

BINDURA UNIVERSITY OF SCIENCE EDUCATION



FACULTY OF COMMERCE

DISSERTATION RESEARCH

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DISSERTATION TOPIC :

**VALUE CHAIN ANALYSIS IN THE CITRUS AGRO-PROCESSING
INDUSTRY: A CASE STUDY OF THE ORANGE VALUE CHAIN PROCESS
AT MAZOE CITRUS ESTATES IN 2015.**

**A DISSERTATION/THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE BACHELOR OF COMMERCE
(HONOURS) DEGREE IN PURCHASING AND SUPPLY OF BINDURA
UNIVERSITY OF SCIENCE EDUCATION. FACULTY OF COMMERCE.
FEBRUARY 2016**

APPROVAL FORM

Research Project Title: Value chain analysis in the citrus agro-processing industry: A case study of the orange value chain process at Mazoe Citrus Estates in 2015.

To be completed by the student

I certify that this dissertation meets the preparation guidelines as presented in the faculty guide and instructions for typing dissertations

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I certify, to the best of my knowledge, the required procedures have been followed and the preparation criteria have been met for this dissertation.

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TITLE OF PROJECT : VALUE CHAIN ANALYSIS IN THE CITRUS
AGRO-PROCESSING INDUSTRY. A CASE STUDY OF THE ORANGE VALUE
CHAIN PROCESS AT MAZOE CITRUS ESTATES IN 2015

DEGREE PROGRAM : BACHELOR OF COMMERCE (HONOURS)
DEGREE IN PURCHASING AND SUPPLY

YEAR GRANTED: 2016

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ACKNOWLEDGEMENTS

Firstly I would like to thank my LORD for taking me this far, and enabling me to reach this stage in my educational endeavours.

I would also want to thank my husband, Tawanda, who has been my inspiration and pillar of strength up to now, and I acknowledge all the struggles he went through to get me to this stage. His love and support is immeasurable. Also, I would like to thank my family for their immeasurable spiritual and moral support. Your love and support got me this far. I SAY THANK YOU.

I would like to express my gratitude to my supervisor, Mr Mazuru for his patience, guidance and support during the period of my research.

DEDICATIONS

I dedicate this research to my husband and family, your support and faith in me got me this far. I LOVE YOU all.

ABSTRACT

Value Chain Analysis (VCA) has of late gained momentum in the agro processing industry in Zimbabwe. Production of citrus fruits is seasonal and the fruits are perishable in nature, hence citrus producers need to have a ready market to deliver their fruits before they go bad at a good price since the fruits cannot be harvested throughout the year. This research sought to analyse the value chain of oranges in Zimbabwe by identifying and mapping the value adding activities and processes that can be undertaken as well as identifying value added at each processing stage that the oranges pass through. A case study approach was undertaken for this research to map the oranges value chain as well as identifying the value added at each stage. Secondary data collection methods were used to collect the data. Collected data was analysed and presented using both qualitative and quantitative techniques. Findings revealed the value adding activities in processing oranges which were used as the basis for value chain mappings. Value added at each processing stage was identified through a careful analysis of the inbound and outbound values of oranges at each processing stage. Oranges gained value through washing and packing. The farm gate price is \$0.10 per kg, after grading and packing the oranges were valued at \$2.50 per kg. The study recommended that orange peels which are a by-product of processing oranges can undergo further additional value adding activities in the production of stock feeds enabling the organisation to gain more value.

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CHAPTER I

INTRODUCTION

1.0 INTRODUCTION

This chapter introduces the value chain analysis in the citrus agro-processing industries. The background to the study, statement of the problem, research questions, research objectives, and purpose of the study and significance of the study, assumptions, delimitations and limitations to the research will also be discussed in this chapter.

1.1 BACKGROUND TO THE RESEARCH STUDY

Zimbabwe is a country whose economic activities are highly dependent on agricultural produce, (Robertson, 2009). The agriculture industry's commodities fall into four major groups namely, the food grain crops, which comprise of maize, beans, wheat, sorghum and millets. The second group is the oilseed crops, such as soya beans, groundnuts and sunflowers, the third group is made up of key export crops such as cotton and tobacco. The fourth group is made up of high value estate or plantation crops such as tea, coffee, sugarcane, citrus, and horticulture,(Kapuya et al, 2010)

The decline in the performance of the agricultural industry has adversely affected the agro processing industry and the country's economy. The macro factors that have led to the decline of the agriculture industry include among others, the erratic and changing climate patterns. Government policies, such as the land redistribution policy and trade policies. The decline in the agriculture industry has in turn led to a decline in the agro-processing industry, (Mayo,2008)

The persistent existence of these macro-factors has led to problem questions for the different agricultural producers and agro-processors such as what to do with the surplus agro products that were initially absorbed by export markets, and what agro-producers can do to gain maximum profit for their output.

In light of the foregoing problems, this research aims to find out if value chain analysis or value addition can be the panacea to the problems faced by agro producers and agro processors in the country. The government of Zimbabwe has through the Zim-Asset economic blueprint (2013 -2018) expressed the importance of value chains in the agro-processing industry as a means of reviving the country's economy.

Mazoe Citrus Estates is situated 45 km North of Harare in Mazoe, Mashonaland Central Province in Zimbabwe. The organisation is one of the largest citrus fruit producers and processors in the country, specialising in oranges and lemon production and processing. The company was incorporated in 1927 and was owned by Anglo- American, major activities were mainly citrus fruit production. In 1934, the company built a pack house where the fruits were graded, polished and packed for domestic and international markets.

The oranges are usually harvested between April and October, thus the company had most of its cash inflows during the harvesting season, and a rather dry cash spell was faced during the long off season period. Faced with the problem of the seasonality and perishability of the oranges, and also to ensure continuity of business and cash inflows through-out the year, the company set up an oranges juice processing plant on the Estate in 1960. The main activities at the juicing plant was to crush the oranges, extract and concentrate the orange juice which was sold to cordial drink manufacturers throughout the oranges post harvesting period. This ensured constant income for the company through-out the year.

In 1970, the company set up a bottling plant. The major activities at the bottling plant were to manufacture cordial drinks popularly known as “orange crush” under the brand name Marlon orange crush. Anglo-American sold the Enterprise to Interfresh Limited in 1990, to date, Mazoe Citrus Estates is still producing and processing the oranges and still undertaking the same value addition methods and processes that were initially introduced when the company was owned by Anglo-American.

1.2 STATEMENT OF THE PROBLEM

The processing of oranges at Mazoe Citrus Estates was as a result of the fruit being harvested on a seasonal basis and the fruit also being perishable. The major reason to process the fruit was aimed at prolonging the product life of oranges as well as generating a constant inflow of revenue throughout the year as the organisation suffered dry spells of income flow during off-season periods. The levels of value addition in the value chain are not clear as allocation of fruits for processing and selling as whole fruit are not done according to value chain analysis. The study aims to identify the value adding activities currently being undertaken by the organisation and how they can be improved as well as identifying the value added by each activity.

1.3 RESEARCH OBJECTIVES

- i. To create a value chain map at Mazoe Citrus Estates
- ii. To identify the value created at each processing stage.
- iii. To make appropriate recommendations.

1.4 KEY RESEARCH QUESTIONS

- i. What are the citrus oranges value adding activities carried out at Mazoe Citrus Estates?
- ii. How are the oranges processing activities at Mazoe Citrus Estates linked?
- iii. What is the value added or derived at each consecutive processing stage in the oranges processing at Mazoe Citrus Estates?

1.5 ASSUMPTIONS

- i. Mazoe Citrus Estates has an existing value chain.
- ii. The respondents will have an insight to the concept of value chain analysis.
- iii. The researcher will have all the access to the vital information and the information obtained will be accurate, complete, relevant, unbiased and can be relied on.

1.6 SIGNIFICANCE OF THE STUDY

The study is very important to the researcher, as the researcher has gained an in-depth knowledge of the value chain analysis concept and its relevance and importance in the citrus agro-processing industry with special reference to the oranges agro processing. It is the researcher's fervent hope that the organisation is going to find some of the project's recommendation useful such that they will be taken on board towards the continuous improvement of the oranges value chain. It is the researchers hope that the value chain concept in abstract to this research will be adopted and conceptualised by businesses and

by small to medium enterprises in particular, in view of the challenging economic conditions that today's business organisations operate under.

1.7 DELIMITATION OF THE STUDY

This research study will focus on Mazoe Citrus Estates as a case study. The organisation specialises in citrus production and processing, it is located in Mazowe, Mashonaland Central Province, Zimbabwe, for the period of April 2015 to January 2016

1.8 LIMITATIONS

Misinterpretation of intentions of the study affected the research.

Access to official and confidential information was not easy.

Some of the respondents were not willing to reveal vital information which would have further aided this research.

1.9 DEFINITION OF TERMS

1.9.1 Value chain analysis

Value chain analysis is an analytical tool that was first developed by Michael Porter in the mid 1980s. It is an instrument that can be used by organisations to identify their sources of competitive advantage. Instead of looking at an organisation as a whole, organisations can be disaggregated in a series of activities. This enables organisations to determine the

strategic advantages and disadvantages of their activities as well as help the organisation to identify value creating activities and or processes, (Kaplinsky and Morris 2000)

1.9.2 Agro-processing industry

Agro-processing industry is a subset of the manufacturing industry that processes raw materials derived from agriculture, forestry and fisheries. It includes manufacturers of food, beverages, wood products, clothing, textiles and food industry,.(FAO 1997).

1.10 SUMMARY

This chapter looked at the introduction, the purpose of the study as well as defining the research problem. It also looked at the background of the study, delimitations and limitations, justification of the research, objectives of the research, research questions and the definition of terms. The next chapter will review literature related to the topic to be studied.

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter looks at the literature review and empirical evidence on the value chain analysis in the agro- processing industry. A proper understanding of the research study could not be achieved without considering a broad range of literatures relevant to the value chain analysis in the agro-processing industry. In order to give answers to our research questions an in depth analysis on value chain analysis and the agro-processing industry will be conducted.

2.1 THEORETICAL FRAMEWORK

2.1.1 Value chain analysis definition

Value chain analysis is an analytical tool that was first developed by Michael Porter in the mid 1980s. It is an instrument that can be used by organisations to identify their sources of competitive advantage. Instead of looking at an organisation as a whole, organisations can be disaggregated in a series of activities. This enables organisations to determine the strategic advantages and disadvantages of their activities as well as help the organisation to identify value creating activities and or processes, (Kaplinsky and Morris 2001).

Stabell and Fjeldstad (1998) expound that disaggregating the value chain into discrete activities enables one to view the value activities as blocks by which an organisation creates a product that is valuable to its customers. Different activities undertaken during the production of a product have different economics and contribute differently towards the valuable characteristics of a product.

Porter (1985) further describes the value chain as activities undertaken by an organisation in designing, producing, marketing, delivering and supporting its product. He further postulate that an organisation's value chain and the individual value activities that an organisation undertake are a reflection of the company's history, strategy, the organisation's approach to implement its strategy as well as the underlying economies of the activities undertaken by the organisation.

2.1.2 Agro-processing industry definition

Agro-processing industry is a subset of the manufacturing industry that processes raw materials derived from agriculture, forestry and fisheries. It includes manufacturers of food, beverages, wood products, clothing, textiles and food industry,(FAO 2000).

2.2 VALUE CHAIN ANALYSIS CONCEPT

The value chain analysis approach is based on the concept of value addition, and the approach can be used or utilized to develop an organisation's sustainable competitive advantage. Organisations consists of activities that are linked together to develop the value of the business. The inter-linkage of the activities form the organisation's value chain, and the value chain analysis aims at maximizing value creation at each value stage a product passes through whilst minimizing costs. (Lynch 2003) .

Pathania-Jain (2001), states that the value chain analysis is an interdependent system or a network of activities which are connected by linkages. The linkages can be a vital source of competitive advantage if the system is properly managed. According to Lynch 2003

(ibid), the value chain analysis links the value of the organisation's activities with the organisation's main functional parts and then assesses the contribution made by each activity to the overall added value which is made by the organisation.

Shank and Govindarajani (1993), on the other hand view the value chain in broader terms compared to Porter. They consider the value chain of an organisation as value creating activities within an industry value chain. The industry value chain according to the Institute of Accountants (1996) emanates from suppliers who make available the basic raw materials and components. The chain flows along the value creating processes of different classes of buyers up to the end-user customers and involves the disposal and recycling of materials.

2.2.1 Porter's generic value chain

Figure 1: Porter's Generic Value Chain

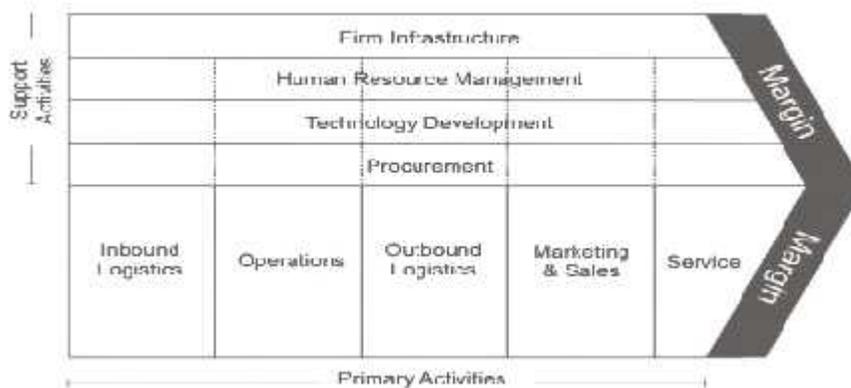


Figure 1. (Source adapted from: Van Weele 2010, page 5)

According to Porter 1985 (ibid), the value chain outlines all the internal activities that an organisation undertakes in the production of goods and services. The internal activities are grouped into two distinct groups, the first group comprise of activities that directly add value to the final product, generically known as primary activities. The second group comprises of activities that indirectly add value to the final product and are generically known as support activities.

Van Weele (2010) (ibid), noted that value chain analysis is made up of value activities that lead to the creation of a margin, value activities can be divided into primary and support activities. The margin represents the extra value that the customers are willing to pay for the organisation's efforts compared with the costs that were incurred by the organisation in providing the product or service to the consumer. The value chain is therefore composed of three fundamental elements; primary activities, support activities and margin.

Primary activities:

Primary activities offer the organisation's value propositions by physically transforming raw materials into the final products which the company delivers to its customers. They include, inbound logistics, outbound logistics, marketing and sales, operations and services. Inbound logistics are activities involved in the receiving, storage and distribution of raw materials and inputs used in the production process. Operations, refers to activities involved in the transformation of inputs or raw materials into output which can either be in the form of final products or services. Van Weele (2010) (ibid). Outbound logistics are activities involved in the warehousing and distribution of the final

product or service to the consumers. Marketing and sales refers to activities involved in the analysis of consumer needs and product awareness to consumers, through, advertising, selecting distribution channels as well as managing customer relationships. The stage is critical in ensuring that the product reaches the correct targeted consumer group. Marketing provides information to an organisation on product specifications and volume estimates, it also provides information on how to improve the product through defects remedy or by increasing the lifespan of a product. Service refers to activities undertaken before or after a sale in order to maintain the product's performance, these activities include installation, warranty, training, repair and after-sales services, (Stabell and Fjelstad, 1998).

2.2.3 Secondary activities

These are value activities undertaken by an organisation and the main objective being to support or help the primary activities of the organisation. They include, firm infrastructure, human resource management, procurement and technology. Firm infrastructure encompasses the organizational structure, corporate strategy and management of the organisation. It comprises planning and control systems that are in place in an organisation, such as finance, quality control and accounting systems. Infrastructure does just support primary activities; it supports the entire set of the organisational processes, (Van Weele, 2010).

Human resources management are all activities undertaken in hiring, training, and developing of proper employees to help design, build and market the product. Procurement refers to all activities involved in purchasing all materials which necessitate the organisation's operations. Technology this refers to equipment, software, hardware and technical knowledge used to support value creating activities. Technology can be used in the development of a product and in process automation. (Lynch 2003).

2.2.4 Margin

This is the difference between the total value and the price that the customer is willing to pay for a product or a service and the cost of performing the value activities, (Macmillan et al, 2000). Some scholars have used the word added value or profit instead of margin. The margin or profit that an organisation makes depends in the effectiveness and efficiency in the performance of both the primary and support activities, (Lynch 2003) (ibid).

For the purpose of this research, primary activities and the margin shall be analysed in mapping the value chain in processing oranges at Mazoe Citrus Estates.

2.2.5 Importance of value chain analysis

Continuous improvement

Monczka and Handfield (2005), postulate that value analysis is organized and such that systematically studies every element of cost in a part, material, process or service, to ensure they can be produced at the lowest total possible value. Value chain analysis therefore enables organisations to critically analyse the value derived as materials are transformed from inputs into output as they pass through the various processing stages. It enables organisations to pursue continuous improvement as the organisation is able to analyse the value generated at each production process that the product passes through. Continuous improvement can be achieved through materials and processes improvement through identification and removal of non-conformance costs. (Monczka 2005).

Business transformation.

According to Stratton W (2009), business transformation involves change in management strategy with the aim to align people, processes and technology initiatives of a company

with the company's strategy and vision in a bid to support and reinvent new business strategies. Transformation in small businesses could include efficiency improvements to an organization's processes, while in larger organisations transformations might involve changes to the organization's strategic direction; that is redefining its business objectives, adopting new organizational structures, and or changing its resources for example use of new technology or outsourcing some key services or components.

To ensure long term survival, an organisation must take the supplies it brings in, add value to these through its operations and then deliver the output to the customer. Stratton (2009) adds on that value chain enables organisations to understand core- activities that add value or provide a unique advantage over the organisation competitors. The organisation may likely want to protect these and minimize risks against them, incremental changes to these activities may also be considered. After identifying the non-core activities or non value adding value activities, the organisation may attempt to reduce its commitment to these activities. Continuous value chain analysis and reviews of the organisation's strategy creates business transformation possibilities as well as creating an agile organisation which is not reactionary to market conditions but understand its key competencies and quickly take advantage of economic and market circumstances.

Financial performance.

Financial performance has usually been seen as a direct and objective phenomenon (Matsuno and Mentzer, 2000) that can be assessed by simply measuring the outcome of a company's revenue and sales volume. Financial performance is usually used as a general measure of a firm's overall financial health over a given period of time, (Smith and Wright, 2004) and can be used to compare similar firms across the same industry or in order to compare industries or sectors in aggregation, (Roberts and Dowling, 2002).

Profit is a measure of how well an organisation is performing financially. In a training manual prepared for ICRISAT by Reddy A in 2013, it is noted that profit is a driver towards sustainable agro value chains, and promotes continuous participation by all stakeholders in the value chain.

Sometimes the performance of an organisation can be assessed using non financial variables such as 'value', 'success', and 'significance' (Amir and Lev, 1996). According to Kaplan (2006) not every aspect of corporate activity can be expressed in terms of money, financial performance can also be assessed through an in-depth analysis of the company's manufacturing and production capacity as well as manufacturing technology used, sales and marketing ,people ,research and development of new manufacturing processes, research on product development and the environment.

Competitive advantage

The institute of Management Accountants (1996), view that for an organisation to survive and thrive in an industry it must supply what customers want to buy and it must survive competition, an organisation's competitive advantage is derived from the difference between the value it offers to its customers and the cost of creating the customer value. The value chain analysis approach enables organisations to be aware of the strategic importance of the individual value adding activity they undertake. To capture maximum value for their customers, organisations should identify and concentrate on the activities that help them yield maximum value. Organisations use the value analysis concept to better understand the segments, distribution channels, product differentiation, selling propositions and value chain configurations that will help them attain the greatest competitive advantage.

Competitive advantage can be derived through the following analysis.

Internal differentiation analysis. The aim of the differential analysis under the value chain approach is to determine the organisation's value creating activities that distinguish the

product of the organisation from those of its competitors. Differentiation can be achieved through product features, marketing channels, brand or image positioning and the cost of the product or service. (The institute of Management Accountants ,1996)

Vertical linkages analysis. This analysis encompasses the value creating activities within an industry. Shank and Govindarajan (1993) state that vertical linkages are important in gaining and sustaining a competitive advantage. However, organisations need to understand the entire value delivery system and not just the portion of the value chain wherein the organisation operates. An organisation needs to understand its first tier, second tier or even third tier customers and suppliers. As the profit margins gained by each of these participants has a bearing on the organisation's cost or differentiation positioning.

The vertical linkage analysis involves identification of the industry's value chain, assigning costs, revenues, and assets to value creating processes, identification of value drivers for each value creating process and evaluation of opportunities for sustainable competitive advantage.

Internal cost analysis. This technique enables organisations to identify and determine their sources of profitability and the cost of the organisation's processes and activities. The analysis involves identifying the processes or activities that add value within the organisation, determining the total cost attributable to the value adding activity, identify the cost drivers for each activity, identify links between processes and finally evaluate the opportunities for achieving relative cost advantage, (The institute of Management Accountants ,1996).

2.3 AGRO-PROCESSING INDUSTRY

The agro-processing industry has been defined by FAO (2009) as a subset of the manufacturing industry that processes raw materials derived from agriculture, forestry and fisheries. It includes manufacturers of food, beverages, wood products, clothing,

textiles and food industry.(FAO 1997). It forms part of the broader concept of agribusiness by adding value to agribusiness output. The agro-processing industry has two distinct sectors, the agro food processing and the agro non- food processing sectors.

The NPCS Board has defined the agro-processing industry as an industry that adds value to agricultural raw materials through processing in order to produce marketable and usable products that bring forth profits and additional income to the producer. The industry has two distinct sectors: the agro-food processing and the agro non food-processing sectors.

2.3.1 Agro-food processing

Agro-food processing involves the conversion of agro products to food items. The food processing techniques are homogeneous and the final products all have the same use. Processing of food is to a larger extent for the purpose of preservation. The processing of food products involves a relatively limited range of technologies that do not greatly vary across the food categories. The level of value addition is relatively limited, such that the raw material account for the significant proportion of the price of the final product. (da Silva et al 2009).

2.3.2 Agro non food-processing

Non food processing of agriculture products leads to a variety of end uses such as fibres, fuels, edible oils, paper and wood furniture. The levels of processing, transformation and value addition are relatively significant and a wide range of technologies are used. Value addition is high and the raw materials contribute a smaller proportion of the end product price.

2.4 CITRUS AGRO PROCESSING

The citrus production industry is made of oranges, navels, grapefruit, lemons and limes as well as soft fruit (naartjies). Most revenue in the citrus industry is obtained through exports and processing of fruits, hence the industry's export orientation requires well development infrastructure along the value chain. (Urban-Econ Development Economist, 2012).

There are two types of processing methods that may be performed citrus fruits, primary processing and secondary processing. Primary processing includes simple processes such as washing, peeling, chopping, and packaging. Secondary processing involves the conversion of primary processed products into more complex food products through procedures such as mixing, extraction, drying, fortifying, pasteurisation and heating. (www.arc.agric.za)

2.4.1 Agro-processing of Oranges.

Primary processing of oranges include washing, grading, waxing and packaging of the oranges. Secondary processing of oranges is made up of crushing the oranges to obtain orange concentrates and orange juice, extraction of orange oil from the orange peels which is used to produce flavours and colours used in food manufacturing and pharmaceutical products. Orange peels can be used to prepare marmalade jam, cereals and stock feeds. (Urban-Econ Development Economist, 2012).

2.5 ORANGES VALUE CHAIN MAPPING

2.5.1 Value Chains.

A value chain has been defined by Hellin and Meijer, (2006) as activities undertaken to bring a product or service into being through the various stages of processing and the distribution of the product to the final users. Value chain mapping is a technique used in the identification of the various important actors that influence the value chain. Value chain actors are people or organisations that are involved in the transactions of a product as it moves along the value chain, and they include, retailers, wholesalers, transporters, suppliers and the final consumers.

According to Hatwich and Kormawa (2009), value chain mapping is a visual depiction of the various actors in the value chain. It illustrates the flow of raw materials, conversion of raw materials until the product reaches the end users. Value chain mapping also helps in identifying the interactions in creating the product, the nature or type of the product that define the chain, key value adding activities in the chain, the main or key actors in the chain, the volume of products or services that flow in the value chain, the types of supplies that feed the value chain as well as the value created at each stage along the value chain.

Gereffi (1994) postulate that value chain mapping helps in identifying and understanding the participants in the value chain, understanding at what stage they participate and how the different stages take place and how they are linked.

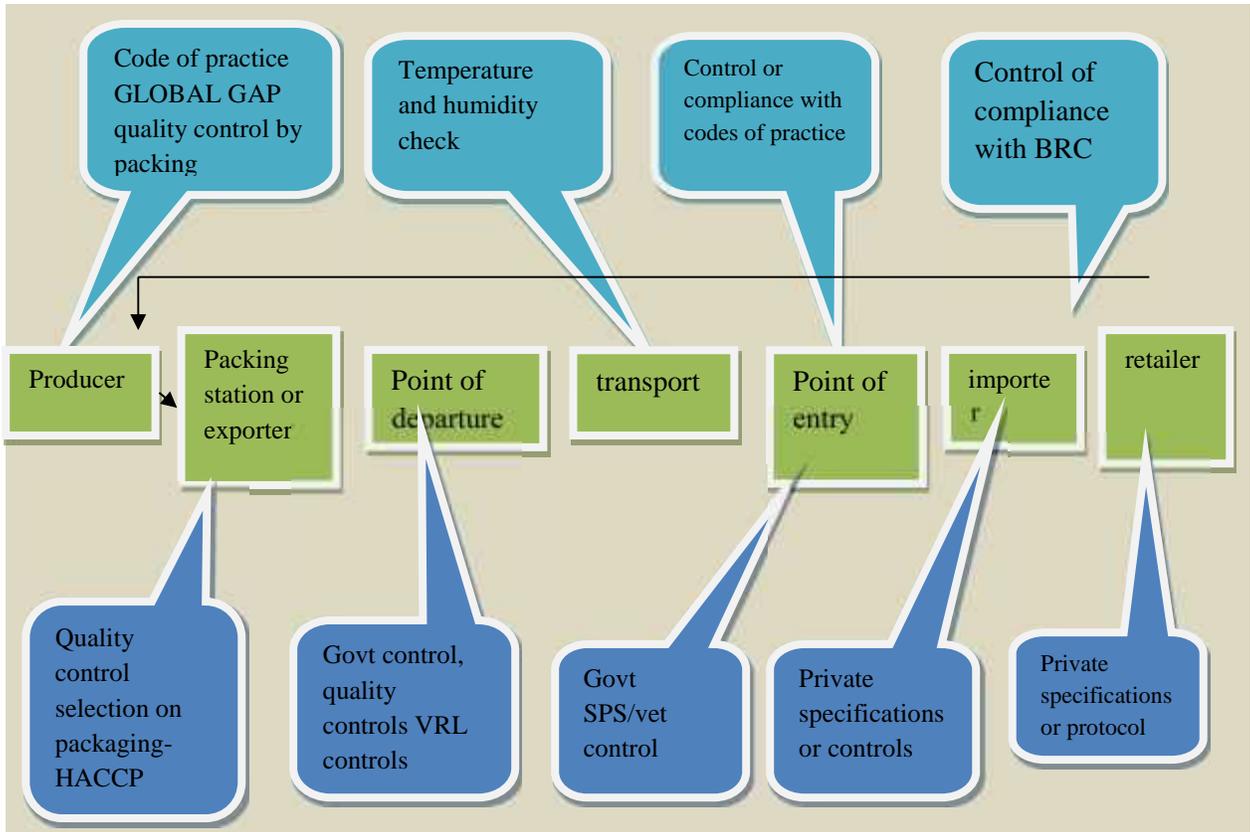


Fig 2.1 source adapted from Republic of South Africa, Department of Agriculture, Forestry and Fisheries, (2011) pp 84

Fig 2.1 shows the actors in the value chain of importing and exporting fresh fruit into European markets. The major thrust of this value chain is on increasing the consumer’s appreciation about health and safety issues. The major actors are food and health standards initiators like GLOBALPGAP (formerly EUREPGAP) on good agricultural practices (GAP), the international management system of HACCP, which by legislation certifies European producers as well as food imported into Europe (EC 852/2004), and the ISO 9000 management standards system (for producers and working methods) which is certified by the International Standards Organization (ISO). The value chain shows the

interventions of private and public standards on multiple points along the value chain. These are a reflection of the controls by different actors at different points along the value chain. Standards in agro processing value chains are created, adopted, applied and verified by different actors such as enterprises and institutions at different points in the value chain. (Republic of South Africa, Department of Agriculture, Forestry and Fisheries, 2011)

Fig 2.2, overleaf, shows the Citrus (oranges, grapefruit, and lemons) value chain in Limpopo Province in South Africa, the value chain indicates the stages that the fruit passes through after harvesting, the value adding activities carried out as well as the end products realised. The diagram shows the value chain for the industry, indicating the key actors in the citrus agro processing industry at each stage of the value chain. This research, however seeks to identify the key actors, value adding activities in mapping the value chain at Mazoe Citrus Estates. The value chain map in figure 2.2 will help the researcher in mapping the value chain for the organisation.

The citrus value chain

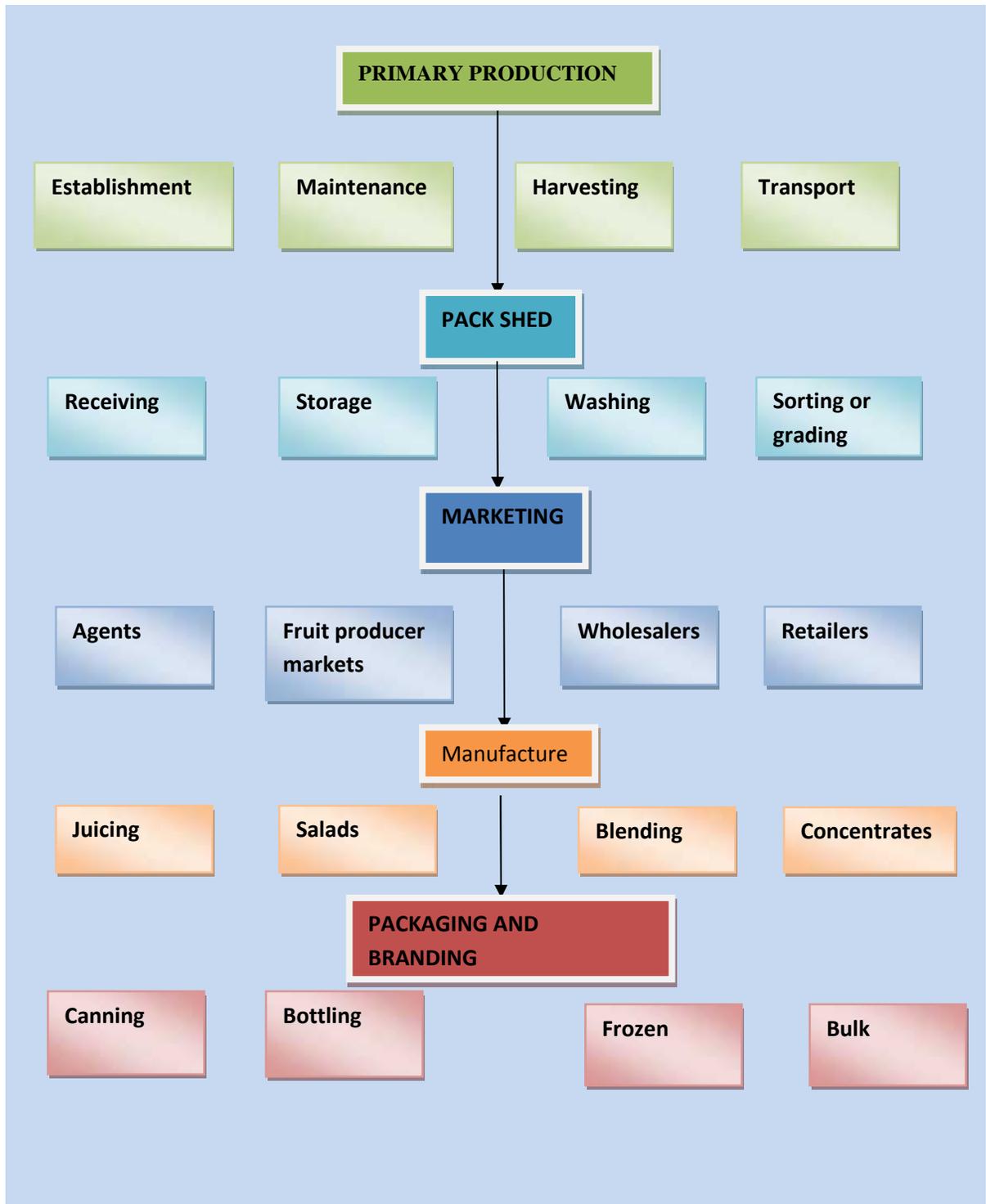


Fig 2.2 source adapted from: Urban-Econ Development Economist, (2012) pp 212

2.5 EMPIRICAL EVIDENCE

A research conducted by the Department of Agriculture in South Africa (2012) revealed that Citrus agro processing in the province is in the form of juices, fruit pulp, concentrates and blending with other fruits. The packaged final product is sold as juice products to retailers or sold as bulk concentrate for further processing by big brand names such as Ceres, Parmalat, Coca-Cola and other South African juice packers. The research also found out that expanding and developing citrus agro processing plants will reduce post harvest losses, expansion of citrus agro processing is feasible since the country has available technologies used in processing citrus fruits such as oranges

A research titled “The status of the agro-processing industry in Zimbabwe with particular reference to small- and medium-scale enterprises” by Mhazo et al, (2012) focused on small and medium agro-processors in Zimbabwe and what they need or require to manufacture and market processed products effectively. The research was aimed at empowering rural artisans through establishing manufacturing skills training programmes. The research revealed that small and medium scale farmers faced financial challenges as well as lack of technical knowledge.

Value Chain Analysis and Financial Viability of Agro-Processing Industries in Himachal Pradesh by Sharma et al (2010). The research studied the structure of value addition and the extent of value addition in different agro-processing units in Himachal Pradesh, India. The paper focused on examining the financial viability of agro-processing industries in the state. It was found out processing units stayed in the business even at low capacity utilization as long as they were breaking –even. Smaller entities were found to have favourable accounting ratios compared to larger firms. The researchers recommended that policies should focus on small scale businesses specialising in processing raw agro materials, processing agro products at small scale led to self employment.

Chiukira et al (2012) conducted a research on Agriculture Value chain analysis, maize and soya bean value chain analysis. The research focused on analysing sustainable value chains that could be done in partnership with NGO,s. The study focused on maize, soyabeans and dairy. It was found out that value addition activities on maize could be done on the farms using uncomplicated machinery into several products such as, maize meal, maputi, samp, oil and grit. They however noted that, the value chains were constrained by the government policies, cheap maize importations, and low producer prices. They recommended that the link between farmers and markets should be strengthened, and financing small holder farmers through loan financing.

Another research which was conducted in South Africa by the Department of Agriculture, Forestry and Fisheries in 2011 revealed that high levels of citrus processing technologies are in place and readily available. The technologies include, washing, grading and selection machines, juice and oil extraction machines and juice refining and pasteurization machines. However, the citrus value chain is not easy to map as the supply chain is lengthy beyond the pack house making it rather difficult to map the value chain as well as managing the processing of the oranges beyond the pack house gate. The researchers recommended government to assist small agro processors financially and with technical as agro processing will help alleviate poverty in rural communities.

2.6 RESEARCH GAP

The pragmatic literature review above and other studies in developed countries reveal how value chain analysis has been used by organisations in developed countries. Most of the researches in developing focused on value chains can be used to alleviate poverty, create employment or how it can be used to measure financial viability of entities. Empirical studies conducted in Zimbabwe have shown how value chain analysis in the agro processing sector can improve the livelihoods of communal farmers, help alleviate

poverty and generally how value can be added to food grain crops. This research however, looks at the value chains of high value estate crops with particular reference to citrus production. Some researches focused analysing the citrus value chains as a means of assessing the sustainability of the industry. This research, however, is internal focused to an organisation. The main objective is to analyse the value chain and use the value chain analysis as a basis for resource allocation in the organisation.

2.7 CONCLUSION

This chapter reviewed the literature on value chain analysis in the agro-processing industry. The chapter also looked at empirical studies with regards to value chain analysis in the agro-processing industry. The next chapter focuses on research methodology and why specific statistical models were selected for this study. The chapter will also cover the preparation of the sample space and data collection techniques among other things.

CHAPTER III

RESEARCH METHODOLOGY

3.1 INTRODUCTION TO CHAPTER

Chapter Two provided a useful review of the literature available on the subject of value chain analysis in the citrus agro processing industry. Value chain maps in the citrus agro processing industry were analysed and different value adding activities in the citrus agro processing industry were discussed. This chapter chronicles the approach used in this particular study to collect and analyse data required to investigate the value chain maps and value added at each consecutive citrus agro processing stage. The chapter focuses on research design, research population, sample size, research instruments, data collection procedures, method of data analysis and summary.

3.2 RESEARCH DESIGN

A research design provides a framework for the collection and analysis of data. The most commonly used research designs are the case study, cross-sectional design (survey) and experimental research designs. McDonald (1999) postulate that a research design is the overall strategy used by a researcher in answering the research questions or the hypothesis under study. This research used a case study, a case study entails an investigation of an issue at a specific instance and location. (Bryman and Bell ,2003). Yin (2003), also add that a case study is an investigation of existing occurrences in a real life context and is performed when the limits of the occurrences in the real life situation and context are not clearly evident.

The research was based on an in-depth analysis on the value added as the oranges passed through the various processing stages at Mazoe Citrus Estates. The study also focused on establishing value addition techniques and processes implemented at Mazoe Citrus

Estates so as to establish the value chain maps that are in existence in the organisation. The researcher chose Mazoe Citrus Estates as a case study in analysing the oranges agro processing value chain because, the organisation is one of the largest oranges producers and processors in the country and is experienced in adding value to oranges as evidenced by the evolution in oranges agro processing activities undertaken by the organisation that were first introduced in the early 1930s.

3.3 SECONDARY DATA RESEARCH FOCUS

Secondary data analysis involves the use of data previously collected for some other purpose rather than the study at hand. It involves collecting and analysing a wide range of information. (Cnossen,1997) the secondary data analysis is usually conducted to gain in depth knowledge of the problem under study, hence the type of information will be determined by the purpose of the study.

The following three approaches or strategies can be used in undertaking a secondary data analysis, content analysis, secondary analysis and systematic review. According to 't Hart et al (2005), content analysis focuses on the various forms of human communication, and the data can be collected from magazines, newspapers and television. Secondary analysis focuses on using quantitative data that was previously collected for other purposes. Systematic analysis is also known as the meta analysis, focuses on consolidating and investigating findings of other researches similar to the research under study.

3.3.1 Sources of secondary data

Information can be obtained from the statistics office collected by the government through various Government departments; it is also known as external secondary data sources. It is imperative to critically analyse data obtained from the statistics office as it is sometimes unreliable due to data gaps, inaccuracies and lack of timely reporting,(Gill 1993). Other sources of secondary are the internal secondary data sources and they

include technical reports, customer databases, inventory databases and financial statements.

For the purpose of this study, secondary data was obtained from financial statements, weekly and monthly production reports, sales invoices book, weighbridge tickets book and price lists.

Advantages of using secondary data.

Quicker and easier way to collect data as it Avoids duplication of effort since data is readily available which was collected by someone. Complements primary data collection leading to cost savings, (Beaulieu,1992)

Limitations of using secondary data

Sources may conflict with each other and the purpose and objective of the original researcher may not be compatible with the current research. Some data can be outdated and at times secondary data is not comprehensive. Data which was collected for the study to analyse the value chain at Mazoe Citrus Estates was collected from production reports which aimed at reflecting the yields for the year, the data was not comprehensive in outlining the processes being undertaken. To overcome the problem, the researcher conducted interviews key people to gain clarity.

3.4 DATA ANALYSIS AND PRESENTATION

The data gathered was analysed through statistical methods. After a careful analysis of the collected data, the research results will be presented in form of flow charts and tables as they are easy to read and understand. Comments and suggestions based on the data analysis will be made on how to improve the oranges value chain.

3.5 SUMMARY

The research methodology used sought to reveal an understanding of the orange value chain analysis. It also sought to establish the oranges value map as well as identifying the value added at each processing stage that the oranges pass through. A single case study was used, secondary data research focus was used to collect data. The next chapter, chapter four tables the findings of the study and the corresponding analysis of the results.

CHAPTER IV

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 INTRODUCTION

The previous chapter outlined the methodology of research used in collecting secondary data. This chapter will focus on presenting, analysing and discussing the findings of the research. The presentation and analysis of data will be guided by the research objectives outlined in chapter one. This chapter aims at addressing the following, construction of the oranges value chain map and identification of value added at each consecutive processing stage.

4.1 VALUE CHAIN MAPPING

Value chain mapping is a visual depiction of the various actors in the value chain. It illustrates the flow of raw materials, conversion of raw materials until the product reaches the end users. Value chain mapping also helps in identifying the interactions in creating the product, the nature or type of the product that define the chain, key value adding activities in the chain, the main or key actors in the chain, the volume of products or services that flow in the value chain, the types of supplies that feed the value chain as well as the value created at each stage along the value chain, Hatwich and Kormawa (2009)

Gereffi (1994) postulate that value chain mapping helps in identifying and understanding the participants in the value chain, at what stage they participate, how the different stages take place and how they are linked.

In mapping the MCE value chain, the following actors shall be analysed, the product, key suppliers, volume of oranges that flow through the value chain and the value adding activities done at MCE

4.1.1 The product.

The main product in the oranges value chain is the orange fruit, which can be processed into orange juice concentrates and oranges cordial drinks. Orange oil is produced as a by product during the juicing process and the orange peels can be used as stock feeds, (Mazoe Citrus Estate Production report, 2015)

The table below is a summary of the orange production at Mazoe Citrus Estates in 2015

Table 4.1

MAZOE CITRUS ESTATES ORANGES FRUIT PRODUCTION SUMMARY 2015

Citrus Field	Total Fruit Production (tonnes)	Fruit from Field to Packhouse (tonnes)	Fruit from Field to Factory (tonnes)	Fruit from Packhouse to Factory (tonnes)	Packhouse fruit Dumpings tonnes	Total Fruit Packed (tonnes)	Total Fruit to Factory (tonnes)
Navels	1,551.24	1,500.76	50.48	308.14	55.62	1,137.00	358.62
Salustiana	801.92	754.82	47.10	288.08	1.44	465.30	335.18
Tarroca	182.88	175.34	7.54	66.64	-	108.70	74.18
Turkey	1,198.76	1,103.00	95.76	708.00	-	395.00	803.76
Duroi	404.27	339.30	64.97	251.28	-	88.02	316.25
McClean	612.02	606.24	5.78	429.16	-	177.08	434.94
Midnight	298.26	267.28	30.98	47.40	-	219.88	78.38
Delta	230.80	230.68	0.12	32.90	-	197.78	33.02
Other Fruit Suppliers to Factory							
Orange Farmers							228.44
outgrower Scheme							301.03
TOTAL	5,280.15	4,977.42	302.73	2,131.60	57.06	2,788.76	2,963.80

Source (Mazoe Citrus Estates, Citrus production report, 2015)

The table 4.1 is a summary of oranges received during the harvesting season of 2015 (April to October 2015) After harvesting, the orange fruit is typically taken to the pack house for grading, sorting and packing. At times fruit that falls to the ground during harvesting is directly taken to the factory for juicing, when the fruit falls to the ground it becomes bruised and therefore becomes unsuitable to be sold as whole fruit. Some varieties are more suitable for juicing than being consumed as whole fruit and are sometimes directly taken to the factory after harvesting. .During the harvesting period of 2015, a total of 5 280.15 tonnes of orange fruit was harvested at Mazoe Citrus Estates of which 302. 73 tonnes of fruit was taken directly to the factory for juicing.

4.1.2 Key suppliers that feed the oranges value chain

Mazoe citrus Estates owns its orange orchard farms from where it produces its own oranges. The oranges from the orchards are graded, packed and sold as whole fruit, fruit that does not meet whole fruit specifications are transferred to the factory for processing. To meet demand of orange juice concentrates more fruit is outsourced from other local orange producers and from the company's out growers. (Refer to table 4.1). Below is a bar graph depicting the volumes of oranges supplied into Mazoe Citrus Estates oranges value chain in 2015 by the company's farms, other farmers and the out growers.

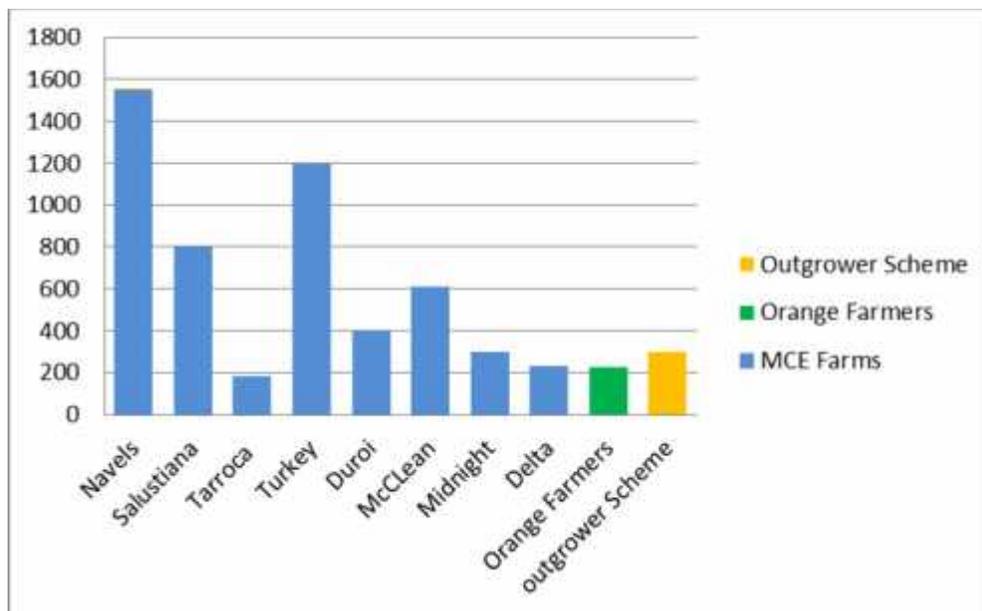


Fig 4.2 Key oranges suppliers in 2015 at MCE.

The supply risk of oranges is minimised as 90.89% of the oranges are supplied from the organisations eight farms that make up the estate, in 2015, the organisation processed most fruit from the navels variety fields. To cater for excess demand, oranges are also outsourced from the out growers and other oranges farmers. Currently the organisation operates an out growers scheme at Negomo irrigation cooperative in Chiweshe, Mashonaland Central Province. The organisation offers technical assistance to the cooperative in the production of the oranges, after harvesting the oranges are sold to Mazoe Citrus Estates at an agreed price.

4.1.3 The volume of oranges that flow in MCE value chain

The oranges production summary in 2015 (fig 4.1) showed the quantities of oranges that were produced at the estate, packed and sold as whole fruit in 2015, and the volume of fruit transferred to the factory for juicing. The pie chart below is a summary of orange fruit handled at MCE pack house during the harvesting season of 2015

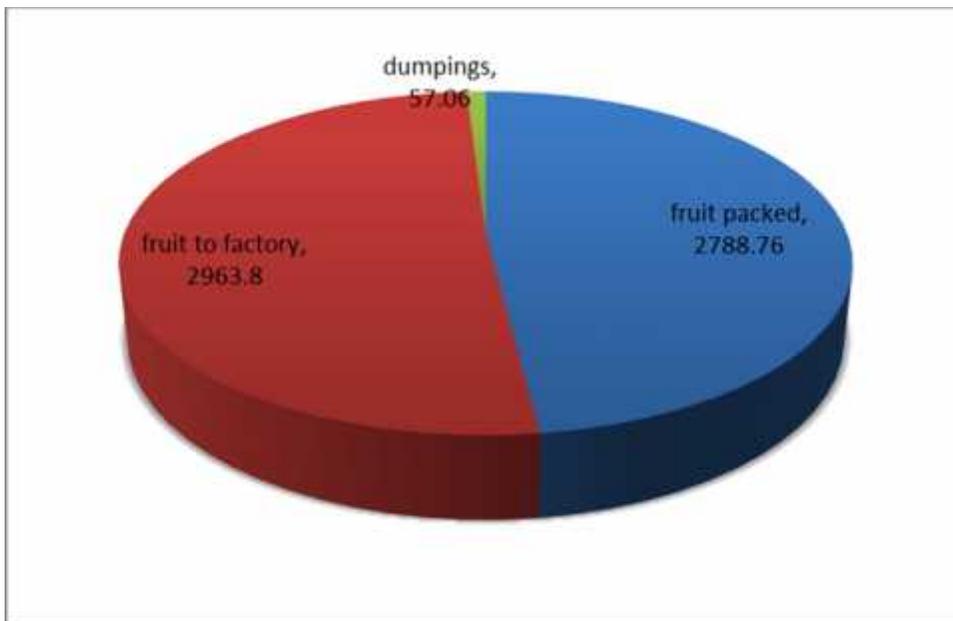


Fig4.3 Fruit processed at MCE pack house in 2015 (in tonnes)

Figure 4.3, shows the volume of fruit that was processed at the organisations pack house. After grading, 48% of the fruit was packaged for selling as whole fruit, 1% accounts for the pack house dumpings and 51% of fruit received was forwarded to the factory for processing.

Appendix (iii) shows the tonnage of fruit received for juicing during the harvesting season of 2015. The table also show the yields realised for the orange concentrate, orange oil and orange peels

4.2 VALUE ADDING ACTIVITIES OR PROCESSES AT MCE

4.2.1 The pack house

When the oranges are harvested from the fields, they are taken to the pack house where they undergo a process of washing and grading. The oranges are graded for packing and juicing. Oranges graded for packing are waxed using orange wax, this makes the surface of the oranges smooth and shiny, and this process helps to extend the shelf life of the oranges. After waxing, the oranges are further graded and packaged according to their grades, the first grade oranges are packed in cardboard boxes and the second grade are packed in oranges sacks. The packaged fruit is sold to wholesalers and retailers as final consumer distribution channels.

Below is a summary of fruit that was handled, graded and sold as whole fruit during the harvest period of 2015 at MCE pack house

Table 4.4 volume and value of oranges sold as whole fruit in 2015

	Inbound Fruit (tonnes)	Value (\$100.00/ton)	Outbound Packed Oranges (tonnes)	Value (\$250.00/ton)
Navels	1,500.76	\$ 150,076.00	1,137.00	\$ 284,250.00
Salustiana	754.82	\$ 75,482.00	465.30	\$ 116,325.00
Tarroca	175.34	\$ 17,534.00	108.70	\$ 27,175.00
Turkey	1,103.00	\$ 110,300.00	395.00	\$ 98,750.00
Duroi	339.30	\$ 33,930.00	88.02	\$ 22,005.00
McClean	606.24	\$ 60,624.00	177.08	\$ 44,270.00
Midnight	267.28	\$ 26,728.00	219.88	\$ 54,970.00
Delta	230.68	\$ 23,068.00	197.78	\$ 49,445.00

TOTAL	4,977.42	497,742.00	2,788.76	697,190.00

Source: Mazoe Citrus Estates Packhouse Production report 2015

The inbound value of oranges into the pack house is the farm gate price. The prices used in the table are the average prices realised during the harvesting period of 2015.

4.2.2 The Juicing Plant.

Appendix (i) shows the volume of oranges that were received and processed at MCE factory, it also shows the output volume of the processed products.

Mazoe Citrus Estates has a processing factory located within the estate (approximately 200metres away from the pack house). The factory is made up of two plants namely, the juicing plant and the bottling plant. The juicing plant receives oranges from the factory's suppliers, namely the organisation's farms, out growers and other orange fruit producers. The fruit received in the juicing plant is crushed and concentrated. Crushing is a process used to extract the orange juice, two important by products are realised during the crushing process, that is orange oil and orange peels. The orange oil is a valuable by product which is sold to cordial drink manufacturers and food processors (orange flavouring). The orange peels are used as stock feed.

Concentration is a process of removing excess water from the juice. After concentration a portion of the orange concentrate is sold to cordial drink manufacturers and the other portion is transferred to the bottling plant where it is further processed to produce the organisation's cordial drinks under the brand name Marlon orange crush. The processes undertaken at the juicing plant are highly automated and require heavy expensive special machinery.

Overleaf is a table summarising the value of oranges processed and the value of the end products and the by-products.

Table 4.5 Factory inbound and outbound values.

Factory Inbound and Outbound Values 2015		
Batch	Inbound Factory Value (oranges)	Outbound Factory Value (Orange Concentrate, Orange oil and Stock feeds)
Batch 1	\$ 14,354.00	\$ 21,876.60
Batch 2	\$ 11,556.00	\$ 24,429.62
Batch 3	\$ 13,912.00	\$ 27,476.20
Batch 4	\$ 10,784.00	\$ 29,470.67
Batch 5	\$15,442.00	\$ 30,012.30
Batch 6	\$ 12,058.00	\$ 29,581.43
Batch 7	\$ 20,758.00	\$ 55,024.69
Batch 8	\$18,020.00	\$ 29,994.51
Batch 9	\$ 10,508.00	\$ 22,667.93
Batch 10	\$ 17,012.00	\$ 44,607.32
Batch 11	\$ 20,690.00	\$ 46,514.68
Batch 12	\$ 11,922.00	\$ 21,683.56
Batch 13	\$ 15,432.00	\$ 21,245.91

Batch 14	\$ 20,750.00	\$ 37,855.29
Batch 15	\$ 32,882.00	\$ 65,921.24
Batch 16	\$ 23,835.70	\$ 17,214.10
Batch 17	\$ 22,002.00	\$ 19,267.95
Batch 18	\$ 4,462.00	\$ 19,839.24

4.2.3 The bottling plant

Orange concentrates produced at the juicing plant is sold to cordial drink manufacturers. The company has a bottling plant where it further processes the orange concentrates by adding some key ingredients to produce cordial drinks under the brand name Marlon orange crush. No by- products are produced during this process.

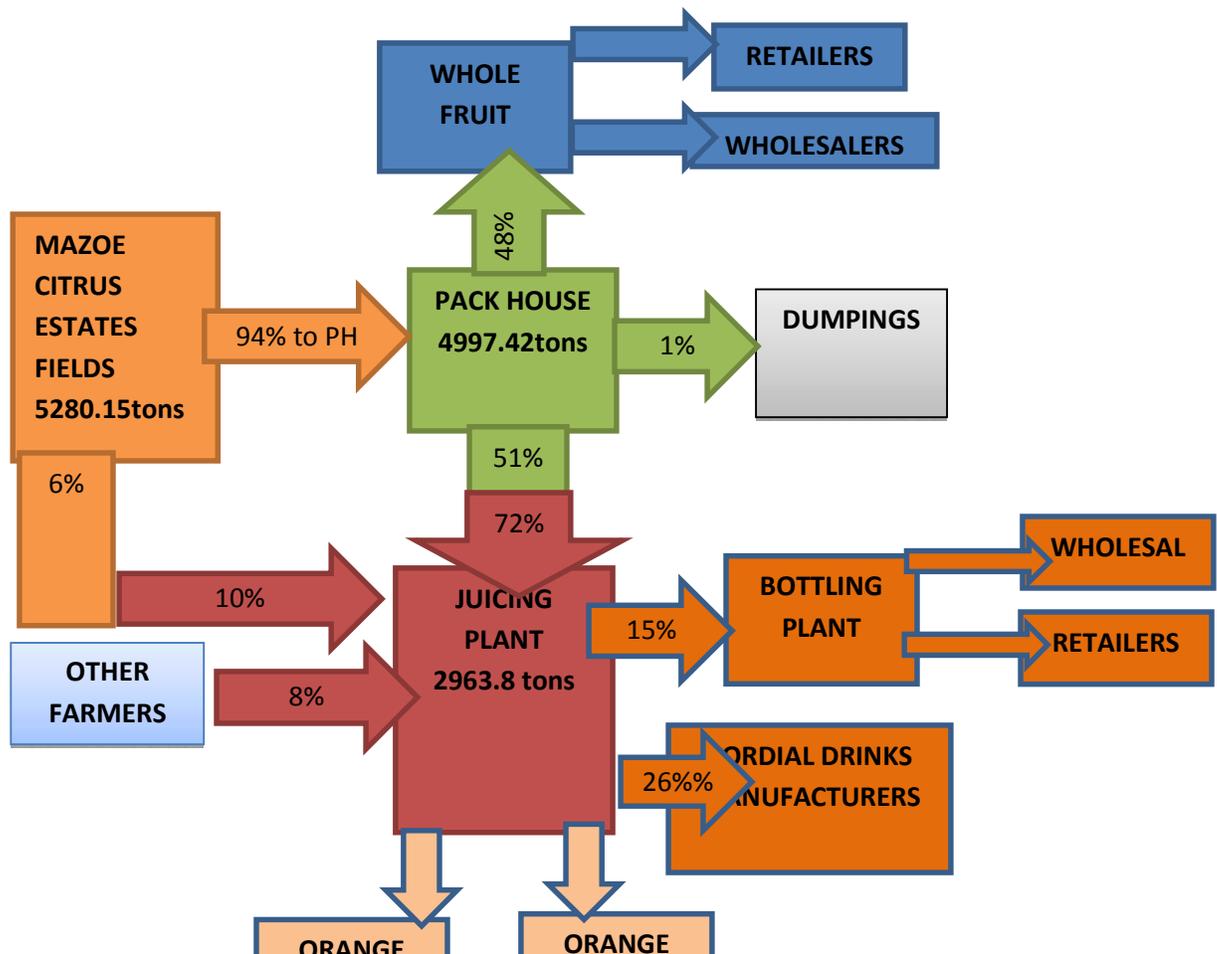
Table 4.6 total production for period April 2015 to December 2015

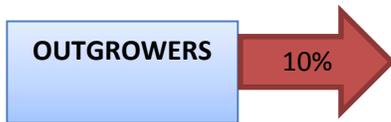
Month	No. of batches	Average concentrate used per batch	Concentrate used (litres)	Units produced (litres)
April	5	1000	5000	25000
May	6	1000	6000	30000
June	4	1000	4000	20000

July	5	1000	5000	25000
August	8	1000	8000	40000
September	10	1000	10000	50000
October	13	1000	13000	65000
November	15	1000	15000	75000
December	16	1000	16000	80000
TOTAL	82	9000	82000	410000

The researcher found out that 200litres of concentrate are used to produce 1000 2litre bottles of Marlon orange crush which is sold at \$1. 85 to retailers and wholesalers.

4.3 THE ORANGE AGROPROCESSING VALUE CHAIN MAP AT MCE



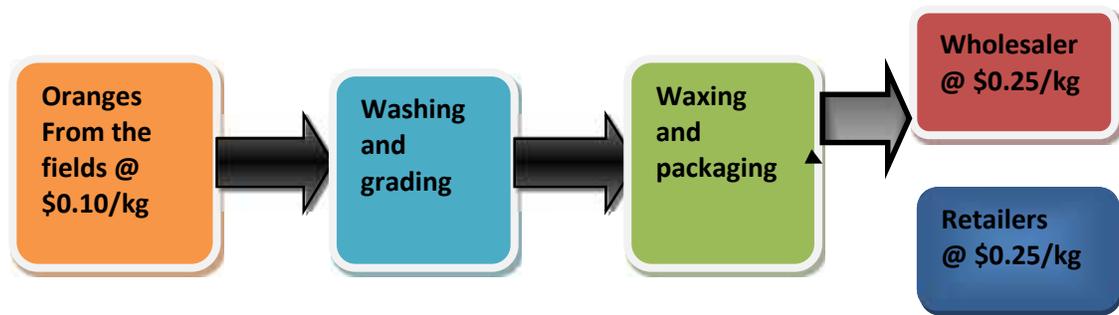


The value map overleaf shows the value chains at Mazoe Citrus Estates and their linkages. Fruit processed at the farm in 2015 was 5 280.15 tonnes. 94 % of the fruit produced was taken to the pack house, 72% of the fruit at the pack house was transferred to the factory for juicing at cost price, 1% of the fruit in the pack house accounts for dumpings and 46% of the fruit was sold as whole fruit. 6% of the fruit produced at Mazoe Citrus Farms was taken directly to the factory for juicing. A total of 2963.8 tonnes of fruit was received at the factory in 2015, 72% of the fruit was received from the pack house, 10% from out growers, 8% was bought from other orange fruit farmers and 10% came directly from the Estate's fields without passing through the pack house.

15% of the orange concentrate produced in was used to manufacture cordial drinks at the bottling plant, 35% was sold to cordial drinks manufacturers, 50 % Of the concentrate manufactured in 2015 was held as stocks as at December 2015.

4.4 The value added

Value chain (i) Whole fruit



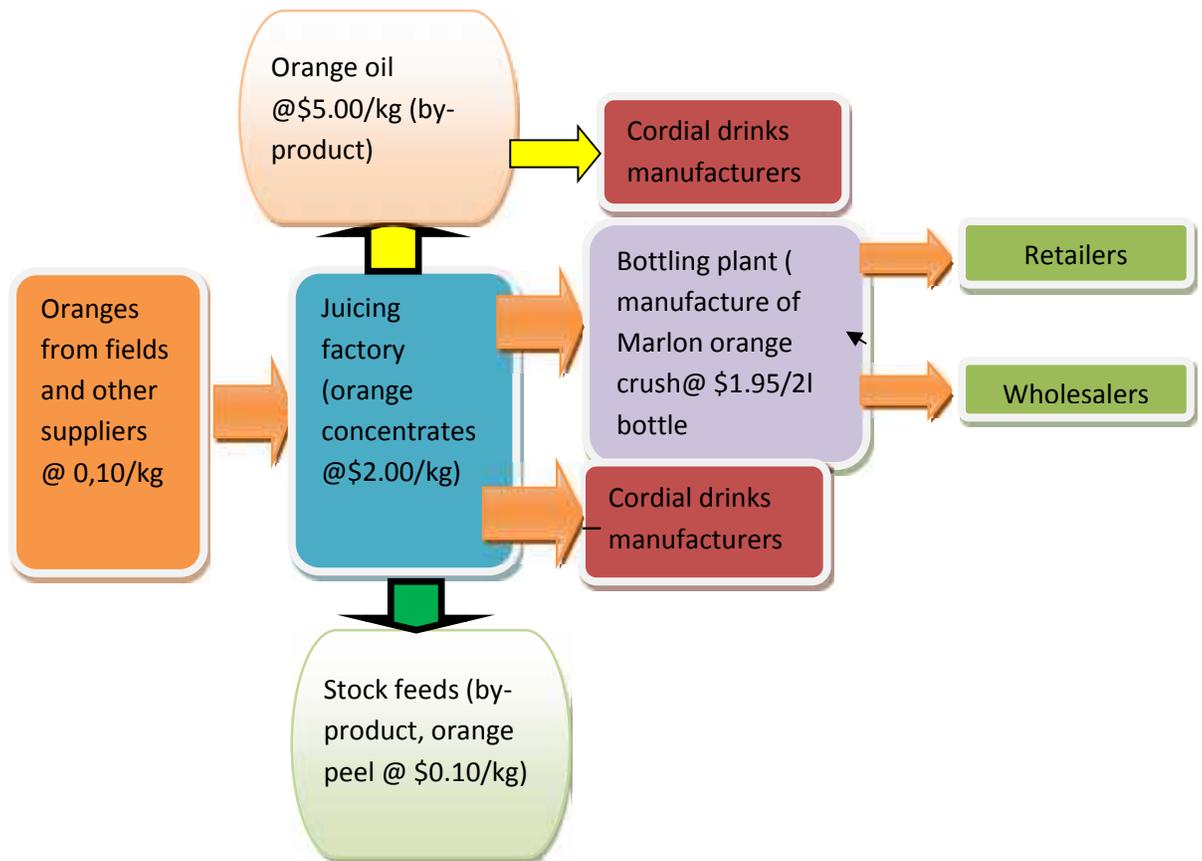
The first value chain is the whole fruit oranges value chain. Oranges are harvested from the fields and transferred to the pack house at \$0.10 per kg and sold at \$0.25 per kg. Value adding processes at the pack house include washing, grading, waxing and packaging. The table overleaf shows the total value generated at the pack house in 2015.

	Inbound Fruit (tonnes)	Value (\$100.00/ton)	Outbound Packed Oranges (tonnes)	Value (\$250.00/ton)
Navels	1,500.76	\$ 150,076.00	1,137.00	\$ 284,250.00
Salustiana	754.82	\$ 75,482.00	465.30	\$ 116,325.00
Tarroca	175.34	\$ 17,534.00	108.70	\$ 27,175.00
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McClean	606.24	\$ 60,624.00	177.08	\$ 44,270.00
Midnight	267.28	\$ 26,728.00	219.88	\$ 54,970.00
Delta	230.68	\$ 23,068.00	197.78	\$ 49,445.00
TOTAL	4,977.42	497,742.00	2,788.76	697,190.00

Total value generated at packhouse in 2015

outbound packed value		697,190.00
less: inbound value		497,742.00
packaging		50197.68
orange wax		4800
labour		54000
Overheads		32000
Total value generated in 2015		58,450.32

Value chain (ii) The orange concentrate and cordial drinks value chain



Fruit worth \$0.10 per kg is used to produce orange concentrate valued at \$2.00 per kg, the juicing process leads to by products stock feeds (orange peels) valued at \$0,10 per kilogram orange oil which is sold to food manufacturers valued at \$5.00 per kilogram. The orange concentrate is sold to cordial drink manufacturers at \$2.00 per kilogram, concentrate is transferred to the bottling plant at the same price of \$2.00 per kilogram. 250 grams of orange concentrate worth \$0.50 is used to produce a 2litre bottle of orange crush drink worth \$1.95. Table 4.4 is a table summarising the total value generated at the factory in 2015.

Factory Inbound and Outbound Values 2015

Batch	Inbound Factory Value (oranges)	Outbound Factory Value (Orange Concentrate, Orange oil)
-------	---------------------------------	---

		and Stock feeds
Batch 1	\$ 14,354.00	\$ 21,876.60
Batch 2	\$ 11,556.00	\$ 24,429.62
Batch 3	\$ 13,912.00	\$ 27,476.20
Batch 4	\$ 10,784.00	\$ 29,470.67
Batch 5	\$ 15,442.00	\$ 30,012.30
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Batch 9	\$ 10,508.00	\$ 22,667.93
Batch 10	\$ 17,012.00	\$ 44,607.32
Batch 11	\$ 20,690.00	\$ 46,514.68
Batch 12	\$ 11,922.00	\$ 21,683.56
Batch 13	\$ 15,432.00	\$ 21,245.91
Batch 14	\$ 20,750.00	\$ 37,855.29
Batch 15	\$ 32,882.00	\$ 65,921.24
Batch 16	\$ 23,835.70	\$ 17,214.10
Batch 17	\$ 22,002.00	\$ 19,267.95
Batch 18	\$ 4,462.00	\$ 19,839.24
Totals	\$ 296,379.70	\$ 557,273.74

4.6 Summary

The collected data was used to identify the value chains at Mazoe Citrus Estates. There are three value chains at the company and they are the whole fruit value chain, orange concentrate value chain and the orange crush value chain. Value adding activities are undertaken at the pack house through washing and packaging, the total value generated at the pack house was \$58 450.32 in 2015. The factory adds value through juicing and bottling. The next chapter outlines the research's findings and the appropriate recommendations.

CHAPTER V

FINDINGS AND RECOMMENDATIONS

5.0 INTRODUCTION

The previous chapter analysed the data collected. This chapter will outline the findings and the appropriate recommendations.

5.1 SUMMARY OF FINDINGS

The researcher was able to identify the value chains at Mazoe Citrus Estates and was able to map the value chain. The oranges are produced at the organisation's farms and some are also outsourced from out growers and oranges other farmers. The outsourced solely sourced for juicing and do not pass through the pack house. There are three value chains that contribute the value chain map at Mazoe Citrus Estates. The value chains are complementary.

The researcher found out that value there is significant value addition throughout the value chain. Activities like washing and grading the oranges add value to the oranges. The greatest value is being realised at the factory through juicing. In 2015 the total value generated was \$260 894.05. The pack house generated a total value of \$199 448.00.

5.2 CONCLUSIONS

The researcher was able to identify three value chains at Mazoe Citrus Estates which were used to create a value chain map.

Value at each processing stage was determined, the researcher found out that processes such as grading and washing of orange fruit added value to the oranges.

5.3 RECCOMENDATIONS

The researcher recommends that the outsourced oranges should pass through the pack house for grading and packaging as selling the oranges as whole fruit enables the organisation to realise significant income.

The researcher recommends the orange peels used as stock feeds can be further added value, instead of using the peels solely for stock feed the peels can be also added value through production of marmalade jam and salad dressings.

The value chain analysis can also be used as a basis for resource allocation, juicing the oranges add the most value along the value chain, hence a greater proportion of oranges harvested should be allocated for juicing so the organisation may be able to realise greater profit.

REFERENCES

Amir, Eli., and Lev, Baruch, 1996, "Value-Relevance of Nonfinancial Information" The Wireless Communications Consumer Marketing Journal, 12(4), : 5–10.

Chiukira, G., and Juru, S., 2012, Agriculture Value Chain Analysis: Maize and Soya Bean Value Chain Analysis.

Da Silva, C., and De Souza Filho, H.M., Guidelines for Rapid Appraisal of Agrifood Chain Performance in Developing Countries, Agricultural Management, Marketing and Finance Occasional Paper, No.20, FAO, Rome, 2007

da Silva, D., Baker, D., Shepherd, A., Chakib, J., and Miranda-da-Cruz, S.,2009, Agro-Industries for Development, The Food and Agriculture Organization of the United Nations and The United Nations Industrial Development Organization by arrangement with CAB International, Oxfordshire.

Food and Agricultural Organisation (FAO). FAO/WFP Crop and Food Supply Assessment Mission to Zimbabwe Various Special Reports . FAO Corporate Document Repository. Available on <http://www.fao.org/docrep/005/y9730e/y9730e00.HTM> Accessed 15 January 2016

Food and Agriculture Organization of the United Nations, FAOSTAT. located at:

for Assessing Competitive Advantage, Institute of Management Accountants, Montvale

from value chain analysis?", Journal of Development Studies, Vol. 37, No. 2.,

Gereffi, G. 1994, The Organization of Buyer-Driven Global Commodity Chains: How U. S. Retailers Shape Overseas Production Networks, London, Praeger.

Government of Zimbabwe. Zimbabwe Agenda for Sustainable Socio Economic Transformation (Zim Asset). Towards an Empowered Society and a Growing Economy. October 2013-December 2018.

Hellin, J., and Meijer, M., 2006, Guidelines for value chain analysis, :1-24

<http://www.arc.agric.za>

<http://faostat.fao.org/default.aspx> . Retrieved on 24 January 2016.

<http://www.slidenet/Sokwanele/zimbabwe-economy-october-2009> Accessed

Kaplan, R., S., 2006, The evolution of Management Accounting, Harvard

Kaplinsky R (2000), "Spreading the gains from globalisation: What can be learned

Kaplinsky, R., and Morris, M. 2001. A Handbook for Value Chain Research. Paper prepared for the International Development Research Centre. Available online at <http://www.ids.ac.uk/ids/global/pdfs/VchNov01.pdf>. accessed on 29 January 2016

Kapuya, T., Saruchera, A., Jongwe, T., Mucheri, K., Mujeyi K., Traub, L N and Meyer, F. ,2010. The grain industry value chain in Zimbabwe. Prepared for the Food and Agricultural Organisation of the United Nations with funding from the EU All ACP Agricultural Commodities Programme.

Lynch, R. (2003), Corporate Strategy, 3rd ed., Prentice Hall Financial Times

Macmillan, H., and Tampoe, M., 2000, Strategic Management, Oxford University Press.

Matsuno, K., and Mentzer, J.T., 2000, The Effects of Strategy Type on the Market Orientation-Performance, Prentice-Hall.

Mhazo, N., Mvumi, B., Nyakudya, E., and Nazare, R., 2012. The Status of the Agro processing industry in Zimbabwe. African Journal of Agricultural Research Vol. 7(11), Available online at <http://www.academicjournals.org/AJAR> DOI: Accessed 30 January 2016.

Mhazo, N., Nyakudya, E., Nazare, R. M. and Mvumi B. M., 2002 Ergonomic evaluation of manually-operated peanut butter mills. Journal of Applied Science in Southern Africa

Monczka Robert, Trent Robert and Handfield Robert. Purchasing and Supply Chain Management 3rd edition. Press Company, Inc. 2002

Niir Project Consultancy Services, Handbook on Agro Based Industries ,2nd Revised Edition, website: www.NIIR.org accessed 02 January 2016

Pathania-Jain, G. (2001), Global parents, local partners: A value-chain analysis of collaborative strategies of media firms in India, *Journal of Media Economics*, Volume 14(3), : 169-187.

Porter, M. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, New York.

pp 117-146.

Reddy, A. A., 2013, *Training Manual on Value Chain Analysis of Dryland Agricultural Commodities*. Prepared under the hope project for International Crops Research Institute for the Semi-Arid Tropics,:1-96.

Republic of South Africa, Department of Agriculture, Forestry and Fisheries, 2011,: *A profile of the South African citrus market value chain*. Accessed on www.daff.gov.za retrieved on 20 February 2016

Roberts, P,W,. and Dowling, G,R,. 2002, *Corporate Reputation and Sustained Superior Financial Performance*, New York.

Robertson, J. (2009). *The Zimbabwean Economy: Where to Form Here?* Available at:

Shank, John K., and V. Govindarajan. 1993. *Strategic Cost Management*. New

Sharma, K, D., Pathania, M, S., and Lal, H., 2010, *Value Chain Analysis and Financial Viability of Agro-Processing Industries in Himachal Pradesh*, *Agricultural Economics Research Review*, Vol.(23) pp 515-522

Smith, R, E,. and Wright, W, F,. 2004, *Determinants of Customer Loyalty And Financial Performance*, New York .

Stabell, B,C. , and Fjelstad, D,O., 1998. *Configuring the value for competitive advantage: On chains, shops and networks*. *Strategic Management journal* volume (19):413-437.

Stratton,W,B.,2009, *Can Value Chain Analysis lead to Business Transformation?*,*Journal of Management Excellence: Business Transformation issue (7) : 15-17*

The institute of Management Accountants,1996, Value Chain Analysis

Urban-Econ Development Economist, 2012, Limpopo Agro-Processing Strategy,
Prepared on behalf of the Republic of South Africa- Limpopo Provincial Government.

van Weele, A., 2010, Purchasing and Supply Chain Management 5th edition, Cengage
Learning EMEA, Hampshire

York: Free Press.

APPENDICES

