Moses Kotane Institute

Research · Innovation · Excellence

Determining Challenges faced by small-scale sugarcane growers in KwaZulu-Natal

Table of Contents

List of figures

ABSTRACT

From 2014 to 2019, South Africa's sugar cane productivity rose by 0.8% year on year on average (Sikuka and Geller, 2019). South Africa is consistently ranking in the top 15 out of approximately 120 sugar producing countries worldwide with 18,514,559.18 Metric Tons (Nation Master, 2021). The South African sugar industry is considered by the South African Sugar Association (SASA) as one of the world's leading cost competitive producers of high-quality sugar and contributes significantly to the national economy, sustainable development and creates mass employment in rural areas (SASA, 2021). According to SASA (2009), around 2% of the South African population are dependent on the sugarcane industry for a living. However, there are numerous challenges faced by the sugar industry in the province. Therefore, the purpose of this study was to determine various challenges faced by sugarcane farmers. Data was collected from 83 Small-Scale Sugarcane Growers (SSGs) in eight KZN districts, using survey questionnaire. Out of 91 respondents or SSGs, only 8 did not consent to participate in the study. Most of the SSGs were male. The findings of this study indicated that SSGs face numerous challenges ranging from inequality; land issues; financial problems; drought; access to market; productivity; lack of high performing varieties; transport issues; climate change; and alien invasive plants or weeds. Business need capital or financial assistance to expand their operations, thus increasing market share. It is therefore not surprising that most of the SSGs need financial support (83) to expand their operations. In addition to financial support, they desperately need partnerships or shareholding; marketing skills; education/ farming skills; skilled workforce; feasibility/ business plan; access to markets; and transport and logistic.

Keywords: Sugarcane; Small-Scale Growers; Unrest; Looting; Sustainability.

1. INTRODUCTION

Globally, sugarcane is the largest crop by production quantity; sugar is produced in 120 countries. Global production exceeds 165 million tons a year. Approximately 80% is produced from sugarcane, which is largely grown in tropical countries (RSA, 2014). The R16 billion South African sugar industry is cost-competitive, consistently ranking in the top 15 out of 120 sugar producing countries worldwide. Stretching across Mpumalanga and KwaZulu-Natal, more than one million people (2% of the population) are dependent on the industry for employment, business, education, and training. Moreover, the industry is a catalyst for economic growth and development (SASA, 2022).

The sugarcane industry is a significant contributor to the national fiscus and is usually concentrated in rural areas in South Africa. The industry constitutes R5.1 billion in value of sugarcane production in the country (SASA, 2021). The economic impact of the sugar industry has proven over decades to be so significant that rural areas and towns such as Tongaat in KwaZulu-Natal and Malelane in Mpumalanga were established based on the business of growing sugarcane and supplying sugar (SASA, 2022).

However, the industry faces numerous challenges from planting and growing sugarcane, accessing mills, low productivity, accessing markets and seed varieties, making payments to the farmers, amongst other challenges. These challenges are mostly felt by small-scale sugarcane farmers whose productivity was adversely affected by the social unrest and looting in July 2021. The sugar industry in KwaZulu-Natal lost R84 million and threatened thousands of rural jobs in the sugar industry (Dlamini, 2021). The South African Canegrowers reported that mills in KwaZulu-Natal rejected 135 222 tons of damaged cane which amounted to more than R84.5 million. They revealed that more than 38 000 tons belonged to small-scale cane growers, who were most at risk of not recovering from revenue losses because they had no insurance (Dardagan, 2021).

Prior to the looting and social unrest, small-scale sugarcane farmers could not effectively compete with large-scale sugarcane farmers. The social unrest and looting widened the socio-economic divide between small-scale and large-scale farmers, and it will take investment and relief funds to aid small-scale cane growers to gain competitive and comparative advantage against large-scale farmers. Zulu et al. (2019) argued that the decline in sugarcane production by SSGs has increased dependency on government social grants and bank loans. Thus, the small-scale sugarcane farmers are faced with mounting debt and the challenge of reviving their economies.

Overall, the sugarcane industry in KwaZulu-Natal is vital to the economy, farmers, and rural and township communities; therefore, it is important to investigate and address the challenges faced by small-scale sugarcane growers and factors inhibiting the sustainability of the industry. This study aimed to contribute, improve, and provide an understanding on the various challenges faced by small-scale sugarcane farmers in the province and inform government and private investors' policies, initiatives, grants and loans, other initiatives to achieve case-by-case solutions. This research will give insight to KwaZulu-Natal SSGs on sustainable, realistic, and innovative ways to counteract problems faced due to the increasing complexity in sugarcane farming. This will contribute to their continued existence and in turn sustain employment and the local economy of the province.

2. LITERATURE REVIEW

2.1. Challenges faced by small-scale sugarcane farmers in South Africa

21.1 The history of challenges faced by small-scale sugarcane farmers in South Africa

Small-scale sugarcane farmers in South Africa are faced with challenges of accessing land, markets and financial markets, the crisis of climate change, as well as food security and productivity amongst other issues (Hlophe-Ginindza and Mpandeli, 2020). The genesis of these challenges can be traced back to the colonial era (Von Loeper et al., 2016). Hendriks (2014) posits that the arrival of the Dutch East India Company in 1652 created an era of conflict that persisted throughout the centuries with the displacement of farmers across the country and the rise of food production needs in the mining towns in the 1860s. Conflict over equality between black and white farmers led to the development of Natives Land Act of 1913 and the Bantu homelands in 1951 (Hendriks, 2014). These events shaped the dualistic farming sector that permitted white farmers to access land and subsidies whilst excluding black farmers (Hendriks, 2014). The advent of democracy was to reverse the inequalities created under the colonial and apartheid regimes, and address food security challenge through land reform and support programmes for emerging farmers (von Loeper et al. 2016). Altman et al. (2020) argue that government's support programmes focused largely on emerging commercial farmers and gave little scope to subsistence farming and small-scale farmers, which led to the programmes' unsuccessful outcomes. Love et al. (2006) argued that it was illogical for government to resolve food security and other productivity issues by focusing on increasing the production of commercial farmers.

It is argued that if given the necessary support, black farmers would be likely to succeed and potentially contribute to the success of agriculture and the economy in South Africa (Sebola,

2018). Studies by Sokhela (1999), Woodhouse (2015), Zulu et al. (2019) focus on the injustices faced by black farmers in the sugar industry, without making a greater effort to look at the readiness of black farmers in that role, which is one of the critical areas that still need further research. Groenewald (2004) posited that selecting beneficiaries for the agricultural development role requires that the farmers be agriculturists with experience, skill and knowledge of farming or be of similar agricultural background and have some capital of their own. Sebola and Tsheola (2014) purport that land allocation for agricultural development beneficiaries must consider the business interests of the individual to minimise the likelihood of failing agricultural projects. Hendriks (2014) points out that small-scale sugarcane farmers produce a quarter of what commercial farmers and large-scale farmers produce, which shows their untapped economic potential. Thus, those who previously struggled to set up an agricultural project that failed because of lack of resources should be given preference for government financial support, to participate amongst agriculturalists and large-scale farmers in the industry (Sebola, 2018). The challenge for South African government is at lowering transactional costs and reducing the number of barriers to entry which are: access to land, credit, insurance, information, and markets (Kariuki, 2004).

2.2. Challenges with agricultural extension services

Agricultural extension programmes have been used to address rural poverty and food insecurity in African countries (Danso-Abbeam et al., 2018). Agricultural extension is defined as the process of development of agricultural knowledge and skills amongst farmers, with the aim to increase productivity and achieve other goals (Collett and Gale, 2009). Agricultural extension has multiple goals such as transferring knowledge from global, national, and local researchers to farmers, helping them clarify their own goals and assessing their opportunities, educating them about decision-making processes, and promoting desirable agricultural development (Msuya et al., 2017). Extension services transfer technology, support rural adult learning, assist farmers in problem-solving and assist farmers to be actively involved in the agricultural knowledge and information system (Christoplos and Kidd, 2000).

The United Nations states that donors should target small-scale agricultural systems through new and innovative public-private partnerships, increased public investments in research, development-oriented local governance and institutions, and extension systems (Watson, 2021). Ortmann and King (2007) reported that extension officers in KwaZulu-Natal only visit small holder farmers once a year and their educational levels are quite low. In the Northwest, The Agricultural Development Project (Nguni Cattle Development Project) was introduced and

funded by the government and was directed by the Department of Agriculture to render extension services to agriculturists (Ijatuyi and Mokone, 2018). However, there were weaknesses in the extension and advisory services such as poor funding, lack of technical expertise and proper infrastructure (Ijatuyi and Mokone, 2018). Loki et al. (2019) stated that extension and advisory services should be free and easily accessible for farmers. In the absence of trained extension officers in the Department of Agriculture, Northwest farmers sought advice and services from the private sector which is generally expensive (Ijatuyi and Mokone, 2018). The instability created by the Northwest Department of Agriculture resulted in the administrative body finding it difficult to implement the constantly changing political commitments made by Members of the Executive Council (MECs) (Oladele and Mabe, 2010). The challenges wrought by apartheid were plenty posited by Ngomane et al. (2002) that were only 1200 extension staff in an 11 000 staff compliment. The department of agriculture plans to reduce the ratio of extension staff from 1:850 to 1:250 by recruiting 10 000 extension officers across the country as part of its extension recovery services (Erasmus, 2021), which shows progress but is still low compared to global standards totalling more than US$2.5 billion, which supports over 80 million farmers across Bangladesh, Zimbabwe, Zambia, Lesotho, Mali, Burkina Faso, Ghana, Cote D'Ivoire, Morocco, and The Republic of Congo (World Bank, 2021). Aliber and Hall (2010) state that budgets expanded over a 20-year period and the vastness of the administrative apparatus covers the largest portion of the budget with extension services in South Africa reaching only 11% of small holder farmers. In 2019, only 10,0% of the households received agricultural-related support from the government. The only provinces where significant support was provided for farming households were Eastern Cape (25,1%) and Northern Cape (17,3%). Nationally, slightly less than two percent (1,3%) of the households reported receiving training and 6,3% received dipping/livestock vaccination services (Government communications and Information systems, 2019).

Aliber and Hall (2012) investigated the National Department's focus on few projects that only benefitted a small group of small-scale farmers. The investigation revealed that targeting of agriculturally active black households by extension services had a 1.8% target reach. The authors criticised the ratio of extension to non-extension personnel by arguing that the national government departments made poor use of resources at their disposal and did not understand the needs and whereabouts of their primary clients (Aliber and Hall, 2012). To support and promote subsistence and small holder farming, there needs to be investment poured into extension services (Baiphethi and Jacobs, 2009). Aliber and Hall (2010) hold that it is concerning that, notwithstanding the small impact that extension currently has, such service uses up over half of support budgets at the provincial level. This, they indicate, raises

the question as to what it would cost to achieve an appreciable difference (Aliber and Hall, 2012).

2.3. Challenges with accessing markets

The reason why small-scale farmers with surplus production remain impoverished is due to the lack of access to markets (Magingxa et al., 2009). Msuya et al. (2017) argue that small holder farmers have no access to markets because field extension services are ill-equipped, lack knowledge about local markets and do not provide the required training and assistance to farmers. Almond and Hainsworth (2005) suggest that South African government needs to leverage the private sector and facilitate access to markets through existing value-chain infrastructure. Ortmann and King (2007) state that access to high-value markets is a major challenge for subsistence and rural farmers, and infrastructure investment is critical in reducing these types of transactional costs. However, cooperation among producers can facilitate access to markets while increasing bargaining power. According to Ortmann and King (2007), national government should play a role in assisting these group actions through coordination and funding. Biénabe et al. (2011) posit that small-scale farmer could access markets through quality food and high-value food production. Cockburn et al. (2014) argue that small holder farmers are producing quality crops and high value foods, they do not have access to markets and the dominant retail sector in South Africa favours large-scale commercial farmers with the capacity to conform to certification schemes.

2.4. Challenges with accessing financial institutions

Without an effective funding model for agricultural development, emerging black farmers are not likely to successfully play a role in South Africa's agricultural development (Sebola, 2018). Sebola (2018) states that funding cannot be dissociated from the land reform strategy that the government created to achieve equitable land ownership among black and white farmers. Government has transferred land to the targeted beneficiaries for agriculture, however, little achievement has been recorded in transferred land owned by black farmers. The University of Witwatersrand (2021) reported that 13.2 million hectares (17%) were transferred from white landowners to the state. An additional 3.08 million hectares were transferred to black owners and 10.135 million hectares through private and state supported transactions including land restitution. Adding 2.339 million hectares of land that was identified for restitution but for which communities elected to receive financial compensation as the means for restitution brings the total area of land rights that were restored since 1994 to 15.56 million hectares (Kirsten and Shlobo, 2021).

Sebola (2018) cautions, though, that focusing on equitable ownership of land on a racial basis than achieving productive use of the land is not yielding desirable results. Vink et al. (2012) purport that some beneficiaries have not used the land bought for them by government, productively but have successfully collapsed the productive economic activities on the farms concerned. Manenzhe et al. (2016) revealed that 73% of restituted farms became unproductive after being owned by black farmers, which points to the lack of experience and skill in farming. Mograbi et al. (2020) argued that land reform programmes and policies have not considered each land parcel's ecological potential and socio-economic context to ensure equitable distribution beyond just land hectarage. The authors posit that land reform programmes need to be highly context-sensitive and localised. Policymakers must determine land potential given the context and consider what beneficiaries' capacity and capabilities in agriculture (Mograbi et al. 2020). Analysts cannot ignore the connections between people and nature -climate change, biodiversity loss and land degradation form the backdrop against which land reform is happening (Mograbi et al. 2020). Ecological collapse and the repercussions for human well-being are not included in the productivity of black smallholder farmers' debate. The land reform and restitution policies will undermine benefits to future generations, and ecological collapse on marginal land can entrench disadvantage (Mograbi et al. 2020).

It is worth noting that there have been some success stories pertaining land redistribution and restitution. Land reform and restitution is an appropriate strategy to redress the racial sustainable imbalance in land holding to create livelihood for the poor rural and develop the agricultural sector (Jacob's et al., 2003). Morester Estate, which is a family-owned farming business gave 81 of its permanent workers the land to start joint farming of potatoes, onions, and corn. The Department of Land Affairs (DLA) and the Harmony Trust took a loan of R1 000 000 to ensure that farming on the reformed land is successful (Western Cape Government Provincial Treasury, 2012). Over 177 people inclusive of children below the age of 18 years, benefited from the programme (Harmony Business Plan 2006). The DLA and Harmony Trust also acquired shares of the Middletuin. Middletuin is a farming land comprised of 97 hectares of citrus, 130 hectares of Vegetables, 40 hectares of onions, 20 hectares of vineyard and tea and 20 hectares of tea nursery (Middletuin Land Reform Project Business Plan, 2007). All beneficiaries of the Harmony Trust are now receiving dividends mounting between R1 000 - R12 000 per person, they also now live in decent houses with 2 or 3 bedrooms, electricity, water, and in-house toilet (Zalo Capital Service, 2011).

2.5. Challenges with productivity

The lack of access to financial markets and institutions has discouraged small-scale sugarcane farmers' productivity (Sibanda, 2012). The sugar industry has had financial support for more than 50 years and the support holds the deliveries to the mills as a security mechanism (Zulu et al. 2019). Groenewald (2004) states that despite the funding available for farmers, the individual must be an agriculturalist or exhibit skills and knowledge of farming to be productive and functional. Zulu et al. (2019) investigated the issue of productivity among small-scale sugarcane farmers in Ndwedwe Local municipality, in the iLembe District, KwaZulu-Natal. The authors observed that small-scale farmers lack basic knowledge of sugarcane farming, i.e., the farmers experience late harvesting by up to 3 weeks, delays in transportation from the farm fields to the loading zone and the sugar mill, immature sugarcane burning, and sugarcane being left in the field resulting in livestock encroachment before and after harvesting (Zulu et al. 2019). In a similar study, Cockburn et al. (2014) revealed that weeds were a major agronomic constraint for farmers in the Noodberg area, in KwaZulu-Natal. The recommendation for chemical application was pre and post emergence of herbicides or immediately after the removal of the last stack of sugarcane to control weeds effectively (Cockburn et al. 2014). However, in both studies, chemical applications were late by approximately 5 months which resulted in yield decline (Cockburn et al. 2014; Zulu et al. 2019). Concerning crop nutrition, Zulu et al. (2019) found that 70% of the interviewed small-scale sugarcane farmers never conducted soil analysis and have planted their sugarcane without soil recommendations. Consequently, there was low and late fertilisation post or at the planting of sugarcane. Most small-scale sugarcane farmers cannot afford the cost of fertiliser since they make little to no profit. As a result, the production of sugarcane yields declines (Zulu et al. 2019).

2.6. Challenges associated with the unrest and looting

A deadly spree of violence and looting overwhelmed the South African provinces of Gauteng and KwaZulu-Natal (KZN) in July 2021, during which thousands of businesses were gutted and at least 330 people were killed. The KZN government subsequently declared a state of disaster to divert funds toward the recovery (Duma, 2021). The remnants of looting, vandalism, and arson still remain as some of the infrastructure such as shopping malls are still being rebuild. The catalyst for the unrest was the arrest of former president Mr Jacob Zuma, with his supporters blockading major roads the economic arteries of the nation, as they demanded the release of the former president (Chotia, 2021). Poverty and unemployment, currently at a record high of 34.9% and even higher at 46.6% among the youth, were said to be motivating

factors for the unrest that exploded and subsequently crippled the already dwindling economy of South Africa (Stats SA, 2021).

South African farmers were hit hard by the unrest and looting as trucks carrying produce were prevented from delivering to markets, therefore, threatening food supply. Christo van der Rheede, executive director at, AgriSA, recounted that farmer had major losses because they could not get their products to local markets and to shops (Van Ded Rheede, 2021). One of AgriSA's farmers reported loss of R3 million worth of perishable produce that could not be transported. Citrus Growers Association chief executive Justin Chadwick said citrus exports was also halted, with trucks unable to use the main arterial roads to the Port of Durban, from where more than half of the country's citrus is exported. South Africa is the world's second-largest exporter of fresh citrus after Spain (Heinberg, 2021).

KZN and Gauteng account for approximately 50% of South Africa's Gross Domestic Product (GDP), although agriculture contributes about 3% of national GDP (Tatsvarei et al., 2021). KZN is a key contributor to national agricultural production. Major agricultural commodities produced in KZN include grains, livestock, and sugarcane, all of which are sourced from more than 3,000 commercial farms and over 400,000 small-scale farmers. Gauteng's produces mainly maize and potatoes, carrots, and pigs. Though Gauteng has the least number of commercial farms (just over 2,000) amongst the country's 9 provinces, and is not a major agricultural producer, the province is a major processing hub and land port for the export of agricultural products (Tatsvarei et al., 2021).. Durban's port on the other hand is a major harbour for import and export of agricultural produce in the country, as most of the agricultural products that arrive at, or depart from, the port are transported by road, making the port an important component of the country's logistics chain (Tatsvarei et al., 2021). Therefore, disruptions caused by the unrest and looting affected the entire agricultural value chain, hence they impacted negatively on the country's GDP. Furthermore, the Durban refinery is South Africa's major petroleum processing plant, accounting for about 35% of the country's refining capacity, which is of direct importance to the agricultural sector (Tatsvarei et al., 2021). Due to the unrest and subsequent looting, operations at the Durban refinery came to the halt, thus adversely affecting petroleum processing. It is estimated that 430 thousand tons of sugar cane worth about R258 million was lost to fires set by protesters in KZN, therefore, if the cane is not transported to the mills after burning or harvesting the quality deteriorates drastically i.e., the sucrose content is significantly reduced (Heinberg et al., 2021; Tatsvarei et al., 2021).

4. PROBLEM STATEMENT

The South African Sugarcane Institute estimated that, in 2005, the industry had 50 000 registered sugarcane farmers, of which 48 000 were small-scale growers (Eweg, 2005). However, in recent years, the number of small-scale growers declined to around 25 200 (Dubb, 2013). There are approximately 26 400 registered sugarcane growers in South Africa, covering the provinces of KwaZulu-Natal, Mpumalanga, and the Eastern Cape. Of the 26 400 sugarcane growers, large-scale growers make up 1 400 producing about 83% of the total sugarcane crop, milling companies with their own sugar estates produce approximately 7%, and more than 25 000 are small-scale farmers producing about 10% of the total sugarcane crop (Department of Agriculture, Forestry and Fisheries, 2014). The number of farmers currently practicing sugarcane farming is less than in the previous years, which suggests that there are challenges within the industry that inhibit the farmers' participation. Smallholder farming communities face challenges that are different to those faced by individual commercial farmers. However, they are likely to experience universal challenges such as climate change, thereby impacting their success and long-term sustainability (Tena et al., 2016). The sugar industry in South Africa has been reported as an industry with a high socio-economic developmental focus in rural areas by organising resources, creating job opportunities, providing a source of income, and developing transport and communication networks (Sibiya et al., 2011). However, Garside and Bell (2007) state that although there are benefits obtainable from sugarcane production, the sugar industry has experienced various challenges, which are encountered mainly by SSGs. In South Africa, the sugar industry has been facing a problem of declining sugarcane production, particularly by SSGs (Dubb, 2013). Other challenges facing SSGs include but not limited to (a) Market information and market access; (b) Price of inputs, for example fertilizer and herbicides; (c) Availability of inputs; (d) Irrigation; (e) Cost of transport, and Natural constraint; (f) Climate variability; (g) Lack of appropriate agricultural infrastructure; (h) Shortage of farming skills; (i) High levels of soil degradation and tough economic conditions etc. (Black et al., 2005; Zulu et al., 2019). Challenges faced by SSGs have been compounded by the July 2021 unrest and subsequent looting. Therefore, the purpose of this study is to determine the challenges faced by small-scale sugarcane growers in KwaZulu-Natal and recommend solutions for their long-term sustainability.

5. AIMS AND OBJECTIVES OF THE STUDY

The aims and objectives of this study were to:

- Determine the challenges faced by small-scale sugarcane growers in KZN?
- Ascertain the nature of the challenges faced by small scale growers (i.e., resources, capital, or historical) following the social unrest.
- Recommend solutions for long term profitably and sustainability of small-scale sugarcane farmers.

5.1 Research Questions

The following were the research questions the objectives of the study seeks to answer:

- What are the are the challenges faced by small-scale sugarcane growers in KZN?
- What is the nature of the challenges (i.e., resources, capital, or historical) following the social unrest?
- What are the interventions for long term profitably and sustainability of small-scale sugarcane farmers?

6. RESEARCH METHODOLOGY

6.1. Data collection strategy

The data was collected in 8 district municipalities in the KwaZulu-Natal province (see Annexure A). The target group for this study was 100 small-scale sugarcane growers in KZN. However, other SSGs did not consent to participate in this study, hence the actual number of participants was 83. The data collected, from respondents, was analysed using SPSS to compute descriptive statistics from the data. The analysis focused on frequency tables and charts to illustrate trends in each of the data categories included in the questionnaire. An interpretation of each data category is provided in Annexure B.

6.2. Sampling Strategies

A combination of two sampling techniques were used in this study i.e., purposeful sampling technique as well as cluster sampling. Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases (Patton, 2002). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Plano Clark

and Creswell, 2011). In this study we purposefully sampled SSGs in various districts in KZN to gather their input regarding some of the challenges they are facing in sugarcane production. Cluster sampling is where the entire population is divided into clusters or groups. Subsequently, a random sample is taken from these clusters, all of which are used in the final sample (Wilson, 2010). Cluster sampling is advantageous for those researchers whose subjects are fragmented over large geographical areas as it saves time and money (Davis and Cosenza, 2005).

6.3 Data Analysis

The quantitative data underwent a data cleaning and validation process, whereby all duplicate records and identified errors were removed and all typing errors corrected. To produce the expected outputs, descriptive statistical procedures in form frequencies was used to analyse the data. The frequency tables with corresponding summary charts produced using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel as data analysis tools.

6.4 Reliability and Validity

Validity in research refers to the accuracy and truthfulness of the findings based on the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the data (LeCompte and Goetz, 1982). A valid study should demonstrate what exists and a valid instrument should measure what it is supposed to measure. Reliability is concerned with the consistency, stability, and repeatability of the employed analytical procedures (Selltiz et al., 1976, Johnson and Shaw, 2014). It refers to the ability of a research method to produce consistently the same results over repeated testing periods. In this study a panel of experts were used to validate the instrument (questionnaire) through content validity and cognitive interviewing. Content Validity Index (CVI) that was used in this study is the Item – Content Validity [I-CVI] (Shi et al., 2012). Three content experts were asked to review the relevance of each question on a 4-point Likert scale: 1= not relevant; 2= somewhat relevant; 3= relevant; 4= very relevant. Then for each question, number of experts giving 3 or 4 score was counted (3,4 – relevant; 1,2 – nonrelevant). The recommended I-CVI is between 0.78 to 1.00. The experts rated the questionnaire and gave it I-CVI of 0.9.

6.5 Ethical Considerations

Research ethics is of paramount importance when conducting research involving human subjects and minors. Qualitative researchers face dilemmas such as respect for privacy, confidentiality, establishment of honest and open interactions, and avoiding misrepresentations (Warusznski, 2002). Some important ethical concerns that were considered

while conducting this quantitative research are anonymity, confidentiality, respect of subjects, and informed consent. Informed consent has been recognized as an integral part of ethics in research carried out in different fields (Sanjari et al., 2014). The researcher and data collectors endeavoured to minimize the possibility of intrusion into the autonomy of study participants. Where necessary, the researcher clarified in writing which persons will have access to the data and how the data will be used. Informed consent has been recognized as an integral part of ethics in research conducted in different fields. To obtain full consent from the study participants, the subjects indicated their willingness to participate in this study by either clicking “yes” or “no” on the consent form. Only 8 SSGs didn’t consent to participating in this study, whereas 83 gave their full consent. The principle of informed consent stresses the researcher’s responsibility to completely inform participants of various aspects of the research in comprehensible language.

6.6 Data Usage and Storage

Data collected in this study is stored on the MKI data portal for safe keeping and future reference. This data was only used for the intended purpose of this study. Furthermore, the subjects remained anonymous, personal information such name, surname, contacts were not shared with any third party. The data will be kept for 5 years, thereafter it will be disposed of by deleting from MKI Information Technology Enterprise Environment.

6.7. Exclusion Criteria

Due to the nature of the study, minors below the ages of 18 were excluded from participating in the survey. All the SSGs were 25 years and older.

6.9 Covid-19 Health Regulation

In this study covid -19 regulations were adhered to by wearing masks (both data collectors and respondents), sanitising using alcohol-based sanitisers and by ensuring that there was a safe social distance between the data collectors and respondents.

7. RESULTS AND DISCUSSION

The data collected from a total sample of 83 respondents (SSG's) was analysed using the Statistical Package for the Social Sciences (SPSS) version 27 to compute descriptive statistics from the data. The analysis focused on frequency tables and charts to illustrate trends in each of the data categories included in the questionnaire. Refer to Annexure B. An interpretation of each data category is then provided to enable the researcher to draw conclusions from the data set.

7.1 Consent to participate in the study and participant's Nationality

Out of ninety-one (91) respondents or SSGs, only 8 did not consent to participate in the study. Eighty-three percent (83%) gave their full consent to participate in the study (Figure 1). SSGs that dis not consent to participate in the study gave the following reasons i.e. (a) Political instability and frictions among different associations; (b) Research and government does little or nothing to address their challenges, (c) Loyalty to the sugar associations etc. Important ethical concerns that were considered while conducting this research are anonymity, confidentiality, and informed consent. Informed consent has been recognized as an integral part of ethics in research conducted in different fields. The researcher and data collectors endeavoured to minimize the possibility of intrusion into the autonomy of study participants. Furthermore, the project leader clarified in writing who will have access to the data and how the data will be used. To obtain full consent from the study participants, information letter was shared with the participants to explain in advance the purpose of the study as well as the type of information that we seek to gather from the research. The principle of informed consent stresses the researcher's responsibility to completely inform participants of various aspects of the research in comprehensible language(Orb et al., 2001). Clarifications included the following issues: the nature of the study, the participants' potential role, the identity of the researcher and the financing body, the objective of the research, and how the results will be published and used. All the SSGs indicated that they were Black South Africans (Figure 2).

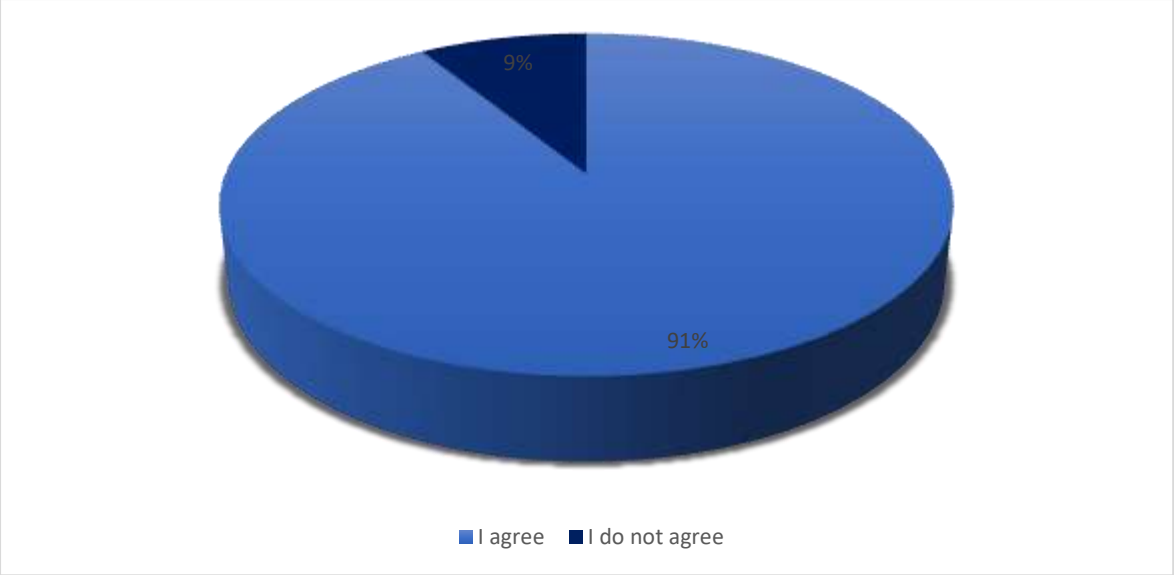

Figure 1: SSGs consent to participate in the study

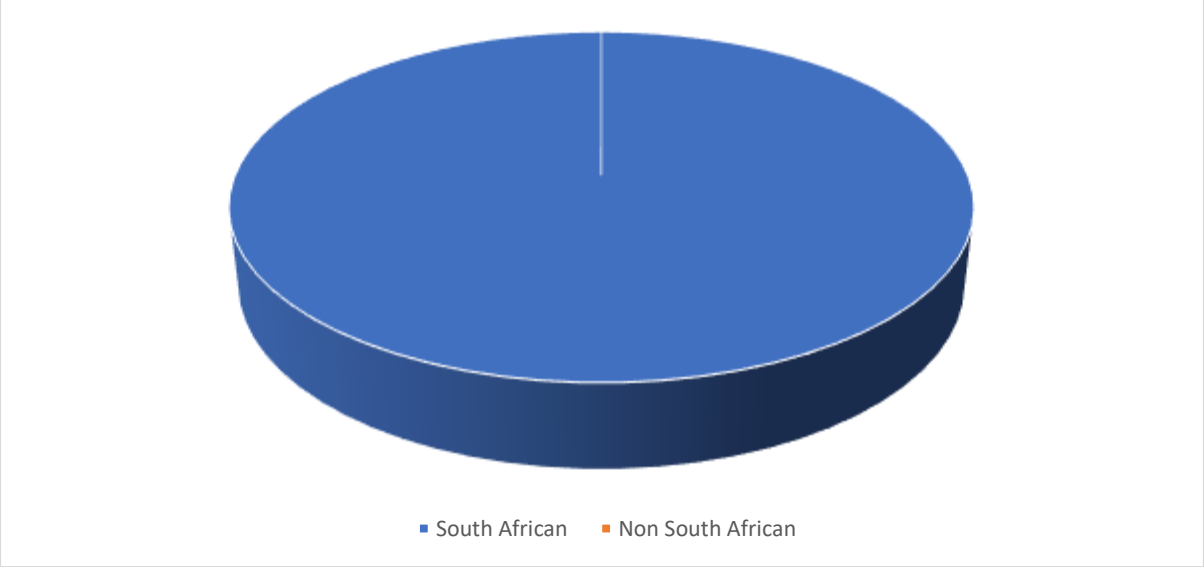

Figure 2: Nationality of the Small-Scale Growers

7.2 Age group and gender of the SSGs

Majority of the SSGs were between the ages of 45- 54 years (22), followed by 35-44 years (19). Eighteen (18) of the respondents were between the ages of 55-65. Only 6 SSGs fell under the youth category, which in this case is between the ages of 25- 34 years (Figure 3). One of the challenges facing the sugar industry is the lack of youth participation in sugarcane farming as indicated in Figure 3. The future of farming, and of farmers, is not as secure as most of the farmers are close to retirement. In the UK, the average age of a farmer is 59, whereas in Kenya,

it is 60, and in Japan the average age for a farmers is 67 (Henriques, 2021). When this generation of experienced farmers retires, there will be no one to execute farming therefore food security will be threatened. Young people are increasingly seeking work in the cities, side-lining agriculture. Liu et al. (2021)argues that the aging of the agricultural labour force has a significant negative impact on the comprehensive technical efficiency and pure technical efficiency of farmers.

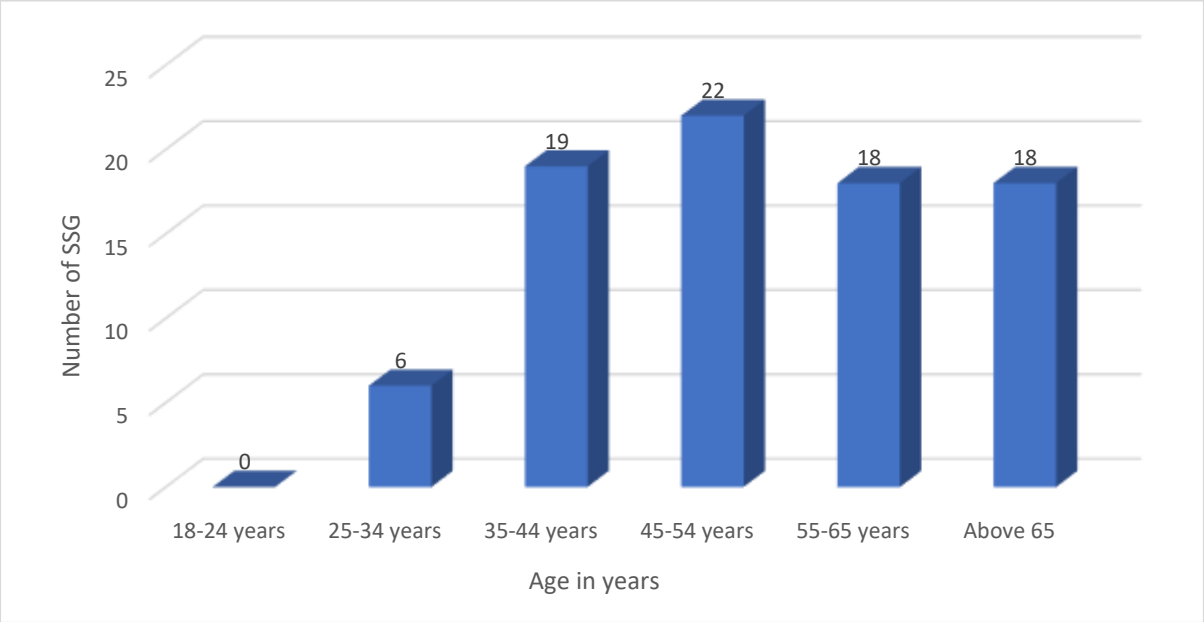

Figure 3: Age group of the Small-Scale Growers

In terms of the gender of the SSGs, 72% were males, whereas only 28% were female (Figure 4). A World Bank study (Deininger et al., 2011) found that women were disadvantaged in accessing resources such as water and firewood. Lack of control over land also keeps women out of the negotiations with commercial sugarcane investors (Cotula, 2013, Behrman et al., 2010, Deininger et al., 2011, BMZ, 2009). This could explain why SSG seems to be dominated by men. Similar to the findings of this study, Rocca (2016) reported that women's participation as registered out-growers in Zambia is lower than men's as a result of the existing gender gap in the control of land.

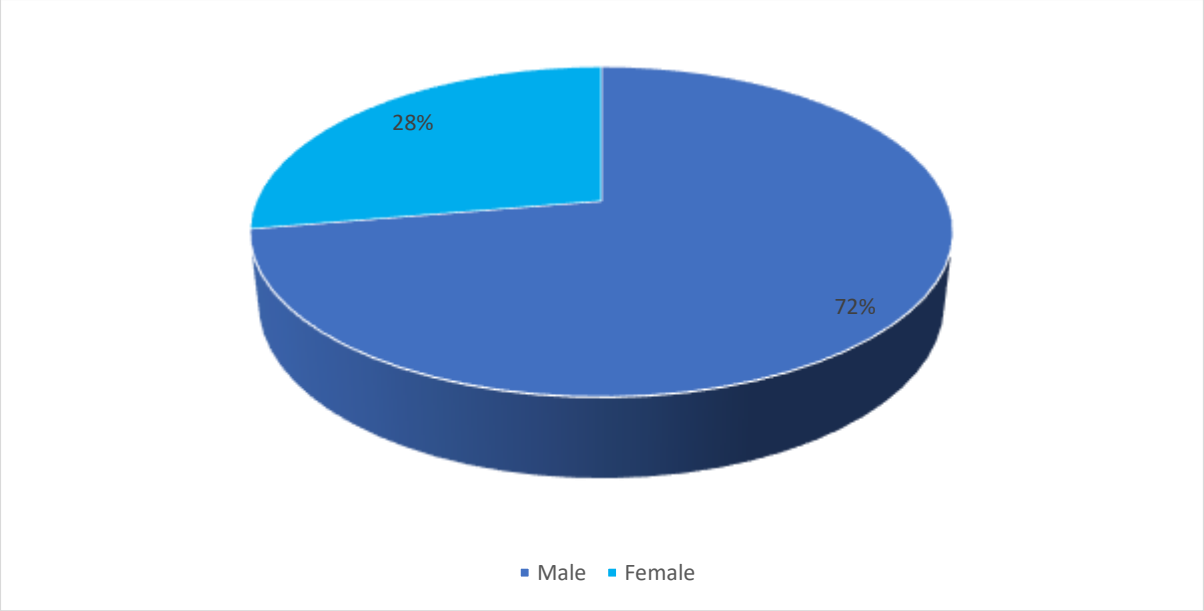

Figure 4: Gender of the Small-Scale Growers

7.3 Pre and post matric educational level of SSGs

Seventy-six percent (76%) of the SSGs indicated that they had a matric qualification (Figure 5). Most of the SSGs who National Certificate holders are highlighted challenges that caused them to not acquire post-high school education. These challenges were:

- The lack of a sole income earner in their households that required them to find means to generate some income post-matric.
- Registration and tuition fees that were too expensive; coupled with a lack of awareness of the availability of student loans such as the National Student Financial Aid Scheme (this challenge was common to the respondents who completed their matric in the late 1990s and early 2000s).
- Lack of guidance in terms of selecting suitable subjects in line with their career aspirations in Agriculture, which subsequently left them with limited choices and a lack of knowledge regarding their post-school options (no career exposure).

It is imperative that SSGs are equipped with basic training on how to run a business or their farming operations; these should include aspects such as numeracy; marketing skills; and farming skills etc. Other SSGs had an educational level equivalent to grade 1–grade 7 (10%). Only 3% of the SSGs had an educational level between grade 1-7. The remaining 11% indicated

that they had no formal education. SSGs with no formal education indicated that they rely on indigenous knowledge for their farming practices.

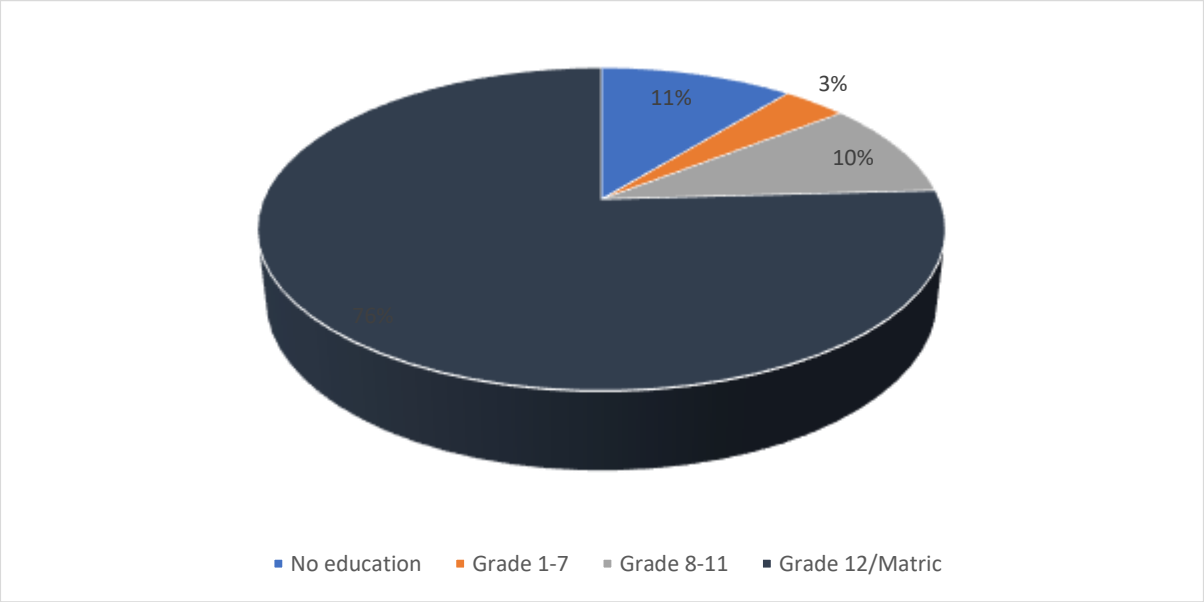

Figure 5: pre-matric education level of the Small-Scale Growers

Regarding post-matric educational level, 18 SSGs had a Diploma, 6 had Btech, and 3 had a bachelor's degree. Only 2 SSGs had an honours degree, whereas the most of the SSGs had no post-matric qualification (Figure 6).

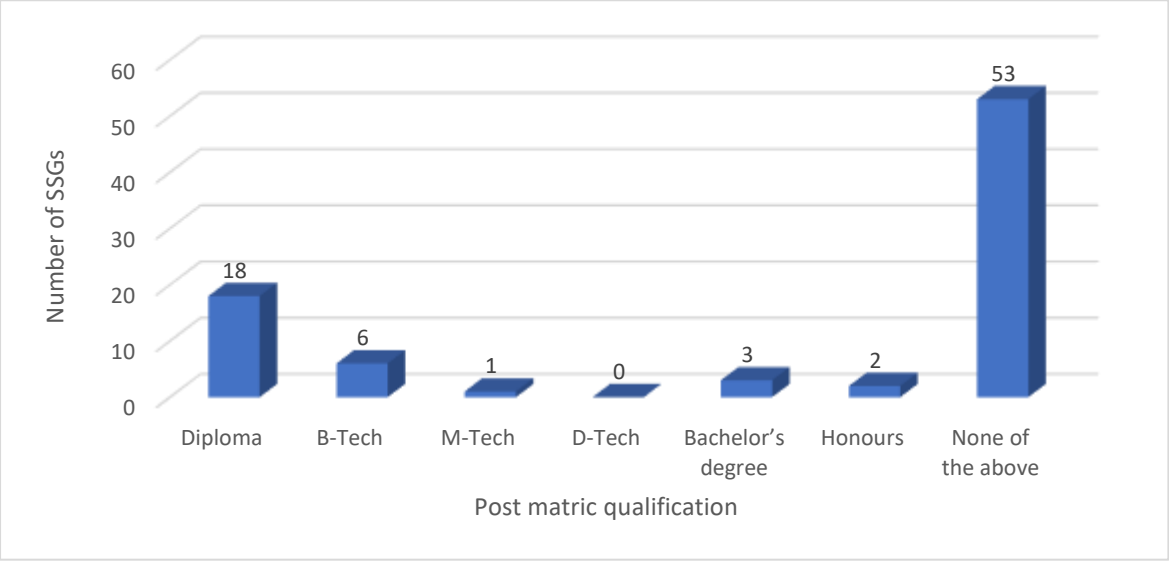

Figure 6: Post matric educational level of Small-Scale Growers

7.4 Local municipality of the SSGs

SSGs in various local municipalities were distributed as follows: 29 from KwaDukuza Municipality; 16 from uPhongolo Municipality; 11 from eThekwini Municipality; 11 from Maphumulo Municipality; 11 from Ndwedwe Municipality; 2 from uMlalazi Municipality; 2 from Mtubatuba Municipality; and only 1 from Jozini Municipality (Figure 7).

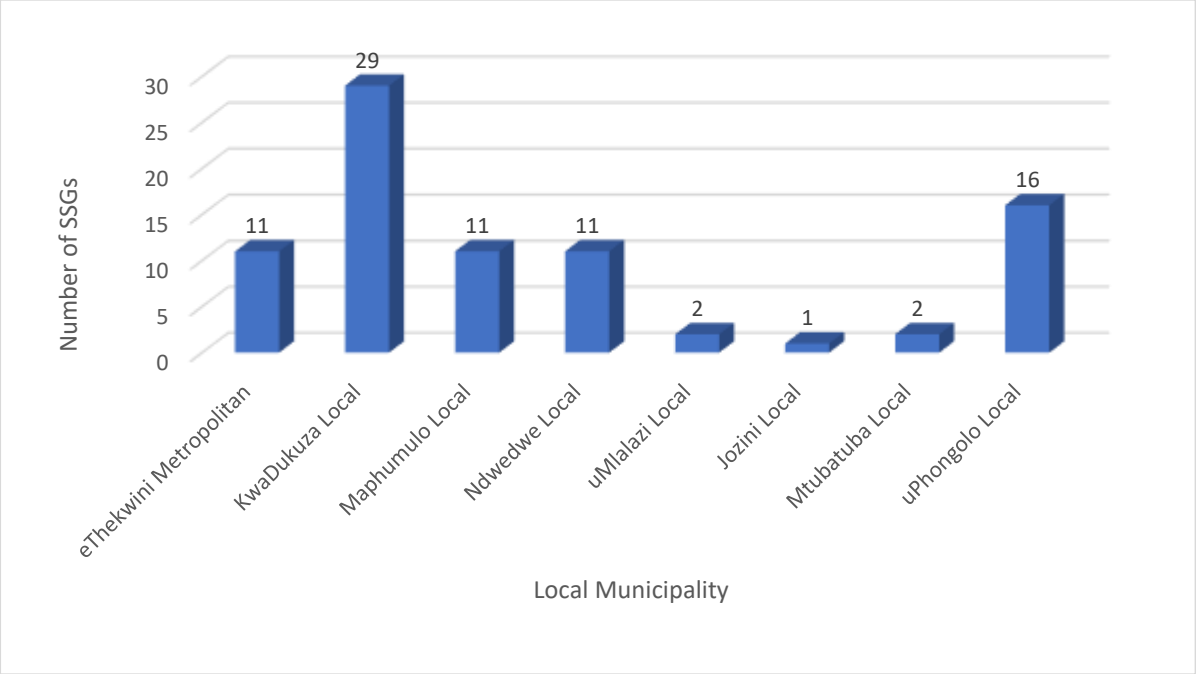

Figure 7: Local Municipality of the Small-Scale Growers

7.5 Number of years the farm has been operational

Most of the SSG's farms have been operational for more than 10 years (51%). Nineteen percent (19%) have been in operation for 7- 10 years, whereas 18% have been operating for 0- 3 years. Furthermore, 12% of the SSGs have been in operation for 4- 6 years (Figure 8).

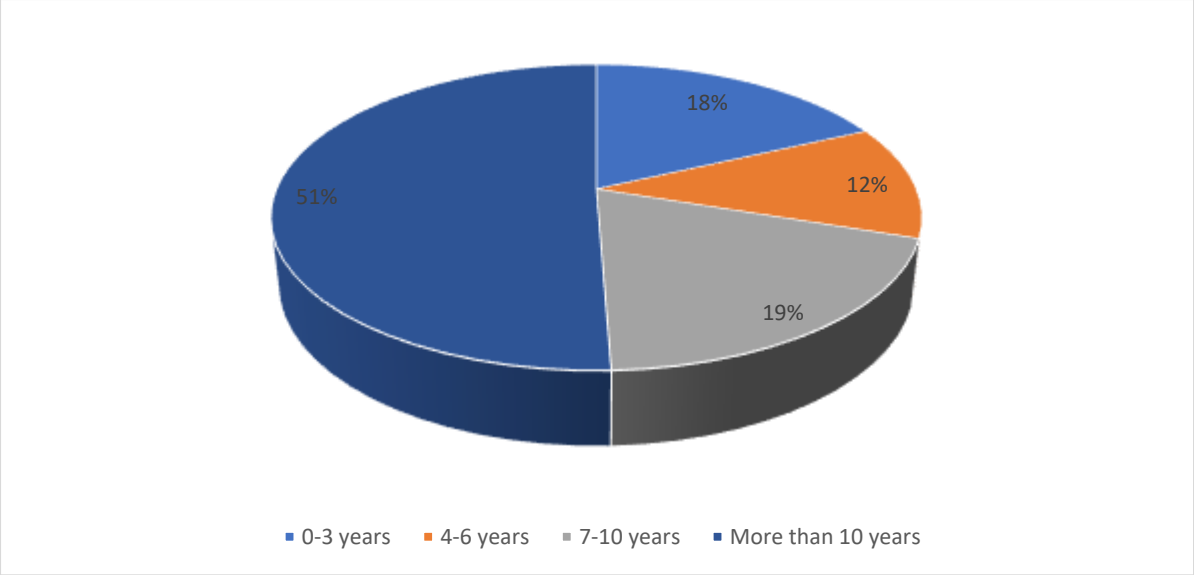

Figure 8: Number of years the farm has been operational

7.6 Sugarcane varieties and source of varieties

The majority of SSGs (47) are cultivating 1-3 sugarcane varieties, followed by 23 that are cultivating 4- 6 varieties. Thirteen (13) of the SSGs indicate that they are cultivating between 7- 8 varieties (Figure 9).

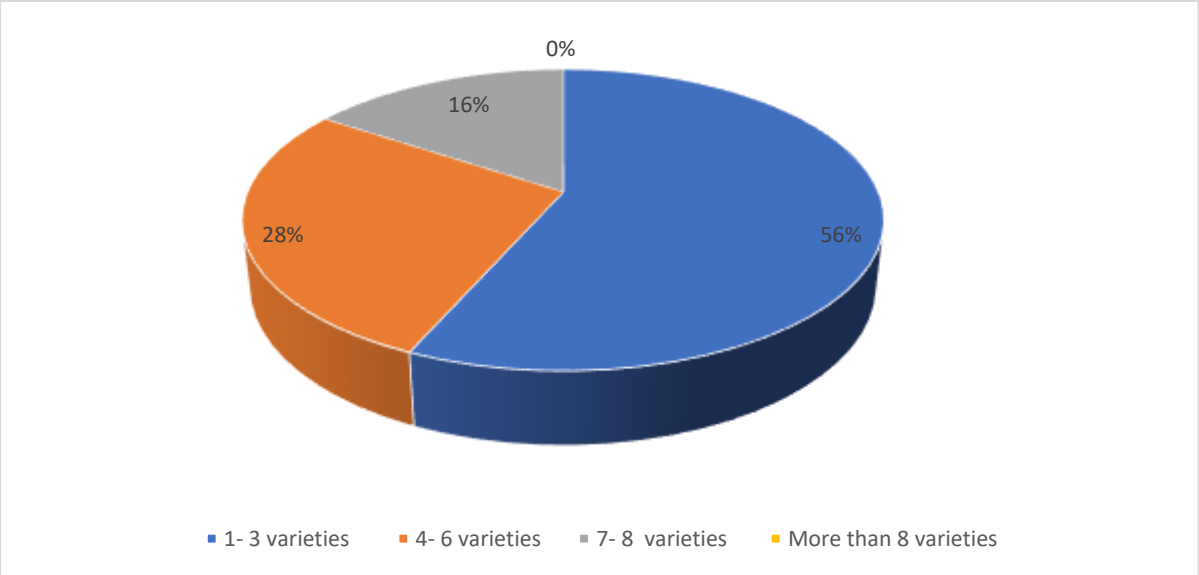

Figure 9: Number of sugarcane varieties cultivated in the farm

Pertaining the source of the sugarcane varieties, SSGs indicated that they mainly source them from private plant breeders (66%). Other SSGs source their varieties from The South African

Sugarcane Research Institute [SASRI] (17%) and another 17% source varieties from neighbouring SSGs and LSGs (Figure 10). SASRI's sugarcane breeding programme is constantly being refined to cater for the variety requirements of the rainfed and irrigated areas of the South African sugar industry. After extensive testing, screening, selection, and evaluation across a range of diverse agroclimatic environments, up to three new sugarcane varieties (N varieties) are produced each year, specifically for the South African industry (SASA, 2021). Thus, it is crucial that SSGs have excess to newer varieties with good ratooning-ability, drought tolerant and pest resistant.

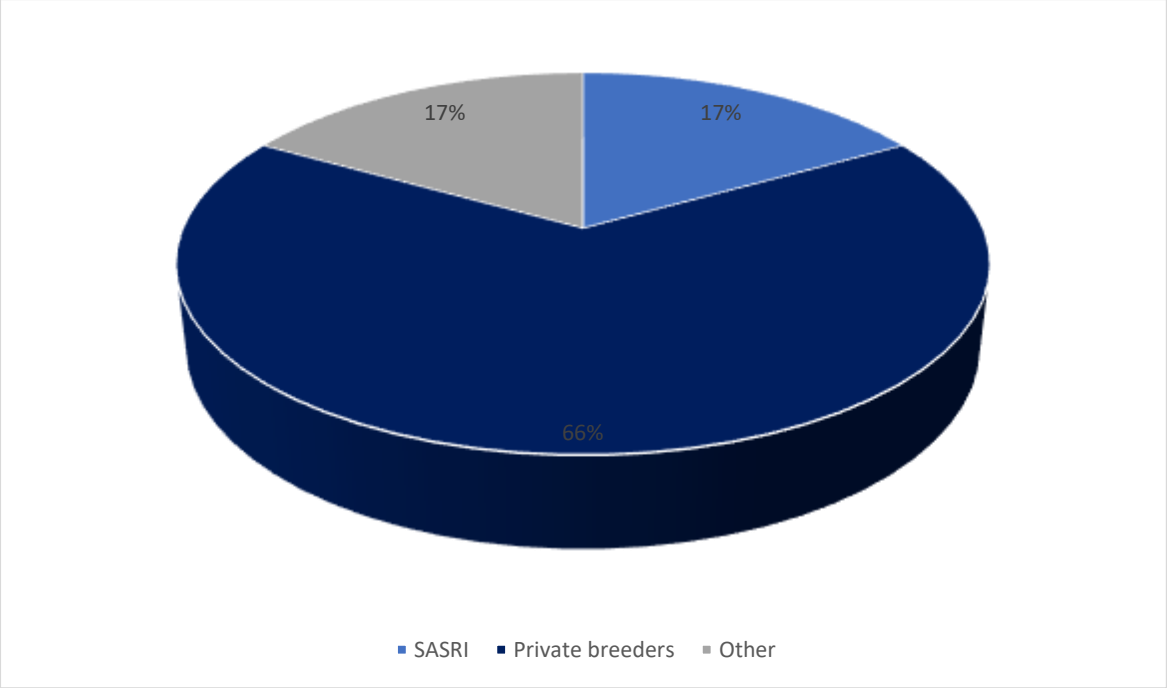

Figure 10: Source of sugarcane varieties cultivated in the farm

7.7 Capacity to compete with Large Scale Sugarcane Growers

When the SSGs were requested to indicate whether they had capacity to compete with LSGs, 41% reported that they currently do not have capital, adequate land, nor equipment and machinery to compete with LSGs. Whereas 59% believed that with adequate support from government, land reforms and LGSs they will be capable of competing with LSGs (Figure 12). Therefore, government support is crucial for the growth and sustainability of the sugar industry, especially since SSGs are facing a wide array of challenges.

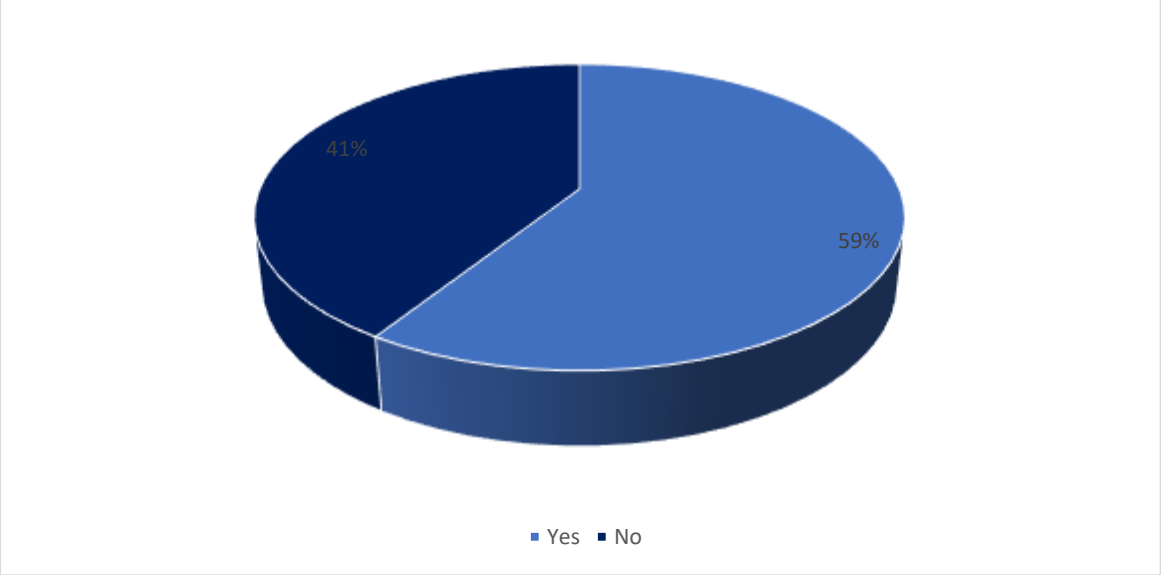

Figure 11: Small-Scale Grower's capacity to compete with Large-Scale Growers

7.8 Challenges experienced by Small- Scale Growers in their farm

Small-Scale Growers face numerous challenges ranging from land issues; drought; access to market; productivity; lack of high performing varieties; to transport issues (Figure 12). Growers indicated that climate change (28) and alien invasive plants or weeds (27) were somewhat challenging. According to Conlong and Campbell (2010), improving weed management practices amongst SSGs in the South African sugar industry needs attention, because weeds are assumed to be another cause of yield decline. The role of agricultural activities in irrigation schemes is particularly interesting if one considers that, in a drought-prone area, having access to water means increased possibilities of improving food and livelihood security, and income levels. However, several studies on gender and irrigation in Africa have shown that women have been either marginalized in the allocation of irrigated plots or were obliged to abandon their plot because they were not able to sustain the intensification of agricultural production or increasing water fees (Carney, 1988, Carney and Watts, 1991, Vijfhuizen, 2001). These findings are similar to the findings of this study where SSGs voiced the exorbitant cost of accessing water for irrigation.

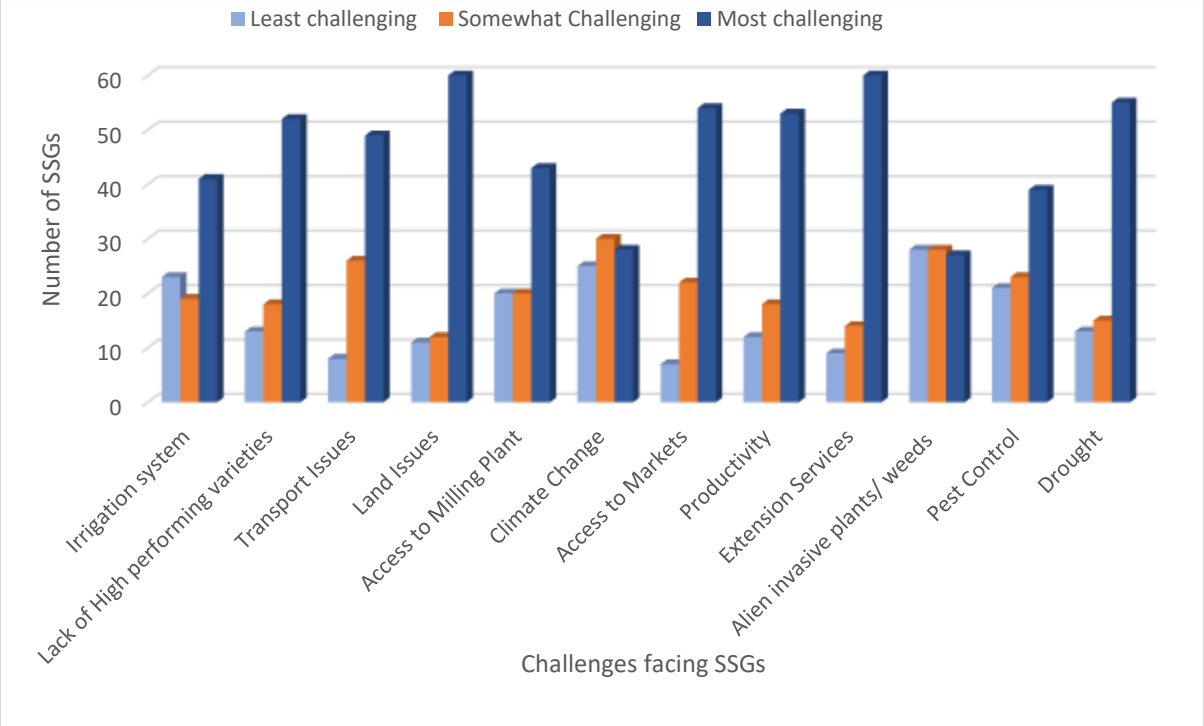

Figure 12: Challenges by Small-Scale Growers in their farms

7.9 Assistance required by Small-Scale Growers to expand operations

Businesses need capital to expand their operations, thus increasing market share. It is therefore not surprising that most of the SSGs need financial support (83) to expand their operations. In addition to financial support, they desperately need partnerships or shareholding (66); marketing skills (60); education/ farming skills (57); skilled workforce (56); feasibility/ business plan (55); access to markets (53) and logistic (Figure 13).

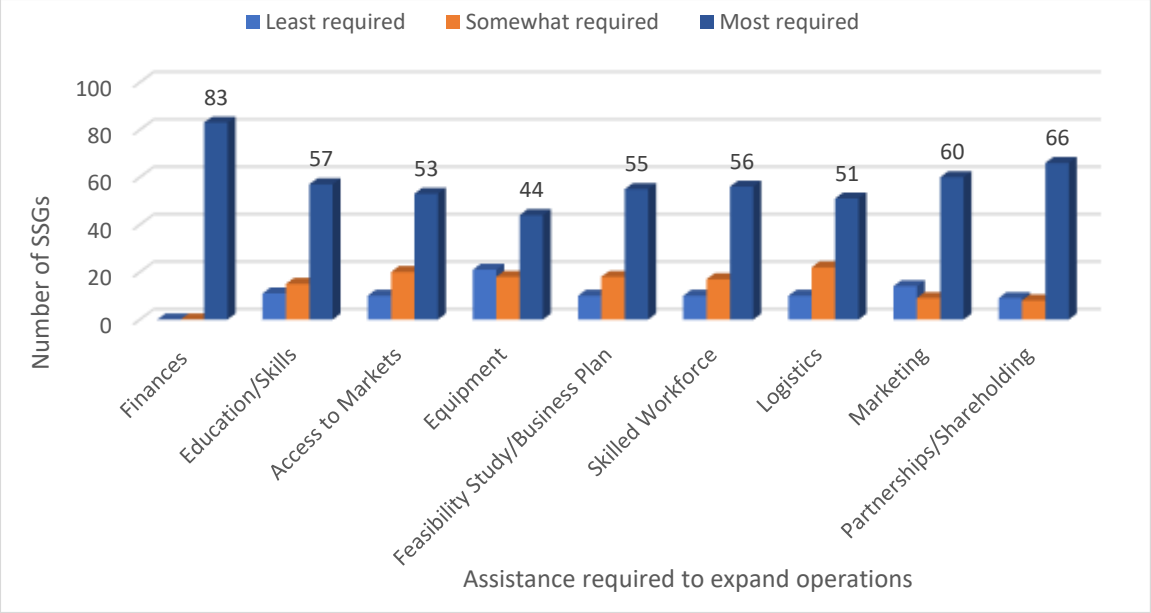

Figure 13: Assistance required by Small-Scale Growers to expand operations

7.10 Measurement of average turnover

Most SSGs (48%) measure their average turnover annually (Figure 14). This could be to their disadvantage as they could miss the opportunity to implement critical improvements to enhance their productivity per harvest. Thirty-nine percent (39%) of the SSGs measure their turnover seasonally, and only 13% measure it monthly.

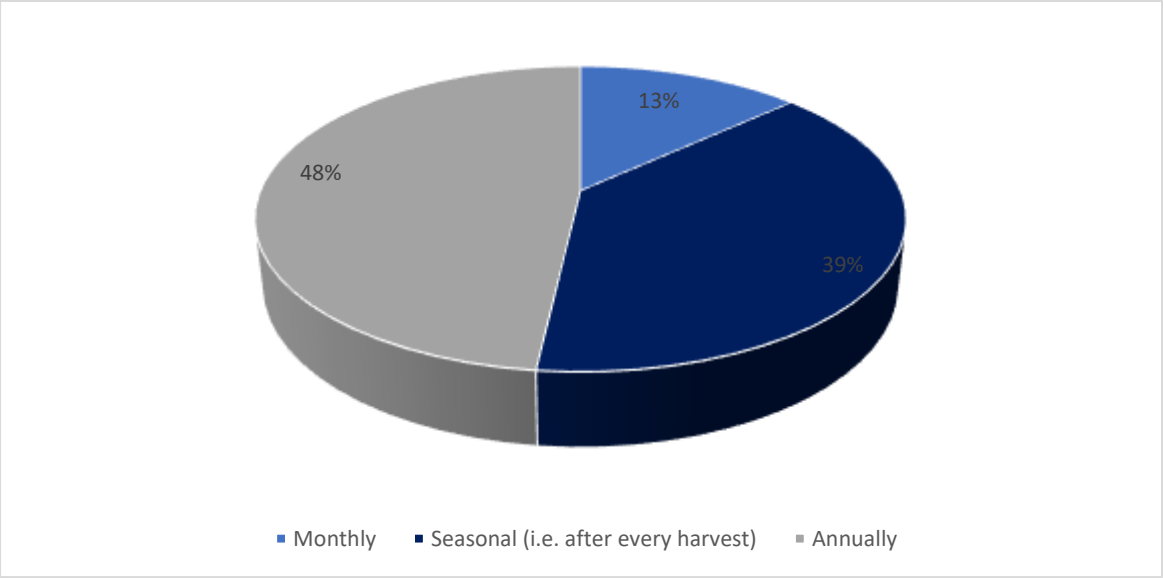

Figure 14: Measurement of an average turnover

7.11 Average turnover per harvest and financial records

Forty-one percent (41%) of the SSGs make less than R10 000; whereas 37% make above R30 000 per harvest. This is of great concern, because SSGs are not making profit due to the cost of sugarcane production which is labour intensive. Therefore, most of the SSGs are operating at a loss, which is not sustainable. Thirteen percent (13%) and 9% make between R11 000–R20 000 and R21 000-R30 000 respectively (Figure 15). SSG's indicated that they need to make at least R30 000 per harvest to be sustainable. Sustainability does not necessarily mean reduced productivity and profits; however, it means employing Better Management Practices (BMPs) to ensure profitability and conserve the environment (Black et al., 2005). These BMPs which might assist the farmers include:

- Planting of drought-tolerant varieties.
- Minimum tillage to prevent soil compaction.
- The use of mill by-products.
- Creating contours in cane cultivation to prevent soil erosion; and
- Planting barriers in beet fields to reduce wind erosion.

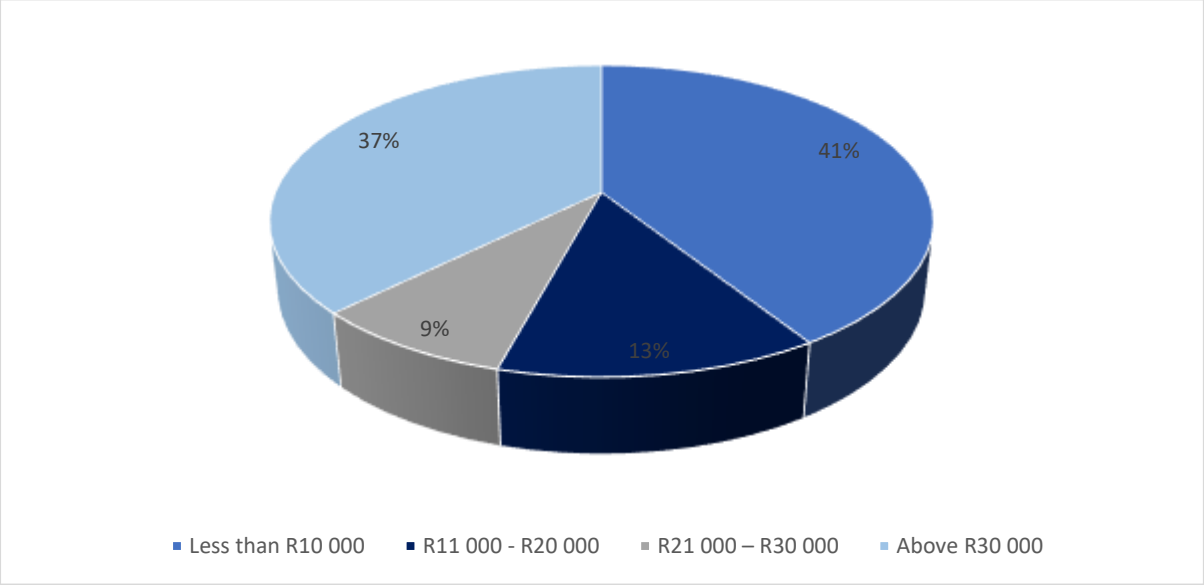

Figure 15: Average turnover per harvest

It is positive to note that 63% of the SSG keep financial records of the farm operations (Figure 16). Unfortunately, 31% reported that they don't keep financial records of their operations. Financial record keeping has become the foundation on which modern businesses thrive for growth and sustainability (Ademola et al., 2012). Muchira (2012) reported that good financial

records can greatly improve many of the management decisions a business owner and or manager takes, including decisions about marketing, personnel, borrowing, pricing, inventory, and product development. Therefore, it is crucial that SSGs keep financial records so that they can ascertain whether they are making profit or operating at a loss.

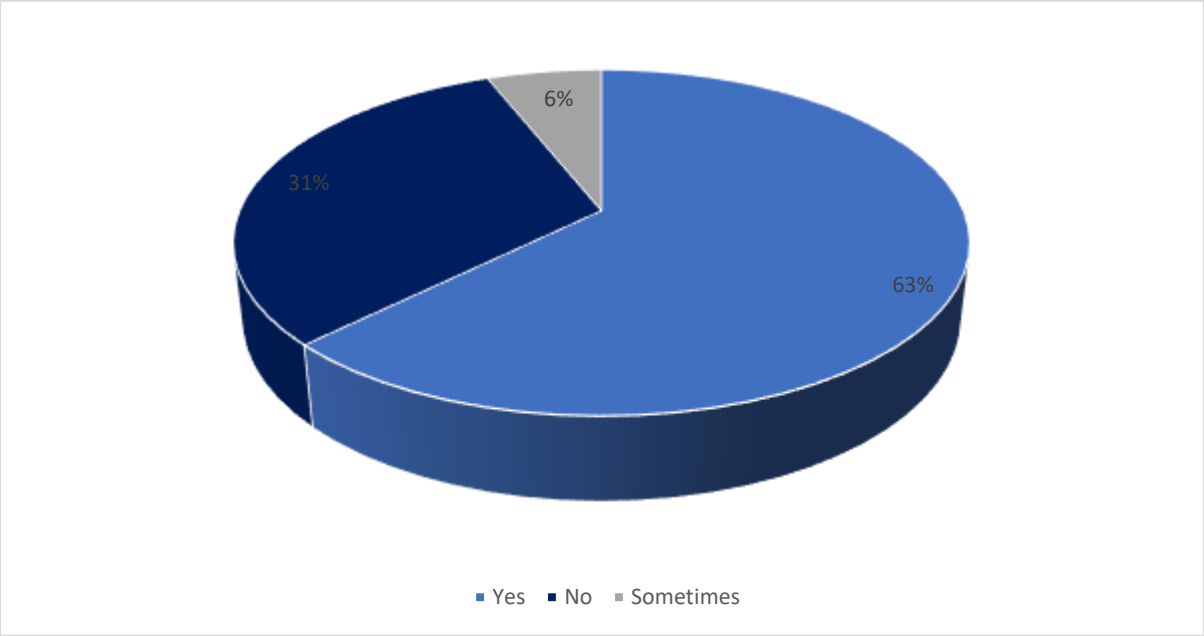

Figure 16: Financial records of the farm operations

7.12 Funding and government and municipality support

Most of the SSGs have never had any financial support from government, municipality nor other organisations. They raise their own funds for farm operations and sometimes they rely on family members for financial support. Only 14% have received funding for their operations.

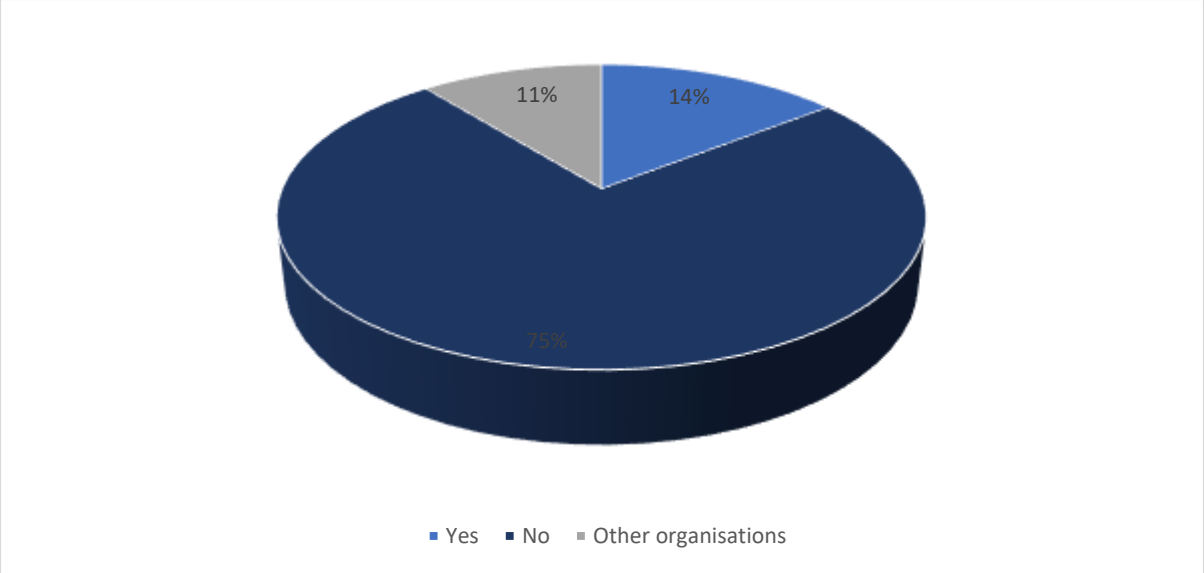

Figure 17: Funding from Government/Municipality or any other organisation

Government support programmes such as land reform and restitution have not been beneficial to SSGs. This is evident in Figure 18, where 81% of the respondents advised that government support programmes have not yielded dividends. Land reforms consists of three dimensions i.e.: redistribution (transferring white-owned commercial farmland to rightful African owners); restitution (settling claims for land that was lost under apartheid era by restoration of holdings or compensation); and land tenure reform (to provide more secure access to land in the former Bantustans) (Cliffe, 2000). Only a few restitution claims have been resolved. In 1994, the first law to be passed by the first democratically elected parliament was the *Restitution of Land Rights Act* (Act 22 of 1994). This was done with the conscious acknowledgement that land justice is important to deal with the challenges of poverty, unemployment, and inequality. The Act makes provision for the restitution of rights in land to persons or communities dispossessed of such rights after 19 June 1913 due to past racially discriminatory laws or practices(RSA, 1994). Only 19% of the SSGs have benefited from land reform and restitution.

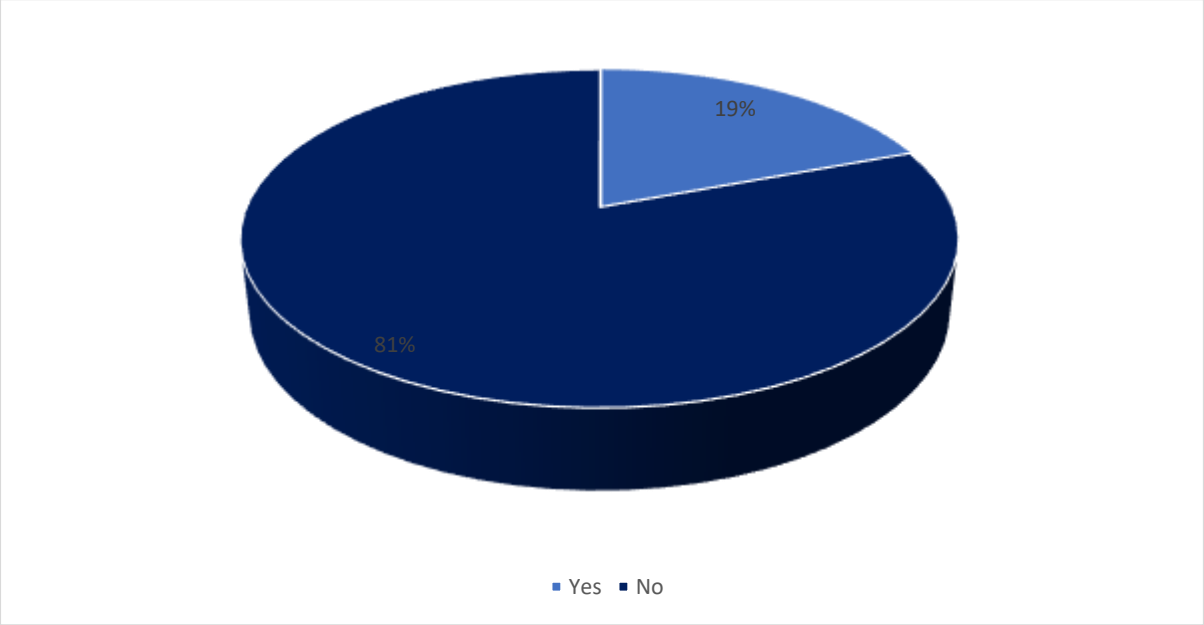

Figure 18: Assistance by government support programmes (land reform and restitution)

7.13 Intent to seek any financial support from government

When asked SSGs to indicate whether they will be interested in seeking financial support from government, 51% answered yes and only 37% answered no (Figure 19). Most of the SSGs voiced their dissatisfaction regarding the lack of government support for SSGs. Twelve percent (12%) were indifferent.

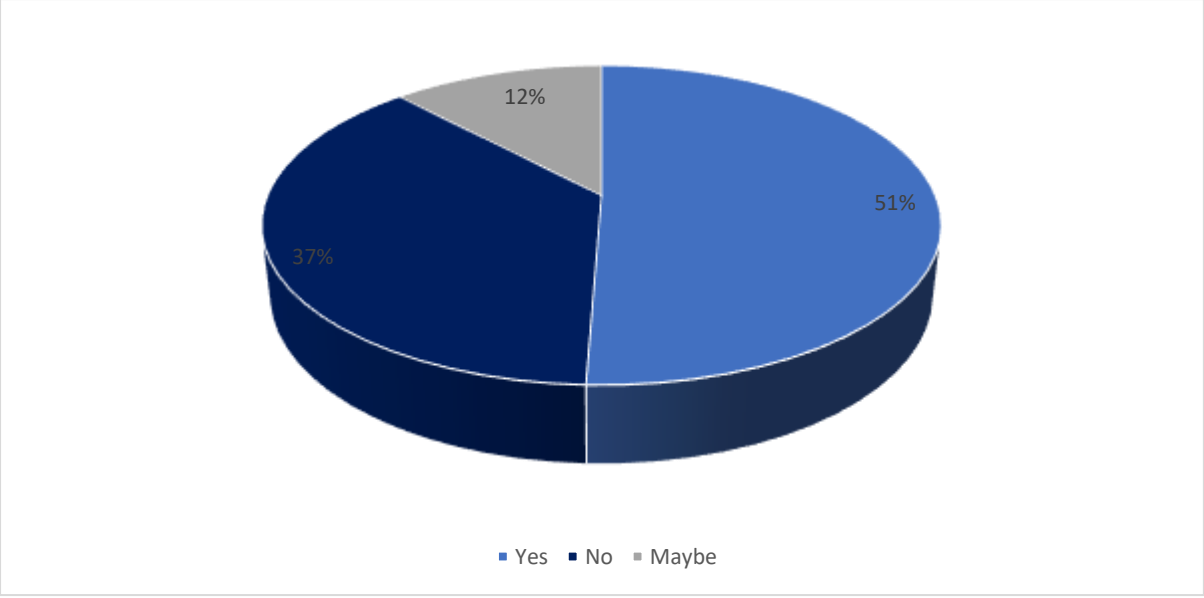

Figure 19: Intent to seek any financial support from government

7.14 Effects of the social unrest on farm operations

SSGs indicated if they had been adversely affected by the July 2021 social unrest (Figure 20), most of the respondents (64%) confirmed that the unrest and looting affected their operations. Only 19% were not affected by the unrest, whereas 17% were somewhat affected.

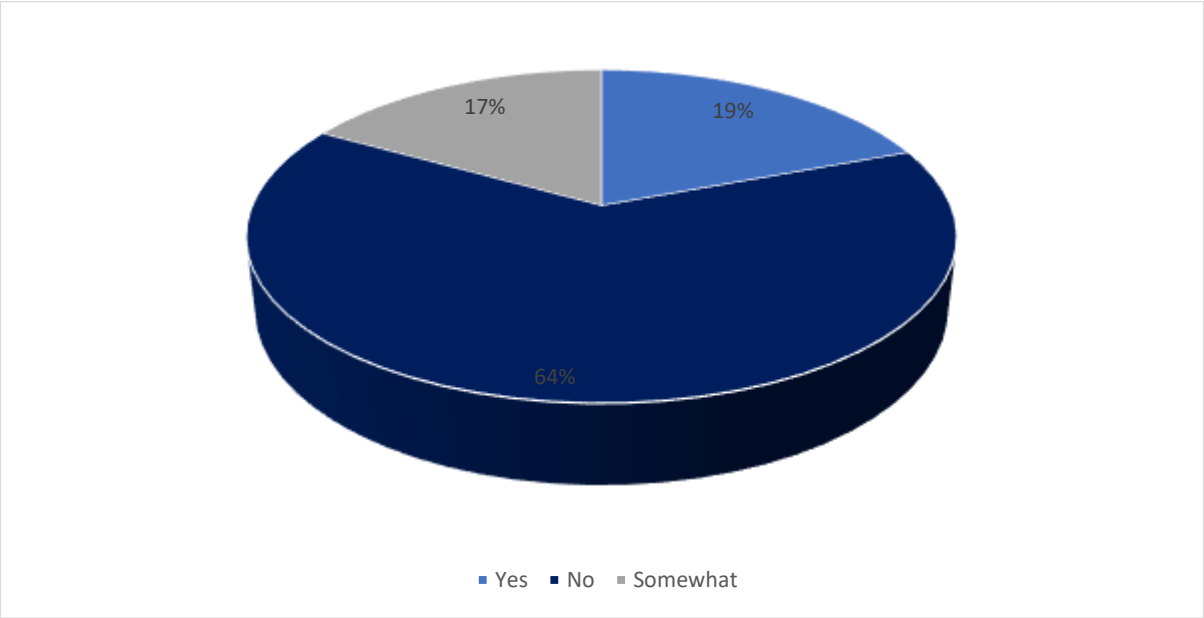

Figure 20: Effects of the July 2021 unrest on farm operations

Looting of farm chemicals and input were the biggest issue faced by SSGs during the unrest (Figure 21). Sixty-nine (69) SSGs indicated that during the unrest, they were unable to transport their burnt sugarcane to the mills and some of their sugarcane plantations were burnt by protestors/ looters prematurely. This had an adverse effect on their tonnage and sucrose content. Vandalization of farm equipment was also reported by 63 SSGs. Other issues reported by SSGs ranged from loss of revenue (53) to delay in harvesting (49) due to mill closure (47) and transport issues. During the social unrest all sugar mills in KwaZulu-Natal, closed after cane trucks were hijacked, mills threatened, and cane farms set alight (Heinberg, 2021). Approximately 430 000 tons of cane was burnt by the protesters (Heinberg, 2021). This equated to 258 million of grower revenue that will never be realised (Heinberg, 2021). The effects and impact of the unrest and subsequent looting is still being felt by SSGs to date. It will take SSGs over 5 years to recover, and some (10) respondents indicated that they are

considering stopping sugarcane farming. According to Conlong and Campbell (2010) the rising input costs for sugarcane growing in KwaZulu-Natal, particularly in the planting areas of Ntumeni and Showe, are resulting in less profit for SSGs. The consequences of rising input costs influence the performance and progression of the industry. Small-scale sugarcane growers, therefore, need to find ways to reduce the effects of increasing input costs.

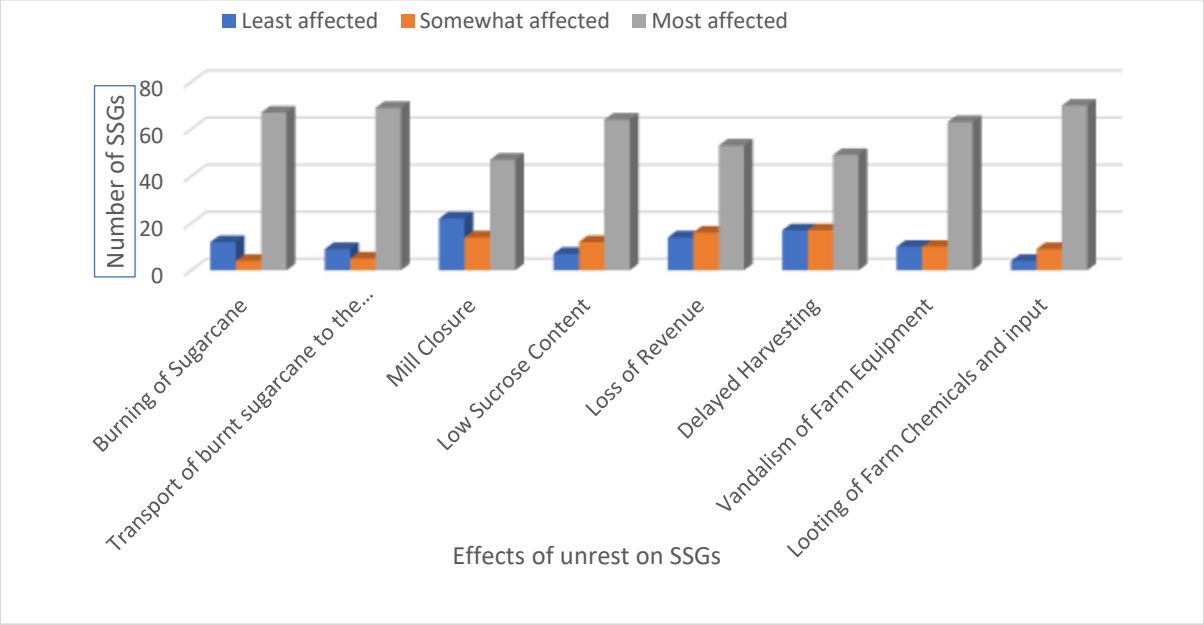

Figure 21: Impact of the unrest and looting on farm operations

8. RECOMMENDATIONS

The following are the recommendations of this study:

- SSGs need financial support to expand their operations and thus increasing their profitability.
- SSGs need assistance such as equipment, fencing, security, and chemicals especially since most of them were adversely affected by the unrest and subsequent looting in July 2021.
- Other than the lack of appropriate irrigation system, SSGs need assistance in terms of transports of sugarcane into the mills.
- Partnership between SSGs and LSGs is crucial for the long-term profitability and sustainability of the sugar industry.

- Lack of knowledge transfer is one of the major factors hindering the growth and productivity of SSGs.
- SSGs also require assistance with regards to intercropping to ensure that they get continuous income rather than relying solely on sugarcane cultivation, where they get income only after harvest/ seasonal.
- There is a need for SSGs to have access to drought tolerant and pest resistant varieties as most of them are still cultivating varieties that are prone to sugarcane pests.
- Training and development of SSG on farming practices, financial and business management.
- Train for farm employees because they lack basic skills on farming practices.
- Continuous water or discount on water for irrigation.
- Recognition and assistance from the Department of Agriculture.
- Compensation for the mill closure
- The majority of the SSGs recommend the reopening of the Darnall sugar mill. This is following the confirmation by Tongaat Hulett Limited that it will be mothballing its Darnall Sugar Mill to secure the long-term sustainability of the company.
- Seeds, fertiliser, and pesticide should be made available to SSGs.
- More seed varieties, irrigation system, water and electricity, fence, land, and partnership with SAFDA are required by SSGs.
- Good crop husbandry practices like timely weeding, fertilization, and irrigation should be adopted by SSGs to produce a good crop and thus enhancing profitability.

9. CONCLUSION

SSGs play a crucial role in dealing with unemployment and poverty issues that are currently facing SA. With that said, if SSGs are not prioritised and assisted, it could affect the sustainability and profitability of this industry. The main objective of the study was to investigate the challenges faced by SSGs in KZN. The findings of this study provide a considerable insight into the challenges faced by SSGs and the disastrous impact of the unrest and looting on sugarcane production. Most of the SSGs that participated in the study were in

the KwaDukuza and uPhongolo municipal areas, with only a few from uMlalazi, Mtubatuba and Jozini. The highest number of sugarcane varieties, i.e., between 5 and 7, are mostly cultivated in uMlalazi. Lack of market access was mentioned by SSGs as one of the main problems constraining production. Farmers indicated that, even if they were successful producers, if there was no formal market, they would still run at a loss because their products would perish in their storerooms. During the focus group meeting at the study sites, more than 80% of the farmers complained about the lack of market access and the lack of market information. Although more than half of the producers in the study sites produced quality products the problem is that they are struggling with sugarcane production due to the lack of resources. Most of these farmers indicated that they might have to bring their sugarcane production to a halt, due to the following reasons: (a) Lack of financial support; (b) Access to land; (d) Exorbitant water, electricity, and transport costs; (e) Lack access to market information; (f) Lack of formal education by most farmers; (g) Limited access to new varieties. However, besides the factors that were highlighted here issues such as extreme climatic events, climate change, climate variability, drought, lack of collaboration lack of collateral become an additional burden to most of these farmers for them to operate effectively and efficiently. Department of Agriculture and LSGs, should intensify out-grower technical services for SSGs to realise higher production per hectare. Such services would ensure optimal allocation and application of inputs, labour, and chemicals (herbicides and pesticides), respectively, at the right time to ensure efficacy. There is also a need to introduce buying consortiums for SSGs to reduce the costs of inputs

10. REFERENCES

ADEMOLA, G. O., JAMES, S. O. & OLORE, I. 2012. The roles of record keeping in the survival and growth of small scale enterprises in Ijumu Local Government Area of Kogi State. *Global Journal of Management and Business Research*, 12(13).

ALIBER, M. & HALL, R. 2010. Development of evidence-based policy around small-scale farming. *Report commissioned by the Programme to Support Pro-Poor Policy Development, on behalf of the Presidency. HSRC, Pretoria*.

ALMOND, F. R. & HAINSWORTH, S. D. 2005. *Beyond Agriculture: Making Markets Work for the Poor: Proceedings of an International Seminar, 28 February-1 March 2005, Westminster, London, UK*, Crop Post-Harvest Programme.

ALTMAN, M., LAMONTAGNE, L., ODHUNO, F. & ALTMAN, H. 2020. Productivity of coffee farmers' cooperatives in the Eastern Highlands province of Papua New Guinea: evidence from survey data. Discussion Paper No. 177. Affiliation: National Research Institute of Papua New Guinea. .

BAIPHETHI, M. N. & JACOBS, P. T. 2009. The contribution of subsistence farming to food security in South Africa. *Agrekon*, 48, 459-482.

BEHRMAN, J. R., MITCHELL, O. S., SOO, C. & BRAVO, D. 2010. Financial Literacy, Schooling, and Wealth Accumulation. NBER Working Paper No. 16452. *National Bureau of Economic Research*.

BLACK, S., KOOPMAN, V., RIDDELL, P., WISEMAN R. & EVANS, A. 2005. WWF Action for Sustainable Sugar making it sweeter for nature. www.panda.org/freshwater/sugar

BIÉNABE, E., VERMEULEN, H. & BRAMLEY, C. 2011. The food "quality turn" in South Africa: An initial exploration of its implications for small-scale farmers' market access. *Agrekon*, 50, 36-52.

BMZ 2009. Development Policy Stance on the Topic of Land Grabbing – the Purchase and Leasing of Large Areas of Land in Developing Countries. Berlin, Germany: Federal Ministry for Economic Cooperation and Development.

BRAUN, V., CLARKE, V., BOULTON, E., DAVEY, L. & MCEVOY, C. 2021. The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, 24, 641-654.

CARNEY, J. & WATTS, M. 1991. Disciplining women? Rice, mechanization, and the evolution of Mandinka gender relations in Senegambia. *Signs: Journal of women in culture and society*, 16, 651-681.

CARNEY, J. A. 1988. Struggles over crop rights and labour within contract farming households in a Gambian irrigated rice project. *The Journal of Peasant Studies*, 15, 334-349.

CHOTIA, F. 2021. South Africa Zuma riots: Looting and unrest leaves 72 dead. *BBC NEWS*.

CHRISTOPLOS, I. & KIDD, A. 2000. Guide for monitoring, evaluation, and joint analyses of pluralistic extension support. Lindau: Neuchâtel Group. *Swiss Center for Agricultural Extension and Rural Development (LBL), Department for International Cooperation*.

CLIFFE, L. 2000. Land Reform in South Africa. *Review of African Political Economy*, 27**,** 273-286.

COCKBURN, J. J., COETZEE, H. C., VAN DEN BERG, J., CONLONG, D. E. & WITTHÖFT, J. 2014. Exploring the role of sugarcane in small-scale farmers' livelihoods in the Noodsberg area, Kwazulu-Natal, South Africa. *South African Journal of Agricultural Extension*, 42**,** 80-97.

COLLETT, K. & GALE, C. 2009. Training for rural development: Agricultural and enterprise skills for women smallholders. *City and Guilds Centre for Skills Development***,** 24-30.

CONLONG, D.E. & CAMPBELL, P.L. 2010. Integrated weed management for sugarcane field verges: Melinis minutiflora and Cynodon dactylon encroachment. *In Proceedings of the Annual Congress-South African Sugar Technologists' Association, Durban, South Africa*, 83:276–279.

COTULA, L. 2013. *The great African land grab?: Agricultural investments and the global food system*, Bloomsbury Publishing.

DANSO-ABBEAM, G., EHIAKPOR, D. S. & AIDOO, R. 2018. Agricultural extension and its effects on farm productivity and income: insight from Northern Ghana. *Agriculture & Food Security*, 7**,** 1-10.

DARDAGAN, C. 2021. *R84 million in losses threaten rural sugarcane jobs* [Online]. Available: https://sacanegrowers.co.za/r84-million-in-losses-threaten-rural-sugarcane-jobs/ [Accessed 20 January 2022].

DAVIS, D. & COSENZA, R. M. 2005. *BUSINESS RESEARCH FOR DECISION MAKING/DUANE DAVIS AND ROBERT M. COSENZA*.

DEININGER, K., THOMSON, K. J., BYERLEE, D., LINDSAY, A., NORTON, A., SELOD, H. & STICKLER, M. 2011. Rising Global Interest in Farmland: Can It Yield Sustainable and Equitable Benefits? *Experimental Agriculture*, 47**,** 730-730.

DLAMINI, N. 2021. KZN sugar industry crippled by unrest. *The Witness*, 17 August 2021.

DUBB, A. 2013 The Rise and Decline of Small-Scale Sugarcane Production in South Africa: A Historical Perspective; Institute for Poverty Land and Agrarian Studies, UWC: Bellville, South Africa.

DUMA, N. 2021. KZN declares state of disaster following unrest and looting. https://ewn.co.za/2021/07/29/kzn-declares-provincial-state-of-disaster-following-unrest-looting

ERASMUS, D. 2021. Agri department wants to recruit 10 000 extension officers [Online]. Available: https://www.farmersweekly.co.za/agri-news/south-africa/agri-department-wants-to-recruit-10-000-extension-officers/#:~:text=According%20to%20budget%20documents%20for,over%20the%20next%20three%20years [Accessed].

EWEG, M. J. 2005. The changing profile of small-scale 'sugarcane'farmers in South Africa. *Unpublished paper, South African Sugarcane Research Institute, Mount Edgecombe, South Africa*.

GARSIDE, A.L. & BELL, M.J. 2007. The value of legume breaks to the sugarcane cropping system cumulative yields for the next cycle, potential cash returns from the legume, and duration of the break effect. *In Proceedings of the Australian Society of Sugarcane Technologists, Cairns, Australian*, 29:299–308.

GOVERNMENT COMMUNICATIONS AND INFORMATION SYSTEMS. 2019. Official Guide to South Africa. Availble: https://www.gcis.gov.za/official-guide-south-africa-201819[Accessed].

GROENEWALD, J. A. 2004. Conditions for successful land reform in Africa. *South African Journal of Economic and Management Sciences*, 7, 673-682.

HEINBERG, T. 2021. *South Africa unrest hits farming, threatens food supply* [Online]. Reuters. Available: https://www.reuters.com/world/africa/south-africa-unrest-hits-farming-threatens-food-supply-2021-07-13/ [Accessed 2021].

HARMONY BUSINESS PLAN. 2005. Application for Land Redistribution for Agricultural Development Funding. Compiled by D. van der Merwe in conjunction with Harmony Trust beneficiaries. Koue Bokkeveld.

HENDRIKS, S. 2014. Food security in South Africa: Status quo and policy imperatives. *Agrekon*, 53, 1-24.

HENRIQUES, M. 2021. *The ageing crisis threatening farming* [Online]. Available: https://www.bbc.com/future/bespoke/follow-the-food/the-ageing-crisis-threatening-farming/ [Accessed 12 January 2022].

JACOBS, P., LAHIFF, E. & HALL, R. 2003. *Land redistribution*. Series 1. Evaluating land and agrarian reform in South Africa: An occasional paper series. Cape Town: Institute for Poverty, Land and Agrarian Studies. University of the Western Cape.

JOHNSON, H. & SHAW, L. 2014. Rethinking Rural Co-Operatives in Development: Introduction to the Policy Arena. *Journal of International Development*, 26, 668-682.

KARIUKI, S. M. 2004. Creating the black commercial farmers in South Africa. *ASC Working Paper Series*.

IJATUYI, E. & MOKONE. B. 2018. A Narrative Review of the Assessment of Extension and Advisory Services on an Agricultural Development Project in North-West Province, South Africa. *Journal of International Agricultural and Extension Education*. 25. 87 - 101.

KIRSTEN, J. & SHLOBO, W. 2021. How a land reform agency could break SA's land redistribution deadlock [Online]. Available: https://www.wits.ac.za/news/latest-news/opinion/2021/2021-08/how-a-land-reform-agency-could-break-sas-land-redistribution-deadlock.html [Accessed].

LECOMPTE, M. D. & GOETZ, J. P. 1982. Problems of reliability and validity in ethnographic research. *Review of educational research*, 52**,** 31-60.

LIU, J., DU, S. & FU, Z. 2021. The Impact of Rural Population Aging on Farmers' Cleaner Production Behavior: Evidence from Five Provinces of the North China Plain. *Sustainability*, 13**,** 12199.

Loki, O., Mudhara, M., Pakela-Jezile, Y. & Mkhabela, T. S. 2019. Factors influencing Land Reform Beneficiaries' Willingness to Paiy for Extension Services in Eastern Cape and KwaZulu-Natal, South Africa. *S. Afr. J. Agric*. Ext. 47(4). 29 - 45.

LOVE, D., TWOMLOW, S., MUPANGWA, W., VAN DER ZAAG, P. & GUMBO, B. 2006. Implementing the millennium development food security goals–challenges of the southern African context. *Physics and Chemistry of the Earth, Parts A/B/C*, 31**,** 731-737.

MAGINGXA, L. L., ALEMU, Z. G. & VAN SCHALKWYK, H. D. 2009. Factors influencing access to produce markets for smallholder irrigators in South Africa. *Development Southern Africa*, 26**,** 47-58.

MASTER, N. 2021. South Africa - Sugar Cane Production Metric Tons - 1961 to 2019.

MIDDELTUIN LRAD PROJECT BUSINESS PLAN. 2007. Application for Land Redistribution for Agricultural Development Funding. Compiled by D. van der Merwe in conjunction with Harmony Trust beneficiaries. Clanwilliam & Koue Bokkeveld.

MOGRABI, P., DE VOS, A., SHACKLETON,C.,CLEMENTS, H.,BEZERRA, J.COETZER, K. & MACIEJEWSKI,K. 2020. South Africa's land reform policies need to embrace social, economic and ecological sustainability [Online]. Available: https://theconversation.com/south-africas-land-reform-policies-need-to-embrace-social-economic-and-ecological-sustainability-145571 [Accessed]. MSUYA, C. P., ANNOR-FREMPONG, F. K., MAGHENI, M. N., AGUNGA, R., IGODAN, C., LADELE, A. A., HUHELA, K., TSELAESELE, N. M., MSATILOMO, H. & CHOWA, C. 2017. The role of agricultural extension in Africa's development, the importance of extension workers and the need for change. *International Journal of Agricultural Extension*, 5**,** 51-58.

MTOMBENI, S., BOVE, D. & THIBANE, T. 2018. An analysis of finance as a barrier to entry and expansion for emerging farmers. *Statistics*.

MUCHIRA, B. W. 2012. Record Keeping and Growth of Micro and Small Enterprises. A Case Study Municipally in Kenya. Masters of Business Administration (thesis) of Kenyatta University.

NGOMANE, T., THOMSON, J. S. & RADHAKRISHNA, R. B. 2002. Public sector agricultural extension system in the Northern Province of South Africa: A system undergoing transformation. *Journal of International Agricultural and Extension Education*, 9, 31-37.

NORTHWEST AGRICULTURE AND RURAL DEVELOPMENT. 2019. North West Rural, Environment and Agricultural Development on digitalisation [Online]. Available: https://www.gov.za/speeches/digitalisation-set-transform-extension-and-agricultural-advisory-services-north-wes-12-mar [Accessed].

OLADELE, O. I. & MABE, L. K. 2010. Job burnout and coping strategies among extension officers in North West province, South Africa. *African Journal of Agricultural Research*, 5, 2321-2325.

ORB, A., EISENHAUER, L. & WYNADEN, D. 2001. Ethics in qualitative research. *Journal of nursing scholarship*, 33, 93-96.

ORTMANN, G. F. & KING, R. P. 2007. Agricultural cooperatives II: can they facilitate access of small-scale farmers in South Africa to input and product markets? *Agrekon*, 46, 219-244.

PATTON, M. Q. 2002. Qualitative research and evaluation methods. Thousand Oaks. *Cal.: Sage Publications*, 4.

PLANO CLARK, V. L. & CRESWELL, J. W. 2011. Designing and conducting mixed methods research. *Canada: Sage publications*.

RSA 1994. Restitution of Land Rights Act 22 of 1994, Republic of South Africa. *In:* DEPARTMENT OF AGRICULTURE, L. R. A. R. D. (ed.). Pretoria

RSA 2014. production Guidelines for Sugarcane. *In:* DEPARTMENT OF AGRICULTURE, F. A. F. (ed.). Pretoria.

SANJARI, M., BAHRAMNEZHAD, F., FOMANI, F. K., SHOGHI, M. & CHERAGHI, M. A. 2014. Ethical challenges of researchers in qualitative studies: the necessity to develop a specific guideline. *Journal of Medical Ethics and History of Medicine*, 7.

SASA 2012. South African Sugar Industry Directory 2012/13. Durban: SOUTH AFRICAN SUGAR ASSOCIATION.

SASA 2021. The sugar industry: An overview of the South African Sugar Industry. Durban: SOUTH AFRICAN SUGAR ASSOCIATION.

SASA 2022. The sugar industry at a glance: The R14 Billion South African Sugar Industry. Durban: SOUTH AFRICAN SUGAR ASSOCIATION.

SEBOLA, M. P. 2018. Financing emerging black farmers for agricultural development in South Africa: A wasteful and unworkable model for creating black farmers. *TD: The Journal for Transdisciplinary Research in Southern Africa*, 14, 1-7.

SEBOLA, M. P. & TSHEOLA, J. P. 2014. Economics of agricultural land restitution and redistribution in South Africa: Willing-seller, willing-buyer business imperatives versus socio-political transformation? *Journal of Human Ecology*, 46, 113-123.

SELLTIZ, C., WRIGHTSMAN, L. S. & COOK, S. W. 1976. Research Methods in Social Relations, ed. 3rd. *New York: Holt, Rhinehart & Winston*.

SIBANDA, M. 2012. *Market potential and profitability of improved maize open pollinated varieties in the Eastern Cape.* Master's Thesis, University of Fort Hare.

SIBIYA, T.G. & HURLY, K.M. 2011. Sustaining small sugarcane cooperatives in South Africa through clustering, collaboration, goal-alignment and record-keeping association extension farming service. *In Proceedings of the South African Sugar Technologist Association Congress, Pretoria, South Africa*, 16–19 August 2011; pp. 192–195.

SIKUKA, W. & GELLER, L. 2019. South African Sugar Production Forecast to Grow Despite Revenue Pressures. Global Agricultural Information Network. GAIN Report Number:SA1912

SOKHELA, M.P. 1999. Enhancing the Contribution of Small-Scale Growers in the Sugar Industry, PhD Thesis.Dept of Science. University of KwaZulu-Natal. Pietermarizburg. TATSVAREI, S., MWALE-MANJORO, M., MAPIYE, C., MARUFU, M. C., SINGH, J. A., LETTY, B. A., NAIDOO, S., WRIGHT, C. & AREMU, A. 2021. Situational analysis and strategic advisory on farming and food security in South Africa in the aftermath of widespread public violence and looting in Kwazulu-Natal and Gauteng between 10-14 JULY 2021.

TENA, E., MEKBIB, F., SHIMELIS, H. & MWADZINGENI, L. 2016. Sugarcane production under smallholder farming systems: Farmers preferred traits, constraints and genetic resources. *Cogent Food & Agriculture*, 2, 1191323.

VAN DED RHEEDE, C. 2021. *Civil unrest, looting impact farming, threaten food supply* [Online]. Available: https://www.news24.com/citypress/business/civil-unrest-looting-impact-farming-threaten-food-supply-20210713 [Accessed].

VIJFHUIZEN, C. 2001. Perdendo o control: Género e terra no regadio de Massaca, província de Maputo. *Estratégias das Mulheres, Proveito dos Homens: Género, terra e recursos*

naturais em diferentes contextos rurais em Moçambique. Eduardo Mondlane University and ActionAid-Moçambique, Maputo, 89-121.

VINK, N., VAN ROOYEN, J. & KARAAN, M. Farmer support programmes: lessons from implementation. 2012 2012.

VON LOEPER, W., MUSANGO, J., BRENT, A. & DRIMIE, S. 2016. Analysing challenges facing smallholder farmers and conservation agriculture in South Africa: A system dynamics approach. *South African Journal of Economic and Management Sciences*, 19, 747-773.

WARUSZNSKI, B. T. 2002. thical issues in qualitative research. *In:* VAN DEN HOONAARD, W. C. (ed.) *Walking the Tightrope: Ethical Issues for Qualitative Researchers.* Toronto: University of Toronto Press.

WATSON, R. 2021. *How to assist small-scale farmers* [Online]. Available: https://www.un.org/en/ecosoc/docs/statement08/robert_watson.pdf [Accessed 24 May 2021].

WESTERN CAPE GOVERNMENT PROVINCIAL TREASURY. 2012. *Regional Development Profile Eden District*. Working Paper. Cape Town.

WILSON, T. D. 2010. Fifty years of information behavior research. *Bulletin of the American Society for Information Science and Technology*, 36, 27-34.

WOODHOUSE, P. 2015. *Survey of small-scale sugarcane growers in South Africa 2011-2015*. [Data Collection]. Colchester, Essex: UK Data Archive.WORLD BANK, 2021. *CLIMATE-SMART AGRICULTURE* [Online]. Available: https://www.worldbank.org/en/topic/climate-smart-agriculture [Accessed 28 February 2022].

ZALO CAPITAL EXPERT FINANCIAL SERVICES. 2011. Review of Harmony Equity Scheme Land Reform Project. October 2011.

ZULU, N. S., SIBANDA, M. & TLALI, B. S. 2019. Factors affecting sugarcane production by small-scale growers in Ndwedwe Local Unicipality, South Africa. *Agriculture*, 9, 170.

11. Annexure A: Questionnaire

DETERMINING CHALLENGES FACING SMALL SCALE SUGARCANE GROWERS IN KWAZULU- NATAL

About the study

The Moses Kotane Institute (MKI) is undertaking a study to (1) Determine the challenges faced by small-scale sugarcane growers in KZN and to ascertain the nature of the challenges i.e., resources, capital, or historical. (2) Recommend solutions for long term profitably and sustainability of small-scale sugarcane farmers. (3) Propose measures to assist small-scale sugarcane farmers. The findings of this study will enable government, decision makers, policy makers, and other relevant stakeholders to have a clear sense of the challenges facing the sugar industry and to implement interventions that will ensure long term sustainability of this industry.

Request for participation

MKI requests you to participate in this study by completing the questionnaire below. The questionnaire has few questions, and it takes about 15 minutes to complete. Should you agree to participate, kindly confirm by ticking 'Yes' on the consent form below.

Consent Form

I **.....** (State the name & Surname) agree to participate in the study conducted by the Moses Kotane Institute titled Determining challenges faced by small-scale sugarcane farmers in KwaZulu-Natal. I understand that I am participating freely, without coerced in any way to do so. I understand that my identity will only be used for the purpose stated above. I grant the researcher permission to collect data from me using electronic or physical instruments like cell phone and/or paper. I also understand that I will not be remunerated for participating in this study.

I agree to participate	Yes		No	

STUDY QUESTIONNAIRE – 2021

Demographics		Answers/Input		Comments/Specify		
1.	Name of the farm:					
2.	Name & Surname of the respondent:					
3.	Citizenship:	a) South African	☐			
		b) Non-South African	☐			
		c) Other	☐			
4.	Nationality:					
5.	Age:	a) 18-24 years	☐			
		b) 25-34 years	☐			
		c) 35-44 years	☐			
		d) 45-54 years	☐			
		e) 55-65 years	☐			
		f) Above 65	☐			
6.	Gender:	a) Male	☐			
		b) Female	☐			
		c) Other	☐			
7.	Education level:	a) No education	☐			
		b) Grade 0-7	☐			
		c) Grade 8-11	☐			
		d) Grade 12/Matric	☐			
		e) Higher Certificate	☐			
		f) Post Matric Qualification	☐	Level		Type/Major
				Diploma	☐	
				B-Tech	☐	
				M-Tech	☐	
				D-Tech	☐	
				Bachelor's degree	☐	
				Honours	☐	
				Masters	☐	
				PhD	☐	
8.	Contacts:					

Demographics		Answers/Input		Comments/Specify
9.	Local Municipality and location:	Google forms to indicate the list of local municipalities		
10.	GPS co-ordinates or address:			
11.	How long has it been operating?	a) 0-3 years	☐	
		b) 4-6 years	☐	
		c) 7-10 years	☐	
		d) More than 10 years	☐	

12	How many sugar cane varieties are you currently cultivating? List them in the comment tab	a) 1-3 b) 4 -6 c) 7- 10		
13	Where do you source your sugarcane varieties?	a) SASRI	☐	
		b) Private breeders	☐	
		c) Other (specify in the comment)	☐	
14	Do you have a competitive advantage/ capacity to compete with large-scale farmers?	a) Yes	☐	
		b) No	☐	
15	What are some of the challenges you have experienced?	a) Irrigation system 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		b) Lack of high performing varieties 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		c) Transport issues 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		d) Land issues 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		e) Access to milling plant 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	

		f) Climate change 1. Most challenging 2. Somewhat challenging 3. Least challenging	☐	
		g) Access to markets 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		h) Productivity 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		i) Extension services 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		j) Alien invasive plants/ weeds 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		k) Pest Control 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		l) Drought 1. Least challenging 2. Somewhat challenging 3. Most challenging	☐	
		m) Other (specify)	☐	
16	What would be required to expand your farming operations?	a) Finances 1. Least required 2. Somewhat required 3. Most required	☐	
		b) Education/Skills 1. Least required 2. Somewhat required 3. Most required	☐	
		c) Access to markets 1. Least required 2. Somewhat required 3. Most required	☐	
		d) Equipment 1. Least required 2. Somewhat required 3. Most required	☐	
		e) Feasibility study/Business plan 1. Least required 2. Somewhat required 3. Most required	☐	

		f) Skilled workforce 1. Least required 2. Somewhat required 3. Most required		
		g) Logistics 1. Least required 2. Somewhat required 3. Most required		
		h) Marketing 1. Least required 2. Somewhat required 3. Most required		
		i) Partnerships/Shareholding 1. Least required 2. Somewhat required 3. Most required		
		j) Other (Specify)		

17	How do you measure your average turnover per harvest?	a) Monthly		
		b) Seasonal (i.e., after every harvest)		
		c) Annually		
18	How much is your average turnover per harvest?	a) Less than R10 000		
		b) R11 000 - R20 000		
		c) R21 000 – R30 000		
		d) Above 30 000		
19	Do you keep financial records of your business?	a) Yes		
		b) No		
		c) Sometimes		
20	Has your business received any funding from Government/Municipality or any other organisation?	a) Yes		
		b) No		
		c) Other		
21	Has government support programmes (land reform and restitution) assisted you?	a) Yes b) No		
22	Have you been adversely affected by the ongoing unrest	a) Yes b) No c) Somewhat		
23	How have you been affected by the unrest/ riot in your farm?	a) Burning of sugarcane 1. Most affected 2. Somewhat challenging 3. Least affected b) Transport of burnt sugarcane to the mill 1. Most affected 2. Somewhat affected 3. Least affected c) Mill closure 1. Most affected 2. Somewhat affected 3. Least affected d)Low sucrose content 1. Most affected 2. Somewhat affected		

		3. Least affected e) Loss of revenue 1. Most affected 2. Somewhat affected 3. Least affected f) Loss of Revenue 1. Most affected 2. Somewhat affected 3. Least affected g) Delayed Harvesting 1. Most affected 2. Somewhat affected 3. Least affected h) Vandalism of Farm Equipment 1. Most affected 2. Somewhat affected 3. Least affected i) Looting of Farm Chemicals and Inputs 1. Most affected 2. Somewhat affected 3. Least affected		
24	What other support does your business require to make it successful?			

25 Overall comments, conclusions, and recommendations for implementation:		
Other opportunities in the are		
	Signature:	Date:

Table 1 District municipalities in KwaZulu Natal

DISTRICT MUNICIPALITY	LOCAL MUNICIPALITY	NO. OF WARDS
Amajuba	Dannhauser Local Municipality	13
	eMadlangeni Local Municipality	6
	Newcastle Local Municipality	34
Harry Gwala	Dr Nkosazana Dlamini Zuma Local Municipality	15
	Greater Kokstad Local Municipality	6
	Ubuhlebezwe Local Municipality	14
	Umzimkhulu Local Municipality	22
iLembe	KwaDukuza Local Municipality	29
	Mandeni Local Municipality	18
	Maphumulo Local Municipality	11
	Ndwedwe Local Municipality	19
King Cetshwayo	Mthonjaneni Local Municipality	13
	Nkandla Local Municipality	14
	uMfolozi Local Municipality	17
	uMhlathuze Local Municipality	34
	uMlalazi Local Municipality	27
Ugu	Ray Nkonyeni Local Municipality	20
	uMdoni Local Municipality	19
	uMuziwabantu Local Municipality	10
	Umzumbe Local Municipality	20
uMgungundlovu	Impendle Local Municipality	4
	Mkhambathini Local Municipality	7
	Mpofana Local Municipality	5
	Msunduzi Local Municipality	39
	Richmond Local Municipality	7
	uMngeni Local Municipality	12
	uMshwathi Local Municipality	14
Umkhanyakude	Big Five Hlabisa Local Municipality	13
	Jozini Local Municipality	20
	Mtubatuba Local Municipality	20
	uMhlabuyalingana Local Municipality	18

Umzinyathi	Endumeni Local Municipality	7
	Msinga Local Municipality	18
	Nqutu Local Municipality	17
	Umvoti Local Municipality	14
Uthukela	Alfred Duma Local Municipality	36
	Inkosi Langalibalele Local Municipality	23
	Okhahlamba Local Municipality	15
Zululand	Abaqulusi Local Municipality	22
	eDumbe Local Municipality	8
	Nongoma Local Municipality	21
	Ulundi Local Municipality	24
	uPhongolo Local Municipality	15
eThekwini Metropolitan Municipality	eThekwini Metropolitan Municipality	110

12. Annexure B: Statistical analysis

Age and gender

Table 2: Gender vs Age groups

Gender		
Age Group	**Female**	**Male**
25-34 years	0%	100%
35-44 years	21%	79%
45-54 years	36%	64%
55-65 years	22%	78%
Above 65	39%	61%
Grand Total	28%	72%

A comparison of participants' age groups and gender reveal that no females are represented in the youth age group of 25 – 34 years, with 100% of the participants being male. Overall majority of the small-scale sugarcane growers are male, with limited representation of females as illustrated on Table 2.

Table 3: Level of education vs Location

School Education Level				
Location	**Grade 0-7**	**Grade 12/Matric**	**Grade 8-11**	**No education**
eThekwini Metropolitan	0%	100%	0%	0%
Jozini Local	0%	100%	0%	0%
KwaDukuza Local	0%	100%	0%	0%
Maphumulo Local	9%	91%	0%	0%
Mtubatuba Local	0%	73%	0%	27%
Ndwedwe Local	9%	64%	9%	18%
uMlalazi Local	0%	38%	38%	25%
uPhongolo Local	3%	93%	3%	0%
Grand Total	4%	76%	10%	11%

Table 3 illustrates school education level reported in the survey by participants' farm location. It is evident from the table that most of the participants have completed Grade 12/Matric.

Table 4: No. of sugarcane varieties vs Location

Sugarcane Varieties			
Local Municipality	**1-3**	**3 -5**	**5- 7**
Jozini Local	0%	100%	0%
Mtubatuba Local	50%	50%	0%
uMlalazi Local	0%	0%	100%
eThekwini Metropolitan	36%	36%	27%
Maphumulo Local	91%	9%	0%
Ndwedwe Local	82%	18%	0%
uPhongolo Local	81%	6%	13%
KwaDukuza Local	34%	45%	21%
Grand Total	**57%**	**28%**	**16%**

Table 4 shows that, at most, 3 sugarcane varieties are cultivated by 56% of the farmers represented in the survey, with only 28% and 16% indicating 3-5 and 5-7 respectively. Table 3 also shows that only famers in uMlalazi local municipality cultivate the most varieties (5 – 7).

Table 5: Bookkeeping vs Average turnover

Financial records			
Average Turnover	**No**	**Sometimes**	**Yes**
Less than R10 000	62%	6%	32%
R10 001 - R20 000	27%	9%	64%
R20 001 – R30 000	14%	0%	86%
Above R30 000	3%	6%	90%
Grand Total	31%	6%	63%

Most of the farmers (90%) with an average turnover of above R30 000 keep financial records, while almost two thirds (62%) of those generating a turnover of less than R10 000 do not keep financial records for their farming operations (Table 5)

Table 6: Financial support vs Effect of unrest

Do you intend to seek any financial support?			
Adverse effect of unrest	**Maybe**	**No**	**Yes**
No	17%	38%	45%
Somewhat	0%	50%	50%
Yes	6%	25%	69%
Grand Total	**12%**	**37%**	**51%**

According to the survey results, most of the sugarcane farmers (64%) were affected by the July 2021 unrest in the KZN province. However, the farmers intend to seek financial support which could suggest the need for financial resources to scale-up farming operations.

Table 7: Unrest effect

Types of Unrest activities and their effect	Most Affected	Least affected	Somewhat Affected
Burning of Sugarcane	81%	14%	5%
Transport of Burnt Sugarcane to the Mill	83%	11%	6%
Mill Closure	58%	27%	15%
Low Sucrose Content	77%	8%	14%
Loss of Revenue	65%	17%	17%
Delayed Harvesting	59%	20%	20%
Vandalism of Farm Equipment	77%	12%	11%

Looting of Farm Chemicals and Inputs	86%	5%	9%

Table 7 lists the types of unrest activities that affected businesses in July 2021 in the KZN province to gauge whether the small-scale sugarcane farmers were affected.