

DECLINING TOBACCO PRODUCTION ANALYSING KEY DRIVERS OF CHANGE

by

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Submitted in partial fulfilment of the requirements for the degree

MCom in Agricultural Economics

in the

Faculty of Economic and Management Sciences

University of Pretoria
South Africa

Date of submission:
24 November 2016

**FACULTY OF ECONOMIC AND
MANAGEMENT SCIENCES**



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ACKNOWLEDGEMENTS

This research would not have been possible without the support and encouragement from a number of individuals. I want to thank Prof Ferdi Meyer and Prof Corne' van Walbeek for their guidance and support throughout the completion of this thesis.

My appreciation is also extended to Una van Zyl at The Tobacco Institute of South Africa for her continuous assistance. Furthermore, I would like to thank Christo van Staden and Jaco Malan for introducing me to the world of tobacco production without their support this study would not have been possible. Although representatives from the tobacco industry assisted with access to respondents, resources, and details on tobacco farming in South Africa no financial assistance for the study came from the tobacco industry. The financial assistance from the American Cancer Society is acknowledged. The opinions expressed are those of the author and are not to be attributed to the American Cancer Society.

To Jean, Kiwiet, Matthew and Puccini goes my deepest appreciation for the hours of support and encouragement that they have provided. Lastly I would like to thank my parents for teaching me the importance of hard work and for all the sacrifices that they have made to ensure the best for their children.

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Declining tobacco production analysing key drivers of change

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Department: Economic and Management Sciences

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ABSTRACT

The size of the South African tobacco industry has been shrinking over the last 20 years. Tobacco production has decreased by 54% between 1990 and 2014. Along with the decline in the area of tobacco planted, the number of primary producers and tobacco processors have dwindled. South Africa serves as a case study to support the working committee for economically sustainable alternatives to tobacco growing (COP 6) in understanding the factors that impact producers exit decisions and the agricultural commodities that producers introduce once they leave tobacco production.

The Framework Convention on Tobacco Control seeks to find practical and cost effective control measures to reduce both the demand and supply of tobacco products. To achieve these ambitions, the working group for economically sustainable alternatives to tobacco growing was established. This working group seeks to understand all the elements of tobacco growing and the elements that drive the demand of alternative crops. The findings of this study supports the working group for economically sustainable alternatives to tobacco growing by providing insights on the factors that drive production and exit decisions. Additionally, it also identifies alternative crops that former tobacco producers have introduced.

At the time of this study no literature detailed the effects of the restructuring of the South African tobacco industry. This study details the impact that the restructuring of the South African tobacco industry had on tobacco producers and their production decision. Globally no research existed on the factors that drive tobacco producers exit decisions and the enterprises that they have switched to after they left tobacco production.

This study investigates which agricultural commodities former producers have changed to and what impacted their decision to make this change. Although profitability was cited as the primary reason to leave tobacco production and to change to the production of another crop; only 18% of producers were making a loss with tobacco at the time of their exit from tobacco production. The study found that the profit margin realised on tobacco had declined when compared to other crops. Further investigation found that the profitability of tobacco was influenced by a number of variables, in particular low producer prices, the rising cost of inputs and the availability of alternative crops. Another factor that impacted producers tobacco production decision was co-operative politics this had a major impact on producers decision to leave tobacco production; not only had a number of former producers declined to participate in the survey because of co-operative politics but a number of current producers had left tobacco production during the restructuring of the South African tobacco industry. The events during the restructuring of the South African tobacco industry (the merger of three co-operatives and the closure of two co-operative owned processing facilities) created instability in the industry.

While investigating the alternative crops that producers had introduced, once they had left tobacco production or had diversified to while producing tobacco, it was found that there were regional differences in the agricultural commodities that were introduced and that there is no clear trend of the commodities that producers have introduced. Along with profitability other factors impacting producers' decisions to change to the production of an alternative agricultural commodity is detailed in the study.

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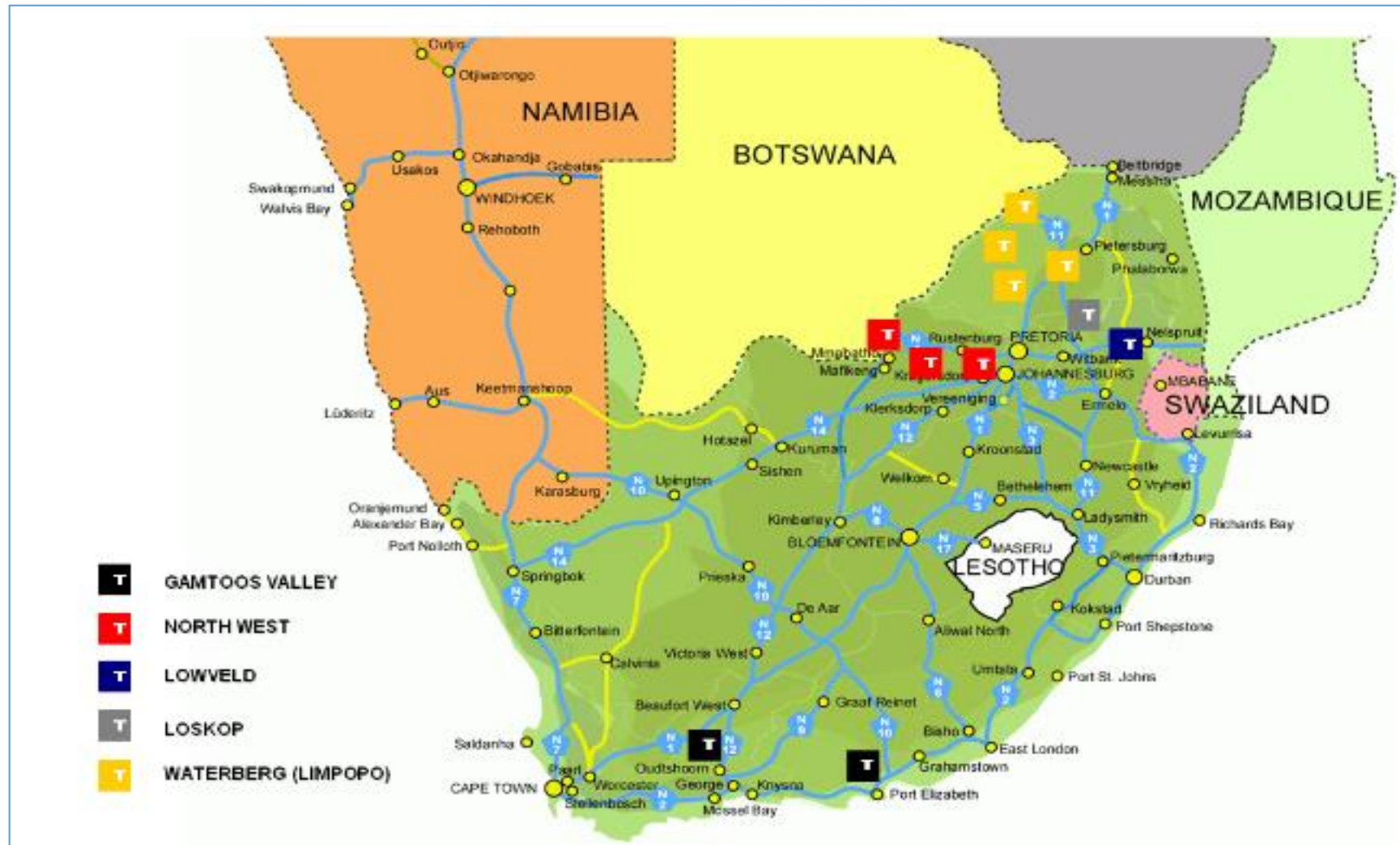
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1 THE FRAMEWORK CONVENTION ON TOBACCO CONTROL APPLICABILITY ON THE SOUTH AFRICAN TOBACCO INDUSTRY

1.1 BACKGROUND

South Africa produces predominately Virginia air- and flue-cured tobacco, and, on a smaller scale, Virginia sun-cured tobacco. “The most common curing process is known as flue-curing. Used mainly in the manufacture of cigarettes, the most common type of flue-cured tobacco is Virginia. This tobacco is also known as 'bright tobacco' because the heat-drying process gives the leaves a bright, golden colour” (ITGA, 2013). While flue cured tobacco is cured in tobacco barns “air cured tobacco is traditionally cured hanging in structures with a roof, but with open sides to allow air to freely circulate” (ITGA, 2013). “Air cured tobacco is subdivided into dark air-cured and light air-cured tobacco. Burley is the second most popular tobacco in the world, belonging to the light air-cured variety” (ITGA, 2013). “A comparatively small amount of tobacco is sun-cured. Leaves are exposed to the sun to remove most of their moisture. Of all sun-cured tobaccos, the best known are the so-called Oriental tobaccos” (ITGA, 2013). “Oriental tobacco is characterised by high aroma from small leaves, being low in both sugar and nicotine” (ITGA, 2013). Figure 1 (Van Zyl, 2013) provides an overview of the main tobacco production regions in South Africa; Gamtoos and Loskop Valleys, Lowveld, North West, Klein Karoo and Bushveld regions. A mixture of flue-, air- and sun-cured tobacco is produced in all of the production regions with the exception of the Klein Karoo and the Gamtoos Valley where air-cured tobacco is produced exclusively (Figure 2).

Figure 1: Tobacco production regions



Source: Van Zyl, 2013

Figure 2: Types of tobacco produced in the different regions



Source: Own

Tobacco (leaf) production in South African has dwindled between the years 2001 and 2014. The total area used for tobacco production decreased by 69% and the amount of tobacco produced decreased by 63% (Department of Agriculture, Forestry and Fisheries [DAFF] 2015, pp32-33). The Department of Agriculture Forestry and Fisheries as well as SARS were consulted to obtain a breakdown of tobacco leaf imports and exports. This data was unavailable and consequently the import and export data from International Trade Centre

Trade Map market analysis tools 2015 was used. Tobacco imports and exports are classified into three broad categories unmanufactured and refuse tobacco, cigars, cheroots, cigarillos and cigarettes and pipe, chewing and snuff tobacco. The total amount of tobacco products (tons) that South Africa imports has increased by 83% between 2001 and 2014 while the amount of tobacco products exported has decreased by 62% during the same time period (International Trade Centre, 2015). This increase in imports is driven by the increased amount of pipe, chewing and snuff tobacco that South Africa imports while the decline in exports is driven by the decreasing amount of unmanufactured and refuse tobacco exported by South Africa. With only a third of the leaf processors remaining (Van Zyl, 2016) provided statistics on the number of tobacco producers. Between 2001 and 2014 tobacco's contribution to total agricultural exports has halved (in 2001 tobacco exports accounted for 4% of total agricultural exports and 2% in 2014 (International Trade Centre, 2015).

As reflected in the trade data, tobacco production has decreased significantly; this is partially attributable to the fact that agriculture in South Africa has completed a full circle (Groenewald, 2000) from a highly regulated industry to a liberalised one. Like other agricultural sectors, the tobacco sector has evolved within this landscape.

In the Union of South Africa various Acts such as the Land Bank Act, Land Settlement Act, Co-operative Societies Act and Marketing Act of 1937 and 1968 enabled government to intervene and control agriculture (Groenewald 2000). These Acts enabled government to protect the tobacco sector and other sectors from international competition through import quotas, export subsidies and price controls that were implemented by the Tobacco Control Board. The Tobacco Control Board was committed to purchasing the entire supply of tobacco at a fixed price that was negotiated with representatives from the tobacco value chain. The Board appointed agents (tobacco co-operatives) to determine prices, register processors, enforce regional boundaries for delivery, implement tobacco grading systems, purchase tobacco, monitor imports and exports and enforce levies to cover research and administrative costs (Fourie, 1992, pp31-33). Furthermore, co-operatives extended financing and export subsidies to producers on behalf of the Tobacco Control Board. Under the Marketing Act, tobacco producers benefited from price controls, export subsidies and access to production credit while tobacco co-operatives assumed the risk and responsibility of marketing tobacco.

Structural changes in agricultural markets were prompted by reforms that were occurring in the broader macro-economy. The worldwide phenomenon of deregulating agricultural and agri-food markets was introduced at the Uruguay Round of Trade Negotiations, which started in 1986 and resulted in the Marrakech agreement signed in 1994 (Doyer, Kirsten and van Rooyen, 2007, pp495) and had a significant impact on the structure and responsibilities of actors within the industry (Doyer et al., 2007, pp495).

In a deregulated environment the immediate effect on agriculture came from changes in the external value of the currency and in the interest cost of farm borrowing (Kirsten, Vink and van Zyl, 2000, pp20). The change in the regulation and implementation of policy meant that tobacco producers were exposed to market-related interest and exchange rates; this had a significant impact of farm profitability as farm input costs were rising faster than farm output prices, given the large import component of farm input costs (Kirsten et al., 2000, pp30). A further effect of the changes in agricultural policy was the aggregate decline in farm size, shifts in the cropping pattern, and the relative absence of yield effects (Kirsten et al., 2000, pp30).

1.2 PROBLEM STATEMENT

The size of the primary tobacco industry in South Africa has declined significantly since the early 1990's; the area under tobacco production and the number of primary producers have decreased with as much as 80% between 1992 and 2015 (DAFF, 2015 pp32-33). With the area under tobacco production and the number of tobacco producers dwindling, tobacco production has decreased by 59% from 35 000 tons in 1992 to 14 300 tons in 2015. The key drivers of this decline in tobacco production are unknown as is the whereabouts of producers who previously produced tobacco. Have these producers switched to alternative crops or have they left agriculture as a whole?

1.3 PURPOSE STATEMENT

Given the decline of tobacco production in South Africa, South Africa serves as a case study to support the working committee for economically sustainable alternatives to tobacco growing (COP 6) in understanding the elements that affect tobacco farming and to identify alternatives commodities that tobacco producers have switched to.

1.4 RESEARCH OBJECTIVES

The objectives of this study are shaped by articles of the FCTC that focus on tobacco supply reductions. The articles of the FCTC focus on core demand and supply reduction provisions; these are Articles 6 to 14 and Articles 15 to 17; this study focuses specifically on Article 17.

Demand side reduction measures that are outlined in Articles 6 to 15 are enforced through price and tax measures as well as non-price measures such as protection from tobacco smoke, regulating the contents on tobacco products, enforcing product disclosures, establishing packaging and labelling norms, creating public awareness around tobacco consumption and banning the advertisement of tobacco products. At the same time the FCTC recognised the need to promote economically viable alternatives for tobacco growers, workers and individual sellers. Globally tobacco is the largest non-food cash crop by monetary value in the world (World Health Organisation n.d). Due to its high monetary value, tobacco is an attractive cash crop to many farmers. To successfully decrease the supply of tobacco these farmers and workers must be provided with a mix of crops that is economically viable given the available infrastructure in their regions.

In order to implement Article 18, there needs to be an understanding of the factors that influence producers' production and diversification decisions. The study recognises the lack of research focused on understanding the effect structural changes have on producers' production decisions and the behavioural aspects of diversification and exit decisions. Using South Africa as an example of a country where the tobacco industry has been affected by both structural changes and the availability of viable alternatives, this study sets out to investigate the gaps that exist in existing research and to gain an understanding of the nuances that are specific to agriculture in South Africa.

The objectives of this study, taking into account the problem outlined above and the recommendations of the working committee, are:

- To determine the demographic characteristics of South African tobacco producers
- To identify factors that have impacted current and former tobacco producers' decision to produce tobacco
- To understand what drove the decline of tobacco production in South Africa
- To explore if successful transitions have been made to by tobacco producers to other crops

1.5 DEFINITION OF KEY TERMS

Table 1: Defining key terms used

Abbreviation	Meaning
Air Cured Tobacco	Air-cured tobacco, such as Burley, is hung in unheated, ventilated barns to dry naturally until the leaf reaches a light to medium brown colour. At this point, there are virtually no sugars left in the leaf.
Burley Tobacco	Burley tobacco is a light air-cured tobacco used primarily for cigarette production.
COP	<p>The Conference of the Parties (COP) is the governing body of the WHO FCTC and is comprised of all Parties to the Convention. It keeps under regular review the implementation of the Convention and takes the decisions necessary to promote its effective implementation, and may also adopt protocols, annexes and amendments to the Convention.</p> <p>The Conference of the Parties (COP) established working groups to elaborate guidelines and recommendations for the implementation of different articles of the WHO FCTC. One of the working groups currently mandates by the COP is the working group on economically sustainable alternatives to tobacco growing (in relation to Articles 17 & 18). Key facilitators for the working group is Brazil, Greece and Turkey and partner countries on the working committee are Australia, Belarus, China, Colombia, Congo, Costa Rica, Czech Republic, European Union, Georgia, Guatemala, Honduras, Hungary, Italy, Japan, Kenya, Madagascar, Mali, Nicaragua, Pakistan, Philippines, Senegal, South Africa, Spain, Swaziland, Syrian Arab Republic, The Former Yugoslav Republic of Macedonia, Togo, Uganda, United Republic of Tanzania, Viet Nam, Zambia (Who.int, 2017).</p>
DAFF	Department of Agriculture Forestry and Fisheries



Abbreviation	Meaning
EU	European Union
FCTC	<p>Framework Convention on Tobacco Control</p> <p>The WHO Framework Convention on Tobacco Control (WHO FCTC) is the first treaty negotiated under the auspices of the World Health Organization. The WHO FCTC is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. The WHO FCTC was developed in response to the globalization of the tobacco epidemic. The spread of the tobacco epidemic is facilitated through a variety of complex factors with cross-border effects, including trade liberalization and direct foreign investment. Other factors such as global marketing, transnational tobacco advertising, promotion and sponsorship, and the international movement of contraband and counterfeit cigarettes have also contributed to the explosive increase in tobacco use.</p>
Flue Cured	<p>Heat is introduced into a barn via pipes from an exterior furnace, like radiators connected to the central heating system. This controlled heat allows the leaves to turn yellow/orange, at which point they are fixed, containing a high amount of sugar. Virginia tobacco is flue-cured.</p>
ITGA	International Tobacco Growers Association
LTP	<p>Limpopo Tobacco Processors</p> <p>process tobacco leaf from producers and sell the processed leaf to buyers like Philip Morris International (PMI), British American Tobacco South Africa (BATSA), Imperial Tobacco, Swedish Match, and Japan Tobacco International.</p>
MKTV	Magaliesbergse Ko-operatiewe Tabakplanters Vereeniging
Oriental Tobacco	<p>Also known as Turkish tobacco. It is a highly aromatic, small-leafed variety of tobacco which is sun-cured.</p>
PTK	Potgietersrus Tobacco Co-operative Limited (
SAGL	South African Golden Leaf
Sun Cured	<p>Leaves are strung out on racks and exposed to the sun for 12 to 30 days. The sun's direct heat fixes the leaves at a yellow to orange colour with a high sugar content. Oriental is the most prominent of the sun-cured tobaccos.</p>
ULSA	<p>Universal Leaf South Africa</p> <p>Process tobacco leaf from producers and sell the processed leaf to buyers like Philip Morris International (PMI), British American Tobacco South Africa (BATSA), Imperial Tobacco, Swedish Match, and Japan Tobacco International.</p>
Virginia Tobacco	<p>It is also called 'bright tobacco' because of its yellow to orange colour, achieved during flue-curing.</p>
WHO	World Health Organisation

1.6 ACADEMIC VALUE OF THE STUDY

According to the World Health Organisation (WHO), tobacco consumption is one of the five greatest mortality leaders (World Health Organisation 2016,'Tobacco', para 1) accounting for six million deaths annually (World Health Organisation 2016,'Tobacco', para 1). In an endeavour to understand this epidemic and to find practical and cost-effective control measures, the Framework Convention on Tobacco Control (FCTC) treaty was developed. The treaty (FCTC) reaffirms the right of individuals to the highest standard of health and seeks to protect future and present generations from the health, social, environmental and economic consequences of tobacco consumption (World Health Organisation 2016,'Tobacco', p11).The treaty came into force in February 2005 and was signed by 180 member states (World Health Organisation, 2015); it aims to achieve its objectives through measures that reduce both the demand and supply of tobacco products (World Health Organisation n.d). Demand reductions, such as price and tax measures (as well as non-price measures), are encouraged, while supply reductions impact the entire tobacco supply chain. During Congress of the Parties (COP) 5, a working group for economically sustainable alternatives to tobacco growing (Article 17 and 18) was established. As presented at COP 6, the working group recommends that research should investigate all elements that relate to tobacco growing, the demand for tobacco and alternative crops, as well as the environmental impact of production of tobacco and alternative crops (FCTC/COP 6, 2014, pp.93-100). Given that tobacco production in South Africa has decreased in size and importance, the South African tobacco sector can serve as a case study to examine which factors drove this decline and what has happened to former tobacco producers. The South African tobacco industry is analysed in the context of the working committees' recommendations and the broader objectives of the FCTC to see if there are any insights that could inform the implementation of Articles 17 and 18 in other countries.

1.7 OUTLINE OF THE STUDY

This dissertation is organised into five chapters. The first chapter introduces the problem statement and objectives of the study. The second chapter describes the evolution of the South African tobacco sector in context of the structural changes that took place in the

agricultural industry. Chapter three contains a literature review to provide an understanding of which factors prompted producers to leave the agricultural sector and focuses specifically on the factors impacting farmers' decisions to produce tobacco. In the fourth chapter the results from the surveys conducted, with current and former tobacco producers, is interpreted using basic statistics given the qualitative nature of the data that was collected. A summary of the study and concluding remarks are given in chapter five

2 THE EVOLUTION OF SOUTH AFRICAN TOBACCO PRODUCTION

2.1 INTRODUCTION

South Africa serves as a case study of a country in which tobacco production has decreased significantly. I will examine the factors that have impacted farmers' tobacco production decisions, and evaluate the success of alternative crops introduced. In order to do this, it is important to gain an understanding of the landscape in which tobacco producers operate. Various events have occurred at a macro-economic and sector-specific level that may have influenced the decisions and behaviours of actors within the agricultural sector. This chapter provides an overview of the structural changes that have taken place in the South African agriculture and tobacco industries.

2.2 THE REVOLUTION OF AGRICULTURE IN SOUTH AFRICA

“There has been a long history of state intervention in South African agriculture, which reached a zenith around 1980 with a host of legislation designed to control agricultural production” (Kirsten, Vink, Van Zyl, 2000, pp22). This legislation continues to affect some aspects of agriculture, including agricultural pricing, access to and use of natural resources, finance, capital, labour, markets, and foreign exchange (Kirsten et al., 2000).

Prior to the formation of the Union of South Africa producers were responsible for marketing their own produce and negotiating prices with tobacco processors (Fourie, 1992 pp31). Because of fierce competition among tobacco producers, it was believed that there was a need to market tobacco harvests jointly. Tobacco producers felt that the formation of a co-operative would enable them to benefit from joint sales, and mass storage, and preparation of leaf tobacco, which would reduce the cost of preparing leaf tobacco for sale (Fourie, 1992 pp36). This led to the first tobacco co-operative being registered in 1909 (Fourie, 1992 pp37).

Once the Union of South Africa was formed in 1910 (SAHO, 2011), several structural changes took place that allowed for government interference in and control of agriculture (Groenewald, 2000). The Land Bank Act, the Land Settlement Act, and the Co-operative Societies Act were passed with the view to securing price stability and narrowing the gap between consumer and producer prices (Competition Commission 2009). These Acts and the Co-operatives Societies Act of 1925 enabled co-operatives to thrive while facilitating group sales, bulk storage, and bulk purchases of inputs. At this time the Central Co-operative Tobacco Company of South Africa was formed. This organisation brought stability to the tobacco marketing process through implementing a uniform tobacco grading system. This provided a measure of certainty for both producers and buyers (Fourie, 1992, pp33). As with maize, stable producer prices and lower input and processing costs resulted in an over-supply of tobacco and the stockpiling of surplus harvests. Consequently, the Tobacco Regulatory Act (Act 19 of 1932) was invoked and tobacco export quotas were introduced to limit the stockpiling of tobacco leaf.

The amendment in 1968 of the Marketing Act of 1937 enabled the government to increase their control over agriculture through a system that controlled market movements, pricing, quality standards and the supply and sales of farm produce (Doyer et al., 2007, pp496). Under the Marketing Act of 1968, 23 control boards were responsible for the marketing and control of agricultural products. Each board was responsible for either a single agricultural product or a group of products. Five types of control schemes were used to stabilise prices and control the marketing of agricultural goods. These included:

- A Single-Channel Fixed Price Scheme in which the total production was purchased at a price set by the board, e.g. for maize (Doyer, et al., 2007, pp496).
- Single-Channel Pool Schemes, where the control board was the only buyer and seller, e.g. oilseeds and leaf tobacco (Doyer, et al., 2007, pp496).
- A Surplus Removal Scheme in which, in the event of an oversupply, the board would remove these products from the market and deliver them to the market when there was a shortage, e.g. for red meat (Doyer, et al., 2007, pp496).
- Supervisory Schemes in which boards would manage sale processes through negotiations with buyers, e.g. canning fruit and cotton (Doyer, et al., 2007, pp496).

- Publicity Schemes which only allocated advertising to the control boards, e.g. Karakul pelts) (Doyer, et al., 2007, pp496).

As co-operatives grew their role in determining tobacco prices increased. This change in the organisational structure of the tobacco industry informed the Tobacco Control Act of 1935 (Act 17) which introduced a controlled one-channel pool system and created a tobacco industry control board to direct and control the tobacco industry. When the Marketing Act (Act 26 of 1937) came into effect, the Tobacco Control Scheme was reconstituted as the Tobacco Control Board. The Board was committed to purchasing the entire supply of tobacco at a fixed price, in both good and bad years. The Board appointed agents (tobacco co-operatives) to determine prices, register processors, enforce regional boundaries for delivery, implement tobacco grading systems, purchase tobacco, monitor imports and exports, and enforce levies to cover research and administrative costs (Fourie, 1992, pp31). These agents also extended financing and subsidies to producers on behalf of the Tobacco Control Board.

2.3 ROLE AND SCOPE OF TOBACCO CO-OPERATIVES UNDER THE CO-OPERATIVE SOCIETIES ACT AND THE MARKETING ACT

Under the Marketing Act (Act 59 of 1968, as amended) six tobacco co-operatives were established. These co-operatives were governed by the Co-operative Societies Act of 1925 and the Marketing Act of 1937. The Co-operative Societies Act ensured that each of the co-operatives operated in a different geographical region and was responsible for enforcing regional boundaries for delivery.

The information for the following overview of the role and scope of tobacco co-operatives comes from surveys conducted, correspondence with Tobacco Institute of South Africa, and 'Daar is sonskyn in my blaar'.

2.3.1 Magaliesbergse Ko-operatiewe Tabakplanters Vereeniging (MKTV)

The MKTV was one of the first tobacco co-operatives and was established prior to the implementation of the Co-operative Societies Act. The co-operative was born from producers' need to negotiate with tobacco processors (tobacco processors thresh and process tobacco to form tobacco blends) as a collective to secure higher prices for their crops. The co-operative was, however, closed a mere two years after its formation. Under the leadership of George Wilhelm Otterman producers in the area set out to lobby for support for the tobacco sector (Fourie, 1992, pp36-38). They succeeded and the co-operative was revived under the Agricultural Societies Act of 1908, the second co-operative to be established under this Act.

The main objectives of the co-operative were to sell tobacco at competitive prices, to supply inputs to farmers at reduced prices and to represent the interests of farmers within the industry. During the formative years of the co-operative there were a number of problems around the marketing of produce. Tobacco processors often bought tobacco directly from producers and not through the channels that existed within the co-operative, while the co-operative had to manage and store a surplus supply of tobacco. The amendments to the Co-operative Societies Act of 1925 made it compulsory for producers to market their crop through a co-operative. This change in regulation addressed the marketing challenges previously faced by the co-operative. Over time, the MKTV expanded its storage and processing facilities, and opened them up to other co-operatives to ensure the long-term success of both MKTV members and members of other co-operatives.

The MKTV was one of the three co-operatives that was involved with the merger to form Limpopo Tobacco Processors during the restructuring of the tobacco industry. During the merger of the three co-operatives it was decided that the processing facilities of the MKTV will be used by the newly formed Limpopo Tobacco Processors and that the processing facilities of the remaining two co-operatives would be closed down.

2.3.2 WESPRO Köoperasie

WESPRO was a small co-operative in the Franschhoek valley in the Western Cape and was the sole co-operative that processed Oriental tobacco. Oriental tobacco production took place in the Franschhoek Valley, Stellenbosch, Malmesbury, Paarl, Wellington and Tulbagh regions on a small scale, as tobacco was never one of the primary crops produced in the region. At the height of Oriental tobacco production there were 160 Oriental tobacco producers.

At first, producers marketed their own crops, with little success; in 1907 the Western Cape region moved towards a public auction system to sell tobacco produced in the region (Fourie 1992). After this system proved unsuccessful the Western Province Tobacco Growers Company was established in 1912 (Fourie, 1992, pp40). Over time, tobacco production methods were improved to increase the yields of Oriental tobacco in a region which was negatively affected by adverse weather conditions and labour shortages (Fourie, 1992, pp41). One of the changes that was made was to move from dry land tobacco production to producing tobacco under irrigation.

During the early 1980s tobacco processors set a limit of 2.5% as the maximum chlorine content that tobacco leaves could contain (Fourie, 1992, pp41). Many producers in the region who had produced tobacco under irrigation had higher chlorine levels than processors would accept. High chlorine levels were a result of the quality of the water that was available in the region; high chlorine levels in the tobacco impacts the quality of the tobacco produced and affects the rate at which the tobacco burns.

During this period the profitability of long-term crops such as wine grapes and fruit had increased and farmers in the region were able to produce these crops at a competitive rate. Along with the profitability of long-term crops, deteriorating water quality, high chlorine levels, and the increasing scarcity and cost of the land needed to produce tobacco caused tobacco producers to leave the tobacco industry (Fourie, 1992, pp40-41). The producers who left tobacco production were not replaced by new entrants because of the specialised

nature of tobacco production and high amount of capital required to start tobacco production (Fourie, 1992, pp40-41).

This tobacco co-operative is no longer operational given the decline of tobacco production in the region.

2.3.3 Kango Köoperasie Limited

KANGO Limited was established in 1926 to support the long-term growth and stability of the tobacco and wine industries in the Oudtshoorn region (Fourie, 1992, pp42-43). The production of both tobacco and wine vines was small but complemented the crop rotation programmes practised by producers in the region. A general trend among farmers in the region was towards mixed farming. Because of the scarcity of water in the region tobacco was produced on a small scale. Tobacco production declined in the region as a result of high chlorine levels in the water, rising input costs, and the availability of economically viable alternatives such as ostrich breeding and vegetable seed production.

The tobacco operations of the Kango Köoperasie is no longer operational as result of the decline of tobacco production in the region. Today tobacco producers in the Oudtshoorn region deliver tobacco to ULSA.

2.3.4 Lowveld Tobacco Co-operative

Tobacco had been produced in the Lowveld for a number of years before the region turned to marketing tobacco collectively. The Spear family drove the implementation of co-operative marketing of tobacco in the region and the co-operative marketing of tobacco started in 1926 (Fourie, 1992, pp45). Originally the region produced Burley tobacco. In the late 1950s producers started to investigate the production of flue-cured tobacco. The co-operative looked after two regions: The Lowveld and Ohrigstad (Fourie, 1992, pp45-46). Producers in Ohrigstad continued to produce Burley tobacco while those in the Lowveld started to move towards the production of Virginia flue-cured tobacco (Fourie, 1992, pp46). 1984 marked the

beginning of the demise of Burley production in South Africa, as cheaper Burley imports were available from countries such as Malawi. By 1988 it was no longer viable to produce Burley tobacco. The producers who had moved to producing flue-cured Virginia tobacco were realising healthy profits and expanding their production (Fourie, 1992, pp46).

2.3.5 Gamtoos Co-operative Tobacco Company Limited

The production of air-cured tobacco started in the Gamtoos Valley in 1928 (Fourie, 1992, pp50). Initially this tobacco was sold to a manufacturer based in Oudtshoorn. In 1936 the Gamtoos tobacco co-operative was established and provided storage and other services for producers (Fourie, 1992, pp50).

The Gamtoos Valley is well suited to the production of citrus. Over time producers increased the number of citrus orchards, at the expense of tobacco production. With tobacco plantings declining, the amount of tobacco processed by the co-operative decreased steadily over time. This meant that the processing facility was operating below breakeven capacity. Processing costs charged to producers therefore continued to increase as more producers stopped producing tobacco. The co-operative eventually closed their processing facility as it was no longer economically viable for either the co-operative or individual producers to continue with the production of tobacco.

2.3.6 Potgietersrus Tobacco Co-operative Limited

The Potgietersrus Tobacco Co-operative Limited (PTK) was founded in 1933 and served farmers in Limpopo, KwaZulu Natal, the Eastern Cape, Venda, and Namibia (Fourie, 1992, pp47). Given the geographical reach of the co-operative, it processed a number of varieties of tobacco. The PTK is known primarily as the co-operative that processes the largest amount of air-cured tobacco in South Africa (Fourie, 1992, pp47).

Over time, the PTK expanded the range of services offered to members. The services extended to members included input finance, crop insurance, primary and secondary

tobacco processing facilities, subsidised logistics services for tobacco producers, expert support for producers to class and grade their tobacco harvests, tobacco inputs, and curing barns. Initially these services were only available to tobacco farmers, but when PTK bought the Northern Co-operative Gin Limited (Noordelike Kooperatiewe Pluismeulens Beperk), these services, as well as others, were made available to both PTK members and non-members (Fourie, 1992, pp48-49).

The dismantling of the statutory Marketing Boards made it increasingly important for agriculture to compete with internal market players. In an attempt to increase the efficiencies within the tobacco industry, the operations of the three processing plants (MKTV, SAGL and PTK) were consolidated and the SAGL. The PTK co-operative and processing plants were shut down at this time.

2.4 TOBACCO PRODUCTION IN A CONTROLLED AND REGULATED ENVIRONMENT

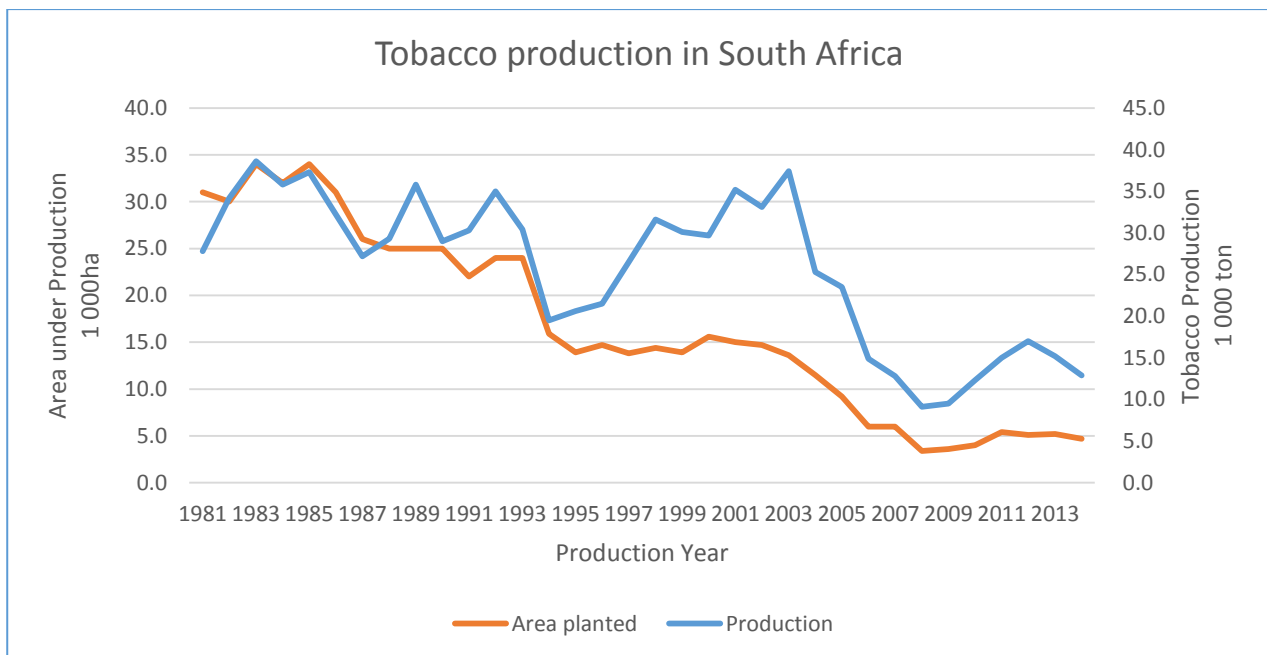
The earliest production data available are from the 1970 production season, that is, two years after the Marketing Act was introduced. If I look at tobacco production; from 1970 to 1978, I can get a clear picture of tobacco production in an environment where government controlled agriculture and co-operatives acted as agents to control pricing, quality standards, and the supply and sale of farm produce. This period should exclude the effects of any actions or reversals of policies that affected price distortion, as these reversals of policy began during the 1980s. It is evident that tobacco production thrived under these conditions, with the area under tobacco production increasing from 36 000 ha to 47 000 ha over a period of eight years, while tobacco production increased from 32 500 000 tons to 47 700 000 tons (DAFF, 2015, pp32-33).

South Africa experienced a number of political changes and considerable political and economic instability during the 1980s (Kirsten et al., 2000, pp23). The political instability affected agricultural production. Agriculture had been characterised by state intervention through laws, statutes and regulations—the 1980s saw the reduction of price controls and

other measures included in the marketing policy. This shifted pricing policy away from the cost-plus pricing methods used in market-based pricing (Kirsten et al., 2000, pp31).

The effect of instability in the wider economy and the reversal of policy measures can be seen in tobacco production figures. Figure 2 shows that the area under cultivation declined from 40 000 hectares to 22 000 hectares. This marked the start of a longer-term trend in decreased tobacco production in South Africa.

Figure 3: Tobacco production in South Africa



Source: DAFF, 2015, pp32-33

After structural changes to agriculture in the 1980s, there was a further realisation that controlled sectors such as maize were growing marginally while uncontrolled sectors such as poultry and horticulture were growing steadily. Criticisms of the act in the 1990s were prompted by political reforms and wider fiscal considerations. An official investigation into the agricultural marketing system was launched. The enquiry into the Marketing Act, known as the Kassier Commission, recognised the need for market reform and recommended that all control boards be abolished. The Marketing Act of 1968 was finally repealed and replaced by the Marketing of Agricultural Products Act, 1996 (Act 47 of 1996). “The 1996 Act promoted the efficient marketing of agricultural products, increased market access for all

participants, and the optimisation of export earnings” (Competition Commission, 2009). This was achieved through abolishing quantitative trade restrictions and reducing trade tariffs. Quantitative trade restrictions, price supports, and subsidised interest rates that previously protected producers from international trends were no longer relevant. In response to the new structure and responsibilities that had to be borne by producers, new institutions were established (Competition Commission, 2009). This led to the abolishment of the Marketing Act of 1968 and the introduction of the Marketing of Agricultural Products Act, 1996 (Act 47 of 1996). It was under this Act that the Tobacco Control Board was dismantled in 1996. This and macroeconomic factors affected tobacco producers, who needed to produce quality tobacco efficiently to compete with international players. In parallel with these changes, several other changes had taken place within the macroeconomic environment that affected tobacco producers. The depreciating currency (Rand) meant that imported inputs had become more expensive and crops that were produced predominantly for export markets, such as citrus, had become more profitable. Furthermore, the cost of production financing had increased, as subsidised interest rates and discounted inputs were no longer available.

Not only had the structure of the agricultural market changed but various changes had occurred at a macroeconomic level that impacted the production decisions of producers. Trade reforms that were a result of the movement towards liberalised markets had a considerable impact on the agricultural environment (Doyer, et al., 2007, pp495).

In the Lowveld region the trade reforms that were introduced meant producers of Burley tobacco were no longer able to compete with international players. Processors were able to source Burley tobacco cheaper from countries like Malawi. According to Fourie (1992) it was no longer viable to produce Burley tobacco in 1988. By 1992, Burley tobacco was no longer being produced in South Africa (Fourie, 1992, pp45-46).

The depreciation of the Rand and abolishing of interest rate subsidies and price supports meant that farm profitability was under pressure (Kirsten et al., 2000). Adverse exchange rates drove input costs, while real prices received by producers had decreased as they no longer received an input subsidy or benefited from the price support mechanisms that were previously employed. According to Fourie (1992), tobacco producers were no longer able to produce tobacco that met processors’ requirements and many of the producers were in a

weak financial position. According to one of the respondents, many of the producers in the Bushveld region were unable to continue with tobacco production as they were unable to access subsidised financing with flexible repayment options from the co-operatives. This meant that they were unable to obtain commercial credit because of their existing debt burden. Other respondents noted that producer prices had decreased significantly during this period as a number of producers left tobacco production and turned to crops that were more profitable. Others decreased the amount of tobacco produced as they had already made the capital investment required to produce tobacco.

PTK members benefited from transport subsidies to deliver tobacco, access to tobacco experts, perineal insurance, and grading teams and curing barns at subsidised costs (PTK, 2002, pp82-86). Once these subsidies were removed, tobacco production was no longer profitable for many producers.

Respondents from the Gamtoos Valley and the Lowveld cited how a depreciated currency and the decreased profitability of tobacco encouraged producers in the region to expand to permanent crops like citrus and macadamia nuts that were suited to the export market. One of the respondents in Patensie (Gamtoos Valley) said that a number of producers started to establish orchards for citrus trees and continued to produce tobacco during the five-year period before the trees came into production. Similarly, producers in the Lowveld identified an opportunity to realise a profit with macadamias and systematically introduced macadamias for export markets. A large number of producers stated that a depreciated exchange rate affected their profitability negatively. A large portion of tobacco production inputs are imported and are affected by currency exchange rates. In addition, respondents were of the opinion that they were not able to compete with countries which had access to cheaper inputs, including labour because it no longer required that processors purchase a predetermined amount of tobacco locally.

As illustrated in Table 1 and Figure 3 both the number of primary producers and the hectares under tobacco production started to decline. Although various attempts were made to locate the missing data on the number of tobacco producers for the production years 2001 to 2006

in Table 1, I was unable to find the data for this period. The following institutions were consulted: The Tobacco Institute of South Africa, The Department of Agriculture Forestry and Fisheries, International Tobacco Growers Association year books and the archives at Limpopo Tobacco Processors. Between 1990 and 1996, after the Tobacco Board had been dismantled, the area under tobacco production decreased by 37 percent, from 22 000 hectares to 13 800 000 hectares (DAFF, 2015, pp32-33). According to respondents, individual producers had to increase the size of their operations in order to achieve economies of scale just to survive, while marginal producers were facing increased financial pressures as a result of rising interest rates.

In this environment, producers had to change their production patterns, develop the ability to respond to market signals, and establish new structures and institutions. New structures were in fact established: A number of smaller firms merged to compete with larger competitors, co-operatives were converted into private companies, and integrated their operations horizontally and vertically. Within these structures it became important for producers to understand and predict the preferences of buyers before their competitors (Kirsten et al., 2000). As a means of protecting their competitive advantage, producers had to differentiate their produce by producing crops of superior quality, realising operational efficiencies (Doyer, et al., 2007) or adding value to products. During this period of restructuring production patterns changed dramatically, average farm sizes declined and the declining profitability of agriculture meant that the financial position of some farmers deteriorated as access to external finance became more difficult.

The structuring of the tobacco industry was influenced by a number of events; The dismantling of the statutory Marketing Boards meant that the tobacco industry, like the rest of the agricultural sector, was under pressure to increase efficiency to compete with international market players. Tobacco producers were unable to produce tobacco competitively in a deregulated market for a number of reasons, including an over-capacity of processing infrastructure in relation to the size of tobacco production, top-heavy management structures, and high processing costs. As a result, the structure of the South African tobacco industry was reviewed. Various measures were taken to ensure the survival of the industry. These measures included attempts to streamline management and

operations and to optimise the usage of processing facilities. At this time the three processing plants in South Africa (PTK, SAGL and MKTV) were reduced to one, with the processing plant of the MKTV being retained. Within these new structure processors placed an emphasis on the quality of tobacco produced to ensure that there would be a market for leaf tobacco produced in South Africa. The new structure of the South African tobacco industry, the increased importance of producing quality tobacco, and the uncertainty associated with the consolidation of South African tobacco industry -, lead to a decrease in the area under tobacco production in South Africa from 25 300 000 hectares in 2004 to 14 900 000 hectares in 2006.

Table 2: Number of Tobacco producers in South Africa: 1992- 2016

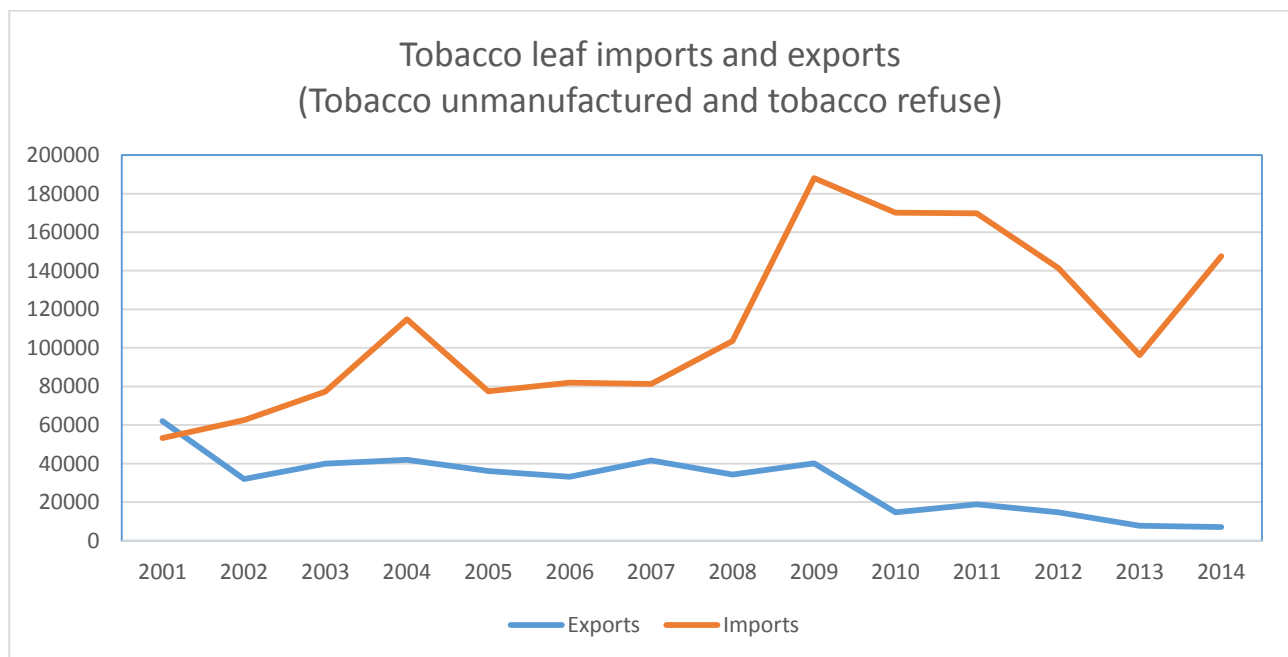
Production Year	Number of Producers	Production Year	Number of Producers
1992	909	2005	300
1993	848	2006	
1994	760	2007	170
1995	663	2008	133
1996	642	2009	133
1997	691	2010	157
1998	669	2011	177
1999	630	2012	178
2000	615	2013	184
2001		2014	175
2002		2015	192
2003		2016	189
2004			

Source: Tobacco Year Book 1992, Tobacco Year Book 1993, Tobacco Year Book 1994, Department of Agriculture, Forestry's and Fisheries, 2011, Van Zyl, 2016

The removal of interest rate subsidies and price supports meant that producers were no longer protected from international competition with regard to the price and quality of produce to realise a profit. As shown in Figure 3, between 2001 and 2014 the balance of trade position of tobacco changed from South Africa being a net exporter of unmanufactured tobacco to South Africa being a net importer of raw tobacco. Today the South African tobacco industry makes a relatively small contribution to both the local agricultural sector

and global tobacco production. Tobacco produced in South Africa contributes 0.03% towards the global supply of tobacco, according to LTP, 2014. South Africa imports 1.1% of global tobacco imports (unmanufactured tobacco leave and refuse) and exports 0.06% of global tobacco (unmanufactured tobacco leave and refuse) exports (International Trade Centre, 2016).

Figure 4: Tobacco imports and exports



Source: International Trade Centre, 2016

In 2014 a total 4 734 ha were planted which yielded 13 700 000 tons of tobacco. This stands in contrast to the 31 000 ha planted and 27 800 000 tons of tobacco produced in 1980. Over this time period tobacco yields have increased significantly from 0.89kg/ha to 2.89kg/ha. With agriculture in South Africa moving towards an open market the number of tobacco co-operatives, processors, and primary producers has dwindled, along with the decline of land under tobacco production. These changes and specifically the changes in average yields show that the open market led to higher productivity. These trends will be analysed with the structure of the tobacco supply chain as this will highlight how the roles of the participants have changed since the deregulation of the industry. The tobacco industry is hourglass-shaped in its structure: Tobacco leaf is funnelled from thousands of farms through a handful of leaf merchants, processors, and manufacturing plants that make cigarettes and other

products, and sold via thousands of wholesale and retail establishments (Trademark Southern Africa, 2012).

Figure 5: Tobacco value chain



Source: Own

Images: Limpopo Tobacco Processors, 2015

2.4.1 Primary producers

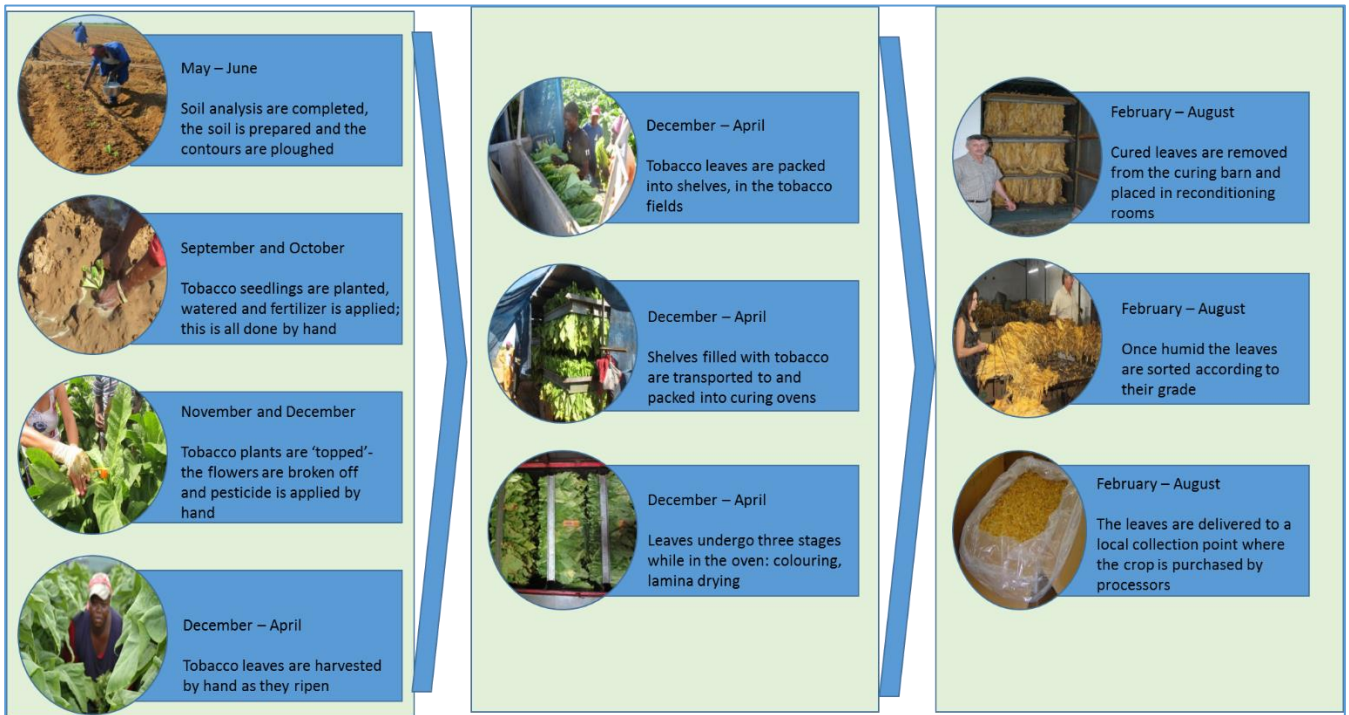
Although South Africa is not a major global producer of tobacco, Virginia air- and flue-cured tobacco are produced across the country. The main production regions are the Gamtoos and Loskop Valleys, and the Lowveld, North West, Klein Karoo and Bushveld regions. A mixture of flue-, air- and sun-cured tobacco is produced in all of the production regions with the exception of the Klein Karoo.

Tobacco is produced by individual farmers. There were 175 producers in 2014 who farmed on a commercial basis, with 4 734 ha under tobacco. This is in contrast to the 620 producers

in 1996 and the 14 717 ha which were then under tobacco. According to TISA the size of the average tobacco farm differs from producer to producer; the average farm size ranges from 30ha to 40ha with some farms as small as 1ha and others as large as 300 ha. Farmers enter into delivery contracts with Universal Leaf South Africa (Pty) Ltd., Limpopo Tobacco Processors, or other minor buyers, who commit to buy a specified amount of tobacco from the tobacco farmer. The essence of the agreement between the off-taker (tobacco buyers) and the farmer is that the off-taker will market and process the tobacco on behalf of the farmer provided that the farmer delivers the tobacco to one of the off-taker's buying stations. These contracts provide farmers some guidance and certainty about the upcoming production season as producer prices are stipulated for the different grades of leaf tobacco and guidance is given on which insecticides and pesticides are allowed and in what quantities. The contract furthermore provides guidance on how delivered tobacco will be graded and valued. The grade structure used consists of 120 different producer grades for flue-cured tobacco and four basic grades for Dark Air-cured tobacco and is based on the leaf's position on the plant, colour, and degree of breakage, ripeness, and general appearance. All of these elements, along with the chemical composition, combine to determine the grade which then determines the producer price. Producers grade their tobacco according to the standards set out in the contract prior to delivering it to the buying station in 50 - 60kg boxes. At the buying station the boxes are inspected and the validator and producer agree on a grade for the tobacco. The producer has an option to resort the box based on the grading. The incentive for the producer to resort the box is that part of the tobacco can be sold at a higher price, if part of the tobacco does not make the higher grade.

Given the nature of delivery contracts, climate risk, input cost variability and production risk are the biggest risks that will affect the producer's yield and profitability throughout the season, as they are able to hedge against price and market risk through the delivery contract. This being said it is an intensive 10-month process to produce tobacco and there are many phases that impact the quality of the final product. The production processes for both flue- and air-cured tobacco are outlined below.

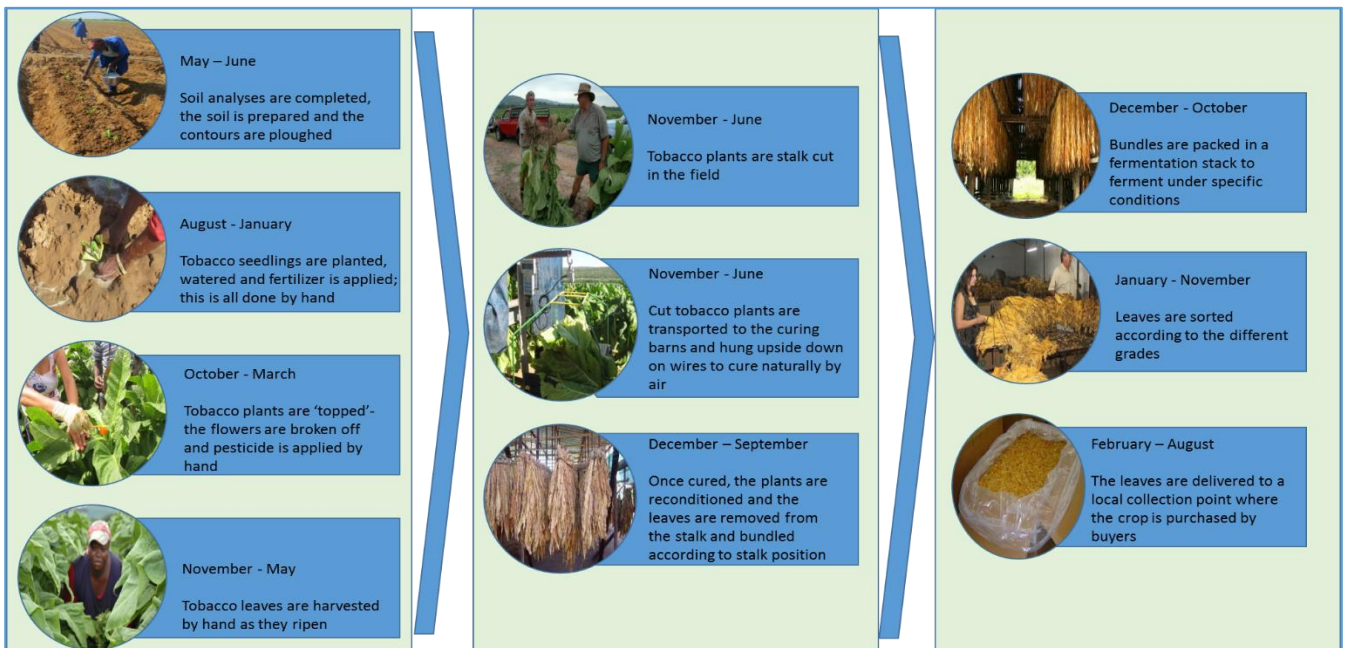
Figure 6: Flue-cured production process



Source: Survey Instrument

Images: Own and Limpopo Tobacco Processors, 2015

Figure 7: Air cured production process



Source: Survey Instrument

Images: Own, Limpopo Tobacco Processors 2015

According to respondents South Africa's tobacco production differs from other commercial production countries in two respects. The mechanised planting and harvesting methods used in some commercial production regions are not suited to the terrain of South African farms. The direct result is a labour-intensive production process. The average commercial producer in South Africa employs 1.2 to 1.8 persons per hectare, in contrast to 0.3 persons per hectare with grains. The second difference is that during the curing process, where producers in other countries may rely on wood as fuel for curing barns, the majority of flue-cured producers in South Africa have electric or coal curing barns.

2.4.2 Processing

Universal Leaf South Africa and Limpopo Tobacco Processors process tobacco leaf from producers and sell the processed leaf to buyers like Philip Morris International (PMI), British American Tobacco South Africa (BATSA), Imperial Tobacco, Swedish Match, and Japan Tobacco International, who use the tobacco to produce cigarettes, pipe tobacco, snuff and snus (a smokeless tobacco originating from Sweden).

Each year from September LTP and ULSA negotiate prices for the next year with tobacco product manufacturers. Based on these sales prices producer prices are determined for the next tobacco season. Producer prices are fixed for the production season, irrespective of exchange rate fluctuations and other market conditions.

Producers deliver graded tobacco in 50 - 60kg cartons to buying stations where a validator inspects the tobacco and grades it based on the standards that have been set out in the delivery contract. Producers and validators agree on the grade of the tobacco, and should there be a disagreement the producer has to regrade the tobacco and return it to the buying station to be revalued. Once the grade of the tobacco is set, the producer receives a summary of the tobacco that has been delivered and the sum of money that is due. Producers are paid electronically twice a week. All tobacco delivered to the buying stations is transported by road to a tobacco processing facility in Rustenburg. Producers and LTP or

ULSA agree on the number of hectares that a producer will plant and the kilograms of tobacco that the producer will deliver for that season on a quota basis. This information is shared with manufacturers as a guide to the amount of tobacco expected to be available from the processors at the end of the season. Manufacturers place orders for different blends of tobacco at varying prices per blend. Each blend consists of different grades of tobacco mixed together and has its own unique smoking characteristics.

Once sales orders from manufacturers are finalised, in the case of LTP, “voorskot” prices are determined; “voorskot” prices represent approximately 80% of the selling price received by the processor, less the costs incurred to process the tobacco, and are paid to producers. The remaining 20%, the “agterskot”, is paid to producers once all the tobacco has been sold to manufacturers. Farmers contracted by ULSA get the full payment within 24 hours of the sale.

There is only one tobacco processing facility in South Africa and that is in Rustenburg owned by LTP. Approximately 85% of tobacco produced in South Africa is processed at this facility. This was one of the main changes when the tobacco industry was restructured in order to increase its efficiency. After the three co-operatives and their processing facilities had been consolidated and only the processing facilities of the MKTV were kept, it was decided to buy a shelf company by the name of Sapphire Wings Trading, which bought out the shares of the MKTV on 22 September 2003. This new company marked the restructure of tobacco processing facilities. The aim was to lower the unit costs of process tobacco. The name of the company was changed from Sapphire Wings Trading to LTP Holdings Ltd, and MKTV Tobacco Ltd was changed to Limpopo Tobacco Processors (Pty) Ltd in October 2008. At this time all the debtors of the MKTV were sold to MGK (Statusfin).

2.4.2.1 Limpopo Tobacco Processors

After consultation, it was decided by representatives from the tobacco co-operatives and Tobacco RSA that LTP would manage and process almost all flue-cured tobacco produced in South Africa at the processing plant in Rustenburg, with buying stations in the main

tobacco producing regions of Nelspruit, Groblersdal, Vaalwater, and Rustenburg. As a result of a VAT claim dating from the MKTV Tobacco Ltd period it was decided to contract producers through one of the three stakeholders of AFGRI Tobacco.

2.4.2.2 *Universal Leaf South Africa (Pty) Ltd.*

Universal Leaf South Africa is a registered company in South Africa and a subsidiary company operating in Southern Africa on behalf of its head office Universal Leaf Tobacco Company based in Richmond, USA. The ULTC group operates worldwide as the largest tobacco dealer in all types of tobaccos. Universal operates in 35 countries, exporting to over 70 countries worldwide with over 25 000 employees. In Africa, Universal has six affiliates and four factories, all reporting to the regional Head Office, in Johannesburg. Each operation (Origin) is a standalone company. More than 75% of the company's tobacco is grown by small scale growers in Africa.

ULSA has been involved in the South African market for more than 20 years and has established itself as a tobacco exporter of flue cured Virginia tobacco for the last 20 years as well as the largest dark air cured domestic supply company since 2002. ULSA currently produce and supply more than 95% of all Dark Air Cured domestic requirements and export approximately 30% of the crop. ULSA's production areas are situated in Limpopo Province, Western Cape (Oudsthoorn), and Eastern Cape (Addo, Patensie valley).

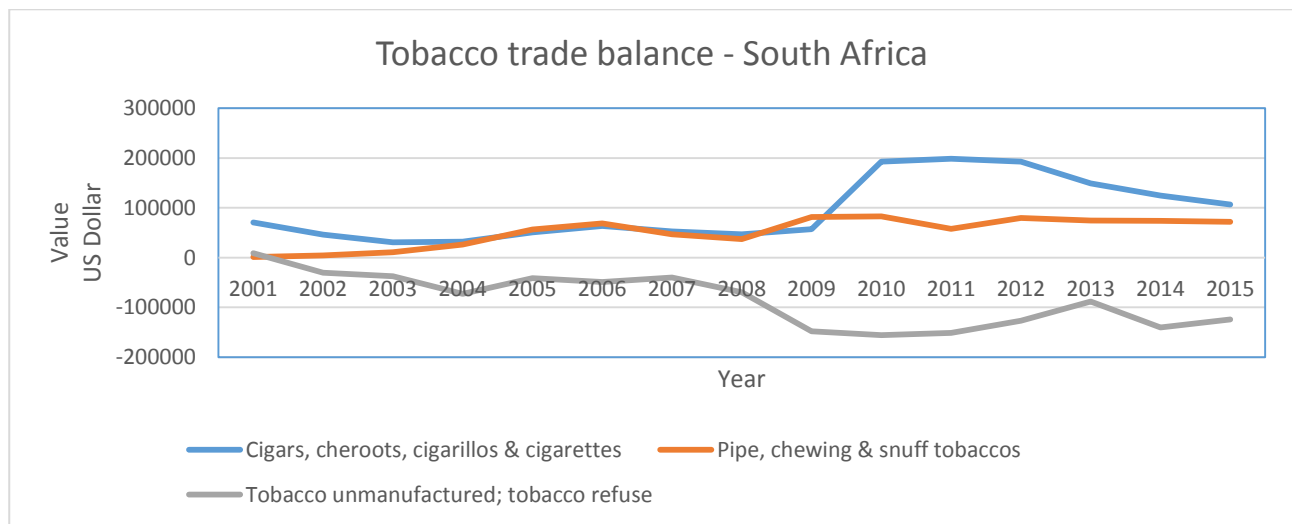
ULSA's services to farmers and farm workers include the transfer of Agronomy skills to produce a marketable product, as well as the supply of a marketing channel.

2.4.3 Tobacco product manufactures

Tobacco manufacturers source tobacco locally and internationally to produce a range of tobacco products. Flue-cured tobacco is typically purchased by British American Tobacco and used in the manufacturing of cigarettes. Air-cured tobacco is purchased by PMI, Swedish Match BA and Imperial tobacco and is used in the production of snus, snuff, pipe tobacco, and cigarette blends.

On examining the balance of trade in more detail, shown in Figure 3, it is clear that imports of unmanufactured tobacco leaf increased marginally while exports declined significantly between 2001 and 2014. Exports of cigars, cheroots, cigarillos and cigarettes have increased significantly over the same time period. This may indicate that the amount of tobacco products manufactured in South Africa has increased and that imported unmanufactured tobacco is used to produce these products.

Figure 8: Tobacco balance of trade



Source: International Trade Centre, 2015

2.5 CONCLUSION

This chapter detailed the changes that the South African agricultural industry has experienced in moving from a controlled industry, where producers received price and trade support, to a deregulated environment in which producers have to compete with international players with regard to quality and price. These conditions put pressure on the profits that producers were realising, and many producers diversified to more profitable enterprises. This assists in an understanding of the South African tobacco industry and the regulatory changes that have affected tobacco production, in the country. Chapter 3 investigates the effect of legislative changes and other factors that influence farmers' decisions to enter and exit agricultural commodities production globally.

3 LITERATURE REVIEW

3.1 INTRODUCTION

This chapter examines the literature to gain an understanding of the factors that have impacted producers' decisions whether to continue with the production of tobacco. There are a limited number of studies that focus on the exit of tobacco producers from tobacco production. I therefore include the literature on exits in the primary agricultural sector. The literature is then reviewed in the context of this study. I describe how findings from other studies have been incorporated into this study.

3.2 THE PROBLEM TO BE CONSIDERED

This study is aligned to the research objectives of the FCTC working group for economically sustainable alternatives to tobacco growing, and sets out to determine the profile of tobacco producers and their propensity to switch to alternative enterprises, and scale down or exit from tobacco production. Given the decline of tobacco production in South Africa (from 14 717 ha under production in 1996 to 4 734 ha under production in 2014) (DAFF, 2015, pp32-33), I review the literature to gain an understanding of the drivers behind this decline. There is a wealth of research that examines the general agricultural landscape in South Africa. However, few studies have been undertaken on tobacco production in South Africa, beyond studies investigating production techniques and tobacco diseases. As a result, the study refers to research that has been conducted outside of South Africa and considers whether factors influencing choices to switch crops are similar to those which have impacted producers in South Africa. Despite numerous efforts to find further sources that detail the South African tobacco industry (visiting archives, co-operatives and TISA) I was unable to find a comprehensive view of the South African tobacco industry and as a result reference Fourie as it was the only material that I was able to find.

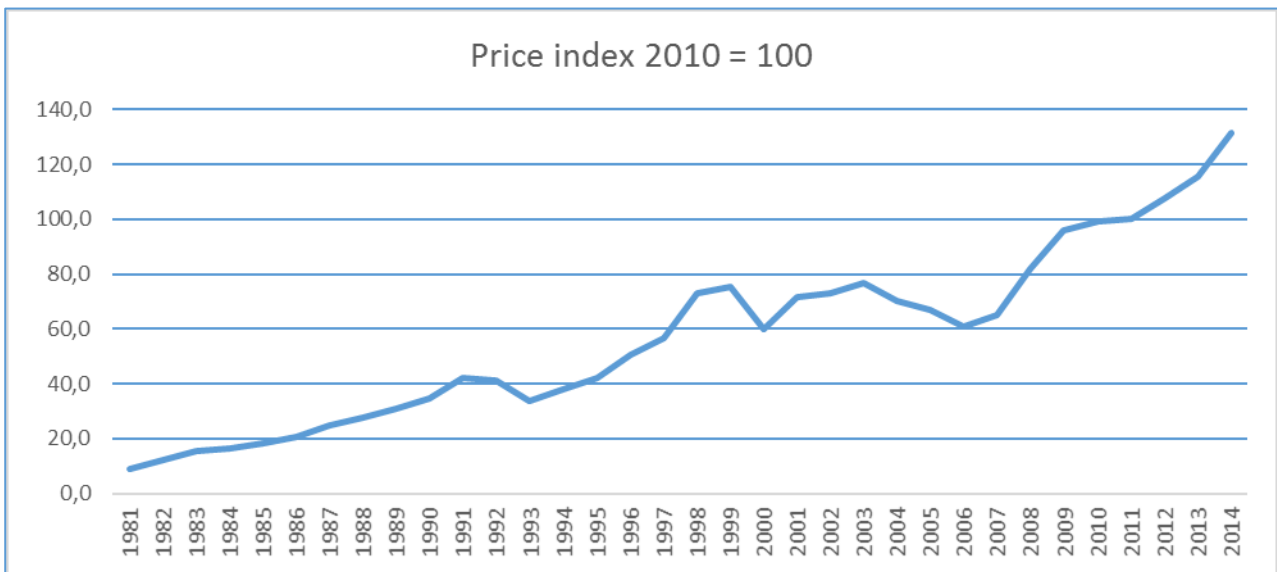
3.3 LITERATURE REVIEW

Research has been undertaken in other countries to understand the factors that play a role in tobacco producers' decision to introduce new crops, or exit the production of tobacco. These studies have looked at the effects of changes in policy and regulation, drivers of exit strategies, and tobacco end game strategies.

The agricultural industry in South Africa has changed from a highly regulated and controlled industry to a deregulated industry where producers have to compete on quality and price with international competitors. The liberation of agriculture meant that institutions offering price support, subsidised inputs, and enforced trade quotas were closed down, and tobacco farmers had to negotiate producer contracts and prices on their own.

Kirsten, Vink and Van Zyl (2000) investigate the impact of structural changes on farmers in South Africa. They find that structural changes associated with the liberisation of agricultural markets in South Africa placed producers under financial pressure, as decreasing producer prices increased competition among producers. Farmers were under further financial pressure when export quotas and price subsidies were removed. In a regulated environment most of the risks that these farmers face during the production cycle were managed by government agencies. Kirsten et al. (2000) found that after deregulation farmers were managing these risks by moving to mixed farming operations and by changing their cropping patterns (Kirsten et al., 2000, pp37).

Figure 9: Price Index of Tobacco Prices



Source: DAFF, 2015, pp32

Interviews with manufacturers of tobacco products revealed that producer prices did decrease during the restructuring of the tobacco industry and the removal of export quotas. This meant that producers had to compete with international competitors on price. One outcome was that growers of Burley tobacco in South Africa were not able to produce Burley tobacco at prices that could compete internationally and demand for South African produced Burley tobacco decreased. The findings of Kirsten et al. (2000) would imply that it may have been less profitable to produce tobacco during this period. Factors in this were low prices, combined with the increased cost of production and a weak exchange rate, which increased the cost of imported inputs. These findings of the study conducted by Manos, Bournaris, Papathanasiou and Chatzinikolaou (2007) on the effect of the decoupling of subsidies to tobacco farmers supports this view. They found that the decoupling of subsidies in the EU made it less profitable for farmers to grow tobacco.

With the deregulation of the agricultural sector, the closure of control boards, and the consolidation of co-operatives farmers had to fulfil a number of roles that were previously handled by the co-operatives. These included finding buyers, negotiating prices, determining the quantity and quality of a crop to produce. To manage the increased risk farmers changed their cropping patterns and moved to mixed farm operations (Kirsten, et

al., 2000, pp37-38). Some of these trends were also identified during this study from conversations with tobacco extension officers.

Fourie (1992) studied the events that affect tobacco producers. He finds that producers were under financial pressure after deregulation, and that producing quality tobacco was increasing in importance. As a result, these farmers changed their cropping patterns to include crops that they were able to produce competitively, to realise a profit.

Fourie (1992) documents the history of tobacco production in South Africa across the different production regions and finds that there were a number of events that impacted grower's decisions to exit tobacco production. He finds that the suitability of a region for tobacco production played a role, because of the new pressure to produce tobacco of a high quality. A number of tobacco production regions experienced problems with high levels of chlorine which negatively impacted the quality of the tobacco produced in these regions. The availability of profitable alternatives, especially long term crops, influenced decisions to leave tobacco production and to change cropping patterns (Fourie, 1992, pp31-52).

Studies that investigate the effect of policy changes on production decisions in other countries were reviewed. I review the effects of policy changes on agriculture in general in Canada and the US, and on specific industries, such as the dairy and tobacco industries.

Adhearn, Yee and Kobb (2005), examine the effect of government policy on farm structure and productivity in the US. They use a three stage least square model with panel data from 84 US over a four-year period. They find that exit decisions depend on the size of the farming operation. Small-scale farmers are more likely to make entry and exit decisions than farmers with larger operations. Small-scale farmers with a source of non-farming income are more likely to remain in agriculture, as this non-farming income can subsidise farming operations. Adhearn et al. (2005) find that large farming operations are more likely to produce high value crops under contract. As a result, commodity payments will represent a larger portion of their revenue. These commodity payments are used to expand farming. However, the study also

finds some factors influence farmers' decisions, irrespective of the size of the farming operation. Off farm employment has a negative impact on productivity while the availability of public extension and research services has a positive impact on farm productivity. The size of the farming operations is also linked to a household's life-stage: Older, more experienced farmers had more established operations (Adhearn et al., 2005 pp1183, 1187-1188).

Research by Adhearn et al. (2005) suggests that small-scale tobacco producers in South Africa may exit tobacco production more readily than those with larger operations. Interviews conducted with tobacco co-operative employees confirmed that small-scale producers in South Africa who have invested less in tobacco infrastructure had either changed crops or exited tobacco production. This exit may be indefinite or farmers may return to production when prices recover. Conversations with extension officers revealed that tobacco producers were aging and fewer young farmers were producing tobacco. The findings of Adhearn et al. (2005) may explain this skew in the age of South African tobacco producers. During the period of structural change in the tobacco industry in South Africa, younger farmers would have invested less in tobacco infrastructure. The barriers to exiting tobacco production and introducing other crops may also have been lower for younger producers. Similarly, tobacco growers who earn non-farming income may face less uncertainty in switching to another commodity. Adhearn et al. (2005) find that large-scale producers who produce high value crops under contract are able to use commodity payments from these crops to expand farm operations. These large capital investments may make leaving agriculture or changing to other crops that require different infrastructure more difficult (Adhearn et al., 2005, pp1188).

Kirsten et al. (2000) note that small-scale and marginal producers are unable to compete in a deregulated environment (Kirsten et al., 2000, pp25-27). Interviews with former tobacco co-operative employees revealed that larger tobacco producers buy out small-scale or neighbouring producers with these commodity payments.

Adhearn et al. (2005) examine panel data to identify the factors that affect producers exit decision during periods of structural change. Boehlje (1984) undertook a comparative

analysis of the factors that had previously been identified by other researchers as relevant to production and exit decisions during periods of structural change. They find that entry and exit rates were influenced by farmer's age, availability of land and labour, number of years' tobacco farming experience, and the farmer's financial situation. They also find that there are different barriers to entry and exit for different crops. A number of respondents had to continue producing tobacco while they waiting for citrus orchards to be established. The study conducted by Keyser (2007) also found that tobacco income helps to fuel the introduction of alternatives to tobacco. Boehlje (1984) also finds that the disappearance of the market for one crop impacts the availability of alternative crops. This affects the financial position of the farmer and the long run outlook of their farming operations. Boehlje (1984) and Ahearn et al. (2005) examine factors that impact production in different agricultural sectors, while Foltz (2004) focuses on the effects of changes in regulation on exit decisions in the dairy industry in the US. Like previous studies, the study by Foltz (2004) shows that factors affecting farmers' financial situation also influence their entry and exit decisions. He used data from the US Dairy Board to show that dairy producers' entry and exit decisions were driven by the availability of more suitable and profitable alternatives. Price reductions and volatility as also played a role, as these factors impacted profitability negatively. Like dairy farmers, South African farmers' exit decisions may have been influenced by low producer prices, price variability and declining profits in tobacco production. This would have been offset by the profitability of other crops, during the restructuring of the South African tobacco industry.

Ramsey and Smit (2001) investigate the impact of changes in the flue-cured tobacco sector in Ontario, Canada. This is the only research that was available at the time of this research that investigated the effect of structural changes on tobacco producers. Their study focuses on the effects of structural changes on tobacco farmers' emotional wellbeing. They find that structural changes result in increased financial pressure on growers and that the related stress of high debt burdens led farmers to seek alternative employment. These findings are aligned with the findings of Kirsten et al. (2000).

After investigating the effect of structural changes on production decisions, decisions influencing on farmers' decision to switch to the production of another commodity or to leave

agriculture altogether is examined. Existing literature on exit strategies and end game strategies are examined to reveal the decisions that a producer may face at any given time.

Kimhi and Bollman (1999) study the differences between producers exit decisions in Canada and Israel, using census data from these two countries. They find that the same factors influence exit decisions in the two countries but that the directional impact of the factors differed. The following factors are found to impact farmers' decisions to exit agriculture: Off farm income, profitability of other crops, producer prices, farmer's level of education, and the commodity's contribution to total household income.

Blank (2001) identifies a decline in tobacco production when commodity prices were reduced and farmers' incomes fell. They wanted to understand if this resulted in the shrinking of the agricultural sector. Through weak and strong form tests they found that resources were costlier in developing countries. Farmers who earn larger profits also continue to grow economically stronger over time, compared to their competitors. Blank (2001) also found that the Return on Assets and the Return on Equity realised by tobacco producers remained flat over the period of their study. The research of Gale (2003), and Viira, Põder & Värnik (2009) on the topic was reviewed. Viira et al. (2009) study farm exists in Estonia and find that the size of the farm was negatively correlated to exits. These findings are aligned to the findings of Kirsten et al. (2000), Kimhi et al. (1999), Tiller, Feleke & Starnes (2010), Ahearn et al. (2005) and Boehlje (1984). While Viira et al. (2009) looked at country specific trends Gale (2003) looked at the impact on farmers and their exit decisions. They found that producers aged 65 years and older are more likely to exit agriculture, and that a farmer's age is directly correlated to the business life cycle. For this reason, mid-career growers are less likely to exit under financial pressure, because they rely on debt financing. Kirsten et al. (2000) refer to the high debt burden that farmers faced after the restructuring of the agricultural industry in South Africa. Tobacco producers struggled to access commercial credit once subsidised credit was no longer available from Marketing Boards and co-operatives. It may therefore be that older and small-scale tobacco producers left agriculture during this period in South Africa.

Bragg & Dalton (2004) were concerned that many farmers in the US were leaving the dairy industry. Low milk prices were cited as the primary reason for their exit from the industry.

However, Bragg & Dalton (2004) wanted to understand if there were other factors driving these exit decisions. They find that factors related indirectly to profitability, such as lower returns over variable costs, higher off farm income, and greater diversification of farm income were the other factors influencing producers' decisions. Like Viira et al. (2009), Gale (2003), Blank (2001), Ahearn et al. (2005), Bragg & Dalton (2004) also found that older producers are more like to make exit decisions. During restructuring, South African producers were affected by the same issues as dairy producers in the US. It may therefore be that factors indirectly related to profitability may have impacted producers' decisions to switch to the production of alternative commodities, or to leave agriculture. Tiller et al. (2010) and Strader & Alston (2009) look at producers' perceptions around the Federal Tobacco Buyout programme in the US. Both studies made use of mail surveys to gauge farmers' perceptions. The research of Tiller et al. (2010) focuses on producers of Burley tobacco, and finds that these growers were affected by the same conditions identified in studies by Viira et al. (2009), Gale (2003), Blank (2001), Ahearn et al. (2005), and Bragg & Dalton (2004).

The Framework Convention for Tobacco Control is a treaty to protect individuals from the negative health consequences of tobacco consumption through measures that reduce both demand and supply of tobacco products. The Treaty aims to identify alternative crops for tobacco farmers. Jones, Austin, Beach, and Altman (2008) investigate the relationship between tobacco farmers and the manufacturers of tobacco products to understand if the World Health Organisation can realise their objective of supporting producers to transition to alternative crops. Jones et al. (2008). They find that alternatives will fail as long as tobacco farming remains more profitable. They suggest that end game strategies should focus on building alliances with tobacco farmers by investing in local infrastructure.

Wilson, Thomson, Edwards, and Blakely (2013) explore the potential advantages and disadvantages if government was to take a sinking lid end game strategy on tobacco production by decreasing the trade and sales quota of tobacco. Wilson et al. (2013) finds that this approach may result in an increased tobacco price and that there needs to be strong political and public support for the approach to be successful.

This study will investigate if similar factors impact producers' decisions to exit tobacco production in South Africa. Furthermore this study seeks to understand what happened to producers who stopped producing tobacco and the alternative crops they chose.

3.4 CONCLUSION

The literature that was reviewed in this chapter informed the design of the two surveys and were personally administered to current and former tobacco farmers. These surveys lay the basis of the rest of this thesis. They were used to test if factors like the age and level of education of the producers, the availability of profitable alternatives, the availability of land and labour, off farm income and number of years working experience influenced farmers' tobacco production decisions in the same way that these factors impacted farmers decisions in the studies that were reviewed. In chapter 4 the results of the two surveys are presented and interpreted.

4 AN ANALYSIS OF SOUTH AFRICAN PRODUCERS' DECISIONS TO STAY OR LEAVE TOBACCO PRODUCTION

4.1 INTRODUCTION

This chapter presents the findings of the surveys that were conducted with current and former tobacco producers in South Africa. Thereafter the findings will be discussed in the context of agriculture in South Africa and be compared to the findings of previous studies.

4.2 METHODOLOGY

There is a limited amount of literature on the drivers of the decline in tobacco production in South Africa. Few studies exist which focus on alternative crops introduced by farmers in South Africa who left tobacco production. This study therefore collects primary data on these topics through interviews with South African producers of air- and flue-cured tobacco.

At the time of this study there were no similar studies conducted by other researchers. Two questionnaires were developed: informed by the literature review. The questionnaires consist of five broad categories of questions to collect data on: personal characteristics of farmers, current farm operations, changes in farm operations over time, alternative enterprises introduced, and the effect of the restructuring of the tobacco industry.

A number of studies have investigated the impact of structural changes in the tobacco industry and farmers' production and exit decisions. These studies have made use of a range of survey methods including mail and email surveys ((Bragg and Dalton, 2004) and (Coble et al., 2004)), telephone surveys (Crankshaw, Beach, Austin, Altman and Jones, 2009) and face-to-face surveys (Lukanu, Green, Greenfield and Worth, 2006). Face-to-face surveys resulted in the lowest response rate (6%) and web-based and telephonic surveys having the highest response rate (98% and 47% respectively). Despite the low response rate in their study, I decided that this type of survey would be the most appropriate method

for this study. This was because of the sensitivity of the topic of tobacco production and the poor network coverage in many of the regions where tobacco growers are based. The validity of the questionnaire was determined during a pilot survey, which was conducted with six producers as part of a broader Universal Leaf Production Cost survey. The success of the pilot survey resulted in the inclusion of responses obtained during the pilot in the final results.

Limpopo Tobacco Processors (LTP) were contacted for information on the structure of the South African tobacco industry, and to explore possible ways of contacting tobacco farmers. I accompanied representatives of LTP and British American Tobacco (BAT) and on field visits to contracted farmers and attended a study group with tobacco growers in the Groblersdal region. At the study group the purpose of the research was explained to gauge producers' who were willing to participate in the study. Hereafter LTP provided lists of producers with delivery contracts with them over the past five years. Lists of producers were also provided from the five previous production seasons were included to ensure provide contact details for growers who had since left tobacco production. I also met with TISA information on the tobacco industry in South Africa and how this has evolved over time.

ULSA was acquainted with the purpose of the study and they provided their database of current and past contracted farmers. In order to understand the air-cured tobacco industry better I accompanied a ULSA team on their production cost survey. ULSA agreed that the questionnaire that would be employed in this study could be tested with producers who had delivery contracts with them.

LTP and ULSA provided the contact details of farmers who had contracts with them and the farmers were informed that the research being conducted was to gain a better understanding of the drivers behind the decline of tobacco production in South Africa and which crops farmers had introduced. The farmers were provided with an overview of the study at the start of each interview. This was done as a way to ensure that respondents did not feel that the researcher was associated with the tobacco industry and that they were free to express any

views about the industry freely. Please refer to the appendix for an example of the informed consent form that was used during the research.

According to TISA, there were 192 tobacco producers in South Africa in 2015. This could not be verified because the contact lists contained only the contact details of businesses who had delivered the contracted product to the tobacco processors, and not the details of the producers. It was discovered that a number of farmers owned more than one enterprise that delivered tobacco to LTP or ULSA. Therefore, to avoid contacting the same grower numerous times, the extension officer in the region was contacted prior to setting up meetings with individual producers when possible.

A stratified sampling method was used to select current and former producers to participate in the study. Unfortunately, the majority of farmers in this sample declined to participate. Some contact details were out of date, and it was found that some farmers on the list were deceased. I thus systematically telephoned all current and former producers on the list to explain the objectives of the study and ask them to participate in the study. Consequently, respondents were selected based on their willingness to participate. To increase the number of former producers in the study, snowball sampling was used. Finally, face-to-face interviews were conducted with 75 current producers and 25 former producers.

Informal discussions with tobacco extension officers provided information on the history of tobacco production in their region and highlighted trends that they had seen emerge over time. The extension officers were helpful at identifying farmers who had produced tobacco for a number of years and who may not have been on the lists provided by the processors. The insights gained from these discussions were valuable for understanding regional differences when interpreting results, and to inform the interviews with producers.

Table 3: Overview of tobacco production regions

Bushveld		
<i>Access to markets</i>	Tshwane Fresh Produce Market: 389km Johannesburg Fresh Produce Market: 449km (Google Maps, 2015)	
<i>Type of tobacco</i>	Air Cured	
<i>Tobacco Co-operative</i>	Pre 2006: Potgietersrus Tobacco Co-operative Limited Post 2006: Universal Leaf South Africa and Patel	
<i>General agricultural trend</i>	The area is a cattle farming region with extensive ranching operations that are supplemented by controlled hunting. Many farmers who previously produced air-cured tobacco have changed to onion and potato production while others have changed to game farming, in particular exotic game	
Vaalwater		
<i>Access to markets</i>	Tshwane Fresh Produce Market: 206km Johannesburg Fresh Produce Market: 255km (Google Maps, 2015)	
<i>Type of tobacco</i>	Air and Flue cured	
<i>Tobacco Co-operative</i>	Pre 2006: Potgietersrus Tobacco Co-operative Limited and Magaliesberg Tobacco Co-operative Post 2006: Universal Leaf South Africa, Patel and Limpopo Tobacco Processors	
<i>General agricultural trend</i>	Numerous farms in the area have been bought by city dwellers and have been converted into 'lifestyle' farms. These farms are no longer operated on a commercial basis and are used as weekend or holiday game farms.	
Loskop		
<i>Access to markets</i>	Tshwane Fresh Produce Market: 166km Johannesburg Fresh Produce Market: 210km (Google Maps, 2015)	
<i>Type of tobacco</i>	Flue Cured	
<i>Tobacco Co-operative</i>	Pre 2006: Magaliesberg Tobacco Co-operative, Potgieterus Tobacco Co-operative Post 2006: Limpopo Tobacco Processors	
<i>General agricultural trend</i>	Many of the farmers who previously produced tobacco changed to the production of table grapes, citrus, seed maize, and vegetables.	
Lowveld		
<i>Access to markets</i>	Tshwane Fresh Produce Market: 338km Johannesburg Fresh Produce Market: 361km (Google Maps, 2015)	
<i>Type of tobacco</i>	Air and flue cured	
<i>Tobacco Co-operative</i>	Pre 2006: Lowveld Tobacco Co-operative Post 2006: Limpopo Tobacco Processors	
<i>General agricultural trend</i>	The area is particularly well suited to the production of macadamias and citrus. From conversation with farmers in the region these crops have proven to be profitable in the region.	
Oudtshoorn		
<i>Access to markets</i>	Tshwane Fresh Produce Market: 1180km Johannesburg Fresh Produce Market: 1122km Cape Town Fresh Produce Market: 422km George Fresh Produce Market: 60km (Google Maps, 2015)	
<i>Type of tobacco</i>	Air Cured	
<i>Tobacco Co-operative</i>	Pre 2006: KangoTobacco Co-operative Post 2006: Universal Leaf South Africa and Patel	
<i>General agricultural trend</i>	The booming ostrich industry and the increased profitability of vegetable seed production impacted the production decisions of farmers in the region. However, the recent crisis experienced in the	

	ostrich industry and the adverse effects of climate change on vegetable seed production have resulted in some farmers returning to tobacco production or increasing their production of tobacco.	
Patensie		
<i>Access to markets</i>	Tshwane Fresh Produce Market: Johannesburg Fresh Produce Market: East London Fresh Produce Market: Port Elizabeth Fresh Produce Market: (Google Maps, 2015)	1185km 1127km 370km 102km
<i>Type of tobacco</i>	Air cured	
<i>Tobacco Co-operative</i>	Pre 2006: Gamtoos Tobacco Co-operative Post 2006: Universal Leaf South Africa	
<i>General agricultural trend</i>	The valley is largely a citrus producing area. There are, however, a few farmers who continue to produce tobacco as part of their crop rotation programme with citrus before they replace an orchard with new saplings.	

From engagements with TISA and tobacco producers, it was clear that the restructuring of the tobacco industry in South Africa was a sensitive topic. Some declined to participate, as they felt that tobacco production was something in the past that they did not want to revisit. Some were reluctant to talk about the restructuring, would decline to complete that section of the questionnaire, or would answer the questions with sweeping statements. It is clear that there are mixed emotions around the restructuring of the tobacco sector, and that it was a negative experience for the majority of the farmers.

To increase the number of survey participants' enquiries were made while travelling through tobacco production areas at farms where there were unused tobacco curing barns. Reasons for ending production differed by region. In the Lowveld the response was that the previous owner of the farm had produced tobacco, but the land was redistributed as part of the land redistribution process in South Africa, and the new owners did not continue with tobacco production. In the North West farmers produced tobacco on a small scale and but were experiencing problems with high levels of chlorine in the water. Consequently, they had left tobacco production and started to produce vegetables on a small scale, or left agriculture altogether. The results of our analysis of the data from the field surveys are discussed in detail in Chapter 4.

Initially the questionnaires were captured using an online survey capturing and analysis software called Survey Monkey. Because of poor network connectivity in many of the regions paper based, face-to-face surveys were chosen. Responses from the paper based

surveys for current and former producers were captured separately Survey Monkey. From there, responses for both former and current producers were grouped according to production region. Once the data had been cleaned and sorted basic statistics (mean, median and mode) were used to analyse and interpret data in combination with text analysis tools in Survey Monkey. Survey Monkeys' text analysis tool identifies words used frequently in open ended responses and allows you to categorise terms used in each question. These results were exported to Excel for further analysis.

4.3 SURVEY AREAS

100 surveys were completed during the study; 75 current producers and 25 former producers were visited. The 100 completed interviews are fewer than the initial target of 200 surveys. This was because of challenges faced in locating former producers and obtaining their cooperation. The majority of the current producers who were interviewed were based in the Loskop Valley while the majority of former producers interviewed came from the Lowveld region.

Table 4: Summary by region of producers interviewed

Region	Current Tobacco Producers Observations	Former Tobacco Producers Observations
Bushveld	13	2
Gamtoos Valley	10	1
Lowveld	7	7
Limpopo	2	0
Loskop Valley	23	2
North West	7	7
Oudtshoorn	9	2
Vaalwater	4	4
Total	75	25

Although the questionnaire was generally well-accepted by the farmers, there were sections and single questions that were not answered as fully as intended. The section that focused

on the restructuring of the South African tobacco industry was answered particularly poorly, there was a number of respondents who declined to answer these questions or provided incomplete answers, as were any questions that touched on the financial position of the grower. For example, the question about the capital costs incurred to introduce a new crop or to replace tobacco was either not answered or not answered comprehensively, as was the question on yields and the contribution of each agricultural activity, undertaken by the grower, towards total farm income. A number of questions were not answered by most farmers. The response rate for each of the questions is outlined below.

Table 5: Response rate for former producers

Question	Obs.	Response Rate
Area	23	92%
In which year did you or your family start farming with tobacco?	23	92%
In which year did you stop producing tobacco?	24	96%
For how many generations did your family farm with tobacco?	24	96%
When you stopped producing tobacco; for how many years had you been the decision- making farmer?	23	92%
Did you farm full- time or part- time?	24	96%
At what age did you stop producing tobacco?	24	96%
Did you have a mixed farm operation when you stopped farming with tobacco?	24	96%
What crop rotation strategies did you employ while you were producing tobacco?	20	80%
Did you have a source of non-farm income?	21	84%
When you stopped farming tobacco; was tobacco production: <ul style="list-style-type: none"> • Making a Profit • Breaking Even • Making a Loss 	20	84%
Which agricultural enterprises were you involved with for the three years prior to your exit from tobacco production?	21	80%
Please indicate the characteristics of the crops and livestock you were producing prior to your exit from tobacco. (an average for the three years prior to your exit)	21	84%
How did you keep abreast with technological developments for tobacco production prior to your exit?	19	84%



Question	Obs.	Response Rate
Please indicate that the impact the following factors had on your willingness to continue farming with tobacco at your time of exit from tobacco farming?	24	96%
Did not answer	4	84%
Partially Answered	6	76%
Completed	14	96%
Who provides the extension services listed above?	17	16%
What other factors influenced your decision to leave tobacco farming?	16	24%
When you stopped growing tobacco did you:	21	56%
Why did you leave agriculture?	8	68%
Which crop or agricultural enterprise have you primarily switched to?	14	64%
Rate the ease with which you switched from tobacco to the alternative crop or agricultural enterprise	16	84%
Indicate the extent of the capital costs you incurred to switch to the alternative	15	32%
Indicate the amount of capital cost incurred when switching to the alternative crop or enterprise	1	56%
Expand on additional capital costs incurred/ costs saved due to existing infrastructure	7	64%
Please indicate how the following factors compare in the production decision making process of the main alternative to tobacco	14	60%
Did not answer	2	0%
Partially Answered	2	4%
Completed	10	28%
Please indicate the crops or livestock produced on your farm three or four years after you stopped producing tobacco	8	56%
Part D: Exit between 1993 & 1998	22	8%
Did not answer	6	8%
Partially Answered	10	40%
Completed	6	32%
Age	24	88%
What is your outlook for the future of tobacco farming?	20	24%
Level of Education	24	40%

Table 6: Response rate for current producers

Question	Obs.	Response Rate
Area	75	100%
In which year did you start farming with tobacco?	74	98%
For how many generations has your family been farming with tobacco?	75	100%
For how many years have you been the decision-making farmer?	74	98%
Do you have a source of non-farm income?	74	98%
Indicate how owner hours invested in farm activities have changed over the past 10 years	73	97%
What crop rotation strategies do you employ?	74	98%
What cost control/minimising strategies do you employ?	73	97%
Which agricultural enterprises do you currently conduct on your farm?	73	97%
Which agricultural enterprises did you conduct 5 years ago?	72	96%
Which agricultural enterprises did you conduct 10 years ago?	69	92%
Which agricultural enterprises did you conduct 15 years ago?	64	85%
Please complete your current farming trends	75	100%
Did you stop producing tobacco at some stage and then return to tobacco farming at a later stage?	75	100%
Year you left tobacco farming	24	96%
Year you returned to tobacco farming	25	100%
What motivated your exit from tobacco?	25	100%
What motivated your return to tobacco?	25	100%
Please indicate your current investment in your tobacco enterprise compared to the investments you were making five years ago.	73	97%
Please indicate the impact that the following factors have had on your willingness to continue farming with tobacco	75	100%
Did not answer	0	0%
Partially Answered	1	1%
Completed	74	99%
Who provides the extension services listed above?	72	96%
Over the last 20 years:	68	91%
a. Have you branched your operations away from tobacco towards another crop or agricultural		



Question	Obs.	Response Rate
<p>enterprise that you were previously producing along with tobacco?</p> <p>b. Have you branched your operations away from tobacco towards a crop or enterprise that you have not previously produced?</p> <p>c. Have you been scaling down your operations?</p> <p>d. Have you intensified your tobacco operations?</p> <p>e. Have you intensified your tobacco operations and introduced new agricultural enterprises?</p>		
Which agricultural enterprise have you branched out to?	42	95%
<p>Before you started to branch away from tobacco production, was the tobacco enterprise:</p> <ul style="list-style-type: none"> • Making a profit • Breaking Even • Making a Loss 	36	82%
Indicate the extent of the capital costs you incurred to intensify your tobacco operations	26	59%
Indicate the extent of the capital costs you incurred to branch out to the new agricultural enterprise	40	91%
What capital costs did you incur when branching out to the new agricultural enterprise / what costs did you save due to existing infrastructure?	42	95%
Please indicate how your cash flow situation compares between the new enterprise and tobacco	36	82%
Please indicate how the new enterprise's profitability compares to that of tobacco	36	82%
Please indicate how the following factors in the production decision-making process for the alternative compare to those for tobacco	44	100%
Have you considered leaving tobacco production completely	74	99%
If you were to stop farming with tobacco, when do you think you would do this?	73	97%
Would you like your children to engage in tobacco farming?	73	97%
Part E: Industry restructure	38	51%
Partially Answered	18	
Completed	20	
What is your outlook for the future of tobacco farming?	69	92%
Age	75	100%
Level of Education	74	99%

Former producers were enthusiastic about sharing their experience with tobacco growing, but hesitant to share their experience of the new crop. As a result, current producers completed more questions than former producers.

The responses to the following questions from the questionnaire given to **former producers** were excluded:

- Question 10 Crop rotation programmes: Nothing noteworthy was uncovered with this question;
- Question 11 History of the crops produced: The intent of this question was to probe the production trends over time but this did not elicit useful answers;
- Question 13 Extension Services received: All extension services were provided by LTP or ULSA;
- Question 20 Costs related to the introduction of a new enterprise or the expansion of another enterprise previously produced along with tobacco: Producers were reluctant to disclose financial information;
- Question 21 Actual cost of the introduction of a new enterprise or the expansion of an enterprise previously operated along with tobacco: Producers were reluctant to disclose financial information;
- Question 25 to 29 Section discussing the restructure of the tobacco industry: The majority of the producers felt that this topic was no longer relevant and they were not receptive to the questions. Most of those who agreed to answer the question provided yes or no answers. This section was excluded as various elements related to this section are touched on throughout the survey.

Responses from the survey of **current producers** which were excluded from the analysis include:

- Question 10 Crop rotation programmes: Nothing noteworthy was uncovered;
- Question 11 History of crop produced: The intent of this question was to probe the production trends over time but it was not successful;
- Question 31 to 38 Section discussing the restructure of the tobacco industry: Like former producers, most current producers did not complete this section

4.4 RESEARCH METHODOLOGY

Although the profile of current and former tobacco farmers is similar, there are some differences between the two groups. The main difference is the number of years spent as a decision-making producer. The modal and median response is that tobacco producers in South Africa are second-generation tobacco farmers, aged between 46 and 60, with a tertiary qualification. Similar to the tobacco farmers in Keyser (2007) study the tobacco farmers surveyed as part of this study also farm on a full-time basis, have diversified operations, and are entirely dependent on the income realised by their farming operations, as only a fifth of current and a quarter of former producers earn other income. Most of the growers interviewed took sole responsibility for tobacco production between 2001 and 2014. The number of years that producers have been the decision-makers on their farms differs between current and former producers, with current producers having been the decision-making producer for a longer time.

Table 7: Age of current producer

Region	Obs.	16-30	31-45	46-60	61-65	66+
Bushveld	13	2	4	2	4	1
Gamtoos Valley	10	0	2	5	2	1
Lowveld	7	0	1	4	1	1
Limpopo	2	0	0	0	0	2
Loskop Valley	23	2	8	8	1	4
North West	7	0	4	1	1	1
Oudtshoorn	9	0	2	5	2	0
Vaalwater	4	0	2	1	0	1
Total	75	4	23	26	11	11
	100%	5%	30%	35%	15%	15%

Table 8: Age of former producer

Region	Obs.	31-45	46-60	61-65	66+
Bushveld	2	1	1	0	0
Gamtoos Valley	1	0	0	1	0
Lowveld	7	2	3	1	1
Limpopo	0	0	0	0	0
Loskop Valley	2	1	0	1	0
North West	7	0	5	0	2
Oudtshoorn	2	0	0	0	2
Vaalwater	4	0	0	1	3
Total	25	4	8	4	8
		16%	36%	16%	32%

None of the former producers were younger than 30 and there were more former producers aged 66 and above. Boehlje (1984) found that exit rates were driven by age. Younger producers are more likely to make exit decisions. This finding from Boehlje could not be confirmed by my survey due to the lack of contact details of former producers who had left tobacco production at a young age.

The age of current producers is skewed towards 46 years and older. Current producers and extension officers expressed concern about the age profile of tobacco farmers and that younger farmers show little interest in producing tobacco.

Table 9: Level of education of current producers

	No Schooling	Primary School	High School	Matric	Tertiary
Total	0%	0%	7%	36%	57%

Table 10: Level of education of former producers

	No Schooling	Primary School	High School	Matric	Tertiary	Not Answered
Total	0%	0%	4%	32%	60%	4%

There is no difference between the level of education of current and former tobacco farmers. Most of the producers have a tertiary qualification (university degree or diploma). Producers without a tertiary qualification usually had at least completed secondary school (Matric). There was no regional difference reflected in the data. Level of education is therefore presented for the entire sample of current and former producers who participated in the survey.

The largest percentage of current tobacco farmers who were interviewed started to produce tobacco between 2001 and 2014 (22 producers) The second largest group was farmers who started to grow tobacco prior to 1980 (18 producers). This has the advantage of providing a diverse set of views as those who farmed tobacco prior to 1980 would have been affected by structural changes in the South African agricultural sector during the 1990s. This group would have experienced the changes that resulted from the restructuring of the South

African tobacco industry. Their views provided valuable insights on the decline of tobacco production during the early 1980s and 1990s. The views of farmers who started growing tobacco between 2001 and 2014 shed some light on the restructuring of the South African tobacco industry and the performance of tobacco producers in a deregulated market. These insights are supported by responses of former tobacco growers as the majority of former producers (15) started growing tobacco prior to 1980.

Table 11: Year the producer started to produce tobacco

Region	Pre- 1980		1981– 1990		1991 - 2000		2001-2014		Total	
	Current	Former	Current	Former	Current	Former	Current	Former	Current	Former
Bushveld	3	0	1	1	3	1	6	0	13	2
Gamtoos Valley	3	1	1	0	4	0	2	0	10	1
Lowveld	2	5	2	1	0	0	2	0	6	6
Limpopo	1	0	1	0	0	0	0	0	2	0
Loskop Valley	4	1	5	0	7	0	7	1	23	2
North West	2	4	1	1	1	1	3	0	7	6
Oudtshoorn	3	2	0	0	0	0	0	0	3	2
Vaalwater	0	2	1	1	1	0	2	0	4	3
Total	18	15	12	4	16	2	22	1	68	22

There are some regional differences in the commencement of production among current producers. Most of the respondents from the Oudtshoorn, Gamtoos Valley and Loskop dam regions started to produce tobacco prior to 2000. The Vaalwater region was the only region with more farmers who had started to produce tobacco after 2001. The year given as the starting date of tobacco production gives some indication of the length of time that the farmer has grown tobacco. However, it is not representative as they may have left tobacco production at some stage and returned at a later stage.

The number of years in tobacco production, number of generations the family has produced tobacco, and the number of years as the decision-making grower is captured by the length of time the farmer has been in the position to change production decisions.

The median number of generations respondents have been involved in tobacco production is two generations. There are, however, regional differences as families have grown tobacco for longer the Gamtoos Valley region. There is a clear difference in farmers' length of time as decision-maker in tobacco production: On average, current producers have been the decision-making producer for longer. Their mean years as decision-making producers is between 16 and 20 years, in contrast to 11 to 15 years for former producers. The mode of the responses reflects a starker difference. Current producers have been decision-making producers for an average of more than 20 years. Former producers were decision-making producers for between six and ten years at the time of their exit from tobacco farming. This trend is prevalent in all the regions except for the Bushveld and Gamtoos Valley, where current and former producers have been decision-making producers for the same length of time.

Table 12: Number of generations involved in tobacco production

		1	2	3	4+	Total	Mode	Median
Bushveld	Current	3	8	2	0	13	2	2
	Former	0	2	0	0	2	2	2
Gamtoos Valley	Current	1	3	4	2	10	3	3
	Former	1	0	0	0	1	1	1
Lowveld	Current	1	4	1	1	7	2	2
	Former	1	6	0	0	7	2	2
Limpopo	Current	0	1	1	0	2	2/3	2
	Former	0	0	0	0	0	0	0
Loskop Valley	Current	2	9	12	0	23	3	3
	Former	0	0	2	0	2	3	3
North West	Current	0	3	4	0	7	3	3
	Former	0	1	5	0	6	3	3



		1	2	3	4+	Total	Mode	Median
Oudtshoorn	Current	5	2	1	1	9	1	1
	Former	0	1	1	0	2	2/3	2
Vaalwater	Current	3	1	0	0	4	1	1
	Former	2	0	1	0	3	1	1
Total	Current	15	31	25	4	75	2	2
	Former	4	10	9	0	23	2	2

Table 13: Number of years as the decision making producer

		<5	6 - 10	11 - 15	16 - 20	20+	Mode	Median
Bushveld	Current	3	4	2	0	4	6-10	6-10
	Former	0	1	0	1	0	6-10	6-10
Gamtoos Valley	Current	1	0	3	3	5	20+	16-20
	Former	0	0	0	0	1	20+	20+
Lowveld	Current	0	0	1	0	4	20+	20+
	Former	0	3	1	0	2	6-10	11-15
Limpopo	Current	0	0	0	0	2	20+	20+
	Former	0	0	0	0	0	0	0
Loskop Valley	Current	4	3	5	3	9	20+	11-15
	Former	2	0	0	0	0	<5	<5
North West	Current	1	1	1	1	3	20+	16-20
	Former	1	0	1	2	1	16-20	16-20
Oudtshoorn	Current	1	2	0	1	5	20+	20+
	Former	0	0	1	0	0	11-15	11-15
Vaalwater	Current	0	0	2	1	1	11-15	16-20
	Former	0	1	0	0	0	6-10	6-10
Total	Current	10	10	14	9	33	20+	16-20
	Former	3	5	3	3	4	6-10	11-15



Table 14: Source of non-farm income for current producers

Region	Total Observations	Producer receives source of non-farm income	
		Yes	No
Bushveld	13	2	11
		15%	85%
Gamtoos Valley	10	4	6
		40%	60%
Lowveld	6	1	5
		17%	83%
Limpopo	2	0	2
		0	1
Loskop Valley	23	2	21
		9%	91%
North West	7	3	4
		43%	57%
Oudtshoorn	9	2	7
		22%	78%
Vaalwater	4	1	3
		25%	75%
No Response	1		
Total	75	15	59
		20%	80%

Table 15: Source of non-farm income for former producers

Region	Obs.	Producer receives source of non-farm income	
		Yes	No
Bushveld	2	1	1
		50%	50%
Gamtoos Valley	1	0	1
		0	100%
Lowveld	7	1	6
		14%	86%
Limpopo	0	0	0
		0	0
Loskop Valley	2	1	1
		50%	50%
North West	6	2	4
		33%	67%
Oudtshoorn	2	0	2
Total	20	5	15
		20%	80%

Approximately a fifth of current producers and a quarter of former producers have sources of income other than farming operations. The survey investigated if other household members earned any non-farm revenue. However, the results from this investigation were excluded. This was because all respondents stated that the income earned by other household members did not affect their farming decisions, as the income was viewed separately from the farming operations. It was investigated if farmers left tobacco production because of alternative revenue streams.

Table 16: Sources of income after tobacco production

	Obs.	Left Agriculture as a whole	Expanded operation to a new or existing crop
Bushveld	2	0	2
Gamtoos Valley	1	0	1
Lowveld	7	3	4
Loskop Valley	2	1	1
North West	7	2	5
Oudtshoorn	2	0	2
Vaalwater	4	2	2
Total	25	8	17
		32%	68%

Survey results indicate that 40% (ten) of former tobacco growers had left the agriculture sector when they left tobacco production. A third of the producers retired and another third expanded operations that existed while they were producing tobacco. Looking at the time allocated to tobacco production and the diversification of farm operations, it is clear that former producers allocated the bulk of their time to farming. All of the current producers stated that they farmed on a full-time basis and had diversified operations. Further analysis revealed that only one of the former producers who did not have diversified operations and left agriculture entirely continued with an existing business.

Table 17: Operations after the exit from tobacco production

Region	Obs.	New Occupation
Lowveld	3	Nature Reserve
		Small Business Owner
		Land Redistribution- Worked as farm manager
Loskop Valley	1	Logistics
North West	3	Construction Business
		Electrician
		Retired
Gamtoos Valley	1	Retired
Vaalwater	2	Retired
		Caravan Park

Table 18: Current producers' sources of Non-Farm income

Sources of Non-Farm Income	Count
Agricultural related activities (such as leasing of equipment)	9
Professional Services (Quantity Surveyor)	1
Property Rental	6
Entrepreneurial	2
Medical Professional	3
Education	4
Tourism	3
Logistics	2

Non-farm income from both groups came from a diverse range of industries. A number of current producers earned additional income from leasing farm equipment or providing agricultural services to other farmers in their area.

4.5 SURVEY RESPONSE RATES

To understand what influenced the exit decisions of tobacco farmers in South Africa, it is necessary look at producer -characteristics, the macroeconomic environment, and the profitability of tobacco.

The average for farmers to exist tobacco production is 47 years old. Most exited between the ages of 31 and 45. Only 18% of producers were making a loss at the time of their exit

from tobacco production, 27% were breaking even, and 55% of producers were realising a profit 22 respondents cited low profits from tobacco as one of drivers of their decision to leave tobacco production. 32% of those exiting left agriculture to retire or continue with a non-farming ventures, while 68% of producers continued to farm but expanded an existing crop or introduced a new one. Those producers who left agriculture in its entirety started a range of different ventures; there is no common trend to these ventures.

Table 19: Age of former producer on exit from tobacco production

Region	16-30	31-45	46-60	61-65	66+
Bushveld	0	0	0	0	0
Gamtoos Valley	0	0	1	0	0
Lowveld	0	4	2	0	0
Limpopo	0	0	0	0	0
Loskop Valley	0	1	0	0	0
North West	0	4	0	0	1
Oudtshoorn	0	0	1	0	1
Vaalwater	0	0	3	0	0
Total	0	9	7	0	2
Mean Age stopped	47				

The majority of farmers cited declining profits from tobacco as the main driver of their decision to exit. However, when asked if they were realising a profit at the time of their exit, only 18% of producers were shown to be making a loss. The majority of producers who were making a loss with tobacco production were based in the North West while the majority of producers who were breaking even were based in the Lowveld.

A third of former producers continued producing other crops after they left tobacco production. This would imply that producers were still realising a profit with tobacco but that their profit margin had decreased over time or that the profit they could realise with other crops had become more attractive.

Figure 10: Profitability of tobacco at time of exit



Number of respondents who did not complete the question: 3

Table 20: Profitability at time of exit- by region

Region	Breaking Even	Making a Loss	Making a Profit
Bushveld	0	0	1
Gamtoos Valley	0	0	1
Lowveld	3	1	3
Limpopo	0	0	0
Loskop Valley	1	0	1
North West	1	2	3
Oudtshoorn	1	1	0
Vaalwater	0	0	3
Total	6	4	12
Total	27%	18%	55%

Most farmers left between 2001 and 2014, with the second-largest contingent leaving between 1991 and 2000. The mode year is 2005. A number of farmers (32% of current producers) left tobacco growing for a period of time and returned to tobacco production at a later stage. Producers from the survey indicated that a number of other producers in the surrounding areas decreased the amount of tobacco that they produced during the same period that they themselves had left tobacco production. The mode year for these temporary departures was 2006. This coincides with the restructuring of the tobacco industry. Other producers decreased the amount of tobacco they farmed during the same period. The

tobacco industry started to restructure during 2003 and by 2006 had changed drastically. Three tobacco processors were merged into one new company. The area under production decreased by 34% between 2004 and 2005 and by 43% between 2005 and 2007 (DAFF, 2015, pp32-33).

Table 21: Year when producer left tobacco production

Region	Pre 1980	1981-1990	1991-2000	2001-2014	Total
Bushveld	0	0	0	2	2
Gamtoos Valley	0	0	1	0	1
Lowveld	0	0	0	6	6
Limpopo	0	0	0	0	0
Loskop Valley	0	0	1	1	2
North West	1	0	0	5	6
Oudtshoorn	0	1	0	1	2
Vaalwater	0	0	2	2	4
Total	1	1	4	17	23

Table 22: Exit and return to tobacco production by current producers

Region	Obs.	Never Left	Left and Returned
Bushveld	13	11	2
		85%	15%
Gamtoos Valley	10	5	5
		50%	50%
Lowveld	7	4	3
		57%	43%
Limpopo	2	2	0
		100%	0
Loskop Valley	23	16	7
		70%	30%
North West	7	4	3
		57%	43%
Oudtshoorn	9	4	5
		44%	56%
Vaalwater	4	4	0
		100%	0
Total	75	50	25
		67%	33%

Oudtshoorn had the highest percentage of returnee producers. Most of the producers in Oudtshoorn returned to tobacco production in 2011. While the majority of producers countrywide returned to tobacco production in 2007. Farmers in Oudtshoorn returned to tobacco production after 10 years, compared to the average return period of 5 years for other returnees.

From conversations with interviewees and former extension officers in the Oudtshoorn region. Respondents indicated that farmers in the Oudtshoorn region were realising good returns producing vegetable seed and farming with ostriches. However, when farmers started experiencing problems farming with vegetable seed (pollination problems) and ostriches (an outbreak of avian flu) tobacco farming was more profitable. This information can be researched further by understanding income data from farmers in the area. Given that farmers in the area eventually also started experiencing problems with producing vegetable seed and ostriches between 2011 and 2014 this would explain why farmers in the Oudtshoorn region returned to tobacco farming later than farmers in other tobacco production areas (Gosling, 2016).

Table 23: Year tobacco producers left tobacco and year returned

Region	Obs.	Mean year returned	Mean Year left	Mean number of years out of tobacco
Bushveld	2	2010	2004	6
Gamtoos Valley	5	2004	2001	3
Lowveld	3	2003	2000	3
Limpopo	-	-	-	-
Loskop Valley	14	2009	2004	6
North West	3	2008	2007	2
Oudtshoorn	4	2011	2000	10
Vaalwater	-	-	-	-
Total	31	2007	2002	5

Those who exited tobacco farming temporally were asked to list reasons for their decision to leave tobacco production. As in Table 23, shown the responses of these producers were

analysed and grouped according to the six types of drivers. These included: Closure of the Co-op and Co-op politics, profitability of another industry, the profitability of tobacco, land claims and land availability, the nature of the crop, and personal circumstances.

Analysis of the data, shown in Table 24, shows that the main driver of was the profitability of tobacco, followed by the closure of the co-operative and co-operative politics.

Table 24: Categorisation of factors, from open ended responses, affecting producers decisions to leave tobacco production temporarily

Category	Factors included in the category
Closure of the co-operative	Closure of the co-operative
	Co-operative politics
	Existing debt with the co-operative and the inability to access alternative finance
	Nowhere to deliver the crop
Profitability of another industry	Availability of an alternative enterprise
	Booming ostrich industry
	Ease of switching to another enterprise
Factors related to profitability	Co-operative politics: as this affected the profitability of tobacco as producers felt that processing costs were high
	Prevailing prices
	High input costs
	Chlorine in the water: high levels of chlorine impacted the grade of the tobacco and ultimately the price that they received
Land claims and land availability	Farm was affected by land redistribution
Nature of the crop	Labour intensive
	Pest and diseases
Personal	Unexpected loss of a family member

Table 25: Factors, from open ended responses, affecting current producers' decision to leave tobacco production temporarily

Category	Count
Profitability of tobacco	15
Closure of Co-op and co -op politics	11
Nature of crop	3
Profitability of another industry	2
Land Claims and availability	2
Personal	1

Former producers also provided an open-ended response on drivers of departure from tobacco growing. These are grouped into 10 categories: Water quality, Future viability of tobacco, Co-operative politics, Profitability, Legislation, Age of the producer, Labour, Climate, Socioeconomic factors, and Access to finance.

Table 26: Analysis of factors, from open ended responses, impacting producers' decision to leave tobacco production

Category	Factors included in the category
Water quality	High levels of chlorine in the water
	Deteriorating water quality in the area
Future viability of tobacco	How viable would it be to produce tobacco in the future
Loss of government protection*	Unpredictable industry structure
	Uncertainty around the structure of the industry ¹
	Inefficient management of co-operatives
	Not having a place to deliver tobacco harvests
	Inconsistent grading standards
	Exposure to international competitors
	Loss of shares in co-operatives
	Lost pensions, conversions of co-operatives into companies
Mergers and closures of various co-operatives.	
Profitability	Downward pressure on producer prices
	Producers feeling that the profitability of tobacco does not compensate the high levels of risk that they assume
	Capital expenditure to maintain infrastructure and expand infrastructure to achieve economies of scale

Category	Factors included in the category
	Growing input costs
	Decreasing demand of tobacco products
	Tobacco grading systems
	Unpredictability of prices
	Uncertainty around returns
	Rising cost of crop insurance
Legislation	Minimum wages
Age of the producer	Age
Labour	Labour intensive nature of crop
	Minimum wages
Climate	Climate change
	Frost affecting tobacco more than usual
	Drought
Socio Economic	Problems that producers experience as a result of socio economic problems in the area such as unemployment, HIV/AIDS among staff members, alcohol abuse
Access to finance	Access to finance

These factors have been grouped as loss of government protection as there is a degree of speculation from producers concerning events around the closure of the co-operatives. The information is subjective as events during this period have not been recorded and it was an emotional period for the producers.

The data shows that the decision to exit, either temporarily or permanently was driven predominately by changes in the profitability of tobacco.

When the data from the open-ended question are examined further, loss of government protection and changes in water quality are the other two factors shown to significantly impact the exit decision. Deteriorating water quality would ultimately have affected profitability, as it affects the quality of tobacco that the producer is able to deliver.

Uncertainty around the industry structure is that some producers weren't able to sell their harvest because the co-op near them had closed or during the period of restructuring producers weren't sure what would happen in the future.

Table 27: Analysis of factors which affected former producers' decision to leave tobacco production (derived from open-ended questions)

Category	Count
Profit	22
Co-operative politics	13
Water Quality	12
Labour	9
Climate	9
Legislation	5
Ability to access finance	3
Age	2
Future Viability	2
Socio Economic	2

Current producers who left tobacco farming temporarily were asked which factors motivated their return to tobacco production. Open ended responses were grouped into five categories: Profitability of tobacco, Lack of profit ability of alternative crops, Existing Infrastructure, Predictability of income under tobacco, and Love of producing tobacco. As shown in Table 9 only 18% of farmers were making a loss when they left tobacco farming; this may point to the fact that farmers perceived the risk of tobacco farming to be high. Structural changes that were affecting tobacco farming (the loss of government protection), co-operative politics and a negative sentiment around tobacco production increased the risk that farmers faced when farming tobacco. As a result, despite making a profit, farmers decided to leave tobacco farming.

Table 28: Analysis of factors influencing temporary departures from tobacco production (obtained from open-ended questions)

Category	Count
Profitability of tobacco	10
Lack of profit of other crop	8
Existing Infrastructure	4
Predictability of income under tobacco	3
Love producing tobacco	2

Table 29: Classification of factors that have impacted former producers' decision to continue with tobacco production at the time of their exit from tobacco production

Category	Factors included in the category
Production environment	Availability of Roads, Water, Electricity, Extension Services, Finance, Labour, Land, Water, Inputs
	Change in water Quality
	Climate Change
	Existing Infrastructure
	Labour Productivity and Intake Process
	Quality of Extension Services
	Future availability Roads, Water, Electricity
	Socio economic conditions
	Tobacco Grading Systems
	Industry Uncertainty
Regulatory and statutory	Compliance Costs
	Global Economy
	Tobacco Control
	Legislative Costs
	Minimum Wages
	Research done
Profitability	Finance Costs
	Crop Insurance Costs
	Electricity Costs, Electricity Taxes, Energy Costs
	Fuel Costs
	Input Costs Fertilizer, Pesticide, Seed, Herbicide
	Prices realised after processing costs

Category	Factors included in the category
	Sales Process
	Tobacco Prices
Stability	Cash Flow Predictability and Frequency
	Associated Risk
	Competition within the industry
	Price Volatility
	Volatility of R/\$
	Yields Realised
Personal	Existing Pension
	Succession Plan
	Level of management involvement required
	Non-Farm Income
	Social Connotation tobacco

In order to identify the main factors influencing exits from the industry, the mode response for each factor was used to determine the mode response for each category. Producers were asked to indicate the extent to which these factors influenced their decision to continue producing tobacco or exit the industry.

Table 30: Impact of factors on former producers' decision whether or not to continue with tobacco production

	Mode Response	Bushveld	Gamtoos Valley	Lowveld	Limpopo	Loskop	North West	Oudtshoorn	Vaalwater
Production environment	Orange	Red	Grey	Orange	Grey	Green	Green	Orange	Orange
Regulatory and statutory	Orange	Orange	Grey	Orange	Grey	Red	Orange	Orange	Orange
Profitability	Red	Red	Grey	Red	Grey	Red	Orange	Green	Orange
Stability	Orange	Orange	Grey	Orange	Grey	Orange	Green	Green	Red
Personal	Orange	Orange	Grey	Orange	Grey	Orange	Orange	Orange	Green

Key: Red- Negative, Orange- No Impact, Green- Positive, Grey- No Response

4.5.1 Production environment

This category had a mode response of positive or no impact at a regional level. At a country level 'no impact' is representative as respondents' rationale for positive impact was that the infrastructure required to produce tobacco existed and there were systems and processes in place within the industry that enabled them to produce and deliver tobacco. On the other hand, respondents who selected "no impact" were of the opinion that the same factors would influence their ability and decision to produce any other crop; as a result they felt that these factors were not instrumental in their decision to continue farming tobacco. It can be concluded that factors impacting the production environment in which producers operated had no impact on producers' decisions to continue growing tobacco.

4.5.2 Profitability

The mode response for the factors included in the profitability category was negative. Oudtshoorn was the only region where profitability had a positive impact on farmers' decisions to continue tobacco production. This is because of low profitability and challenges of producing other agricultural commodities in the region. Low producer prices and rising input costs were cited as factors that had a negative impact on decisions to continue with tobacco production. This would imply that the margin that producers were realising on tobacco was shrinking.

4.5.3 Regulatory and statutory

Two aspects of the regulatory and statutory environment were felt to encourage exit decisions. These were regulation connected with minimum wages, and legislative costs incurred by producers as a result of policies and acts enforced by government. Both these aspects of regulation would have impacted the profit that the farmer was realising as farmers believed that higher wages would decrease the amount of profit that they would realise.

4.5.4 Stability

During the interviews, producers often referred to the stability of tobacco compared to alternative crops. The individual factors that result in this stability had a positive impact on producers' decisions to continue with tobacco production. These are related to the predictability of cash flow and prices and the frequency with which cash was received, compared to other crops, such as vegetable seed.

4.5.5 Personal

Another factor mentioned by former producers is that they often lost what they thought of as their pension when the co-operatives closed, as the value of their shares in the co-operatives were diluted when the co-operatives converted into companies. This is reflected in the factor Existing Pension which measured the impact of producers' ability to retire.

Another big factor in the 'personal' category was the level of personal involvement that tobacco production required from producers. The response varied according to the producer's attitude to the time they spent on tobacco production. Some respondents felt that it was good that they were investing a significant amount of time in tobacco, as they were investing significant amounts of money in the crop, while others thought that tobacco growing was too time-intensive and would have preferred to spend their time on other activities.

Farmers who left tobacco production temporarily indicated that co-operative politics had been the second most important factor that impacted their decision to leave. Farmers who declined to participate in the study felt that their decision was something completely in the past and was a result of co-operative politics. The questionnaire therefore contained a section that set out to understand the effect of the restructuring better. However, only a few complete responses were obtained for this section (26 in total from both current and former producers). It was therefore decided that the responses from this section would provide anecdotal insights and that the results would be excluded from the final analysis. The conclusion that can be drawn from this section is that the production decisions of both former

producers and current producers who left tobacco production temporarily were impacted negatively by the events surrounding the restructuring of the tobacco industry. The low response rate and poor quality of most responses in this section is indicative of producers' sentiments about both the restructuring of the tobacco industry and the drop in hectares under tobacco production between 2004 and 2007 when hectares under tobacco production decreased from 92 000 hectares to 3 400 000 hectares.

Interviews with two former tobacco farmers who were also members of tobacco co-operatives prior to the restructuring of the tobacco industry provided further information. From these interviews it can be concluded that the removal of government protectionism of agriculture the tobacco industry had to adapt its structure to compete with international competitors. Top heavy co-operatives with excess processing capabilities increased the variable costs of processing tobacco. This structure was no longer economically viable as a result the operations of the MKTV, LTK and PTK were consolidated. The removal of government intervention in agriculture resulted in tobacco production declining as marginal producers were unable to realise a profit without government subsidies and the restructuring of the tobacco industry created a negative sentiment among tobacco producers that also continued to the decline of tobacco production in South Africa.

4.5.6 Interviews with former directors

Former director of the MKTV

Two former directors of the MKTV were interviewed, on the causes of the decline of tobacco production in South Africa, particularly during the restructuring of the tobacco industry. Their views are discussed below.

Co-operative politics

With changes that were taking place in the agricultural sector in South Africa there was a need to increase the tobacco industry ability to compete with international competitors.

Representatives from the various co-operatives and Tobacco RSA came to a realisation that there was a need to merge the co-operatives as the overheads were too high given the size of the industry and the number of producers that were producing tobacco in South Africa. Not only was there excess processing capacity when compared to the size of the tobacco crop but these co-operatives that provided services to tobacco producers was characterised by top heavy structures that resulted in management problems. Among the co-operative management there was unhappiness about the structure of the industry and at an industry level there were concerns around the future viability of the tobacco sector in South Africa. Consequently, it was decided by representatives from the co-operatives management and the industry body for tobacco that three of the co-operatives that were in existence at the time had converted into one company. Given the emotional attachment to the co-operatives a number of producers left tobacco production during this turbulent time; during this period tobacco production decreased from between 30 and 40 million kilograms to 8 million kilograms.

Low producer prices

Structural changes in the agricultural sector in South Africa led to changes in protection of tobacco farmers against foreign competitors. Tobacco processors were no longer required to source a certain percentage of tobacco locally. They began to source tobacco on the international market. This came at a time when global tobacco producer prices were low. Local tobacco prices were no longer set by a board. As a result, the demand for local tobacco decreased. At that stage it had become increasingly important for tobacco producers to produce high quality tobacco, to stay in the market. High levels of chlorine in the water in some regions meant that tobacco grown in these areas was of a lower quality, and sold for lower prices. Tobacco farmers were swayed by the potential profitability of other crops, such as Macadamia nuts.

Removal of import traffic and trade restrictions

The deregulation of agriculture in South Africa led to the removal of import quotas, and local producers were no longer protected from international competition. The changed structure

of the industry meant that there was no longer a board that facilitated negotiations to set tobacco prices that considered the need of producers.

Availability of finance

Tobacco co-operatives provided input financing for tobacco producers. Once these cooperative were converted to companies, this source of finance was no longer available to tobacco farmers. Producers had to obtain private financing, which was significantly more expensive. Many producers had outstanding debt with the co-operatives. If they were unable to produce higher quality tobacco, marginal producers were bankrupt.

Lost member shares

When co-operatives became companies, member shares were diluted, and as a result farmers held a smaller share in the new company. Previously, many tobacco growers converted a portion of their 'agterskot' into member shares as a form of savings. When these shares were diluted in value some producers were of the opinion that they lost what they saw as a portion of their savings.

Former director at PTK

Prior to the restructuring of the tobacco industry Universal Leaf bought tobacco from PTK. There was no alternative market to the cooperatives. After the restructuring processors could buy directly from farmers at higher prices. The removal of this protection meant that some producers had to wait longer than usual to sell their harvest. PTK merged with MKTV during the consolidation of cooperatives, to form Limpopo Tobacco Processors, and other cooperatives were closed. This lead to resentment among tobacco producers in areas where co-operative closed. As a result, these farmers left tobacco production.

PTK offered credit to farmers, with flexible repayment structures. When the co-operative closed were unable to access additional credit. They then had to produce on a large scale to survive. Small-scale and marginal producers were no longer able to survive, given their high levels of debt

The results of the survey show that 68% of former producers left tobacco production and continued with the production of another crop. A similar trend has been observed amongst current producers, as 63% of current producers increased the production of another crop. Only 37% of tobacco producers have expanded tobacco operations.

Table 31: Production trends over the past 20 years

	Observations
Switched to a crop/ enterprise that one previously produced along with tobacco	15
Switched to a crop/ enterprise that you did not produce in the past	21
Tobacco production declined	0
Tobacco production increased	25
Both the production of tobacco and another crop/ enterprise increased	8
Skipped question	7

However, 29% of respondents have increased investment in their tobacco operations significantly over the past five years and 31% have increased their investment in tobacco somewhat over the past five years. 45% of producers have significantly increased the owner-hours they have invested in tobacco production. It may be that the time and capital investments made in tobacco are not a leading indicator of a farmers' likelihood of leaving tobacco production.

Table 32: Capital investments made by current producers in tobacco operations

Region	Obs.	Increased Significantly	Increased Somewhat	The Same	Decreased Somewhat	Decreased Significantly	Not Answered
Bushveld	13	3	5	2	0	3	
Gamtoos Valley	10	1	2	3	2	1	1
Lowveld	7	2	1	1	1	1	1
Limpopo	2	1	0	0	1	0	

Region	Obs.	Increased Significantly	Increased Somewhat	The Same	Decreased Somewhat	Decreased Significantly	Not Answered
Loskop Valley	23	11	9	2	1	0	
North West	7	2	1	2	2	0	
Oudtshoorn	9	2	2	2	2	1	
Vaalwater	4	0	3	1	0	0	
Total	75	22	23	13	9	6	2

Table 33: Time invested by current producers in tobacco operations

Region	Obs.	Significant Increase	Increased Somewhat	The Same	Decreased Somewhat	Significant Decrease	Not Answered
Bushveld	13	7	2	2	1	0	1
Gamtoos Valley	10	6	0	3	0	1	6
Lowveld	7	3	1	2	0	0	3
Limpopo	2	2	0	0	0	0	2
Loskop Valley	23	8	3	7	4	1	8
North West	7	4	2	1	0	0	4
Oudtshoorn	9	3	2	4	0	0	3
Vaalwater	4	1	0	2	1	0	1
Total	75	34	10	21	6	2	28

Current producers were provided with the same list of factors which could affect their current tobacco production decisions. The responses were grouped into the same categories that were used to analyse the data from former producers.

The data, shown in Table 33 reveal that factors related to regulation and profitability had a negative impact on producers' decision to continue with tobacco growing.

Table 34: Mode responses from current producers

	Mode Response	Bushveld	Gamtoos Valley	Lowveld	Limpopo	Loskop	North West	Oudtshoorn	Vaalwater
Production environment	Green	Red	Green	Orange	Grey	Green	Green	Green	Green
Regulatory and statutory	Red	Red	Orange	Red	Grey	Red	Red	Orange	Red
Profitability	Red	Red	Orange	Red	Grey	Red	Red	Green	Red
Stability	Pos./NI	Orange	Orange	Green	Grey	Green	Pos./NI	Orange	Red
Personal	Orange	Grey	Orange	Orange	Grey	Green	Orange	Orange	Green

Key: Red- Negative, Orange- No Impact, Green- Positive, Grey- No Response

Similar factors affect the exit decisions of former and current tobacco farmers. The declining profitability of tobacco is one of the main considerations, as is the regulatory environment in which producers operate. Factors related to stability impacted the decision of both groups to continue with tobacco production or exit the industry. The factors related to stability are listed in Table 29 and includes factors like cash flow and price volatility. Although there was no mode response on the impact of the latter some producers said that the stability of tobacco it had a positive effect as they knew what price they would receive for their harvest prior to the commencement of the new production seasons, as the delivery contracts they entered into stated the prices for the different grades of tobacco leaf. Producers preferred off-take agreements as they mitigated some of the risks faced during the production season.

Unlike former producers, who stated that the production environment had no impact on their production decisions, current producers indicated that the production environment had a positive impact on their decision to continue. This was they had already made the infrastructure investments required to produce tobacco.

Respondents indicated that regulatory factors impacted their decisions negatively. One of the main drivers in this category was the regulation related to labour laws, particularly

minimum wage regulation. It is important to note that the survey was completed shortly after the minimum wage for farmworkers was increased.

An unexpected finding was that regulations around tobacco control did not impact the production decisions of most current producers. The requirements of tobacco control regulation were seen as no different from the requirements that they had to adhere to with the production of other crops, such as vegetables and citrus fruits.

The data showed regional differences in motivations to exit production. Farmers in most regions said profitability factors had a negative effect on their production decisions. However, producers in the Oudtshoorn region indicated that profitability had a positive impact on their decision to produce tobacco. This region was also one of the few regions where producers had expanded tobacco operations. At the time of the survey, tobacco compared favourably in terms of profitability to other crops produced in the region. The ostrich industry was busy recovering after the collapse caused by an outbreak of avian flu. Producers of vegetable seed were unable to pollinate their crops as a result of climate change. In addition, vegetable seed producers had also indicated that they were experiencing cash flow problems because of the length of time that they had to wait before they realised a return on this crop.

Based on the opinions expressed by producers during the survey responses from the Oudtshoorn region shows that the performance of alternative crops and enterprises also impacts farmers' decisions to continue with tobacco production. Respondents who had increased production of another crop and former producers who had continued with another agricultural enterprise were asked to elaborate on the performance of the alternative crops that they had introduced.

Of the respondents, 68% of former producers and 65% of current producers have introduced new crops or enterprises while tobacco was still realising a profit (48% of former producers and 83% of current producers were realising a profit with tobacco). There are some regional

differences in the crops and enterprises that have been introduced. As the sample size of former producers was small, it was decided to show results for the sample as a whole, instead of at a regional level. From discussions with experienced extension officers and producers it is evident that the main enterprise introduced in the Bushveld is game farming. Farmers are now also starting to branch out to potatoes and onions. Farmers who declined to participate in the survey indicated in conversation that they have switched to the production of onions and potatoes. Producers in the Loskop Valley have started to produce maize, vegetables, and vegetable seed. Growers who left tobacco production a number of years ago had changed to the production of table grapes and citrus fruit. In the North West and Vaalwater regions, producers had branched out to soya bean and wheat in a double-crop rotational system with vegetables.

In the Gamtoos valley most of the producers now grow citrus fruit, and in the Lowveld the trend is towards citrus and macadamias. A number of producers in these regions said citrus and macadamias are profitable as they are produced for the export market, and the weak Rand/US Dollar exchange rate was particularly favourable for producers. A number of these producers had started to grow citrus or macadamia seedlings and were planning to introduce them in the near future. One of the main challenges in switching from tobacco to either citrus or macadamias was switching from a short-term cash crop to a permanent crop. As a result, farmers phase in permanent crops, as they have to wait for five years before the trees come into production.

Table 35: Crops introduced by former producers

Crops introduced	Obs.	Crops introduced	Obs.
Broilers	1	Macadamias	2
Citrus	1	Maize	1
Game	2	Livestock	2
Vegetable	6	Seed Maize	1
Herbal Flowers	1	Soybeans	1

Table 36: Crops introduced by current producers

Region	Observations	Region	Observations
Bushveld		Gamtoos Valley	
Potatoes	2	Citrus	3
Onions	1	Lowveld	
Beans	2	Citrus	2
Game (Sable, black impala etc.)	2	Macadamia	3
Vegetables	4	Pecan Nuts	1
Loskop Valley		Limpopo	
Citrus	5	Vegetables	1
Cotton	1	North West	
Greenhouse	1	Cattle	1
Seed Maize	2	Wheat	3
Table Grapes	1	Table Grapes	1
Vegetables	3	Vegetables	1
Oudtshoorn		Seed Maize	1
Vegetable Seed	1	Soya Beans	2
Vaalwater			
Vegetables	2	Potatoes	1
Peanuts	1	Beans	1

This is a challenge for some producers, as they incur expenses during the five-year period before earning any income from the crop. Another observation that was made is that producing crops without a contract is more challenging, as the producer is never certain of the price of or demand for their crop. A fruit and vegetable farmer, revealed a warehouse full of watermelons that he was unable to sell as the prevailing market price was too low and he would have not been able to realise a profit if he was to transport the melons to the market. Another vegetable producer indicated that it had taken a number of years to build relationships with buyers and build a reputation as a trusted provider of quality vegetables.

Figure 11: Shed full of watermelons that the producer was unable to sell



Source: Own

Table 37: Ease of changing to the production of new crops or enterprises

Region	Crop	Ease to Switch	Cost to Switch
Bushveld	Vegetables	Easy	Some Cost
	Game Farming	-	-
Lowveld	Green Houses Veg	Easy	Significant Costs
	Macadamia nuts	Difficult	Some Costs
	Macadamia nuts	Easy	Significant Costs
	Piggery	Easy	No Costs
Loskop Valley	Seed Maize	Very Easy	No Cost
	Broilers	Difficult	Significant Costs
	Vegetables and Table Grapes	Easy	Significant Costs
	Vegetables	Very Difficult	No Costs
	Soya Bean	Very Difficult	Significant Costs

Region	Crop	Ease to Switch	Cost to Switch
Oudtshoorn	Veg Seed	Unable to say	Unable to say
	Ostriches	Very Easy	Some Costs
Vaalwater	Herb Flowers	Easy	Some Costs
	Citrus	Very Difficult	Significant Costs

Table 38: Capital cost of switching to a new crop or enterprise

Region	Significant Cost	Some Cost	No Cost
Bushveld	7	2	0
Gamtoos Valley	3	0	0
Lowveld	4	0	0
Limpopo	1	0	0
Loskop Valley	8	4	2
North West	2	3	1
Oudtshoorn	0	1	0
Vaalwater	1	1	0
Responses	40		
Total	65%	27%	8%

The mode response for both current and former producers was that they incurred significant costs when introducing a new crop or enterprise. These costs were incurred from investing in specialised equipment or storage or processing facilities, as well as the waiting cost of establishing long-term crops.

Current producers were asked to compare the cash flow and profitability of the crops or enterprises that they had introduced with the cash flow and profit that they were realising from tobacco at that stage. The mode response was that the producers' cash flow had improved and that the new crops were more profitable than tobacco.

Former producers were asked to rate their opportunity to expand the production of a particular crop. Current producers were asked for their production trend for a particular crop

over the past five years. It was not possible to reach a conclusive answer on the future viability for most of the crops, given the mixed responses from farmers.

Table 39: Cash flow of the new crop or enterprise compared to tobacco

Region	Improved	The Same	Worsened
Bushveld	4	1	2
Gamtoos Valley	2	0	0
Lowveld	3	0	1
Limpopo	0	0	0
Loskop Valley	7	6	1
North West	4	0	1
Oudtshoorn	0	1	1
Vaalwater	2	0	0
Total	22	8	6

Table 40: Profitability of the new crop or enterprise compared to tobacco

Region	Improved	The Same	Worsened
Bushveld	5	1	1
Gamtoos Valley	2	0	0
Lowveld	4	0	0
Limpopo	0	0	0
Loskop Valley	8	2	4
North West	4	0	1
Oudtshoorn	2	0	0
Vaalwater	1	0	1
Total	26	3	7

Table 41: Former producers' outlook for future potential of crops/ enterprises

	Bushveld	Gamtoos Valley	Limpopo	Loskop Valley	Lowveld	North West	Oudtshoorn	Vaalwater
Citrus					Green	Orange		
Beans				Red		Green		
Vegetables	Red				Orange	Green		
Seed				Red			Green	
Grains				Green	Orange	Green		
Sunflower Seed				Green		Green		
Table Grapes						Green	Green	
Livestock					Red		Red	

Key: Red- Negative, Orange- No Impact, Green- Positive, Grey- No Response

The conclusion was that respondents thought that there was no potential to expand livestock farming in the future, but that there was an opportunity to expand production of grains, sunflower seed, and table grapes.

Current producers were asked to indicate what investments they were currently making in different agricultural commodities. Similar to former producers, there was no clear indication of producers' outlook for most of the crops. However, it is clear that producers are expanding the production of citrus, onions and macadamias.

Table 42: Current producers' production trends

	Mode production trend
Citrus	Increased
Beans	Increased / The Same
Vegetables	The Same
Seed	Increased / The Same
Potatoes	The Same
Onions	Increased
Grains	The Same
Cotton	Decreased / The Same
Peanuts	The Same
Macadamia nuts	Increased
Sunflower Seed	The Same
Table Grapes	The Same

The case studies of individual producers (below) highlight their move away from the growing of tobacco to the production of a new crop. Additionally, these case studies highlight regional trends in production

4.5.7 Case studies from former tobacco producers

4.5.7.1 Vegetable producer in Brits (North West Province)

The producer made a once-off decision to leave tobacco production. This producer left tobacco farming because there were only a few tobacco producers remaining in the region and that the quality of water in the area had deteriorated. Water quality had been the largest

contributor to his decision to leave tobacco production; high levels of chlorine in the water in the area affected the quality of the tobacco leaf he grew, and the tobacco's ability to burn. This type of tobacco fetched lower prices. Farmers received 30% of the 'voorskot' from processors and the remaining 70% only once the co-operative had sold the tobacco. The producer was unable to expand his tobacco infrastructure. He tried to produce tobacco in different locations and mix the harvest from the different regions to deliver a higher quality tobacco. This was however not successful. The high levels of risk in the venture, and the cost of perennial insurance and rising input costs eventually drove him out of tobacco production.

Prior to his exit, he diversified his operations to include citrus and table grapes. He then introduced vegetables. As his vegetable production increased he stopped growing table grapes. This was because it was difficult to fulfil the seasonal demands of the export market on an ongoing basis. Production of table grapes is also volatile, as prices received are closely linked to international exchange rates, and supply chains are often disrupted by labour unrest.

Gradually, the producer started to expand the number of hectares under vegetable production. However, he had to acquire additional land as part of the rotation programme. Despite of the shift to vegetable production the producer noted that he still preferred the tobacco production cycle.

At present he produces vegetables under contract to Fruit and Veg City, Woolworths, and Pick n Pay. He sells the remaining produce on the Tshwane Fresh Produce Market.

The producer has found the vegetable industry to be highly regulated through Global GAP. This level of regulation results in high compliance and administrative costs.

In order to achieve economies of scale he acquired a number of small- and medium-sized operations that used to be in the area and became one of only three producers in the area, which formerly had 50 producers. The three producers who remain run large sustainable businesses. The producers who did not expand their operations have either gone to work in the private sector or are currently working as farm managers for other producers.

The farmer felt exiting from tobacco production had negative consequences for his quality of life. Neighbouring farms closed and his family's circle of friends had become smaller and

his family feel isolated. Unlike tobacco production, vegetable growing does not have an off season. His quality of life has therefore also been affected by year-long workloads.

He stated that agriculture is like Wall Street; the entire market is driven by supply and demand, and to survive you need to be a marketing specialist.

4.5.7.2 Tobacco producer in Oudtshoorn

The producer completed his BCom in 1969 and starting working for the Tobacco Institute Oudtshoorn in 1970. He continued to work as a tobacco researcher when he started to produce tobacco independently. For most of the 1970s and 1980s tobacco production was a major source of income in the Oudtshoorn, Gamtoos and Patensie regions. At this time producer realised between 30% and 40% return (profit margin) from tobacco production. During this time the marketing of tobacco was controlled by the Tobacco Control Board; producers, processors, and manufacturers were involved in tobacco price negotiations. This price determination meant that tobacco prices increased as input costs increased. This process provided stability within the tobacco industry. The entire process was supported by the state. The co-operative tobacco system collapsed approximately 15 years ago. At this stage the production of tobacco became less viable. Tobacco prices were no longer adjusted for increases in input costs. As producer price increases were not aligned to input cost increases, producers started to search for alternatives. Over time tobacco and table grape production started to decrease, while vegetable seed production increased. The tobacco and table grape co-operatives merged and eventually collapsed. During this time co-operatives were converted into companies. However, tobacco producers were not geared to operate in a free market. Although the ostrich industry was an alternative to tobacco production the industry has suffered in recent years because of avian disease. Alternative crops that were produced include onions, carrots, leeks and spring onions. Vegetable seed proved profitable to produce and ultimately led to the decline of tobacco production in the area. Unlike some other tobacco production areas, the production of fresh vegetables is not an alternative in Oudtshoorn because of the hot, dry summers and the distance from fresh produce markets. Vegetable farmers are also now experiencing problems producing vegetable seed. Climate change means summer rains are later than usual and there are no bees to pollinate the vegetable seed. Additionally, the increase in the minimum wage has

had a negative impact on vegetable seed production, as it is labour-intensive. Some farmers in the area are moving back to the production of tobacco. Although the area is well suited to tobacco production, there are a number of challenges, including low night temperatures that stunt the growth of young plants, and the shortage of skilled labour. The producer thought that the older generation of tobacco farm employees understood the tobacco growing process and were dedicated to the farm. However, he felt that the younger generation had no knowledge of tobacco and were not committed to building a career working on the farm.

4.5.8 Regional insights from current and former producers

4.5.8.1 *Lowveld – Mpumalanga*

The respondent worked as a farm manager for a large company which had planted over 250ha of tobacco in Zimbabwe. As a result of the land redistribution programme that took place in Zimbabwe, the company lost their farm. They then moved to South Africa to produce tobacco. Factors affecting their production included co-operative politics, price pressures from big buyers, skills shortages, climate risk (hail and frost), wages for a labour-intensive crop production, and high running costs. Eventually they stopped producing tobacco because of the capital-intensive nature of the crop.

4.5.8.2 *Tom Burke – Limpopo*

Today most producers in the region focus on vegetables, game and livestock. Bushveld producers have a competitive advantage in producing onions and potatoes. This is because of the warmer climate which enables them to grow their crops over a longer period than farmers in other regions.

There is also a trend in this region of city dwellers purchasing farms in the area and converting them into holiday farms. The producers who have remained in the region have also had to increase the size of their farms to make them sustainable. Small-scale and marginal producers have sold, to larger producers, and left.

4.5.8.3 *Gamtoos Valley – Eastern Cape*

The farmer started tobacco growing in the early 1950s in the Patensie region. He and most of the farmers in Patensie irrigated their crops with water from the river. Drought and deteriorating water quality in the late 1980s resulted in many farmers in the region exiting tobacco. The farmer moved to Addo, and tried to produce both citrus and tobacco but the citrus enterprise was unsuccessful. Over a three-year period, the producer gradually introduced vegetables. Initially the producer delivered the vegetables to the fresh produce market in Port Elizabeth. Over time, the producer came to realise that only a small portion of the local population who purchased from the fresh produce market had buying power consequently delivering to the Port Elizabeth fresh produce market was not a commercially viable solution. To realise maximum profits, the producer had to send the produce to fresh produce markets across the country. This increased both transport and administrative costs. Often by the time the goods reached the market the prices would have decreased. At one time, I&J offered production contracts to producers which gave more stability as they included a guaranteed price. In 1992, I&J closed their production plant in Port Elizabeth and producers were forced to deliver to fresh produce markets again. Recently McCain's has started to offer production contracts to farmers.

4.5.8.4 Patensie- Eastern Cape

The farmer began producing tobacco in Willowmore. His farm, as well as the neighbouring farm, were then bought out by government as part of a land redistribution and water conservation programme. As a result, tobacco production decreased in the region. The producer then moved to Patensie. He stopped producing tobacco for a period of three years because of low producer prices and profitability, high processing costs at co-operatives and high input costs.

The producer has not expanded his operations as there is a shortage of land in the Patensie region and the high costs associated with the expansion of infrastructure.

The producer is considering expanding to citrus production in the future so that he can move away from tobacco production. Despite this, he has continued to increase the production of tobacco, as tobacco provides stability, because prices are known prior to the

commencement of the production season. Tobacco production is also complementary to citrus production, and provides work opportunities during the slow citrus season.

Tobacco production in the Patensie area has declined because most of the producers have increased the citrus component of their farming operations and farmers no longer have time to dedicate to the production, sorting and processing of tobacco. The total amount of tobacco produced in the region declined, and therefore the per-unit processing cost of tobacco increased significantly for the producers who remained. The focus has shifted to citrus as it is now more profitable.

The farmer would like to continue with tobacco production, but he is conscious of the fact that tobacco production takes up a lot of his personal time and also that time needs to be devoted to training workers.

4.5.9 Insights on alternative crops from current and former producers

4.5.9.1 *Vaalwater – Limpopo*

The farmer has been searching for an alternative crop to tobacco. He is searching for an alternative because of the high risk associated with the production of tobacco, the amount of infrastructure required to produce tobacco, the high cost of tobacco infrastructure and the labour-intensive nature of tobacco farming. At this stage the producer feels that the profit he realises does not compensate him sufficiently for the risks and costs that he incurs. As a trial, he has planted a couple of hectares of tomatoes.

Tomatoes

The producer explained that it is possible to produce tomatoes without expensive infrastructure, but that tomatoes are more labour-intensive than tobacco. In the trial planting, the producer had twelve people working on a single hectare during harvest time. Labour costs constitute 50% of the costs. Although the producer realised higher returns on tomatoes than on tobacco, he is aware that the price of tomatoes is more volatile, as the market can be flooded by an oversupply at any time.

The producer was of the opinion that someone new to the industry would not be able to produce tobacco profitably as the capital costs of the infrastructure required are just too

high. The cost of land and curing barns is especially high. Tobacco is also a labour-intensive crop and this contributes to the costs that a producer incurs.

The producer prefers producing tobacco because he knows the price that he will receive for his crop prior to the start of the production season. All that he has to do during the production season is to ensure that he produces the 'right' quality of leaf. Unlike other crops, where markets can be flooded with an oversupply that results in price decreases, the price of tobacco remains constant.

Dry Beans

The producer has also diversified his operations to include the production of dry beans. He has found dry beans to be more profitable than tobacco. The production cycle of the beans is compatible with the production cycle of other crops that he produces (peanuts, tomatoes, cabbage, tobacco, and seed maize).

4.5.9.2 Loskop Valley – Limpopo

At the time of the survey the grower was one of the first in South Africa to participate in a trial that used tobacco as a biofuel. At the time it was the first season where he had planted the cultivar of tobacco that is used to produce biofuel and the producer had an offtake agreement with one of the major airlines.

The producer found the input costs to be high during the trial, as he did not have the correct machinery, but thought that he would be able to realise higher profit margins once he bought the specialised machinery that is required to harvest the flowers of the tobacco that are used to produce biofuel.

4.5.9.3 Patensie – Eastern Cape

The farmer produces predominantly citrus fruit, and some tobacco, as the production cycles of tobacco and citrus are complementary.

Citrus: The producer is sceptical about the future of citrus, given the growing importance of Global GAP and the negative effects of diseases (black spot). He feels there is an

oversupply of citrus in the market and that the demand for citrus will reach a plateau, as citrus is viewed as a luxury consumable.

Tobacco provides work opportunities for farm workers throughout the year, unlike citrus which only provides seasonal employment.

4.5.9.4 Baltimore – Limpopo

The grower finds that it is easier to mechanise the production of potatoes and onions than tobacco, and that if this is done, potatoes and onions are more profitable than tobacco.

This farmer has also expanded his farming operations to include exotic game. This is costly and he has spent R8 million to build game camps and electrify the perimeters of these camps.

In the area, the number of hectares under tobacco production has decreased. This is because profit margins have decreased as producer prices have not kept pace with electricity, fuel, and wage costs. When the PTK co-operative closed many tobacco producers in the area switched to the production of potatoes, tomatoes and pumpkins. Producers left tobacco production as they were no longer certain that there was a buyer for their crop.

Currently, some producers deliver tobacco to Patel. They do not have producer contracts that stipulate the amount of tobacco to be purchased and tobacco is bought on an ad hoc basis. This has a negative impact on tobacco growers cash flows.

Given the FCTCs' objective of identifying alternative crops to tobacco, it is important to understand how producers see tobacco farming. I also had to gauge what level of long-term capital investments they are likely to make in tobacco operations. Current producers were therefore asked how frequently they thought of leaving tobacco production and under what circumstances they would leave tobacco production. Furthermore, they were asked to indicate how they saw the future of tobacco production and if they would like their children to produce tobacco.

Producers who currently produce tobacco question their continued involvement in tobacco regularly. Of the respondents, 21% indicate that they occasionally thought of leaving tobacco production while 11% indicate that they often thought about leaving tobacco production. The main factor shown to influence current producers' decisions to leave tobacco production decreased profitability, followed by the associated costs and the labour-intensive nature of tobacco production.

Table 43: Current producers' considerations concerning leaving tobacco production

Region	Obs.	Occasionally	Often	Not Answered
Bushveld	10	3	2	5
Gamtoos Valley	3	1	1	1
Lowveld	6	3	2	1
Limpopo	1	0	0	1
Loskop Valley	7	2	2	3
North West	3	2	1	0
Oudtshoorn	5	3	0	2
Vaalwater	3	2	0	1
Total	38	16	8	14
		42%	21%	37%

Table 44: Conditions under which current producers would leave tobacco production

Category	Count
Profitability	41
Labour costs and intensive nature	22
Legislative changes and constraints	6
Retirement	5
Never	6
Other	1
Production conditions (weather, disease, water)	10

Profitability was also cited as the key attraction of tobacco growing. When asked how current producers saw the future of tobacco, 55% indicated that they thought the future looked

positive. The main factors that would detract producers from tobacco production were the availability of cheaper alternative crop production, reduction in the size of the South African industry, and legislation.

Table 45: Current producers' outlook for tobacco production

Region	Positive	Negative	Uncertain	Neutral
Bushveld	7	5	0	1
Gamtoos Valley	4	5	0	1
Lowveld	3	4	0	0
Limpopo	1	1	0	0
Loskop Valley	15	2	0	2
North West	3	2	2	0
Oudtshoorn	6	1	0	0
Vaalwater	2	2	0	0
Total	41	22	2	4

Table 46: Qualitative analysis of producers' responses around the outlook for tobacco

Category	Count
Positive factors	
Government is supportive of agriculture	5
Quality leaf is produced in South Africa	4
Profitable crop to produce	12
Negative factors	
Legislation	4
Tobacco is a shrinking industry	5
Politics within tobacco	2
Cheaper alternatives to the tobacco produced in SA are available	6

As shown in table 45, former producers were asked how they saw the future of tobacco and the responses were mixed. The factors which influenced their responses include legislation (including minimum wages), input costs, government support, farm wages, profitability, compensation for assumed risk, and the social connotations of tobacco consumption.

Table 47: Former producers' outlook for tobacco production

Category	Count
Positive	6
Negative	14

32% of current producers questioned their own involvement in tobacco production, given the intensive nature of the crop and the return that they realised for the amount of work that goes in to produce the crop. However, 69% indicated that they would like or were not opposed to their children producing tobacco. The reasoning behind this response was that they mostly believed that there was a prosperous future in tobacco production and they had a personal affinity towards tobacco growing. Responses included “it is in our blood”, “if you can produce tobacco you can produce anything” and “it is for the love of the crop”.

Table 48: Current producers view on their children producing tobacco

Region	Obs.	Yes	No
Bushveld	13	10	3
Gamtoos Valley	10	8	2
Lowveld	7	5	2
Limpopo	2	2	0
Loskop Valley	22	18	4
North West	6	3	3
Oudtshoorn	9	5	4
Vaalwater	4	1	3
Total	73	52	21

Table 49: Qualitative analysis of producers' responses on their children producing tobacco

Category	Count
Negative factors	
Legislation	4
Quality of life	8
Positive factors	
Personal Preference	16
Future Viability	24
Neutral Factors	

Category	Count
Only crop suited region	2
Children's choice	15

The data shows that region and producer characteristics play a role in production decisions.

Age

Age is one of the variables that has an influence: The majority of producers who left tobacco production were between the ages of 46 and 60. This is aligned to the findings of Kimhi and Bollman (1999) who notice farmers are more likely to exit agriculture prior to retirement. The second largest category of farmers who exit are those aged 31 to 45, followed by those aged 61 to 65. This is not unexpected as Bragg & Dalton (2004) find that producers are likely to exit when their operations are either in the start-up or mature phase. The business life-cycle is closely related to a producer's age, producers who have mature businesses may exit when they no longer have the energy to manage such a management-intensive crop. Exits by younger producers could be explained by producers investing more time in their families, and moving closer to amenities such as schools. One respondent said he would leave tobacco production when his children were of school-going age, as he wanted to spend more time with the family and be nearer to schools.

Level of Education

Numerous studies have found that producers' probability of exit is positively correlated to their level of education. However, both current and former producers in the study have tertiary qualifications. A possible explanation for this could be that producers felt that their qualifications better equipped them to manage input-intensive crops like tobacco. This view is supported in studies by Bragg & Dalton (2004).

The Production Environment

Our analysis of the factors in the production environment affecting tobacco production decisions revealed that profitability had the largest impact on exit decisions. A number of other studies have found that variables related to profitability, such as diversification, prices, price volatility, input costs, and capital costs, do influence producers' exit decisions. Other

variables were shown by researchers to influence tobacco producers' exit decisions. Viira et al. (2009), Bragg & Dalton (2004) find that producers with diversified incomes were more likely to exit. However, diversification of operations had was not shown in our study to have an impact on tobacco producers' exit decisions, as both current and former producers had diversified operations. This could be a result of the perceived stability that tobacco production contracts provide, and the fact that tobacco prices and returns are less volatile than those of other crops.

Like the milk producers in the study by Bragg & Dalton (2004), tobacco producers have large capital expenses. However, in our study respondents indicated that the availability of infrastructure and equipment did not impact their decision to leave tobacco production. This implies that tobacco producers, like milk producers, are focused on covering average variable costs based on the market price that they receive. Climate risk is one of the remaining factors that impact the profit realised by individual producers. Producers indicated that changes in water quality, the effects of climate change, including droughts had influenced them to exit the industry, as suggested by Fourie (1992). Increasing regulatory pressure is known to impact production decisions negatively (Ramsey & Smit 2001). From the survey farmers indicated that anti-tobacco regulation has not affected tobacco producers in South Africa. However, legislation related to labour (such as minimum wage legislation), and land reform has impacted production. It could be that minimum wage laws had a more immediate effect on farmers than anti-tobacco regulation and that they did not view the effects of regulation as material at the time of the survey.

4.6 CONCLUSION

The survey conducted with current and former tobacco farmers found that the profitability of tobacco had the largest impact on the decision on whether or not to continue with tobacco farming. The study also found that farmers considered producer prices, the cost of inputs and the opportunity costs of profits that could be earned by alternatives as part of the profitability of producing tobacco. Although profitability had a major impact on former farmers' decision to leave tobacco production, co-operative politics was also a major

consideration for farmers who had left tobacco farming completely and for farmers who had left tobacco production for a period of time before returning to tobacco farming.

There is no clear preference regarding crops introduced as alternatives to tobacco. It was established that there is no single crop that can be used to substitute tobacco. The suitability of an alternative to the production region has to be considered. As with the farmers' decision to continue with tobacco farming, the profitability of the alternative crop and the ease of accessing buyers for the crop impacted farmers' decision to introduce this crop. The next chapter contextualises the findings from the survey in terms of the FCTC and discusses how these findings may support the COP working committee in identifying sustainable alternatives to tobacco production.

5 CONCLUSION

5.1 SUMMARY AND CONCLUSION

The general objective of this dissertation was to understand the factors that impacted tobacco farmers' tobacco growing decisions and to understand what alternative crops have been introduced by tobacco farmers. The following chapters provided an overview of the South African tobacco industry, reviewed literature on factors impacting tobacco production decisions and factors impacting farm exits from agriculture as a whole. A survey was conducted to understand the factors that impacted South African farmers' decisions to continue with tobacco growing. Data from these surveys with current and former tobacco farmers were analysed in Chapter 4. The analysis identified factors that had resulted in the decline of tobacco production in South Africa it also identified what had happened to farmers who previously produced tobacco, and which agricultural crops they had switched to. This chapter will discuss the implications of these findings for the objectives of the FCTC and make a number of concluding statements as well as recommendations for future studies.

5.2 OBJECTIVES OF THE FRAMEWORK CONVENTION ON TOBACCO CONTROL

The FCTC seeks to reduce both the demand for and supply of tobacco. To achieve these objectives, the working committee for economically sustainable alternatives to tobacco growing (Article 17 and 18) recommends that research should investigate all elements that relate to tobacco growing. These include the demand for tobacco, and potential alternative crops, as well as the environmental impact of the production of tobacco and of alternative crops (WHO, 2014). South Africa is an example of a country where tobacco production has decreased significantly. This study provided insights that may help inform the decisions of the COP working committee for economically sustainable alternatives to tobacco growing. This study set out to identify and reveal the factors that impact farmers' decisions to leave tobacco production, and to identify the crops which have been chosen by farmers to replace tobacco in South Africa.

5.3 FACTORS INFLUENCING THE DECLINE OF TOBACCO PRODUCTION IN SOUTH AFRICA

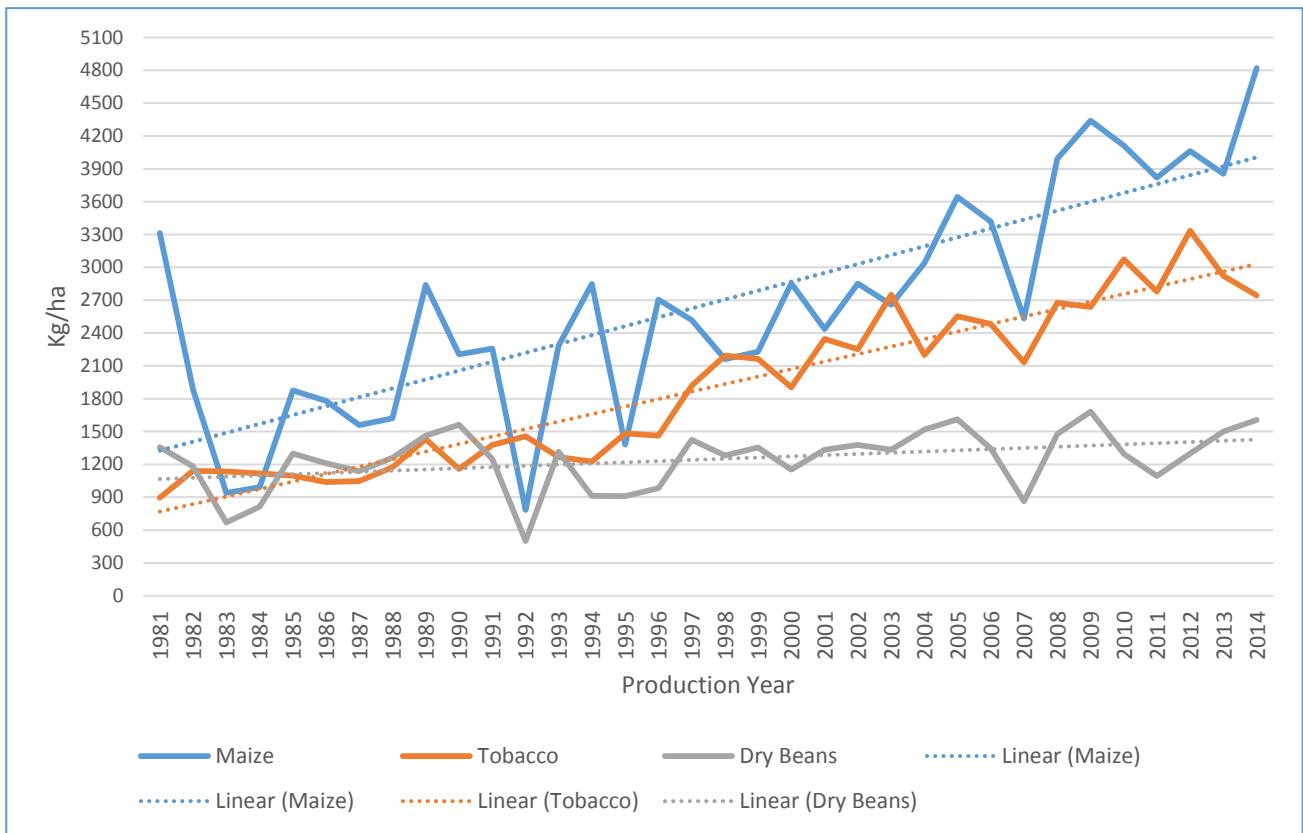
A face-to-face survey were conducted with 75 current and 25 former producers in a number of tobacco producing areas in South Africa. An analysis of the data from the surveys revealed that the profitability of tobacco and co-operative politics were the two main drivers causing former producers to leave tobacco production. The survey also revealed that some producers who are currently producing tobacco had left tobacco production for a period of time; these producers cited declining profitability of tobacco and the politics associated with the closure of co-operatives as the main drivers for their decision to leave the tobacco industry.

Former producers and current producers who had left tobacco production for a period of time indicated that falling profits was the main driver of their decision to leave tobacco production. Further investigation revealed that low producer prices, the rising cost of inputs and the availability of alternative crops influenced producers' decision to leave tobacco production. Given that only 18% of former producers were making a loss with tobacco production at the time of their exit, this would imply that the profit margins that producers were realising on tobacco was declining. Former producers, 68%, and 63% of current producers changed to a new crop or expanded production of an existing crop. This implies that the profit margins that producers realised on tobacco were lower than the profit margins that they could realise with alternative crops.

Profitability is dependent on crop quantity that they produce (yield), the price that they receive for the crop, less any costs that the producer incurs to produce the crop. The yield realised is influenced by the number of hectares planted, and the technical efficiency of the production methods used.

Figure 11 shows that over time the rate of efficiency of maize production has increased compared to tobacco and that the rate of efficiency of tobacco production has increased compared to the production of dry beans.

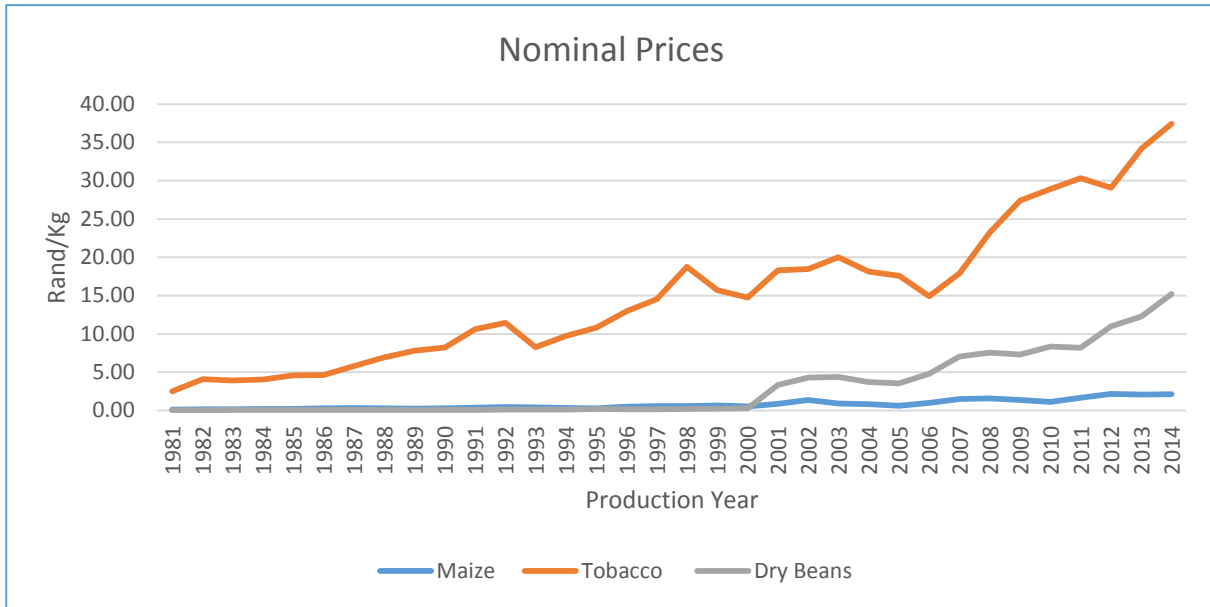
Figure 12: Production yields of tobacco compared to maize and dry beans



Source: DAFF, 2015, pp32-33

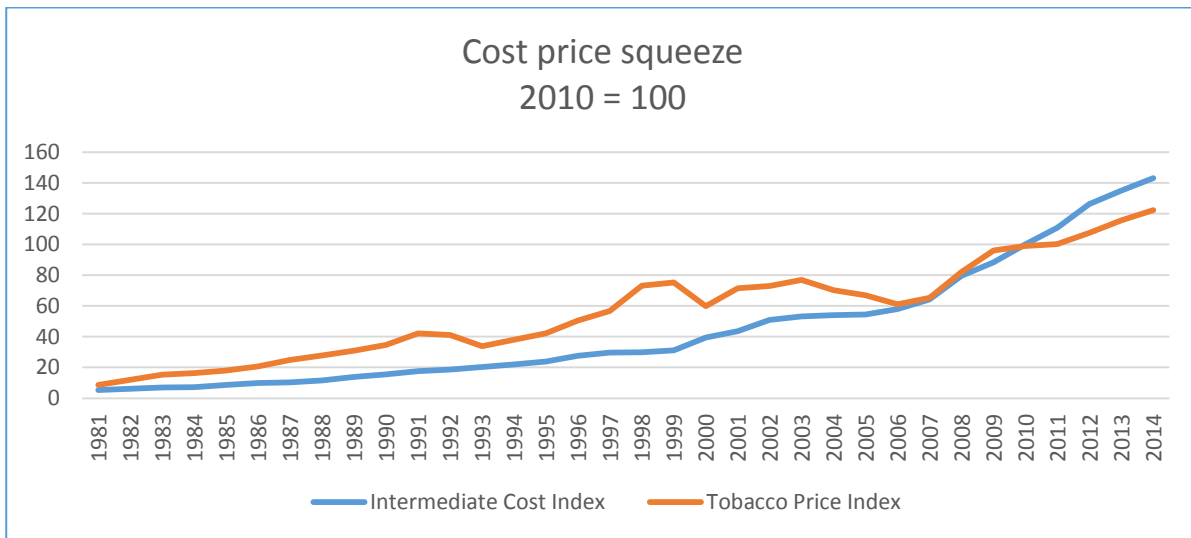
Even though maize yields are higher than tobacco yields, farmers may be able to realise greater profits with tobacco if producer prices for tobacco are higher than those of maize. This is indeed the case with tobacco production as shown in Figure 12. Neither former nor current producers cited their ability to realise higher yields on tobacco as a challenge but both former and current producers stated that tobacco prices were not keeping up with input costs, making tobacco less profitable. The difference between producer prices and input costs is referred to as the cost price squeeze, Figure 13 shows how the difference between producer prices and input costs have narrowed over time. From 2006, input costs start to exceed producer prices for tobacco production. If the cost of machinery, equipment, and fixed improvements are excluded and intermediate input costs are compared to the tobacco revenue per hectare, I saw a similar trend to that shown in Figure 13. In Figure 14 one can see that intermediate costs grow steadily over time, and exceed tobacco revenue in 2011.

Figure 13: Nominal producer prices of Dry Beans, Maize and Tobacco



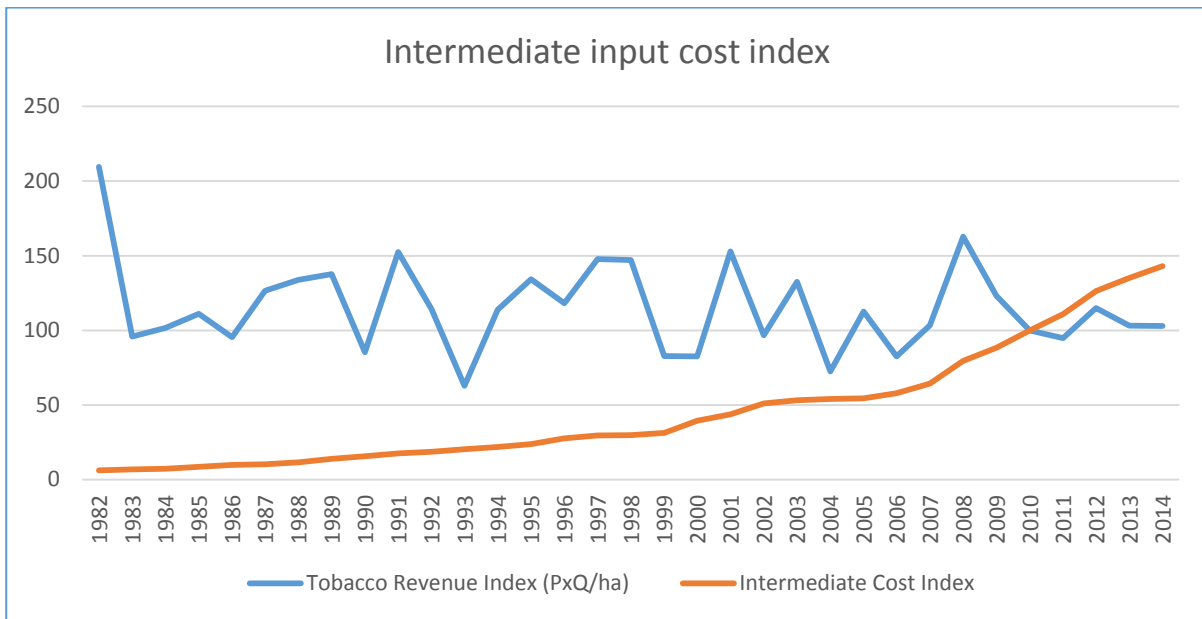
Source: DAFF, 2015, pp32-33; correspondence with Ms van Zyl from TISA

Figure 14: Cost price squeeze



Source: DAFF, 2015, pp32-33 and Ms van Zyl

Figure 15: Intermediate input cost index



Source: DAFF, 2015, pp32-33 and Ms van Zyl

Understanding what influences agricultural profitability is important when identifying alternative crops to tobacco. It should be possible to improve the technical efficiency of the production processes of the alternative crops identified. Additional land could also be made available for producers to expand their operations to achieve economies of scale. Tobacco can however be produced profitably on a small number of hectares. Alternative crops like maize need a large number of hectares to be grown sustainably. Former producers in the North West had to acquire additional land, or rent land from neighbours when they switched to maize production. In regions where the cost of land has increased significantly, such as the Bushveld region, farmers switched to the production of onions and potatoes, as the production process for these crops is highly mechanised.

The closure of the co-operative and co-operative politics had the second largest impact on former and current producers' decision to leave tobacco farming. The closure of the co-operatives destabilised the tobacco industry and created uncertainty around the future of the tobacco industry. Off-take agreements with LTP and ULSA enabled farmers to continue with tobacco production, because of the stability these agreements provided. Off take agreements guaranteed buyers for harvests and set prices for the production season. These enabled farmers to manage their cash flow and income. Producers face a number of risks

during the production cycle, including price, climate, and market risk. Off-take agreements helped to mitigate some of these risks. This stability was compromised by the closure of the co-operatives, leading producers to look for alternative crops. It is important to consider how producers may be able to mitigate the risks associated with the production of these alternative crops. These findings are aligned to the findings of Agonda and Kosura (2007) who found that farmers would be willing to shift from tobacco production to another crop if they were assured of a market for their crop, had access to technical support and has access to credit to purchase inputs.

Tobacco producers' current investment in tobacco operations is not directly related to their appetite to continue with tobacco production in the future. 63% of producers claimed that they were not expanding their tobacco operations. However, 31% were still making some investments in tobacco, while 29% were making significant investments in tobacco. While these producers are still investing in tobacco, they have also introduced new crops, or expanded the production of crops they already grow (68% of former and 63% of current producers grow alternative crops). This may imply that producers move to alternatives systematically and continue to produce tobacco while they establish their operations for the production of alternative crops. One of the current producers said they would continue with tobacco production until their Macadamia orchards were operational. Tobacco production was a good source of cash flow to fund investments required to introduce Macadamias. Producers have to incur significant costs to switch to the production of alternative crops, especially if the producer introduces a permanent crop like citrus or Macadamias. To help producers make this transition, the option of providing capital to producers during the transition period should be investigated.

Keyser (2007) and Geist (2009) found that multiple substitutes for tobacco is required similarly this study found that there is no clear preference regarding crops introduced as alternatives to tobacco, there are regional differences in the commodities that have been introduced. In addition to a certain region being better suited to the production of a particular crop, the accessibility to markets differs significantly. As an example, vegetable producers in the Gamtoos Valley said prices at the Port Elizabeth fresh produce market were often lower than the prices offered at the Tshwane fresh produce market. However,

the cost of transporting the vegetables to the Tshwane fresh produce was prohibitive. A vegetable producer in Brits has an advantage over the producer in the Gamtoos Valley, as they are closer to the Tshwane fresh produce and thus receive higher prices for their vegetables. It is imperative to consider the suitability of crop for a specific region, along with the ease of accessing manufacturers and processors.

5.4 PROVIDING ALTERNATIVES TO TOBACCO PRODUCTION

From the survey I know that regulation related to tobacco control is not an effective way of impacting producers' decision making, as this has not had an impact on production decision. Producers were of the opinion that the regulations that had been enforced were no different to the Global GAP requirements that they had to adhere to when producing citrus or vegetables.

The FCTC needs to identify appropriate alternative crops to replace tobacco production. This will support producers affected by a decreased demand for tobacco products. An in-depth investigation therefore needs to be conducted to understand the demand for and profitability of the crops that have been identified in this study. Such a study needs to consider the size of the average tobacco farm and determine if alternative crops could be produced sustainably on existing tobacco farms. It should investigate what would happen to producer prices of the crops identified if their production was to expand. Researchers should collaborate with the main role players (organisational bodies, producer groups or input providers) for each of the crops identified, as producers are particularly sensitive about revealing financial information. Collaborating with existing role players may expedite the process, as researchers earn some degree of trust from producers. Furthermore, these role players will be able to provide guidance around the demand for the crop and financial estimates around production costs, producer prices and the capital costs required to produce the alternative crops.

Providing tobacco farmers with estimations of expected demand and future viability of a crop may influence their decision to introduce this crop. Providing an overview of the expected investment that the farmer will have to make to transition to growing the crop will help inform their decision to change.

Finally, farmers are known to be emotionally attached to their farms (Kimhi & Bollman 1999) and it is essential to gain an understanding of the emotional connection that producers have with tobacco production and their farms, if the FCTC wishes to succeed in supporting producers' transition to alternative crops. As observed during the survey process, producers have a strong affinity to tobacco co-operatives and a number of former producers declined to participate in the survey given the emotional stress that they endured during the restructuring process. For future studies it is proposed that a Human Centred Design approach is followed in order to understand which emotional factors affect producers' production decisions and how these passion points can be addressed when transitioning producers affected by a decreased demand for tobacco products to the production of alternative crops. Given that several farmers declined to participate in the study and that the topic of the restructuring of the tobacco industry was emotional and sensitive for farmers who did participate in the study, it may be of value for future studies to gain an in-depth understanding of these events and the impact that they had on producers' decisions. This understanding will provide further insights on the motivators for a farmer's decision to produce a specific crop.

5.5 CONCLUSION

The objectives set out in study one have largely been achieved. The study set out to understand the tobacco landscape in South Africa, identify factors that impact farmer's decisions to leave tobacco production and to investigate if any successful transitions have been made to alternative crops. The findings of this study contribute to an understanding of the profile of tobacco producers in South Africa. It also identifies the factors that influence farmers' production decisions, alternative crop production that former producers transitioned to, and the additional crops grown by tobacco farmers. While the study was successful in identifying alternative crops to tobacco, the study was not successful in understanding the success and viability of these crops in the different tobacco production regions. Future studies could focus on gaining a better understanding of the viability and profitability of the alternative crops introduced by tobacco producers. This data will enable producers to respond proactively to the decline in demand for tobacco products.

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7 APPENDIX

7.1 QUESTIONNAIRE FOR CURRENT PRODUCERS

Questionnaire: Current Tobacco Farmers

<i>Farmer Number:</i>	
<i>Date Interviewed:</i>	
<i>Area:</i>	
<i>Type of Tobacco:</i>	
<i>In which year did you start farming with tobacco?</i>	
<i>Name: (Optional)</i>	
<i>Contact Number: (Optional)</i>	

PART A

FARM CHARACTERISTICS

1 For how many generations has your family been farming with tobacco?

1. For how many years have you been the decision-making farmer?

2. Do you have a source of non-farm income?

	Farmer	Household
Yes / No		
Percentage Contribution to Net Farm Income:		
Specify Source of Income:		

3. Indicate how owner hours invested in farm activities have changed over the past 10 years.

Decreased Significantly	
Decreased Somewhat	
Remained the Same	
Increased Somewhat	
Increased Significantly	

4. What crop rotation strategies do you employ?

(E.g. Planting oats in rotation with tobacco to suppress nematodes)

5. What cost control/minimising strategies do you employ?

6. Which agricultural enterprises do you currently conduct on your farm?

7. Which agricultural enterprises did you conduct 5 years ago?

8. Which agricultural enterprises did you conduct 10 years ago?

9. Which agricultural enterprises did you conduct 15 years ago?

PART B

TOBACCO FARMING TRENDS

11. Did you stop producing tobacco at some stage and then return to tobacco farming at a later stage?

Yes / No

Year you left tobacco farming	
Year you returned to tobacco farming	

If the respondent answered “No” in Question 12, proceed to Question 15.

12. What motivated your exit from tobacco?

13. What motivated your return to tobacco?

14. Please indicate your current investment in your tobacco enterprise compared to the investments you were making five years ago.

Decreased Significantly	
Decreased Somewhat	
Remained the Same	
Increased Somewhat	
Increased Significantly	



15. Please indicate the impact that the following factors have had on your willingness to continue farming with tobacco

	Significantly Negative Impact	Negative Impact	No Impact	Positive Impact	Significantly Positive Impact	Not Applicable
1 Availability of Roads						
2 Availability of Water Supply						
3 Availability of Electricity Supply						
4 Availability of Extension Service						
5 Availability of Finance						
6 Availability of Labour						
7 Availability of Land						
8 Availability of Water						
9 Availability of Inputs						
10 Cash Flow Predictability						
11 Changes in Water Quality						
12 Climate Change/ Peculiar Weather						
13 Compliance Costs						
14 Cost of Finance						
15 Cost of Hail Insurance						
16 Electricity Prices						
17 Electricity Taxes						
18 Energy Costs (Wood or Coal for Curing)						
19 Existing Pension or Retirement Fund						
20 Existing Infrastructure						
22 Frequency of Cash Flows						
23 Fuel Costs (Petrol and Diesel)						
24 Global Economic Environment						
25 Global Tobacco Control Policies						
26 Input Costs: Fertilizer						
27 Input Costs: Pesticide						
28 Input Costs: Seed						
29 Input Costs: Sucker Control						
30 Labour Productivity						
31 A Succession Plan						
32 Legislative Costs						
33 Level of Associated Risk						
34 Labour Selection Processes						
35 Level of Competition in Industry						
36 Level of Intensive Management Required						
37 Minimum Wages						
38 Off-Farm Employment						
39 Price Achieved (After Processing Costs)						
40 Price Predictability						
41 Quality of Extension Services						
42 R/\$ Exchange Rate Volatility						
43 Reliability of Roads						
44 Reliability of Water Supply						
45 Reliability of Electricity Supply						
46 Sales Processes						
47 Socio Economic Factors						
48 Realised Yields						
49 Research on production methods and inputs						
50 Social Connotation of Tobacco						
51 Tobacco Prices						
52 Tobacco Leaf Grading Systems						
53 Uncertainty Surrounding Industry Structure						

16. Who provides the extension services listed above?

PART C

FARM ENTERPRISES

17. Over the last 20 years:

- a. Have you branched your operations away from tobacco towards another crop or agricultural enterprise that you were previously producing along with tobacco?
- b. Have you branched your operations away from tobacco towards a crop or enterprise that you have not previously produced?
- c. Have you been scaling down your operations?
- d. Have you intensified your tobacco operations?
- e. Have you intensified your tobacco operations and introduced new agricultural enterprises?

If the respondent selected option C in Question 18, please continue to Part D. If the respondent selected options A or B or D or E, please continue with the questions in Part C.

18. Which agricultural enterprise have you branched out to?

(e.g. if you produced potatoes along with tobacco and you switched to producing mostly potatoes)

19. Before you started to branch away from tobacco production, was the tobacco enterprise:

Making a profit	
Breaking Even	
Making a Loss	

Only if the respondent selected option D and E in Question 18:

20. Indicate the extent of the capital costs you incurred to intensify your tobacco operations:

Significant costs were incurred	
Some costs were incurred	
No costs were incurred	

21. Indicate the extent of the capital costs you incurred to branch out to the new agricultural enterprise:

Significant costs were incurred	
Some costs were incurred	
No costs were incurred	

22. Indicate the amount of capital cost incurred during the first five years after branching out to the other agricultural enterprises:

23. What capital costs did you incur when branching out to the new agricultural enterprise / what costs did you save due to existing infrastructure?

24. Please indicate how your cash flow situation compares between the new enterprise and tobacco.

Improved Significantly	
Improved Somewhat	
Remained the Same	
Worsened Somewhat	
Worsened Significantly	

25. Please indicate how the new enterprise's profitability compares to that of tobacco.

Improved Significantly	
Improved Somewhat	
Remained the Same	
Worsened Somewhat	
Worsened Significantly	



26. Please indicate how the following factors in the production decision-making process for the alternative compare to those for tobacco

		Significantly More Favourable	More Favourable	The Same	Less Favourable	Significantly Less Favourable	Not Applicable
1	Associated Compliance Costs (Residue and TS&A Tests)						
2	Associated Production Risk						
3	Availability of Extension Services						
4	Availability of Finance						
5	Availability of Electricity Supply						
6	Availability of Roads						
7	Availability of Water Quality						
8	Average Realisable Yields						
9	Cash Flow Frequency						
10	Cash Flow Predictability						
11	Cash Flow Size						
12	Competitive Environment						
13	Cost of Finance						
14	Cost of Hail Insurance						
15	Cost of Inputs						
16	Ease of finding a buyer						
17	Effects of Water Quality						
18	Energy Intensity (Wood and Coal for Curing)						
19	Electricity Intensity						
20	Fuel Intensity (Petrol and Diesel)						
21	Future Viability of Crop/ Enterprise						
22	Industry Structure						
23	Labour Intensity						
24	Level of Associated Risk						
25	Level of Industry Support						
26	Level of Intensive Management Required						
27	Level of R/\$ Exchange Rate						
28	Level of Required Investment						
29	Levels of Skills Required From Labourers						
30	Potential of Mechanisation						
31	Price Volatility						
32	Price Determination Methodology						
33	Profit Margins						
34	Quality of Extension Services						
35	Reliability of Infrastructure						
36	Reliability of Electricity Supply						
37	Reliability of Roads						
38	Reliability of Water Quality						
39	Resistance to adverse weather conditions (Hail, drought)						
40	Susceptibility to Pests and Diseases						

PART D

EXIT FROM TOBACCO

27. Have you considered leaving tobacco production completely?

Yes Often	
Now and Again	
Very Seldom	
Never	

28. If you were to stop farming with tobacco, when do you think you would do this?

29. Would you like your children to engage in tobacco farming?

Yes/ No

Please substantiate your answer.

PART E

INDUSTRY RESTRUCTURE

Only answer this section if you have been farming with tobacco since before 1996.

30. Were you a member of a tobacco co-operative?

Yes / No



31. What important roles did the Tobacco Control Board fulfil for you?

Please select the roles performed by the Tobacco Control Board that you valued and rate how important these roles were to you.

1. Significantly Important 2. Important 3. Indifferent 4. Unimportant 5. Significantly Unimportant

		Applicable Yes/ No	Level of Importance (1-5)
1	Provision of Extension Services		
2	Certainty of a Buyer		
3	Ownership of Co-operative Shares		
4	Profit Sharing from Co-operative		
5	The Price Discovery Method Used		
6	The Industry Structure		
7	Support from Government		

32. Rate how the level of competition has changed since the demise of the Tobacco Control Board:

Increased Significantly	
Increased Somewhat	
Stayed the Same	
Decreased Somewhat	
Decreased Significantly	

33. How do you rate the extent of the changes your business has undergone to remain competitive in a deregulated market?

Changed Significantly	
Changed Somewhat	
Remained the Same	

Please justify your rating.

34. What changes have you made to remain competitive or to increase your competitive edge?

35. To what extent have you adapted your production process (plant, different varieties, drying) to improve the quality of the leaf you produce?

Made Significant Changes	
Made Some Changes	
Made No Changes	
Not Applicable	

36. How did the demise of the Tobacco Control Board affect your tobacco production decisions?

37. What is your outlook for the future of tobacco farming?

38. Please indicate how the following factors affected your tobacco production decisions at the time of the restructuring of the tobacco industry and in the subsequent five years.

		Significantly Negative Influenced	Somewhat Negative Influence	No Influence	Somewhat Positive Influence	Significantly Positive Influenced	Not Applicable
1	Change in Price Determination Process						
2	Changing Industry Structure						
3	Closure of Cooperatives						
4	Exposure to International Competitors						
5	Exposure to R/\$ Exchange Rate						
6	Frequency of Payments Received from Processors						
7	Increased Importance of Cost Control						
8	Increased Importance of Quality						
9	Lack of Government Support						
10	Lack of Industry Support						
11	Level of Prices						
12	Need to Search for a Willing Buyer						
13	Volatility of Prices						



PART F

PERSONAL CHARACTERISTICS

39. Age:

16-30	
31-45	
46-60	
61-65	
66+	

40. Level of Education:

No Formal Schooling	
Primary School	
High School:	Academic High School
	Technical High School
	Agricultural High School
Matric:	Academic High School
	Technical High School
	Agricultural High School
Tertiary Education:	Diploma
	Degree
	Postgraduate
	Other: _____

Thank You

7.2 QUESTIONNAIRE FOR FORMER PRODUCERS

Questionnaire: Ex-Tobacco Farmers

<i>Farmer Number:</i>	
<i>Date Interviewed:</i>	
<i>Area:</i>	
<i>Type of tobacco produced:</i>	
<i>In which year did you or your family start farming with tobacco</i>	
<i>In which year did you stop producing tobacco:</i>	
<i>Current Occupation:</i>	
<i>Name: (Optional)</i>	
<i>Contact Number: (Optional)</i>	

PART A

FARM CHARACTERISTICS AT EXIT

1. For how many generations did your family farm with tobacco?

2. When you stopped producing tobacco, for how many years had you been the decision-making farmer?

3. Did you farm full-time or part-time?

4. At what age did you stop producing tobacco?

5. Did you have a mixed farm operation when you stopped farming with tobacco?
Yes / No
6. What crop rotation strategies did you employ while you were producing tobacco?
(e.g. *Planting oats in rotation with tobacco to suppress nematodes*)

7. How did you keep abreast with technological developments for tobacco production prior to your exit?

8. Did you have a source of non-farm income?

	Farmer	Household
Yes / No		
Percentage Contribution to Net Farm Income:		
Specify Source of Income:		

9. When you stopped farming tobacco; was your tobacco production:

Making a Profit	
Breaking Even	
Making a Loss	

10. Which agricultural enterprises were you involved with for the three years prior to your exit from tobacco production?

11. Please indicate the characteristics of the crops and livestock you were producing prior to your exit from tobacco (an average for the three years prior to your exit).

**Table : Options for Crop Rotation

1. Plant every year	3. Planting decision changes from year to year
2. Usually plant	4. Other:

Crop or Agricultural Enterprise (Complete from above)	Primary or Secondary Crop	Crop Rotation (See options above)	Area (ha)	Area Owned (ha)	Area Rented (ha)	Number Head of Livestock	Take out Hail Insurance	Income Received From Enterprise	Change in Number of Ha or Head of Cattle	Average Yields	Change in Yields	Price	Contribution to Net Farm Income
							Yes/No		Increase/decrease /same		Increase/decrease/same		
Agricultural Enterprises													
Livestock													



Factors Affecting Exit from Tobacco Farming

12. Please indicate the impact that the following factors had on your willingness to continue farming with tobacco at the time of your exit from tobacco farming:

	Significantly Negative Impact	Negative Impact	No Impact	Positive Impact	Significantly Positive Impact	Not Applicable
1 Availability of Roads						
2 Availability of Water Supply						
3 Availability of Electricity Supply						
4 Availability of Extension Service						
5 Availability of Finance						
6 Availability of Labour						
7 Availability of Land						
8 Availability of Water						
9 Availability of Inputs						
10 Cash Flow Predictability						
11 Changes in Water Quality						
12 Climate Change/ Peculiar Weather						
13 Compliance Costs						
14 Cost of Finance						
15 Cost of Hail Insurance						
16 Electricity Prices						
17 Electricity Taxes						
18 Energy Costs (Wood or Coal for Curing)						
19 Existing Pension or Retirement Fund						
20 Existing Infrastructure						
22 Frequency of Cash Flows						
23 Fuel Costs (Petrol and Diesel)						
24 Global Economic Environment						
25 Global Tobacco Control Policies						
26 Input Costs: Fertilizer						
27 Input Costs: Pesticide						
28 Input Costs: Seed						
29 Input Costs: Sucker Control						
30 Labour Productivity						
31 A Succession Plan						
32 Legislative Costs						
33 Level of Associated Risk						
34 Labour Selection Processes						
35 Level of Competition in Industry						
36 Level of Intensive Management Required						
37 Minimum Wages						
38 Off-Farm Employment						
39 Price Achieved (After Processing Costs)						
40 Price Predictability						
41 Quality of Extension Services						
42 R/\$ Exchange Rate Volatility						
43 Reliability of Roads						
44 Reliability of Water Supply						
45 Reliability of Electricity Supply						
46 Sales Processes						
47 Socio Economic Factors						
48 Realised Yields						
49 Research on production methods and inputs						
50 Social Connotation of Tobacco						
51 Tobacco Prices						
52 Tobacco Leaf Grading Systems						
53 Uncertainty Surrounding Industry Structure						

13. Who provides the extension services listed above?

14. What other factors influenced your decision to leave tobacco farming?

PART C

ALTERNATIVES

15. When you stopped growing tobacco did you:

- a. Leave farming altogether?
- b. Increase the output of other crops or livestock that were being produced along with tobacco?
- c. Produce an alternative crop or livestock that had not been produced previously?

If the respondent selected option A in Question 15, then proceed to question 16. If options B or C were selected, then proceed to question 17.

16. Why did you leave agriculture?

17. Which crop or agricultural enterprise have you primarily switched to?

18. Rate the ease with which you switched from tobacco to the alternative crop or agricultural enterprise:

Very Easy	
Easy	
Difficult	
Very Difficult	

19. Indicate the extent of the capital costs you incurred to switch to the alternative:

Significant Costs Were Incurred	
Some Costs Were Incurred	
No Costs Were Incurred	

20. Indicate the amount of capital cost incurred when switching to the alternative crop or enterprise:

21. Expand on the additional capital costs incurred/costs saved due to existing infrastructure:



22. Please indicate how the following factors in the production decision-making process for the main alternative compared to those for tobacco.

		Significantly More Favourable	More Favourable	The Same	Less Favourable	Significantly Less Favourable	Not Applicable
1	Associated Compliance Costs (Residue and TS&A Tests)						
2	Associated Production Risk						
3	Availability of Extension Services						
4	Availability of Finance						
5	Availability of Electricity Supply						
6	Availability of Roads						
7	Availability of Water Quality						
8	Average Realisable Yields						
9	Cash Flow Frequency						
10	Cash Flow Predictability						
11	Cash Flow Size						
12	Competitive Environment						
13	Cost of Finance						
14	Cost of Hail Insurance						
15	Cost of Inputs						
16	Ease of finding a buyer						
17	Effects of Water Quality						
18	Energy Intensity (Wood and Coal for Curing)						
19	Electricity Intensity						
20	Fuel Intensity (Petrol and Diesel)						
21	Future Viability of Crop/ Enterprise						
22	Industry Structure						
23	Labour Intensity						
24	Level of Associated Risk						
25	Level of Industry Support						
26	Level of Intensive Management Required						
27	Level of R/\$ Exchange Rate						
28	Level of Required Investment						
29	Levels of Skills Required From Labourers						
30	Potential of Mechanisation						
31	Price Volatility						
32	Price Determination Methodology						
33	Profit Margins						
34	Quality of Extension Services						
35	Reliability of Infrastructure						
36	Reliability of Electricity Supply						
37	Reliability of Roads						
38	Reliability of Water Quality						
39	Resistance to adverse weather conditions (Hail, drought)						
40	Susceptibility to Pests and Diseases						

PART D

EXIT BETWEEN 1993 & 1998

This section should only be answered by respondents who left tobacco farming between 1993 and 1998.

Other respondents should please continue to Part E

25. Were you a member of a tobacco co-operative?

Yes / No

26. What important roles did the Tobacco Control Board fulfil for you?

Please select the roles performed by the Tobacco Control Board that you valued and rate how important these roles were to you.

1 Significantly Important 2. Important 3. Indifferent 4. Unimportant 5. Significantly Unimportant

	Applicable	Level of Importance (1-5)
Provision of extension services		
Certainty of a buyer		
Ownership of co-operative shares		
Profit sharing from co-operative		
The price discovery method used		
The industry structure		
Support from government		

27 Rate how the level of competition changed since the demise of the Tobacco Control Board:

Increased Significantly	
Increased Somewhat	
Stayed the Same	
Decreased Somewhat	
Decreased Significantly	



28 Please indicate how the following factors affected your tobacco production decisions at the time of the restructuring of the tobacco industry and in the subsequent five years:

		Significantly Negative Influenced	Somewhat Negative Influence	No Influence	Somewhat Positive Influence	Significantly Positive Influenced	Not Applicable
1	Change in Price Determination Process						
2	Changing Industry Structure						
3	Closure of Cooperatives						
4	Exposure to International Competitors						
5	Exposure to R/\$ Exchange Rate						
6	Frequency of Payments Received from Processors						
7	Increased Importance of Cost Control						
8	Increased Importance of Quality						
9	Lack of Government Support						
10	Lack of Industry Support						
11	Level of Prices						
12	Need to Search for a Willing Buyer						
13	Volatility of Prices						

29 Explain how you perceived the tobacco industry to have changed since the demise of the Tobacco Control Board:

30 What is your outlook for the future of tobacco farming?



PART E

PERSONAL CHARACTERISTICS

31 Age:

16-30	
31-45	
46-60	
61-65	
66+	

32 Level of Education:

No Formal Schooling	
Primary School	
High School:	Academic High School
	Technical High School
	Agricultural High School
Matric:	Academic High School
	Technical High School
	Agricultural High School
Tertiary Education:	Diploma
	Degree
	Postgraduate
	Other: _____

Thank You

7.3 RESEARCH NOTE



**Faculty of Economic and
Management Sciences**

Department of Agricultural Economics

Declining Tobacco Production: Analysing Key Drivers of Change

Research conducted by:

Ms. C du Preez(28010729)

Cell: 087 455 7820

Dear Participant

You are invited to participate in an academic research study conducted by Clarina duPreez a Masters student from the Department of Agricultural Economics at the University of Pretoria.

The purpose of the study is to provide an understanding of the driving forces behind the decline of tobacco production in South Africa. An understanding of these forces will provide an understanding of why many farmers are leaving high value and labour intensive crops. Through this study Clarina aims to identify the key drivers of an enabling environment, especially taking the goals of the National Development Plan into consideration. This study will further provide important insights on the effects of the World Health Organization's Framework Convention for Tobacco Control (FCTC) on tobacco production.

Please note the following:

- Any information obtained during this survey will be treated strictly confidential and no individual information will be published or provided to any third parties.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take more than 45 minutes of your time
- The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.

Please contact my study leader, Dr F Meyer at 012 420 4583 or Dr Corne van Walbeek at 021 650 4689 if you have any questions or comments regarding the study.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on a voluntary basis.

Participant's signature

Date