

**BINDURA UNIVERSITY OF SCIENCE EDUCATION**



**MARKET TENDENCIES, OPPORTUNITIES AND CONSTRAINTS OF SUGARCANE  
VALUE CHAIN AMONG SMALLHOLDER SUGARCANE FARMERS, CHIREZI  
DISTRICT**

**BY  
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REQUIREMENTS OF THE BACHELOR OF AGRICULTURAL SCIENCE HONOR'S  
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## **DEDICATION**

My family is the inspiration for this dissertation. May God richly bless you?

## **ABSTRACT**

The production of sugarcane has been dropping, especially among smallholder sugarcane growers, which has been an issue for the sugar business. The study aims at assessing the market tendencies of sugarcane farmers, the opportunities and constraints in the sugarcane industry and the factors influencing their market tendencies. The study was conducted from Hippo Valley, Triangle and Mkwazine where twenty farmers from each estate were chosen. Random sampling technique was used for selecting the target group. The questionnaire was used to collect the data and it was analyzed quantitatively using excel. From the study, it has been found that the out grower farmers' distance to the market and transport availability influences farmer's market tendency. It is imperative that the out grower farmer possess industry specific prerequisite knowledge through experience, training and education. Access to tailor made finance is also crucial to acquire the necessary resources for planting, growing, harvesting and transportation of the sugarcane to the millers. The main constraints of the farmers during production period and transporting were lack of machinery, poor roads, high transport cost, delays in payment, lack of credit finance and high inflation rates. The demographic characteristics of the farmer such as education, experience, age, and health status support farmers' ability to solve problems, make decisions, and troubleshoot issues as well as providing knowledge, skills, discipline, motivation, and self-confidence needed in the dynamic and unpredictable farming venture. Education in sugarcane farming provides information and expertise relevant to industry and access to network of contacts that can be used for trend analysis, threat, opportunity assessment and adoption of optimal growth strategic measures.

**Key words: market tendencies, opportunities, challenges, constraints, sugarcane**

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

GDP	Gross Domestic Product
ERC	Estimated Recoverable Crystal
ZSS	Zimbabwe Sugar Sales
ZSA	Zimbabwe Sugar Association
DOP	Division of Proceeds
THZ	Tongaat-Hulett Zimbabwe
CPA	Cane Purchasing Agreement
CMA	Cane Management Agreement
SWOT	Strength, Weaknesses, Opportunities and Threats
TRQ	Tariff Rate Quota
WRF	Warehouse Receipts Financing

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# CHAPTER 1

## 1.0 Introduction

The chapter contains the background, problem statement, objectives, research questions, hypothesis, justification and limitations of the study.

## 1.1 Background of the study

Around the year 2000, the Zimbabwean government made the decision to begin the land reform program (Kinsey, B.H 1999). The program was run by nationalists and military veterans, and the phase lacked organization. To provide offer letters to new farmers, the Government subsequently added the Ministry of Lands in the initiative. A1 and A2 farmers were presented as the two major models. A1 farming is for subsistence, while A2 farming is for commercial interests. This effort impacted major activities in the Hippo Valley, Triangle and Mkwesine sugar plantations and nearby reserves. The land improvement district's new outside growers included teachers, counselors, farm workers, and well-connected officials and guards. Some newcomers took some getting used to because not everyone gets along. It can be difficult to manage cash flow, hire and manage employees, organize inputs, and negotiate with the company (Shumba et al. 2011).

Given that its roots are not flooded with water, sugarcane is a subtropical and tropical crop that requires a lot of sun (Zimbabwe Sugar Association 1982). A study by Serunkuma and Kiniera (2006) found that 127 nations produce sugar, 30% of which is exported while the remaining 70% is consumed domestically. Although the time required to reach maturity varies greatly around the world, in Zimbabwe it takes 12 to 14 months. One of the greatest regions in the world for producing sugar at reasonable prices has been recognized as the Low-veld. The weather is perfect for sugar cane. It is a crop that requires a lot of effort, especially when it comes to weeding and harvesting. It also uses a lot of agrochemicals, such as fertilizers and pesticides. When harvesting, the stems are cut down and the roots are let to regrow (base cutting). The crop is crucial for producing molasses for ethanol manufacture and distillation, earning foreign exchange for the country, producing power, and giving the country the sweeteners it needs for all its industries. Sugar cane has more by-products than other commercial crops. (Scoones 2013).

In the low veld regions of Triangle, Mkwazine, and Hippo Valley in the Chiredzi District, Masvingo Province of Zimbabwe, sugar cane is grown utilizing canal irrigation. Low veld refers to regions that are located between 150 and 600 meters (500 to 2,000 feet) above sea level. Production of sugarcane is one of the most successful farming endeavors, utilizing large geographical areas. Almost 50,000 hectares of the South Eastern Low Veld in Zimbabwe are suitable for cultivation. The Hippo Valley Estate and The Triangle Sugar Estate, two sizable estates, produce over 80% of Zimbabwe's sugar cane production. The two estates, are owned by the Tongaat-Hulett Company of South Africa, are responsible for producing 80% of the nation's cane output. Private farmers including large scale farmers and small scale farmers produce the remaining 20%. Individual farmers who are not a part of the Triangle and Hippo Valley Estates are together referred to as private growers (Chidoko and Chimwai 2011). There are just two sugar mills in Zimbabwe, Hippo Valley Estates Ltd. and Triangle Estates Ltd., with installed milling capacities of 4.8 million tons of sugar cane annually and a combined sugar production capacity of roughly 640,000 MT. About 65% of the sugar produced by the two mills in Zimbabwe is consumed locally, and the other 35% is exported to earn foreign currency. The Triangle Sugar Refinery, a back-end refinery, and the Star Africa Sugar Refinery Ltd., an independent sugar refinery, are the two sugar refineries that Zimbabwe now operates. The Mutirikwi, Tokwe-Mukosi, Manjirenji, and Siya dams provide water for irrigation (Chandiposha 2013).

Each planting typically yields three sugarcane crops: plant cane, the first stubble, and the second stubble. Rarely is a cover crop planted in a sugarcane rotation. Although old stubble can be burnt as soon as it is harvested, most stubble is stored until the following spring, leaving only the worst stubbling areas to be burned. The ability to stubble is influenced by variety, winter harshness, and harvesting season. The fields are routinely cultivated (fallow plowing) throughout the summer as part of the weed management program after the stubble is destroyed, and cane is planted once more in the fall. Even when sugarcane plant remains are the sole organic matter added to the soil, its organic matter content can still be preserved. Turning under a healthy soy bean crop keeps the organic matter at a similar level while also having the extra benefits of providing roughly 40 pounds of nitrogen and helping to suppress annual grasses and broadleaved weeds. (Chidoko and Chimwai 2011).

Despite the focus given on sugarcane value chain, farmers have been struggling under a number of problems, which includes lack of adequate finance, pests and diseases, changes in weather patterns as well as economic instability. However, farmers are enjoying quite a number of opportunities which includes abundance of labor (cheap labor), reliable sources of irrigation water and they have a ready market which is Tongaat-Hulett.

## **1.2 Problem statement**

Although sugarcane farming offers advantages, low veld sugarcane growers have primarily been responsible for the industry's difficulties. The production of sugarcane has been dropping, especially among smallholder sugarcane growers, which has been an issue for the sugar business. The sugar sector in Zimbabwe is suffering as a result of the smallholder farmers' declining sugarcane production yield. Due to the difficulties smallholder sugarcane farmers encountered, their production has suffered, which has caused a decline in the earnings of the sector over time. This has reduced the number of sugarcane producers and also hindered their capacity to commercialize as a result.

Although sugarcane farming offers advantages, low veld sugarcane growers have primarily been responsible for the industry's difficulties. The production of sugarcane has been dropping, especially among smallholder sugarcane growers, which has been an issue for the sugar business. The sugar sector in Zimbabwe is suffering as a result of the smallholder farmers' declining sugarcane production yield. Due to the difficulties smallholder sugarcane farmers encountered, their production has suffered, which has caused a decline in the earnings of the sector over time. This has reduced the number of sugarcane producers and also hindered their capacity to commercialize as a result.

Table 1 shows the performance of the out growers for the period of five years. Thus from 2016-2022

<b>YEAR</b>	<b>TOTAL CANE PRODUCTION IN TONES</b>
2016	1138668
2017	1185231
2018	1194100
2019	1198124
2020	1190000
2021	1185000
2022	1184100

Source: (Tongaat-Hulett Zimbabwe, 2017)

## **1.2 Objectives**

### **1.2.1 Aim of the study**

To assess the market tendencies, opportunities and constraints among the sugarcane farmers.

### **1.2.2 Specific objectives**

- To evaluate market tendencies of sugarcane farmers
- To identify the opportunities and constraints in the sugar cane value chain for then out grower farmers
- To assess factors influencing market tendencies of sugar

## **1.3 Research questions**

- What are market tendencies of sugarcane farmers?
- What are the opportunities and constraints in the sugar cane value chain for then out grower farmers



- What are the issues that influence the market trend of sugarcane by the out growers?

#### **1.4 Justification of the study.**

The production of sugarcane in Zimbabwe has gradually made a significant contribution to the national economy. The global market has a tendency to seek out more sugar, which is why sugarcane production is becoming a major worry for everyone. Although the majority of people's diets require sugar, the project can be finished in 12 to 13 months, from planting to harvesting and processing.

15% to 18% of the nation's GDP is contributed by the production of sugarcane. In an effort to increase revenue from exports, about 35% of the sugar produced is exported. Over 25000 people are employed in the country as a result of the low veld's sugar output. More than 7000 people were employed by the out-growers, but these farmers are finding it difficult to boost production, and some are abandoning up entirely. The goal of this study is to inform readers about the difficulties, opportunities, and market trends that low veld out producers must deal with. Therefore, this research will serve as the main source for information on sugarcane production for a variety of stakeholders and bodies, including consultants, researchers, policy makers, legislators, traders, and consumers.

#### **1.5 Limitations of the study.**

- Lack of adequate funds since the research was self-sponsored
- Biased information since some farmers did not disclose some information they deemed confidential
- Poor roads and lack of transport that restricted the researcher to breach the farmers who lived in remote areas.

## **CHAPTER 2**

### **2.1 Sugarcane.**

Sugar is made from the juice of sugar cane (*Saccharum officinarum*), which is why it is grown (Onwueme and Sinha 1999). Most of the world's sugarcane is grown in tropical and subtropical climates. The plant is also grown for the production of biofuel, especially in Brazil and Zimbabwe, because the cane is directly used in the creation of ethanol (ethyl alcohol). Cellulosic ethanol, a second-generation biofuel, can be produced from straw and bagasse (cane fibers), byproducts of the cane sugar industry. Additional sugarcane products include molasses, rum, and cachaça (a Brazilian alcoholic beverage). Cattle feed and thatch can both be made from the plant itself. March 2023 (Encyclopedia Britannica).

Sugar cane requires a lot of water to develop but does well in hot climates and dry regions. Sugar cane is a crop that requires a lot of labor to produce and cannot be mechanized to produce the optimum results. According to (Clowes and Breakwell 1998), sugar cane is a perennial plant in the grass family that thrives in the low veld, which is 400 meters above sea level and has short, cold winters and extremely long, scorching summers. The crop needs a lot of water as well, at 590 mm per year.

### **2.2 Marketing of sugarcane**

Sugar cane is an important crop and an important raw material for the sugar industry. Due to the significant expansion of the sugar industry, the area of sugar cane has also increased significantly. When selling sugarcane in Pakistan, farmers sell their sugarcane to traders and contractors in their villages, or to shopping malls set up by sugar mills in the surrounding areas. Sugar is processed in factories and then sold to consumers through wholesalers, retailers and grocery stores. In addition to sugar, there are also some by-products such as molasses and bagasse. (Shafiq Rehman 2021)

The marketing of sugarcane in Pakistan is also beset with several problems. Underweighting at purchase centers, delays in payment, undue deductions by millers, obtaining an indent and the

payment of premium are the common complaints of farmers. Sugar factories take advantage of farmers in a number of ways. While sugarcane growers ask for a greater price for their crop, sugarcane millers gripe about their increased production costs and high import costs for equipment. Seasons for crushing sugarcane are delayed, which causes resentment among farmers and losses for millers. Stagnant cane yields, millers' failure to pay growers' dues, and poor import parity prices. Other issues that exacerbate the issues faced by sugarcane growers, sugar mills, and consumers/end users include inadequate agricultural infrastructure, an unclear government sugar policy, and unfair trade practices. (Ali, G., and N. P. Khan 2012)

In Zimbabwe the out grower farmers supply their cane to the millers. The farmer will be paid based on the tonnage of cane and the Direct Analysis of Cane (DAC) report results. The Estimated Recoverable Crystal (ERC) percentage in the cane is one of the most important cane quality parameter to determine the value accrued by the farmers from their cane. (ZSA 2018) The higher the raw cane tonnage and the ERC tonnage the higher the income of the farmer. Zimbabwe Sugar Sales (ZSS) is the board responsible for selling sugar locally, regionally, and internationally. The ZSS board identifies high value markets to increase return on investment to the farmers, millers and the estates. The Division of Proceeds (DOP) denotes the ratio at which proceeds from the sugar sold to all markets is shared between the farmers and the miller which is currently at 23:77. The millers takes 26 per cent of total cane delivered by out growers to cover the costs of milling. (Tongaat Hulett 2016)

To regulate the smooth functioning of the sugar industry the ZSA was formed. Under the ZSA are other entities whose roles are to support the mandate of the main board. These include the ZSAES and Sugarcane Farmers Associations. The main activities of the ZSAES are to perform research function and to provide training to farmers, supervisors and managers. The Sugarcane Farmers Associations include the ZSDA, ZSDA Royal Trust, CSFAZ, HVPSFA, MSFA and ZCFA. Their main function is to protect the interests of the farmers as they interact with the government of Zimbabwe, Councils, THZ and various service providers operating in the sugar industry.

### **2.3 Production of sugarcane by both outgrowers and tongaat hulleets in zimbabwe**

As a subtropical and tropical plant, sugar cane requires ample of sunlight as long as its roots are not soggy. Although the time required to reach maturity varies greatly around the world, in Zimbabwe it takes 12 to 14 months. One of the best locations in the world for producing sugar at reasonable prices has been identified as the Low-veldt. Sugar cane grows well in this climate. Sugar cane requires a lot of labor to grow, especially when it comes to weeding and harvesting, and it consumes a lot of agrochemicals, such as fertilizers and herbicides. (Cheng, Ming-Hsun, et al 2019)

Sugarcane production is mostly done in the South Eastern Low veld of Zimbabwe to produce sugar, ethanol and other by products like molasses and bagasse (Clowes and Breakwell 1998). Sugar industry in Zimbabwe is contributing significantly to the economy of the country, for example in 2005 sugarcane contributed 1.4% of Gross Domestic Product (Annual Action Programme 2009). In addition, it is estimated that sugar industry in Zimbabwe employs 25,000 people directly and 125,000 people indirectly (Esterhuzein 2012). More than 60% of sugar produced in this part of the country is exported to neighboring countries and European Union, generating foreign currency substantially.

In Zimbabwe, sugar cane is mostly done in the low veldt regions of Triangle, Hippo valley, and Mkwazine, which are situated in the nation's south-east. Two sizable estates, the Triangle Sugar Estate and Hippo Valley Estate, provide around 80% of Zimbabwe's sugar cane harvest. 100% of the Triangle Sugar Estate and around 50.3% of the Hippo Valley Estate are owned by the South African sugar business Tongaat-Hulett. Approximately 20% of the nation's sugar cane crop is produced by private farmers, who include large-scale farmers and recently reestablished farmers (out growers). (Tongaat-Hulett 2017). There are just two sugar mills in Zimbabwe, Hippo Valley Estates Ltd. and Triangle Estates Ltd., with installed milling capacities of 4.8 million tons of sugar cane annually and a combined sugar production capacity of roughly 640,000 MT. The Triangle Sugar Refinery, a back-end refinery, and the Star Africa Sugar Refinery Ltd., an independent sugar refinery, are the two sugar refineries that Zimbabwe now operates. Water from Mutirikwi, Tokwe-Mukosi, and Manjirenji is used for irrigation. (Tongaat-Hulett 2018)

Under the Successful Rural Sugar Cane Farming Community Project (Susco), 71% of the out-growers relied on credits provided by the Plantation estate and an Anglo American bank to pay for inputs (AIAS, 2014). There are also credit agreements with the mill that use a farm-based billing system. The company's investment in sugar region rehabilitation through the Sustainable Rural Sugarcane Farming Community (Susco) has promoted significant cane replanting and offered affordable loans. The estate-led rehabilitation program SusCo, which is financed in part by the business, the Banc ABC, and in part by the EU through the Cane Lands Trust, has benefited 87% of the sample farmers.

Harvesting is done by cutting down the stems and leaving the roots to re-grow (Base cutting). Herbicide, fertilizer and irrigation water is applied soon after harvesting is done and shoots begins to grow. The crop provides the nation with sweeteners for all industries, earning the country foreign exchange, generating electricity, molasses production for cattle feed or for distillation and ethanol production. (Zimbabwe Sugar Association 1982)

## **2.4 Value chain**

Sugar value chains are generally “push chains” around the world. This means that sugar cane is pushed through the chain to produce raw sugar with minimal product differentiation and sold at a market value as a bulk commodity (Chingono, Kudakwashe Rejoice2021). Growing, harvesting, cane transportation, milling processing, storage, and shipment are typically included in the sugar value chain (Chingono 2021).

## **2.5 Input suppliers**

Input supply is a major threat in sugar cane farming. However farmers enter into agreements that helps them acquire new technology, new seed cane varieties, fertilizers, extension services as well as credits that helps them pay for day to day expenses and paying of farm workers. (Mukoko, 2018) In South Africa, the government has used both loans and grant funding to finance the buying of land for emerging farmers and to supply their inputs. This however did not benefit black farmers as they were unable to pay back the debt. (Lyne, Zille & Graham, 2000)

In Zimbabwe banks like CBZ and Banc ABC are offering loans to out grower farmers which they repay over a period of three to five years on fixed interest. In the period 2014-2018 the fixed

rate was 11-13%, to help farmers buy the assets they need for example tractors as well as to purchase inputs for example fertilizer. These landowners have a close relationship with Tongaat-Hulett because they buy their inputs from them, and when the farmers harvest their sugar cane, they give it to the millers. Following that, the millers pay the farmers for their cane. However, the millers additionally charge a milling fee for using the mill's machinery to process the sugar cane in addition to taking their money for the inputs the farmers would have purchased (deducting it from the price of the sugar cane) (Mazwi, Freedom 2020).

Tongaat-Hulett supports the farmers through inputs supply and extension work on sugar cane farming. It is an opportunity to farmers getting inputs from Tongaat-Hulett, as they could pay later when they have harvested. However, the challenge arises when they have to pay back Tongaat-Hulett for the inputs. This is because inputs after 30 days incur massive interests which these farmers have to pay after harvesting. The farmers feel as if their relationship with Tongaat-Hulett is unfair as Tongaat-Hulett is the one benefitting more out of it. (Mazwi, Freedom 2020).

## **2.6 Producers (farmers)**

Out grower farmers are farmers who were given land during and after land reform programme for sugarcane farming to produce sugar. These are a diverse group of individuals who are experts in their respective fields, including civil workers, members of the sugar industry, businesspeople, politicians, and military veterans. (Scoones et al, 2016).

In Zimbabwe, banks like CBZ and Banc ABC are offering loans to the out grower farmers which they repay over a period of three to five years on fixed interest (in the period 2014-2018 the fixed interest was 11-13%) to help the farmers buy the assets they need e.g. tractors or haulage trucks. To guard against abuse of the loans the banks offer value chain loans which are tailor made to finance different activities along the value chain e.g. paying transportation, paying for planting or paying for inputs etc (Victoria et al 2012)

Sugarcane production requires a range of specialized skills, involving the employment of many permanent laborers and seasonal workers. They are usually differentiated by gender, as they are required on sugar cane farms (Scoones et al. 2017). The farmers need temporary labor for

various tasks, such as weeding, fertilizer application and harvesting of sugar cane (Chidoko and Chimwai 2011). Many of the permanent and casual workers were “inherited” by the white farmers. The wage rates are comparable to other agricultural employment in Zimbabwe. The research done by Gukurume and Mushuku 2012 shows that, for instance, sugar cane cutters pursue their work as a survival strategy in the context of livelihood vulnerability. Furthermore, because the sugar cane production is seasonal, casual employees face severe year-to-year job security issues.

## **2.7 The market (tongaat-hullett)**

In Zimbabwe the out grower farmers supply their cane to the millers. The farmer will be paid based on the tonnage of cane and the Direct Analysis of Cane (DAC) report results. The Estimated Recoverable Crystal (ERC) percentage in cane is the most important cane quality parameter which determines the value to be accrued by farmers from their cane. The higher the raw cane tonnage and the ERC tonnage the higher the income of the farmer. Zimbabwe Sugar Sales (ZSS) is the board responsible for selling sugar locally, regionally, and internationally. The ZSS board identifies high value markets to increase return on investment to the farmers, millers and the estates. The Division of Proceeds (DOP) denotes the ratio at which proceeds from the sugar sold to all markets is shared between the farmers and the miller which is currently at 23:77. The millers charge 26 per cent of total cane delivered by out growers to cover the costs of milling (ZSA 1982)

Over the years, Tongaat-Hulett, the owner of Zimbabwe’s major sugar milling assets, used the Cane Purchase Agreement (CPA) system for paying the farmers for milling and processing. Under the CPA, farmers delivered cane to the miller and were paid an agreed percentage of the estimated value of their cane with the balance being settled once full value had been established (Tongaat-Hulett 2019). Tongaat-Hulett has however, introduced the Cane Management Agreement (CMA) where the farmers maintain ownership of the sugar until it is being sold.

## **2.8 Market tendencies of sugarcane farmers.**

A market trend is a perceived tendency of financial markets to move in a particular way over time. Analysts classify these trends as secular for long time-frames, primary for medium time-frames, and secondary for short time-frames. Traders attempt to identify market trends

using procedural analysis, a framework which characterizes market trends as predictable price trends within the market when price reaches support and resistance levels, changing over time (Edwards, Robert D.; McGee, John; Bessetti, W. H. C. 2018).

Sugarcane prices dropped down from a mill door price of \$627, 67 per tonne to \$527, 15 per tonne, resulting in farmers who had their November payments deducted to cover for the past 10 months as they were considered to have been overpaid. Chairperson of the Commercial Sugarcane Farmers' Association of Zimbabwe (CSFAZ) Admore Hwarare said the few farmers who were paid the reduced amount have refused to accept it and returned the money to Tongaat demanding their milled sugar (News Day Dec 2013)

## **2.9 Factors influencing market tendencies**

### **2.9.1 Government policies**

The Sugar Production Control Act of 1962 was a follow-up to The Hippo Valley Act of 1957. The control of the out growers' activities by the core estates was further cemented by this Act. The Hippo Valley Act was upheld in its whole, and the core estates were given further authority to choose the annual quota for out-growers to provide to the processing facilities based on the firm's capacity to export sugar. One of the components of this Act was the milling agreement clause, which provided that out-growers would get 40% of the value of the 47 sugarcane plants they supplied to the core estates' processing facilities, giving the core estates a 60% share of the proceeds.

The other idea is the nature and scope of the industry. It only has two mills in Zimbabwe, so the farmers are forced to deliver their cane to either of the mills. Transport cost are high if they decide maybe to transport their cane to South Africa or Mozambique were they may get better payments. This will reduce their profits.

### **2.9.2 Constraints faced by farmers in marketing sugarcane**

One of the main difficulties that the industry faces is delay in payments by sugar mills to sugarcane farmers. Sugarcane FRP accounts for about 70% of the price of sugar, sugar mills are left in a troubled state and unable to make satisfactory profits when sugar prices are low. This leaves them with little to no resources to purchase sugarcane in succeeding years (Ali, G., and N. P. Khan 2012)



The inability of sugar mills to generate sufficient liquidity at the current wholesale prices of sugar and sugarcane to make upfront payments to the farmers for sugarcane and then recover the cost through sales of sugar is one of the main issues the sugar and sugarcane industry currently faces. Market sugar prices, according to industry sources, are not in line with FRP/SAP to generate adequate profit for sugar mills to fully pay FRP/SA (Ali, G., and N. P. Khan 2012).

### **2.9.3 Opportunities in the sugarcane market. (Farmers)**

Zimbabwe is among the lowest cost producers of sugar in the world. It is ranked the world's sixth lowest cost producer after Brazil, Malawi, Zambia, Australia and Swaziland respectively (World Bank 2007). In a 2007 research, the Economic Research Services (ERS) of the United States Department of Agriculture, USDA, found that these low cost producers (including Zimbabwe) paid 8.69 US cents per pound for raw cane, compared to the global average of 12.39 US cents per pound. Furthermore, according to recent study by the Overseas Development Institute (ODI), sugar production in Zimbabwe is particularly efficient. The cost of production there is, on average, US\$169 per metric tonne, which is lower than the global average of US\$263.

Markets are well-known and largely secure. Farmers enjoy the existence of a readymade market for their cane in the low veld. All the farmers transport their cane to the mills either Hippo valley mill or to the triangle mill for milling. They do not have trouble in finding markets due to the existence THZ. The millers crush their sugarcane and let them pay at the end (Muromo F 2017).

Since many of the contracts farmers sign with Tongaat specify pricing in advance (pre-planting price), farmers' price risk is normally mitigated. Farmers know the price per tonne before or on the onset of the crushing season. If there are any changes they will be notified as early as possible by the millers (Chingono 2019)

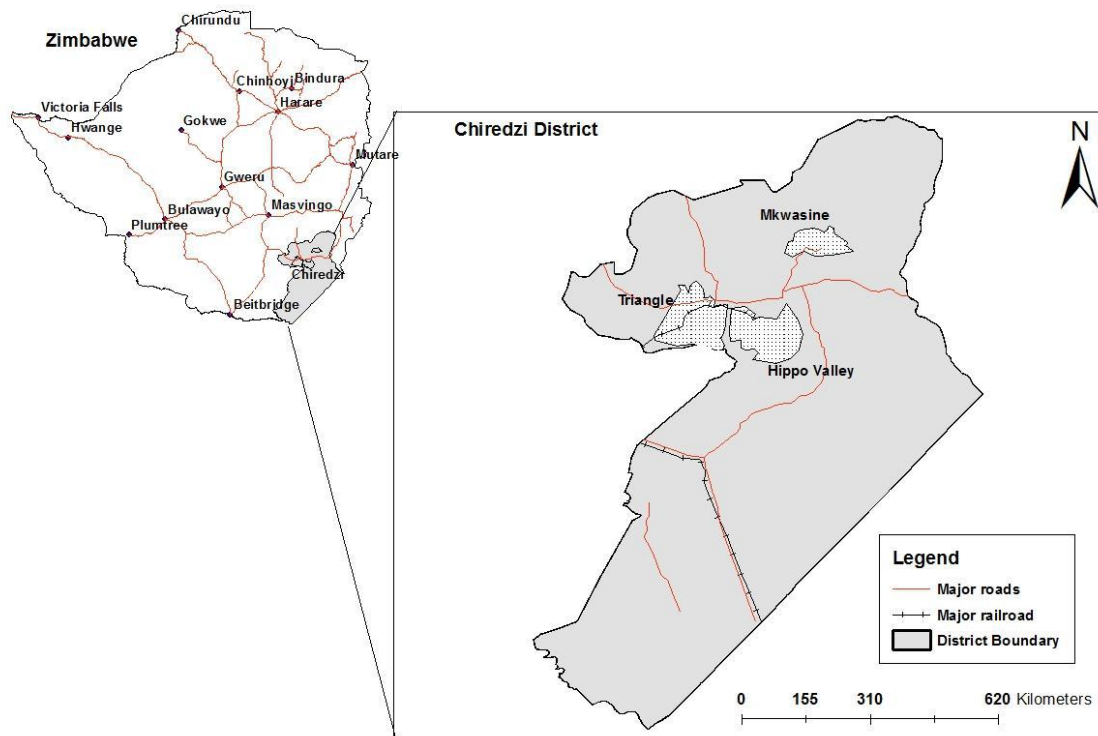
## CHAPTER 3

### 3.0 Introduction

The chapter gives a description of the research area under consideration. The target population's sample size is established, and the sampling process is also explained. Tools used to gather data are described in the section on data collection methodology. The analytical framework provides an overview of the descriptive statistics and econometric models, together with justifications for the models' selection

### 3.1 Study area

Figure 1 Shows the study area



The targeted area of study is the low veld of Zimbabwe. It consists of three estates namely mkwasine, hippo valley and triangle in the Chiredzi district. Annual rainfall in this area ranges from 450mm to 500mm, with rainfall season that lasts between 100-120 days. This is accompanied by the maximum temperatures of 38-40 degrees.

There is vertisol and siallitic soil types in the region that makes sugarcane an ideal crop to grow under irrigation. The area's soil is fertile although it requires moderate use of nitrogen and phosphorus fertilizers to ensure economically viable yields, according to Zimbabwe National Geospatial and Space Agency.

The farmers under sugarcane farming are called out grower farmers (A2) who were allocated land through the fast track land reform program. They come from a variety of professions, including educators, extension agents, estate workers, as well as powerful politicians and security officers. They communicate with their miller through their associations. Each farmer is supposed to choose an association to deal with, among these is the Zimbabwe sugarcane development association (ZSDA). The farmer sends messages through emails of the association to the miller and the response is sent back to the association. Farmers do not communicate directly with Tongaat hulett; the associations are the intermediaries. There are only two markets for sugarcane which are the hippo valley mill and the triangle mill owned by Tongaat hulett. The distance between these mills is 32km.

### **3.3 Sampling technique**

The sugar cane resettled farmers in the low veld in Chiredzi district were the study's target audience. The representative sample was chosen using random sampling strategy. The farmers were chosen from three areas namely triangle, hippo valley and mkwasine estates. Secondly, using basic random sampling, 20 farmers were chosen at random from each estate, resulting in a final sample of 60 farmers who were interviewed.

### **3.4 Sample size**

$n$ =sample size

$N$ =target population

$e$ =error margin (0.01)

$$n = N/1+Ne^2$$

$$n = 150/1+150(0.01)$$

$$n = 150/2.5$$

$$n = 60$$

### **3.5 Research design.**

In the inquiry, both primary and secondary data were gathered. A carefully crafted questionnaire was used to collect primary data from a carefully chosen sample of the targeted smallholder farmers. The respondents were questioned on the type and volume of sugar cane production, marketing potential and limits, cost projections, and finally, marketing trends. Secondary data was gathered by consulting the annual reports and journals of Tongaat Hulett's, the Ministry of Agriculture, the Zimbabwe Sugarcane Development Association, and many other organizations that have thoroughly researched on sugar cane sector in Zimbabwe, particularly among smallholder farmers.

### **3.6 Data collection**

For the study, both primary and secondary data were gathered. Sugar cane is grown on the low veld by smallholder farmers, who provided the majority of the information of the primary data. Secondary data was gathered by individual researchers from scholarly journals, Tongaat-Hulett studies, figures from the Zimbabwe Sugarcane Development Association and the ministry of agriculture.

#### **3.6.1 Secondary data**

Secondary data is information that has already been obtained and reviewed by another entity (Cheelo 2019). For the most recent information, the researcher looked at both published and unpublished books, dissertations, theses, journal articles, research papers, and reports. But when it comes to sugarcane production, the focus is on elements that have an impact on the profitability of commercial poultry production. Examining the literature supports the use of various models of data analysis elsewhere and also helps create the foundation for the research endeavor. Its conclusions can be used to discover knowledge gaps (Alfonita 2018). The questionnaire covers a wide range of production-related factors, including farm size (hectars

underutilization), and machinery owned, transport costs, herbicide prices. The supplementary information about the questioner includes the marketing challenges faced by small broiler farmers, such as travel time to marketplaces, and market pricing. The questioner also takes into account the socioeconomic factors of age, gender, education, and experience in sugarcane farming. Prior to distribution, the data from the questionnaire surveys had to be pre-tested. The questionnaires were sent to a sample of sugarcane producers in Chiredzi.

### **3.6.2 Primary data**

The questionnaire was used in the study as the primary method of data collecting since it is best suited for the survey research strategy being used. This method of data collection from a large sample prior to quantitative data analysis is more effective because each responder answered the identical set of questions. The surveys were administered by interviewers; in other words, the researcher met the respondents in person and asked them directly in organized interviews. The benefit of interviewer-administered questionnaires is that they are distributed to the intended respondents and receive a greater response rate.

## **3.7 Data analysis methods**

### **3.7.1 Objective 1: Marketing tendencies of sugarcane by the small scale farmers in the low veld (Chiredzi District)**

Strengths, Weaknesses, Opportunities, and Threats, or SWOT, is a technique that the management team uses to identify the internal and external elements that have an impact on the company's and its business performances. (E Gurl 2017).

Smallholder farmers in Chiredzi markets their sugarcane to Tongaat-Hulett. To evaluate the Strengths, Weaknesses, Opportunities, and Threats, a SWOT analysis was used by the researcher. In the SWOT analysis, the researcher employed strengths as internal capabilities and favourable aspects of farmers' businesses, which are important for farmers to successfully meet their marketing goals. Weaknesses are internal issues or limitations that could affect the farmers' ability to execute. The farmers' internal factors are their strengths and limitations. Opportunities are elements or characteristics that can help or facilitate farmers' establishments with connections to other groups. Farmers can take advantage of these outside influences to their benefit. Threats are external forces that are harmful to farmers and may impede.

### **3.7.2 Objective 2: Factors influencing market tendencies of sugarcane by the small scale farmers in the low veld**

The Likert scale was developed in the early 1990s by Professor Rensis Likert. By measuring how strongly people agreed or disagreed with a statement, he hoped to learn about people's attitudes toward it. (Artino & Sullivan 2013). A Likert scale, an ordered scale, allows respondents to select the option that best describes their position. It was characterized as a psychometric response scale that was mostly used in surveys to determine respondents' preferences or degrees of agreement with a claim or set of claims. Respondents are asked to rate their degree of agreement on an ordinal scale in order to indicate how much they agree with a particular idea. 2020, Bertram & Bertram

The researcher utilized this scale to evaluate the challenges and opportunities faced by sugarcane small farmers in the low veld of Zimbabwe in marketing sugarcane. The constraints and opportunities experienced by smallholder sugarcane farmers were determined using a three-point Likert scale. On a three-point numerical rating scale, one key informant was asked to assess the difficulties and opportunities the farmers were facing in the interview guide:

1=Insignificant

2= significant

3=severely significant

The key informant was expected to use a ranking numeric according to the scale against each constraint and opportunity in the given table of the listed challenges and opportunities in marketing sugarcane.

### **3.7.3 Objective 3: Factors influencing market tendencies of sugarcane**

#### **3.7.3.1 Binary regression**

A vector of explanatory factors is used to model the likelihood that an event will occur using binary regression. A binary regression in statistics, and more specifically regression analysis, calculates the association between one or more explanatory factors and a single binary output variable. Instead of only producing a single number, as in linear regression, the likelihood of the two choices is typically modeled. The model is appropriate for those whose dependent variable is dichotomous (Christmann, Andreas, and Peter J. Rousseeuw 2001)

The researcher used binary regression to evaluate the factors influencing market tendencies of sugarcane . $M=1/1+e^{-(b_0+b_1x_1+b_2x_2+b_3x_3)}$

Where M =type of market (formal or informal) the dependant variable

X1 refers to the distance to the market

X2 refers to the transport availability for the farmer

X3 refers to the government policies

X4 refers to market price

X5 refers to age of the farmer

X6 refers to the period of payment

E refers to the expected

## CHAPTER 4

### 4.0 Introduction

The chapter seeks to present and analyze the results from the study. According to Table 1, 88.3% of the farmers are A2 farmers whilst 11.7% are A1 farmers. The sugarcane sector employs both men and women. The table clearly demonstrates that men produce 63.3% of the total, while women only contribute 36.7%. Only 9% of households are single, 71.7 are married, 13.3 are divorced. According to the marital status of smallholder sugarcane farmers, the findings demonstrate that married farmers are more actively involved in the sugarcane industry than single ones, as shown by the marital status of smallholder sugarcane farmers in Chiredzi District

The youngest farmer interviewed was 29 years old, while the oldest was 72. This data demonstrates that these farmers, who are in the age range of 29 to 72, are capable and motivated to engage in sugarcane production operations. This is because they can seek for funding to begin sugarcane production, and those over 60 are also eligible because the majority of farmers are retired and have access to funding to begin sugarcane production. The majority of farmers, or 68.4%, have families of more than 5 members, whereas the minority, or 31.6%, have the 5 members and below

According to the demographic findings, 21.7% of farmers reported having completed their primary education, 43.3% of farmers had completed their secondary, and 35% had completed their tertiary education. The graphic below illustrates how most farmers have fewer than five years of experience.



Table 2 shows the demographic model and characteristics of the farmer

<b>FARMER BACKGROUND</b>	<b>FREQUEN CY</b>	<b>PERCENTAGE</b>
<b>GENDER</b>		
male	38	63.3
female	22	36.6
<b>TYPE OF FARMER</b>		
A1	7	11.7
A2	53	88.3
<b>AGE</b>		
29-39	9	15
40-49	19	31.7
50-59	14	23.3
60 and above	18	30
<b>MARITAL STATUS</b>		
Single	9	15
Married	43	71.7
divorced	8	13.3
<b>NUMBER OF PEOPLE PER HOUSEHOLD</b>		
5 and below	19	31.6
6 and above	41	68.4
<b>HEALTH STATUS</b>		
Good health	35	58.3
Bad health	23	38.3
Bed ridden	2	3.3
<b>LEVEL OF EDUCATION</b>		
Primary	13	21.7
Secondary	26	43.3
Tertiary	21	35
<b>EXPERIENCE</b>		
5 years and below	18	30
6 years and above	42	70

The demographic model and characteristics of the farmer

#### **4.2 Objective 1: Assessing market tendencies of smallholder sugarcane farmers in the low veld.**

The SWOT analysis was used to assess the Strengths, Weaknesses, Opportunities and the Threats in marketing sugarcane to THZ done by the smallholder farmers in Chiredzi. The strengths in the SWOT analysis are the inner experiences and positive factors of farmers`

establishments, which are relevant for farmers to accomplish their objectives in marketing, efficiently.

The farmers transport their sugarcane either to the hippo valley or to triangle mill for milling. These two mills are owned by THZ and they control all the operations under milling and processing.

Firstly the farmers have a known market which is more or less secured. Soon after harvesting the farmers transport their cane to THZ for milling. Sucrose content in the sugarcane starts to decline soon after harvest. Having a readymade market is beneficial to farmers as it reduces duration of cane before milling and they do not incur advertising cost or market research costs. (Anders Parment 2016) claims that an existing market is advantageous since a market for the product or service will have already been formed, there are no expenditures associated with conducting market research, and there may be established consumers, a solid source of income, a reputation to grow upon, and a valuable network of connections. There will already be a marketing strategy and business plan in place.

There is reduced farmers` price risk since many of the contracts they sign specify the prices before the crushing season starts. Farmers are aware of the prices before they transport their cane for milling which gives them enough room to make proper decisions on how they are going to the market. Dicken 1986, had a similar point, noting that farmers' capacity to bargain with buyers as well as market pricing in effect determine the returns they earn for their products when sold on the open market. This may lead to a great deal of uncertainty, which contract farming might help mitigate to some level. Sponsors frequently specify the price(s) to be paid in advance, and they are noted in the agreement. On the other hand, some contracts are based on market pricing at the time of delivery rather than predetermined rates. In these situations, it is obvious that the contractual farmer depends on the state of the market.

THZ usually introduces new technologies and also facilitates farmers to learn new skills. Farmers are offered ideas on how to embrace new technology by THZ through meetings and seminars. Research and Development for process improvement is mainly in-house. This was in line with the ideas pointed out in Annual Sugar report, Zimbabwe 2017, the Zimbabwe Sugar Association Experiment Station (ZSAES), a private sugarcane research station that provides the Zimbabwe sugarcane industry with research, evaluation, technology transfer and specialized

services. Technologies provided by the institution are new and improved sugarcane varieties, sugarcane production systems, fertilizer and machinery requirements and water and irrigation management among others.

Weaknesses are inner factors or constraints which might obstruct or hinder the performance of the farmers. The weaknesses in marketing sugar to THZ includes high transport costs. This affects most of the farmers especially in mkwasine which is away from both of the mills. Most of the farmers hire trucks to deliver their cane to the mills, this is costly since the longer the distance the higher the cost.

Low market prices is yet another problem that hurts farmers. Since THZ is the only buyer, they are left with no choice than to sell their cane at the amount that is being offered. When compared to the whole cost of production, these prices are typically quite low. According to the 2010 UNIDO Annual Report, the price of raw sugar is mostly influenced by the global market. Due to a decrease in the price of the product on the world market, the price of raw sugar in Zimbabwe for the 2012/13 marketing season fell to US\$627, 67 a ton from US\$700 the previous year. The low price of sugar is unfavorable for producers, especially given the high production costs incurred because of water and labor costs.

Another weakness in sugar marketing is the miller's slow payment. Farmers lack the resources to carry out their daily tasks since they rely so largely on income. This complements the research conducted in 2019 by Gairhe et al. on the challenges and opportunities in the production and marketing of sugar. According to him, farmers loaded the material after crop harvest and loaned it to the owner of the sugar mill, but they did not receive prompt payment for the output. Most farmers rely on the income from sugarcane to cover their daily costs, but the unpredictability of the payout makes farming difficult. Paying for sugarcane therefore appears to be a significant issue in the industry. The potential for warehouse receipts financing (WRF) to increase supply

Opportunities are elements or characteristics that can help or facilitate farmers' establishments with connections to other groups. These are outside variables that farmers may use to their advantage.. The country`s sugar can be exported to US on duty free. This helps some of the farmers who are paid after their sugar is sold. They get more revenue as well as foreign currency. They have the opportunity to trade on duty free to US. In accordance to the research done by ZSA in April 22 they stated that Zimbabwe is a beneficiary of the US tariff rate quota (TRQ)

program, an initiative that allows the country's sugar to be exported to US on duty free. The combined allocation and reallocation under TRQ offered to Zimbabwe amounts to 12 676 tonnes per year. To date Zimbabwe fully utilised its quota allocations each year, as the US market is attractive for the sugar industry as compared to other markets.

Threats are harmful outside forces that might obstruct or postpone farmers' efforts to achieve their objectives. Threats are therefore seen as environmental issues. High inflation rates and unstable economic conditions also affects farmers during the payment session. The other part of the money is paid in RTGS whilst the remainder is paid in US dollars. The RTGS part is mostly affected by inflation especially when there is hyperinflation. A dollar today may not be a dollar tomorrow and this reduces the profit as well as working capital for the farmers

Weather conditions is another major threat during the harvesting period. For example during the rainy season farmers have the challenge of rains. When it is raining the farmers cannot burn and cut the cane. When it rains whilst the bundles of cane are still in the field, this delays delivery of cane since the cutters will be forced to ferry the cane out of the field since tractors will not be able to get in fields due to wet soils. This reduces sucrose content and results in low payment since payment is sucrose dependant. In accordance to the brief policy written by Emmanuel Sulle 2014 on the opportunities and challenges in sugar industry, the main issue among our producers is the decrease in the sugar content of cane. Farmers frequently record values below the standard of 10%. Due to the producer price being modified to account for sucrose, this has a detrimental impact on their pay outs since deductions consume a proportionately bigger part of farmers' revenue.

### 4.3 Objective 2: evaluating opportunities and constraints of sugarcane value chain among farmers in the low veld

Table 3 shows points on the likert scale

Challenge	Frequency 1	Frequency 2	Frequency 3	Mean scale ranking
Poor roads	3	33	24	2
Lack of machinery	4	25	31	2
High transport cost		28	32	3
Delays in payment	15	27	18	2
Lack of credit finance	12	27	21	2
High inflation rate		39	21	2
Low market price		31	29	2
Opportunity				
Low production cost	19	30	11	2
Market availability	5	35	20	2

Points on the likert scale

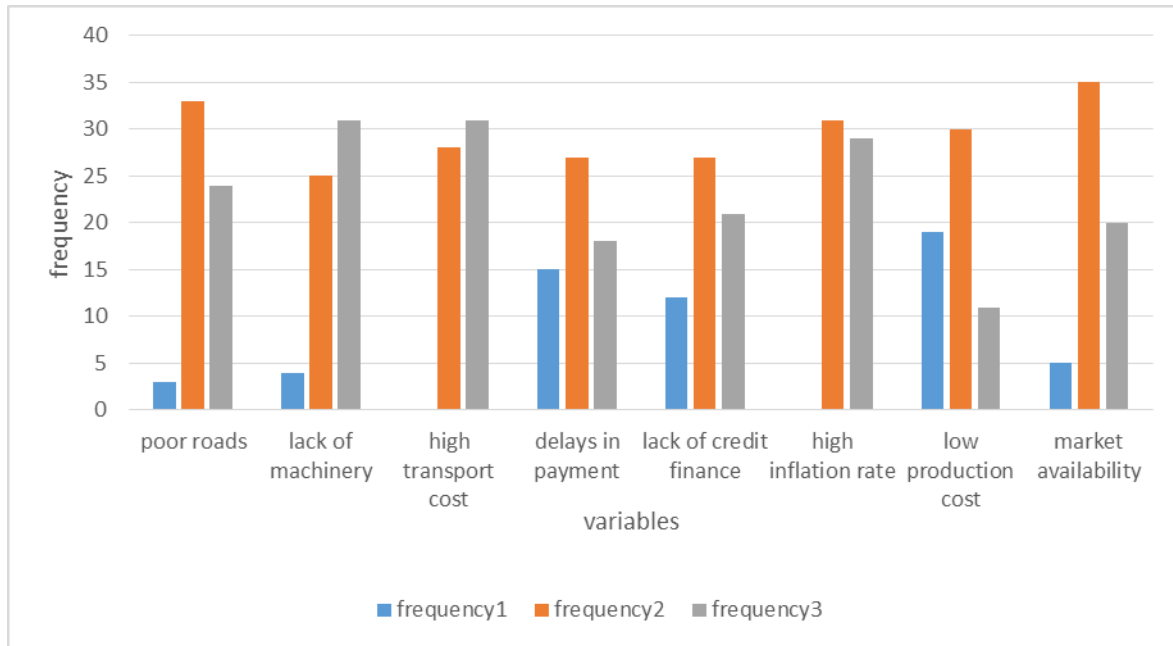
1=insignificant

2=significant

3=severely significant

## Constraints and opportunities

Figure 2 shows constraints and opportunities



### 4.3.1 Poor roads

One of the difficulties farmers encountered when transporting their cane was bad roads. The majority of farmers gave it a significant rating. Tire punctures are a common problem for carriers due to the bad roads, which also cause the majority of truck breakdowns. Due to a poor road network that makes it difficult to promptly move large quantities of inputs, transportation is a considerable impediment. The cane's delivery to the mill is delayed as a result. Transporting inputs is also delayed by bad roads. According to Aroon Auansakul and Decha Supawan's 2001 study on transportation issues in the Thai sugarcane industry, sugar cane quality degradation can also be brought on by inefficient harvesting and delays in handling and shipping. If delivery is delayed, the estimated average purity loss is 1.25% per day and that is recoverable value (RV) or 2.2% sucrose loss. These elements affect the price, which affects the sugar cane growers' revenue. This is influenced by breakdowns caused by poor roads.

#### **4.3.2 Lack of machinery**

The researcher discovered that the farmers' dependence on mechanization was important. Most farmers lack transportation equipment like haulage trucks, cranes, and Perry loaders. They rely on hiring, which extends delivery times. The argument made by Clowes et al. 1998 states that sugar cane loading and transporting account for a significant amount of the capital and operating charges reinforced the claims there is a lack of machinery. Additionally, he contended that mechanized cane harvesting would result in worse cane quality and greater field losses. This means that farmers must own their own Perry loaders in order to transport the cane to the loading zones and, if at all feasible, to the mills.

#### **4.3.3 High transport cost.**

High transport costs are found to have a considerable negative impact on farmers' ability to sell their produce to THZ. Due to the numerous transportation facilities and time-consuming tasks involved in delivery, the cost of moving sugar cane from the farm gate to the mills is relatively expensive. The majority of sugar cane growers in the area, according to study by Aroon Auansakul and Decha Supawan 2001, are small farmers who operate with their own families. They must cover the cost of shipping the sugar cane from their farm to the mills because the majority of them lack trucks and typically only own small or traditional multi-purpose vehicles. However, since the delivery of sugar cane each transaction necessitates a bulk carrier, both small and large growers struggle with the same transportation issue. They must employ men to cut the sugarcane and load the truck, and they must rent a truck.

#### **4.3.4 Delays in payment**

The researcher found out that farmers are paid way after they have supplied their sugarcane to the mills. This process of payment may take 10-14 days before farmers are paid. This significantly affected most of the farmers since they depend on that money for their day to day operations on the farm. J. Shopovski 2016 claims that since firms with a large proportion of past-due accounts receivable incur more indirect costs to preserve financial liquidity, their revenue from sales does not result in cash inflows. This is why their income from sales is not taxed. They are forced to use debt capital (loans and borrowings) to fund their ongoing operations, which results in interest payments that lower their business's profitability and engaged capital.

#### **4.3.5 Lack of credit finance**

Farmers lack reliable credit financing from banks, the researcher discovered. Banks in Zimbabwe, such as CBZ and Banc Abc, provide loans to out-grower farmers who return them over a period of three to five years at a fixed interest rate (between 2014 and 2018, the fixed interest rate was 11 to 13%). This enables the farmers to purchase the necessary assets, such as tractors or hauling trucks. Lack of collateral prevents the majority of farmers from obtaining these loans. They ultimately obtain high-interest loans from microfinance institutions in keeping with South Africa by offering reduced interest rates, Jnl. 2019. The farmers' ability to access loans will help them raise their produce. One illustration of such a facility is the Land Bank credit that offers low interest rates. The farmers will be able to buy additional inputs like fertilizer, which has been recognized as an input that can have a favorable influence on agricultural output, if they have access to low interest rate finance. Farmers will have the ability to hire additional workers to assist in the production process if they have access to loans.

#### **4.3.6 High inflation rate**

The respondents rated high inflation rate and unstable economic conditions as significant. This was brought on by the millers' problem with late payments. They receive a portion of their pay through RTGS, therefore when they receive the agreed-upon sums, they will be overpaid. The millers' utilization of the low interbank rate is the other problem. They will utilize the high black market rate when conducting daily operations.

### **Opportunities to farmers in marketing sugarcane**

#### **4.3.7 Low production costs**

The researcher found out that farmers enjoy availability of cheap labor. Labor is not an issue to farmers as there are many people who look for jobs in Chiredzi. The farmers takes advantage of that and hence pays workers miserable salaries. This lowers the production cost. They also need low amounts of irrigation water during the rainy season, water charges will be low and hence lowering production costs. This was also similar to the findings by the worldbank stating that one of the world's lowest-cost producers of sugar is Zimbabwe. After Brazil, Malawi, Zambia, Australia, and Swaziland, it is listed as the sixth lowest cost producer in the world (World Bank, 2007). In a 2007 research, the Economic Research Services (ERS) of the United States Department of Agriculture, USDA, found that these low cost producers' cost of production for



raw cane was 8.69 US cents per pound, compared to the global average of 12.39 US cents per pound.

#### **4.3.8 Market availability**

The study pointed out that farmers have an advantage of having a ready market. They do not have the burden to look for the market of their produce. This was significant to most of the farmers who ranked it significant. This eliminates costs of market research and price uncertainty risk. (Anders Parment 2016) claims that an existing market is advantageous since a market for the product or service will have already been formed, there are no expenditures associated with conducting market research, and there may be established consumers, a solid source of income, a reputation to grow upon, and a valuable network of connections. There will already be a marketing strategy and business plan in place.

#### **4.4. Objective 3: Factors influencing market tendencies of sugarcane farmers in the low veld**

Table 4 shows goodness of fit

Step	-2 Log likelihood	Cox & Snell R Square	Adjusted R Square
1	35.003 <sup>a</sup>	.658	.749

The coefficient (r-square) calculation gauges goodness of fit of the model. If the r square is higher than 50%, the model is therefore considered to have a good fit. The accuracy of the regression models is further assessed using adjusted r square. It indicates the portion of the target field's volatility that can be accounted for by the independent variables. Additionally, it calculates how well the regression model fits the data. Given that it is more than 50%, this suggests that the model is well-fitted. The adjusted r square is (.749) that is above (.50) which shows that the model fits the data well.

Table 5: shows variables in the equation

		B	S.E.	Wald	Df	Sig.
Step 1 <sup>a</sup>	Age(1)	-20.392	16516.732	.000	1	.999
	Gender(1)	.491	1.335	.135	1	.713
	Transport Availability(1)	-.047	1.248	.001	1	.070
	Distance(1)	-1.827	.933	3.837	1	.050
	Prices(1)	-18.695	17068.961	.000	1	.999
	Period Of Payment(1)	-19.106	16367.705	.000	1	.999
	Constant	-.319	1.341	.057	1	.812

#### Variables in the equation

The binary equation is equal to  $1/1+0.812-(-.319+-20.392+.491+-047+-1.827+-18.685+-19.106)$  according to the model. This shows that as transport available decreases by one more unit, the amount to the market by farmer decreases by 0.47. As the distance to the market increases by one unit the total amount of sugarcane to the market decreases by 1.827. If the market price of sugarcane decreases by one more unit then deliveries are likely to be low by 18.695. As the

period of payment increases by one more unit, then total cane to the mill is more likely to decrease by 19.106.

#### **4.4.1 Age of the farmer**

Age of the farmer was not statistically significant at 10% significant level as it was above 10% (.999). This shows that age does not influence the marketing tendency of the farmer. Whether the farmer is old or not they market at the same market which is THZ. According to the THZ annual report 2019, age affects production as the older produces less than what the younger farmers produce. This results in less output to the market for the elderly and more for the young farmers.

#### **4.4.2 Gender**

Gender of the farmer was not statistically significant at 10% significant level. Gender was (.713) which was above 10%. This shows that gender has no significant influence on the marketing tendency of the farmer. Tyler states that gender affects production and participation in the sugar industry other than market tendency. Due to the current gender imbalance in land control, women are less likely than males to be registered out growers in the sugarcane sector. (Tyler 2008) Official out growers numbered 60 at the time of this study, including 22 women and 38 males. In sugarcane growing, there is a gendered division of labor that restricts women to a smaller percentage of employment and shorter-duration duties (Ibid). According to focus group discussions, women are normally employed for planting, but sugarcane is a perennial crop and does not need to be replanted on a yearly basis. (Tyler 2008)

#### **4.4.3 Transport availability**

Transport available was statistically significant at 10% significant level. It was (0.70) which was below 10%. This means that transport availability has a significant influence on the marketing tendencies of farmers. As more transport available increases farmers would opt for other markets outside the country. C Hendrson states that availability of transport helps in cost reduction. It does not influence market tendency. Therefore, by lowering capital and operating costs, reducing the demand for highly skilled human resources, and reducing the number of trucks, haul-outs, harvesters, and other vehicles, as well as by optimizing routes and minimizing empty runs, improving transportation systems helps to reduce business risk. Enhancing the consistency of cane supply would minimize process pauses brought on by a shortage of sugarcane, enhance

process efficiency, and result in fewer maintenance issues and lower costs. (Salassi and Barker 2008; Hassuani et al., 2005)

#### **4.4.4 Distance to the market**

Distance to the market was significant at 10% significant level. It was (0.50) in the model. This shows that distance to the market has a significant influence to the marketing tendency of the farmer. THZ is the market that is near to the farmers so they sell their cane there, but if there were other markets nearer than THZ the farmers would opt for those ones.

#### **4.4.5 Prices**

The market price of sugarcane was not statistically significant at 10% significant level. It was (.999). This implies that it has no significant influence on the marketing tendency of the farmers. This is because there is only one market which is THZ, so they just market their cane there regardless of the prices offered at the market. (UNIDO 2010) criticises this point stating that the price of raw sugar is largely determined on the international market. . Therefore, by lowering capital and operating costs, reducing the demand for highly skilled human resources, and reducing the number of trucks, haul-outs, harvesters, and other vehicles, as well as by optimizing routes and minimizing empty runs, improving transportation systems helps to reduce business risk. Enhancing the consistency of cane supply would minimize process pauses brought on by a shortage of sugarcane, enhance process efficiency, and result in fewer maintenance issues and lower costs. (Salassi and Barker 2008; Hassuani et al., 2005)

#### **4.4.6 Period of payment**

The period of payment was not statistically significant on 10% significant level. It was (.999) which shows that it has no significant influence on the marketing tendency of the farmers. Whether the period of payment is long or short the farmers continues to deliver their cane to the millers because that is only market available for them. Brown 1982 states that farmers are bound by contracts they sign to deliver cane to the mills despite their period of payments. Another option is for sugarcane farmers to visit the cooperative and apply for credit, which obligates them to sell their crop to the sugar mill under the terms of the credit agreement.

## **CHAPTER 5**

### **5.0 Introduction**

Conclusions that were reached based on the study's research findings are described in this chapter. The chapter also includes recommendations, a summary of the data results, and a conclusion based on the key findings. The study will come to a close by offering conclusions and recommendations about low veld farmers' marketing preferences, opportunities, and challenges in the sugarcane value chain.

### **5.1 Conclusions**

The goal of the study was to identify the farmers' marketing preferences, opportunities, and challenges throughout the sugarcane value chain. The study was based on both secondary data from journals and other THZ reports and primary data gathered through surveys. According to the survey, farmers transport their cane to either the triangle mill or the hippo valley mill, both of which are owned by Tongaat-Hulett Zimbabwe. Major obstacles included the high transportation costs that farmers faced when transporting inputs to their farms and cane from their farms to mills. The accessibility of transportation, the distance to the market, and other factors all had an impact on the market's inclination

### **5.2 Recommendations to the policy makers.**

The researcher recommends the policy makers to involve the sugarcane farmers during the policy making process. Farmers need to be involved during implementations of policies such as price controls and interest rates. The government must formulate a policy that accepts land and livestock as collateral to the farmers to help farmers' access loans from banks and well registered micro finances which have long term loans that allows the farmer to establish much ground. The researcher recommends the government through its extension work to source funds for the new and poor sugarcane from the NGOs to help farmers increase their production and hence delivering more to mills.

### **5.3 Recommendations to the millers**

The researcher recommends the millers to charge a milling charge below 26% which farmers are complaining to be too much for them, since some of them are incurring high costs during production.

### **5.4 Recommendations to the farmers.**

The researcher recommends the farmers not to misuse the inputs since most of the farmers sell the inputs other than using them in the field. The farmers are also recommended to establish their own mill to avoid exploitation of their interests.

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## QUESTIONNAIRE OF THE STUDY

### QUESTIONNAIRE ON THE MARKET TENDENCIES, OPPORTUNITIES AND CONSTRAINTS FACED BY THE SUGARCANE SMALL HOLDER FARMERS IN TRIANGLE, MKWASINE AND HIPPO VALLEY ESTATES.

My name is Dera Delight and I am an Agriculture student at Bindura University of Science Education. I am carrying out a research project market tendencies, opportunities and constraints faced by small holder sugarcane farmers in the low veld, for the partial fulfillment of the requirements of my degree program. May you kindly assist by faithfully responding to the below questions. The data collected is for academic purposes only and will be treated with strict confidence. Your participation in the survey will be greatly appreciated.

*Tick or fill in the appropriate answer in the spaces provided.*

#### SECTION A: DEMOGRAPHIC PROFILE OF THE HOUSEHOLD

<b>1</b>	<b>Type of the farmer</b>	<b>A1 [ ]    A2 [ ]</b>
<b>2</b>	<b>Gender of the household</b>	<b>1= male [ ]    2= female [ ]</b>
<b>3</b>	<b>Age of head of household (years)</b>	
<b>4</b>	<b>Marital status of household head</b>	<b>Single [ ] married [ ] divorced [ ] Widowed [ ]</b>
<b>5</b>	<b>The total number of people who live in Your house?</b>	

6	Health status	Bed ridden [ ] Bad health [ ] good health [ ]
7	Level of education of household head	Primary [ ] secondary[ ] tertiary[ ] Informal [ ] None [ ] Others (specify) [ ]
8	Experience in sugarcane production	( ) years
9	Land size of the farmer	
10	Transporting machinery owned	

**SECTION B. OPPORTUNITIES AND CONSTRAINS FACED BY SMALL-SCALE SUGARCANE FARMERS**

Rank these opportunities and challenges according to their weight or importance in the day to day marketing of sugarcane (Answer in the spaces provided):

- 1) insignificant 2) significant 3) severely significant

Point of likert scale

Challenges

Poor roads

Lack of machinery

High transport costs

Delays in payment

Lack of credit finances

High inflation rates

**Low market prices**

**Opportunities :**

**Low production costs**

**Market availability**

### **SECTION C: FACTORS INFLUENCING MARKET TENDENCIES OF SUGARCANE**

State whether if these factors affect your market tendency. ( yes or no)

**Factors influencing market tendencies of sugarcane**

<b>1</b>	<b>Age of the farmer</b>
<b>2</b>	<b>Gender</b>
<b>3</b>	<b>Distance to the market</b>
<b>4</b>	<b>Transport availability</b>
<b>5</b>	<b>Government policies</b>

**Thank you for your participating in the survey.**