

**Analysis of marketing channels used by smallholder crop farmers in Vryheid
(Abaqulusi) Municipality, Kwazulu-Natal**

BY

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DECLARATION

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ABSTRACT

A total of 120 structured questionnaires were administered to analyse marketing channels used by smallholder crop farmers, at Abaqulusi Municipality, Vryheid and KwaZulu Natal Province, South Africa. Research methodology consisted of research design, sample frame, sampling procedure, data collection and data analysis which were used in the study. Descriptive statistics analysis was used, where frequencies and percentages of the variables were indicated. Variables which were measured included demographic socio-economic profile of survey household heads where age, marital status, educational level, occupation other than farming, land ownership, household size and gender of the household heads. The results show that the statistically significant variables (gender, household size) at 5% level positively affect smallholder crop farmers' access to market information, expertise on grades and standards, availability of contractual agreements, existence of extensive social capital, availability of good market infrastructure, group participation and reliance on tradition. These findings suggest that an adjustment in each one of the significant variables can significantly influence the probability of participation in either formal or informal marketing, and hence their marketing channels.

In the light of the foregoing research findings, several policy options were suggested. These include encouraging collective action, promotion of contract farming, ensuring the availability of market information to all farmers, encouraging value addition and investment in rural infrastructure.

Key words: Abaqulusi Municipality, smallholder crop farmers, market information, land ownership, value addition, marketing channels.

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LIST OF ACRONYMS AND ABBREVIATIONS

KZN- KwaZulu Natal

NAMC- National Agricultural Marketing Council

NDA- National Department of Agriculture

FAO- Food and Agricultural Organisation

USAID- United State Agency for International Development

SPSS- Statistical Package for Social Science

CHAPTER 1

INTRODUCTION

1.1. Background of the study

The world markets are increasingly being integrated due to globalization and liberalization. This implies that farmers in the developing world are more linked to consumers and corporations of the rich nations. Consequently, local farmers are facing increasing market competition, both in local and international markets. In South Africa, the pressures of market changes are mostly felt by the smallholder and emerging farmers who are relatively new in agricultural produce marketing.

In South Africa, the struggle of smallholder farmers in securing markets goes a long way to the mid-20th century (Kherallah and Kirsten, 2001). In 1968, the South African agricultural sector, under the apartheid regime, introduced a new agricultural marketing system, known as the Agricultural Marketing System Act of 1968 (Act No. 59). Its main objective was to control the movement, pricing, quality standards, selling and supply of a large volume of farm produce, securing price stability and narrowing the gap between producer and consumer prices in South Africa (National Agricultural Marketing Council, 2005). However, Van Rooyen, Kirsten, van Zyl and Vink (1995) argued that this Act excluded other categories of farmers such as smallholder and part-time farmers, in favour of commercial farmers. It was due to this exclusion that in 1994 the Agricultural Marketing System Act of 1968 was reviewed. The number of control boards involved in the marketing of agricultural commodities in South Africa was reduced from 21 in 1993 to 14 in 1997.

The Marketing of Agricultural Products Act of 1996 (Act. No. 47) was compiled following widespread negotiations among all directly affected groups in agricultural marketing (NAMC, 2005). This act came into operation in 1997, and among others aimed at increasing the market access to all market participants, promotion of efficient marketing of agricultural products, optimization of export earnings from agricultural products and enhancement of the viability of the agricultural sector (NAMC, 2005). The government expected smallholder farmers to benefit a lot from

this Act. However, as much as the deregulation and liberalization of the South African agricultural sector brought opportunities, it had its own challenges. Agrimark (undated) noted that these challenges and opportunities cover issues ranging from market development, assessment of global and domestic markets, understanding of new value chains, and international trade to issues pertaining to policy design and implementation, improvement in the living standards of the rural poor and information provision.

Private traders were used as a replacement after the marketing boards. The new marketing act disadvantaged the smallholder farmers in that the private traders had to choose from whom to purchase agricultural produce. Even though the smallholder farmers had a small marketed surplus and the fact that their locations were often far away from production centers, traders preferred produce from commercial farmers (Dorward, Kydd, Morrison and Poulton, 2005). Makhura (2001) explained that this was due to thin markets, of which some smallholder farmers especially those ones located in the most remote rural areas, could not trade their produce. This resulted to some smallholder farmers resorting to subsistence farming as they did not have enough resources to market their agricultural commodities independently. Makhura (2001) further explained that some of private traders attempted to purchase crops from smallholder farmers but offered these farmers very low prices arguing that they had to meet the cost of transporting the commodities to the market. That was why most smallholder farmers especially those located in most remote rural areas sold their produce at the farm gates, while commercial farmers sold a larger share of their output through other intermediaries (retailers, wholesalers and processors (Makhura, 2001).

Crop producers usually sell their crops through two main channels of informal and formal channels. Each marketing channel has its own advantages with its own problems and constraints. The informal channel is by far the most significant channel for smallholder farmers in South Africa (NAMC, 2005). One of the reasons why smallholder farmers do not mostly use formal channels is because the quality requirements and product specifications for crops in these channels are far more stringent and specific. Thus, they find it difficult to meet this standard.

1.2. Problem statement

Marketing continues to be a very important aspect of farming, particularly for smallholder farmers, as it is one of the constraints in the farming sector. There are two broad classifications of marketing channels: formal and informal markets. In most cases the smallholder farmers find themselves selling their produce to the informal market because it is perceived to be the most convenient market to them (Kherallah and Kirsten, 2001). Produce from smallholder farmers loses its characteristics, because smallholder farmers lack proper storage facilities, leading to produce damage (Makhura, 2001). Consequently, there are a number of factors that influences the smallholder crop farmers' choice in the marketing channel, some of which include: the grades and standards required by formal markets, distance to the market, information availability, infrastructure, value-addition and the transaction costs (Kherallah and Kirsten, 2001).

Lack of free flow of the farm produce and inefficient marketing minimizes the chances of smallholder farmers to compete in the formal markets. The inadequate marketing infrastructure makes it difficult to transport farm produce to the markets (Makhura, 2001). The limited participation of smallholder farmers in the formal market impedes the transformation of smallholder farmers to commercial farming. Although smallholder farmers in crop production market their produce, their survival in the markets is questionable. Apprehensions about their ability to take advantage of emerging opportunities in the agricultural sector have already been raised (Kherallah and Kirsten, 2001).

These doubts have been raised due to limited market produce, difficulty in enforcing contracts, reliability on middlemen, remote locations and inability to meet stringent food safety norms. They also lack institutions and instruments to manage price and other risks. Such issues escalate transportation and associated transaction costs amongst the smallholder farmers. Moreover, the agro-processing industry generally prefers to source its raw material in bulk quantities from nearby markets and production centres (Hedden-Dunkhorst and Mollel, 1998). Thus, owing to a tendency

for small and scattered production together with lack of adherence to quality standards, smallholder and emerging producers may be unable to meet the market requirements in a cost-effective manner. Structural changes in agricultural markets have far greater effects on smallholder farmers in crop production. The trend of market-oriented reforms following multilateral trade liberalization has led to the increased integration of world markets (Reardon and Barrett, 2000). This implies that smallholder farmers are facing increasing market competition, both in international and local markets. In addition, markets are now transforming to a vertically coordinated structure (coordinated market channels and value chains). These organized structures have created links with cooperatives and producers' associations, as well as with processors and consumers (Kherallah and Kirsten, 2001). Most smallholder crop farmers find it difficult to be part of these organized market links.

There is therefore a cause for concern that smallholder and emerging farmers may face some difficulties in connecting with consumers. In other words, this could imply that the farmers may not benefit as much meaningfully from trade liberalization and domestic market deregulation in the agricultural sector. The aforementioned difficulty faced by smallholder farmers also applies to the smallholder farmers in crop production at Vryheid. More so, to unlock the potential contribution that smallholder and emerging farmers could make to alleviate poverty and improve the livelihoods of the rural poor in Vryheid, development of strategies related to market access are necessary (Montshwe, 2006). Hence, improving the performance of agricultural markets will encourage trade in the area; thereby enhancing the livelihoods of smallholder farmers and growth of the Vryheid area through multiplier effects. In essence, market access has to be accompanied by technical development and a supportive institutional environment which may be important for a progressive movement towards commercial production, reaping economic benefits for the Vryheid Municipality.

1.3. Research objectives

Objectives

The main objective of this research study is to analyze the marketing channels of smallholder crop farmers in Abaqulusi, Vryheid Municipality of Kwazulu Natal Province, South Africa.

Specific objectives

- To describe the demographic characteristics of smallholder crop farmers in the Vryheid (Abaqulusi Municipality).
- To investigate the factors that determines the choice of marketing channel amongst smallholder crop farmers in the area.
- To investigate the challenges faced by smallholder crop farmers in channel selection in the area.
- To identify the marketing channels choices as well as the marketing aspects among smallholder and emerging crop farmers.

1.4. Research questions

The research seeks to address the following questions:

- What are the major marketing channels adopted by smallholder crop farmers in Vryheid (Abaqulusi) Municipality?
- To what extent do these smallholder crop farmers fully market their produce in the area?
- What marketing channels are needed to drive the growth of smallholder crop farming in the area?

1.5. Hypothesis

H₀: There is no significant relationship between crop farmers' characteristics and choice of market channel.

H₁: There is significant relationship existing between crop farmers' characteristics and choice of market channel.

1.6. Outline of the study

This study is structured as follows: it consists of six chapters: Literature review is discussed in Chapter 2; this is where the factors that influence the choice of market channel among smallholders farmers are reviewed, and these factors are categorized under two main factors which are institutional factors and technical factors. Under institutional factors, the following issues are specifically discussed: market information, Grades and standards, while technical factors looks at physical infrastructure, value addition and income level.

Then follows the Chapter 3 where the selection and description of the study area is outlined; it describes the study area, where much focus is given to the climate and topography, vegetation and soils at Vryheid (Abaqulusi Municipality). Chapter 3 deals with selection and description of the study area. It also deals with research methodology with the methods used to collect, analyse and interpret data e.g. research design, unit of analysis, sampling frame, sampling method, data collection and data analysis. Following the results, analysis of the study is presented in chapter 4. In this chapter, detailed analyses of the factors affecting marketing channels of smallholder farmers in crop production at Vryheid (Abaqulusi) Municipality are discussed. The discussion, conclusions and recommendations are presented in chapter 5.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Smallholder farmers are defined in various ways depending on context, country and ecological zone. According to Kirsten and Van Zyl (1998) small-scale farming is defined as the type of farming often associated with non-productive, non-commercial and subsistent black farmer agriculture. According to Van Rooyen (1989) this may be due to the fact that small-scale black farmers in South Africa operate largely outside the formal institutional support structure, with restricted access and opportunities. This explains interchangeable use of the term smallholder with small-scale, resource poor or peasant farmer. Mohammed (1992) explained the term 'smallholder' to refer to the farmers with limited resource endowment relative to other farmers in the sector. Smallholder farmers are farm households with access to means of livelihoods from land, relying primarily on family labour for farm production to produce for self-subsistence and for market sale. In addition to that, smallholder farmers can also be defined as farmers owning small-based plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour. These definitions have a similar theme in the characteristics of smallholder farmers, which may be land and labour constraints. According to Abbott (1997) South Africa smallholder agriculture is important in terms of poverty reduction, food security and wider rural economic development.

2.2. Smallholder and Emerging Farmers

For smallholder and emerging farmers, growing and harvesting a crop does not mean the farmer has done everything, because there is still room to market their produce. Marketing produce is still one of the major challenges to smallholder farmers of South Africa. Smallholder farmers still face difficulties in marketing, even though individual smallholder farmers may be integrated into national or international markets (Shiferaw, Obare and Muricho, 2006). Makhura (2001) argued that before choosing a marketing channel, smallholder farmers consider the costs associated with transportation, profits, level of trust among the available brokers and familiarity

of the markets, among other factors. In other instances, farmers market their produce through channels offering low prices because they either lack market knowledge or have difficulties accessing the more rewarding markets.

The South African smallholder farmers sell most of their produce in local markets with only a small amount exported. Generally, smallholder farmers market their produce individually in local markets, but make use of market intermediaries in international markets. Makhura (2001) argued that most smallholder farmers are faced with difficulties in accessing markets; and as a result, markets do not serve their interests. In South Africa, smallholder farmers from the remote areas find it difficult to participate in the formal markets due to a wide range of factors. Such factors include: poor infrastructure, poor transportation network, lack of market information, lack of expertise, lack of grades and standards for measurement, poor storage facilities, and poor organizational support leading to inefficient use of the market (Dorward *et al*, 2005). The factors aforementioned could be difficult for smallholder farmers to participate in formal marketing, which makes it necessary to be addressed in this study.

In South Africa, different programs have been put in place in an effort to empower these farmers thereby assisting them in establishing viable livelihoods, of which many developing countries are in a process of transferring land and empowering smallholder and emerging farmers (Dorward and Kydd, 2005). Questions which may arise among individuals include: who are smallholder and emerging farmers? what role do they play in an economy? This section seeks to address such questions.

2.2.1. Definition of smallholder farming

Smallholder farming, as defined by Oettle, Fakir, Wentzel, Giddings and Whiteside (1998), involves households producing agricultural yields on relatively small plots of land. It also involves direct operation by farmers who make use of family labour (manual and management), although they are sometimes supplemented by temporary employees. Also so, smallholder farming is said to be more labour-intensive than capital, thereby resulting in production of small amounts when

compared to large farms (Kirsten and van Zyl, 1998). Under smallholder farming, the family is dependent on the farm for a significant portion of their income. However, Kirsten and van Zyl (1998) clarify that due to vulnerability of economic and climatic shocks in the field of agribusiness, smallholder farmers tend to spread their risk by diversifying into off-farm activities for additional income. Smallholder farms are sometimes known as peasant farms, small-scale farms or family farms.

Chomba (2004) explains that, in Zambia, smallholder farmers cultivate land areas that are less than five hectares, whereas Oettle *et al* (1998) pointed out that the smallholder farming sector in South Africa is very diverse and difficult to define. However, Van Rooyen *et al* (1995) suggested that the majority of smallholder farmers in South Africa own small pieces of land and are located in predominantly rural provinces, such as the Limpopo and Eastern Cape.

They further explained that the smallholder farmers in these areas had poor access to resources such as machinery and credit facilities, as well as minimal government support. According to Kirsten and van Zyl (1998), a small-scale farmer can be defined as one whose scale of operation is too small to attract the provision of the services one needs to be able to significantly increase one's productivity. At this point, it is important to note that smallholder farmers differ between countries and agro-ecological zones, but land size should not be used as the only criterion. If land size is used alone, it can lead to misconceptions as whether some farmers can be regarded as smallholder farmers or not. For instance, in favourable areas, smallholder farmers may reap larger quantities of produce from cultivating less than one hectare of land compared to smallholder farmers in semi-arid areas cultivating more than 10 hectares.

2.2.2 Defining emerging farmers

According to the National Department of Agriculture (2006), emerging farmers is a relatively new terminology used to define formerly underprivileged farmers who are determined to enter into commercial farming. Such farmers have the potential to expand, as well as develop into commercial farming and can otherwise be referred to as developing farmers (Louw, Madevu, Jordan and Vermeulen, 2007). Although this

group of farmers consumes a large portion of its produce, it mainly produces for selling. In South Africa, this group of farmers is comprised of black farmers who were formerly denied the opportunity to farm successfully by apartheid. Emerging farmers, like smallholder farmers, are still facing difficulties in penetrating already established markets and have limited resources in production. Kirsten and van Zyl (1998) pointed out that the challenges faced by emerging farmers may persist because the sector is not supported enough. With limited policy support, emerging farmers face difficulties in both production and marketing of agricultural produce.

2.2.3 Characteristics of smallholder and emerging farmers

There are some features common to all smallholder farmers, although definitions differ with different locations. These features include cultivation on relatively small pieces of land, use of less capital in production, as well as, use of less advanced technology, minimal access to information on potential markets for farm produce and minimal access to information on technologies that can boost production (Chomba, 2004; Oettle *et al*, 1998; Kirsten and van Zyl, 1998). Most smallholder farmers are poor people and they lack capital assets needed to assure their livelihoods. Due to lack of machinery, most of them rely on labour for production. In Malawi, Dorward, Kydd and Poulton (1998) identified that the majority (90%) of smallholder farmers lack sufficient capital in production.

Therefore, the lack of resources added to small farm sizes, result in lower amount of output per farmer. As a consequence, the small production denies individual farmers from enjoying economies of scale. According to the FAO (2004), most South African smallholder farmers are resource poor, explaining why they are unable to produce a stable amount of output each year. Inconsistent production (surplus) makes it difficult for them to acquire contracts with traders in the market (Makhura, 2001). Inability to get contracts becomes a problem when they produce marketable surpluses because they will be stuck with these surpluses. Moreover, the majority of smallholder farmers in South Africa are scattered and operate individually (lack organization) and this exposes them to high transaction costs when they get a chance to enter formal markets (Kherallah and Kirsten, 2001). When faced with high marketing costs, smallholder farmers usually opt for informal spot markets or some even settle for subsistence farming. There are also features common to emerging farmers in South

Africa. Emerging farmers occupy land sizes ranging between small and medium farms (NDA, 2006). Their main challenge is land tenure, whereas they have permission to occupy land, they still do not own it (Louw *et al.*, 2007). For that reason, emerging farmers cannot use the land as security for financing, hence limited productivity growth. Emerging farmers end up delivering produce for 2 to 3 months of the year rather than continuous market provision. In addition, Mather and Adelzadeh (1998) ascertain that emerging farmers still face marketing problems due to inadequate expertise for proper grading, and logistical problems.

In this study, previously disadvantaged farmers in the Vryheid (Abaqulusi Municipality), who are producing a marketable surplus and are aiming to make a transition to commercially based agriculture, will be considered. Both those operating individually and those who are part of farmer groups will be investigated.

2.2.4. Importance of smallholder farming

Despite the fact that smallholder farmers face difficulties in marketing, they continue to produce and survive in the face of unfavorable conditions. It is worth noting that smallholder farmers fulfill numerous functions in the agricultural economy. These functions make the sector important. Such functions include contribution towards food security (Rosset, 1999), equitable distribution of income and linkage creation for economic growth (Dorosh and Haggblade, 2003). Supporting their views, Dorosh and Haggblade (2003) and Rosset (1999) explained that smallholder farmers have the advantage of flexible motivated family labour resources, which allows them to allocate labour to activities with higher marginal returns. Further support from Ngqangweni (2000), using Schultz' hypothesis of small but efficient, shows that smallholder farmers can use resources efficiently.

Moreover, smallholder farming has the potential to contribute towards income and employment generation to the rural poor. This potential to create employment in rural areas, generate income, and contribute to food security has been recognised by the South African government and reflected in the Agricultural Policy (Ministry of Agriculture and Land Affairs, 1998). The contributions that are made by smallholder farming are discussed in the following subsections.

2.2.5. Overview of smallholder marketing channels

For farmers implicated in agribusiness, growing and harvesting a crop and rearing animals form only half of the battle because they still have to market the produce. Different types of smallholder farmers are differently integrated with outside markets, whether national or international (Shiferaw *et al.*, 2006). Before choosing a marketing channel, smallholder farmers consider the costs associated with transportation, profits, level of trust among the available brokers and familiarity of the markets, among other factors (Makhura, 2001). Unfortunately some marketing choices pose problems for farmers, and can result in lower farmer earnings.

In general terms, smallholder farmers market their produce individually in local markets but make use of middlemen in international markets. For local markets, smallholder farmers either sell to local traders or directly to consumers at the farm gate. Their marketing channels can be illustrated in figure 2.1.

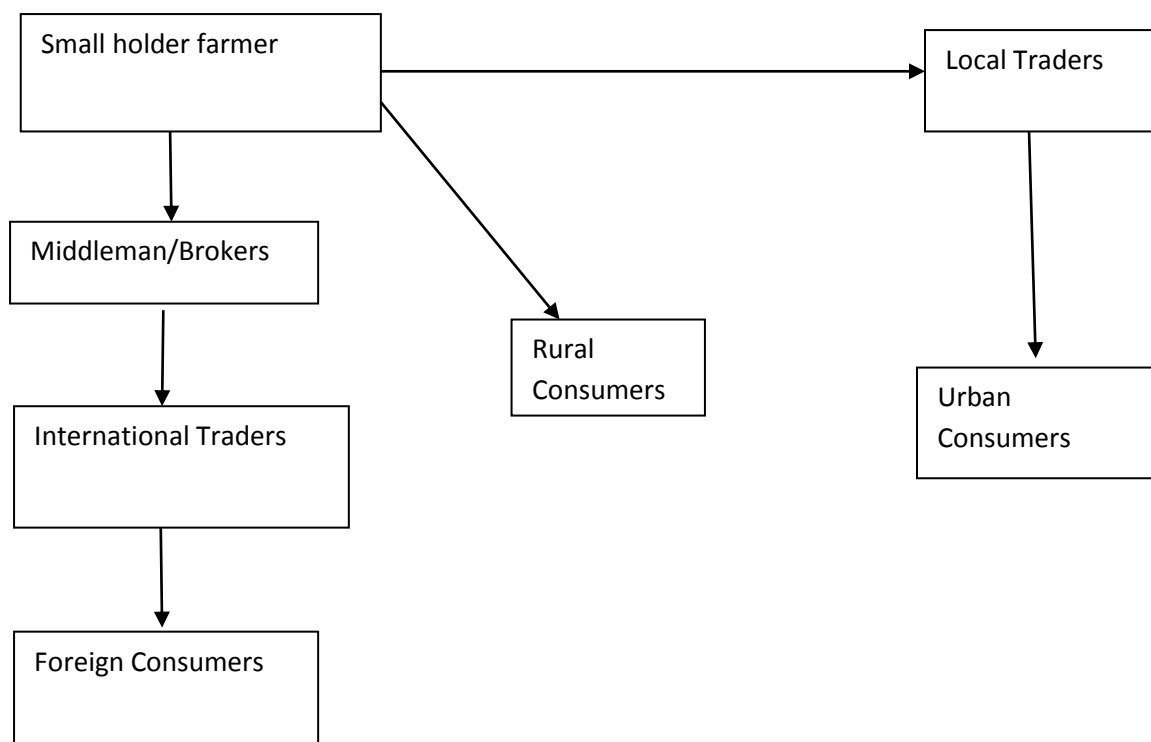


Figure 2.1: Marketing channels for produce from smallholder farmers (Simplified)

Source: Shiferaw *et al.* (2006)

Figure 2.1 shows the channels through which most smallholder farmers market their produce. The arrows illustrate the different paths that are followed by the produce, from smallholder farmers to the final consumers.

Most produce from smallholder crop farmers are sold locally, with only a small amount exported. When they sell in the local markets, they mostly sell at the farm gate through informal transactions. In other words, most produce are sold at the farm gate. Unfortunately, farm gate sales result in lower farmer revenue since the prices offered are normally low and variable (Montshwe, 2006). Variable prices result from the unavailability of scales for weighing produce and lack of market price knowledge. Also, at the farm gate, farmers are often obliged to sell to their neighbours even when the latter cannot pay immediately for the produce. However, smallholder farmers prefer farm gate sales because they receive direct immediate payments and do not incur marketing costs such as transportation costs and tax payments (Shiferaw *et al.*, 2006). Smallholder crop farmers are said to make use of middlemen in marketing, thereby exposing themselves to price manipulation and exploitation.

2.2.6. Markets and institutions

Markets can be grouped into informal and formal. In the agricultural context, Kherallah and Minot (2001) explained that informal markets embrace unofficial transactions between farmers and from farmers directly to consumers. On the other hand, formal markets have clearly defined grades, quality standards and safety regulations and prices are formally set. And as a result, smallholder farmers find it difficult to penetrate these formal markets and such are the focus of this research. According to Mangisoni (2006), smallholder farmers are constrained in marketing by high transaction costs, high risks, missing markets and lack of collective action.

Mangisoni (2006) further explained that transaction costs are linked to problems of licensing, absence of grades and standards, lack of marketing information, poor access to markets, weak entrepreneurial skills and high marketing margins. High risks on the other hand, embrace lack of legal frameworks, weak policy environment, and high price volatility, while missing markets include: lack of value-adding and agro-processing, lack of credit and weak infrastructure. It is pertinent to note that lack of collective action is related to weak farmer organization.

2.2.7 Transaction costs in smallholder farming

In order to participate in the market, Hobbs (1997) explained that farmers must determine trading partners, terms of exchange, conduct negotiations leading to a bargain, draw up a contract, and undertake the inspection needed to make sure that the terms of the contract are being observed. These operations are often costly and the costs associated are termed transaction costs. Transaction costs, as defined by Eggertson (1990), are observable and non-observable costs associated with enforcement and the exchange of property rights. Specifically, these include the costs of searching for a trading partner with whom to exchange with, the costs of screening partners, of bargaining, monitoring, enforcement and, eventually, transferring the product to its destination (Jaffee and Morton, 1995).

When transaction costs are high, markets fail in their role of allocating scarce resources to alternative ends. High transaction costs are the embodiment of access barriers to market participation by resource poor smallholders (Delgado, 1999). In South Africa, Makhura (2001) explained that transaction costs prevail in developing rural areas as is reflected by the low market participation of smallholder farmers. Makhura (2001) further explained that when smallholder farmers are faced with high transaction costs, they will either stop participation or resort to other means such as spot markets. This, however, results in wastage of most smallholder products after harvesting or sold at very low prices.

2.2.8 Market information costs

Information costs which arise before an exchange include the costs of obtaining price and product information and the cost of identifying a suitable partner. According to Montshwe (2006), market information is limited to smallholder farmers and this can hamper marketing of agricultural products. However, in an effort to show the importance of market information, Robbins (2005) writes, “asking farmers to make their living by selling their goods, then asking them to do without market information, is like asking them to farm without land or water.” Smallholder farmers in most southern African countries rely on informal networks (i.e. on friends and relatives) for market information due to weak public information systems (Food and Agricultural

Organization, 2004). However, such individuals may not have up to date and reliable market information, making the usefulness of the information doubtful.

Makhura (2001) pointed out that in South Africa, despite considerable progress in the provision of communication systems such as telephone and cell phone facilities, smallholder farmers remain uninformed on market prices, trends and auction sale dates. Thus, farmers generally do not have the required information and means to locate better markets leading to poor market participation.

2.2.9 Searching Costs

After deciding on a price for their commodities, farmers need to find buyers because most of them are not involved in contract farming within the marketing channel. According to Montshwe (2006), the longer one looks for ideal buyers, the higher the search costs incurred; which are part of transaction costs. These searching costs may rise so high that they exceed the gap between the price at which one would be willing to sell and the price that the end user would be willing to pay. Faced with such situations, smallholder farmers may opt out to sell their commodities at the farm gate even at lower prices.

2.2.10 Negotiation Costs

Negotiation costs are the costs of physically carrying out the transaction and include the costs of physically negotiating the terms of an exchange, and the costs of formally drawing up contracts (Hobbs, 1997). Generally, smallholder farmers lack confidence in negotiating for a better price because of the small marketed produce, hence get low prices for their produce. In addition, their bargaining position is greatly weakened due to inaccessibility to big markets and lack of marketing experience, which could result in selling of produce at generally lower prices (Makhura, 2001). In the same vein, Mangisoni (2006) explained that smallholders usually accept low prices for their crops when the broker informs them that their produce is of poor quality. Moreover, smallholder farmers accept these low prices mainly because they are unable to negotiate from a well-informed position. Alternatively, where producers lack negotiating power, they may become dependent on middlemen, but this increases the transaction costs, hence lowering their profits.

2.3 Factors influencing the choice of marketing channels among smallholder crop farmers

2.3.1 Institutional factors

Institutional factors play important roles in influencing smallholder crop farmers and marketers in decision making because they result to high transaction cost with huge impact on smallholder farmers' participation in the market. Institutional aspects included in this study are: market information, grades and standards, as well as transaction costs.

2.3.2 Market information

Market information is vital to market participation and behaviour of smallholder crop farmers. Market information allows farmers to make informed marketing decisions that are related to supplying necessary goods, searching for potential buyers, negotiating, enforcing contracts and monitoring (Abbott, 1997). Necessary information on consumer preferences, quantity demanded, pricing and prices, produce quality, market requirements and opportunities are categorized as market information. Of equal importance is the source of market information because it determines accuracy of the information (United States Agency for International Development, 2008).

Smallholder farmers have difficulties in accessing market information, exposing them to a marketing disadvantage. Smallholder farmers normally rely on informal networks (traders, friends and relatives i.e. word of mouth) for market information due to weak public information systems (FAO, 2004). However, such individuals may not have up to date and reliable market information, making the usefulness of the information doubtful. Additionally, farmers relying on informal networks for market information are at risk of getting biased information due to opportunistic behaviour of the more informed group. For instance smallholders usually accept low prices for their crops when the broker informs them that their produce is of poor quality. Smallholder farmers accept these low prices mainly because they are unable to negotiate from a well-informed position.

2.3.3 Grades and standards

Classification schemes, grades and standards makes part of the main important components of marketing, and are known to make the information, about the product, readily comprehensible and amenable to comparison with other information (Dahl and Hammond, 1977). Grading is the classification of units or product according to one or more of its quality attributes. Products can be standardized in dimensions other than quantity measures, that is, the quality dimension of the product. These dimensions include among others, weight per unit of volume, colour, moisture, uniformity of size, taste, tenderness, foreign matter, age and texture (Shiferaw *et al.*, 2006).

Makhura (2001) noted that formal markets, such as supermarkets, processors, wholesales and international markets tend to focus a lot on sophisticated characters than traditional or informal market, who in most cases just look at the degree of ripeness by visual appearance and touch; the degree of presence of bruises; and quality-related, the size, weight and color of the product (USAID, 2008). In contrast the formal market goes deep by looking at the tenderness, moisture, uniformity of size, taste and foreign matter (Makhura, 2001).

As noted by Kherallah and Kirsten (2001) consumers demand high quality for the goods they buy and they can only buy food products unless there is a guarantee that they are safe to eat. Similarly, market channels tend to look at the quality of the product as the main determinant to buy such product, however it should be noted that market channels differ in terms of what determines their purchase for a specific product. For instance supermarkets, wholesalers and export channels, have a specific standard or grade that a product has to meet to be considered in their stock. While the traditional market channels, such as street vendors, kiosks and Over-The-Counter shops, assess the quality of the product differently. In most cases crops produced by smallholder farmers have no clearly defined grades and standard and, therefore, cannot meet the demand by supermarkets, wholesalers and export channels. Makhura (2001) noted that in order for smallholder farmers to be involved in the formal market their products have to meet a specific standard related to the products themselves and to the processes by which they are produced and handled.

For example, there are standards on pesticide use. As indicated in USAID (2008), in Zambia tomatoes get inspected by the Plant Quarantine and Phytosanitary Service (PQPS) who has the authority to condemn a load if pesticide residues make it unfit for human consumption. This kind of inspection can make it difficult for smallholder farmers to meet. However not all smallholder farmers produce low quality and ungraded produce. There are some, though handfuls, who produce high quality products. For such farmers the problem becomes transportation because most of the smallholder farmers in South Africa are located in the remote areas and make it inconvenient to be taken to certain markets. Sometimes a farmer produces only a certain amount of product that does not meet the required bulk by the formal markets. In such cases FAO advocated that smallholder farmers market their farm products as an organized group.

2.3.4 Technical factors

Technical factors play a very important role in agricultural marketing. They contribute a lot in providing high quality products. Makhura (2001) reorganizes that technical factors have an influence when coming to decision on the type of marketing channels farmers use. In this study the following technical factors have been carefully looked at: physical infrastructure, value addition and income level.

2.3.5 Physical infrastructure

2.3.5.1. Storage facilities

Storage is the primary activity of some specialized farm business which is a necessary, but secondary of most other farm businesses (Rhodes, 1987). The storage specialists are the big grain elevators, warehouse for cotton and tobacco, and the cold storage warehouse for perishable products such as frozen foods. These storage specialists typically help to spread the consumption over a year of a crop that is harvested once a year. Each firm in the market channel finds it essential to maintain sufficient inventory to meet. In all cases, storage is expected to add time utility which adds value.

Storage has the objective of making goods available at the desired time. Some storage is unavoidable in the sense that all agricultural commodities must be stored even as they are being transported, processed and made available to retail shoppers. However, any movement through a long channel can seldom be a continuously even flow. Therefore there must be reservoirs along the line that allow for uneven flows. Reservoirs are obviously most essential annual crops. Availability of proper cold storages are important for preserving perishable commodities like milk, meat, eggs, vegetables, fruits, ornamental flowers and other floricultural goods. These cold storages give perishable food items a longer shelf life by preventing them from rotting due to humidity, high temperature and micro-organisms (Rhodes, 1987). This results in a decrease in loss due to spoilage.

Lack of proper storage facilities lead to attacks by pests and other organisms. The damage caused through such infestations leads to a reduction in market value depending upon the extent of damage. In some cases the produce is declared unfit for consumption and has to be destroyed. This leads to a huge loss for the farmer. Sensible farmers should take pains to store their agricultural produce carefully so as to command the most optimum price in the market.

The majority of smallholder farmers have poor storage facilities that constrain them to sell their produce soon after harvest to alleviate congestion and spoilage of produce. It is estimated that up to 15% of production in Sub-Saharan Africa is lost between farm gates and consumers owing to poor roads and lack of storage facilities.

2.3.5.2 Market infrastructure

Most of the smallholder farmers are characterized by poor market infrastructure. They end up selling their products in conditions that are not conducive for their products like selling at the back of their trucks (Makhura, 2001). Fresh produce may contribute perishability loss of produce if they are exposed to such conditions. This may lead to produce being not appealing customers and this may put farmers in a situation of losing customers. Fresh produce have a tendency of having short shelf life, implying that they cannot be stored for longer periods. The produce need to be

sold immediately while it is still fresh. It is therefore important for smallholder farmers to be heedful of the market place conditions.

2.3.5.3 Road infrastructure

Agricultural commodities are transported from the farms where they are produced to the market where they are bought or sold. Road infrastructure and transport availability has an influence on market participation, especially if there are long distances between the farm and the retail outlets. Jacobs (2008) stated that smallholder farmers mostly rely on public transport to take their produce to the market. Jacobs (2008) explained that transport contractors are hesitant to service smallholders to the fact that most smallholder farmers are located in most remote rural areas.

Gabre-Madhin (2001) argued that road infrastructure and transport availability have an influence on smallholder participation, especially if they are located distant from the market place. Farmers with access to good roads to the market are more likely to use different marketing channels than farmers who face poor road networks. Poor roads increase transportation costs as transporters charge high fees to compensate for damages on their vehicle(s), which may discourage farmers from using certain marketing channels. On the other hand, the availability of good roads reduces transportation costs, thereby making it possible for farmers to earn higher profits from their produce. The lower costs will act as incentives to move from farm-gate sales to other markets

2.3.5.4 Transport infrastructure

Availability of reliable market transport influences marketing choices among emerging and smallholder farmers. All things being equal, farmers who use their own vehicles for transporting produce to the market are more likely to choose more rewarding marketing channels than farmers who do not own vehicles. Availability of own transport allows farmers to reach more diverse and lucrative markets and hence, act as an incentive for increased participation in such markets. In addition, availability of own transport allows for timely deliveries of fresh produce, thereby,

gaining consumer trust and increased sales. On the other hand, farmers who do not own vehicles face difficulties in transporting produce and can restrict farmers from reaching other markets. The unavailability of transport to take produce to the market can pose serious problems for marketing of agricultural produce. These problems can even lead to a situation where the produce will not get in time to the market. If there is no reliable form of transport since public transports tend to be few in the rural areas (Bachmann and Earles, 2000). A failure to transport produce in time could even result in produce spoilage and losses. The absence of reliable private transport may increase transportation cost which increases transaction costs among smallholder farmers (Zaibet andDunn, 1998). The higher the transaction costs the lesser the motivation to take the produce to the marketing ending up selling at the farm gates.

Some farmers in South Africa use their own transport to take produce to the market centres. Makhura (2001) argued that these farmers stand a better chance of exploring lucrative markets and a chance of getting market information from different markets. Therefore these farmers can reach several markets. Those farmers who do not have their own transport, they pack their produce in sacks and transport them using public transport and this causes damage and bruises which eventually reduce the quality of the produce. Such produce are bought by brokers, where the brokers play an important role in determining prices at which the produce is sold. Due to these problems, smallholder farmers may choose to sell their produce at the farm gate or around villages.

2.3.6 Value addition

As farmers struggle to find ways to increase farm income, adding value to their products is the only option. According to Mohammed (1992) value added refers to the additional value created at a particular stage of production or through image and marketing. Value added agriculture is a process of increasing the economic value and consumer appeal of an agricultural commodity. It is an alternative production and marketing strategy that requires a better understanding of the rapidly changing food industry and food safety issues, consumer preference and effective management. It may not be inferred that value addition, means only processing a

raw material into some form of canned food. According to Kohls and Uhl (1961) the value of farm products can be increased in endless ways: by cleaning and cooling, packaging, processing, distributing, cooking, combining, culturing, grinding, drying, smoking, labeling, or packaging.

Besides offering a higher return, value-added products can open new markets, create recognition for a farm, expand the market season, and make a positive contribution to the community. However, adding value is not a solution for all the problems smallholder farmers are facing. It is a long-term approach. It requires the willingness and ability to take on risk, as well as adequate capital, management skills, and personal skills, such as the ability to interact with the public, to succeed, so value addition is highly complex for smallholder farmers because they are risk averse and they lack adequate capital, management skills and personal skills (Magingxa *et al.*, 2009), lack of value adding and agro-processing is part of missing markets amongst smallholder farmers in marketing. Agricultural produce from smallholder farmers usually are poorly packaged (Markelova *et al.*, 2009). With few exceptions, most smallholder farmers cannot add value to their produce because they do not know its importance and lack processing technology. Inability to add value to agricultural produce by smallholder farmers excludes them from profitable markets.

2.3.7 Income level

As highlighted above, it is very important for smallholder farmers to learn to find the best marketing channels available. However, there is always a cost associated with finding the right channel to put your products, information regarding possible markets and transaction costs. The cost of information and the costs associated with the search for trade partners, distance to formal markets and contract enforcement are likely to influence the marketing of food crops (Matungul *et al.*, 2010). All these transactions can be accessed based on the farmer's income level. High transaction costs mean that it is not worthwhile for many farmers to participate in critical markets (e.g. credit, food and insurance), even if these markets exist. In their study, Matungul *et al.*, 2010), concluded that the greater the depth in marketing methods used, the

greater the expected crop income, and greater the income made the more the farmers invest in resources that enable them to access best possible markets.

2.3.8 Chapter Summary

It is an inevitable fact that smallholder farmers in crop production are faced with paramount challenges in marketing their products. The most notable challenge for smallholder farmers in crop production who are able to produce high quality crops lies with transaction costs and information availability. Better access to remunerative markets is necessary for promoting growth of smallholder agriculture, and being able to sell crops to formal markets is thought to be the best possible solution. A major component for promoting growth in smallholder agriculture is facilitating the ability of smallholders to move out of increasingly non-viable practices that they used to practice under previous economic environments, and into increasingly remunerative new opportunities in the export and import-substitution sectors.

The practice of contract farming can serve as a solution to those who cannot access the proper markets. However some farmers have a fear of being exploited by processors, wholesalers and fresh produce agents. In such cases, public institutions will have to intervene to facilitate their price negotiations by setting floor prices and providing assistance for smallholder farmers to sell to alternative markets. For smallholder farmers to attract more formal markets, that are thought to be more remunerative/profitable, they should consider adding value to their produce by using an attractive but save way of packaging and also in getting a proper vehicle to transport their products to the market without products having suffered severe physical damages.

An old way of doing things, i.e. producing without knowing how much is needed in the market, can be problematic sometimes as farmers might end up selling their surpluses at the break even or in worse cases at prices lower than their costs of production, and that can negatively affect their farming in the coming production season. This brings back to the aspect of accessing the proper information about the market and being able to make deals, through contract farming among others, before

the planting season. Brokers, in the marketing industry, tend to dominate especially because they have realized the challenges that are faced by smallholder farmers. They practice the well-known law of trade i.e. “buy at a possible lower price and sell at a possible high price” (Appleyard and Field, 2001). If smallholder farmers can find a way of breaking these brokers, they will be able to reap high prices in the market. Getting a transport that they can use as an organized group can help in such cases. Smallholder farmers, though own few hectares of land in South Africa, they can serve as a solution to the problems related to food security, income distribution and poverty alleviation.

CHAPTER 3

SELECTION, DESCRIPTION OF STUDY AREA AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives an account of Vryheid at Abaqulusi Municipality, KwaZulu-Natal Province of South Africa, the area where this study was conducted. The area's location (including a map), topography and climate, soils and vegetation are fully explained. The description of the study area is important because it familiarizes one with the area in which the study was carried out. The study area: Vryheid (Abaqulusi) Municipality is located in the Northern Kwazulu Natal. The area is inhabited by different races although there are many *Zulus* as compared to the other races. Both smallholder and commercial agriculture is practiced in the area.

3.2 Location

Vryheid is the largest town in Northern KwaZulu-Natal and is the heartbeat of a vast regional area. Vryheid is also located near the sources of four major Zululand Rivers: White and Black Umfolozi, Mkhuze and Pongolo as well as part of the Tugela catchment. This ensures many wetlands, some of which (Blood, Aloeboom and Lenjane) are of regional importance. The population of the region is approximately 230 000 with a blend of Zulu, Afrikaans, German, English and European cultures. The diverse population ensures exposure to many traditions and cultures.

It has viable economic structure reliant on farming, mining, timber and small industry. Extensive wattle and timber plantations form a large portion of agricultural activities, but the main crops are maize, dry beans, vegetables and groundnuts. Livestock farming is also practice in Vryheid. Steeped in history, from the Bushmen to the British, and including an Anglo-Boer battlefield, the Vryheid Hill reserve outside town offers a lot to the visitor. Vryheid is an important link in the railway line from the eastern Mpumalanga coalfields to the ore and bulk cargo port of Richards Bay on the north coast of KwaZulu Natal.



Figure 3.1: Map of Vryheid (Abaqulusi Municipality)

3.3 Topography and climate

Vryheid normally receives about 688mm of rain per year, with most rainfall occurring during summer. The average rainfall values for Vryheid per month. It receives the lowest rainfall (3mm) in June and the highest (122mm) in December. The monthly distribution of average daily maximum temperatures for Vryheid ranges from 19.6°C in June to 28.4°C in January. The region is the coldest during June when the mercury drops to 3.5°C on average during the night.

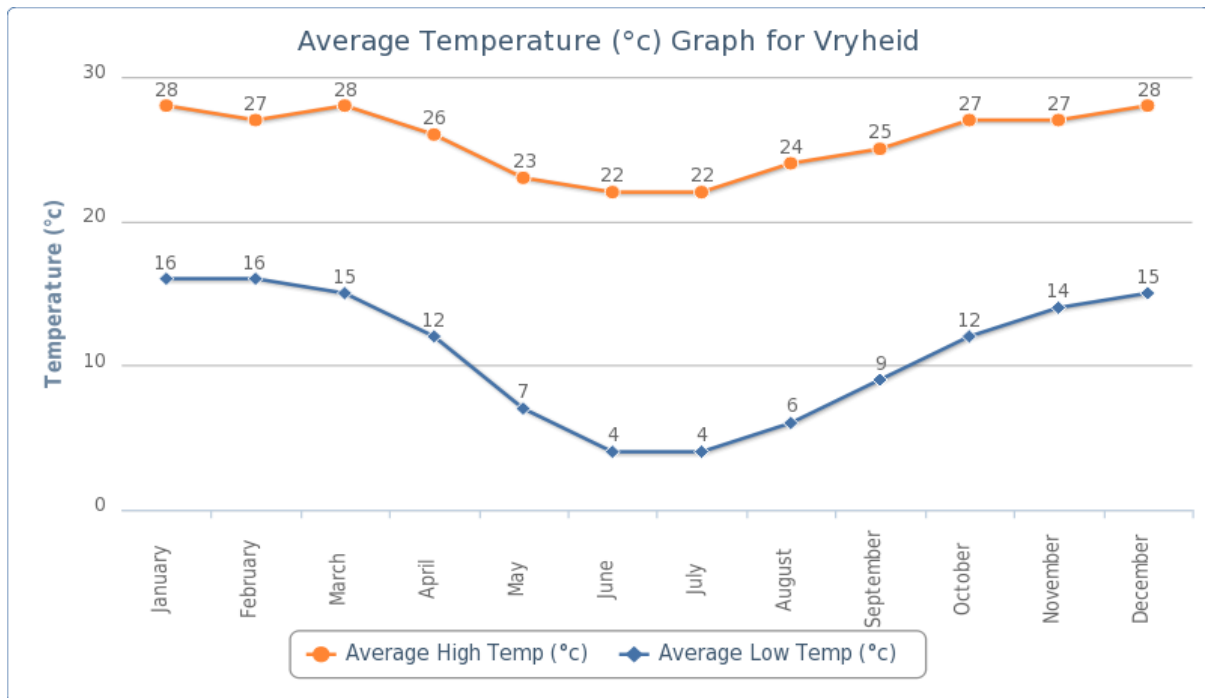


Figure 3. 2: Average Temperature (mm Graph for Vryheid)

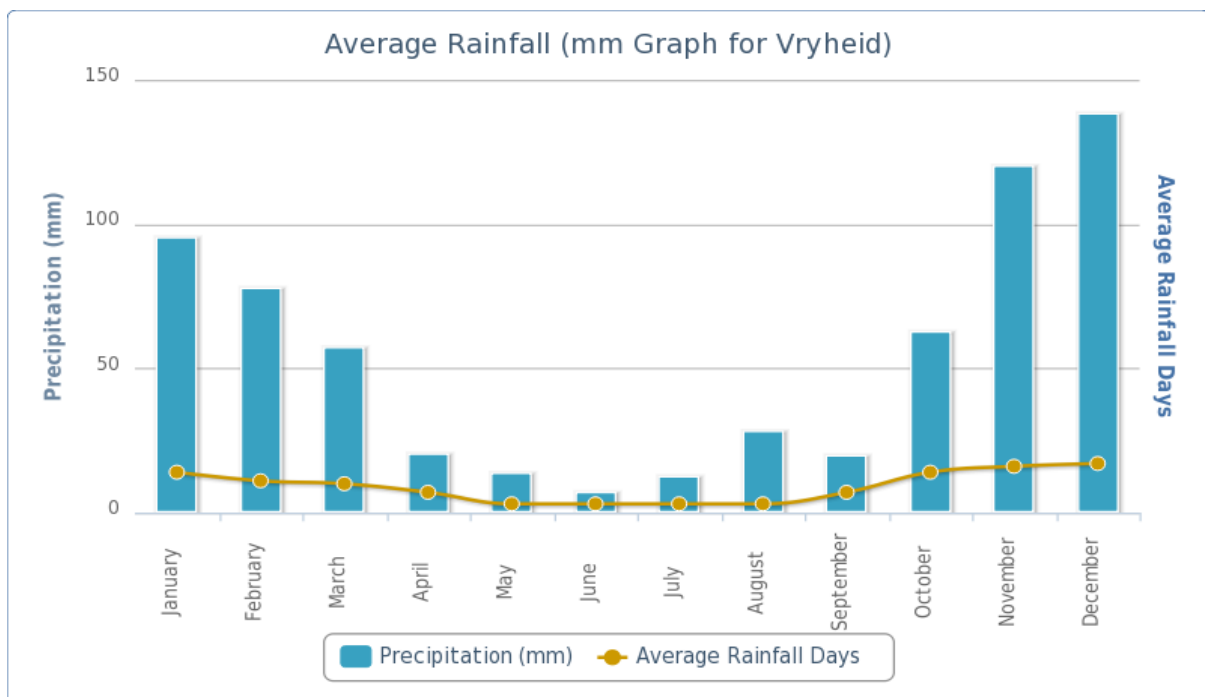


Figure 3. 3: Average Rainfall(mm Graph for Vryheid)

3.4 Soils and Vegetation

Vryheid (Abaqulusi) Municipality has viable economic structure reliant on farming, mining, timber and small industry. Extensive wattle and timber plantations form a large portion of agricultural activities, but the main crops are maize, dry beans, vegetables and groundnuts. Commercial farmers are mainly located in the private farms, whereas smallholders and emerging farmers mostly practice agriculture in communal lands. Most of the vegetables are grown on fertile plots lying adjacent to rivers and streams. Whereas some farmers practice sprinkler irrigation, irrigation by hand is also practiced by farmers who lack irrigation infrastructure.

The soil, on which most cultivation occurs in Vryheid (Abaqulusi) Municipality, is alluvium, which is suitable for agriculture. According to Smit (2003), the fertile valley land can be utilized only through irrigation, using water from White and Black Umfolozi, Mkhuze and Pongolo and part of the Tukhela catchment as well explained that even though the soil is suitable for agriculture, phosphorous and potassium deficiencies have been identified in the alluvial soil profile of the most Vryheid rivers basin. These deficiencies will only become effective threats if the pH level rises, because the soil will be at risk of losing necessary iron, manganese and boron needed for successful plant growth (Magni, 1999). Regardless of the potential threats, the potential for cultivation in the catchment is strengthened because the alluvium soil type within the Vryheid Rivers is relatively uniform between the upper and lower areas of the rivers.

Vryheid is situated in north-western Zululand on the transitional belt between the extensive grasslands to the west and the low-lying bushveld to the east. Many mountains and hills occur and the area, as well as an abundance of small to very large wetlands. Forest patches line southern mountain slopes, and is often broken by high cliffs. All these habitats set the scene for a high diversity of bird species, with a list of 350 species recorded in a radius of just 15km of the town.

3.5 Research Methodology

Methodology basically describes the methods which are used to conduct the research. Research methodology consist of research design, sample, sample procedure, data collection and data analysis which are used in the study and also guide the researcher on methods that are used in research process. This chapter, therefore, includes the procedure of methods that are followed in order to conduct this research, it includes the study area and techniques that have been used in collecting data and the tools that have been used to determine and analyse the marketing channels used by smallholder farmers in crop production at Vryheid(Abaqulusi) Municipality

3.6 Questionnaire Design

Primary data was collected using interviewer administered questionnaire which included household characteristics such as demographic questions (name, age, sex, education etc), availability and characteristics of resources or infrastructure found in the area (water, water sources, cold storage,,roads) and finally marketing channels that are taking place in Abaqulusi municipality.

The reason for the questions to be interviewer administered the researcher wanted to eliminate the problem of misunderstanding of questions and to avoid the mistakes that could have been done by respondents. The interviewer administered questionnaires helped a lot because the researcher managed to get information even from illiterate respondents (Levy and Lemeshow, 1991). Interviews was conducted in Isizulu, which is the local language in the study area. Secondary data was collected from published and unpublished documents. This secondary data include the books, articles, journals and the internet which were visited.

3.7 Sampling frame

A sampling frame is defined as the “actual set of units from which a sample will be drawn” (Bless *et al*, 2006). It is from this sampling frame that 120 farmers will be interviewed. The sampling frame will help in ensuring that time is not wasted in finding farmers who best represent the population. To get the sample frame an extension officer will be conducted and prior arrangements will be made

3.8 Sampling of Respondents and Sample Size

Simple random sampling was used to pick respondents or households for interviews in different villages or 22 wards of Abaqulusi municipality. These villages or wards were chosen because of the crop production availability and the willingness to participate to the interview. These respondents were from 22 wards of Abaqulusi municipality. 120 respondents from these 22 wards, which were interviewed formed the sample population for the study.

3.9 Data Analysis

Data collected from questionnaire already coded was entered into a spread sheet before being analyzed using Statistical Package for Social Sciences (SPSS) and Microsoft excel. Descriptive statistics analysis was used where frequencies and percentages of the variables were measured. Variables which were measured include demographic socio-economic profile of survey household heads where age, marital status, educational level, occupation other than farming, land ownership, household size and gender of the household heads were measured. Resources as well as the issues associated were also measured. These resources include arable land, water and water sources, extension officers, market and transport. Issues associated to these resources were also measured. Infrastructural needs as well as its associated issues were measured. These infrastructures include value adding machinery, Electricity, Roads, Telephone, storage for products. Marketing channels of products practices are very much important in crop production.

3.9.1 Binary regression model

A binary regression model was used to analyse crop farmers' decision to participate in the process of marketing with the factors influencing their choice from using greater depth marketing methods which have the potential for increasing their income. According to Matungul, Ortmann and Lyne (2002), the greater the depth in marketing methods used by households, the greater the expected income.

Binary regression model can be used to predict a dependent variable, on the basis of continuous and/or categorical independent variables, where the dependent variable takes more than two forms (Hill, Griffiths and Judge, 2001). Furthermore, it is used to determine the percent of variance in the dependent variable explained by the independent variables and to rank the relative importance of independent variables. Binary regression does not assume linear relationship between the dependent variable and independent variables, but requires that the independent variables be linearly related to the logit of the dependent variable. However, Pundo and Fraser (2006) explained that the model allows for the interpretation of the logit weights for the variables in the same way as in linear regression.

The model has been chosen because it allows one to analyse data where participants are faced with more than two choices. In this study, smallholder farmers are faced with three choices, which are; formal market participation, informal market participation and not participating in either of the markets. Smallholder farmers decide whether to market their products or not. When they choose to market, they then decide on the marketing channel (either formal markets or informal markets). However, these decisions are made on the basis of the option which maximizes their utility, subject to institutional and technical constraints. Empirical findings show that many households fail to participate in formal markets because of transaction costs (de Janvry, Fafchamps and Sadoulet, 1991; Makhura, 2001) and technical and institutional constraints (Matungul *et al*, 2002). The existence of such factors lowers the revenue received by the seller, shifting utility from formal markets to informal markets and finally not participating.

As such, the utility maximizing function can be given as:

$$\text{Max } U = U(C_k, R_{fk}, R_{ik}, H_u) \dots \dots \dots (1)$$

Where: Max U that can be attained from market channels

C_k represents the market access

R_{fk} represents the grading from formal market channels

R_{ik} represent the grading from informal market channels

H_u represent the partnership

From the utility maximizing function, it can be seen that households make decisions to produce, consume and market. It follows that if the costs that are associated with using a particular channel are greater than the benefits, households will be discouraged from using it, shifting to the option that maximizes their utility. In the utility function, the amount of good k that is consumed or sold does not have to exceed the amount that is produced.

O' Sullivan, Sheffrin and Perez (2006) explained that it is difficult to measure utility directly; it is therefore, assumed that households make participation choices depending on the option that maximizes their utility. That is, subject to technical and institutional factors, decisions to participate in either formal or informal markets or even not participating, signifies the direction which maximizes utility. With the given assumption, multinomial regression was used to relate the decisions to participate in formal markets, informal markets or not participating and the factors that influence these choices. In this study, non-market participation has been chosen as the baseline group; therefore, it takes the value of zero. Informal market participation takes the value of one and formal market participation is equal to two. (choice of marketing).

A binary regression model which was be used is of the form:

$$\text{Logit } (P_i) = \ln(P_i / 1 - P_i) = \alpha + \beta_1 X_1 + \dots + \beta_n X_n + U_i \dots \dots \dots (2)$$

Where: $\ln(P_i / 1 - P_i)$ = logit for market participation choices

P_i = not participating in markets

$1 - P_i$ = participating in markets

β = coefficient

X represents covariates

U_i = error term

The probability that the farmer prefers one market compared to the other is restricted to lie between zero and one ($0 \leq P_i \leq 1$). P_i represents the probability of not participating in produce marketing and $(1 - P_i)$ represents either informal market participation or formal market participation. In other words, the model was used to assess the odds of: informal market participation versus not participating; and formal market participation versus not participating. Logit (P_i) ranges from negative infinity to positive infinity (Gujarati, 1992).

3.9.2 Justification of the econometric model

Binary regression model is useful in analysing data where the researcher is interested in finding the likelihood of a certain event occurring. In other words, using data from relevant independent variables, binary regression is used to predict the probability (p) of occurrence, not necessarily getting a numerical value for a dependent variable (Gujarati, 1992). This research analyses the probability of choosing different market channels by emerging smallholder farmers, with given technical and institutional influences. Dougherty (1992) explained that the procedure for formulating a multinomial logistic regression model is the same as for a binary logistic regression. Whereas in binary logistic regression, the dependent variable has two categories, in multinomial logistic regression, it has more than two categories. Thus, multinomial logistic regression is an extension of binary logistic regression.

According to Mohammed and Ortmann (2005), several methods can be used to explain the relationship between dependent and independent variables. Such methods include linear regression models, probit analysis, log-linear regression and discriminant analysis. However, binary regression model has been chosen because it has more advantages, especially when dealing with qualitative dependent variables. Binary regression model (also known as Ordinary least squares regression

(OLS)) is the most widely used modelling method for data analysis and has been successfully applied in most studies (Montshwe, 2006). However, Gujarati (1992) pointed out that the method is useful in analysing data with a quantitative (numerical) dependent variable but has a tendency of creating problems if the dependent variable is qualitative (categorical), as in this study. Amongst other problems, the OLS cannot be used in this study because it can violate the fact that the probability has to lie between 0 and 1, if there are no restrictions on the values of the independent variables. On the other hand, multinomial logistic regression guarantees that probabilities estimated from the logit model will always lie within the logical bounds of 0 and 1 (Gujarati, 1992). Also, OLS is not practical because it assumes that the rate of change of probability per unit change in the value of the explanatory variable is constant. With logit models, probability does not increase by a constant amount but approaches 0 at a slower rate as the value of an explanatory variable gets smaller.

When compared to log-linear regression and discriminant analysis, logistic regression proves to be more useful. Log-linear regression requires that all independent variables be categorical and discriminant analysis requires them all to be numerical, but logistic regression can be used when there is a mixture of numerical and categorical independent variables (Dougherty, 1992). Also, discriminant analysis assumes multivariate normality, and this limits its usage because the assumption may be violated (Klecka, 1980). According to Gujarati (1992), probit analysis gives the same results as the logistic model. In this study, the logistic model is preferred because of its comparative mathematical simplicity and fewer assumptions in theory. Moreover, logistic regression analysis is more statistically robust in practice, and is easier to use and understand than other methods.

3.10 Chapter Summary

In this chapter, the methods that were used to analyse data were reviewed. Data was collected from 120 emerging and smallholder farmers in crop production at Abaqulusi Municipality . The research was mainly focused on the crop producers who are involved in marketing. Stratified random sampling was applied in order to select a sample from emerging and smallholder farmers involved in produce

marketing. To collect the data, a questionnaire was administered to the respondents through face-to-face interviews. Descriptive statistics analysis was used where frequencies and percentages of the variables were measured. The advantages that are associated with face-to-face interviews have been highlighted within the chapter. The results of the research are presented in the next two chapters. For analyzing data, binary regression model was used and its advantages have been highlighted. The results of the research follow in the next two chapters.

CHAPTER 4

RESULTS AND DATA ANALYSIS

4.1 Introduction

This chapter discusses and analyses the results of the field survey that was carried out in 22 wards under the Vryheid (Abaqulusi) Municipality. The data under analysis was collected from 120 emerging and smallholder farmers who are actively participating in agricultural crop/ and vegetables marketing. The chapter begins with brief explanations of the demographic characteristics of the sampled farmers, which is then followed by an overview of households' assets ownership. It goes on to discuss socio-economic aspects of farmers, giving special attention to aspects related to agricultural production and marketing and factors influencing them which including employees, land tenure system, extension services, market information accessibility, social networks and market infrastructure. Within the chapter, descriptive statistics such as mean, maximum and minimum values and frequencies is used.

4.2 Demographic Characteristics of Sampled Smallholder Crop Farmers

In this section, crop farmer's aspects such as gender, age, marital status and highest educational levels are discussed. These aspects are important because the main household activities are coordinated by the household farmer and the householder's decisions are most likely to be influenced by such demographic aspects (Makhura, 2001). According to De Sherbenin (2006), demographic characteristics of farmers are essential when analyzing economic data because such factors influence the farmer's economic behaviour. It is therefore relevant to include household farmer demographic attributes in analyzing marketing channels used by the smallholder farmers in crop production in the Vryheid (Abaqulusi) Municipality.

4.2.1 Gender distribution among farmers interviewed

Table 5.1 shows the gender distribution of smallholder farmers in crop production in Abaqulusi Municipality. The table shows gender distribution among all sampled farmers. Farmers were divided according to their gender to investigate whether gender influences the choice of farming.

Table 4.1: Distribution of the household's gender by household head

Gender type	Frequency	Percentage		
Male	42	35.0		
Female	78	65.0		
TOTAL	120	100		
Variables			Chi Square	p-Value
Association between gender and choice of marketing			-0.426	0.001**

Correlation is significant at the 0.01 level**

Source: Summary data and own calculations, 2013

Table 4.1 shows that data was collected from a total number of 120 respondents of which 78 were females and 42 were males. Results presented here shown that there are a large proportion of female respondent (65.0%). This distribution of households by gender was purposively chosen based on the assumption that the male population is greater than that of females. That assumption is probably wrong as the preceding paragraph brings out a conclusion that farming at Abaqulusi Municipality is practiced by both males and females with larger proportion of females than males. The gender distribution of the sampled farmers is ascertained by a chi-squared test.

4.2.2 Distribution of the household's age by the household head

Age of the farmer is an important aspect in agriculture because it determines experience one has in a certain type of farming. In addition, to a certain extent it indicates the position of the household in the life cycle. The literature states that

household farmer's experience further influences household members' farming activities since they usually get guidance from the head.

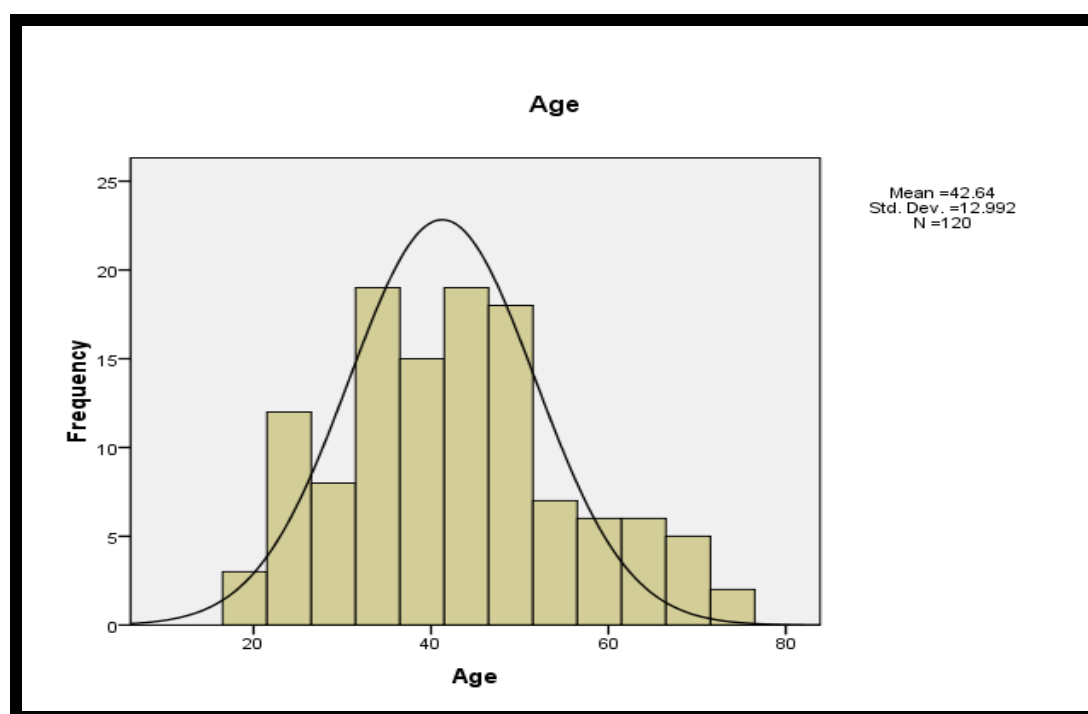


Figure 4.1: Distribution of the household's age by the household head

Figure 4.1 shows that the majority of the farmers fall in the age range of 35 to 50. There is a very small proportion at the age of less than 19 and those greater than 70 years of age. Some farmers were below 30 years of age, demonstrating that farming is not only for the old people. However, there are generally few young farmers (< 40 years) among the sampled farmers, as compared to the older farmers. This is probably because younger people view other forms of employment as better sources of income.

4.2.3. Educational levels of farmers

In this study, the highest educational level achieved by the farmers was recorded to determine the ability to interpret information. People with higher educational levels are perceived to be more able to interpret information than those who have less education or no education at all (Mather and Adelzadeh, 1998). Thus, education levels affect market information interpretation and hence, market participation level of farmers. The educational levels of smallholder farmers in the 22 wards under the

Abaqulusi Municipality are generally low. All the sampled farmers have attended school. Figure 4.2 shows that about 32.7% percent of the smallholder farmers have attended secondary education uncompleted and 8% attended secondary education completely. 25.3% primary school uncompleted and 21% have complete primary education, 11% attained tertiary education and those who do not attend school are 10%.

Table 4. 2: Distribution of the household's level of education by the household head

Education levels	Frequency	Percent
Secondary education not completed	53	32.7
Primary education not completed	41	25.3
Primary education completed	34	21.0
Secondary education completed	13	8.0
Tertiary education completed	11	6.8
No formal education	10	6.2
Total	162	100.0

Source: Field survey, 2013

Those farmers who have better education are expected to interpret information better than those who have less education. The lower educational levels among the sampled farmers imply that written market information is of minimal benefit to the farmers in the area.

4.2.3. Marital status of Respondents

It is normally believed that married farmers tend to be more stable in farming activities than unmarried farmers. If this holds true, the marital status of farmers will affect agricultural production and hence, marketing.

Table 4.3: Household's marital status of the household head

Marital status	Frequency	Percent
Single	39	32.5
Married	65	54.2
Widow	16	13.3
Total	120	100.0

Source: Field survey, 2013

The marital status of the respondents was divided into three main groups namely: single, married and widow. Table 4.3 showed that 54.2 percent of the respondents are married, which indicate that such households are relatively stable at Abaqulusi Municipality farming environment. The remaining percentage (67.7 percent) of respondents belongs into the single or widow groups.

4.2.5 Household's size of the household head

From the results in Table 4.4 below it is clear that there is large number of farmers who own farms having a large household size giving a percentage of about 42.5 percent. There are a small percentage of farmers with a household size of small. This brings out an unexpected conclusion that the smaller the household size the greater the willingness to farm and vice-versa.

Table 4. 4: Household's size of the household head

Household size	Frequency	Percent
Small	22	18.3
Medium	47	39.2
Large	51	42.5
Total	120	100.0

Source: Study survey, 2013.

Marketing channels Household size of smallholder has effect of fulfilment of agricultural activities. A total of 42.5 percent has household sizes of large household and the most participant in marketing channels came from this household. Medium household has 39.2 percent, and 18.3 percent of small household size. These also indicate that household composition has an influence in the participation in marketing channels. This is particular true because households with a large number of members always seek opportunities that would secure their livelihood.

4. 2.6. Distribution of the household's levels income of the household head

The household income information is very important in that it determines (or have an influence on) the choice at which smallholder farmers participate in formal and informal channels of marketing in one way or the other. For example, in terms of acquiring a loan for farm business activities, income is the first thing to be asked. Figure 4.5 below clearly indicates that majority of farmers are earning an income of ranges between R1001 to R1500. It was found that sources of these incomes are mostly from social grants as agriculture is practiced by older people and again that most of the farmers (about 80 percent) are unemployed Figure 5.6 support this. There are also farmers who earn more than R2500.

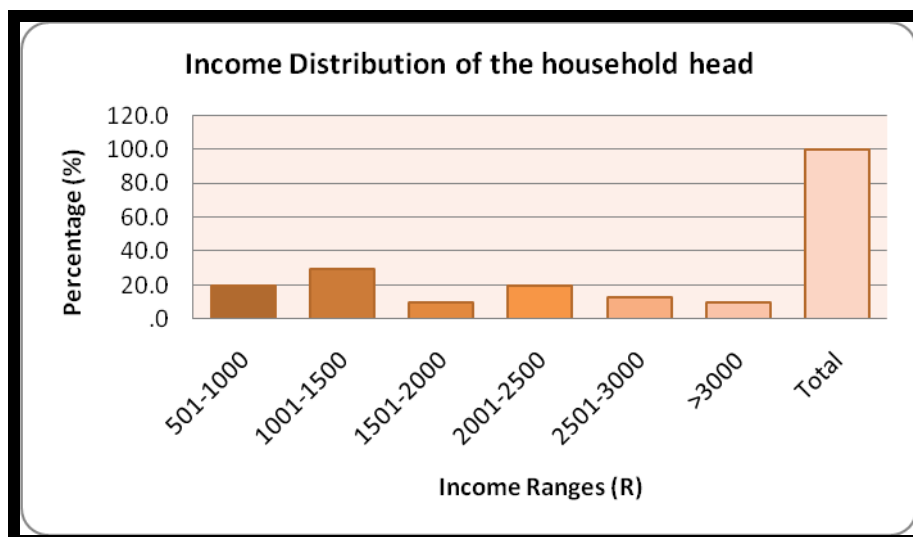


Figure 4. 2: Distribution of the household's Income class per month of the household head
Source: Field survey, 2013

4.2.7. Distribution of the households by the employment status of the household head

Figure 4.6 below illustrate that the greater part of farmers in Abaqulusi Municipality are full time farmers. It also shows that a very small number of employed and unemployed status. It might sound confusing to say they are both unemployed and employed, because they are farming, meaning they are self-employed.



Figure 4. 3: Distribution of the households by the employment status of the household head

Source: Field Survey, 2014

4.2.8 Sources of finance for intermediary inputs

Amongst other farming prohibiting factors in rural communities, rural finance is one on the top of the list. Table 4.5 shows sources of finance that is where the smallholder farmer under Abaqulusi Municipality gets funds particularly for intermediary inputs. There are many sources of finance but those listed in Table 4.5 are the ones that are mostly used by smallholder crop farmers.

Table 4.5: Sources of finance

Variables	Frequency	Percent
Borrowing from bank	24	19.4
Borrowing from your family	16	12.9
Own savings	26	22.6
Borrowing from friends	8	6.5
Other	46	38.7
Total	120	100.0

Source: Field Survey, 2013

From the data collected, average farmers (38.7 percent) get funds from sources other than listed on the first column of Table 4.5. According to the findings the main source of finance for the Abaqululusi Municipality farmers is it farmers themselves, thus farmers are given finances from the KZN Department of Agriculture and Environmental Affairs to finance their farming. It said that the KZN Department of Agriculture provides funding for inputs. It has been found that there are quite a number of farmers (22.6 percent) who get funds from their savings. The reason for this could be the good job of extension officers who frequently advises farmers to save.

4.3. FARMING AND ASSETS OWNERSHIP

4.3.1 Land accessibility

Land accessibility is one of the most crucial factors in farming. In South Africa insufficient land constitutes one of the most constraining resources facing rural households (Makhura, 2001). Insufficient land in South Africa, particularly the Kwazulu Natal is mostly attributed to the Land Acts of prior democracy. Table 4.6 below represents land distribution among Abaqulusi Municipality vegetable producers.

Table 4.6: Land distribution by the household head

LAND	FREQUENCY	PERCENT
<0.5	8	6.5
1-2	4	3.2
3-5	43	35.5
>5	63	51.6
6.00	2	3.2
TOTAL	120	100.0

Source: Field Survey, 2013

The findings above indicate clearly that land ownership under the scheme is not consistent. Thus the land size is not uniformly distributed among the farmers. The land under cultivation varies from one farmer to the next. Land under usage by farmers was grouped in to five categories as indicated in the first column of Table 4.6. Majority of the farmers, about 51.6 percent of the respondents, were found to have land of more than 6ha, followed by 3-6ha, about 35.5 percent of the farmers, then < 0.5ha, about 6.5 percent and lastly 1-2ha used by about 3.2 percent of the farmers. These results are typical to South African smallholder farmers (Jari, 2009; Makhura, 2001; Ntsonto, 2005). However, not every farmer owns the land. Majority of farmers are leasehold and only few owns the farm shown in Table 4.7 below.

Table 4. 7: Land ownership of the household head

VARIABLES	FREQUENCY	PERCENT
Freehold	64	51.6
Leasehold	24	19.4
Private ownership	28	22.6
Group ownership	2	3.2
Communal	2	3.2
TOTAL	120	100.0

Source: Field survey, 2013

One of the problems faced by farmers in South Africa, especially in the Kwazulu Natal, is the title deeds of the land. About 51.6 percent of the interviewed farmers hold the land as freehold. These are people who are interested in farming but do not have land under their ownership. Those who hold land as leaseholders constitute 19.4 percent of the sample, farmers with private owned land make up 22.6 percent and only 3.2 percent grows crops under communal land. From this results one can conclude that acquiring land is one of the constraint factors in the Abaqulusi Municipality, since majority of the farmers, about 71 percent (i.e. 51.6% + 19.4%), borrow land for production. This is a disadvantage because lease and free land holders are in most cases reluctant to invest in the land that is not under their ownership.

4.3.2 Land acquisition by the household head

The study indicates that farmers have acquired land in different ways, Table 4.8 below indicate such methods. 64.5 percent of the respondents have acquired land from their parents, thus they have inherited the land. 12.5 percent have resettled, that is, they were allocated the land. Only 3.2 percent of the farmers have bought the land and lastly about 19.4 percent mentioned other ways through which they have acquired the land other than buying, resettling and inheriting. Some farmers were classified under “other”, these farmers are either farming under a communal land or else the projects ran at Abaquulsi Municipality have allocated them the land.

Table 4.8: Land Acquisition Methods by the household head

VARIABLES	FREQUENCY	PERCENT
Bought	2	3.2
Inherited	40	64.5
Other	8	12.9
Resettled	12	19.4
Total	70	100.0

Source: Field Survey, 2013

4.4 Marketing

It is believed that smallholder farmers experience problems in finding best possible markets for their produce. There are many factors attributed to farmers lacking a proper market for their produce, such problems include high transportation costs, distance to the market, road infrastructure, standard and grade of their products, reliability (i.e. consistency in production, quality and quantity of production) and other transaction costs. All these factors are scrutinized in great details in this section

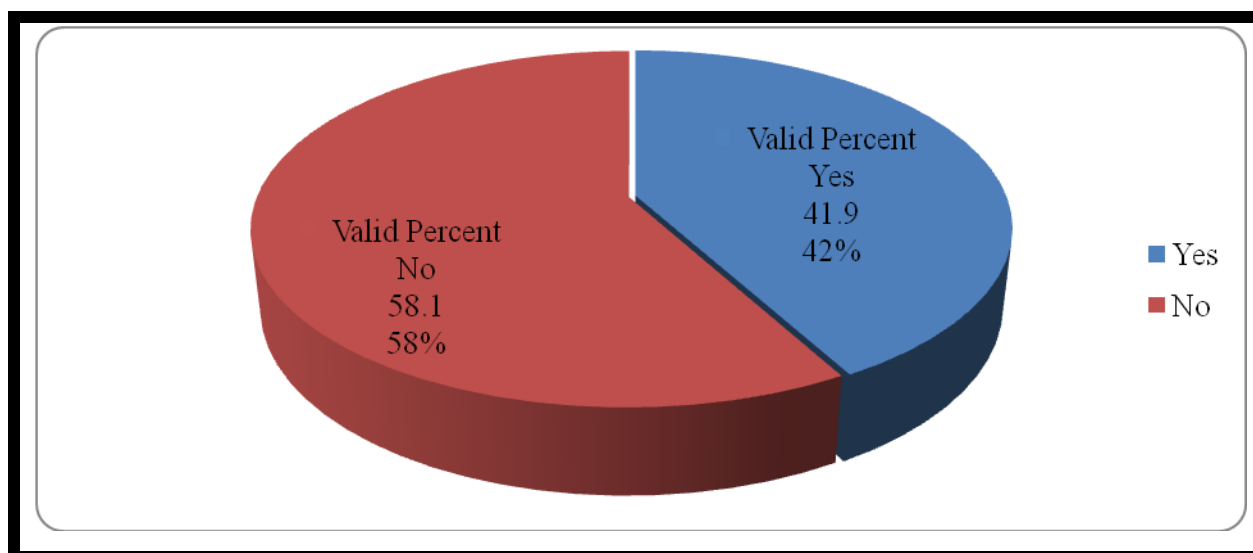


Figure 4.4: Market availability

Source: Field Survey, 2013

4.4.1 Types of crops and vegetables produced

Asking farmers about the availability of market the majority pointed out that they do not easily get better market for their produce because they do not take all the produce to fresh produce market and if they do not find other markets the unsold produce is given to livestock as feed or is used for fertilizer purposes. Only few farmers pointed out confidently that they do not have problem with market, thus they find market they want. The reason why other farmers cannot find the markets is that fresh produce market take produce that are of quality and the rest is left behind and they are unable to meet the standard.

4.4.2 Markets channels

Market channels, through which smallholder farmers in crop production at Abaqulusi Municipality sell their produce, are paramount in the analysis of the data collected for the study. This is actually a core of the study because conclusion about which marketing channels are used by Abaqulusi smallholder farmers in crop production will be based on this aspect. Literature has pointed out that most smallholder farmers in crop production use informal markets to market their products.

Table 4.9: Market Channels used by Abaqulusi Municipality smallholder farmers in crop production

Market channels	Frequency	Percent
Farm gate	60	50
Around village	52	43.3
Road side	8	6.7
Total	120	100.0

Source: Field Survey, 2013

Table 4.9 shows that the majority of smallholder farmers in production under Abaqulusi Municipality sell their produce through fresh produce market and fruit and vegetable farm gate. The rest of the produce is sold to neighbours and road side.

These are surprising results because they contradict what is outlined in the literature. The reason for this could be the fact that these farmers get full support from the KZN Department of Agriculture, since the KZN Department of Agriculture provides inputs, grading services by extension officers and at times provide transport and this actually make the produce fit for the fresh produce market. However, some farmers outline that since they do not have other option, they then feel obliged to sell their produce to fresh produce market.

4.4.3. Pricing

Farmers use various mechanisms when setting prices for their produce. Figure 4.9 illustrate methods used by Abaqulusi Municipality smallholder farmers in crop production in coming up with prices for their produce. The possible methods that a farmer can use are: 1) he or she can set the price himself; 2) he can price the produce based on the price in the market (market driven); 3) the buyer can dictate the price at which he is willing to buy the produce.

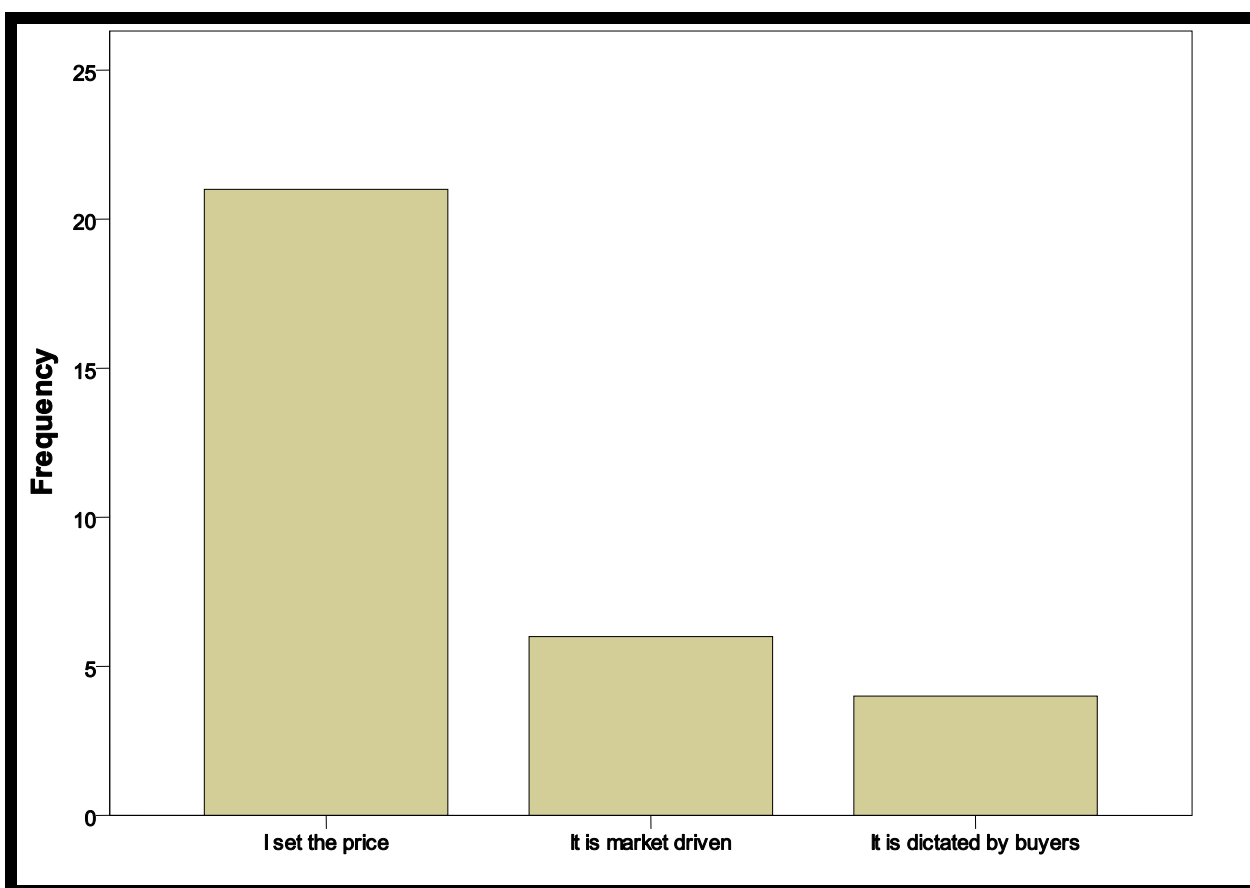


Figure 4. 5: Price setting mechanisms during sales

Source: Field Survey, 2013

Pricing, as illustrated in Figure 4.9, is set through all different mechanisms. Of all criterion used for pricing, about 67.7% of the farmers dictated that they set the price themselves, 19.4% set the price based on the market forces (i.e. it is market driven) and 12.9% of the famers are price takers, thus the price is dictated by the buyers.

The interviews showed that farmers tend to set prices when selling at their farm gate, but this is different when selling to formal markets as the formal markets set the prices. And as a result formal markets such as supermarkets and fresh produce markets are their last option when farmer are looking for buyers.

4.4.4 Distance to the market

Distance is one factor that limits smallholder farmers in crop production in accessing better markets, because smallholder crop farmers are usually located in rural areas so markets are far from them. Abaqulusi Municipality smallholder crop farmers need to travel about 100 to 150 Km from around the 22 wards of the Municipality in order to sell their produce in Vryheid fresh produce market. This long distance contributes to high transaction costs with products such as tomatoes sustaining serious damages that result in poor quality which in turn result in low prices of these products. Table 4.10 shows that 15.8% of the farmers sell their products at a distance greater than 51 km. The total number of farmers selling their produce through these marketing channels; farm gate, around village and roadside add up to 120. This might not show any implication to distance but clearly indicating that those who use roadside marketing channel were dominant, followed by those who use around village and lastly by those who were using farm gate marketing channels.

Table 4.9: Distance to the market

Distance	Frequency	Percent
1-50km	3	2.5
51-100km	19	15.8
101-150km	98	81.7
Total	120	100

Source: Field Survey, 2013

4.4.5 Market information

Market information is vital to market participation of smallholder farmers in crop production under Abaqulusi Municipality. Availability of market information boosts confidence of farmers who are willing to market their produce. The main reason for market information is that it allows farmers to take informed decisions. In that case if farmers are well informed they are more likely to participate in marketing. It can therefore be easier for them to choose better markets and good marketing channels. It is therefore important to analyses the source of market information because it

determines accuracy of the information. Farmers were interviewed on their main sources of information and the results are illustrated in Table 4.11.

Table 4.10:Types of information provided

Information Systems	Frequency	Percent
Media	2	1.7
Extension officers	2	1.7
Friends	34	28.3
Co-farmers	82	68.3
Total	120	100.0

Source: Field Survey, 2013

Table 4.11 shows that the majority of farmers from the 22 wards in Abaqulusi municipality get information from extension officers and very few receive information from media. This could be the fact that these farmers are very busy during the day they do not have a chance to buy newspapers or listen to the radio. The low level of education could be a constraint for them to read relevant information from different sources. One of the respondents stated that they mostly get information from extension officers. The respondent said that the extension officer regularly call meetings whenever there is something new in the market and address them as farmers.

4.4.6 Value addition

It is one of the main important things that can help to increase farmers' income because it increases the economic value and consumer appeal of an agricultural commodity. It is an alternative production and marketing strategy that requires a better understanding of the rapidly changing food industry and food safety issues, consumer preference and effective management. Value addition can be done in many ways, for example through cleaning, cooling, processing, grading and labeling. Figure 4.11 presents results from Abaqulusi municipality on whether farmers add value to their produce or not.

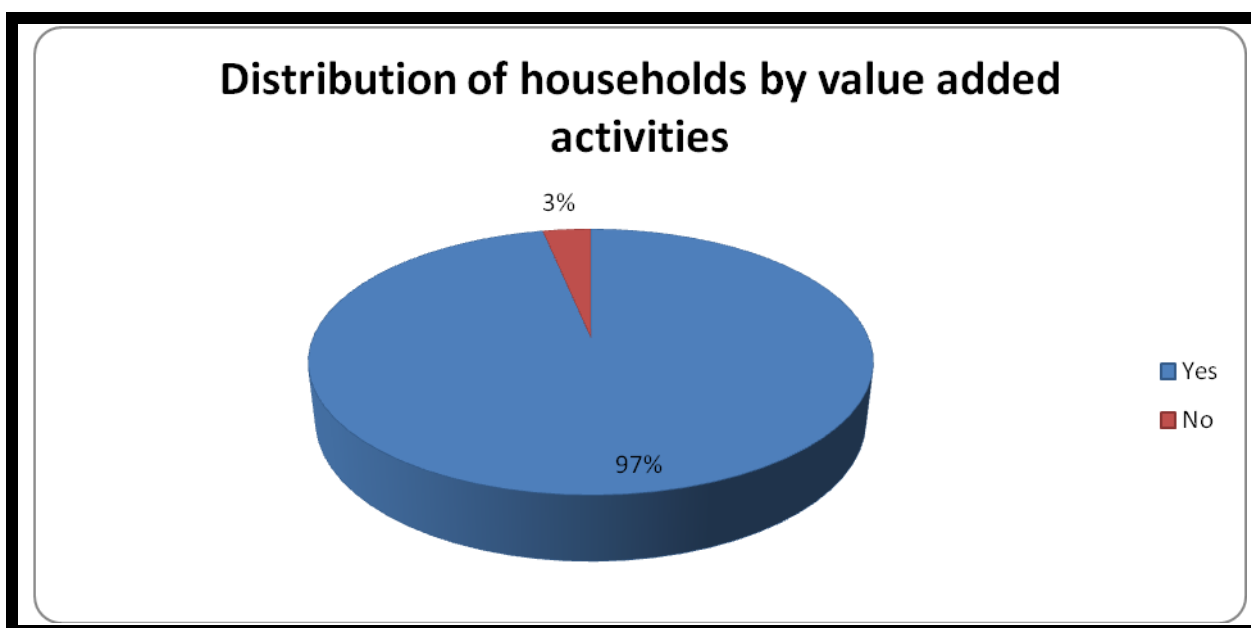


Figure 4.6: Distribution of households by value added activities (cleaning and cooling, packaging and labeling)

Source: Field Survey, 2013

Figure 4.6 illustrates that almost all farmers, about 97 %, responded yes to the question on whether they add value to their produce or not. In adding value, farmers use different methods some of which are illustrated in Table 4.12 the mostly used value addition method is cleaning. Thus, after harvest farmers wash their produce, using the sprinklers; grade the produce using their own grading machines before taking their produce to the market. Packaging and labeling is only done by 16.1% of the farmers and only 3.2 farmers clean, grade, package and label. *“Value-addition with the produce to which the value is added is meaningless; value-addition outputs are not all applicable to all crops”*

Table 4.11: Distribution of households by value-added activities

Value addition	Frequency	Percent
Cleaning and cooling	100	80.6
Packaging and labeling	18	16.1
All of the above methods	2	3.2
Total	120	100.0

Source: Field survey, 2013

4.4.7 Storage facilities

Storage is very important especially because most of the agricultural products are perishable. For produce to have a long shelf life, thus preventing them from rotting, storage facilities are needed. Farmers were asked the type of storage facilities that they use and mostly mentioned cold and open air storage. The types of storage facilities used by the farmers are indicated in Table 4.13.

Table 4.12: Storage facilities used by Abaqulusi smallholder farmers

Storage facilities	Frequency	Percent
Cold storage (perishable agricultural products; tomatoes, spinaches, carrots etc.)	6	9.7
Open air storage	30	48.4
Both 1 and 2	22	35.5
NA	4	6.5
Total	62	100.0

Source: Field Survey, 2013

The results from Table 4.13 show that about 48.4% use open air storage for their produce and very few use cold storage 9.7%. The reason why farmers do not have cold storage could be that they cannot afford cold storage. One of the respondents indicated that the cold storage is owned by the other farmers.

4.4.8 Transport to the market

Transport to the market is very important because it links the farmers to the consumers. The availability of own transport to the market influences the timely delivery of produce to the markets, and according to the literature, smallholder vegetable producers usually lack transport. They often use hired or buyers' transport. The unavailability and poor condition of transport can lead to deterioration of these products because mostly agricultural products are highly perishable. The results on market transport and the transport problems faced by smallholder vegetable producers in Abaqulusi Municipality are illustrated in Table 4.14.

Table 4.13: Transport to markets

Variables	Frequency	Percent
Hired transport	36	58.1
Buyer's transport	26	41.9
Total	62	100

Source: Field Survey, 2013

It is shown that 58.1% of farmers use hired transport to deliver their products to the markets and 41.9% are use buyers' transport. These results are in line with what has been found in previous research. Both farmers and Buyer's transports are used in farm gate, roadside and around village through the basic marketing channels.

4.4.9 Farmer's organization

There is increasing evidence that farmer organizations provide an opportunity for smallholder vegetable producers to participate in the market more effectively. It is believed that through collective action, smallholder vegetable producers may be in a better position to reduce transaction costs of accessing inputs and outputs, obtain the necessary market information, secure access to new technologies and tap into high value markets, allowing them to compete with larger farmers and agribusinesses. Figure 4.11 shows the percentage of farmers that are in farm organization. A greater proportion of the farmers, about 93.5%, are members of agricultural cooperatives. These farmers experience some benefits from the

organization for example it provide them with market information, reduce transaction costs.

Table 4. 14:The role played by market organization		
Responses	Frequency	Percent
No	95	79.2
Yes	25	20.8
Total	120	100.0

Source: Field Survey, 2013

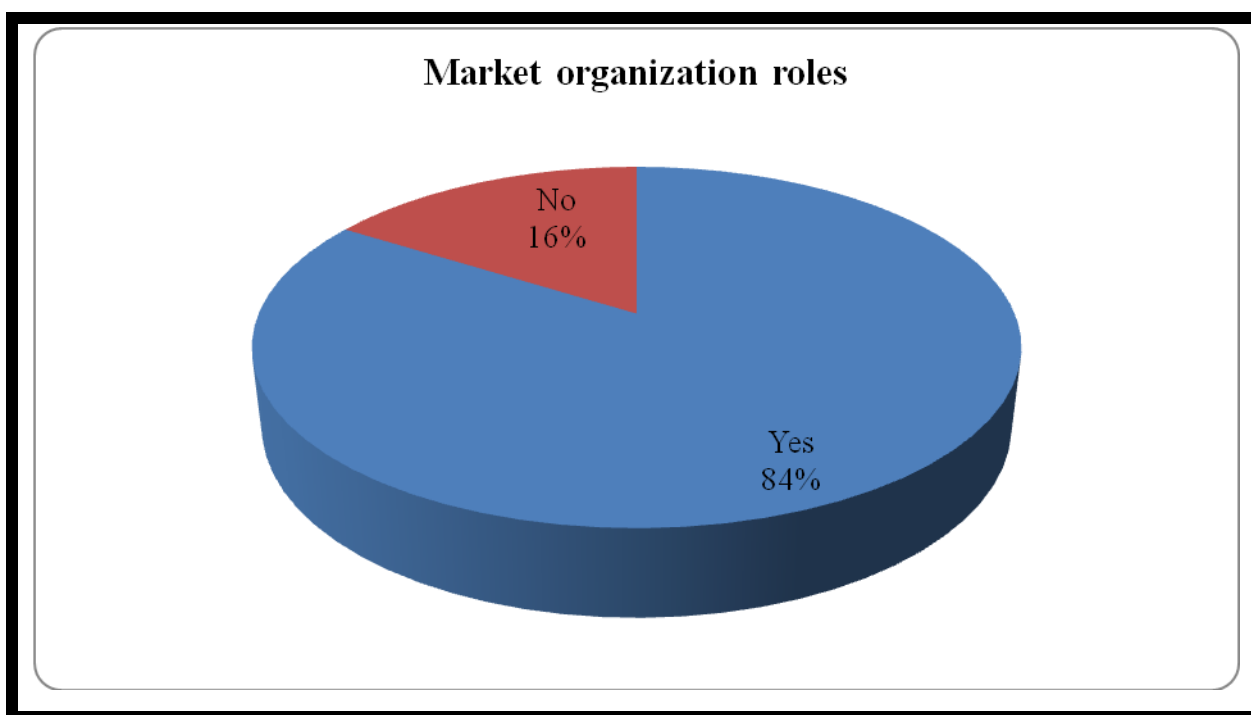


Figure 4.7: The role played by market organization (market information, transaction costs reduction)

Source: Field Survey, 2013

4.5.10 Extension officers

Extension officers are considered to be the most crucial source of information among farmers. It has been noted that smallholder farmers in crop production in Abaqulusi Municipality have access to extension services, but 48.4% argue that these extension officers are sometimes not available. On the other hand, 38.7% of the farmers acknowledge the help of extension officers in accessing markets.

Table 4. 15: Extension officers' assistance

Variables	Frequency	Percent
Accessing markets	24	38.7
Ways to reduce transaction costs	12	19.4
Nothing	2	3.2
Other	20	32.3
Advising in all aspects of marketing	4	6.5
Total	62	100.0

Source: Field Survey, 2013

Based on evidence presented in this chapter, it can be concluded that smallholder farmers in crop production are supported by extension officers in many ways. Extension officers provide extension services to Abaqulusi smallholder farmers in crop production with regard to market information and participating in possible diverse markets available and as a result farmers sell most of their products to fresh produce in Vryheid fresh produce market, Spar supermarket and Boxer Cash and Carry at Nongoma town and also in Town hawkers. In marketing, the majority of the sampled farmers (83.9%) join farm organizations which help them in reducing transaction costs. It can be concluded that smallholder farmers in crop production can widen their marketing opportunities through close interaction with other farmers and forming part of farmer group organizations or by joining agricultural cooperatives.

4.5.11. Analytical Framework

The decision by farmers to participate in either formal or informal markets signifies the limited choices that the farmers face in order to maximize utility. A binary regression model was used to analyse the farmers' decision to participate in markets and the factors influencing that choice. In the model, choice of market channel was represented by a dependent variables where participating in markets was set as a reference category. Choice of market channel describes the decision to sell produce to the informal or formal market.

Table 4. 16:Case Processing Summary

Unweighted cases	N	Percent
Selected cases- Included in Analysis	120	100.0
Missing cases	0	0
Total	120	100.0
Unselected cases	0	0
Total	120	100.0

Source: Field Survey, 2013

If weight is in effect, see classification table for the total number of cases. The category variable Are you aware of the role played by organization in marketing is constant for the selected cases. Since a constant term was specified, the variable will be removed from the analysis. The **Block 0** output is for a model that includes only the intercept (which is constant). Given the base rates of the two decision options ($68/120 = 57\%$ decided to stop the research, 33% decided to allow it to continue), and no other information, the best strategy is to predict, for every case, that the subject will decide to stop the research. Using that strategy, you would be correct 57% of the time.

Table 4. 17:Dependent Variable Encoding

Original Value	Internal Value
Formal	0
Informal	1

Source: Field Survey, 2013

Table 4. 18:Classification Table^{a,b}

Observed			Predicted		
			Which marketing channels available to you		Percentage Correct
			formal	informal	
Step 0	Which marketing channels available to you	formal	68	0	100.0
		informal	52	0	.0
	Overall Percentage				56.7

Source: Field Survey, 2013

Table 4. 19: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.268	.184	2.121	1	.145	.765

Source: Field Survey, 2013

Under **Variables in the Equation** you see that the intercept-only model is **ln(odds) = -0.268**. If we exponentiate both sides of this expression we find that our predicted odds [Exp(B)] = 0.765. That is, the predicted odd of deciding to continue the research is 0.765. Since 52 of our subjects decided to continue the research and 68 decided to stop the research, our **observed odds are 52/68 = 0.765**.

Table 4. 20: Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	practice(1)	.127	1	.721
		Market access(1)	40.835	1	.000
		Grading(1)	21.783	1	.000
		Contract(1)	16.248	1	.000
		Customers(1)	27.098	1	.000
		Partnership(1)	22.579	1	.000
		Access(1)	3.164	1	.075
		Consultations(1)	.166	1	.683
		participate(1)	.006	1	.940
	Overall Statistics		57.491	9	.000

Source: Field Survey, 2013

Block 1: Method = Forward Stepwise (Conditional)

Table 4. 21: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 4	Step	3.747	1	.053
	Block	65.099	3	.000
	Model	65.099	3	.000

Source: Field Survey, 2013

Look at the **Block 1** output. Another variable is added as a predictor. **Omnibus Tests of Model Coefficients** gives us a Chi-Square of 65.099 on 3 *df*, significant beyond 0.000. This is a test of the null hypothesis that adding another variable to the model has not significantly increased our ability to predict the decisions made by our subjects.

Table 4. 22: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
4	99.117 ^a	.419	.562

Source: Field Survey, 2013

Estimation terminated at iteration number 6 because parameter estimates changed by less than 0.000. Under **Model Summary** we see that the **-2 Log Likelihood** statistics is 99.117. This statistic **measures how poorly the model predicts the decisions** -- the smaller the statistic the better the model. Although the statistic for the model that had only the intercept is not part of it. Adding the variable reduced the -2 Log Likelihood statistics by $164.216 - 99.117 = 65.099$, the X^2 statistic The **Cox & Snell R^2** can be interpreted like R^2 in a multiple regression, but cannot reach a maximum value of 1. The **Nagelkerke R^2** can reach a maximum of 1.

Table 4. 23: Classification Table^a

Observed			Predicted		
			Which marketing channels available to you		Percentage Correct
			formal	informal	
Step 4	Which marketing channels available to you	formal	44	24	64.7
		informal	4	48	92.3
	Overall Percentage				76.7

a. The cut value is .500

Source: Field Survey, 2013

The Classification Table shows us that this rule allows us to correctly classify of the subjects where the predicted event (deciding to continue the research) was observed. This is known as the **sensitivity** of prediction, the $P(\text{correct} \mid \text{event did occur})$, that is, the percentage of occurrences correctly predicted. We also see that this rule allows us to correctly classify of the subjects where the predicted event was not observed. This is known as the **specificity** of prediction, the $P(\text{correct} \mid \text{event did not occur})$, that is, the percentage of non-occurrences correctly predicted.

Table 4. 24: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 4 ^a	Market access(1)	-2.863	.845	11.477	1	.001	.057	.011	.299
	Grading(1)	1.287	.675	3.639	1	.056	3.623	.965	13.600
	Partnership(1)	2.065	.584	12.521	1	.000	7.886	2.512	24.753
	Constant	-.949	.406	5.470	1	.019	.387		

a. Variable(s) entered on step 3: Grading.

Source: Field Survey, 2013

The **Variables in the Equation** output shows us that the regression equation is

$\ln(\text{odds}) = -0.949 - 2.863\text{marketaccess} + 1.287\text{grading} + 2.065\text{partnership}$

We can now use this model to **predict the odds** that a subject of a given formal market channels will decide to continue the research. The odds prediction equation is:

$$\text{Odds} = e^{a+bx}$$

If our subject is a farmer (formal = 0), then the

$$\begin{aligned} \text{Odds} &= e^{-0.949 - 2.863(0) + 1.287(0) + 2.065(0)} \\ &= 0.113 \end{aligned}$$

That is, a farmer is only 0.113 as likely to decide to continue with the formal market channels or decide to stop using it.

If our subject is a market (informal = 1), then the:

$$\text{Odds} = e^{-0.949 - 2.863(1) + 1.287(1) + 2.065(1)} = 0.347$$

That is, a farmer is 0.347 times more likely to decide to continue using the informal market channel.

$$Y = \frac{odd}{1+odd} = \frac{0.113}{1+0.113} = 0.102$$

$$Y = \frac{odd}{1+odd} = \frac{0.347}{1+0.347} = 0.258$$

That is, our model predicts that 10.2% of formal marketing channel will decide to continue the research. That is, our model predicts that 25.8% of informal marketing channel will decide to continue using the marketing channel. The results of our logistic regression can be used to classify subjects with respect to what decision we think they will make. As noted earlier, our model leads to the prediction that the probability of deciding to continue using formal market channels is 10.2% and 25.8% for informal. Before we can use this information to classify subjects, we need to have a decision rule.

Our decision rule will take the following form: If the probability of the event is greater than or equal to market channel smallholder farmers in crop production, we shall predict that the event will take place.

Table 4.26: Steps Summary

step	Improvement			Model			Correct Class %	Variable
	Chi-square	df	Sig.	Chi-square	df	Sig.		
1	48.269	1	.000	48.269	1	.000	75.8%	IN: Marketaccess
2	13.083	1	.000	61.352	2	.000	75.0%	IN: Partnership
3	3.747	1	.053	65.099	3	.000	76.7%	IN: Grading

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The smallholder agricultural sector has a potential to contribute to growth in the rural areas of South Africa. At the same time it plays a very critical role in reducing poverty and income inequality, and hence contributes to economic growth. It is so unfortunate that this full potential has not been used because smallholder farmers do not fully participate in markets. Literature argues that if small farmers could increase the market participation they can eventually transit to commercial farming using formal markets. However, it has been acknowledged that smallholder farmers are constrained by number of factors. Such factors include poor infrastructure, lack of market transport, lack of market information, insufficient expertise on grades and standards, inability have contractual agreements and organizational support among others.

The main objective of this research study is to analyze the marketing channels used by smallholder farmers in crop production in the Vryheid Municipality. Marketing plays an important role in transforming smallholder farmers into commercial producers and the market should provide the necessary incentives for farmers to increase their production (Jooste and Van Rooyen, 1996). Therefore, it is important to identify the factors influencing the use of markets. The identification of both technical and institutional factors, and the extent to which they influence decisions to market through different channels could assist in the formulation of policy interventions and institutional innovations. As a result, the policies may enhance future market participation amongst smallholder and emerging farmers

5.2. Summary

This section summarizes all the chapters that are included in the study, which include the literature review, the methodology and the study results.

5.2.1. Literature review

The most notable challenge for smallholder farmers in crop production who are able to produce high quality crops lies with transaction costs and information availability. It is an inevitable fact that smallholder farmers are faced with paramount challenges in marketing their products. Better access to remunerative markets is necessary for promoting growth of smallholder agriculture, and being able to sell crops to formal markets is thought to be the best possible solution. A major component for promoting growth in smallholder agriculture is facilitating the ability of smallholders to move out of increasingly non-viable practices that they used to practice under previous economic environments, and into increasingly remunerative new opportunities in the export and import-substitution sectors.

The practice of contract farming can serve as a solution to those who cannot access the proper markets. However some farmers have a fear of being exploited by processors, wholesalers and fresh produce agents. In such cases, public institutions will have to intervene to facilitate their price negotiations by setting floor prices and providing assistance for smallholder farmers to sell to alternative markets. For smallholder farmers to attract more formal markets, that are thought to be more remunerative/profitable, they should consider adding value to their produce by using an attractive but save way of packaging and also in getting a proper vehicle to transport their products to the market without products having suffered severe physical damages.

An old way of doing things, i.e. producing without knowing how much is needed in the market, can be problematic sometimes as farmers might end up selling their surpluses at the break even or in worse cases at prices lower than their costs of production, and that can negatively affect their farming in the coming production season. This brings back to the aspect of accessing the proper information about the market and being able to make deals, through contract farming among others, before the planting season. Brokers, in the marketing industry, tend to dominate especially because they have realized the challenges that are faced by smallholder farmers. They practice the well-known law of trade i.e. “buy at a possible lower price and sell at a possible high price” (Appleyard and Field, 2001). If smallholder farmers can find a way of breaking these brokers, they will be able to reap high prices in the market.

Getting a transport that they can use as an organized group can help in such cases. Smallholder farmers, though own few hectares of land in South Africa, they can serve as a solution to the problems related to food security, income distribution and poverty alleviation.

5.2.2. Research methodology

Data was collected from 120 emerging and smallholder farmers in crop production at Abaqulusi Municipality. The research was mainly focused on the crop producers who are involved in marketing. Stratified random sampling was applied in order to select a sample from emerging and smallholder farmers involved in produce marketing. To collect the data, a questionnaire was administered to the respondents through face-to-face interviews. Descriptive statistics analysis was used where frequencies and percentages of the variables were measured. The advantages that are associated with face-to-face interviews have been highlighted within the chapter. Binary regression model was used and its advantages have been highlighted. To analyze data, descriptive statistics were used together with the binary regression model.

The main descriptive indicators that were employed were frequency and mean values. The binary regression model was used to influence households from making greater use of formal and informal markets. Binary regression model was chosen because it can be used to predict a dependent variable, on the basis of continuous and/or categorical independent variables, where the dependent variable takes more than two forms. The variables that were used in the study were defined and they included access to market information, ability to meet market grades and standards, organizational support services, groups or individual market participation, condition of road and market infrastructures, ownership of market transport, social capital, contractual agreements, types of farming, access to extension services, ability to add value and the condition of the storage facilities.

5.2.3. Descriptive results

The descriptive results provided information related to demographic, socio-economic and commodity marketing factors. Data was collected from a total number of 120 respondents of which 78 were females and 42 were males. Results presented in

Table 4.1 show that there is a larger proportion of female respondent (65.0%). This distribution of households by gender was purposely chosen based on the assumption that the male population is greater than that of females. That assumption is probably wrong as the preceding paragraph brings out a conclusion that farming at Abaqulusi Municipality is practiced by both males and females with larger proportion of females than males. The gender distribution of the sampled farmers is ascertained by a chi-squared test. Age of the household farmer is an important aspect in agriculture because it determines experience one has in a certain type of farming. In addition, to a certain extent it indicates the position of the household in the life cycle. The literature states that household farmer's experience further influences household members' farming activities since they usually get guidance from the head.

5.2.4. Binary regression model results

Binary regression model predicts that 10.2% of formal marketing channel will decide to continue the research. That is, our model predicts that 25.8% of informal marketing channel will decide to continue using the marketing channel. The results of our logistic regression can be used to classify subjects with respect to what decision we think they will make. As noted earlier, our model leads to the prediction that the probability of deciding to continue using formal market channels is 10.2% and 25.8% for informal. The explanations for the relationship between the significant variables and market participation can be summarized as follows:

- Access to and availability of timely market information results in an increase in both informal and formal market participation.
- An improvement in the expertise on grades and standards is likely to increase the formal market participation choice by households. In addition, ability to meet the grades and standards requires capital commitment, which can further draw farmers towards more rewarding formal markets rather than the informal markets.
- Households tend to increase formal market participation with the availability of contractual agreements.

- Social capital has a positive relation with market participation. This implies that an increase in social capital results in households shifting from not participation to formal and informal market participation.
- The availability of market infrastructure results in an increase in informal market participation. On the other hand, the existence of market infrastructure does not have a significant relationship with formal market participation, probably because of more organised marketing channels within the formal sector.
- When households market their produce in groups, there is a higher chance of participating in either formal or informal markets.
- Traditions and beliefs are most likely to create marketing links that result in increased informal market participation among households. On the contrary, over reliance on traditions and beliefs results in a reduction in the formal market participation, mainly because the formal market environment is ever changing, requiring farmers to be receptive to changes.
- There seems to be an opportunity to improve market participation, hence an improvement in the farmers' livelihoods, if each one of the significant variables can be adjusted. This requires consideration of certain policy options and such are discussed in the following section. It is also important for the farmers to identify the areas where they can have a direct impact and make efforts to address them.

5.4 Delimitations

This study was so limited such that some things that were intended to be covered were not all covered. Firstly, the distance to 22 wards at Abaqulusi Municipality was the main limitation. It constrained the project from getting to the study area in time, as a result not all respondents were found. It actually forced the study to reduce the sample size to 120 respondents. Therefore transport and funds were the most limiting factor.

The population from which data for this study was collected consists of smallholder farmers in crop production at Abaqulusi Municipality of the Kwazulu Natal Province of South Africa. A snowball sampling method was employed to obtain a sample of

smallholder farmers in crop production. Taking into account the cost consideration and other limiting factors, a sample of 120 farmers was interviewed using a structured questionnaire. In an effort to study the marketing channels used by smallholder farmers in crop production in the KwaZulu Natal Province of South Africa descriptive statistics was used.

5.3 Summary of the findings

5.3.1. Demographics

From interviewed farmers gender distribution results show that females greatly outnumber males by 65.0%. The difference between the number of female and male farmers, implies that any development strategy for the farmers in the area will benefit males more than females. This distribution of households by gender was purposely chosen based on the assumption that the male population is greater than that of females. That assumption is probably wrong as the preceding paragraph brings out a conclusion that farming at Abaqulusi Municipality is practiced by both males and females with larger proportion of females than males. The gender distribution of the sampled farmers is ascertained by a chi-squared test.

Age of the household farmer is an important aspect in agriculture because it determines experience one has in a certain type of farming. In addition, to a certain extent it indicates the position of the household in the life cycle. The literature states that household farmer's experience further influences household members' farming activities since they usually get guidance from the head. This is probably because younger people view other forms of employment as better sources of income as compared to farming.

Farmers were interviewed about their marital status. Main categories were married, single, divorced and widowed. It has been found that married farmers are the ones who are mostly involved in farming when compared to other categories of marital status. Both household size and income class have an influence on marketing since they affect consumption and production. A larger household size discourages selling because the household will consume a large amount and then sell the remaining. All farmers were asked to record their employment status; farmers were classified based on sources of income. The main categories identified were full-time and part-

time. Full- time farmers have dominated the scheme. One of the most important aspects that affect farming and marketing is education, and is directly linked to the ability to interpret and understand information. People with higher educational levels are more able to interpret information than those who have less education or no education at all (Makhura 2001). Thus, education levels affect market information interpretation and hence, market participation level of farmers. A greater percentage (64.5) of Abaqulusi smallholder farmers in crop production has gone up to primary level and 35.5 percent has gone up to secondary level.

5.3.2 Assets and land ownership

Abaqulusi Municipality is the area of high potential with the vast majority of farmers showing much interest in becoming commercial farmers. On the question about the farmers' long term goal, the vast majority of Abaqulusi farmers explained that they would highly appreciate it if they can be afforded the right to have their own land or expand their farming, have their own means of cultivation, their own value addition equipments and their own means of transportation. Theory point out that the economies of scale are of much importance if a firm is interested in reducing its transaction costs (Appleyard and Field, 2001).

All these farmers' aspiration depends mostly on the amount of land they have, thus farmers with enough land are able to make loans from formal banks instead of using the informal sources of finance (such as mashonisa) with sky rocketing interest rate. Majority of Farmers (51.6 percent) from Abaqulusi Municipality, particularly from 22 wards, farm on an average land of +/- 6 ha and only 22.6 percent of them hold the land as their own. This makes it uneasy for farmers to invest in their farms since they can be removed anytime. Farmers' will to expand their land is constrained by unavailability of arable land in the scheme. Thus if a farmer is interested in expanding his or her production she will have to look for land somewhere else. About 19.4 percent of the land is farmed on the lease basis and 51.6 percent borrows the land for free.

Based on these findings it is quite clear that if farmers were afforded a chance to participate in the commercial banks there would be able to acquire the land from owners who are not interested in farming. This might lead to increased investment in

land and ultimately farmers would produce efficiently and take advantage of the economies of scale. Asset ownership is another aspect that needs much attention. Abaqulusi smallholder farmers dependent a lot from the help of the extension officers through the projects run in their gardens. For instance for farming, farmers get tractor from KZN department of Agriculture and are given the seeds and fertilizers from the Department of Agriculture; to take their produce to the market, sometimes they get transport from the Department and for value addition, farmers use grading machines from other Agricultural cooperatives. All this offers takes free by the KZN Department of Agriculture. Other important point, thus the main part of the farming, is the cost of water and electricity. Water and electricity constitute the main inputs factors of the farmers , this is because for an irrigation system to function there is a need for electricity and diesel for generators to make sure that water is pumped to the their garden. The results of the study indicate that the vast majority of farmers are not aware of the water costs and the amount of water they use per month. This is attributed to poor record keeping and is against their long term aspiration of becoming commercial farmers.

5.3.3 Marketing

It has been observed that smallholder farmers in crop production under Abaqulusi Municipality mostly use fresh produce markets in Vryheid as their main market for their produce. From 22 wards, Vryheid market is at a distance of about 70 to 100 km and farmers are helped by the Department of Agriculture in terms of transport. Of course there are farmers whom their produce does not qualify to be sold at fresh produce market and they end up selling at farm gates. Some farmers do qualify to sell at the fresh produce market, but because of high transaction costs, e.g. transportation costs, they cannot afford to take their produce the market.

Majority of farmers (93.5 percent) under Abaqulusi Municipality different 22 wards are members of the cooperative and this corporative assist them in terms of reducing transaction costs. For example, in selling their produce farmers combine so as to minimize transportation costs. Majority of smallholder vegetable producers (51.4 percent) under Abaqulusi Municipality use hired transport. This transport is hired from the private truck hire at a cost of about R900-R1000 per trip to Vryheid market.

Speaking of requirements to the fresh produce market, market information is of important especially if reliable source of information is used. The majority of farmers (65.7 percent) at Abaqulusi municipality get information mostly from the extension officers. And these are the people who assist farmers from production point to sales of the produce. Value addition is also a major component at fresh produce market. It has been found that about 35.5 percent of farmers make use of an open and cold storage for their produce and this actually create market opportunities for their produce. For instance, produce can be stored while during the season when they are in high supply to seasons when they are scares, so as for farmers to reap high prices. At least about 80.6 percent smallholder vegetable producers at Abaqulusi they make use of facilities for cleaning, cooling, grading and processing in general. Thus that way they add value to their products.

The price in the market that is mostly used by farmers under Abaqulusi municipality is market driven. Interestingly, about 67.7 percent of farmers set prices on their own. This is what has been outlined by farmers as one of the major problem in marketing their produce. Another major problem faced by smallholder vegetable producers under Abaqulusi municipality is that when their produce has been taken to the market, they do not get remunerated early, instead their revenue get delayed for more than 3 months. The prices that that they set for their produce are also changed by market and they get less than they were expecting.

5.4 Conclusion

Descriptive analysis made in chapter 3 and 4 makes it possible to evaluate hypotheses made in chapter 1 and ultimately make conclusion. Here, a brief and straight to the point explanation pertaining hypothesis formulated in the first chapter is made and some conclusions are drawn per hypothesis.

The Main hypothesis: Agriculture related factors have an influence on market channel selection. This is the main hypotheses and therefore every hypothesis formulated under it will be looked closely below:

Hypothesis 1: Market participation level of smallholder farmers in crop production in either formal or informal channels is influenced by quality and the productivity level.

From the findings it was discovered that farmers participate mostly in the fresh produce markets and fruit and vegetable outlet. This indicates clearly that Abaqulusi smallholder farmers in crop production produce meet requirement of selling in these formal markets. It is important to note that markets such as fresh produce markets and Fruit and Veg outlets buy produce in bulks of which farmers from Abaqulusi smallholder farmers in crop production are able to meet such quantities. This is because those who cannot meet the quantities participate in the form of organizations. In cases where farmers find it difficult to meet formal market requirements they opt for informal markets such as hawkers and neighbours.

Hypothesis 2: Farmers' income level is influenced by specific market channel in which they participate in. The main channel used by Abaqulusi smallholder farmers in crop production is the formal market. That is, the sell most of their produce in the fresh produce market and Fruit and Veg outlets. Unfortunately, these main buyers (Fresh produce markets and Fruit and Veg) are price setters. Thus farmers sell their produce at a price which is much lower than expected. However, in selling to informal markets prices are set by the farmer or are market driven (that is, farmers' price based on the market forces).

This indicate clearly that farmers gain from participating in informal market than when participation in formal markets. Another advantage is that hawkers and neighbours buy produce from the farm gate. Thus farmers will not have to pay for transportation of produce to the market. The unfortunate part about informal market is that they are limited and not reliable.

Hypothesis 3: Farmers get more revenue by marketing through the formal markets. Formal markets, as emphasised above, constitute the most part of Vryheid smallholder farmers in crop production market. Farmers pointed out that they are price takers as far as selling in formal market is concerned. This is probably because farmers are not informed about their markets and exploitation by agent seems to be more prevalent in fresh produce markets. The more profitable market, taking in to account favourable prices, is the informal market (such as Hawkers and neighbours). However, informal markets buy in small amounts rather than in bulks and are not reliable. Therefore participation in the formal market, for Abaqulusi smallholder farmers in crop production, is a way to go.

5.5 Recommendation

Kwazulu-Natal Department of Agriculture have done very good job in assisting farmers ,with extension services, financial and it has a potential of contributing a lot to the livelihood of its citizens as much as food security, food self-sufficiency and job creation is concerned. However, converting the agricultural potential of the area to the real production tend to be something not easy to do. Throughout the study smallholder vegetable producers' problems were identified and the following recommendations arose:

Reducing farmers' reliance from Extension officers and the government from the production point of view, it is important that extension officers' approach to helping farmers is in such manner that farmers gain skills from them and are able to help themselves after acquiring those skills without the extension officers' intervention. For instance, there are basic important aspects of farming that are not practiced by Abaqulusi smallholder farmers in crop production. These basic principles include that of record keeping. The results point out clearly that farmers are not aware of their total cost of production. Thus they are granted whatever they need for production from the extension officers and don't write anything down.

- Improving farmers' skills so as to ensure that they are able to plan, make yields projections and diagnose problems for future purposes

Another recommendation from the production's view point is that of planning. Thus, given the experience, farmers should be able to plan, budget and make projection about what might happen in future. In order for farmers to achieve their long term goals of becoming successful, it is of fundamental importance that they are able to give projection on how much could be produced given the cost, amount of time and energy invested for production.

- Improvements of road infrastructure

As alluded under discussion and conclusion, roads to and from 22 wards at Abaqulusi Municipality are all gravel and when wet they become slippery making the fields unreachable both by vehicles and on foot. Most of the bridges leading to the wards villages are also narrow and too low hence water usually flows on top of them

when the streams flood. The road infrastructure in that region thus is a problem to certain extent. Addressing this infrastructure problem by upgrading the roads and raising the level of the bridges would go a long way towards attracting bigger market by making farms more accessible.

➤ Improving methods of value addition

From the results it has been shown that Abaqulusi smallholder farmers in crop production are adding value to their products, but there are advanced ways of adding value to agricultural products. If these smallholder farmers can have equipments to add value they can tap into profitable markets. In this way they can be responsive to consumer demands by producing what is desired.

➤ Creating markets for smallholder farmers

Having acknowledged the fact that majority of smallholder farmers in crop production under Abaqulusi Municipality do participate in formal markets, the study has revealed that these farmers are being cheated by formal markets in that they delay to pay farmers or not pay them at all. This problem could be corrected if governments can open central market areas where smallholder farmers in crop production can sell their produce. This where government will enforce such that the market is mostly owned by farmers so that they can get their money directly.

A binary regression model was used to analyze the farmers' decision to participate in markets and the factors influencing that choice. In the model, choice of market channel was represented by a dependent variables where participating in markets was set as a reference category. Choice of market channel describes the decision to sell produce to the informal or formal market.

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APPENDIX 1:

Questionnaire for marketing channels used by smallholder farmers in crop production : Case study of Vryheid(Abaqulusi Municipality)

BACKGROUND INFORMATION

Date.....

Interviewer.....

Name of Wards.....

Name of Respondent.....

Relation to household head.....

A.DEMOGRAPHIC DETAILS

Fill in the relevant information and where possible mark with X.

A.1 GENDER		A.2 AGE	A.3 MARITAL STATUS				A.4 HOUSEHOLD SIZE
M	F		Single	Married	Widowed	Divorced	

A.5.What is the highest educational level the head of household has completed?
(Mark with an X)

No formal	Primary school only	Secondary/High school	Tertiary Education	Other(specify)

A.6.Indicate the number of employees who assist with farm work

Type of employee	Full-time employees	Part-time employees	Unpaid family members	Total
Number				

A.7. What is your employment status and under what is your monthly income? (Mark as appropriate)

EMPLOYMENT STATUS					
Full time farmer	Part time farmer	Formally employed	Pensioner	Unemployed	Other(Specify)

INCOME (Rand per month)		

A.8.Where do you get money (capital) to invest in farming

SOURCE					
Borrowing from bank	Borrowing from friends	Borrowing from your family	Your own saving	State aid	Other(Specify)

B. LAND AND FARMING

B.1.Which types of farming are you involved into?

TYPE OF FARMING	Crop/ and vegetables	Tree farming

B.2.Indicate the land tenure system in use and how you acquired it

LAND TENURE SYSTEM		
Communal	Rent /Lease	Privately owned

HOW YOU ACQUIRED THE LAND			
Bought	Inherited	Resettled	Other(specify)

B.6 how do you cultivate your land? (Tick as appropriate)

Tractor	Animal drawn	Hand	Other(Specify)

B.7. Indicate the production inputs that you use

INPUT						
Treated seeds	Fertilizers	Pesticides	Insecticides	Water and Electricity	Herbicides	Other(Specify)

C.HUMAN CAPITAL ENDOWMENTS

C.1. For how long have you been farming.....years

C.2. How do you rate the farming knowledge applied on your farm?

Farmer knowledge	Poor	Average	Good
Employees knowledge	Poor	Average	Good

C.3. Is there any household member with any of the following skills

SKILL	Yes	No	Where they studied
Crop Production			
Financial management			
Marketing			
Risk Management			
Other(specify)			

C.4. What specific training do you need at your farm

	Reason why you think it is important
Marketing	
Budgeting	

Record keeping	
Other(specify)	

C.5.Do you attend workshops to learn about farming practices?

YES	How often?	NO	Reason for not

C.6. Indicate your proficiency on the following languages

LANGUAGE	Good	Poor
English		
Afrikaans		
Xhosa		
Sotho		
Zulu		

C.7. Which farm records do you keep?

Costs	Sales	Other(Such as:)

D. MARKETS

D.1. Which markets do you usually use for selling your produce

MARKET	Reason
Formal markets	
Informal markets	
I do not sell	

For crop and tree farming only

D.2. Approximately, how much produce did you sell in the previous season?

.....Kg

D.3. Where do you sell most of your produce?

PLACE	TICK as appropriate	Reason
Farm Gate		
Around the village		
Road side		
Nearest town		
Other countries(export)		

D.4. Do you always find a market for all the goods you produce?

yes		no	
-----	--	----	--

D.5. If NO, What happens to unsold produce? Mark with an X

Lose to spoilage	Eat(family and friends	Sell at low prices	Store and sell later	Process it

D.6. Is finding buyers for your produce easy or difficult? Mark with an X

Easy	Difficult

D. 7. Is your produce graded before trading?

Yes		No	
-----	--	----	--

D.9.Do you have problems meeting grades?

D. 10.Whats happens to produce with a poor grade?

Sell it at reduced price	Process into preserved product	Donate to schools	Discard it	Other (Specify)

D. 11.Which marketing systems are available in your area?

List the marketing systems	Mark those you are not satisfied with	Reason why you are not satisfied

D.12.How do you think the systems you are not satisfied with could be improved?

.....

.....

.....

.....

D.13. In terms of the market channels you use regularly, what are the main benefits?

Receive high prices	Understand contract	Provide inputs	Nearer	Other(specify)

D.15. Do you have regular customers, who always buy from you.

Yes		No	
-----	--	----	--

D. 16. If Yes, how long have you been trading with these customers?

D.17. How well do you know your customer?

D.18. How is your produce moved to the marketing points (Tick appropriate)

	TYPE OF TRANSPORT				
	Bike	Truck	Tractor	Bus	Other(Specify)

Own transport					
Hired vehicles(individual)					
Hired vehicles(group)					
Public transport					
Buyers transport					
Move animals by foot/head balancing crops					

D. 21. What general problem do you experience in moving your produce?

Small size of transport	Lack of Transport	High transport cost	Other(Specify)

D.22. Complete the table below for payments and how long it takes to receive the payment.

List the marketing channel	How are you paid?			Time taken for the payments
	Cash	Cheque	Other(specify)	

D.23. Before selling your produce what value adding activities do you perform? (Tick as appropriate)

Activity	Tick	Importance
Washing		
Packaging		
Cutting/Slaughtering		
Processing		
Other(Specify)		

E.INFRASTRUCTURE

E.1. What type of road serves the market?

Gravel only	Tarred	Both

E.2.How do you rate the road?

Bad	Fine	Good

E.3. Are you satisfied with the total number of roads that link you to the market?

Yes		No	
-----	--	----	--

E.6. Indicate the type of infrastructure you have access to

Infrastructure	Condition		
	Bad	Fine	Good
Value adding machinery			
Telephone			
Electricity			
Computer			
Water			
Other(Such as:)			

F.MARKET INFORMATION

F.1. Do you have access to market information?

Yes		No	
-----	--	----	--

F.2. Do you have access to market information prior to sales?

Yes		No	
-----	--	----	--

F.3. What are your sources of information?

SOURCE	TYPE OF INFORMATION provided						
	Rank	Prices	Dates for sales	Buyers	Market demand	Market opportunities	Other (Specify)
Public administration							
Media							

Extension offices							
Friends							
Co-farmers							
Buyers							
Other(Specify)							

F.4. What are your sources of information?

Daily	Weekly	Monthly	Bi-annually	Annually	Other(Specify)

F.5. Which language is used to deliver information?

English	Afrikaans				Other(Specify)

F. 6.How do you want the information to be delivered?

Post	Telephone	Internet	Cell phoneSMS	Extension officers	Tribal meeting	Farmer groups

F.7.Do you consult other farmers before making decision?

Yes		No	
-----	--	----	--

G.EXTENSION SERVICES

G.2. Do you contact extension officers during the marketing period?

Yes		No	
-----	--	----	--

G.3. What services are provided by extension officers?

Advice on marketing	Advice on record keeping	Other(specify)

G.4. Are the extension officers available when you need help?

Never available	Available sometimes	Always available

G.5. List the problems that you face in contacting extension officers?

.....

.....

.....

.....

.....

.....

H.INSTITUTIONAL SUPPORT SERVICES

H.1. Are you aware of the role played by organizations in marketing?

Yes		No	
-----	--	----	--

H.3. Are you a member of any organization?

NO	Reason for not joining	YES	Name of Organisation

H.4. If you are a member, how does the organization help you with produce marketing?

Provides market information	Have a life insurance	Lobby with policy makers	Setting one objective	Other(Specify)

H.5. How do you assess the legal system in your area?

	Good	Fair	Bad
(a) Legal protection of entrepreneurs against crime (b) Reinforcement of property rights (c) Transparency of Law (d) Consistency and enforcement of law			

H.6. What are the main challenges that you face in running your farming business?

	Minor challenge	Major challenge
(a) The search for information (b) Lack of support by the government (d) Bureaucracy (e) Financial (f) Problems associated with crime (g) Uncertainty of property rights (h) Corruption problems		

H.7. In which of the following sections do you think that lobbying towards your government would bring an improvement in the performance of your farm business?

	Important	Not Important
(a) Raise the prices of your produce (b) Import tax and other barriers (c) Export subsidies (d) Other(such as:)		

H.10. Do you receive and use farming and marketing advice that is given by non-family members?

.....

I. PRICING

I.1. Do you perform price surveys, before selling?

Yes		No	
-----	--	----	--

I.2. How is price set during the sales?

Yes		No	
-----	--	----	--

I.3. How do you decide the sale price of your produce? Mark with an X as appropriate

	Very important	Important	Not important
(a) It depends on the price of other local farmers			
(b) It depends on the price of international farmers			
© It depends on the market we sell			
(d) It depends on the production costs			
(e) It depends on the concentration of the market			
(f) It depends on the transaction costs			

I.4. How do the prices that the buyers are willing to pay differ from your expectations?

Lower than expected	Equal	Higher than expected

1.6. When negotiating prices, which language is used?

Own language(which is)	English	Afrikaans	Other(Specify)

