show the birds, but it is not that serious to scare the birds. And then after that we wait for it to be ready, we harvest. Now there are no storages we just harvest and put inside any house, any available house you just put it inside and then wait for it to be dry and then after drying we smear the ground using cow dung and then we thresh them. Now we do not thresh them at night we can thresh them anytime of the day then after that we take them to drums, now there are no storages like ingungu, we just take them to... we store them in drums if you have drums or this big plastic drums.

Interviewer: Okay, how did you acquire the land that you have been using to form?

Interpreter: Eh lendzawo lena-nje lenilima kuyo lena nayitfolo kanjani?

Farmer: Ngayitfolo njani?

Interpreter: Kuyitfolo nje kona nize nibe nayo?

Farmer: Angitsi ngakhe khona, litala lami.

Interpreter: Ngisho kutsi lokwakha khona wafika njani?

Farmer: Lokwakha?

Interpreter: (Nods) Eeh-e nakha njani nje? Eh kutsi nayinikwa ngubani? Ngisho kanjalo.

Farmer: Ooho, lendzawo?

Interpreter: Yebo.

Farmer: Ngendzile mina, ngakhandza kusenalabatali.

Interpreter: Ohoo!

Farmer: Bebakhe landasi.

Interpreter: Oh okay, bona bebayimikwe ngubani?

Farmer: Sasesiya khwesha tsine nalowekunene. Phela kucala vele bewuye ubone nje kutsi cha! La akusangifaneli bese uyakhwesha.

Interpreter: Ungayi emphakatsi?

Farmwer: Nyalo?

Interpreter: Cha!

Farmer: Mina bengineke ngiye emphakatsi, bangaya laba labanye.

Interpreter: Ohoo, hhayi wena?

Farmer: Kukitsi la.

Interpreter: Okay, which means that the land i am using i was given by my parents of which they got it from the chief and then some they gave it out.

Farmer: Bekungahluphi nje kucala, nawubona kutsi lapha sewu... akungasiyo intfo lematima, wawuvele nje utsi uyakhwesha ubone libala bese uyatakhela.

Interpreter: Ngaphandle kutsi utjelwe muntfu?

Farmer: Yebo, bekungasholutfo kucala nyalo ke kumatima.

Interviewer: Kucala?

Interpreter: Yes, a long time ago you would just decide, now i have to build my home just next to this one, there was no need to go to the chief at that time.

Interviewer: Okay, so now did she choose the land that she was given by the chief?

Interpreter: Now?

Interviewer: Yes, now.

Co-supervisor: She said she was given by her parents.

Interpreter: Yes she was given by the parents.

Interviewer: Yah! So, the parents did they choose the land?

Interpreter: Ohw la!

Interviewer: Yeah, that was given to them by the chief.

Interpreter: Eh, angitsi lendzawo lena utsi wakha eceleni kwelikhaya lelikhulu?

Farmer: (Nods) Eeh-e kusese nalabatali, bese siyakhwesha ke tsina.

Interpreter: Okay.

Farmer: Sesikhweshela langetulu.

Interpreter: Labatali bona nabayitfolo lendzawo bayitfolo kanjani?

Farmer: Laba balakhaya?

Interpreter: Eeh-e laba labadzala.

Farmer: Laba balakhaya bachamuka kaMkhweli bona batsandza ledzawo lena.

Interpreter: Ooh bakhonta bona?

Farmer: Yebo, bakhonta. Eeh-e mina ngiwekutsalwa la.

Interpreter: Nangabe usakhumbula noma nawuva, le ekukhonteni bebefika batikhetsela yini kutsi eei tsina sitsandza nayiya noma?

Farmer: Bebangatikhetseli.

Interpreter: Ohoo bewuvele nje umphakatsi utsi hambani ngale?

Farmer: Bebaye babute lokokutsi ubonephi wena.

Interpreter: Ohoo lemphakatsi?

Farmer: Eeh-e nawubukile nje kutsi endzaweni letsite ngifike ngayibuka, batsi hamba uyowakhakhona, bakhiphe... kwakusete nalabahleli, nabo bachamuka nyalo labahlelisi.

Interpreter: Okay, which means they were not exactly choosing but they would suggest to the chief that they have seen this kind of land so then they suggest to chief but then if the chief allows them to build on it there they will build.

Interviewer: Okay! Okay uhm what do you consider the best land for farming?

Interpreter: Eh kulokulima nje siyabona kutsi kulinywe la, eeh umhlabatsike lalungele kulima uyaye uwubone kanjani uyaye uwutsatse kutsi ng'lokunjani? Lokulungele nje kutsi hhayi lona ungalima kuwo, ngulonjani?

Farmer: Nawu sengakalimi?

Interpreter: Yah nawu sengakalimi nje unga... uwubona njani kutsi lomhlaba lona hhee! No ngatsi ng'loluhlobo lolutawulumga ekulimeni.

Farmer: Ei angati ke lapho... siyalima nje tsina! Kutsi ngingatsini nje... lokutsi ulungile noma awukalungi?

Interpreter: Yebo! Lokokutsi nje [interruption]

Farmer: Siyalima nje tsina si... abekunga potjolwa, nanyalo solo mane siyalima nje, senta njalo.

Interpreter: Ngaphandle nje kwekubuka kutsi kunjani?

Farmer: Eh, koja ke kutsi utsi mtsetfo akusale sekulinywa lakuhulumende kutsi basipopolele.

Interpreter: Okay, eh as for us we do not choose the type of land we are going to plough, we just plough any available land.

Interviewer: Okay, uhm in the past did your forefathers consider the type of soil they were planting on? When they chose/suggested the land?

Interpreter: Okay, kadzeni nje nawufika la utokwendza eeh labomkhulu kumbe kukhona lowakuva kutsi bakucikelela yini lokutsino tsina sifuna kulima kunangu umhlaba lonje eh noma nangumhlaba lokanje?

Farmer: He-eh kucala bekulinya nje kumhlaba unotsile vele ukahle.

Interpreter: Wonkhe?

Farmer: Eh wawukahle nje lomhlaba, lawulime khona utfola kudla.

Interpreter: Bekute nje lokokutsi mina nje ngifuna luhlobo lolunjena lwemhlabatsi, noma ngifuna indzawo lekanje ngitolima khona?

FArmer: Hhaa kusa... Cha! Bebaye balime nje emasimini kutjolakale kudla, bebangakhetsi.

Interpreter: Okay, they did not choose, they would just plough.

Interviewer: Then there was always food?

Interpreter: Yes, there was always food.

Nandi: Oh okay, alright.

Co-supervisor: Is she almost saying that all the soil is good.

Interpreter: Yes, she is saying like that. A long time ago, all the soil was good.

Interviewer: Because there was enough rains also back then?

Interpreter: Yah!

Interviewer: Okay. Do you plant different types of sorghum?

Interpreter: Eh kuloku lima-ke kulamabele lewalima nyalo, ingabe ulima tinhlobo letihlukahlukene yini noma ulima yinye letikanjani?

Farmer: Silma naku labasipha kona laba bekunene.

Interpreter: Tehlukene yini letinhlobo?

Farmer: Asati tsine labanye basinika lamhlophe, nyakenye-nje bewamhlophe, lamanye abovu.

Interpreter: lokusho kutsi nilima tinhlobo letimbili, lamhlophe nalabovu?

Farmer: (Nods) Eeh-e.

Interpreter: Okay! I plant different types, the red which is brown and the white.

Interviewer: These are the modern ones?

Interpreter: The modern ones.

Interviewer: The ones you have been mentioning [inaudible] time?

Interpreter: Yes, the NS55 and the Marcia. 5511.

Interviewer: Okay, before these hybrids which type of sorghum did you grow? Can you remember?

Interpreter: Ngaphandle nje, kufika kwanati tinhlanyelo, angitsi leti uyatibona kutsi ingatsi tasilungu.

Eh, angitsi tesilunge leti?

Farmer: Setisilungu.

Interpreter: Eh kukhona yini lotikhumbulako takadzeni?

Farmer: Sasilima Mshake tsina kucala.

Interpreter: It is Mshake, nabani lomunye?

Farmer: Batsi yini konje lamanye, abengemabele nje akhulile nawo abovu koja... eei angisati kutsi ngubani.

Interpreter: Lenhloko yakhona beyima itsi ngci noma beyigoba nayo?

Farmer: Yayingagobi lamabele bekavele anjengawo wona lawa, lawa loMshake bewagoba.

Interpreter: Bewugoba lalamanye labovu lowakhohliwe, kute labekamadze.

Farmer: Hhayi eme njengawona lawa.

Interpreter: Koja bekamadze?

Farmer: Abemadze alingene nje.

Interpreter: Nalo Mshake? Mane wona tinhloko tawotibheke etulu.

Farmer: Eeh-e, anjenga lamabele lasiwalimako nyalo nalo Mshake bevele wente nje [demonstrates].

Interpreter: Okay, I do not remember the other variety but eh it was almost the same as the modern ones which is brown, but it was tall.

Interviewer: Why did you stop using them?

Interpreter: LoMshake nalamabele lowashoko wona labeka njena nawo nawayekelelani kuwasebentisa.

Farmer: Kusho kutsi aphela wonanje ngendzaba yalelilanga.

Interpreter: Ohoo kwaphela lenhlanyelo?

Farmer: Eeh-e kwaphela wona ngendza yenhlanyelo ngabe siyawenta tsina lesiwatiko, manje ke kute wona.

Interpreter: Okay, which means the varieties... we lost the varieties due to the drought, whoa! [Asks the farmer a question] Mani bekwentakalani ngalesikhatsi se drought, hha ngesikhatsi sesomiso, benihlanyela kunga vutfwa noma? Nagcine niwadlile?

Farmer: Vele nje kome, bevele kome nje kube ngaka.

Interpreter: Oh kungangakhiphi inhloko?

Farmer: Ehe-e, kuphela kwayo lenhlanyelo.

Interpreter: I was asking if... what happened during drought, was it that they ate the seed or planted and got nothings like they planted and the was nothing left? So that is how they lost the variety.

Co-supervisor: Does she remember how long ago that drought was?

Interpreter: Eh, ingabe khona lawungakhumbula khona kutsi nasi-ke lesomiso lesasi munca kakhulu letinhlanyelo tetfu? Lesomiso lekung'sona lesimunca nje, kutsi kungaba ngusiphi, kutsi ungasibekisa nje nangabe kukhona lokukhumbulako.

Farmer: Sengiwukhohliwe ke lomnyaka, kukhona somiso kwavele kwaba bête lutfo lesikutfolako. Kwasha konke.

Farmer: Okay, abesekhona Sobhuza?

Farmer: Bani?

Interpreter: Sobhuza bekasese khona?

Farmer: Yebo.

Interpreter: Leso sikhatsi besekhona Sobhuza?

Farmer: Yebo engatsi beka sesekhona. Sikhona somiso lesafika la mane angisacondzi kahle nje ingcondvo seyilibele.

Interpreter: Okay, no lokokutsi beng'funa kubuta lokokutsi Sobhuza besakhona yini ngoba sikhona lesinye somiso lesabakhona asangekho bese sikhona lesabakhona sekangekho.

Farmer: Ngishona loko nje kwekutsi abekhona lolomdzala nasenteka lesomiso sak'cala nje.

Interpreter: Yaah kulapho lana lalahlekelwa khona kakhulu?

Farmere: Lapho kwalahleka konkhe khona.

Interpreter: Okay, I do not remember exactly which year, but I asked her if the King Sobhuza was still alive and she said Yes Sobhuza was still alive.

Co-supervisor: Yah so it was before '81.

Interpreter: There was a drought around 198... 1979 to 1981 because Sobhuza died in 1983. There was a drought from 1979/1981, around that time. Which means that is the drought that they lost the variety.

Co-supervisor: Is that around 1979/1981?

Interpreter: Yah!

Co-supervisor: We can look in the records, just tell me what I wanted ask then after this drought was there a few years of something where nobody grew sorghum? I mean that is what I am getting more curious about what came in? When did it come back? I just...

Interpreter: Eh ngicela kubuta ke make kutsi ngaleskhatsi kufika lesomiso losishoko saSobhuza asese khona. Emuva kwaloko babakhona yini bantfu lababonakala bahle bachubeka bawalima emabele noma anyamalala ase aphindze evela kuvela?

Farmer: Kute, aphela khona lapho.

Interpreter: Loku sekachamuka tfulukucu!

Farmer: Sesinikwa ng'naba bekunene. Besesimile nje singalimi.

Interpreter: Ohoo okay! Most of the people they lost their varieties. No one planted sorghum up until now when the NGOs they just emerged with some of the modern varieties.

Co-supervisor: Yoh! It is interesting.

Interpreter: Yah!

Interviewer: So after that 198... I mean 1979, 1981 drought there was another one in 1992?

Interpreter: Yes, there was another one in 1992.

Co-supervisor: Eish!

Interviewer: okay, uhm what are the advantages and disadvantages of using the indigenous sorghum and now the modern one?

Interpreter: Okay, maybe before we reach that drought, we answer this question. The drought was divided into two. There was the hard drought whereby there was no rain. And then in 1982 to 1983 that is before King Sobhuza died, there was a cyclone

Co-supervisor: I remember, there was this cyclone Dimonia or something.

Interpreter: There was a cyclone, it caused a lot of destruction. That is where I think everything got lost.

Co-supervisor: Yes, that is true, there was a bad drought and then the cyclone.

Interpreter: Yes, when people tried to recover from the drought then came this thing.

Co-supervisor: The cyclone, it's such a destructive event.

Interviewer: Yes.

Co-supervisor: Yah, that is good.

Interpreter: Okay you can ask the question.

Interviewer: Okay, what are the advantages and disadvantages of using the indigenous sorghum and then now the modern one?

Interpreter: Okay njengoba sewuke washo kutsi lamabele lamadzala sewuke wawalima abese ayanilahlekela, bekuyini buhle bawo loke waku notice, hheyi lowakubona kutsi ei lankabekamahle nganaku nanaku?

Farmer: Bekamnandzi nje lamabele lanka, bekakahle anongotela.

Interpreter: Okay, taste was good.

Co-supervisor: Of the indigenous?

Interpreter: Yah! Yini lokunye ngawo lobekukahle njekutsi uyabona nanka?

Farmer: Nekudla kwawo nje bekukahle.

Interpreter: Kudla kwawo kanjani nje?

Farmer: Sasigandza nelokwanyana...sitambu sakhona, mashwele aloMshake.

Interpreter: Oh okay! Which means the indigenous varieties were very good in making emashwele, which is you prepare it almost the same as samp.

Co-supervisor: Okay, how do you spell it?

Interpreter: Emashwele. It's M-A...Ohw yah yah you good now.

Co-supervisor: Okay (laughs).

Interpreter: (Laughs) Emashwele! Yini lenye lenhle ngawo loyikhumbulako?

Co-supervisor: It's like samp?

Interviewer: (Nods) Mmhm.

Farmer: Ngemasi, bekuvutjwa ngawo.

Interpreter: Amnandzi emasi? Lawa awavubeki?

Farmer: Lawo amnandzi sibili.

Interpreter: Okay, which means, we may add on taste. The taste was good especially when making...You put them in emasi.

Farmer: Nenqwanqwa yawo.

Interpreter: And eh...hhawuu! Beyi mnandzi nayo?

Farmer: Yebo beyimnandzi vele.

Interpreter: Okay, thin porridge was very tasty. [Asks the Farmer a question] Eh yini bubi bawo? Kutsi hheyi naku lobekufike kuhluphe mani ngawo,

Farmer: Huh-uh, kute bubi bawo.

Interpreter: Okay, there are no disadvantages. [Asks the farmer another question] Uyawabona ke lawa lesiwalima nyalo lamasha, yini ke buhle bawo lokubonako nje ngawo?

Farmer: Aah! Siyawalima lawa babe, mane simoshwa ngunati tinyoni nalelilanga-ke aliwaphatsi kahle, liyabalela.

Interpreter: Okay, the birds they are...they are prone to birds and seemingly they do not adapt to this condition, this dry condition.

Co-supervisor: Really?

Interpreter: Yah! Eeh, okay.

Co-supervisor: Advantages?

Interpreter: Buhle bawo yini? Buhle bawo bukhona lobukhonanje, usho kutsi mahle ngaloku nawo?

Farmer: Yinhle inqwanqwa yawo.

Interpreter: Injani yona, nayo imnandzi?

Farmer: Nayo ilungile, imnandzi ngalamabele.

Interpreter: Yini lokunye buhle bawo? Nawucatsanisa nalokwase muva kutsi hheyii loku kufike kwashaya lawa lasemuva,

Farmer: Hhaa akagadvwa lawa, ngisengakawagadzi lawa...kwenta stambu, inqwanqwa yawo nje nemahewu ayo ng'loku lengikwatiko loko.

Interpreter: Amnandzi nawo?

Farmer: Eeh-e amnandzi nawo, koja-ke lawa awanongoteli. Mshake noma kute shukela bewu wadla wona.

Interpreter: Okay, no seemingly there is no other advantage because she is mentioning the taste then she changed to say Mshake was [interruption]

Co-supervisor: Much better?

Interpreter: Much better than this one.

Co-supervisor: Okay.

Interviewer: Okay, uhm what do you use the sorghum for?

Interpreter: Lamabele nanka leniwalimako-nje niwasebentisela kwentani?

Co-supervisor: The new one you mean?

Farmer: Huh?

Interpreter: Lawa nje lakhona niwasebentisa kwentani?

Farmer: Siyadla phela lamabele, labanye badla liphalishi lawo nje, liyadleka.

Interpreter: Nani lokunye?

Farmer: Inqwanqwa.

Interpreter: Eeh yini lokunye?

Farmer: Mahewu ayo.

Interpreter: Okay, kuphela?

Farmer: Eeh-e ngikhumbula loko.

Interpreter: Okay, which means this one is used to make thin porridge even porridge and some they make emahewu.

Co-supervisor: Is that the beer?

Interpreter: Ingabe yini, ng'lomcombotsi?

Farmer: Ohoo etjwaleni kwentiwa invubelo.

Interpreter: Oh yes! Yes! It is that Swazi brew it is called umcombotsi.

Co-supervisor Yes!

Interpreter: U know the Siswa... umcombotsi?

Co-supervisor: I know it from Swaziland, uhm South Africa.

Interpreter: Hhoo! There is umcombotsi in South Africa?

Interviewer & co-supervisor: Yah!

Co-supervisor: How do you spell it?

Interpreter: [Spells word]

Co-supervisor: And the old ones? Are we asking [interruption]?

Interpreter: Okay, lawa akadzeni beniwasebentisa ini wona?

Farmer: Kuwasebentisa njani phela?

Interpreter: Sengisho kutsi bekasebentani? Umsebenti wawo lawa akadzeni nase niwavunile senifuna kuwasebentisa?

Farmer: Abephiswa phela nawo, tjwala naloku lengikubonako nje nalomgadvo wekucala ke.

Interpreter: LaMashwele?

Farmer: Eeh-e, nalotjwala ke vele busetjentwe.

Interpreter: Ohoo! Okay they were using it to make beer and the one I mentioned emashwele.

Co-supervisor: Yes! So, they don't make that emashwele with this one?

Interpreter: Lamashwele nisawakha nyalo?

Farmer: Hha kute!

Interpreter: Leni? Akalungi lanka ngemashwele noma nje?

Farmer: Azange sengiwalinge, afanele kulunga phela nawo ngani ngemebele.

Interpreter: Okay which means I have never made emashwele with this one.

Co-supervisor: Okay.

Interviewer: Okay, she is not making that emashwele with this one out of choice or it is because she tried it and did not like it?

Interpreter & co-supervisor: No, she never tried it.

Interviewer: Okay, if the season to star planting does not present ideal conditions, what steps or adjustments do you make to increase your chances of a successful harvest?

Interpreter: Sesiyacedz ungesabi. Nangabe nje asesitsi nali litulu ulibona ngoba vele litulu lihle lingacaci lakitsi, sibatse siyabuka, eh nangabe nje sibona kutsi lelitulu kulomnyaka kwangatsi liyaphikisa ngeke kulunge. Wenta njani wena ngale'masimini akho kuze uchubeke ulima utfole sivuno lesikahle lesiphatsekako, khukhona yini lokwentako?

Farmer: Ah ngiyazama nje mina, angimeli lokutsi batsi litulu alibaleli. Ngiyazama-nje mina lingana nje kancane mina ngiyachubeka.

Interpreter: Lokokutsi litawubalela awukunaki?

Farmer: Angimi, nje mina kutsi libalele lingana nje hhawu ngaletso tikhatsi ngiyalima.

Interpreter: Okay, which means irrespective of the advice that the weather will not be okay in the season, I do not listen to them I just plant waiting for the rains.

Interviewer: Okay, is there any time that you let the cattle's onto your fields?

Interpreter: Kukhona yini latinkomo nityekela khona tingene emasimini?

Farmer: Eeh-e kusebusika.

Interpreter: Okay, we allow them during winter.

Interviewer: Okay, if you do not use cattle for manuring what do you use instead before and now?

Interpreter: Eeh, Konje uke wasichazela gogo kutsi kadzeni benisebentisa umcuba mus emasimini?

Farmer: (Nods) Eeh-e.

Interpreter: Naningakafaki umcuba kuvundzisa emasimini nanivundzisa ngani?

Farmer: Besilima nje ngoba lalina lelitulu kunganandzaba, kudla kubekhona.

Interpreter: Okay, nawungakafaki unmcuba-nje bekungafakwa lutfo?

Farmer: Umcuba wawufaka-nje wentele lokutsi kudla kwakho kutoba kuningi futsi lomhlaba wakho unotse.

Interpreter: Okay nawungakafaki umcuba bekute lebenikufaka?

Farmer: Wawungawufaki yonkhe iminyaka, wawufaka nje ngemnyaka munye wati kutsi iminyaka lemibili kutawusolo kusebenta lomcuba lo.

Interpreter: Okay, which means other than using cow manure there was nothing used because even the cow manure we just apply it ones in 3 years because we will apply this year and then we wait for another 2 years and then you apply it then apply it.

Interviewer: Okay.

Farmer: Wawunemandla lowo mcuba.

Co-supervisor: And now she does the same?

Interpreter: Nyalo ke nangabe ungakawufaki mcuba nifakani?

Farmer: Sekusetjentiswa manyolo.

Interpreter: Mcuba usekhona?

Farmer: Ukhona! Umane abasawusebentisi kakhulu.

Interpreter: Leni?

Farmere: Shokutsi sekuphelile noma sebetse lokokutfwala. Sekute letinkabi.

Interpreter: Now they do not use cow manure they use synthetic fertilizers. Maybe one of the reasons could be they do not have something to take the manure to the fields, I am not sure, but I think.

Farmer: Beku netinkabi phela kucala lebesilayisha lomcuba kuto.

Interpreter: Okay, which means a long time ago we were using oxen to carry the manure to the fields. Now we have to hire something to take the manure. Maybe that is why people say no let us not use the manure now we focus on the fertilizer.

Co-supervisor: Ohw yah! I wanted to ask her that previous question where she said that she just plants irrespective, but does she wait for the first rain or not at all?

Interpreter: She will wait for the first rain, then plant.

Interviewer: Okay, when in the year does sowing begin and who does it?

Interpreter: Eeh emnyakeni nje kucala nini kulima kutsi nyalo kulima, noma lihlobo nje licala nini noma nje kulima ucala nini emnyakeni?

Farmer: Ngicala ngabo September kulima.

Interpreter: Kulima bani nje lakhaya?

Farmer: Kulima mina.

Interpreter: Okay, I start in September and I am the one who is doing it.

Farmer: Ngabo November laphe nje nakuna litulu kuleto tinyanga leto.

Interpreter: Bese nivuna nini?

Farmer: Sivuna ngabo July.

Interpreter: NgaJuly? Ng'bani nyalo?

Farmer: Ngubani lo lesinaye?

Interpreter: Lona ngu April lo.

Farmer: April, May, June, July, baya kuJune bayavuna.

Interpreter: Lakhaya [interruption]

Farmer: Kwakuvele kuvunwa...kuya ngalokulima yebabe kutsi ulime nini. Sekuyalunga-ke kudla kwakho bese uyavuna.

Interpreter: Kufuna wena?

Farmer: Uyabona nje mina ngivunile la tingakafiki letinyanga lekuye kuvunwe ngato.

Interpreter: Ngalokutsi washeshe walima?

Farmer: Eeh-e kuya ngekutsi ume njani.

Interpreter: Okay, which means it depends on the crop and it depends on the time you planted your crop then you harvest if it is ready, and I am the one doing the harvesting.

Co-supervisor: Does she not... who helps her when she harvests? Who helps her to carry and everything?

Interpreter: Kukhona labakusitako nawuvuna? Lokutsi mhlawumbe bakutfwalela umbila bawuletse la noma bentenjani?

Farmer: Hhawu! Ngina labantfwana bami kuphela.

Interpreter: My children, they help me to carry the harvest.

Interviewer: Okay, Is there anything you do to make sure the land recovers between growing seasons?

Interpreter: Okay, njengoba nyalo sewulimile, angitsi lana sewuvunile?

Farmer: Sengivunile.

Interpreter: Kukhona yini lokwentako lansimini kulungiselela kutsi nakufika lelihlobo lelitako insimu yakho ibe sesimweni sekutsi uyilime utfole kudla loku kahle?

Farmer: Kute lengikwentako phela babe ngalokutsi ngite lutfo.

Interpreter: Kube kukhona ngabe wentani?

Farmer: Ngabe ngiye ngifake lesigulumba sifake lamahla langaphansi. Mane nje nyalo kungena tinkomo bese tiyangcingca tenta yonkhe lentfo.

Interpreter: Okay, now there is nothing I do because I do not have money to hire a tractor to do winter ploughing. Otherwise, if I had money, I would hire a tractor to do winter ploughing.

Interviewer: Okay and what did she say about the cows?

Interpreter: The cows... because she has not done winter ploughing the cows they come into the fields, they move around the field they stamp the fields.

Interviewer: Uhm okay, uhm okay where did you grow up?

Interpreter: Ukhulelephi egogo?

Farmer: Huh?

Interpreter: Ukhulele kuphi?

Farmer: Ngikhulele lakhaya, ngikhulele ekhay'kitsi.

Interpreter: Okay, I grew up here.

Interviewer: Okay gogo.

Farmer: Ngase ngiyakhula ngiba yintfombi [inaudible].

Interpreter: Kukuphi ekhay'kini?

Farmer: Kukhona khona la.

Interpreter: Okay, I grew up in this area.

Interviewer: Okay, do people still plough using oxen?

Farmer: Ngikhulele lakulinywa khona!

Interpreter: (Laughs) bakhona labasa sebentisa tinkabi nyalo?

Farmer: Setaphela tinkabi.

Interpreter: There are no oxen anymore.

Interviewer: Okay.

Farmer: Sebasebentisa tigulumba.

Interviewer & co-supervisor: [inaudible]

Interviewer: When Maize was introduced did your parents and grandparents continue growing Sorghum

Interpreter: Nawungakhumbula kahle gogo kutsi kadzeni kwakulinywa kakhulu emabele?

Farmer: Eeh-e.

Interpreter: Kwasekuchamuka nayi indzaba yekulima kwembila uyayikhumbula?

Farmer: Eeh-e.

Interpreter: Benta njani? Nenta njani? Ingabe nayekela lamabele kwachutjekwa nalombila noma kwachutjekwa nako konkhe?

Farmer: Hhaa Cha! Bekuchutjekwa nako konkhe phela. Emasimu emabele kune masimu embila.

Interpreter: Ohoo! Kute lokokutsi sesinaka kakhulu umbila konkhe bekunakwa nje?

Farmer: Umbila bewuba netingungu tawo nawo.

Interpreter: There was no shift to maize they were... the fields were divided, there were fields for sorghum and there were fields for maize. There were storages for maize and storages for sorghum.

Interviewer: Okay, do you have anything else?

Co-supervisor: No.

Interpreter: Okay, sesicedzile.

Interviewer: Yah! Sesicedzile.

Interpreter: Hhawu sesifike ekugcineni gogo...

Interviewer & Interpreter: S'yabonga gogo.

Interpreter: S'yabonga sikhatsi sakho. Kunanangu Make la sitawucela kumbuta imibuto sitambutela lakhaya.

Farmer: Ohoo!

Interpreter: Uyambona kutsi ngubani?

Interpreter: Eeh-e sitawu mbutela lakhaya imibuto...

Farmer: Cha! Kulungile.

Interpreter: Bese emuva kwaloko likhona liphasele nyana labatakupha lona.

Farmer: Nkosiyami!

Interpreter: Eeh-e lelincane nje kubonga lesikhatsi sakho sekutsi uvumele kucoca...

Farmer: [Inaudible]

Interpreter: Yikho athi sbali.

Farmer: [Laughs]

Interpreter: Sowucishile la?

Interviewer: Seng'khohliwe. [Greets woman] Sawubona Mama.

INTERVIEW 18: FARMER 18

Co-supervisor: What's the surname of that previous lady?

Interpreter: Which lady?

Co-supervisor: The one we've just done?

Interpreter: Konje sabani is'bongo saGogo?

Woman: Waka [Surname omitted].

Interpreter: Oh, [Surname omitted].

Sowubuyile Make le emaphoyiseni?

Farmer and Interpreter: [inaudible]

Interpreter: Njengoba Make bengishito kutsi kutoba naba tihlobo te Nkosi, yito ke leti. Lona ngu Nandi lona ongala. Bese ngala ngu Thembi. Yibo laba aba funa ku... bata, utawubuta lembuto Make ngala ngesingisi mine ngiku tolikele nge'Swati. Uyiphendule nge'Swati wena, sichubeke kanjalo kanjalo. [Inaudible]. Uyabala lo. Lana iyayi recorder lenkulumo yethu.

Farmer: Yini?

Interpreter: Kutsi nangabe sebengekho lana bakhone kuyiva kutsi besikhuluma kanjani.

Farmer: Yebo.

Interpreter: Ehe. Konje ngu Make bani?

Farmer: Ngu [Full names omitted].

Interpreter: Eh, Simelane. Ungangakhi minyaka?

Farmer: Ngina 52.

Interpreter: Eh, 52 years.

Watalwa ngomuphi myaka?

Farmer: 1966.

Interpreter: Okay, 1966.

Farmer: 15 April.

Interpreter: Oh, sowuyentile mncimbi nje?

[Laughter]

Interviewer: Izolo, oh okay!

Co-supervisor: Yesterday.

Interpreter: Laphuma leli langa.

Eh, cha singacala.

Interviewer: Okay.

When did you begin farming?

Interpreter: Wacala nje nini kulima empilweni yakho, uk'cala nje [inaudible]

Farmer: Kuba umlimi?

Interpreter: Eh, uk'cala nje uk'bona kutsi uk'lima naku, kuyentiwa nje.

Farmer: Nga cala 1988.

Interpreter: '88?

Farmer: Mm,

Interpreter: Cala kwakho k'lima noma kucala uk'bona kutsi ku linywa njani?

Farmer: Ukucala lo kutsi nje ngikhona kuti phatsela.

Interpreter: Seng'sholo, angisho ku cala kubona kutsi kulinywa njani,

Farmer: 1984.

Interpreter: '84?

Farmer: Mm,

Interpreter: Okay, it's 1984. I started in 1984. Which means 1988 I was the one responsible to buy all the [inaudible] but on this, this year I was just with my parents [Masemula edit - Nov 2022: I started doing my own farming in 1988 but I became aware of the practice of farming in 1984]

Interviewer:

What plants did you grow – then and now?

Interpreter: Eh, Bowulimani ken gale tikatsi nawu cala kulima ngo 80 bani bani?

Farmer: Beng'lima umbila,

Interpreter: Yebo,

Farmer: Namantongomane,

Interpreter: Ehe,

Farmer: Netidlubu,

Interpreter: Yes,

Farmer: Nakotini.

Interpreter: Nani?

Farmer: Nakotini.

Interpreter: Nakotini. Mabele bowungawa limi?

Farmer: Beng'awa limi mine mabele.

Interpreter: Bewa linya ngubani? Abe khona ekhaya?

Farmer: Mm, Bewalinywa uMkhulu.

Interpreter: Oh, bewalinywa uMkhulu?

Farmer: Mm,

Interpreter: Mm...your question was, it's like...

Interviewer: What plants, I mean what does she plant now and what was planted back then?

Interpreter: What was planted?

Interviewer: Back then, ja.

Interpreter: Oh okay. It's sorghum, maize, cowpeas, cotton... [Inaudible] cowpeas? [Masemula edit – Nov 2022: She did not mention cowpeas (tinhlumaya)]

Co-supervisor: Ja.

Interpreter: And Jugo beans.

Nyalo ke kulinywa'ni nyalo? Nilimani nyalo?

Farmer: Nyalo silim'umbila nakotini. Engulimako nje mina, nemabele.

Interpreter: Okay, now it's cotton, maize and sorghum.

Farmer: Ne tinhlumaya.

Interpreter: And cowpeas.

Farmer: Na batata.

Interpreter: And sweet potato.

Interviewer:

Who taught you how to farm?

Interpreter: Eh, ngobani ke lo wak'fundzisa kutsi ku linywa kanjani? Noma sacala kandzeni nanyalo, ngubani nje wakufundzisa kutsi ku linywa kanjani?

Farmer: Mm, ngafundziswa ngumlimisi.

Interpreter: Oh, balimisi bafika nyalo.

Farmer: Ngafundziswa ngu Gogo.

Interpreter: Okay, I learned it from my grandmother.

Interviewer: Okay,

Is rainfall important for the harvest?

Interpreter: Eh, ngok'buka kwakho ku loku lima lokhu okulimako ngabe letulu limcoka yini kutsi muntu ato khona kutsola sivuno esiphathsekako nje? [Inaudible] letulu, ngabe kumcoka yini?

Farmer: Limcoka.

Interpreter: Yes, it is important.

Farmer: Is there anything else she thinks is important?

Interpreter: Kukhona lo kunye lokumcoka ngaphandle kwa leli tulu? Lokunye lotakwenta kutsi muntu agcine atfole sivuno lesphathekayo? Ngaphandle kwe litulu, kukhona yini lokunye?

Farmer: Mm, la e, ku la?

Interpreter: Ja,

Farmer: La ki, la la sengikhona khona? Hayi le kitsi?

Interpreter: Ehe,

Farmer: Kufuneka bo manyolo en kutsi uwati lokutsi umhlaba wakho uhambe uyo tester.

Interpreter: Okay.

Farmer: Mm,

Interpreter: Which means now you need to have fertilizers and [you] also have to take soil sample and test your soil.

Interviewer: Okay, back then when her grandparents were planting the sorghum and all the others [crops], what does she remember as important things?

Interpreter: Oh okay.

Eh, ake sitsi nje angitsi nyalo lokhu ok'shoyo lo ngulo kwa nyalo?

Farmer: Okwa nyalo.

Interpreter: Ngaphandle kwe litulu ke, kuna kwe litulu...Asibuyele kadzeni. Kukhona yini lokhu oku mncoka kadzeni kutsi kungaku nika sivuno ngaphandle kwe litulu ngoba ku hlola mhlabathi yinto yanyalo. Kadzeni, yini enye beyimcoka kadzeni ngaphandle kwe litulu?

Farmer: Beli dzingeka litulu,

Interpreter: Yebo, nani lokunye?

Farmer: Kudzingeke na lokutsi uhlakule nge skhatsi.

Interpreter: Okay,

Farmer: Mm. Ngoba mawungaka hlakuli bowuvele isivuno ungeke uzusi tsole.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: Okay which means other than rainfall a long time ago also weeding on time was key to have a good harvest.

Interviewer: Okay,

Do you use information that your grandparents used when you farm?

Woman: Now?

Interviewer: Ja, now.

Interpreter: Nyalo indlelo lo lima ngayo lapha ekhaya, kukhona yini lwati loli sebentisako? Eh, lapha ulima khona lowali tsatsa kadzeni ku labo Mkhulu bakho nabo Make bakho? Kukhona yini oli sebentisako nyalo?

Farmer: Kadzeni bebangawu faki lomanyolo,

Interpreter: Okay,

Farmer: Bo Mkhulu,

Interpreter: Yebo,

Farmer: Beba sebentisa umcuba.

Interpreter: Ja,

Farmer: Eh. Umcuba lo we tinkomo. Bebawu khipha nje es'bayeni kube neskhatsi ubekiwe lapha. Bes eke bayawu tsatsa seba [interruption]

Interpreter: Nyalo uyawu sebentisa lo? Laba bebaku sebentisa lokhu?

Farmer: Bengiku sebentisa ngise netinkomo, nyalo se kute tinkomo.

Interpreter: Okay, kukhona yini lokunye lokusebentisako loku be bakusebentisa kadzeni? Ngaphandle kwa lomcuba?

Farmer: Kute nyalo.

Interpreter: Okay. Which means long time ago they used kraal manure as their fertilizer. I also use manure as my fertilizer but now I lost the cattle so I don't have any manure now.

Co-supervisor: Did she lose the cattle with the drought?

Interpreter: Letinkomo tashonaphi?

Farmer: Shutsi kwa shona lo Babe, base bayati tsengisa ngoba besi banengi.

Interpreter: Labo Make?

Farmer: Mm, besiwu two.

Interpreter: Oh!

Farmer: Ehe, kwa kandzikseka ke lo kutsi leli [nani?] lato alisi fitishi tsine base batsi masili tsengise.

Interpreter: Okay, which means my husband died and then the family decide now to sell the cattle just to distribute the wealth because we were two [wives] in my pare... in my husband. So they had to sell the cattle then distribute the wealth.

Interviewer: Okay,

Can you take me through the process from the beginning of the planting season to the harvesting period – then and now?

Interpreter: Nawu khumbula kahle kadzeni, uyakhumbula mos kadzeni bek'linywa kanjani?

Farmer: Mm,

Interpreter: Ikakhulu emabele,

Farmer: Ehe,

Interpreter: Ungang'chazela yini kutsi emabele besiwa, kadzeni bekuyentiwa nje nakuto hlanyelwa. Ahlanyelwe, amile, achubeke eh kuze kuyo fika ekugcineni asavuniwe ase bekiwe. Kadzeni bekuba nje?

Farmer: Beba tsatsa sihlaba... Shutsi nje beba lima.

Interpreter: Be balima?

Farmer: Mm, nge tinkabi.

Interpreter: Kulinywa nge tinkabi?

Farmer: Ehe,

Interpreter: Yebo,

Farmer: Bese baya vula amalayini,

Interpreter: Ngani?

Farmer: Ngale tinkabi.

Interpreter: Oh, nga letinkabi. Yebo...

Farmer: Bese batsatsa lemabele bafaka esihlabatsini.

Interpreter: Es'hlabatsini?

Farmer: Mm,

Interpreter: Be siba ngakanani les'hlabatsi ku lamabele?

Farmer: Nangabe...besingabi sinengi kakhulu.

Interpreter: Ungabekisa nje nangabe uphetse i-five litre yamabele bawaba ngakanani lomhlabatsi?

Farmer: Nawo kunga fune kube yi five litre.

Interpreter: Okay,

Farmer: Bes eke uyak' [interrupts].

Interpreter: [inaudible].

Farmer: Yebo. Bese sowu hambe ke la kuleli layini,

Interpreter: Livulwe yitinkabi?

Farmer: Livulwe nge tinkabi.

Interpreter: Usebentise likhuba?

Farmer: Usebentise likhuba.

Interpreter: Okay,

Farmer: Bese ugriba futsi nga letinkabi nitsatse li hlahla,

Interpreter: Okay,

Farmer: Ni gcibe ngalo.

Interpreter: Okay,

Farmer: Yentela kutsi anga hlangani kakhulu. Bes eke aya, aya mila. Nawa mila ke seniya hlakula.

Sek'fika s'katsi se kaya shakata. Na sacale ku shakata sek'ba na letinyoni.

Interpreter: Ku hlakulwa njani?

Farmer: Kuhlakulwa neli khuba.

Interpreter: Oh, okay!

Farmer: Mm,

Interpreter: [inaudible] leti nyoni.

Farmer: Sek'ba na leti nyoni. Leti nyoni beti vamise uk'fika ek'seni.

Interpreter: Bakusek'seni?

Farmer: Ehe, phindze nase ndsambama.

Interpreter: Kutsi emini nje nawu gadzile bowu buyel'emva bese ubuye ntsambama? Noma beni hlala ilanga lonke?

Farmer: Bowu buyela emini uphindze ubuyele nantsambama.

Interpreter: Okay,

Farmer: Ukhute ke. Shutsi bek'fakwa ti, tikotela. Ufake matje etikoteleni.

Interpreter: Okay,

Farmer: Uhambe ukhohlotisa ke. Interpreter: Okay,

Farmer: Ukhohlotise: uhambe uye le, uphindze uhambe le na yonke lentsimi. Lokunye ke bek'tsatswa uyente ti chidzana tigodvo wente ngatsi ngu muntu afake sigcoko.

Interpreter: Okay,

Farmer: Umbatsise majazana.

Interpreter: La entsimini?

Farmer: La entsimini phakatsi.

Interpreter: Okay. Eh, chubeke nje...

Farmer: Kuze ke kufike les'katsi se, avutwe.

Interpreter: Mm,

Farmer: Na sawa, bawa, asikwa ke bewa sikwa asikwa asikwa.

Interpreter: Asikwa ngani na sa vuniwa?

Farmer: Asikwa nge sikela.

Interpreter: okay,

Farmer: Mm. Bese kulukwa ti nsambo. Beku lukwa le tinsambo ke le titawu nase uwa sikile uwabeke uwaphambatise [demonstrates].

Interpreter: Mm,

Farmer: Bese kuba ne, so'wa akhele inyango yawo.

Interpreter: Ikanjani le nyango?

Farmer: Le nyango shutsi beku mbiwa tigodvo tibe four,

Interpreter: Yebo,

Farmer: Bese ti, uhundlisa letinye la [demonstrates].

Interpreter: Oh!

Farmer: Ehe, Sewu phambatisa le tinye la tiyenta nje [demonstrates] kube se tulu. Sowu yawa beka ke lamabele.

Interpreter: Okay,

Farmer: Mm, [inaudible] ubeke la etulu. Bese kufika lesikatsi ke uwa bhula ke.

Interpreter: Eh, abhulwa kanjani?

Farmer: Beku sindzwa nje ebaleni,

Interpreter: Ebaleni?

Farmer: Ebaleni. Bese uyawa... emini uyawa hlabisa nge langa. Sowa bhula ntsambama ngoba kuna lento le beyilumana.

Interpreter: Ayalumana?

Farmer: Ehe, ayalumana lamabele. Abenga bhulwa nje, uwabhule endlini. Be wa bhulelwa ngaphandle.

Interpreter: Oh! Eb'suku?

Farmer: Eb'suku. Seniya wela ke. Nasen' welile ke, bekute lama thange lawa lakhona nyalo. La es'bayeni beku mbiwa umgodzi.

Interpreter: Mm,

Farmer: Umgodzi nje lomkhulu kahle. Bowu ngabuka kutsi ku ngangeni ten yama saka. Utsi ungawu gubha lom'godzi bese niya sindza.

Interpreter: La nge khadzi?

Farmer: La nge khadzi.

Interpreter: Ugudjwa bobani lom'godzi?

Farmer: Waw'gudjwa ngu Mkhulu.

Interpreter: Okay!

Farmer: Anikete, nangabe sek'shona phantsi kakhulu ahl'anikete lomunye ke lomhlabatsi ulahla ngaphandle.

Interpreter: Mm

Farmer: Na se wubona kutsi cha se ku kahle se kuyasindzwa kuyasindzwa. Kutsatsa noma liviki ku ome.

Interpreter: Ku ome le phantsi?

Farmer: K'ome, k'ome. Bes eke sek'tsatswa lamabele atselwa la phakatsi, uya tsela lapha. Seku funakala litje le li lis'cebeleto,

Interpreter: Mm,

Farmer: Uta faka indishi ngoba uta wenta lom'lomo utsi [demonstrates]. Ufaka indishi,

Interpreter: Indishi le platsiki [interruption]

Farmer: Indishi yensimbi.

Interpreter: Okay.

Farmer: Bekute lama plastiki. Se ubuyisa le litje ubeka la sowu yentela kutsi noma inkomo iyahamba, kunga shubeli phansi.

Interpreter: Mm, okay.

Farmer: Agcineka kahle ke lapho. Mawu tawa khokha lapha engungwini, ba wuwa vula ek'seni unga sheshi ungene ngoba kunale smogo.

Interpreter: Oh!

Farmer: Mm,

Interpreter: Siyingoti?

Farmer: Ehe, siyingoti. Mawunga ngena nje lapha... Angitsi kuya futhumala lapha.

Interpreter: Okay,

Farmer: Uvule nje ku shaye nje umoya, sowunga ngena ke sek'shaye umoya.

Interpreter: Sowuya [inaudible].

Farmer: Sowuya [interruption].

Interpreter: Aphuma soloku akahle nje?

Farmer: Aphuma nje soloku akahle.

Interpreter: Okay. Okay, siyabonga.

Okay what we... we started by, we plough using oxen. After ploughing we open lines using the very same oxen. And then we come with the seeds. We started by mixing the seeds with the sand in a ratio [of] one is to one. After mixing the seeds with the sand and then we... following the lines, we plant. Then after planting its either we use a rake to cover the seeds or we will just get a, something

like a tree. You just cut a tree then you move it around the field trying to close the seeds. And then after closing, you wait it for germination. At a certain height we will control weeds using hoes. After controlling weeds, we wait for the heads to be formed. When there are head we start to control the birds. We will control birds. We will wake up early in the morning because early in the morning that is when they are very active. We'll get to the field early in the morning with containers which have small stones inside, trying to make the noise. We'll move up and down the field up until it is mid-day because mid-day, birds are not that much active. Then we go back home. Later in the afternoon, the birds will come back then we also come back with the container[s] to scare the birds. And then when they are ready, we'll harvest them. And then using a rope which was made with grass, we tie them. Then we put them in storages which was built raised up the ground. Then using logs, we'll put them horizontally then we pack the heads on top of the logs. And then after that we'll wait for them to be dry. When they are dry, we'll smear the ground using cow dung. Eh, and then early in the morning we'll take the sorghum on top of the storage, we put them where we have smeared. Then we wait up until it is later that day or when it's started to be dark. And then we start beating them because when you beat them during the day, there's a lot of dust which is very itchy so that's why we beat them during the night. And then after beating them, we'll take them to a storage which was called ingungu which was built inside the kraal. The ingungu had a lid. We'd use a dish, a metal dish as a lid. Then on top of the dish we'll cover with a flat stone, a big flat stone. And then when we want to eat the sorghum which is stored, we'll open the ingungu at least early in the morning and then you'll get inside in the afternoon because if you inside just after opening, you will... the gas which is inside might kill you. So you'll wait up until it is later that day, and then you'll take some which we are going to use.

Interviewer: Uhm, the mixing of the soil and the seeds before they put them in the ground, why did they mix the seeds with the soil?

Co-supervisor: Sand.

Interviewer: I mean with the sand.

Interpreter: Le nhlanyelo beni bicelani na lomhlabatsi na te nito hlanyela? Sizathu nje yindaba?

Farmer: Besiyentela kutsi angato hlangana.

Interpreter: Okay, we were trying to control the spacing.

Interviewer: Okay!

Interpreter: Yes.

Interviewer: Okay.

Interpreter: Ase usicazele ke nyalo. Angitsi nyalo loku bowus'tshela kwa kadzeni kutsi kadzeni bekuba nje. Eh, awus'tshele ke nyalo, kutsi nyalo kwenteka njani nyalo. Usisuse ekuhlanyeleni, uhambe njengoba uhamba natsi toti toti siyofika ek'vuneni, ek'vuneni siyofika ek'bekeni. Nyalo kutsi nyalo sek'yenteka njani ngoba kandzeni sowusi tshelile. Nyalo ke kuyenteka njani nyalo?

Farmer: Nyalo, nda'khuluma [interruption]

Interpreter: Okay, ngaphambi kutsi usho nyalo, letinto otishoyo otisho kadzeni wati bona?

Farmer: Ngati bona.

Interpreter: Beti khona nje ekhaya nikuyenta?

Farmer: Besikhona sik'wenta.

Interpreter: Kukhona yini la singa khona kubona khona le ngungu? Lo nayo nje ongasho kutsi yati kwa bani ingaba khona?

Farmer: Awu, sekute la banato nyalo. Nale beyikhona nje beyikhona kwa munye makhelwane la se kwa dilika kwa suka na le [interruption]

Interpreter: Makhelwane la ngakwakho? Ngumuphi loyo?

Farmer: Beku lapha eceleni kwa Make Vilakati.

Interpreter: Kodwa sisekhona lesibaya kutsi naya la beyikhona khona?

Farmer: Ah, sek'mile tihlala.

Interpreter: Kumile tihlala?

Farmer: Mm.

Interpreter: Okay. Koja timila la etulu?

Farmer: Angitsi nje sek'bonakala nje ngatsi bekune mgodzi.

Interpreter: Oh!

Farmer: Ehe.

Interpreter: Eh, singa'bona yini namhla?

Farmer: Awu, tihlala tiningi kakhulu.

Interpreter: No, tihlahla angitsi tikhona kodwa kuya bonakala la bekuno mgodzi khona? Kutsi mgodzi wawu la. Kukhona, singak'bona namuhla?

Farmer: Heyi angati kodwa nje mina ngisafike nje lana bengiku bona [inaudible] bekune ngungu.

Interpreter: Ku kashane yini masi suka lana?

Farmer: Ka Make Vilakati.

Interpreter: Ka Make Vilakati le ngimatiyo?

Farmer: Mm, nawu ngena nje [inaudible] le lokhanyana, le besi la lesibaya.

Interpreter: Kukhona koja lokhu ongasi, sitawu buya si... maybe sitawu bona, kukhona lokhu esingak'bona?

Farmer: Mm.

Interpreter: Okay. No I was just asking ukutsi what she was describing was something she was told or something she knows.

Co-supervisor: Oh yes,

Interpreter: She said 'I know this thing. I've been doing it '. Then I ask 'is there any ingungu around which we can see?'

Co-supervisor: Mm,

Interpreter: And she's saying there's a neighbour who used to have an ingungu but there are trees which have grown around. But maybe we can see that there was something like this. So I was asking if we can go after this to see whether there is something we can notice. Maybe we'll discuss this after finishing this one.

Co-supervisor: Okay.

Interpreter: Awusi tolikele ke nyalo kutsi kwenteka njani okwa nyalo, loku kwa nyalo.

Farmer: Nyalo siya lima.

Interpreter: Nilima ngani nyalo?

Farmer: Silima nges'gulumba.

Interpreter: Okay.

Farmer: Mine ngilima nges'gulumba.

Interpreter: Ja, chubeka sifuna kanjalo, usitolikele. Nawu lima lamabele [inaudible]

Farmer: Ngilima nges'gulumba,

Interpreter: Mm,

Farmer: Bese ngiyavula lama layini,

Interpreter: Ja,

Farmer: Ngale ripper.

Interpreter: Yebo,

Farmer: Mm. Les'hlabatsi angihlali nginaso kodwa ng'ke ngizame kancane [interruption]

Interruption: Kusifaka?

Farmer: Kusifaka, kancane.

Interpreter: Okay.

Farmer: Mane kukhandze kutsi vele akuse siso lesi bes'khona kadzeni ngoba besi groff kakhulu.

Interpreter: Kunalesi?

Farmer: Kunalesi. Lesi se sebakha lesi soft,

Interpreter: Oh!

Farmer: Mm.

Interpreter: Okay, nyalo loku nawusi faka kute lokutsi nawu fake i-five litre ufaka i-five litre noma uyenta njani?

Farmer: Ng'yafaka nje.

Interpreter: Oh sowuyafaka nje?

Farmer: Mm.

Interpreter: Okay.

Farmer: Bes eke ngiya hlanyela ngoba ak'phumi. Na utsi [demonstrates] kusuke ku hushuke.

Interpreter: Ja,

Farmer: Mm.

Interpreter: Okay as'chu [interruption]

Farmer: Kani nawu hushula utsi [demonstrates] na les'hlabatsi kushiyelana ti [inaudible]

Interpreter: Ja,

Farmer: Mm. Bese ke nasamilile, seng'zama lokutsi ngiyawa khokha khokhela,

Interpreter: Ehe,

Farmer: Mm, nangiwa khokhela [interruption]

Interpreter: Chubeka...

Farmer: Nangiwa khokhelako bese kufika la ataw'shakata khona. Bese setiya cala le tinyoni tiyafika. Ngitsandza kuwa lima ekhaya ke mine mabele ngoba la ngito khona khona uku hamba ngishaya le tinyoni.

Interpreter: Oh, ungabe usaya [inaudible]?

Farmer: Ehe, ngitsandza kuwa lima la ekhaya. Ngikhe ngawa lima phambilini ngawa thola ngase ngi thola lomunye mhlobo lomhlophe. Tawadla tawacedza le tinyoni, ngoba angisakhoni nokuwa lindza njenga kadzeni.

Interpreter: okay, nase ucedzile ukuwa lindza ke be kuba kanjani?

Farmer: Se ayavutfwa. Ng'wa bophile nanyalo, ng'bete ke lento yok'wa phakamisa le [interruption]

Interpreter: Okay, uwabekaphi nyalo?

Farmer: Ngiwabekile, ngiwabekile nje endlini. Kodwa akhamisile la etulu

Interpreter: La nge tulu?

Farmer: Mm.

Interpreter: Okay.

Farmer: Ehe. Ngibeke [inaudible] kodwa.

Interpreter: Le yakadzeni inyango beyi valwa la etulu?

Farmer: Beyingavalwa.

Interpreter: Okay.

Farmer: Mm, benyingavalwa. Ngibeke nje endlini. Seng'tawa bhula ke. Seng'tawa bhula ke, seng... nangabe amanengi ngitawa faka ethangeni.

Interpreter: Uwa bhula kanjani nyalo?

Farmer: Nyalo angitsi lendlu ina simende lapha ikhamisile lapha [interruption]

Interpreter: oh, so'wa bhulela la endlini nyalo?

Farmer: Eh, ngiwa bhulela la endlini.

Interpreter: Okay, [inaudible]? Kuna simende?

Farmer: Ehe, kuna simende. Iyaphephuka.

Interpreter: Okay,

Farmer: Mm.

Interpreter: Nawu chubeke ke, nase uwabhulile?

Farmer: Nasengiwa bhulile ke ngifake ethangeni namanengana. Nangabe amancane shutsi ngizo funa imigcomo yami lengaka [demonstrates], amade nyana nje.

Interpreter: Oh, ama drum?

Farmer: Ama drum.

Interpreter: Okay,

Farmer: Bese ngifaka liphilisi.

Interpreter: Cala belinga ngafakwa le phantsi iphilisi?

Farmer: mm, belinga fakwa. Bekufakwa ilokhanyana, sihlala umsutana.

Interpreter: Oh, umsutana?

Farmer: Mm.

Interpreter: Bewuyi bulala ingobolwane umsutana?

Farmer: Mm.

Interpreter: Lo onukayo bawufaka lapha etinyosini?

Farmer: Mm.

Interpreter: Oh okay!

Farmer: Bak'gamula nje bafaka lama cembe laphakatsi.

Interpreter: Okay, mm no siyabonga.

Maybe before we start on this one. To control weevil inside the ingungu, they used a certain tree which is called umsudana. Eh, sikhona la singasi bona khona nyalo les'hlahla?

Farmer: Umsutana, ehe ukhona.

Interpreter: Simane sitsatse sitsombe. It's like there is that tree around then we'll have to take a photo.

Co-supervisor: Just write the name for me.

Interpreter: Umsudana. Do you know how to write 'umsudana'?

Interviewer: Mm [laughs].

Interpreter: [Laughs] Maybe [interruption]

Co-supervisor: Did they do something with the tree or burn it or what?

Interpreter: No no, they just take it as it is and put inside. Ah, this tree is very smelling.

Co-supervisor: Oh really?

Interviewer: Hmm,

Interpreter: Ha! Even beehives, you just put that tree, they just [interruption]

Co-supervisor: In where? Beehives?

Interpreter: Ja,

Co-supervisor: Oh!

Interpreter: If you want to take their [honey], put that tree and then the bees will move away.

Interviewer: Oh!

Co-supervisor: Oh wow!

Interpreter: Then you take everything.

Okay what we do now, we pay for tractors from the Rural Development Agency. They plough and then they come with a ripper, they open lines. And then I mix the seeds with the soil, the sand. Now

I don't consider the ratio, I just mix and then follow the lines. I plant my seeds following the lines and then using a rake or I cover the... using a hoe I just cover the seeds, cover the seeds everywhere. All over the field. And then after that I wait for it to germinate. And then after germinating I control the weeds using a weed which means I [interruption]

Co-supervisor: A weed what? She controls weeds with what?

Interpreter: Control weeds by hoeing.

Co-supervisor: Oh, with hoeing.

Interpreter: Yes, the hoe. And then after that she wait for the heads to be formed, and then comes the birds. Now because it is eh, there are no people available to control the birds using that containers with stones inside, she decide to plant sorghum just next to, to fields that are next to homesteads so that she can be able just to stand next to the homestead and then shout for birds. And then when they are ready, they will harvest them. Now there is no storage which is raised like the old one. We just put them inside the house, an open house. Just put them inside an open house and then wait for them to be ready. If they are now dry, you just get inside the house. Just thresh them, just inside that house. It is not thatched, but there's concrete on the floor. And then after threshing them, you take them. If she happens to get a bumper harvest, she'll put them in a metal tank or if there's little she'll use some drums and put the harvest.

Interviewer: And the threshing, does she do it at night or any time?

Interpreter: Eh, lok'wa bhula niwabhula nini nyalo?

Farmer: Mm, siwabhula [interruption]

Interpreter: Niwabhula emini noma eb'suku?

Farmer: Siwabhula eb'suku. Kuya lumana [interruption]

Interpreter: Even now the threshing is done at night.

Farmer: Angitsi na nyalo noma uwakha lapha

Interviewer: Mm,

Farmer: Lo nawu hohloteke nje la, kuyalumana.

Interviewer: Okay!

How did you acquire the land that you've been using to farm?

Interpreter: Lenzawo oyisebentisayo ek'limeni wayi thola njani?

Farmer: Lomhlaba?

Interpreter: Ehe, waw'thola njani nje lomhlaba?

Farmer: Ngathi nangifika lakhaya ngakhandza kuwabo Babe.

Interpreter: Okay, wabo Babe?

Farmer: Ehe.

Interpreter: Okay, it was for my grandfathers.

Interviewer: Okay.

What do you consider the best land for farming?

Interpreter: Umhlaba lo ngatsi nje wena heyi lona uyalunga ek'limeni, ihlobo luni lomhlaba? Ulo kanjani nje? Umhlaba lothi no lomhlaba lona ngatsi uyalunga ek'limeni noma nginga lima ini nje? Umhlabatsi lo kanjani?

Farmer: Ulo sibovu.

Interpreter: Ulo sibovu?

Farmer: Mm.

Interpreter: Okay, these are red soils.

Interviewer: Okay.

Farmer: Mm, ngoba uhlala uthambile ngoba lo we sidzaka uyoma. Naliphuma nje leli langa bese kukhandze sek'katuka lo lesidzaka.

Interpreter: Red soils are... I prefer red soils because they are always soft and they are very good in water holding capacity.

Interviewer: Okay so where... the land that she's on now,

Interpreter: Yes,

Interviewer: Was acquired, it was her grandparents' land?

Interpreter: Yes.

Interviewer: **Uhm, were they able to choose that land?**

Interpreter: Eh, njengoba utsi lendzawo yakho, lendzawo lwn'lima kuyo, le okuyo nyalo beyi lima abo Babe kadzeni,

Farmer: Mm,

Interpreter: Eh, bona bayithola njani?

Farmer: Heyi, angati.

Interpreter: Kutsi nje bayithola njani uk'wakha la?

Farmer: Bayi thola ngemphakatsi.

Interpreter: Okay they got it through khonta system.

Interviewer: Okay,

Did they consider the types of soils when they were choosing the land?

Co-supervisor: But they didn't choose it.

Interviewer: I mean, okay.

Interpreter: The old ones?

Co-supervisor: Mm. Just ask anyway, but she said it was given. I mean she said... uhm maybe, I don't know.

Interpreter: She was the one given by the grandfathers and the grandfathers, they got it through uku khonta. Lemphakatsi naba... nabayi khontela bone ngabe bakhetsa yini kutsi sifuna leyana noma umphakatsi wavele watsi, nawuva?

Farmer: Cha, mawuyo cela lendzawo le e emphakatsi nabaya bo Babe beba suka ka Hlatsi beba, nangiva beba suka ka Hlatsi. Nabefika lana wafikela Emtini. Nafika la Emtini wasese lapha e, la baya lapha emphakatsi basho kutsi bato cela indzawo [inaudible]. Bam'buta ke kutsi yena ubone kuphi,

Interpreter: Okay,

Farmer: Ehe. Kuba tindzawo letimbili.

Interpreter: Kutawuya kutsi ubone lephi?

Farmer: Ubone lephi. Bese ke ba... nangabe bayavuma lo k'wemukela batsi ke uyatitsandza. Wena bowu... lokutsi bona baya vuma yini ku lo otibonile. Nangabe bayavuma bayak'nika.

Interpreter: Oh, okay! Which means eh, you'll go to the umphakatsi with two lands to say this one is okay. You'll go and suggest two lands.

Co-supervisor: Okay.

Interpreter: And then depending on whether they allow you but most cases they will allow you [interruption]

Co-supervisor: One of the two?

Interpreter: One of the two.

Interviewer: Okay, does she know that for her family specifically, if they gave them what they chose or if they were just given [interruption]

Interpreter: Oh okay.

Ngabe mhlampe ungaku... kukhona yini lo'kwatiyo kutsi kulenzawo letimbili [inaudible] kutsi sicela ba [inaudible] ngabe mhlampe banikwa le bayifuna noma base banikwa lokunye? Noma banikwa kuloku bak'funa kuloku okubili?

Farmer: Angitsi la la ufikele khona kulom'galajane wakho, uya... [Inaudible] uyakhomba [inaudible] nayi indzawo naya nanaya ihleli [interruption]

Interpreter: Sengisho laba, laboKhokho banikwa lendzawo beba bebayi bebaye nato yini lemphakatsi noma wafika umphakatsi watsi hayi sininika lena?

Farmer: Cha, ngatsi banikwa bebayi funa.

Interpreter: Okay, it's like they were given one of the two [Masemula edit – Nov 2022: They were given their first choice].

Co-supervisor: Just tell me, I want to quickly ask you a question, do these red soils occur around here? Any of these red soils?

Interpreter: Mm [thinking]

Co-supervisor: Because I haven't noticed it. In other parts of Swaziland you can see a lot of red.

Interpreter: Ja, [inaudible] or I should ask [interruption]

Co-supervisor: I'm asking you, or you can ask her.

Interpreter: Uhm, as far as I know there are no red soils around.

Co-supervisor: Ja,

Interpreter: Most of the red soils are along that mountain.

Co-supervisor: On the top?

Interpreter: Ja, along the top.

Co-supervisor: But you can ask her as well.

Interpreter: Okay, eh ngok'wati kwakho wena lomahlabatsi lotsi ile ebovu, ikhona la? Ukhona umhlabatsi lo sibovu la?

Farmer: Mm, ukhona.

Interpreter: Ukuphi?

Farmer: Usbovu nje [interruption]

Interpreter: Oh!

Farmer: Usuka la [points] ubeke le.

Interpreter: Okay, okay. Ja, ja, ja. There is red soil. I think from that waiting room there is a, there will be homestead on your right. A big one. There'll be a big homestead on your right. And then if you reach that homestead then you start to look around,

Co-supervisor: Ja,

Interpreter: These are red soils up until the ju...the, through the main road up until the main road, the tarred one.

Co-supervisor: Really?

Interpreter: Ja, these are red soils.

Co-supervisor: Oh, we must look nicely.

Interpreter: Ja, now I can remember, these are red soils.

Co-supervisor: Okay.

Interpreter: You'll see them.

Co-supervisor: Okay.

Interpreter: Ja.

Interviewer: And then for her where she is, what are her soils like?

Interpreter: Lapha kakho yilomhlabatsi lobovu yini?

Farmer: Awu, se sowuyabhicana.

Interpreter: Okay, as for my land it's a mixture of red and black.

Interviewer: And has, does, in her own opinion does she think it has worked for her? The soil, does she think it's good enough, the mixed [interruption]?

Interpreter: Okay. Lomhlabatsi wakho lo'nawo lapha njengoba utsi nje awusasiyo lobovu sowubhicene,

Farmer: Mm,

Interpreter: Nawu mbuka wena uyak'seb... uyak'sebentela yini noma vele noma kudzingakala lo bovu?

Farmer: Mm, nangi fake lo, la [inaudible] isibaya, nangi fake le lomcuba bengis'thola lesivuno.

Interpreter: Okay,

Farmer: Ehe.

Interpreter: Okay, only if I've applied kraal manure then I'll get a harvest on this type of soil that I have.

Interviewer: Okay.

Farmer: Ngoba nje bengi, la [inaudible] is'baya bek'linywa umbila ngisafika, kusenabo Babe,

Interpreter: Mm,

Farmer: Ngahamba mine ngam'lima kotini. Ishlahla betiba ne... les'hlahla tikhulu ungakhona kutsi umntwana angakhona kugibela.

Interpreter and Interviewer: Okay.

Interpreter: Siyabonga.

Interviewer: Okay,

Since her grandparents land, they were able to choose which one, did they consider the soils?

Co-supervisor: They weren't able to choose.

Interviewer: She did say they were able to choose between the two [lands they suggested to umphakatsi]

Co-supervisor: Oh, really?

Interpreter: Ja, they were given amongst the two. Angitsi they [interruption]

Co-supervisor: They were given one?

Interpreter: One of the two.

Co-supervisor: Okay.

Interpreter: Okay, kule lendzawo [inaudible] labo Khokho bakho, beba... bakwati yini uk'khetsa hayi yabona lena nayi ek'limeni itaba [inaudible]. Noma nje, bavele ba [inaudible]?

Farmer: Hha, bebalima nje.

Interpreter: Okay, they were not choosing. It was, they just plant anywhere.

Interviewer: Okay,

Do you plant different types of sorghum?

Interpreter: Eh, kulok'lima kwakho lokhu ok'lima nyalo ngabe ulima tinhlobo leti hlukeneyini tamabele noma ulima yinye?

Farmer: Ngilima yinye, ilokhwanyana, emabele. Ngoba kadzeni bek'na lamabele lamadze,

Interpreter: Okay. Okay, now I only do one.

Interviewer: One, which one is that one?

Interpreter: Eyiphi le oyihlanyelayo nyalo?

Farmer: Mm, yilana amafishane.

Interpreter: La la brown?

Farmer: Mm, labovu.

Interpreter: Oh okay, which means this eh the NS5511.

Farmer: Mm, 1.5

Interpreter: He eh, it's [N] 5511.

Interviewer: Okay,

So before using these ones, which types of sorghum did they grow?

Interpreter: Ngaphambi kok' ufike ek'sebentiseni letihlobo oti sebensisa nyalo, tishi tihlobo beniti sebensisa kadzeni?

Farmer: Lawa angisalati ligama lawo. Bewamadze njeni, kodwa abovu.

Interpreter: Ja,

Farmer: Atsi nakasa atselile atsi [demonstrates].

Interpreter: Okay.

Farmer: Mm.

Interpreter: Bekuyi nhlobo yinye? Kute lenye oyikhumbulako?

Farmer: Ah, kute.

Interpreter: okay, I can only remember one variety but the name I don't know. I could not remember the name, only I can describe. They were tall and the heads used... to like falling. They were long, tall and then the heads is like falling.

Interviewer: Okay,

Why did she stop using those?

Interpreter: Eh, letihlobo takadzeni ke tayekelelwani lok'setshentiswa? Wayekelelani nje sengisho wena, wayekelela le yakadzeni?

Farmer: Mm, shutsi ngisabe seng'thola mlimisi wathi emabele lanesivuno yilawa amfishane.

Interpreter: Okay.

Farmer: Mm.

Interpreter: Eh, I was advised by the, an extension officer that the modern one they have more harvest than the indigenous one.

Interviewer: Okay,

What are the advantages and disadvantages of the indigenous [sorghum] that she used, and what she uses now?

Interpreter: Okay njengoba wakhe walima lawa akadzeni,

Farmer: Mm,

Interpreter: Eh, ikuphi nje okuhle ngawo longatsi heyi bewa mahle ngaloku, nanga loku, nanga loku lawa akadzeni?

Farmer: Beti ngawadli kakhulu letinyoni. Angitsi beka, ayenta nje [demonstrates].

Interpreter: Okay,

Farmer: Inga, itsi nayi itsi lenyoni iyema bese kutsi nalokhu [demonstrates]

Interviewer: Okay.

Interpreter: Okay! Okay, the birds were not able to eat them.

Farmer: Mm.

Interpreter: Le, yini lokunye nje?

Farmer: Yiloko k'phela.

Interpreter: Which means it's the only one advantage.

Eh, bubi ke babo beku yini?

Farmer: Be, bekatsela kancane.

Interpreter: Okay, which means there was a,

Co-supervisor: Small harvest?

Interpreter: Small harvest.

Interviewer: Can I ask, uhm ok when she says they had a small harvest,

Interpreter: Mm hmm,

Interviewer: Does she mean they had a small harvest, or does she mean compared to what she gets now they was a small harvest, it was smaller?

Interpreter: Okay. Nawutsi sivuno sakho, nawutsi bewatsela kancane,

Farmer: Mm,

Interpreter: Bekatsela kancane noma bekatsela kancane nawa chatsanisa na lanka anyalo?

Farmer: Eh, nawa chatsanisa nalawa anyalo.

Interpreter: Okay, it's like when compared with the modern one.

Interviewer: So they could still get more than enough?

Interpreter: Ja, but when compared to this one, it's small.

Interviewer: Okay, then the ones for [interruption]

Co-supervisor: modern.

Interpreter: Okay, lawa esilungu ke yini ubuhle bawo?

Farmer: Ah, nangabe kuvunzile,

Interpreter: Mm,

Farmer: Les'phuma sakhona siba sikhulu.

Interviewer: Okay.

Interpreter: Lenhlobo?

Farmer: Lenhlobo yawo.

Interpreter: Okay, when the soil is fertile the head becomes big.

Yini lokunye?

Farmer: Kuyenteka futsi uwavune kabili.

Interpreter: Kanjani?

Farmer: Angitsi uyajuba nyalo,

Interpreter: Ehe,

Farmer: Njengalo lina litulu kuphindze kuchakele,

Interpreter: Lenye inhloko?

Farmer: Lenye inhloko. Iphindze nayo itale, kanjalo. Kodwa ingabe isatsela fana fana na lenhloko yasek'caleni.

Interpreter: So which means this one it depends if rains are available. You can harvest two times. You remove the first head and then when there are rains, then another one [head] will be formed. And then you'll harvest that.

Interviewer: Oh so you just clip the head and you leave the stem in the ground then it grows [interruption]

Interpreter: Yes, and then another one will develop.

Farmer: Ujuba lapha [inaudible] lo'kulenga phasi.

Co-supervisor: What?

Interpreter: Okay which means, let's say this is the harvest [demonstrates]

Co-supervisor: Mm,

Interpreter: You cut here,

Co-supervisor: Mm,

Interpreter: You take this one,

Co-supervisor: Mm,

Interpreter: And then when rains come, another head will form just there [demonstrates].

Interviewer: Oh okay!

Farmer: Kukhona nje nyalo ngiwavunile,

Interviewer: Eh,

Farmer: Kwaphindze kwa [interruption]

Interpreter: Okay, nawutsi lamabele lanka anesivuno es'khulu usholo ngoba lanka abesana amila kabusha noma [interruption]

Farmer: Aphindze atsele kabili.

Interpreter: Okay, which means if I say this one has a big harvest it's because you can harvest them two times. That's why I say they have a, a big harvest.

Co-supervisor: Okay.

Interviewer: What do you use [interruption]

Co-supervisor: Ha ah, disadvantages.

Interpreter: Oh, yini ke bubi bayo? Lamabele lamasha.

Farmer: Adliwa tinyoni kakhulu.

Interpreter: Okay.

Farmer: Mm.

Interpreter: Eh, yini lokunye?

Farmer: Asheshe abe ne ngobolwane ase lapha,

Interpreter: Ensimini?

Farmer: Ensimini.

Interpreter: Okay, which means the one disadvantage [is] that birds, they like them too much. And another one, weevil[s], they can be attacked by weevil[s] even if they are still in the field.

Interviewer: The one from before, the indigenous ones [interruption]

Interpreter: La amanye wona ingobolwane beyingawadli?

Farmer: Beyingawadli kakhulu.

Interpreter: Beyingawadli la ensimini?

Farmer: Hm mm, beyingawadli.

Interpreter: Which means the indigenous ones there will be no weevil[s] in the field.

Interviewer: Okay.

What does she use the sorghum for?

Interpreter: Lamabele uwasebentisa ukwentani? Lawa owalimako?

Farmer: Ngiyenta incwancwa ne liphalishi.

Interpreter: I do thin porridge and porridge.

Interviewer: Okay,

If the season to start planting does not present ideal conditions, what steps and adjustments do you make to increase your chances of a successful harvest?

Interpreter: Eh okay nangabe nje itulu liyabonakala kutsi isimo setulu ku lonyaka asisona lesihle, sitawu bonakala ngatsi sifuna kuba matima, yini lo'kwentako wena ukuti lungiselela kutsi ugcine ulimile watfole sivuno lesi phatsekayo?

Farmer: Ngiye ngihlanyele lamabele. Ngoba kulo nyaka vele umbila ang'kawu hlanyeli, ngihlanyele nje emabele k'phela [interruption]

Interpreter: Uwahlanyela nini wona?

Farmer: Lawa, la...

Interpreter: Uwahlanyela nase linile noma lingakani, noma iyenta njani?

Farmer: Ngihlanyela nak'se kunile.

Interpreter: Okay, if [interruption]

Farmer: Sengi seng'guculile lomhlabatsi.

Interpreter: Oh okay, which means... shutsi ugucula k'cala?

Farmer: Ehe, ngigucula k'cala.

Interpreter: Bese nalitsi liyavela so'faka mabele?

Farmer: Yebo ke.

Interpreter: Okay!

Farmer: Mm.

Interpreter: Which means I do winter ploughing and then when it rains, first rains comes I plant only sorghum if the conditions they are not good. I just plant only sorghum.

Farmer: Angitsi mawungawa faka nyalo, lo uwafake ungaka, ungaka, lingakani lelitulu, kunaleti ntuthwane,

Interviewer: Okay,

Farmer: Tabe setiya, tiyadla bese kudleka nale [inaudible]

Interviewer: Okay.

Interpreter: Okay, she was saying if you plant them before rains, you... the seeds, there are ants in the ground and then they will destroy the seed.

Co-supervisor: I just want to ask back to this question before. Are there any uses of the indigenous sorghum, any ones that they [interruption]

Interpreter: Back then?

Co-supervisor: Ja, what didn't, what did they do which they don't do with the modern variety?

Interpreter: Okay, ku lamabele lamadzala, kukhona yini le beniwa, la beniwa sebentisa khona la amadzala la ningasawa sebentisi khona na la masha?

Farmer: Mm,

Interpreter: Kungaba yini?

Farmer: Kadzeni emabele bo'wa tatse uwapheke eze tinkobe,

Interpreter: Okay,

Farmer: Ehe, bese se a, uyawa ngena etjeni uyawa sila. Sow'vuba emasi.

Interpreter: Kuba yini igama lalokhu?

Farmer: Kube nje ngemasi a [interruption]

Interpreter: Nyalo anyeke uk'wente ngalawa?

Farmer: Ungak'wenta, mane nje abasak'tsandzi nje labantwana.

Interpreter: Okay, beng'funa lokutsi ung'tshele lo, loku enik'wentako ngalawa kandzeni longeke uk'wente ngalawa. Kutsi lokhu bek'wentiwa ngamabele akadzeni ngeke uk'wente ngalawa.

Farmer: Ku yentiwa, mane nje lokutsi asik'tsandzi tsine. As'aktsandzi letinto betiyenteka kadzeni. Lamabele futsi angitsi waw'a cumbisa mawuta kwenta tjwala?

Interpreter: Mm,

Farmer: Asisak'wenti.

Interpreter: Anisak'wenti noma mawu wenta angeke kusa yenteka?

Farmer: K'yenteka. Nak'tsiwa nje kune kutaba nemcimbi lakhaya,

Interpreter: Okay,

Farmer: Ku yenyiwa lamabele. Nitsi ningawenya bese uyaphumbisa lamanti se niyawa holela elidziweni.

Interpreter: Okay.

Farmer: Mm. Bese utsatsa lisaka uyambonya,

Interpreter: Ng'yabona,

Farmer: Kuya bekiseka kutsi ngales'khatsi lesi atabe amilile. Ath'angamila ke seniyawa khokha ke.

Interpreter: Ungak'wenta ngalawa akadzeni uyente nangalawa wa nyalo?

Farmer: Ungak'wenta.

Interpreter: Which means there was nothing that we could do with the indigenous one of which you cannot do it with the modern one. The reason why they are, people are not doing it now is because most of the things, people are not interested in them.

Co-supervisor: Okay.

Interpreter: Yes, like making, like boiling them, grinding them then you mix with emasi.

Co-supervisor: Okay.

Interpreter: Now people, they don't like that type of food.

Co-supervisor: Okay.

Interviewer:

Is there any time that you let cattle onto your field?

Interpreter: Kukhona yini la ukhandza kutsi tinkomo niyati yekela nje tingene emasimini, enyakeni?

Farmer: Mm hmm, kuba khona.

Interpreter: Kunini?

Farmer: Eb'sika.

Interpreter: Okay it's only in winter, around winter.

Interviewer: Okay

If you do not use cattle for manuring what do you use instead, before and now?

Interpreter: Eh kadzeni njengoba ushito kutsi kwak'setshentiswa mcuba ukuvunzisa insimi angitsi?

Farmer: Mm,

Interpreter: Nak'ngaka fakwa lomcumba bek'fakwani? Kadzeni?

Farmer: Kute. Beba sebentisa vele lomcuba. Wawu khandza is'khatsi es'nengi vele la emasimini kutselwe mcuba,

Interpreter: Kadzeni?

Farmer: Kadzeni.

Interpreter: Nyalo ke nangingaka faki umcuba nifakani?

Farmer: Manyolo.

Interpreter: Which means a long time ago if you have not used kraal manure, there's nothing you used. But now if you have not used kraal manure they use synthetic fertilizers.

Interviewer: Okay,

When in the year does sowing begin and who does it?

Interpreter: Eh, emyakeni nje, kulima kucala nini? Ende kuyentiwa bobani ekhaya kakho nje? Kulima kucala nini nje nawutsi ucala kulima nges'khatsi nasi, k'wentiwa bobani?

Farmer: K'wentiwa ngu Babe.

Interpreter: Le khaya?

Farmer: Mm.

Interpreter: Ngisho nyalo,

Farmer: K'wentiwa ngimi.

Interpreter: K'wentiwa nguwe?

Farmer: Mm.

Interpreter: Ucala nini uk'wenta?

Farmer: Ngicala nga October.

Interpreter: Which means the season begins in October and I'm the one doing it.

Interviewer: Okay,

And the harvest time?

Interpreter: Uk'vuna ke, bese uvuna nini?

Farmer: April/May.

Interpreter: Ku vuna bani?

Farmer: Ku vuna mine.

Interpreter: Uba wedwa?

Farmer: Ngiba nalabantwana.

Interpreter: Which means I harvest April or May with my children.

Interviewer: Okay.

Farmer: Kanti nga, les'khatsi les'phelile nang'sa joyine tinhlango tembila, [inaudible] ngang'cela abantu bang'vunise.

Interpreter: Oh okay! Kuyavakala.

Interviewer: Okay

Is there anything you do to make sure that the land recovers between growing seasons?

Interpreter: Okay njenga nyalo sowulimile nje, kukhona yini lo... angitsi ulimile nyalo sow'vunile?

Farmer: Ehe.

Interpreter: Kukhona yini lo taku yenta la ensimini yakho kulungiselela kutsi naku suka le season etayo lensimi yakho ibe, ilungele kutsi ulime?

Farmer: Ngitowa cutter nyalo lamabele,

Interpreter: Mm,

Farmer: Ngiwa jube so [demonstrates] titsi noma kutiwa le tinkomo tiwadle ala phansi.

Interpreter: Kuhluka ngani kuwadla phansi nokuwadla etulu? Atiwacedzi phansi?

Farmer: Ti, tiyawacedza. Kujubeka kahle nyalo kusemanti.

Interpreter: Oh!

Farmer: Ehe, bese seng'ya gucula ke.

Interpreter: Uya juba bese uya gucula?

Farmer: Mm ng'ya gucula letihlanga tingena la phansi.

Interpreter: Oh, okay which means during winter I cut all the crop remains and then I do winter ploughing.

Interviewer: Okay,

Where did you grow up?

Interpreter: Ukhulelephi?

Farmer: Ngi khulele eNhlango.

Interpreter: Eh, I grew up in Nhlango. Nhlango is a Lowveld, a Highveld, Highveld.

Interviewer: Okay,

Do people still plough using oxen?

Interpreter: Bakhona yini la basa lima basebentisa tinkabi?

Farmer: eNhlango?

Interpreter: Noma kukuphi nje.

Farmer: Sekute nyalo. Kwatsi kufe le, kungene somiso kwase kubate bantu basebentisa tinkomo.

Interpreter: Which means after the drought there was no one who use oxen.

Co-supervisor: The recent drought?

Farmer: Kodwa abanye ba [interruption]

Interpreter: Ngisiphi lesomiso?

Farmer: Angisati kutsi, angisati kutsi sangomuphi mnyaka. Nineteen eighty... [Interruption]

Interpreter: Mana, letinkabi tayekelwa le ko nineteen eighty bani bani, la?

Farmer: Awu, bayekelela kadzeni.

Interpreter: Bayekela kadzeni?

Farmer: Mm. Natsi nje les'khatsi ngise nato besilima ngako tinkabi.

Interviewer: Mm.

Farmer: Mm. Mane ke la ku letinkabi, wawu gucula nga letinkabi bese utsatsa li plantela uya plantela. Nangabe kute le plantela, wawu lima ngale lokhanyana,

Interpreter: Mm,

Farmer: Ulandzele la ngemuva.

Interpreter: Nini lapho?

Farmer: 1985.

Interpreter: Ah, 1985.

Co-supervisor: What happened? The drought?

Interpreter: Le somiso sayenteka nini?

Farmer: Le somiso site la kubo 1988.

Interpreter: '88?

Farmer: Mm.

Co-supervisor: What's that?

Interpreter: Eh, the drought happened in 1988.

Co-supervisor: And what was '85?

Farmer: Hayi, '94, '94, '94! Ngoba ku nemtfwana nga [inaudible] kutsi ungu bhabha. Ngoba le tinkobi tati ti [interruption]

Interpreter: Okay which means we lost, most of the cattle we lost them during the drought of 1994.

Co-supervisor: And what was she saying about 1985?

Interpreter: Eh 1985, she was mixing the drought, the date, the year for the drought.

Co-supervisor: Oh, okay!

Interpreter: Yes.

Interviewer: Okay

Uhm, when maize was introduced did your parents and grandparents continue growing sorghum?

Interpreter: Uhm, uyabona, angitsi kadzeni uyati kutsi, kadzeni bek'namabele kakhulu?

Farmer: Ehe, bebalima [interruption]

Interpreter: Kwatsi kwak'fika lendzaba kutsi maku linywe umbila, then benta njani bo, batali bakho? Bayekela mabele baya embileni noma bak'wenta konke? Kwa yentekani lapho?

Farmer: Sancipha lesivuno samabele.

Interpreter: Nehlisa lamabele nakhuphula lombila?

Farmer: Mm.

Interpreter: Which means there was a shift from sorghum to maize.

Interviewer: Does she remember why they [interruption]

Farmer: Ngoba lamabele bekute le lokutsi siwa tesengisa kuphi.

Interpreter: Oh!

Farmer: Ehe, kantsi lombila bebeta kutsiwe siyahamba siyo tsengisa umbila.

Interpreter: Okay the shift was caused by the, there was no, availability of market for maize and there was no exact market which was available for sorghum. That's why people, that's why they changed to maize other than sorghum.

Co-supervisor: There was more of a market for maize?

Interpreter: Ja, there was a formal market for maize.

Interviewer: Okay. So they started growing their crops more for selling than for eating?

Interpreter: Ja, seemingly it's like they started going for sale.

Interviewer: Okay. Do you have any more questions?

Co-supervisor: Hm mm. Let me just see.

Interpreter: Ingatsi ses'fike ek'gcineni Make. Cha sibonge kakhulu.

Interviewer: Ithi ngicime la ngespiti.

APPENDIX 3

Appendix 3: Generalised linear mixed effects models for plots of $\delta^{13}\text{C}$ against $\delta^{15}\text{N}$

Table 1: Generalised linear mixed effects model

delta15N			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	-0.95	-6.52 – 4.61	0.737
delta13C	-0.51	-0.94 – -0.08	0.019
Random Effects			
σ^2	0.33		
τ_{00} Locality	3.89		
ICC	0.92		
N Locality	5		
Observations	92		
Marginal R ² / Conditional R ²	0.009 / 0.922		

Interpretation of the results presented in the table from the generalized linear mixed-effects model (GLMM):

Predictors:

1. (Intercept):

- Estimate: The estimated intercept for the model is -0.95.
- 95% Confidence Interval (CI): The 95% confidence interval for the intercept ranges from -6.52 to 4.61.
- p-value: The p-value associated with the intercept is 0.737.

Interpretation: The intercept represents the estimated mean value of **delta15N** when **delta13C** is equal to zero. However, since the 95% confidence interval includes zero, the intercept is not significantly different from zero, indicating that it may not be meaningful in explaining **delta15N**.

2. **delta13C:**

- Estimate: The estimated coefficient for the **delta13C** predictor is -0.51.
- 95% Confidence Interval (CI): The 95% confidence interval for the coefficient ranges from -0.94 to -0.08.
- p-value: The p-value associated with the coefficient is 0.019.

Interpretation: The coefficient for **delta13C** represents the estimated change in **delta15N** for each one-unit increase in **delta13C**. In this case, a one-unit increase in **delta13C** is associated with a decrease of approximately -0.51 units in **delta15N**. The p-value ($p = 0.019$) indicates that this relationship is statistically significant.

Random Effects:

- **σ^2 (Sigma-squared):** The estimated residual variance (sigma-squared) is 0.33. This represents the unexplained variability in the response variable **delta15N** that is not accounted for by the fixed effects in the model.
- **τ_{00} (Tau-zero-zero) Locality:** The estimated variance of the random intercept for the **Locality** grouping variable is 3.89. This indicates the variability in **delta15N** between different localities that is attributed to the random effect.
- **ICC (Intraclass Correlation Coefficient):** The ICC is 0.92, indicating a high proportion of the total variability in **delta15N** is due to variability between localities rather than within localities.
- **N Locality:** There are 5 unique levels (localities) within the **Locality** grouping variable.

Observations:

- The total number of observations in the dataset is 92.

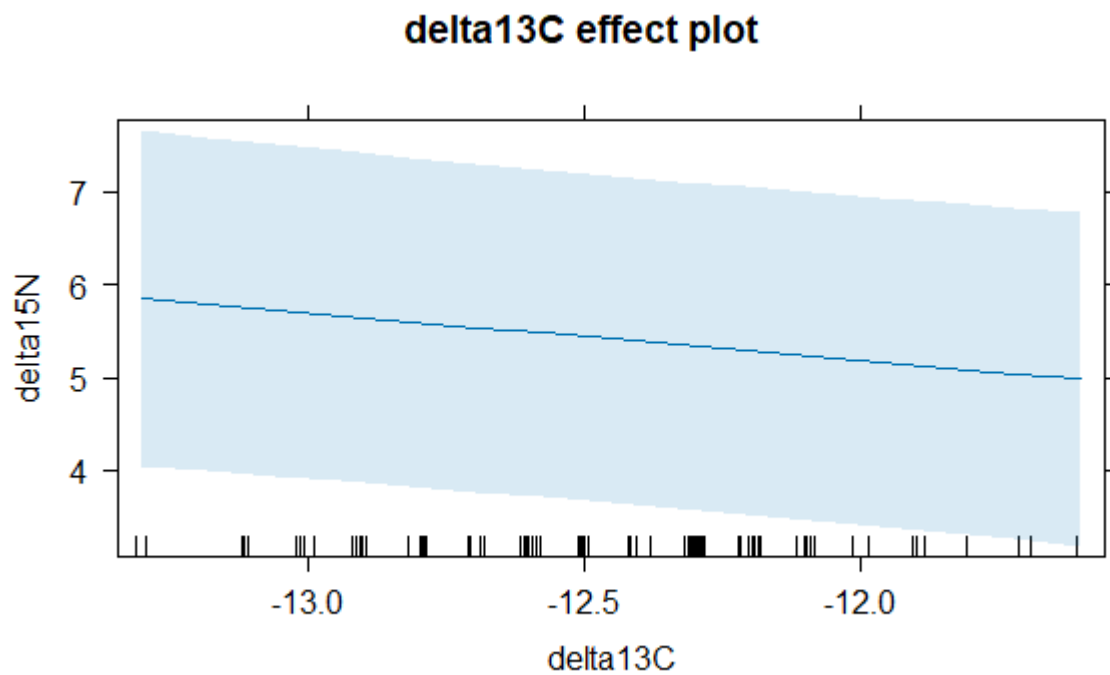
Marginal R^2 / Conditional R^2 :

- Marginal R^2 : 0.009
- Conditional R^2 : 0.922

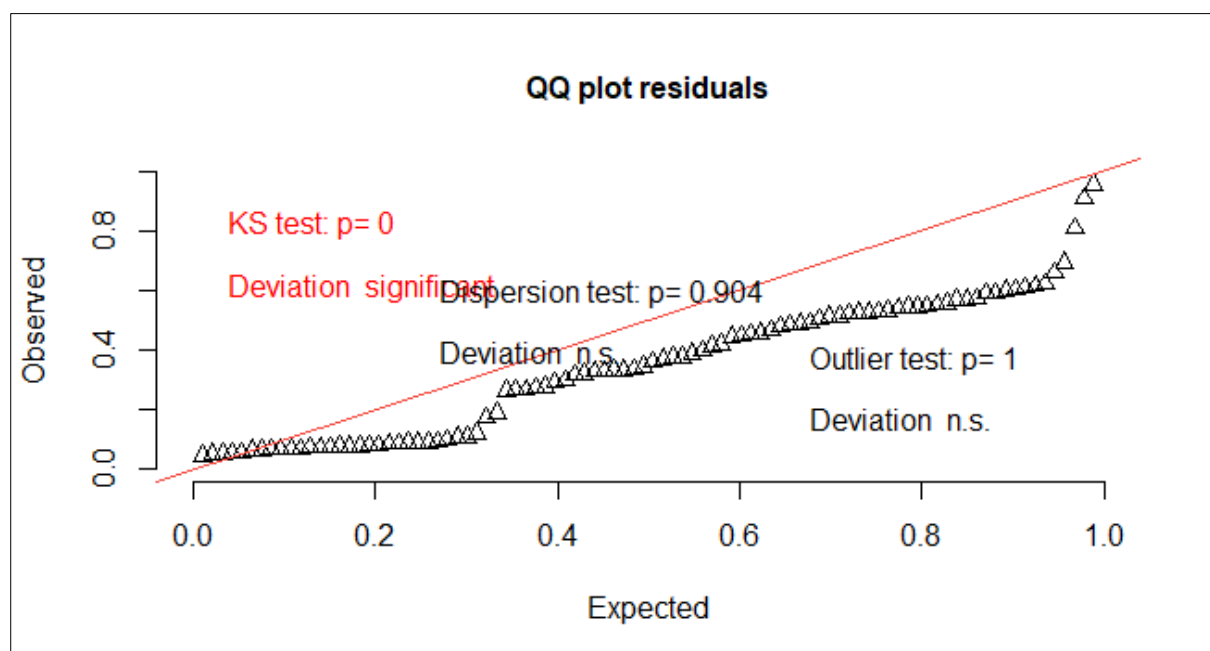
Interpretation: The marginal R^2 represents the proportion of variance explained by the fixed effects in the model, which is very low (0.009). The conditional R^2 represents the proportion of variance explained by both fixed and random effects, indicating that the model with both fixed and random effects explains a high proportion (92.2%) of the variance in **delta15N**.

Visualising effect of delta13C on delta15N

The graph shows a negative effect of **delta13C** on **delta15N**.



Model diagnostics



The plot appears to be the result of running some diagnostics on a statistical model, particularly the quantile-quantile (QQ) plot for uniformity. The breakdown of the information presented in this plot is given below:

1. KS Test (Kolmogorov-Smirnov Test):

- "KS test: $p = 0$ "
- The KS test assesses whether the observed data follows a specified distribution, in this case, the uniform distribution.
- The " $p = 0$ " indicates that the observed data significantly deviates from a uniform distribution. In other words, the data does not follow a uniform distribution as indicated by the model.

2. Dispersion Test:

- "Dispersion test: $p = 0.904$ "
- The dispersion test evaluates whether there is significant dispersion (variability) in the model's residuals.
- The " $p = 0.904$ " suggests that there is no significant dispersion in the model's residuals. In this context, a high p-value is typically favorable as it indicates that the model's residuals are not significantly dispersed.

3. Outlier Test:

- "Outlier test: $p = 1$ "
- The outlier test checks for the presence of outliers in the data.
- The " $p = 1$ " suggests that there are no significant outliers in the model's residuals. A high p-value here indicates that the model does not detect any outliers in the data.

In summary:

- The KS test indicates that the observed data significantly deviates from a uniform distribution, which may suggest that the model's assumptions about the data distribution are not met.
- The dispersion test shows no significant dispersion in the model's residuals, which is a positive outcome indicating that the model's residuals are reasonably consistent.

- The outlier test finds no significant outliers in the data, which is generally a good sign as it means that the model is not sensitive to extreme data points.

Overall, this plot suggests that while the model's residuals are reasonably consistent and free from outliers, there may be an issue with the model's assumption of a uniform distribution for the data. Further investigation and potentially model adjustment may be necessary to better fit the data distribution.

ii. Model output with plot as random effect:

delta15N			
Predictors	Estimates	CI	p
(Intercept)	-28.65	-37.52 – -19.77	<0.001
delta13C	-2.76	-3.45 – -2.06	<0.001
Random Effects			
σ^2	1.37		
τ_{00} Variety	6.15		
ICC	0.82		
N Variety	4		
Observations	92		
Marginal R ² / Conditional R ²	0.127 / 0.841		

Interpretation of the results presented in the table from the generalized linear mixed-effects model (GLMM):

Predictors:

3. (Intercept):

Interpretation: The intercept represents the estimated mean value of **delta15N** when **delta13C** is equal to zero. Confidence interval does not include zero and is statistically significant.

4. **delta13C:**

Interpretation: The coefficient for **delta13C** represents the estimated change in **delta15N** for each one-unit increase in **delta13C**. In this case, a one-unit increase in **delta13C** is associated with a decrease of approximately -2.76 units in **delta15N**. The p-value ($p < 0.001$) indicates that this relationship is statistically significant.

Random Effects:

- **σ^2 (Sigma-squared):** The estimated residual variance (sigma-squared) is 1.37. This represents the unexplained variability in the response variable **delta15N** that is not accounted for by the fixed effects in the model.
- **τ_{00} (Tau-zero-zero) Variety:** The estimated variance of the random intercept for the **Variety** grouping variable is 6.15. This indicates the variability in **delta15N** between different varieties that is attributed to the random effect.
- **ICC (Intraclass Correlation Coefficient):** The ICC is 0.82, indicating a high proportion of the total variability in **delta15N** is due to variability between varieties rather than within varieties.
- **N:** There are 4 unique levels (localities) within the **Variety** grouping variable.

Marginal R² / Conditional R²:

- Marginal R²: 0.127
- Conditional R²: 0.841

Interpretation: The marginal R² represents the proportion of variance explained by the fixed effects in the model, which is low (0.127). The conditional R² represents the proportion of variance explained by both fixed and random effects, indicating that the model with both fixed and random effects explains a high proportion (84.1%) of the variance in **delta15N**.

iii. Model output with both plot and variety as random effects:

Locality + Variety:

delta15N			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.06	-5.63 – 5.74	0.984
delta13C	-0.43	-0.87 – 0.01	0.055
Random Effects			
σ^2	0.30		
τ_{00} Variety	0.04		
τ_{00} Locality	3.80		
ICC	0.93		
N Variety	4		
N Locality	5		
Observations	92		
Marginal R ² / Conditional R ²	0.006 / 0.927		

