A Foundation in Agricultural Extension Science is a Prerequisite for Agricultural Advisors to Improve the Livelihood of the Beneficiaries of Their Extension and Advisory Support Services in the Western Cape

By

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DECLARATION

I, Carol Levendal, declare that the dissertation submitted by me for the Doctor in Philosophy in Sustainable Agriculture (PhD) degree at the University of the Free State, is my own independent work and has not been submitted by me previously at another university/faculty.

[Insert signature] 25 November 2022

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Carol Levendal Date

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ACRONYMS

AA	Agricultural Advisor
APAP	Agricultural Policy Action Plan
APSD	Agricultural Producer Support and Development
Casidra	Cape Agency for Sustainable Integrated Development
CASP	Comprehensive Agricultural Support Program
CPACs	Commodity Project Allocation Committees
CRDP	Comprehensive Rural Development Program (CRDP)
DAFF	Department of Agriculture, Forestry and Fisheries
DM	District Manager
DoA	Department of Agriculture
DPME	Department of Performance Monitoring and Evaluation
DRDLR	Department of Rural Development and Land Reform
DSG	Department Strategic Goals
FAO	Food and Agricultural Organisation
FOs	Farmer Organisations
FSD	Farmer Support and Development
GRAS	Global Forum for Rural Advisory Service
KITT	Knowledge and Information Transfer Triangle (KITT)
LFA	Log Frame Analysis
MAP	Market Access Programme
MTSF	Medium Term Strategic Framework
NDP	National Development Plan Vision 2030
NGO’s	Non-Governmental Organisation
NO	National Outcomes
PIDA	Programme for Infrastructural Development in Africa
POs	Producer Organisations
PSC	Public Service Commission
PSG	Provincial Strategic Goals

RDM	Rural Development Model
RAS	Rural Advisory Services
WCDoA	Western Cape Department of Agriculture

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ABSTRACT

Agricultural extension is pivotal to transforming the agricultural sector, outlined in many strategic and policy frameworks for South Africa. Therefore, it was necessary to determine what sets apart agricultural advisors who, under the same conditions, have a positive effect on farmers' agricultural output from those who do not. The researcher argues that a foundation in agricultural Extension Science enables the former to improve farmers' livelihoods. Such a study requires comparing agricultural advisors with an Extension Science foundation to an agricultural advisor with no such foundation. Data triangulation methodology was employed. Four data sources were used to determine if there is a difference in the extension and advisory services they provide to farmers in the Western Cape. One data source was measuring the advisor's performance in the field. A performance rating tool was developed to measure how agricultural advisors execute their roles and responsibilities. Hence, criteria for such a tool were necessary. This was developed through reviewing the literature. The agricultural advisors tested these identified roles and responsibilities, and they agreed with them. Through the Log Frame Analysis, managers and specialists from Program 3 in the Western Cape Department of Agriculture examined 11 roles and responsibilities using problem and objective analysis methods. Another data source was the demographics of the agricultural advisor determined through a questionnaire. Two other data sources were the success rate of the farms and the farmers' rating of the advice given by the agricultural advisor taken from the Western Cape Agricultural Land Reform Project Performance Evaluation 2014-2019. The success profiles of the extension advisors were compared to determine if a foundation in Extension Science would improve the farmers' livelihood.

Keywords: Agricultural advisors, roles and responsibilities, extension science, extension and advisory services, farmer's livelihood

CHAPTER 1: INTRODUCTION

1.1. INTRODUCTION

The study highlights the importance of agricultural extension as a critical skill in assisting agricultural advisors to assume a pedestal for developing South Africa and other developing nations. One critical task of extension and advisory services is to always be at the forefront of knowing what and how to share information with its clients regarding knowledge and skills. The government believes that extension and advisory services have a vital role to play in rural development. The government believes that agricultural extension and advisory services can immensely contribute to food security and growing the economy in rural areas. Many government policy documents about the importance of extension and advisory services in South Africa are discussed in Chapter 2.

Extension and advisory services in agriculture are recognised as pivotal to the success of transforming the agricultural sector in the Republic of South Africa. Extension and advisory services are crucial to economically empowering the previously disadvantaged in the country's rural areas. Extension and advisory services pave the way to assist marginalised smallholder producers with access to markets and other important farmer support initiatives. The discussion on the regulatory framework later will show how critical it is not to overlook the role of extension and advisory services, which resulted in its inclusion in the many policies in South Africa.

This study operates from the premise that a foundation in agricultural Extension Science creates a stronghold in the knowledge base and can stimulate rural development. An agricultural advisor with a foundation in Extension Science can achieve the goals of the National Development Plan Vision 2030 to improve the livelihood of the beneficiaries within their extension and advisory services.

1.2. BACKGROUND

Since the advent of its democracy in 1994, South Africa has faced several challenges impacting rural communities' economies. The government believes agricultural extension and advisory services are the panaceas for many of these challenges. Hence, many agricultural extension and advisory services policies were developed.

Agricultural extension is pivotal to transforming the agricultural sector as outlined in the many strategic and policy frameworks for South Africa. According to the National

Development Plan Vision 2030 (2011, p. 218), the role of an extension practitioner is to improve market access of the smallholder producer and facilitation of farmer-to-farmer skills transfer, which are used to improve the rural economy. These are both imperative roles of agricultural extension. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers. The National Framework for Extension as a Field of Practice (2014, pp. 3-4) stated that "extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake". In the National Policy on Extension and Advisory Services (2016, p. viii), the Deputy Minister of Agriculture, Forestry and Fisheries states in the foreword that the provision of extension and advisory services is "undoubtedly sacrosanct in the advancement of agrarian reform". The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a key driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access. Again, the latter are roles and responsibilities of extension. Extension and advisory services are pivotal to improving market access, therefore, the importance of the extension practitioner’s roles cannot be underestimated.

The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 1) stated that the most significant challenge faced by this country in the first decade of the new democracy was that the agricultural extension service had to change from a dualistic service to an amalgamated service to render support to all categories of farmers. Furthermore, The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 2) were developed in response to the changes in the political landscape in this country to address the above. It stated that extension and advisory services in agriculture are pivotal to the success of transforming the agricultural sector in the Republic of South Africa, as well as economic empowerment of the previously disadvantaged in the country's rural areas.

The Summary Report on the Implementation and Evaluation of the Extension Recovery Plan (2017, p. viii) states that extension in rural development and land reform is so important that government policy for the agricultural sector has made extension and advisory services the principal "state-directed agent "of agrarian reform.

Christoplos (2010, p. 22) states that extension makes a difference in the lives of some of the poor, contrary to many predictions that these farmers will leave agriculture to find other means of income and that extension is a cost-effective stimulant for economic growth. Therefore, it is most required to alleviate poverty in rural areas in South Africa. Christoplos (2010, p. 42) also sees it as a fundamental tool for meeting the challenges of global environmental change.

According to Chapota (2020, p.1), global environmental change impacts smallholder farmers the most. Sulaiman and Blum (2016, p. 9) support this notion in their statement that extension or rural advisory services are vital to agricultural and rural development. The writer uses the terms extension and rural advisory services interchangeably, as this is the case in many reports. Anaeto, Asiabaka, Ani and Okoroma (2015, p.16) emphasize that the role of extension in the development of agriculture cannot be doubted or underestimated as it is seen as "one of the prime movers of agricultural development". They further state that extension has remained one of the foremost movers of agricultural development and, invariably, the resultant rural development.

Smallholder producers provide 70% of the world's food (Chapota, 2020, p. 1). However, the same smallholder producers are the most vulnerable. These smallholder producers live from one harvest to the next, making them particularly vulnerable to climate and economic shocks.

Chapota (2020, p.1) further quotes Feris et al. (2014) that 1.5 million people worldwide are in rural areas and depend on smallholder producers. The smallholder producers are also vulnerable, as stated previously. Therefore, the role of the extension practitioners is vital to reduce or remove the vulnerability through their roles and responsibilities. To improve the livelihoods of a farmer (smallholder producer), it is necessary to support them in managing the farm as a business enterprise (Chapota, 2020, p. 6).

Therefore, it is necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one who, under the same conditions, does not have a positive impact on the farmer to aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural Extension Science creates such a difference. This study aims to determine if an agricultural advisor with a foundation in Extension Science improves the livelihood of the beneficiaries of their extension and advisory service. There is little or no empirical evidence that having a

foundation in extension as a science result in the agricultural advisor providing a better extension and advisory service to the farmer than an agricultural advisor with no foundation in Extension Science.

It is necessary to emphasize the importance of agriculture, agricultural extension, and advisory services, not only from a policy perspective but also from a functional role played by agricultural advisors in the extension and rural advisory services. The information mentioned earlier is required to determine if there is a difference in the extension and advisory service provided by an agricultural advisor with a foundation in Extension Science. The writer completed a thorough literature review on the definition of extension and the role and responsibilities of agricultural advisors. These roles and responsibilities are crucial to determine the performance of an agricultural advisor later in this study. The writer completed a literature review on the policy imperatives of extension and advisory services. The policy framework sets the scene to show the importance of extension and advisory services. The writer determined the curricular offerings in Extension Science to indicate if the agricultural advisors could be equipped.

1.3. THE IMPORTANCE OF AGRICULTURE

The strategic importance of agricultural extension was identified in the background; therefore, it is necessary to discuss the importance of agriculture. The researcher will provide a background on the importance of agriculture in an African context and, in turn, the importance of agricultural extension in Sub-Saharan Africa. The importance of agriculture cannot be stressed enough. According to Mutimba (2014, p. 15), the dominant economic activity on the African continent is agriculture. It forms 30% of the Sub-Saharan gross domestic product (GDP) and 40% of exports. Johanson and Saint (2007) cite that agriculture provides approximately 60–80% of employment in the sub-continent. In the Western Cape, where the study is being conducted, agriculture contributes 23% to the GDP. The National Development Plan Vision 2030 (2001, p. 197) states the possibility of establishing 1 million jobs in the agricultural sector. In the same chapter 6, they reference the importance of the role of agricultural extension in achieving this goal.

According to Jones and Garforth (1996, Chapter 1), agriculture is pivotal to rural development and poverty alleviation. They state that farming can create jobs, to increase returns on the assets that the poor possess – their labour and, in some cases, their land. Sustainable agriculture in South Africa is essential to achieve the goals of poverty

alleviation and rural development. Hence the importance of extension and advisory services.

Although the potential for poverty reduction through the agricultural sector is most significant in Sub-Saharan Africa (SSSA), the food crisis has also had the most damaging effect on the people and agriculture (Kim, Larsen & Theus, 2009 as cited by Mitumba, 2014). Adolph (2011) as cited by Kim, Larsen & Theus (2009), state that when SSA is compared to other regions, their productivity levels are very low for several food products and that the production is outpaced by population growth. Overall, the per capita agricultural yields declined from 1970 to 1980 and since then have stagnated. Hence, the need to address this agricultural problem through extension and advisory services.

1.4. THE IMPORTANCE OF EXTENSION

Anaeto et al. (2015, p. 11) state that extension is necessary "to improve the living standard" of the people. Therefore, it is believed that agricultural extension and advisory services will address some of those challenges, such as food security and eradicating poverty and hunger, especially in rural areas. This role the extension practitioner must play at the outset is to identify the farmers' potential difficulties they experience and attend to them to farm successfully. The National Policy on Food and Nutrition Security in the Republic of South Africa (2013, p. 5) affirms this. It supports the notion that this can be achieved by increasing food production and market access. The Strategic Goal of the latter policy requires that the role of the agricultural advisor must be to facilitate efforts to increase food production, including increased access to production inputs for the emerging agricultural sector. It is stated in the same policy (2013, p. 20) that in building the pillars for food safety and security, the role of the agricultural advisory service is to ensure "improved food production" to ensure adequate "food availability" and a "stability of food supply". Improved food production can be achieved through technology transfer and training, both roles of extension and advisory services.

The Minister of Agriculture stated in the foreword of The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. iv) the "greatest challenge that faced this country in the first decade of the new democracy was that the agricultural extension service had to change from dualistic service to an amalgamated service to render support to all categories of farmers". Furthermore, The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 1) was developed in response to

the change in the political landscape in this country to address rural transformation to alleviate poverty and hunger.

Extension and advisory services in agriculture are recognised as pivotal to the success of transforming the agricultural sector in the Republic of South Africa, as stated above in 1.1. Extension and advisory services are crucial to the economic empowerment of the previously disadvantaged in the country's rural areas. The National Development Plan (2011, p. 197) wants to create an inclusive rural economy where rural communities should have more significant opportunities to participate fully in the economy and the social and political life of the country. In this Plan, it is expected that the key driver for these will be agricultural extension and advisory services, especially in the rural areas. As stated in Chapter 6, emphasis is placed on the need for such competent extension officials in all provinces. With this in mind, the writer wants to determine if a foundation in Extension Science gives the agricultural advisor an advantage in improving the livelihoods of the beneficiaries, they serve because of the amount of emphasis placed on extension and advisory services. Since the agricultural advisor has a huge role in addressing the above, it is necessary to identify what gives one agricultural advisor an advantage, if any.

However, many experts in the agricultural sector expressed concern on various platforms that the cadre of extension officials, especially in the South African public sector at this point, cannot have such a positive effect on the livelihoods of a farmer or a community. There is no empirical information that supports this notion.

In this study, the role of agricultural extension is shown to effect transformation in the agricultural sector as outlined in the strategic and policy frameworks for South Africa.

It is necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one who, under the same conditions, does not have a positive impact on the farmer. The writer believes that a foundation in agricultural Extension Science creates such a difference. It is, therefore, necessary to determine if an agricultural advisor with a foundation in Extension Science improves the livelihood of the beneficiaries of their extension and advisory services. There is little or no empirical evidence that having a foundation in extension as a science result in the agricultural advisor providing a better extension and advisory service. This study may add to the body of knowledge or inform extension policy, specifically the Norms and

Standards for Extension, on what educational background is required to set an agricultural advisor apart from their peers in this field of work.

However, to do this study, it is necessary to understand what is meant by agricultural and rural extension and advisory. The writer will show the many definitions thereof in the literature review to create an understanding of what is meant by extension for the purpose of this study.

Furthermore, the role and responsibilities of the extension officers will be discussed so as to determine to what extent the agricultural advisor plays this role in their practice. Similarly, the access to the curricular offerings in South African agricultural extension will show the agricultural advisors' exposure to a foundation in extension during their studies. Likewise, it is necessary to provide a brief history of agricultural extension, especially in South Africa, since the study is done in the Western Cape Province of South Africa.

1.5. PROBLEM STATEMENT

Most of the extension workers (agricultural advisors) appointed in the government sector or with commodity groups do not have a background in Extension Science since many of the universities in this country have not offered Extension Science as a major in their undergraduate or post-graduate programs. Similarly, many agricultural colleges did not offer undergraduate programs in Extension Science as a major subject of study before 2008. Two universities with a longstanding history of extension training are the Universities of Fort Hare and Pretoria. The former has it as part of the undergraduate program, whereas the latter is part of their post-graduate studies. In the past decade, other universities followed them, such as UKZN and Stellenbosch, which offer programs at agriculture colleges in association with them. The latter college is offering extension as a major. South Africa has 12 colleges of agriculture, one offering extension programs since 2008 and the other since 2013. Currently, there is a move to introduce this science into mainstream agricultural training across many institutions.

South Africa has few institutions that offer Extension Science as part of post-graduate studies. Many experts opined that a foundation in Extension Science is required to provide a good extension and advisory service. This extension practitioner must have had some exposure to this science. Again, there is little or no empirical evidence to show that this is the case. Therefore, it is necessary to establish the extent to which the extension and advisory support differ by those who had training and education in Extension Science from

the agricultural advisors that do not have such training or education. This study sets out to determine if an agricultural advisor with a foundation in Extension Science is the farmer's livelihood than an agricultural advisor with no such background.

1.6. THE AIM OF THE STUDY

This study aims to determine if a farmer's success depends on an agricultural advisor with an Extension Science foundation. This study aims to show a difference in the advisory service and support given to farmers to improve or establish a positive effect on the lives of the farmers of their extension and advisory support.

1.7. OBJECTIVES

1.7.1. Main Objectives

The main objective was to determine if agricultural advisors with a foundation in Extension Science have a more positive effect on the livelihood of farmers of their advisory services and support compared to agricultural advisors with no foundation in Extension Science.

1.7.2. Sub Objectives

The sub-objectives to determine if an agricultural advisor with a foundation in Extension Science will more positively improve the livelihood of a farmer than an agricultural advisor with no such foundation were:

1.7.2.1. To identify the indicators of success, namely, the agricultural advisors' non-negotiable roles and responsibilities in delivering an extension and advisory service.

1.7.2.2. To determine from the agricultural advisors the extent to which they agree with an agricultural advisor's non-negotiable roles and responsibilities.

1.7.2.3. To determine from stakeholders identified for the Log Frame Analysis the effect of an agricultural advisor not being able to execute these roles and responsibilities and the outcome on the farmer's livelihood if the agricultural advisor can perform these roles and responsibilities.

1.7.2.4. To determine the agricultural advisors' demographics, qualifications, qualifications in Extension Science, and employment history.

1.7.2.5. To determine the success profiles of the agricultural advisors through the triangulation of the performance rating by farmers, managers, and the farm's success according to the Land Reform Performance Assessment Studies done in the Western Cape Department of Agriculture.

1.7.2.6. To compare the success profiles of the agricultural advisors with a foundation in agricultural Extension Science to that of an agricultural advisor with no foundation in agricultural Extension Science to determine if the agricultural advisor with a foundation in Extension Science has a more positive effect on the livelihood of the farmer.

1.8. HYPOTHESIS

For a farmer to be successful, the agricultural advisor requires a foundation in Extension Science (qualification or training). The success or improvement in the farmer's livelihood results from the extension and advisory support provided by an agricultural advisor with such a foundation.

1.9. DELIMITATIONS

This study was conducted in all districts of the Western Cape Province. The agricultural advisors completed a questionnaire, and the district managers and some specialist advisors participated in a log frame analysis. The farmers' views will be taken from the Land Reform Performance Evaluation Studies 2009 to 2014 and 2015 to 2019 on their perceptions of the quality of the agricultural support they received. The success of the farms was taken from the same studies; however, the expert group will be from The South African Society for Agricultural Extension (SASAE) and was done on a national basis.

The diagram below depicts the province's size and the sites where extension officials are stationed. A green asterisk denotes the offices where the farmers can access the extension practitioners. Eight (8) districts in the province show the sites where the extension practitioners are accessed. The person in charge of each office is a district manager.

At the time of the study, 61 agricultural advisors were employed in the Western Cape Department of Agriculture (WCDoA). They ranged from agricultural advisors to senior agricultural advisors and specialist agricultural advisors. Therefore, the target population was all sixty-one (61) agricultural advisors in the province.

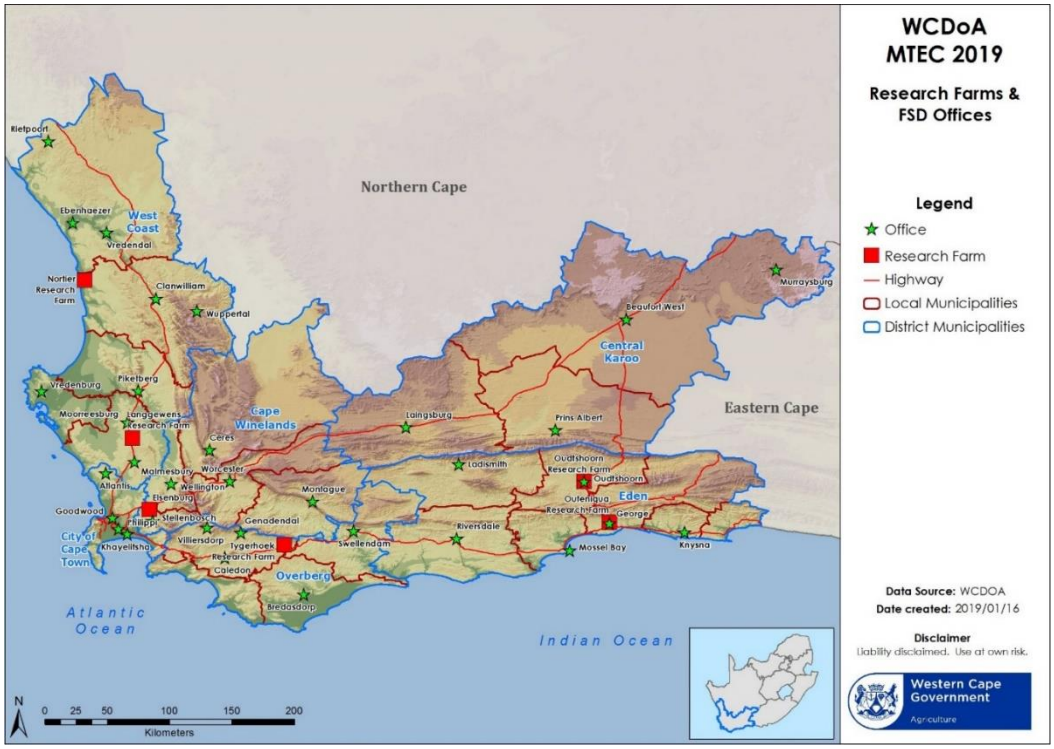

Figure 1.1: Districts

1.10. FRAMEWORK OF ANALYSIS

1.10.1. The researcher identified the indicators of successful agricultural extension service delivery. The successful indicators were obtained by employing a thorough literature search to determine what the non–negotiable roles and responsibilities are of an agricultural advisor. The researcher determined the non-negotiable outcomes that an agricultural advisor must achieve in their work with farmers. The log frame analysis supported these non-negotiable outcomes. The log frame analysis was completed with managers and specialist agricultural advisors in Program 3 in the WCDoA who can strengthen the argument for the negative effect of not being able to execute these roles and responsibilities and the positive outcomes of being able to execute these roles and responsibilities. These positive and negative effects were enhanced by repeating the log frame analysis with the experts from SASAE.

1.10.2. The researcher will establish the extent to which agricultural advisors agree with the roles and responsibilities determined by the literature review. This agreement with the roles and responsibilities was achieved using a Likert Scale in Section D of the questionnaire administered to the agricultural advisors.

1.10.3. The researcher determined the demographics of the agricultural advisors through the administration of a questionnaire that will identify the levels of education and years of experience of all agricultural advisors that will be part of the study. The demographics were obtained using a structured questionnaire to inquire about this information. The questionnaire will also determine the agricultural advisors' age, employment history, qualifications, and gender information.

1.10.4. Each agricultural advisor's performance was assessed using individual interviews with supervisors, namely, the district and sub-program managers. The performance assessment of agricultural advisors was enhanced by obtaining the farmers' perceptions of the capability and support given by the agricultural advisors from the Land Reform Surveys.

1.10.5. Determine the number of land-reform projects that each advisor was involved in that were deemed successful or unsuccessful through the Land Reform Surveys commissioned by the WCDoA for all agricultural advisors participating in the study.

1.10.6. For each agricultural advisor, a "success profile" based on the ratings of the farmers, the performance reviews of the agricultural advisor, and the number of successful projects identified in point 1.10.5, namely, for each advisor triangulate the data from all data sources will be compiled.

1.10.7. Compare the success profiles of advisors with a foundation in Extension Science compared to those agricultural advisors with no foundation.

1.11. LAYOUT OF CHAPTERS

Chapter 1: This chapter contains the introduction, the background, the importance of agricultural extension, and the importance of agriculture for the development of South Africa. This chapter also includes the study's aims, objectives, hypothesis, and delimitations. This chapter concludes with the framework of analysis and the layout of the chapters.

Chapter 2: Will contain a detailed study of existing literature on the definitions of agricultural extension. The policy imperatives support the importance of agricultural extension, the roles and responsibilities of agricultural advisors, and access to such qualifications. A short history of the evolution of extension in South Africa was given.

Chapter 3: Contains the research design. The methodology, target population, sampling, research plans, and research tools that were used.

Chapter 4: Contains the analysis of the findings of the demographics of the agricultural advisor in terms of employment history, educational qualifications, a foundation in Extension Science, years of experience as an agricultural advisor, and the current position held by the agricultural advisor.

Chapter 5: Contains the findings of the analysis of views of the agricultural advisors on the non-negotiable roles and functions derived through the literature review. A Likert Scale was used to determine the views of the agricultural advisors.

Chapter 6: Contains the findings of the analysis of the agricultural advisors' responses to the Likert Scale, where they must indicate the extent to which they agree or not to the roles and responsibilities of an agricultural advisor.

Chapter 7: Contains the findings of the Log Frame Analysis with the stakeholders to determine the negative effect of not being able to execute the roles and responsibilities of an agricultural advisor and the positive outcomes on the farmer's livelihood because of being able to perform these roles and responsibilities.

Chapter 8: Contains the success profile analysis and findings of agricultural advisors. These findings are the managers' views on the performance of the agricultural advisor in the field and farmers' views on the support provided to them. The farm rating was determined from the Land Reform Performance Evaluations commissioned by the WCDoA.

A comparison of the success of the agricultural advisor with a foundation in Extension Science was made to an agricultural advisor with no Extension Science foundation through the data triangulation process.

Chapter 9: Conclusions and Recommendations

CHAPTER 2: LITERATURE REVIEW

2.1. BACKGROUND

This study aims to establish if an agricultural advisor with a foundation in Extension Science shows a difference in the advice and support given to farmers or communities to improve or have a positive effect on the livelihood of the beneficiary of such agricultural extension and advisory support.

Agricultural extension is pivotal to the transformation of the agricultural sector. The importance of agricultural extension is written in the many strategic and policy frameworks for South Africa. The National Development Plan Vision 2030 (2011, p. 218) highlights the role of the extension practitioner to improve market access of the smallholder and facilitate farmer-to-farmer skills transfer to enhance the rural economy. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers.

The National Framework for Extension as a Field of Practice (2014, pp. 3-4) states that "extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake". In the National Policy on Extension and Advisory Services (2016, p. viii), the Deputy Minister of Agriculture, Forestry and Fisheries states in the foreword that the provision of extension and advisory services is "undoubtedly sacrosanct in the advancement of agrarian reform". The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a "key driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access. The latter is pivotal to improving the rural economy. They are identified as the roles and responsibilities of an extension practitioner and an extension and advisory service, which will be shown later in this study.

The writer showed that the importance of agricultural extension had been stated in many policy documents. Therefore, the writer felt that it is necessary to determine what sets apart an agricultural extension official that has a positive effect on the agricultural output of a farmer from one under the same conditions that do not have a positive impact on the output of the farmer. This positive output is an improvement in a farmer's livelihood. The improvement of the livelihood of the farmer aids the transformation agenda in rural areas.

The writer believes that a foundation in agricultural Extension Science creates such a difference. The study determines that an agricultural advisor with an Extension Science foundation improves the livelihood of the beneficiaries of their extension and advisory service compared to an agricultural advisor with no foundation. There is little or no empirical evidence that having a foundation in Extension Science results in the agricultural advisor providing a better extension and advisory service to improve the farmer's livelihood.

In this study, the writer shows the history of agricultural extension, especially the development of extension in South Africa. At the same time, discussing the policy imperatives influencing extension implementation in South Africa is essential. These policy imperatives outline the importance of agricultural extension for agriculture and the development of the rural economy. It is necessary to discuss the capacity development of agricultural advisors in South Africa as this will indicate the ability to develop agricultural advisors in this country to provide an extension and advisory service. After that, the roles and responsibilities must be identified, and the definitions must be used to identify the other roles and responsibilities.

2.2. HISTORY OF EXTENSION

It is necessary to show the origin of agricultural extension since this is the field in which this study is done. The origin in Europe, North America, and South Africa will be covered. The reason for this is the colonial relationship that South Africa had with Europe.

2.2.1. Europe

Like many others, Jones and Garforth (1996, p. 1) state that the history of extension is not well documented. However, it was a significant force in shaping the development of agriculture. They further stated that there is evidence on clay tablets that dates to 1800 BC, around the advice of watering crops and getting rid of mice. These writings on clay tablets were found in Iran, formerly Mesopotamia. They state that extension evolved over the years and could be more than 4000 years old. They also noted that it was sharing ideas in rural areas where agriculture took place.

According to Jones and Garforth (1996, p. 1), the rise of the institutionalisation of extension and public funding of extension began in the mid-nineteenth century. Before this, it was deemed an informal sharing of information. They indicated that around 1850, the Universities of Oxford and Cambridge wanted to address the educational needs of the

rapidly urbanising areas. They cite Rolls et al. (1986), who stated that now that people are used to sharing beliefs, ideas, and practices (knowledge), they must solve problems.

The term extension was coined by Cambridge University (England) in 1873 to describe the system the British universities used. They provided the same educational program but on different sites. One was on campus, and the other was at a station away from campus. Hence, the term extension education, as the latter was extended beyond the campus. It was seen as providing information and knowledge far beyond the walls of the educational institution to the places where the people were.

This concept was accepted in other parts of Europe and North America. Extension work began, according to Jones and Garforth (1996, p. 5), when the Fourth Earl of Clarendon provided a small team of agricultural instructors to break the peasants of Ireland's dependence on potato crops. These crops were seriously failing due to the potato blight fungus, resulting in the potato famine. This team accessed many peasants and made them less dependent and more prosperous through innovations readily available to large groups of farmers and not through market forces or legislative authority.

Jones and Garforth (1996, p. 6) cited Bembridge (1991) that around 1830 to 1840, France employed extension workers. They further cited Bembridge (1991) that around 1850, Germany had 260 extension workers in the German Empire. It spread to the Netherlands, Belgium, Switzerland, and the Austria-Hungarian Empire.

2.2.2. North America

The formalisation of agricultural education and extension in the United States of America followed that of Europe. According to Garforth and Jones (1996, p. 6), the extension practices mostly used were established in the mid-nineteenth century in the United States of America (USA). Garforth and Jones (1996, p. 6) cite Bembridge (1991) that the USA agricultural education and extension developed around three main areas. It started with federal legislation that funded agricultural research and education, namely, the Morril Land Grant College Act of 1862, to address agricultural problems at land-grant colleges.

According to Garforth and Jones (1996, p. 7), in the United States of America, through the Hatch Act of 1887, government funds were made available for agricultural education and extension in every state through agricultural schools, land grant colleges, and experimental stations (Scott, 2013, p. 1). The colleges had to find systematic scientific solutions to

agricultural problems. As late as 2005, this is still part of the definition of extension in the Norms and Standards for Agricultural Extension in South Africa.

2.2.3. South Africa

Extension in South Africa, as stated by Worth (2012, p. xiv), followed the same trajectory as agriculture in that it had a dual nature and resulted in 15 separate extension services in the country. Worth (2012, p. xi) stated that the white extension service was well-resourced and worked to expand their clients' productivity and profitability. Black extension services were under-resourced. These services were segregated along racial lines; therefore, resources were not distributed equally, as was the case of the apartheid policy. As stated previously, the first democratically elected government developed policies to be implemented to redress the situation. Each of these policies emphasized the role of extension advisory services.

According to Khwidzhili and Worth (2019, p. 21), agricultural extension evolved from around 1902 when agricultural scientists were imported from England to provide an extension service. Due to these scientists' lack of knowledge of the conditions in South Africa, this exercise was not successful, and the need for scientists that were knowledgeable about the prevailing conditions was needed. According to Liebenberg 2015, p. 5), South African scientists were sent to England to learn about extension in 1907.

According to Koch and Terblanche (2013, p. 107), extension was founded a century ago in South Africa in 1925 when the Minister of Agriculture at the time, General Kemp, appointed a small group of extensionists to serve the country. They provided home economics to the wives, land clubs for the youth, journals, and handbooks for farmers; the focus at this point was on disseminating information. Another achievement at this time was the introduction of academic faculties at Stellenbosch University and Pretoria University. According to Liebenberg (2015, p. 1), these faculties were amalgamated with the Department of Agriculture and thus, became responsible for extension services. Worth (2012, p. 6) indicates that agricultural extension was formally established in 1924 and acknowledges the introduction of extensionists in 1925.

Black African People Agricultural Extension

According to Koch and Terblanche (2013, p. 109), The Native Land Act 1913 (Act 27 of 1913), reserved land for Black people that they occupied at the time of the Union in 1910.

According to Williams et al. (2008, p. 6), in 1929 the Union government established a Native Agricultural and Land Branch within the Department of Native Affairs. With a minimal budget to focus on soil conservation and control of livestock numbers. Later in 1936, through the Land Act, the South African Native Trust (SANT) was created to administer the African reserve areas. The SANT controlled the livestock, introduced the division of arable and grazing land, and enforced residential planning and soil conservation measures. In 1939 Proclamation 31 enabled SANT officials to declare a 'betterment area' and allowed them to count and cull livestock where they saw fit. In 1950 the Tomlinson Commission proposed culling 55% of the livestock because they calculated that a family would require 52.5 morgens of land to make a gross annual income of 70 pounds. The government rejected this, which continued to overcrowd the homelands with people displaced through forced removals (deSatge, 1988).

Liebenberg (2015, p. 7) cites Haywood and Botha (2008), that the extension provision in the homelands was of poor quality in most instances. This was due to the lack of quality formal education and appropriate in-service training to enable the field workers to provide adequate service. The extension methods were outdated, and farmers were encouraged to use inputs at high levels against their actual achievement, pushing many into debt.

Traditional Black agriculture systems became less and less productive due to the migration of Black men to the diamond mines in Kimberley (from 1861) and the discovery of gold mines on the Witwatersrand (1886). This migration was due to the readily available cash, food from white farms, and employment. The migration of Black men resulted in low productivity that had missionaries respond to the dire situation. The governments, over time, promoted agriculture in these Black communities.

Koch and Terblanche (2013, p. 109) state that the first Black agricultural school was opened in Teko in Transkei in 1905. The establishment of an agricultural school was followed by Fort Cox College of Agriculture in 1930 in Ciskei. The latter was established for the training of Black farmers. The University of the North (Limpopo University) was established in 1959 and where extension is taught at master and PhD levels. The Tompi Seleka Agricultural College was opened in Lebowa in 1960. A fourth college was opened at Taung in the then Orange Free State (Adjacent to the Vaalhartz Irrigation Scheme) in 1965.

Coloured People Agricultural Extension

According to Koch and Terblanche (2013, pp. 9-10), very little is known of the involvement of “Coloured people in the agricultural extension field though they most likely had such services rendered in the so-called “Oppermangronde” in the Richtersveld. Koch and Terblanche (2013, pp. 9-10) searched many libraries for information about Coloured people, from the Central Library at Harvest House, Pretoria, Elsenburg, Wellington, and Upington, to no avail. Their extension history remains unknown, although it probably was quite vibrant” (Koch, 2007).

Thomas (1976, p. 2) cites the Theron Commission that there were about 1500 Coloured farmers. The small number of Coloured farmers was due to most of the land being owned by whites after the abolition of slavery. The people of colour had ownership of missionary communal land in a few places and had little or no access to training. Some training was afforded to these farmers of colour at Kromme Rhee.

The Elsenburg Agricultural Training Institute in the Western Cape states in its prospectus that the first agricultural training was done at this institute in 1898. At that time, the training was for Whites only. Towards the end of the last century, this college amalgamated with Kromme Rhee, which provided training in agriculture for the Coloured population group, and Boskop, which provided agricultural training for Black people.

Indian People Agricultural Extension

According to Koch and Terblanche (2013, p. 10), Dr J.A. Pentz was the pioneer who undertook the first agricultural extension among the Indian farmers in then Natal, now KwaZulu Natal, among the sugarcane farmers.

Koch and Terblanche (2013, p.10) cite Rix (1987), who states that the Indian extensionist required a three-year national diploma in agriculture and therefore had to attend the M.L. Sultan Technikon which was linked to practical instruction at the Cedara Agricultural College.

The Indian farmers did well on the small land pockets; they rented and acquired more tracts. Their acquisition of more land resulted in the Asiatic Land Tenure and Indian Representation Bill in 1946 prohibited inter-racial property transactions. It posed a significant problem in the future development of Indian agriculture (Koch & Terblanche, 2013, p.10).

2.3. REVIEW OF THE DEFINITIONS AND RELATED ROLES AND RESPONSIBILITIES OF EXTENSION

The researcher used various definitions to determine the most critical functions and roles required to improve the livelihood of the farmers. The researcher did this to explore more possible roles in this field. The researcher started with the Norms and Standards for Extension and Advisory Services in Agriculture (2005), as this is the platform created by the national department of agriculture to build extension and advisory in the public service. This document provides guidelines to all government departments that offer an agricultural extension and advisory service.

These Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 1) provide three essential perspectives on extension definition, namely that agricultural extension is "considered as a form of education being proactive in nature and focusing on future problems that farmers might encounter." The second perspective in the same policy (2005, p.1) states that extension is considered "merely as the provision of advice in response to farmers' problems." The definition in the same policy states that extension is merely around assisting farmers with problems that might occur and assisting them with advice on how to deal with such problems. In this role, the agricultural advisor must identify challenges the farmer might experience and advise the farmer on dealing with such issues. This definition includes the expansive role of the agricultural advisor in providing more than advice (sic advisory service). This policy document further states that extension is a knowledge and information support function for people engaged in agriculture and has a broader role than just providing advice (advisory service). The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p.n2) refer to the "systematic process of working with farmers or with communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability." It is seen as a continuum ranging from narrow technology transfer. This technology transfer involves changes in farming practices without considering the overall societal perspectives. Initially, this continuum mentions technology transfer that only involves changes in farming practices. Extension and advisory services are now expanded to include advisory, education, and human development aspects, taking on critical public priority issues, such as food security, poverty alleviation, environmental degradation, and social equity. The writer will later show how this definition is expanded to include all the other aspects.

The extension definitions in the Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 2) have been stated above, containing some roles and responsibilities. This policy document elaborates on how it sets out to meet the mission of the Department through improved agriculture support services (information, finance, inputs, technical expertise, and markets are some examples) which will lead to an enabling environment for improved productivity. The role required of the agricultural advisor is to link the farmers with the services mentioned above.

The agricultural advisor develops farmers with skills and creates knowledge opportunities so they can sustainably manage their resources. The role required by the agricultural advisor would be training and development and transferring knowledge in the sustainable use of resources.

Another role of the agricultural advisor is access facilitation to new technologies and awareness. The role is to facilitate access to other stakeholders in the value chain. The latter will present an opportunity to inform farmers of new technologies.

The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 3) list several functions required for the objectives of this policy: The agricultural advisor must facilitate access to agricultural information so farmers can improve their planning and decision-making. This facilitation and access to knowledge describe the role of enabling the farmer to improve his planning and, consequently, the decisions made so that the farmers can improve their livelihood because of increased production that will lead to sustainable income. The agricultural advisor must provide opportunities for skills development in agriculture". The latter refers to the training and skills audit functions.

The National Policy on Extension and Advisory Services (2016, p. xi) defines advisory services interchangeably with extension as "services provided by subject matter specialists, private organisations or firms to support producers".

A Report on the Implementation Evaluation of the Extension Recovery Plan commissioned by the Presidency of South Africa and the Department of Agriculture, Forestry and Fisheries (DAFF) was completed in 2017. In this report (2017, p. 17), extension is defined as a systematic process of working with farmers or communities to help them to acquire relevant and useful agricultural knowledge and skills to increase productivity and profitability. Sulaiman and Davis (2012, p. 5) added other dimensions to the agricultural innovation system, such as community mobilisation, so that the farmers can have better

bargaining power by organising them into farmer groups. They indicated several competencies required to broker deals, such as input, credit, and information to new and relevant technologies that the farmers need.

Sulaiman and Blum (2016, p. 9) consider rural advisory services as a variety of activities provided by many actors up and down the value chain of agriculture, such as the provision of information, technical knowledge, management and organisational skills, and practices that will render an improvement in the lives of the farmers. They further state that family farming benefits from using information services, improving productivity, acquiring farm management skills, and adopting sustainable farming practices.

At an inaugural lecture given by Oladele (2013, p. 6), indicated that several other terms are used around the world for agricultural extension: "Arabic: Al-Ershad ("Guidance"), Dutch: Voorlichting ("lighting the path"), German: Beratung ("advisory work"), French: Vulgarisation ("popularisation"), Spanish: Capacitación ("Training" "Capacity Building"), Thai, Lao: Song-Sum ("to promote"), Persian: Tarvij & Gostaresh ("to promote and to extend").". He indicated that the definitions had also changed over time. Oladele (2013, p. 7) chronologically showed the various definitions of agricultural extension as presented in Figure 2.1 below:

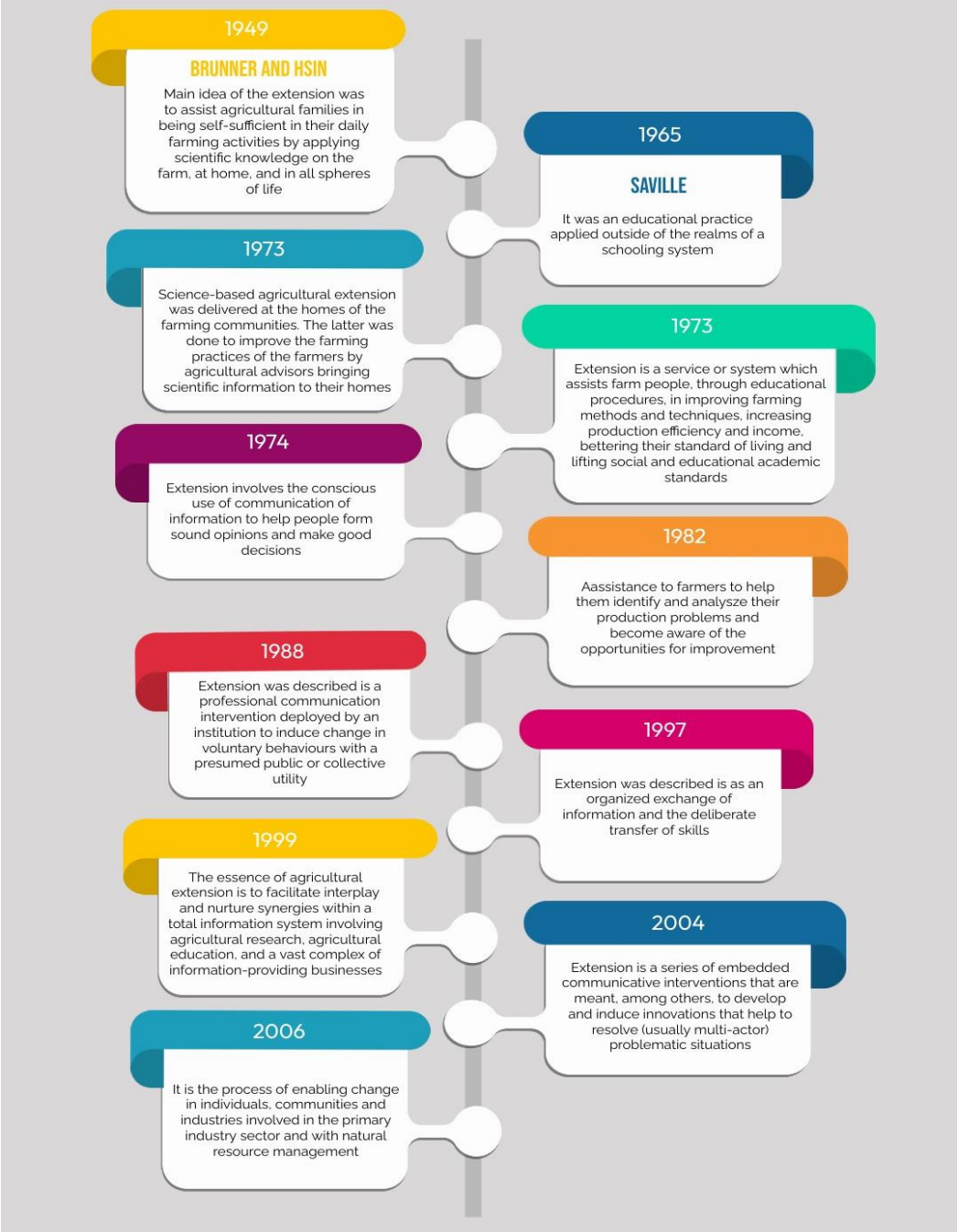

Figure 2.1: Chronology of Agricultural Extension Definitions according to Oladele (2013)

According to Anyasi et al.. (2012, p. 1) in the 24 ARD Report Series, it is stated that the UNDP (2000) defines *extension* as a complex process involving changes in human behaviour through communication, enhancing the farmers capacity to deal with their problems and meet new opportunities. However, it is stated that the enormous extension task is to transfer information from researchers to farmers to improve agriculture.

Leeuwis (as cited in Mainder, 1973, p. 3) defines extension as a service or system which assists persons who farm, through training procedures, to improve farming methods and

techniques, increase production efficiency and income, bettering levels of living, and lifting social and educational standards. The researcher interprets this as a linear process that if farmers are assisted with training on farming techniques, the production will increase with an increase in income that will lead to the betterment of the livelihoods and improved education and social standards.

Christoplos (2010, p. 2), in his definition, also mentions that extension is a systematic process that facilitates access for farmers to other role players in the market and their organisations so that they have access to a variety of stakeholders and activities such as knowledge, information, and technologies. He focuses on the facilitation aspect that will lead farmers to interact with research, education, agribusiness, and other relevant institutions. These institutions will assist with developing the farmers' skills and their own technical, organisational, and management skills and practices.

The most comprehensive and latest definition of extension and advisory services (EAS) is that of GFRAS (2012). Sulaiman and Davis (2012, p. 7) stated that the EAS consists of several activities. Some provide information services that farmers need. Others assist farmers in developing their own technical, organisational, and management skills and practices to improve their livelihood and well-being. Sulaiman and Davis (2012, p. 3) cited Christoplos (2010, p. 2), that extension and advisory services recognise a range of actors in extension and advisory provision, be they from the public, private or civil society. They refer to the much broader assistance of rural communities (beyond technology and information sharing). They include advice related to the farm, organisational and business management, facilitation, and brokerage in rural development. Sulaiman and Davis (2012, p. 5) added other dimensions to the agricultural innovation system, such as community mobilisation, so that the farmers can have better bargaining power by organising them into farmer groups. They indicated several competencies required to broker deals such as input, credit, and information to new and relevant technologies that the farmers need. According to Davis and Sulaiman (2014, p. 7), how development in agriculture has taken place is no longer linear in perspective but lends to a systematic process," where they cite Spielman (2005). They cite Swanson and Rajalathi (2010), who mentioned that extension is more than technology transfer but includes facilitation. They further state that new roles and capacities are required, such as "acting as an intermediary, being a facilitator mediating between the farmer and the extension practitioner." Sulaiman and Davis (2014,

p. 7) define extension as “all the different activities that provide the information the farmer needs.”

Sulaiman and Davis (2013, p. 2) stated that GFRAS acknowledges the roles of varied actors, and the extension practitioner must link the farmer with the demand for a particular expert. The agricultural advisor’s role and function is to connect the farmer or the community with other stakeholders involved in the provision of an extension and advisory service. The researcher simplified these into the roles and functions of an agricultural advisor. They are outlined below. The agricultural advisor engages other stakeholders in rural settings.

1. The agricultural advisor must assist farmers with technical, organisational, and management skills and practices to improve their livelihoods and well-being.
2. The agricultural advisor must provide advice related to the farm, organisational and business management, and
3. The agricultural advisor must provide more broadened support to rural communities, including more than technology and information sharing. It includes the facilitation of brokerage in rural development and value chains.

These roles and functions will be discussed in more detail later in this chapter and later in the study when the researcher examines how these relate to the assessment tool used for assessing the agricultural advisors’ performance.

The writer considered all the above definitions and conceptualised her definition. Agricultural extension is a science and art that begins with an assessment of a farmer or a community’s physical, natural, financial, and human resources to identify the needs of the farmer or a community. The agricultural advisor will coordinate and facilitate a negotiated variety of activities and actors. To address such gaps identified to employ sustainable farming practices, improved production, market readiness, and enhanced access to markets so that farmers or communities may improve their livelihood and food security. This definition will be unpacked later in the chapter, where the roles and functions of the agricultural advisor will be detailed.

2.4. REVIEW OF THE ROLES AND FUNCTIONS OF EXTENSION AND ADVISORY SERVICES.

Over the years, much has been written about what roles and responsibilities the agricultural advisor needs to play. Sulaiman and Blum (2016, p. 9) cited the following roles that will result in successful family farming in both developed and underdeveloped countries. Extension practitioners similarly require these roles to ensure that smallholder producers become successful.

- Provide farm management and business development support appropriate to each farm's scale, resources, and capacities.
- Help farmers better understand markets (prices, seasonality, standards, value addition).
- Link farmers to other stakeholders involved in providing varied support and services.
- Create platforms to facilitate interaction and sharing among stakeholders, including Producer Organisations (POs), to ensure coordinated support to family farmers.
- Exploit information communication technologies (ICTs) to provide farmers with information related to weather, prices, extension programs, and generic information related to farming.
- Support or facilitate the formation of POs and collaborate with POs to strengthen RAS's demand and supply side.
- Promote institutional and policy change to enable and support family farms.

(Source: Synthesized from the FAO e-conference on 'Tailoring rural advisory services to family farms, 2014d)

Blum (2013, p. 9) presented at the SASAE Conference in Bloemfontein the role that extension must play in ensuring food security. The presenter identified the following areas critical to achieving better relevance, efficiency, and impact in extension. The writer believes that the extension officer should be geared for such a role. The presenter mentions that a pluralistic extension service is vital to have a greater chance of various services that align with the diversity of rural life and challenges. The services extend beyond agricultural production, including processing, marketing resilience, and

environmental issues. It was stated further that demand-led extension provided by agricultural advisors is essential, and this can be done through the involvement of farmer organisations in setting priority issues to be addressed. The demand-led extension can also be achieved through learning from farmer to farmer. The presenter stated that market-oriented extension along the value chain, especially building trust along these lines, is essential. The agricultural advisors must facilitate access to markets and credit. It was stated that knowledge management emphasizes coordination and facilitation and links farmers to where they can find solutions. In terms of the profile of the agricultural advisors, she indicates that over and above the topics on production practices, they should be capacitated on the latest trends such as climate change, environmental issues, marketing, and economies of scale. Finally, innovative financial mechanisms are crucial as extension services.

Anaeto et al. (2012, p. 11) state that the role of the agricultural advisor is to improve the farmer's living standard. This improvement is achieved by increasing their production practices. The latter is achieved by teaching them to identify their problems and find solutions to increase production. It is also stated that the agricultural advisor's roles are varied and include the role of a technician, middleman, mentor, and advisor.

Zwane (2017) stated that the extension fraternity implicitly believes that an agricultural advisor is conversant with climate change. However, contrary to this belief, there is evidence that this is not the case. There is an expectation that an agricultural advisor should have climate change knowledge to provide correct advice about climate issues.

Chapota (2020, p. 1) indicates that smallholder producers provide 70% of the world's food. However, the same smallholder producers are the most vulnerable. These smallholder producers live from one harvest to the next, which makes them particularly susceptible to climate and economic shocks. Chapota (2020, p. 1) further quotes Feris et al. (2014) that 1.5 billion people worldwide are in rural areas and are therefore dependent on being smallholder producers. Due to the vulnerability of so many smallholder producers, the role of the extension practitioners is to reduce or remove the vulnerability. Chapota (2020, p. 6) believes making a difference in the life (improving the livelihood) of a farmer (smallholder producer), it is necessary to support them to manage the farm as a business enterprise.

The Western Cape Agricultural Land Reform Project Performance Evaluation (2014, p. 43) cites the Public Service Commission (2011), that stated, based on discussions with

programme and project managers, the following factors characterised successful projects (farms): Commitment and hands-on approach of the farm managers that is effective management of farms; relevant farming experience, business management, and farming skills; partnerships with mentors, who in the Western Cape were established commercial farmers; formal training in agriculture and especially business management; record keeping (including records on production and income levels); access to markets; and affiliation with farmer associations.

The MEC for Agriculture (appointed in 2019) identified five priorities for the Department of Agriculture for the next five years. As stated on numerous platforms, amongst others, at the Strategic Planning session held in Aniston on 19 -20 November 2019 Below is the excerpt of these priorities:

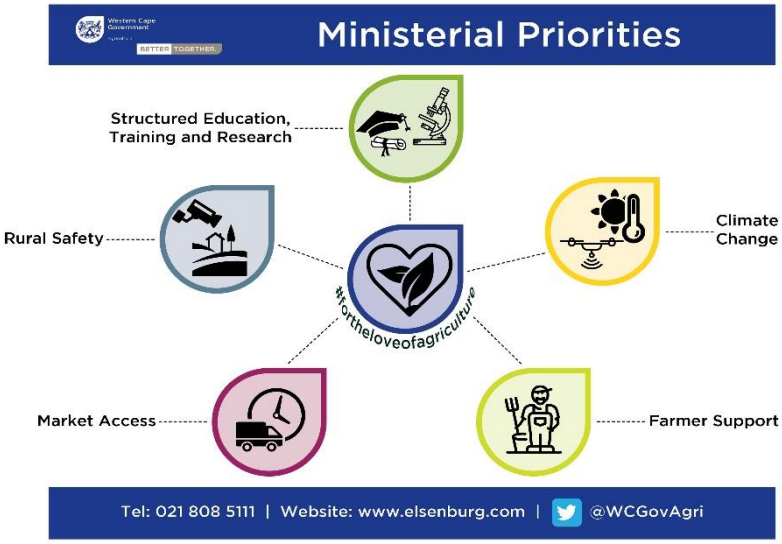

Figure 2.2: Ministerial Priorities of WCDoA

All except the last one form part of the roles and responsibilities of the agricultural advisors:

- Training and Research,
- Farmer Support
- Market Access
- Climate Change
- Rural Safety

The researcher will return to these points regarding the role and responsibilities of agricultural advisors. The top four priorities include the roles and functions of the agricultural advisor.

2.5. EXPANDED DEFINITION OF EXTENSION

The researcher conceptualised a definition for extension as a science and art that begins with an assessment of a farmer's or a community's physical, natural, financial, and human resources to identify the needs of the farmer or community. The agricultural advisor will coordinate and facilitate a negotiated variety of activities and actors to address such gaps identified to employ sustainable farming practices, improved production, market readiness and enhanced access to markets so that farmers or communities may improve their livelihood and food security.

The writer unpacked the definition to indicate the roles she feels the extension officer should play in terms of this definition. The researcher used the Farm Report developed by the WCDoA (2016, pp. 1-4), which was used by the agricultural advisors to provide the necessary support to the farmers. Extension and advisory services are a science because the advice and support are based on empirical evidence. The production practices are based on crop, animal, and other sciences that have been researched over the years to improve production practices. Similarly, applying the latest research and technology to improve these production practices is necessary. The writer believes that it is also an art since it is based on a set of acquired competencies so that they can facilitate a negotiated settlement on how to address the shortfalls identified. The agricultural advisor brings together many actors with divergent views, sometimes from different cultures, to find solutions to the satisfaction of the farmer or the community, referred to as a "negotiated settlement." The advisor has to, in some instances, deal with, at times, large groups of owners on a single farm. These large groups are difficult to facilitate to agree on how they will take the farm forward. The latter requires a set of acquired skills that will be honed over time to achieve this art.

The researcher believes that the agricultural advisor should begin with assessing the farm or the community. The assessment is non-negotiable for the following reasons: It is essential to analyse the different resources in the community or on the farm so that the best possible plan is drawn up on identifying the resources available or required to make the business sustainable, profitable, or improve the production, as cited by many. The assessment is holistic in that it looks at all the aspects referred to in the definition to make the farm or community successful. The farmer and the agricultural advisor should do the assessment in no particular order. The writer has used the WCDoA's Farm Assessment

Report (2015), as attached Annexure 5, to indicate what is expected from the agricultural advisor when visiting a farm to plan or provide advisory support. She has used the writer's liberty to present it as she believes it should be. The physical assessment must identify the weakness or strengths of infrastructure, equipment, and implements. They will negotiate what is required, if any, to have the infrastructure, equipment, and implements they can use to make the enterprise successful. Determine all the types of infrastructure, equipment, and implements regarding adequacy, efficiency, condition, and maintenance required or need replacement. They will determine the road condition and the distance from the markets in terms of transporting produce or for services required.

The first function arising from this definition is to assess the physical resources of the farm or the community. As stated before, the Norms and Standards for Extension (2005, p. 2) refer to the systematic process of working with farmers or with communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability. If this is not done at the outset, the business plan will not enable success. The helpful knowledge will be the information around this assessment to show the farmer the outcomes and needs to make it sustainable and profitable with the physical infrastructure.

The natural resources will be assessed to identify strengths, weaknesses, and opportunities in terms of soil, water, and climate. The farmer and the advisor need to first and foremost analyse the potential of the land and the natural resources. The farmer and the agricultural advisor will assess the total farmable land by evaluating the natural grazing capacity per hectare, per large stock unit to determine the ideal stock numbers to prevent overgrazing. They will assess the carrying capacity on irrigated pastures as on dry land (rain-fed). The outcome will allow the farmer and the agricultural advisor to negotiate the best practice in terms of the land potential. The yield per ton on irrigated annual crops and perennial crops must be determined. These assessments will give the farmer and the agricultural advisor the total farmable land available, which will be viable for success for the intended purpose of the farm.

They need to analyse the soil as it is necessary to determine if the crop can be sustainable in that type of soil or identify the soil needs , as mentioned earlier. The strengths and weaknesses must be assessed on how they can adapt to climate change and farm sustainably while increasing production. The soil analysis will assist with the development of a negotiated plan to prepare the soil for planting. Correct preparation is vital if the

agricultural advisor wants to "facilitate efforts to increase food production, including increased access to production inputs" for the emerging agricultural sector, as stated in the National Policy on Food and Nutrition Security (2008, pp. 6-7).

The average rainfall will be assessed to determine the availability of water in terms of crops they wish to plant and the farmers' rights to water. Similarly, they may require water for livestock; however, the water quality is not the same. It is imperative that the water quantity is legally available and the quality is fit for irrigation or potential use. The same will apply to stock watering. At all times, the agricultural advisor and the farmer will assess the natural resources in terms of suitability for current and potential use as well as the status of the resources; namely, erosion, pollution, alien vegetation, and impact of agri-processing.

The second function will be assessing the natural resources so that the farmer or community can meet the challenges of global environmental change. The agricultural advisor must facilitate and coordinate activities negotiated with the farmer or community in this assessment to meet the challenge of global climate change. Sulaiman and Davis (2012, p. 8) added that facilitating adaptation to climate change and innovation is necessary; hence, assessing natural resources is non-negotiable.

It is necessary to assess the financial resources of the farmer or the community. Financial management is crucial regarding what is planted; for example, pome fruits require finances for at least 3 -5 years before they yield a crop. There will be no income for a few years, which needs to be considered. It is vital to know the farm's cash flow to determine sustainability. The Norms and Standards for Extension (2005, p. 2) refer to the systematic process of working with farmers or with communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability. The latter identifies the farmer's or community's financial capability or needs. Importantly, it is necessary to assess the financial resources of the farmer or the community.

Human resources will be analysed to identify skills and competencies required to farm sustainably, profitably, and adapt to climate change. After the farmer and the agricultural advisor look at the farm's strengths, weaknesses, opportunities, and threats, they will engage in what the farmer believes will be the best way forward. They will assess the management structure and the organogram to determine the employment needs. The fourth role of the agricultural advisor is to assess the human resources so that the skills

can be measured to determine if the farmer or the community can manage the enterprise successfully. The agricultural advisor and the farmer will assess the organogram and identify the management structure and capacity.

It should be noted that the assessment of the various resources cannot be done in isolation. Various assessments are done to determine if the farm is viable and sustainable. The latter considers it a systematic process, as stated by many before. It is considered by many as working with farmers or communities to help them to acquire relevant and useful agricultural knowledge and skills to increase productivity and profitability. The farmer and the agricultural advisor will together assess the farm as having agricultural value or not. The advisor does not necessarily have all the skills. The agricultural advisor must know whom to refer the farmer to for assistance. The agricultural advisor has to improve access to the markets for smallholder farmers. Hence, a role is to ensure market readiness, all of the above set the scene for the roles and responsibilities of an agricultural advisor.

2.6. REVIEW OF THE POLICY IMPERATIVES

The extension definitions in the Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 2) have been stated above. This policy document (2005, p. 2) elaborates on how it sets out to meet the mission of the Department through:

“Improved agriculture support services (amongst others, information, finance, inputs, technical expertise, markets) that will lead to an enabling environment for improved productivity.” The role required of the agricultural advisor is to link the farmers with the services mentioned earlier.

Giving farmers skills and information to manage their resources sustainably. The role required by the agricultural advisor would be training and development and transferring knowledge in the sustainable use of resources. “Facilitation of access to new technologies and awareness thereof.” This facilitation is another role for the agricultural advisor. The role here is to facilitate access to other stakeholders in the value chain that can make farmers aware of new technologies if the agricultural advisor cannot do so.

The Norms and Standards (for Extension and Advisory Services in Agriculture) (2005, p. 3) list several roles the agricultural advisor must play to achieve its objectives. These functions are: “Facilitate access to agricultural information for improved planning and decision making.” The latter describes the role of enabling the farmer to improve his

planning and livelihood because increased production leads to sustainable income. “Provide or facilitate skills development in agriculture.” The above refers to the training and skills audit functions.

The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 4) cite the FAO (2001), where the latter argues that “agricultural and rural extension is a unique service” and that it “provides non-formal agricultural related continuous adult education to assist in the development of rural areas.”

The National Policy on Extension and Advisory Services (2016, pp. 9-10) describes the role of the extension and advisory services that can be devolved to agricultural advisors at an individual level. They are:

Help smallholder producers to overcome challenges with marketing, production and business practices through information sharing with other producers and role players and actors in the value chain. This statement encompasses several roles and responsibilities for the agricultural advisor. It addresses the market challenge of access or market information that the farmer needs. It alludes to creating access or a platform for sharing information. Empowering or building the capacity of smallholder producers and commodity groups to ultimately become self-reliant. It also states that the agricultural advisor needs to facilitate the formation of commodity groups.

“Share knowledge and strengthen individual and collective capacities.” The agricultural advisors can create platforms for the farmers to exchange ideas and learn from one another.

Extension and advisory services are considered a form of education, proactively focusing on future problems that farmers might experience, as stated before. Inherent in this statement is the training need identification and the training function an agricultural advisor must have. The agricultural advisor must provide training to the farmer in response to identifying the need for such training (after a skills audit). This role the extension practitioner must play at the outset is to identify together with the farmer’s potential problems or gaps that need to be addressed to farm successfully. The National Policy on Food and Nutrition Security in the Republic of South Africa (2013, p. 5) affirms this too. The Strategic Goal of the latter policy requires that the role of the agricultural advisor must be to facilitate efforts to increase food production, including increased access to production inputs for the emerging agricultural sector. It is stated in the same policy (2013, p. 20) that

in building the pillars for food safety and security, the role of the agricultural advisory service is to ensure “improved food production” to ensure adequate “food availability” and “stability of food supply.” The increased food production can be achieved through technology transfer and training, as discussed previously, and can be achieved through improved production practices that will result in increased production. The latter is also one of the core principles of the National Policy on Extension and Advisory Services (2016, p. 7), which is “contribute to the efforts to eradicate poverty and ensure food and nutrition security.”

The Food and Nutrition Security Strategy 2015-2025 (2014, pp. 21-22, 39, 41) indicates that the agricultural adivsors role is to improve market access for the farmers by facilitating market readiness and providing market information. It states that there is a need for available market information (2014, p. 39).

The National Policy on Comprehensive Producer Development Support (2018, p. 4) alludes to the need to support the producers to get them market-ready. This report also refers to the lack of skills that requires strengthening capacities through needs-based training (2018, p. 26). It also recommends the need to provide record keeping training and conduct a skills audit around this.

In the Agricultural Policy Action Plan (2014, pp. 20, 33, 38, 43), several interventions and key outputs were identified. These interventions were training the smallholder producer in poultry, wheat, and livestock sectors and vegetables to improve their production practices and livelihood.

CHAPTER 3. RESEARCH METHODOLOGY

3.1. INTRODUCTION

This study aims to determine if a farmer's success depends on an agricultural advisor with an Extension Science foundation. This study aims to show a difference in the advisory service and support given to farmers to improve or show a positive effect on the lives of the farmer of their extension and advisory support.

Many universities in South Africa have not offered Extension Science as a major subject in their undergraduate and post-graduate programs. This has resulted in extension workers (agricultural advisors) appointed with the government sector or with commodity groups not having a background in Extension Science. Extension ScienceExtension ScienceSimilarly, Extension Science was not offered as a major subject at many agricultural colleges before 2008. Extension Sciencea major subject of study before 2008.

South Africa has few institutions that offer Extension Science as part of post-graduate studies. Many experts opined that a foundation in Extension Science is required to provide a good extension and advisory service. There is little or no empirical evidence to show that this is the case. Therefore, it is necessary to establish the extent to which the extension and advisory support differ by those who had training and education in Extension Science from the agricultural advisors that do not have such training or education. This study sets out to determine if an agricultural advisor with a foundation in Extension Science is the farmer's livelihood compared to an agricultural advisor with no such background.

The researcher sets out to prove or disprove the hypothesis that the agricultural advisor requires a foundation in Extension Science (qualification or training) for a farmer to be successful. The success or improvement in the farmer's livelihood results from the extension and advisory support provided by an agricultural advisor with such a foundation. The researcher used different methods to prove or disprove the hypothesis. The methods included a structured questionnaire administered to the agricultural advisors to determine their demographics. The questionnaire will have a Likert scale to assess the extent the agricultural advisor agrees to the roles and responsibilities. The roles and responsibilities were identified through the review of the literature. The roles and responsibilities were imperative to create a tool to rate the performance of the agricultural advisor in the field. A log frame analysis strengthened the roles and responsibilities. The latter was applied to two groups of stakeholders. The final method used was data triangulation to determine the

success profiles of the agricultural advisor and compare the success of an agricultural advisor with a foundation in Extension Science to one with no such foundation.

3.2. METHOD AND METHODOLOGY

3.2.1. Mixed Method

The researcher used a mixed method research methodology, as defined by Creswell (2008, p. 2), at a presentation at the University of Pretoria. He stated that mixed methods research is both a method and methodology for conducting research that involves collecting, analysing, and integrating quantitative and qualitative research in a single study or longitudinal inquiry program. Hui (2012) also refers to collecting, analysing, and mixing quantitative and qualitative data in a single study. He believes that if the two methods are combined, a better understanding of research problems is achieved than using one method alone.

This study used both quantitative and qualitative research methods to derive its results. Creswell (2008, p. 2) stated that “the purpose of this form of research is that qualitative and quantitative research, in combination, provide a better understanding of a research problem or issue than either research approach alone.” The quantitative method required the researcher to collect numerical data from a sample of a group of persons to explain phenomena in this group so that it can be generalised to the more significant population of the group who share the same characteristics. In this case, the research group of persons surveyed will be the extension officials of the Western Cape Department of Agriculture. The demographics may be generalised to the extension officials in the other eight provinces in government and the agricultural advisors in the private sector. The quantitative method used in the initial phase entails the determination of the gender, educational qualifications, and years of experience of the different categories of agricultural advisors. A simple questionnaire was developed to determine such qualifications and experience of the extension practitioner (see Annexure 1 attached). The questionnaire had closed-ended questions to determine gender. That is, the participant chooses an answer from the given options. The questionnaire also had quantitative open-ended questions. In the open-ended example above, the participants could write a simple number like “4” when determining certain functions. They could do this to indicate a range of years of experience to determine the roles that the agricultural advisor plays or more complex responses like “I have supported “4” projects with access to markets due to lack of access to formal markets.”

Quantitative research affords the researcher a “relatively conclusive answer to research questions” if the methodology used is reputable and the researcher analysesthe data according to standardised accepted research practices. The researcher explained how these methods were used in more detail below.

3.2.1.1. Quantitative Method

The first part of the mixed method is the quantitative method. The quantitative method was done through the administration of a questionnaire that analysed the demographic data of the agricultural advisor, their employment history, their educational qualifications and their perspective on the roles and responsibilities of agricultural advisors in the field. The latter was done using a Likert Scale in which the agricultural advisors indicated the extent to which they agree with the roles and responsibilities identified. The researcher will analyse this to determine the extent they agree to the roles and responsibilities for further use in rating their performance later in the study. The Joint United Nations Programme on HIV/Aids [UNAIDS] (2010, p. 63) states that quantitative data is collected using quantitative methods, such as surveys. A numerical scale was used to analyse and statistical methods was used to display the tables, charts, and graphs.

The researcher analysed the demographic data of the agricultural advisors so that the gender of the agricultural advisors could be determined. The gender allowed for comparisons along gender lines in the study. Their employment history analysis allowed for the determination of whether this variable influenced the study's outcome. The researcher also analysed if the years of experience in any way influenced the outcome of the study.

Their educational qualifications were examined when the comparison was made to determine the success profiles of the agricultural advisors. The comparison is the purpose of the study. The study set out to determine if the agricultural advisor with a foundation in Extension Science has a more positive effect on the livelihood of the farmer they support with extension.

The perspective of the agricultural advisor on the roles and responsibilities of agricultural advisors in the field was examined. The latter was done using a Likert Scale in which the agricultural advisors indicated the extent to which they agree with the roles and responsibilities identified. The researcher analysed this to determine the extent they agree to the roles and responsibilities for further use in rating their performance.

Quantitative research affords the researcher a relatively conclusive answer to research questions if the methodology used is reputable and the researcher analyses the data according to standardised accepted research practices. The educational qualifications and employment history will be used later for the triangulation of data with the success profile of the agricultural advisors.

3.2.1.2. Qualitative Method

Qualitative research is a scientific way to research problems by trying to answer questions systematically. It provides findings that could not be determined before. In-depth answers from the perspective of extension experts were obtained. The latter was the effect of not executing nor understanding the roles and responsibilities of an agricultural advisor. They discussed the outcomes of agricultural advisors practicing the roles and responsibilities that lead to the improvement in the beneficiary's life. Hui (2015, p. 3), stated that the researcher uses qualitative research to help explain quantitative findings to explain some of the responses in terms of the roles and functions of the agricultural advisor. The analyses of the agricultural advisors' views on the extent they agree with the roles and responsibilities were examined.

A Likert scale was used (Section D Annexure 1) for participants to express a favourable or unfavourable attitude towards questions relating to agricultural extension roles and responsibilities.

3.2.2. The Logical Framework Approach (Methodology)

The Logical Framework Analysis (LFA) was used to test the roles and responsibilities, experts from the South African Society for Agricultural Extension (SASAE) and the managers and specialist agricultural advisors from The Western Cape Department of Agriculture (WCDoA) in Program 3 were used. To avoid logistical problems with the group size and the geographical distance, two separate groups were used. The first LFA session was held with the WCDoA officials from Program 3, and the second LFA with the SASAE experts at the administrative offices of SASAE, The University of the Free State. The stakeholders chosen from the WCDoA include the immediate supervisors, managers, and specialists in the Western Cape Province, who can best indicate the roles and responsibilities required. On the other hand, the SASAE experts are essential stakeholders in that they are both academics and professionals in field of agricultural extension.

According to the Guide to the Logical Framework Approach (2011, p.10), the LFA is an analytical and management tool used in research, monitoring, and evaluation when confronted with extensive program and development ideas. Compared to most other project management tools, the LFA has the potential to organise a considerable amount of information coherently and concisely. Hence, this method was used to determine if the various roles and responsibilities can be used to assess the performance of the agricultural advisor.

It is further stated in the Guide to the Logical Framework Approach (2011, p. 13) that it is an iterative process to aid structured and systematic analysis of a project or program idea in a logical way and it is viewed as an aid to one's thinking. It allows stakeholders to objectively describe information because the information is analysed and organised in a structured way so that important questions can be asked and answered. Weaknesses can be identified and informed decisions towards achieving an improved understanding of the rationale, in this case, obtaining an improved understanding why these roles and responsibilities are essential for the improvement of farmers livelihoods.

The LFA is a way of looking at an existing situation involving a problem analysis and an objective analysis, in this case, agricultural advisors roles and responsibilities that improves the farmer's livelihood. However, the problem analysis looks at the above situation negatively. In this situation, it looks at the effects of the absence of execution of these roles and responsibilities on the farmer's livelihood. The problem analysis views the situation from a cause-and-effect relationship. In this setting, the effect needed to be determined by the stakeholders, in this case, the SASAE experts and the officials from the Department of Agriculture Western Cape. These stakeholders will look at the causal relationship of the agricultural advisor not having or executing any of these roles and responsibilities. In this study, the purpose is to determine a causal link between not having these roles and responsibilities and the effect it will have on the farmer. In this manner, the negative effects from a lack of execution and understanding of these roles and responsibilites will be identified. .

The latter results are represented diagrammatically in an illustration known as a problem tree consisting of negative statements. Like a tree, the diagram has three areas, including the tree's trunk or the core problem, the roots that are seen as the root causes, and the branches that will be viewed as the effects of the problem.

On completion of the negative tree, the next step was developing an objective tree containing positive statements generated from the problem tree. In the same manner as the negative tree, an activity-and-outcome relationship needs to be developed. Like the problem tree, the diagram has three areas, including the trunk or the core objective. The roots are seen as the activities required to achieve the objective and the branches viewed as the outcome of achieving the objective. The core objective must be determined to ensure that the agricultural advisor has the necessary competencies to improve the farmer's livelihood when they provide an extension and advisory service to them. This was followed by identifying activities to achieve the core competencies, and finally, the outcome of achieving the core objective will be identified.

3.2.2.1. Stages in the Logical Framework Analysis

According to Van Rooyen, D'Haese, and Anandajayasekeram (2002, p.333), the LFA consists of three phases.The first phase involves defining the strategic context, or contextualising the plan, and defining the major stakeholders identified. Secondly, the analytical phase, involves a problem analysis, an objective analysis, and the strategy analysis. The final phase, the planning phase, involves completing the log frame matrix. These phases of the LFA, as completed in the research, are discussed in detail in this section.

3.2.2.2. Phase One: Defining the Strategic Context and the Major Stakeholders

In the first phase of the LFA, the researcher identified the stakeholders who would be best suited to determine these roles and responsibilities that are required to assess the performance of an agricultural advisor. As stated earlier, this is an iterative process. The first group of stakeholders was the target population, the agricultural advisors who agreed and confirmed the roles and responsibilities as illustrated by the questionnaire results in Chapter 6.

LFA Expert Stakeholder Groups Participants

The important stakeholder groups for the execution of the LFA analytical phase were the WCDoA managers and specialist agricultural advisors from Program three and the SASAE agricultural extension researchers, academics, and staff from the Free State Department of Agriculture and Rural Development. These stakeholders have a vested interest in the agricultural advisory services or the roles and functions of the extension practitioner.

3.2.2.3. Phase Two: The Analytical Phase

According to Van Rooyen, D'Haese, and Anandajayasekeram (2002, pp.331-332), the second phase of the LFA, the analytical phase, is further divided into three parts. Firstly, the problem analysis involves clustering constraints around the major problem and highlighting the effects through a diagram (problem tree) illustrating a cause-and-effect relationship. Secondly, the objective analysis aims to describe and outline a future situation in a positive state, where interventions are identified to speak to and overcome the problems identified in the first analytical step (objective tree). The final step of the analytical phase, strategy analysis, involves identifying strategies to implement and achieve the objectives. The following section will follow the same sequence as the LFA analytical phase mentioned above.

The Problem Analysis: The LFA Introduction to the Expert Stakeholder Groups

Before the start of the LFA group sessions, copies of the information and consent form were distributed and signed by the expert stakeholder groups to indicate their agreement to participate in the LFA, in line with the approval by the Ethics Committee.

At the beginning of the session, the purpose of the study was shared with the respondents as well as the overall aim to determine if an agricultural advisor with a foundation in extension would have a greater contribution to the livelihood of farmers compared to an agricultural advisor with no foundation in Extension Science. They were informed of the purpose of the LFA to assist with developing a tool to measure the performance of the roles and responsibilities of the agricultural advisor in the field. Moreover, the participants were informed that the same roles and responsibilities were tested with the agricultural advisors and that the agricultural advisors had a favorable response (as shown in Chapter 6); hence, the testing and triangulation with the experts from SASAE and WCDoA officials to determine the cause-and-effect relationships in the negative tree and the activities-and-outcomes in the positive tree.

The Problem Analysis: The Core Problem and Problem Causes

The researcher used a literature review to identify the roles and responsibilities that an agricultural advisor must perform to improve the livelihood of farmers, which was confirmed in the research findings of the questionnaire conducted with agricultural advisors, as discussed in Chapter 6. According to Van Rooyen, D'Haese, and Anandajayasekeram

(2002, p.333), the problem tree requires “a negative state of affairs.” Therefore, the situation is perceived from a negative perspective in the problem tree. Part of the purpose of the LFA is to analyse the effects that the absence of execution of these roles and responsibilities will have on the livelihood of the farmer. Consequently, the root causes of the identified core problem are represented diagrammatically (Figure 7.5 and Figure 7.7 in Chapter 7) as the roots of the tree.

3.2.2.4. Phase Three: The Planning Phase

The final required phase of the LFA, which completes the process, involves the development of a plan to illustrate through a logical framework matrix (log frame) summary table. The matrix consists of the following columns and rows. The first column, the Intervention Logic (IL), the second column, the Objectively Verifiable Indicators (OVI), the Source of Verification (SV), and Assumptions (A). The rows include a goal, a purpose or mission, intermediate results, and activities. Once the final row, activities, are reached, the column headings are replaced with a column for resources and another for cost.

Within the rows, the goal is an objective at a high level, while the purpose is the core objective derived from the objective tree. The intermediate results represent the interventive strategies identified to achieve the core objective and implement the activities from the objective tree. The activities are the core competencies required by agricultural advisors and the sub-activities linked to each role and responsibility (Van Rooyen, D’Haese & Anandajayasekeram, 2002, p.337).

In the columns, the purpose of the IL is to summarise the narrative of the goal, the purpose, and the intermediate results. Moreover, the OVI is an important part of the plan, representing the indicators that will be utilised to measure and monitor the progress of achieving the goal, the purpose, and the intermediate results. The SV is the source that will be used to verify the progress as indicated by the indicators. Assumptions are required to highlight the factors that cannot be controlled but are essential to achieve the goal, the purpose, and intermediate results. Assumptions need to be kept in mind and according to Van Rooyen, D’Haese, and Anandajayasekeram (2002, p.341) “if possible, exert some influence over them.” Finally, once the activities are reached in the matrix, the columns considered are the resources required to implement the activity and the costs or source of funding associated with implementing the activity, replacing IL, OVI, SV and A.

Table 3.1: Log frame Matrix

Log Frame Matrix				
	Intervention Logic (IL)	**Objectively Verifiable Indicators (OVI)**	**Sources of Verification (SV)**	**Assumptions**
Goal	High-level objective	Summary of goal narrative	Sources used to verify progress	Assumptions on this.
Purpose	Core objective	Summary of purpose narrative	Sources used to verify progress	Assumptions on this.
Intermediate Goal	Intervention Strategies to achieve core objectives	Summary of intermediate goal narrative	Sources used to verify progress	Assumptions on this.
Activities		**Resources**		**Costs**
Core competencies required by extension official 1-12		Resources required to implement the activity.		Funding source

3.2.3. Data Triangulation

UNAIDS (2010, p. 62) defines *data triangulation* as analysing and using three or more data sources from various methodologies. The data sources were the questionnaires, data from the Land Reform Performance Assessment Study and the managers' rating of the agricultural advisors. The questionnaire determined the agricultural advisors' demographics, employment history, and qualifications. The success rate of the farmers was sourced from The Land Reform Performance Assessment Study 2014- 2019.

The validity and reliability were enhanced through the corroboration of findings using different sources. UNAIDS states (2010, p. 62) that by using different findings, the strengths of one can compensate for weaknesses or biases of any of the methods. The use of various data sources can improve reliability or validity.

3.3. SAMPLING

3.3.1. Target Population

The target population will be all the agricultural advisors from the WCDoA. The researcher indicated the structure of the Western Cape Department of Agriculture to understand who the agricultural advisors are. The Department deems all the officials who provide support and advice to be extension practitioners; however, they are not all agricultural advisors. The specialists offer specialist advice such as advice around animal health, sustainable resource management, or plant production. These officials are appointed to special programs in the department that provide specialist advice. These specialists support agricultural advisors in providing agricultural advice. The agricultural advisors provide an extension and advisory support service. They are appointed to Program (3) Agricultural Producer Support and Development, of which extension and advisory service is a sub-program. Sixty-one (61) officials were appointed as agricultural advisors at the time of the study. Hence, the target population is 61. The stations where the agricultural advisors are situated are found in Figure 3.1.

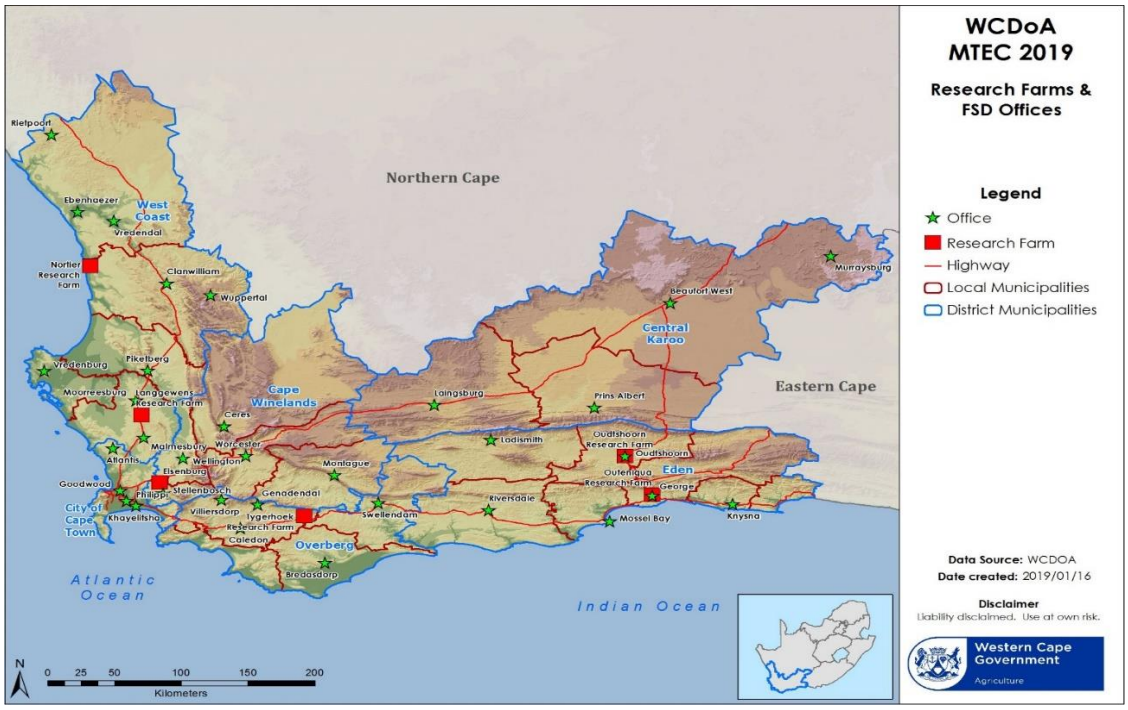

Figure 3.1: Map of Western Cape

3.3.2. Sampling Strategy

The writer attempted to get as many agricultural advisors as possible to complete the first questionnaire regarding qualifications and experience. If possible, the idea was to do a

census because the target population is small (61 agricultural advisors). The sample needed was to prevent sampling error with appropriate precision levels so that the results could be generalised to the greater population of extension. UNAIDS (2010, p. 63). The researcher aimed to survey all the agricultural advisors at different salary levels to participate since they are expected to perform various functions in terms of their job descriptions or performance agreements. However, the researcher could not ensure that all the agricultural advisors would participate in this study since participation is voluntary. The researcher attempted to get as many available participants as possible on the day. All the agricultural advisors did not attend this session or were off sick or refused to participate. Forty-nine (49) participated in the study.

The Log Frame Analysis (LFA) stakeholders were the managers and specialist agricultural advisors from Program 3 from the Western Cape Department of Agriculture. The number that participated was 7 of 13 managers and specialist agricultural advisors. The stakeholders that participated from the SASAE group were five of a possible seven (7) participants. Permission was obtained from the Chief Director of Program 3 for the first group and the President of SASAE for the second group.

3.4. DATA COLLECTION METHODS

The following data collection tools were used:

3.4.1. Questionnaire

The questionnaire administration (see Annexure 1) was part of the quantitative method employed to collect quantitative data on the sample's demographics, employment, and qualifications. The researcher disseminated this questionnaire at a planning session. The agricultural advisors at the planning session were allocated time to complete this questionnaire. The researcher was present to explain any queries before and during the time allowed to complete the questionnaire. The agricultural advisors placed the completed or non-completed questionnaire in a box at the exit of the conference room. Upon completing the questionnaires, the researcher collected them from the box. The latter allowed advisors who did not complete the questionnaire not to feel compelled to complete it and to ensure that participation was voluntary.

3.4.1.1. Demographics

The questionnaire contained tick boxes to determine the gender, age group, years of experience, advisory experience, and a foundation in Extension Science.

Level of education

The questionnaire enquired about the education information levels. The researcher determined the qualification/s of the agricultural advisors. The questionnaire requested that they fill in the qualifications they have Extension Science to determine a foundation in Extension Science. This information was imperative when comparing the success profiles that were made. It will answer the question if an agricultural advisor with a foundation in Extension Science is more likely to improve the livelihood of the farmers they provide with extension and advisory support.

Years of experience

The researcher analysed the employment information of the agricultural advisor. The questionnaire requested information about the years of experience as an agricultural advisor concerning agricultural advisory services. It was compared to the success of their projects. In this manner, the success or non-success of the project can be linked and a person with like experiences in extension and the same years of experience to ensure that other variables do not influence the results. The agricultural advisors completed the questionnaire on the demographics that included the age and gender of the agricultural advisor. The questionnaire included the employment history of the agricultural advisor. The questionnaire seeks to determine the number of years of experience as an agricultural advisor, which may influence the research outcome. The questionnaire seeks to determine the education history of the agricultural advisor. The critical factor is whether the agricultural advisor has a foundation in Extension Science.

The questionnaire determined the extent to which the agricultural advisors agreed to their roles and responsibilities. These are the same roles and responsibilities used later in the research to analyse the agricultural advisor's performance.

3.4.2. Telephonic Interviews with District Managers and Subprogram Managers

The interviews were held with each district or sub-program manager to rate the performance of each agricultural advisor in the district. The district or sub-program

manager is responsible for the extension and advisory service in the district and supervises or manages the agricultural advisors.

The questionnaire for rating the performance is attached (see Annexure 1). It rates all the roles and responsibilities deemed non-negotiable. The managers participated in the finalisation of roles and responsibilities. These are the roles and responsibilities an agricultural advisor needs to perform to ensure that the farmer improves his livelihood.

The questions were posed to rate the agricultural advisors' extension and advisory service to the farmer. The district or sub-program managers must indicate which advisor does the following best, average, and least. The manager had to support the answer with real-life examples and indicate if the agricultural advisor in the field does the following to improve the livelihood of farmers.

The agricultural advisor will have to consent to this rating of their performance by the manager.

The researcher will allocate a four (4) if the advisor is rated best for the role and responsibility. The agricultural advisor will be rated a two (2) if the rating is average and one (1) where the rating is least. An overall percentage (%) rating was calculated. These are in line with the performance rating in the DPSA. This will be discussed in detail in Chapter 8.

UNAIDS (2010, p. 62) refers to grey literature as working documents, preprints, research papers, statistical documents, and other difficult-to-access materials that commercial publishers do not control. Permission was given to access the raw data, or grey literature from the Land Reform Performance Assessment Study 2014 and 2019.

3.5. ETHICAL CONSIDERATIONS

The following ethical considerations will be adhered to throughout the study:

3.5.1. POPIA Compliance

In terms of the above Act, obtaining permission from a person to use information relating to them is necessary. Permission was granted by the Accounting Officer (HoD) to survey the Western Cape Department of Agriculture in Program 3 among the agricultural advisors. The agricultural advisors (extension officials) in the Western Cape Department of Agriculture will be the target population because they provide extension and advisory

services for the farmers. They were required to provide written consent to participate in this study through the Protection of Personal Information Act (POPIA) compliant consent form. Since raw data were taken from the two Land Reform surveys that concern them, a consent form taking this into account was used. A similar consent form was completed to consent to the managers in Program 3 rating their performance regarding the roles and responsibilities. Furthermore, the researcher required permission from them to access the information about how the farmers rated them from the two Land Reform surveys.

3.5.2. Voluntary participation

The study's purpose, benefits, and process were explained fully to the participants. Each participant signed a consent form indicating their understanding and acceptance of the process. The participants were not coerced to participate, which was explained to them. They were informed that participation or non-participation would not influence their conditions of service. Their consent was given in writing so that both parties were protected. Participants were not misled or forced to participate nor promised favours.

3.5.3. Informed Consent

The researcher explained the purpose and aim of the study and the possible benefits and process to the participants. The latter information is part of the consent form. The participants were informed that there is no reward, however, should the participant refuse to participate, it will not influence the conditions of service of the participants.

Consent was required from each participant in the different formats of participation. The agricultural advisors were required to complete a consent form to participate in the completion of the questionnaire. They provided written consent if they agreed to participate.

The participants complete a consent form that thoroughly explains the right of each participant in that they have the right not to participate in the survey. However, should they submit the questionnaire, they cannot withdraw from the study. Each participant will sign a consent form to indicate understanding and acceptance of the process.

It was explained that they were free not to participate. They are free to withdraw without giving a reason before completing the questionnaire. The consent form explained the latter and would not influence their service conditions. However, they were informed that they could not withdraw once they submitted the questionnaire.

The same will apply to the participants of the focus group discussions. However, once they started participating in the focus group discussion, they could not ask to withdraw once the information was submitted.

3.5.4. Confidentiality/Anonymity

The participants were informed that their rights are protected by keeping their names and positions anonymous, except if they give written consent to the author to publish their names. The researcher promised to abide by the ethical practice of the university not to divulge the name or qualifications of the participants; hence, numbers were allocated to the participants; their names were not used.

The data were kept on the researcher's personal computer, and the latter has fingerprint access and password protection. The researcher assured confidentiality and requested her clients to keep the discussions confidential.

3.5.5. Neutrality / Objectivity

The researcher always avoided bias in every aspect of the study. The avoidance of bias included the sampling, capturing, analysis, and reproduction of the data. The researcher used the managers' and farmers' views to eliminate any bias.

3.5.6. Respect

The views of the participants were respected at all times. They will be allowed to "speak their minds" to obtain honest answers.

CHAPTER 4: FINDINGS AND DISCUSSION

4.1. INTRODUCTION

Agricultural extension is pivotal to the transformation of the agricultural sector, as outlined in the many strategic and policy frameworks for South Africa. The National Development Plan Vision 2030 (2011, p. 218), states the role of the extension practitioner is to improve market access of the smallholder and facilitate farmer-to-farmer skills transfer to improve the rural economy. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers. The National Framework for Extension as a Field of Practice (2014, pp. 3-4) states that “extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake”. In the National Policy on Extension and Advisory Services (2016, p. viii), the Deputy Minister of Agriculture, Forestry and Fisheries states in the foreword that the provision of extension and advisory services is “undoubtedly sacrosanct in the advancement of agrarian reform”. The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a key driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access. The latter is pivotal to improving the rural economy, and they are identified as the roles and responsibilities of an extension practitioner and an extension and advisory service.

The importance of extension has been stated in many policy documents. The writer felt that it was necessary to determine what sets apart an agricultural extension official who has a positive effect on a farmer from one under the same conditions who does not have a positive effect on the farmers livelihood to aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural Extension Science creates such a difference. This study aims to determine if an agricultural advisor with a foundation in Extension Science improves a farmer's livelihood with an extension and advisory service. There is little or no empirical evidence that having a foundation in Extension Science results in the agricultural advisor providing a better extension and advisory service to improve the farmer's livelihood.

The writer wants to determine the success profile of the agricultural advisors to compare the profiles of agricultural advisors with a foundation in Extension Science to those with no

foundation in Extension Science. Therefore, it was necessary to determine the demographics of the target population, the agricultural advisors in the Western Cape Department of Agriculture. It should be noted that the Western Cape Government (WCG) consists of 13 departments, of which the Department of Agriculture (where the study was conducted) provides agricultural services only (Provincial Government of South Africa, 2022, p. 111)

In the Western Cape Department of Agriculture, the agricultural advisors are appointed to Program 3, which provides extension and advisory services. There are eight programs in this department; however, Program 3 houses the agricultural advisors.

The demographics of the Western Cape Department of Agriculture participants give insight into the agricultural advisors appointed to the various government agricultural departments in the nine provinces of the Republic of South Africa. In the other eight (8) provinces, the agricultural department may include land reform, rural development, or environmental affairs.

In the Eastern Cape, extension and advisory services are provided by the Department of Land and Agrarian Reform (Provincial Government of South Africa, 2022, p. 10). In Mpumalanga and the Northern Cape, the extension and advisory service is provided by the Department of Agriculture, Rural Development, Land Reform and Environmental Affairs (Provincial Government of South Africa, 2022, pp. 72, 85). In all the other provinces, it is the Department of Agriculture and Rural Development. These Provinces are Gauteng, Free State, KwaZulu Natal, North West and Limpopo (Provincial Government of South Africa, 2022, pp. 28, 15, 43, 98, 59).

This study shows the attributes of the agricultural advisors appointed to this program and these attributes can be transferred to the agricultural advisors in the above departments in the other eight (8) provinces.

This was done by administering a questionnaire and a thorough analysis of the demographics of the agricultural advisors in the Western Cape Department of Agriculture (WCDoA).

The researcher sets out to discuss the findings of the demographics of the agricultural advisors who participated in this study. In discussing the demographics, the researcher analysed the gender, age distribution, and employment history of the agricultural advisors in the Department of Agriculture Western Cape. This information is required when

comparisons are made later for the success profiles. It is necessary to ensure that there are no variables such as years of experience and previous extension experience that might influence the success profiles of the agricultural advisors. Hence, it is necessary to have a complete picture of the demographics of the agricultural advisors.

The researcher examined all the educational qualifications and whether the agricultural advisor qualified in Extension Science, which is key to the study.

4.2. FINDINGS OF THE DEMOGRAPHICS

The researcher used a questionnaire that the participants completed. The questionnaire had four sections (see attached Annexure 1) to address the following: The demographics, which included age and gender, had tick boxes that needed to be completed. Employment information, including their current career path and previous and current positions. The educational qualifications that included the extension qualifications. Section D is a Likert scale that requested the views of the agricultural advisor on the roles and responsibilities of the agricultural advisor. The findings of this section will be discussed in detail in Chapter 5.

4.2.1. Participation Rate

It is necessary to discuss the participation rate as this indicates the number of respondents and the sample size. The number of agricultural advisors participating in the study was 49. The number of agricultural advisors that participated was 80%, and the number of agricultural advisors that did not participate was (12) 20%, giving a participation rate of 80%

The researcher distributed the questionnaire at a planning session held for all the staff from Program 3 in the Western Cape Department of Agriculture. The questionnaire was administered at the end of the day. The expected number of agricultural advisors that had to attend was 61; however, due to various circumstances, only some could attend. Since participation in the study was voluntary, only 49 agricultural advisors participated.

Figure 4.1 displays the size of the participants based on the target population.

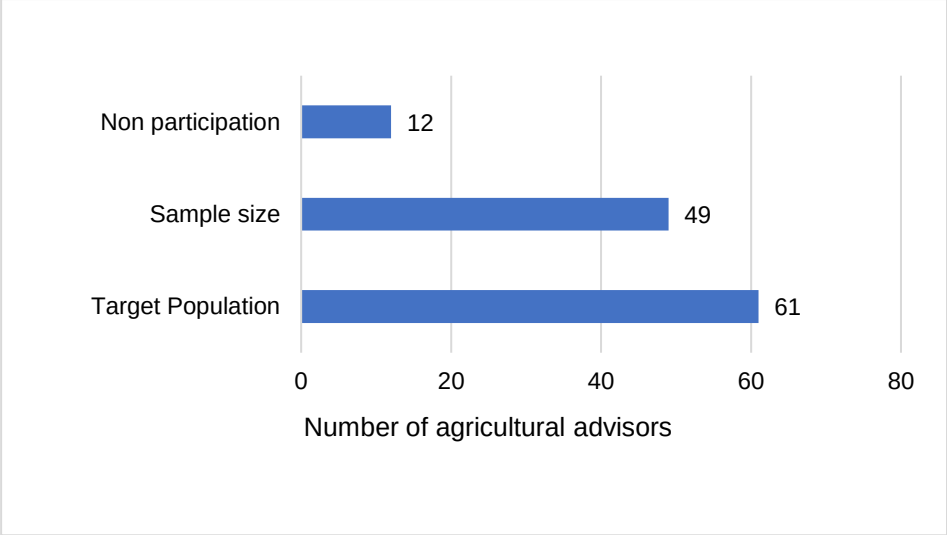

Figure 4.1: Size of the Participants Based on the Target Population

It should be noted that despite the target population being sixty-one (61), only some agricultural advisors were available on this day, and some chose not to participate as it was voluntary.

4.3. DEMOGRAPHICS OF THE AGRICULTURAL ADVISOR

The demographics analysed by the researcher included the gender, age, and employment history of the participants. The employment history includes the career path that analyses the agricultural-related experience and years of experience as an agricultural advisor.

4.3.1. Gender Distribution

The gender equality policies in the Republic of South Africa require an equal distribution of males and females in the workplace. One of the **purposes of the Employment Equity** Act 55 of 1998 is to remove discrimination and to promote equity for all employees in the workplace. In this province, the number of participants was 49, of which the number of female participants was 21. The latter constitutes 43% of the participants. The number of male participants was 28, forming 57% of the participants. The male participants constituted most of the participants.

Figure 4.2 illustrates the gender distribution of the participants.

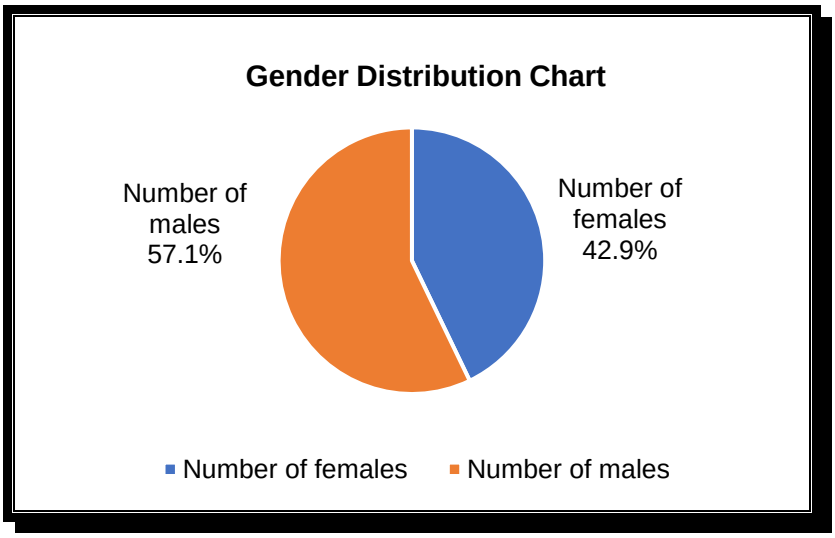

Figure 4.2: Gender Distribution

The number of female participants closely represents the expected 50% norm (RSA) of employment equity in the Western Cape Department of Agriculture. However, it is necessary to identify a difference of nearly 5%.

4.3.2. Age Distribution

The researcher used a tick box in the questionnaire (see Section A) that required the participant to indicate, using a tick, the age group that they were part of at the time of the study. The reason why it starts at 20 and ends at 65 years will be explained below.

The Public Service Act 1994 provides information about the organisation and administration of the government service in the Republic of South Africa. Chapter 4 of this Act contains regulations relating to the age of retirement. In Memorandum 05 of 2021, the Gauteng Department of Education stated that the compulsory retirement age from work is 65 years; hence, the table for the age group is 65 years. In the Basic Conditions of Employment Act 75 of 1997, as amended in 2020, a child is prohibited from working under 15 (Chapter 6.1). The latter needs to be read in conjunction with the Norms and Standards for Agricultural Extension and Advisory Services (2005, p. 8). The minimum educational requirement is a B. Tech, a bachelor's, or an honours degree. It requires 12 years of school plus a 4-year qualification. The age that learners leave school is from 17 years upwards. It is, therefore, unlikely that an agricultural advisor will be younger than 20 and older than 65 years. Hence, the tick box for the age commences at 20 and ends at 65 years.

The completed questionnaires for the age distribution show (36) 60% of the participants are under 40 years. Therefore, they have more than 20 years of work available to them in terms of the Public Service Amended Act in chapter 5.

Table 4.1 illustrates the age distribution of the agricultural advisors that participated in the study.

Table 4.1: Age Distribution

Age group (years)	Number of participants	Percentage of Total Participants	Male Participants	Female Participants
20 -30	8	16,3	5	3
31-40	16	32,7	9	7
41-50	20	40,7	12	8
51-60	5	10,3%	2	3
Total	49	100	28	21

The number of participants who fall into the youngest age category, 20 to 30 years is eight and they form the second smallest category which is 16%. The number of males in this group is five and females constitute three. The largest age category group is 31 to 40 years. This age category has 20 participants, and they form 41% of the participants of this study. The number of males in this group is 12, and females constitute eight. The second largest age category group is 41 to 50 years. This age category consists of 16 participants, and they form 33% of this study. The number of males in this group is nine, and females constitute seven.

A total of five participants are 51-60 years of age (10%) and they were the smallest group of this study. The number of males in this group is two and females constitute three. This is the only age category group with more females than males. Age is of importance as its necessary to know how long a person can provide a service in terms of age. This is a relatively small group; therefore, there is no need to be concerned about succession planning and the loss of skills from the agricultural advisors. It is possible that they may transfer their knowledge and skills to other agricultural advisors in this province. The management in the province should be aware of this.

None of the participants at the time of the study were 61-65 years of age.

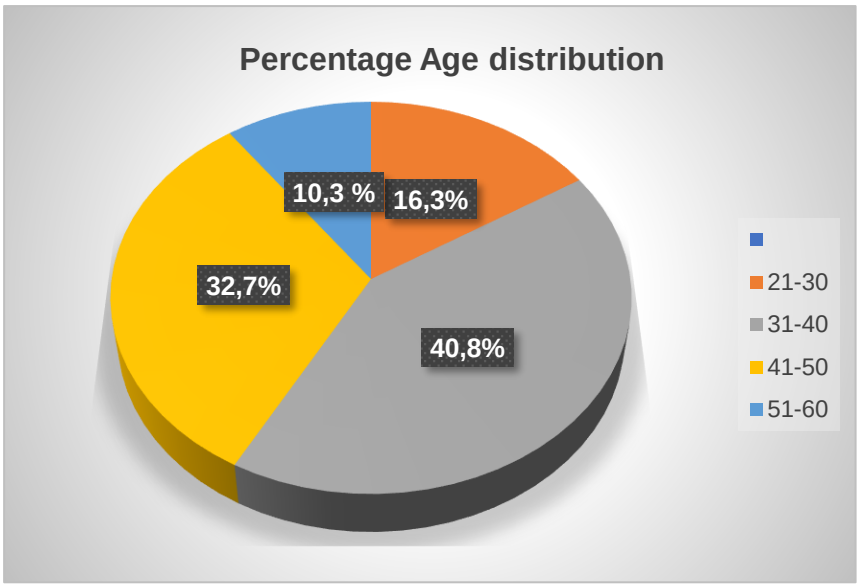

Figure 4.3: Age Distribution

The most significant number of agricultural advisors is older than 30. However, those not yet 40 years constitute 41% of the total number of participants, followed by those older than 30 but younger than 50 years old, that constitute 33% of the participants. The latter bodes well for Program 3 as the agricultural advisors can be in service for at least 20 to 25 years before they reach retirement age. The agricultural advisors can acquire considerable skills in this period to improve the extension and advisory services they can offer. This allows the program to offer extensive in-service training and other skills development strategies to retain their staff. One drawback for the WCDoA is that it has been said on many platforms that the younger staff are more likely to change their jobs, and this program's management should be conscious of this.

4.3.3. Years of Experience

The agricultural advisors were requested to indicate on the questionnaire (see Annexure 1 attached) the years of experience they have as agricultural advisors. The questionnaire had tick boxes from 0 to 5 with 5-year increments until 45 years. The years of experience aligned with the Public Service Regulations and the Norms and Standards for Extension. The latter requires an entry-level matric plus a further three-year post-matric qualification for an agricultural advisor. The retirement age in public service is a maximum of 65 years of age. Hence, an agricultural advisor can only be appointed at the age of 20 years and retire no later than 65 years. Figure 4.4 is an illustration of years of experience as an agricultural advisor.

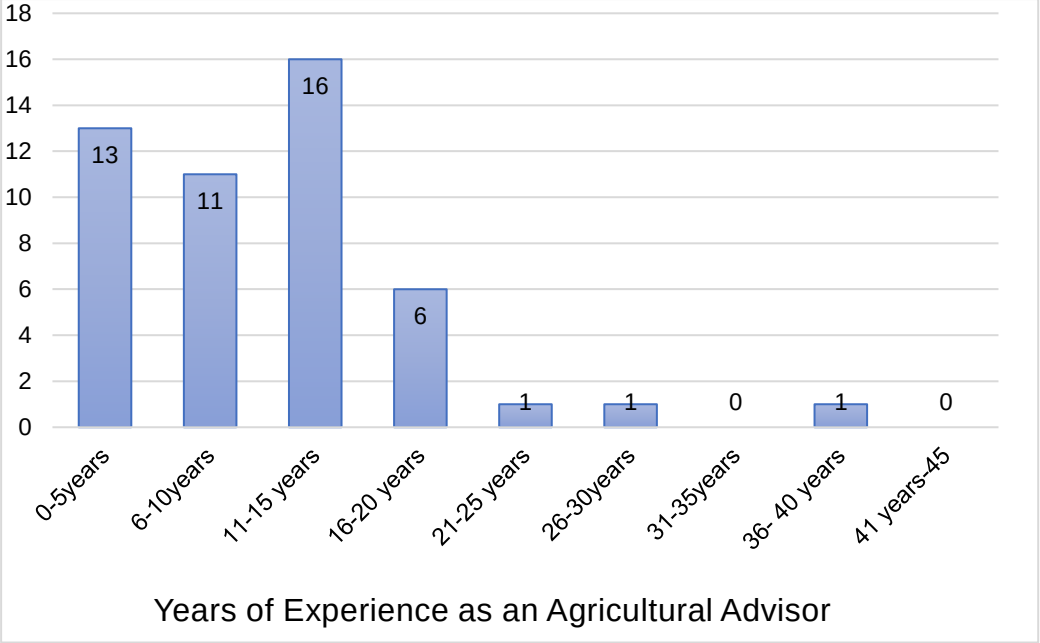

Figure 4.4: Years of Experience

Most agricultural advisors have more than 10 years of experience as agricultural advisors, 25 (51%) of the respondents. The largest number of these respondents have 11 to 15 years of experience. They are 16 of the respondents, and form 33% of the total respondents. This group is very close to a third of the respondents. The second largest group has 0 to 5 years of agricultural advisor experience, 27%. This group is followed by 11 (22%) agricultural advisors with more than five years of experience but less than 10 years of experience. The researcher believes that several skills in extension can be developed over five years. Thus, the researcher believes they can be viewed as an experienced group of agricultural advisors.

4.3.4. Employment History

4.3.4.1. Career Path

The researcher asked if the participants had pursued any career other than an agricultural advisor. The participants had to tick a box indicating yes or no. The researcher used one if the respondent answered yes and two if the respondent answered no. The number of participants who pursued a career other than an agricultural advisor was 33 (63%). The number that worked as agricultural advisors was 16 (37%). Some distinguished between the career path as a senior and an agricultural advisor, but the researcher counted it as the same position and added the years of experience. The purpose of the study is to determine if they previously held a position as an agricultural advisor.

The number of respondents who indicated that they had no previous career was six , which amounted to 12%. The 33 agricultural advisors who pursued other career types ranged from various agricultural-related careers as stated below: Three of the respondents indicated that they were farmers. Seven of the respondents indicated that they had a career as a farm manager. Five respondents indicated they were rural development officers and agricultural community workers. These workers have similar roles to agricultural advisors; however, their advice is about community food security. Three of the respondents were farm workers before, and three were technicians and technologists in plant and animal science. Six of the respondents were project coordinators that provided agricultural-related support to communities.

27 of the respondents indicated that they pursued another career and had experience in agriculture before appointment, which amounts to 80% of the participants.

Thus 21 did not have any experience as an agricultural advisor. Six of the 21 had no previous experience. They formed 29% of this group and 12% of all the participants. Thus 12% started as agricultural advisors with no work experience. Their work experience included a mechanical engineer, administrator, account position, boilermaker, intern, and enumerator. Two indicated that they were lecturers.

4.3.4.2. Years of Experience as an Agricultural Advisor

The researcher analysed the employment information of the agricultural advisors. The questionnaire requests information about the years of experience as an agricultural advisor concerning agricultural advisory services to compare the success of their projects. In this manner, the success or non-success of the project can be linked and a person with like experiences in extension and the same years of experience to ensure that other variables do not influence the results.

The participants were requested to indicate their years of experience as agricultural advisors, and the largest group of participants (16) had 11 to 15 years of experience. The second largest group (13) has 0 to 5 years of experience, the participants with 6 to 10 years of experience as an agricultural advisor was 11. Six agricultural advisors have 16 to 20 years of experience. One has 21 to 25 years of experience as an agricultural advisor, another has 26 to 30 years of experience, and one has 36 to 40 years of experience as an agricultural advisor. Table 4.2 illustrates the distribution according to years of experience as an agricultural advisor.

Table 4.2: Years of Experience as an Agricultural Advisor

YEARS OF EXPERIENCE AS AN AGRICULTURAL ADVISOR		
Years	**Number of Agricultural Advisors**	**Percentage of Total**
0-5	13	27%
6-10	11	22%
11-15	16	33%
16-20	6	1%
21-25	1	2%
26-30	1	2%
31-35	0	-
36-40	1	2%
41 -45	0	-
Total	49	100%

4.3.5. Levels of Education

4.3.5.1. Qualifications

The levels of education were obtained through the administration of the questionnaire developed (see section C of the questionnaire attached in Annexure 1), enquiring about this information. The questionnaire requested that the participants complete all the qualifications the participant have, including any qualification or coursework in Extension Science.

The researcher entered the information in an excel spreadsheet. The spreadsheet contained the number of respondents, the gender, and the qualifications the respondents indicated. A simple count was done to determine the numbers.

The participants with a PhD as the highest qualification is two (4%). One, at the time of the study, has a foundation in Extension Science at the PhD level, and the other at the master's level. The highest qualification level is at the National Qualification Framework (NQF), level 10. It is interesting to note that the two are both females.

The number of participants who have a master degree qualification, is 15 (31%). This qualification is at NQF 9 level. The number of participants with a master's degree at an MSc level in agriculture is 10 (67%) of the total master's degree qualification. Three (18%) of the master's degree group participants have a master's degree in sustainable agriculture (20%). The other has a master's degree in agriculture, and the other has an MPhil and MBA. The number of participants with a master's degree and a foundation in Extension Science is 10 (59%).

Only two participants (4%) in the survey have a BSc Honors degree as the highest qualification. This degree is at an NQF level 8. One of the BSc Honors degree participants has a foundation in Extension Science. The number of participants that are female with a master's degree is five (20%)

Two participants (4%) in the study have a Postgraduate Diploma at NQF level 8, and both have a foundation in Extension Science. They are both males.

The agricultural advisors meet the qualifications of the Norms and Standards for Agricultural Extension Services (2005, p. 8) in that their qualifications are in line with what is prescribed.

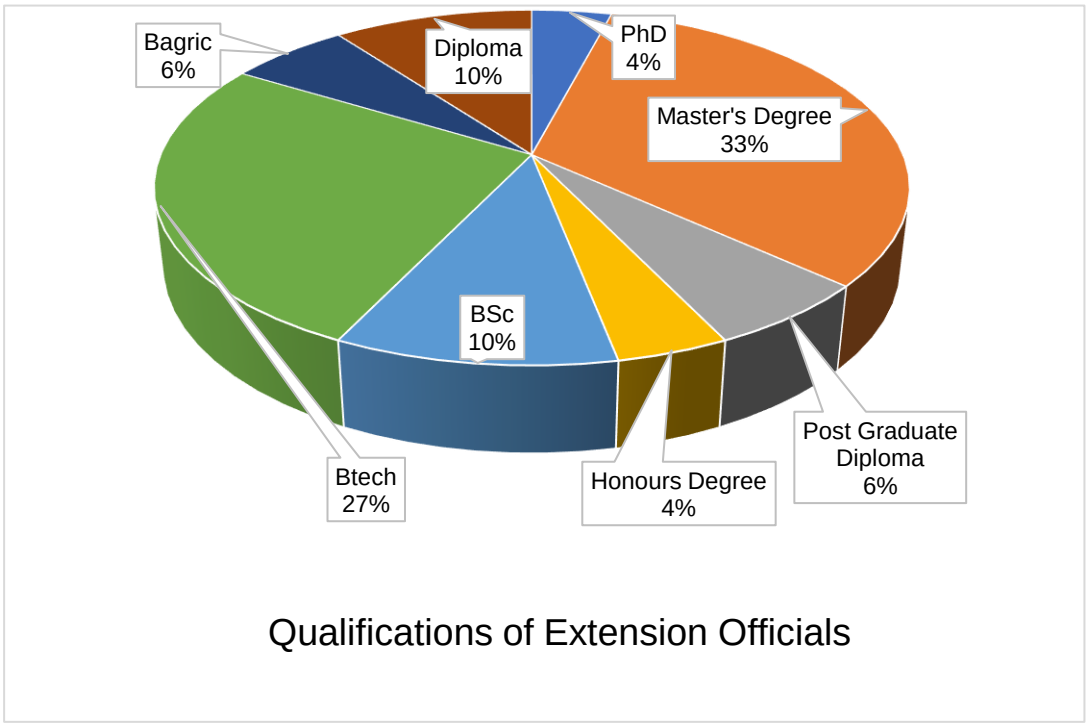

Figure 4.5: Qualifications

The number of participants with a B. Tech degree is fourteen (27%). It is the second largest group in terms of qualifications and is a NQF level 7 qualification.

It should be noted that the Norms and Standards for Agricultural Extension and Advisory Services (2005, p. 8), as stated above, requires an agricultural advisor with a minimum qualification at NQF level 7

4.3.5.2. Foundation in Extension Science

The questionnaire determined if the participant has a foundation in Extension Science. This information is imperative when comparing the success profiles, as it will answer the question if an agricultural advisor with a foundation in extension science is more likely to improve the livelihood of the farmers they provide with extension and advisory support.

The researcher put this on a spreadsheet and counted the number of persons with a foundation in Extension Science. The foundation was further analysed to determine the nature of the foundation in Extension Science. It can determine if the nature of the Extension Science in any way affects the livelihood of the farmer. The respondents had to tick the box on the questionnaire indicating whether they had a foundation in Extension Science. The total number of respondents was 49 agricultural advisors. The number of agricultural advisors who indicated that they had no Extension Science experience was 23, 47% of the respondents. The number of agricultural advisors who indicated that they have a foundation in extension science was 26, which is 53%. Figure 4.6 illustrates the percentage of agricultural advisors in this study who have a foundation in Extension Science.

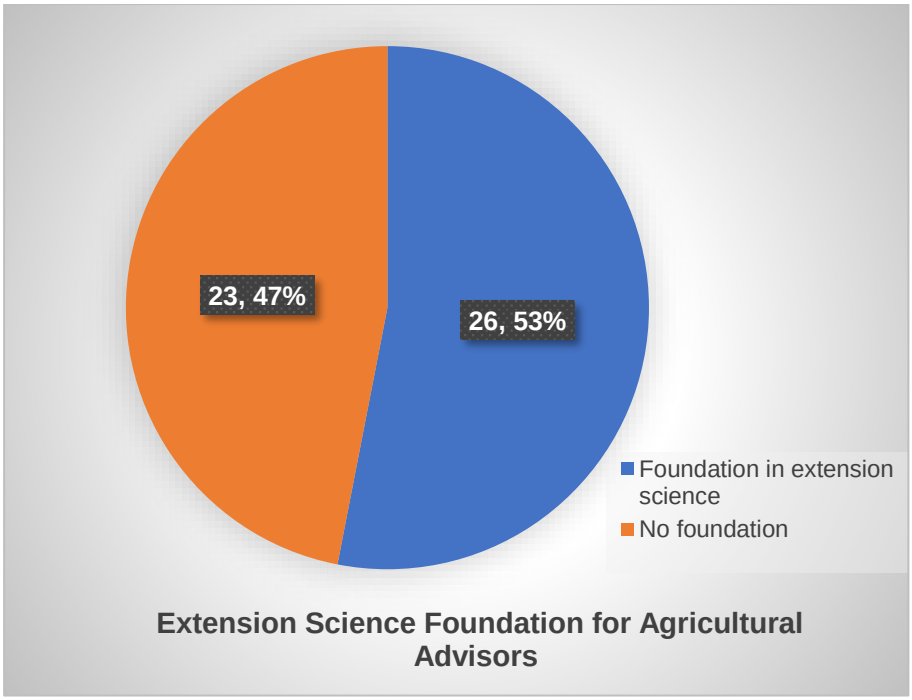

Figure 4.6: Foundation in Extension Science

The agricultural advisors have varying levels of education in extension science. The extension science foundation varies from coursework within study fields, modules, and majors in the field of study and the Big 5 Program. The latter was a course offered in the three Cape provinces developed by NUFFIC, a program within the Wagenen University of the Netherlands. The name Big 5 was given to the five modules named after the Big 5 game in South Africa. This program consisted of five weeklong modules the agricultural advisors had to attend over a few months.

In the PhD category, one respondent had a foundation in Extension Science at the PhD level. The other respondent had a foundation in Extension Science at master's level.

Of the respondents with a foundation in Extension Science, three were within a master's degree, two with an honors degree, one with a BAgric degree, and seven were within the diploma level. 10 respondents had a foundation in Extension Science at course work level and lastly, Three respondents have an extension foundation as part of the Big 5 Program. Table 4.3 depicts the levels of extension foundation.

Table 4.3: Levels of Extension Science Foundation

Level of Extension	Number of advisors	Course work	Major
PhD	1	-	1
Master's	3	-	3
Honors	2	-	2
BAgric	1	-	1
Diploma	7	-	7
Big 5	3	-	3
Course work	10	10	-
Total	**27**	**10**	**17**

4.3.6. Current Position

The positions that agricultural advisors can hold in the Western Cape Department of Agriculture start with an entry-level position of an agricultural advisor. The next level is a senior agricultural advisor. The highest post level for an agricultural advisor is that of specialist agricultural advisor.

The participants were asked to indicate their current position in Program 3 in the Western Cape Department of Agriculture. They had to tick a box to indicate if they were in the position of an agricultural advisor, senior agricultural advisor, or specialist agricultural advisor. These are the three categories of agricultural advisors that they can be appointed to. The reason to indicate this is that the years of experience for each level differ. In the case of an agricultural advisor, an NQF level 7 qualification is required as per the Norms and Standards for Agricultural Extension and Advisory Services (2005, p. 8).

The number of participants that hold the post as an agricultural advisor is 19 (39%). The number of participants holding the senior agricultural advisor position is 22 (45%). The specialist advisors are eight (16%). It is interesting to note that the senior agricultural advisors are more than agricultural advisors. This may be because the senior agricultural advisors (economics) do not start at an entry-level. This is a post peculiar to the Western Cape Department of Agriculture, and the entry-level is post level 9, which is a senior agricultural advisor.

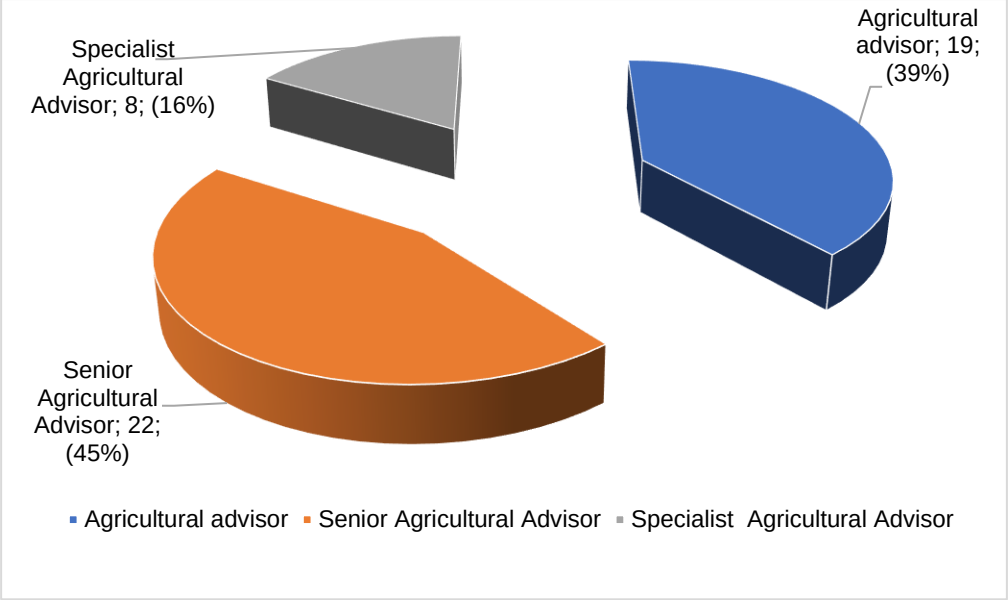

Figure 4.7: Current Position of Agricultural Advisors

4.4. CONCLUSIONS

The agricultural advisors' demographics show that the gender distribution is short by approximately five (5%) to that of what is aspired by the Employment Equity Act, as stated above. The writer believes that they are working on creating this equity in terms of gender. The age distribution shows that nearly 50% are under 40. Therefore, the agricultural advisors can be deemed a young group since they can work to 65 years of age. The biggest group of this study falls within the age category 41 to 50. They, too, have a minimum of 15 years to work before compulsory retirement. Only two fall within the age category 51 to 60, and no one was found older than 60.

Most (73%) of the agricultural advisors have more than five years of experience, and the most prominent group category has 11 to 15 years of experience as an agricultural advisor. It can therefore be said that the agricultural advisors have good experience in this department.

It should be noted that more than half of the agricultural advisors had agricultural-related experience before they were appointed agricultural advisors. However, six had no previous experience.

More than half of the agricultural advisors have one or the other form of foundation in agricultural extension, ranging from course work, modules, Big 5 Program, diplomas, and degrees in extension. The highest level of education in extension is a PhD qualification.

4.5. RECOMMENDATIONS

The writer can make recommendations in line with the gender of the agricultural advisors; however, it is too early to make complete recommendations as the success profiles of the agricultural advisors need to be done to comment on this accurately. The WCDoA should aspire to achieve equity in terms of gender and positively discriminate when appointing female agricultural advisors.

In terms of the appointment of agricultural advisors with no experience, the need for an in-service training program should be investigated to ensure that the capacities of the agricultural advisors are enhanced to ensure that the farmer gets the best service.

CHAPTER 5: NON–NEGOTIABLE ROLES AND FUNCTIONS OF AGRICULTURAL ADVISORS

5.1. INTRODUCTION

This chapter provides the importance of the role of agricultural extension and the effect of transformation in the agricultural sector as outlined in the strategic and policy frameworks for South Africa. The importance of this role requires one to determine, in the first place, what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one who, under the same conditions, does not have a positive effect on the farmer. The writer believes that a foundation in agricultural Extension Science creates such a difference. It is, therefore, necessary to determine if an agricultural advisor with a foundation in Extension Science improves the livelihood of the beneficiaries of their extension and advisory services. There is little or no empirical evidence that having a foundation in extension as a science result in the agricultural advisor providing a better extension and advisory service.

The researcher believes a yardstick is necessary to measure the performance of the agricultural advisors against the expected roles and responsibilities of the agricultural extension and advisory service. An assessment tool is required to compare the performance of agricultural advisors, with or without an extension foundation. The latter was used as one of the tools to compare the agricultural advisor's performance to determine if the agricultural advisor with a foundation in Extension Science can perform better than an agricultural advisor with no Extension Science foundation.

The researcher stated in Chapter 3 that data would be triangulated to make this comparison. One of the data sources is the performance assessment of the agricultural advisors by their supervisors using this tool. The current performance rating tool used in the Western Cape Department of Agriculture does not measure the roles and responsibilities of the agricultural advisor. The assessment measures the agricultural advisor's contribution to the extension and advisory service. The number of site visits, demonstrations, and farm assessments completed are measured through this assessment. However, all the roles and responsibilities of an agricultural advisor are not evaluated. Therefore, the researcher needed to determine the roles and functions that an agricultural advisor must perform to improve the farmer's livelihood to whom they provide an extension and advisory service.

The researcher used various definitions of extension and advisory services, authors' views regarding what roles and functions are required to improve the livelihood of the farmers, and various policy documents on extension and advisory services. The extension officials in Program 3 were the target population. There are eight Programs in the earlier mentioned institution; however, Program 3 is the only one that provides extension and advisory services for which agricultural advisors are appointed.

Reviewing the definitions, roles, and responsibilities, the researcher arrived at what is believed to be the non-negotiable roles and responsibilities. The definitions were used because they contain critical views on an extension and advisory service. The definition encompasses the role that an agricultural advisor has to play. Using the various definitions allowed more roles to be explored to assess how the livelihood of farmers could be improved, in line with multiple policy documents on extension and advisory services.

5.2. REVIEW OF THE DEFINITIONS, ROLES, AND RESPONSIBILITIES OF EXTENSION

The researcher used various definitions and roles required to improve the livelihood of the farmers. The Norms and Standards for Extension and Advisory Services in Agriculture were developed in 2005. This policy document was developed by the national department of agriculture to build extension and advisory service in the public service of South Africa. This document provides guidelines to all government departments offering an agricultural extension and advisory service.

The writer will begin with the perspectives developed in the Norms and Standards for Extension and Advisory Services in Agriculture (2005) by the then Department of Agriculture, Forestry and Fisheries as this is the arena where the study will take place in and sets the scene for the study.

These Norms and Standards for Extension and Advisory Services in Agriculture (2005, p.1) provide two essential perspectives for extension, namely that extension is "considered as a form of education being proactive in nature and focusing on future problems that farmers might encounter." The second perspective (2005, p. 1) states that extension is considered "merely as the provision of advice in response to farmers' problems". The definition states that extension is merely assisting farmers with problems that might occur and assisting them with advice on how to deal with such problems. In this role, the agricultural advisor must identify challenges the farmer might experience and advise the

farmer on dealing with such problems. This definition concludes that the agricultural advisor's role is more than providing advice (sic advisory service).

This policy document further states that extension is a knowledge and information support function for people engaged in agriculture and has a broader role than just providing advice (advisory service). The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 2) refer to the "systematic process of working with farmers or with communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability". It is seen as a continuum ranging from narrow technology transfer.

This technology transfer involves changes in farming practices without considering the overall societal perspectives. Initially, this continuum mentions technology transfer that only involves changes in farming practices. This is now expanded to include advisory, education, and human development aspects. It takes on critical public priority issues, such as food security, poverty alleviation, environmental degradation, and social equity. The writer expands this definition to include all other roles mentioned previously.

The National Policy on Extension and Advisory Services (2016, p. xi) defines advisory services interchangeably with extension as "services provided by subject matter specialists, private organisations or firms to support producers."

The Report on the Implementation Evaluation of the Extension Recovery Plan commissioned by the Presidency of South Africa and DAFF (May 2017, p. 17) defined extension as a systematic process of working with farmers or communities to help them to acquire relevant and useful agricultural knowledge and skills to increase productivity and profitability. The same that the extension service contains four main elements. These elements refer to the training aspect of providing knowledge and skills.

Another element is offering technical advice and information, assisting farmers in organising themselves, and encouraging farmer motivation and self-support. Sulaiman and Davis (2012, p. 5) added other dimensions to the agricultural innovation system, such as community mobilisation, so that the farmers can have better bargaining power by organising them into farmer groups. They indicated several competencies required to broker deals, such as input, credit, and information to new and relevant technologies that the farmers need.

Sulaiman and Blum (2016, p. 9) consider rural advisory services as a variety of activities provided by many actors up and down the value chain of agriculture, such as the provision of information, technical knowledge, management and organisational skills, and practices that will render an improvement in the lives of the farmers. They further state that family farming benefits from using information services, improving productivity, acquiring farm management skills, and adopting sustainable farming practices.

As stated by Sulaiman and Blum (2016, p. 9), the roles and responsibilities required to ensure that family farming practices can be successful are outlined below as synthesized from an e-conference on Tailoring rural advisory services to family farms (FAO, 2014d):

i. They stated that the extension practitioner must provide farm management and business development support as required by the farm's scale, capacity, and resources. This has been said by Christoplos (2010, p. 30) as well.
ii. The extension practitioner must assist farmers in understanding markets in terms of prices, seasonality, and value-add, amongst others. This is supported in the National Policy on Extension and Advisory Services (2016, p. 9), where it is stated that the role is to assist producers to "overcome market challenges through the exchange of information."
iii. According to the SHEP Handbook (2018, p.42), this will enable farmers to understand markets better in terms of what the formal or informal markets want regarding the quality and quantity of crops. They will be able to understand the seasonality of crops and price fluctuation. This can be achieved by encouraging the farmer to do market surveys to compare opportunities.
iv. The extension practitioner must assist the farmer by creating platforms to facilitate and share information and ideas with other stakeholders and producer organisations to support family farmers. The latter is again supported in the National Policy on Extension and Advisory Services (2016, p.10), where it is stated that another role is facilitating farmers to form commodity groups where they can work as a collective to demand the services they require. This platform will enable farmers to share knowledge and ideas and learn from each other or create enabling platforms to meet the relevant stakeholders from whom they can learn. This role includes assisting farmers in sharing knowledge so that the individual farmers can become more self-reliant.

The extension practitioner must exploit information communication technologies (ICT) to provide the farmer with a range of information about weather, commodity prices, and farming practices.

Chapota (2020, p. 1) indicates that smallholder producers provide 70% of the world's food. However, the same smallholder producers are the most vulnerable. These smallholder producers live from one harvest to the next, which makes them particularly vulnerable to climate and economic shocks. Chapota (2020, p. 1) further quotes Feris et al. (2014) that 1.5 billion people worldwide are in rural areas and are therefore dependent on being smallholder producers. Due to the vulnerability of so many smallholder producers, the role of the extension practitioner is to reduce or remove the vulnerability. Chapota (2020, p. 6) believes that a difference in the life (improve the livelihood) of a farmer (smallholder producer), is necessary to support them to manage the farm as a business enterprise.

Blum (2013) presented at the South African Society for Agricultural Extension (SASAE) Conference in Bloemfontein the role that extension must play in ensuring food security. She identified the following areas critical to achieving relevance, efficiency, and impact in extension, the writer believes the extension officer should be geared for such a role. The presenter mentions that a pluralistic extension service is vital in having various services that align with the diversity of rural life and challenges and services that extend beyond agricultural production, including processing, market resilience, and environmental issues. She stated further that demand-led extension services provided by agricultural advisors are essential, and this can be done through the involvement of farmer organisations in setting priority issues to be addressed. This can also be achieved through learning from farmer to farmer.

Market-oriented extension along the value chain, especially building trust along these lines, is essential (Blum, 2013). Agricultural advisors must facilitate access to markets and credit. Blum (2013) cites the critical function of an agricultural advisor as knowledge management, emphasizing coordination and facilitation, and linking farmers to where they can find solutions. In terms of the profile of the agricultural advisors, she indicates that over and above the topics on production practices, they should be capacitated on the latest trends such as climate change, environmental issues, marketing, and economies of scale. Finally, she indicated that innovative financial mechanisms are crucial as extension services.

According to Anyasi et al. (2012, p. 12) in the 24 ARD Report Series, it is stated that the UNDP (2000) defines extension as a complex process that involves changes in human behaviours through communication and enhancing the capacity of farmers to be able to deal with their problems and meet new opportunities. However, the enormous extension task is to transfer information from researchers to farmers to improve agriculture.

Anaeto et al. (2015, p.11) state that the role of the agricultural advisor is to improve the farmer's living standard by teaching the farmer to increase their production practices by teaching them to identify their problems and find solutions. It is also stated that the agricultural advisor's roles are varied and include the role of a technician, middleman, mentor, and advisor.

Zwane (2017, p. 20) stated that the extension fraternity believes implicitly that an agricultural advisor is conversant with the subject of climate change; however, contrary to this belief, there is evidence that this is not the case. It is expected that the agricultural advisor should have such knowledge to provide the correct advice around climate issues; however, they must be capacitated to address climate change.

5.3. REVIEW OF THE POLICY DOCUMENTS

The definitions of extension are contained in the Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 2). This policy document elaborates on how it sets out to meet the mission of the Department through:

i. "Improved agriculture support services (information, finance, inputs, technical expertise, markets) that will lead to an enabling environment for improved productivity". The role required of the agricultural advisor is to link the farmers with the services above.
ii. "Transferring to farmers skills and knowledge for ensuring sustainable resource management". The role required by the agricultural advisor would be training and development and transferring knowledge in the sustainable use of resources.
iii. "Facilitation of access to new technologies and awareness thereof." This is another role for the agricultural advisor. The role here is to facilitate access to other stakeholders in the value chain that can make farmers aware of new technologies if the agricultural advisor cannot do so.

The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p.3) list several functions required to obtain this policy's objectives. They are:

i. Facilitate access to agricultural information for improved planning and decision making". This describes the role of enabling the farmer to improve his planning and, consequently, the decision made so that the farmers can improve their livelihood because of increased production that will lead to sustainable income.
ii. "Provide or facilitate skills development in agriculture." This refers to the training and skills audit functions.

The Norms and Standards for Extension and Advisory Services in Agriculture (2005, p. 4) cite the FAO (2001), where the latter argues that "agricultural and rural extension is a unique service" and that it "provides non-formal agricultural related continuous adult education to assist in the development of rural areas."

The National Policy on Extension and Advisory Services (2016, pp. 9-10) describes three roles of the extension and advisory services that can be devolved to agricultural advisors at an individual level.

The first role is to "assist producers in identifying and overcoming production, enterprise, and marketing challenges, through exchanging information among producers, extension practitioners, input suppliers, creditors, and marketing agents." This statement encompasses several roles and responsibilities for the agricultural advisor. It addresses the challenge of access or market information the farmer needs for assistance. It alludes to creating access or a platform for sharing information.

The second role is to "empower or build the capacity of producers and commodity groups to ultimately become self-reliant." It also states that the agricultural advisor needs to facilitate the formation of commodity groups.

The third role is to "share knowledge and strengthen individual and collective capacities." The agricultural advisors can create platforms for the farmers to exchange ideas and learn from one another.

Extension and advisory services are considered a form of education, proactively focusing on future problems that farmers might experience, as stated before. Inherent in this statement is the training need identification and the training function an agricultural advisor must have. This requires the agricultural advisor to provide training to the farmer and will be provided in response to identifying the need for such training (after a skills audit is

conducted). This role requires the extension practitioner to identify, in the beginning, the farmer's potential problems or gaps that need to be addressed to farm successfully. The National Policy on Food and Nutrition Security in the Republic of South Africa (2013, p. 5) affirms this too. The Strategic Goal of the latter policy requires that the role of the agricultural advisor must be to facilitate efforts to increase food production, including increased access to production inputs for the emerging agricultural sector.

It is stated in the same policy (2013, p. 20) that in building the pillars for food safety and security, the role of the agricultural advisory service is to ensure "improved food production", to ensure adequate "food availability" and a "stability of food supply." This can be achieved through technology transfer and training and can be achieved through improved production practices that will result in increased production. The latter is also one of the core principles of the National Policy on Extension and Advisory Services (2016, p. 7), which "contribute to the efforts to eradicate poverty and ensure food and nutrition security."

The Food and Nutrition Security Strategy 2015 - 2025 (2014, p. 21) indicates that the role of the agricultural advisor is to improve market access for the farmers by facilitating market readiness and providing market information. It is further stated that there is a need for practical market information (2014, p. 39).

The National Policy on Comprehensive Producer Development Support (2018, p. 4) alludes to the need to support the producers to get them market ready. This report also refers to the lack of skills that requires strengthening capacities through needs-based training (2018, p. 26). It also recommends (2018, p. 27) providing record-keeping training and conducting a skills audit around this.

Since the study was done in the Western Cape Department of Agriculture, it was necessary to look at the imperatives for the agricultural advisors in that province. The MEC for Agriculture (appointed in 2019) identified five priorities for the Department of Agriculture for the next five years, that is, 2019 to 2024. They were stated on numerous platforms at the Strategic Planning session in Aniston on 19-20 November 2019. Below is the excerpt of these priorities:

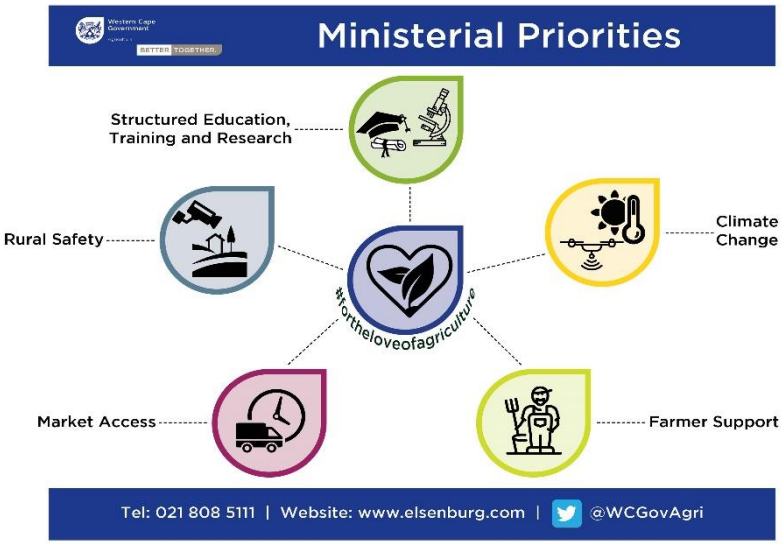

Figure 5.1: Ministerial Priorities of Western Cape Department of Agriculture

All except the last one form part of the roles and responsibilities of the agricultural advisors:

- Training and Research
- Farmer Support
- Market Access
- Climate Change
- Rural Safety

The top four priorities include the roles and functions of the agricultural advisor.

5.4. REVIEW OF THE FOOD AND AGRICULTURE ORGANISATION AND THE GLOBAL FORUM FOR RURAL ADVISORY SERVICES (GFRAS) POSITIONS

Spielman (2005) as cited by Davis and Sulaiman (2014, p. 7), how development in agriculture has taken place is no longer linear in perspective but lends to a systematic process". They cite Swanson and Rajalathi (2010), who mentioned that extension is more than technology transfer but includes facilitation. They further state that new roles and capacities are required, such as "acting as an intermediary, being a facilitator mediating between the farmer and the extension agent". According to Sulaiman and Davis (2014, p. 7), extension is defined as "all the different activities that provide the information needed by the farmer."

As stated previously Sulaiman and Davis (2013, p. 2) stated that GFRAS acknowledges the roles of varied actors, and the extension practitioner must link the farmer with the

demand for a particular expert. This relates to the role and function of the agricultural advisor to link the farmer or the community with other stakeholders involved in the provision of an extension and advisory service.

According to Leeuwis and Hall (2013, p. 3), extension is more than production improvement but has advanced to a more facilitation and development role of assisting farmers in accessing “inputs, credit facilities, markets, organising producer groups and linking farmers to researchers and policymakers. They emphasize extension practitioners' facilitation and negotiation roles when addressing climate change challenges. Leeuwis and Hall (2013, p. 9) in their paper state that the roles of “organising, interaction, and participation” are part of the new communication strategies in the same way as brokering and facilitation.

Sulaiman and Blum (2016, p. 9) cited the following roles that will result in successful family farming in developed and underdeveloped countries. Extension practitioners need these roles to ensure that smallholder producers become successful. To improve the livelihood of farmers (smallholder producers), support is necessary to develop the farm into a business (enterprise). Hence, the need to assess the extent to which the extension practitioner provides farm management and business development support appropriate to the farm's scale, resources, and capacity. For this reason, the researcher added the question of whether the extension practitioner provides farm management and business development support to the farmers. Chapota (2020, p.6) supported this view as well.

5.5. CONCEPTUALISED DEFINITION OF EXTENSION

The researcher used all the above and previous information to conceptualise an expanded definition of extension and advisory services. In this expanded definition, the writer believes that extension is a science and art that begins with an assessment of a farmer’s or a community’s physical, natural, financial, and human resources to identify the needs of the farmer or community. The agricultural advisor will coordinate and facilitate a negotiated variety of activities and actors to address such gaps identified to employ sustainable farming practices through improved production practice, market readiness, and enhanced access to markets so that farmers or communities may improve their livelihood and food security.

The writer unpacked the definition to indicate the roles she feels the extension officer should play in terms of this definition. She used the Farm Report developed by the WCDoA (2016) used by the agricultural advisors to provide the necessary support to the farmers.

The writer believes it is a science in that the advice and support given are based on empirical evidence, especially production practices. The production practices are based on crop science, animal science, and all other sciences researched over the years to improve production practices. Similarly, applying the latest research and technology to enhance these production practices is necessary.

The writer believes that it is also an art since it is based on a set of acquired competencies so that they can facilitate a negotiated settlement on how to address the shortfalls identified. This is referred to as a negotiated settlement as the agricultural advisors must bring together many actors with divergent views and sometimes from different cultures to find solutions to the satisfaction of the farmer or the community. The advisor must, in some instances, deal with, at times, large groups of owners on a single farm. These large groups are difficult to facilitate to reach a common agreement on how they will take the farm forward. The latter requires a set of acquired conflict management and other skills that will be honed over time to achieve this art.

The researcher believes that the agricultural advisor should begin with an assessment of the farm or the community. This is non-negotiable for the following reasons. It is essential to analyse the different resources in the community or on the farm so that the best possible plan is drawn up to identify the resources available or required to make the business sustainable, profitable, or improve the production as stated in the many definitions or views. The assessment is holistic, in that it looks at all the aspects referred to in the definition to make the farm or community successful. The agricultural advisor must assist the farmer in developing the farm as a business enterprise, as stated by Sulaiman and Blum (2016) and Chapota (2020).

No specific order is required when conducting the assessment of resources by the farmer and the agricultural advisor. The writer has used the Department of Agriculture, Western Cape's Farm Assessment Report (2016) as attached Annexure 5 to indicate what is expected from the agricultural advisor when visiting a farm to do the planning or to provide advisory support. She has used the writer's liberty to present it as she believes it should be given.

The physical assessment must identify the weakness or strengths of infrastructure, equipment, and implements. Determine all the types of infrastructure, equipment, and implements, regarding adequacy, efficiency, condition, and maintenance required or

possible replacement. They will negotiate what is required, if any, to have the infrastructure, equipment, and implements they can use to make the enterprise a success. They will determine the road condition and the distance from the markets in terms of transporting produce or for services required.

Based on the above, it was necessary to add more roles and functions

I. Assist with an agricultural assessment of a farmer's or a community's physical, natural, financial, and human resources to identify the needs of the farmer or community.
II. At the conclusion of the above assessment, the extension practitioner coordinates and facilitates a negotiated resource plan to address identified gaps.
III. In conclusion of the above assessment, the extension practitioner coordinates and facilitates a negotiated business plan to address identified gaps.
IV. Assist the farmer in employing sustainable farming practices, improved production, market readiness, and enhanced access to markets so that farmers or communities may improve their livelihood and food security.
V. Coordinate and facilitate linkages with various negotiated actors to ensure that the activities in the four above are achieved.

The advisor does not necessarily have all the skills to improve access to the markets of smallholder farmers. It is believed that agricultural extension and advisory services will address challenges such as food security and eradicating poverty and hunger. GFRAS (2012) indicates that the new extensionist requires certain core competencies, namely being able to relate and interact with the varied actors to improve the livelihood of farmers or communities. Therefore, the researcher refers to this as an art in the definition.

5.6. PROCESS TO DETERMINE THE ASSESSMENT TOOL CRITERIA

The researcher identified the non-negotiable roles required to assess the performance of the agricultural advisors in the Department of Agriculture Western Cape, from the definitions and policy papers around extension and advisory services in agriculture, position papers from GFRAS and the FAO, and the conceptualised definition of the writer. These roles and functions are needed to assess the agricultural advisor's performance to determine those advisors' success profiles. The study will compare those with a background in extension to those without a background in Extension Science.

The researcher used the roles and responsibilities identified that will be part of the performance assessment tool for the agricultural advisors. This performance assessment tool was tested with the agricultural advisors who participated in the study. This was done by administering a Likert scale questionnaire to the agricultural advisors to determine the extent to which they agreed with the roles and functions identified in this tool. The agreement on the Likert scale will give the researcher an indication of the extent to which the roles and functions can be used to assess the performance of the agricultural advisors. The researcher believes that they will likely not perform these functions in the field if they do not agree with these roles and responsibilities. Hence, the need to start with the views of the agricultural advisors. In the next chapter, the researcher will analyse the Likert scale results to show agricultural advisors' views on these roles and responsibilities.

On completion of the analyses of the Likert scale administered to the agricultural advisors, the researcher did a log frame analysis to determine views held by the district and sub-program managers from the Department of Agriculture Western Cape and some specialist agricultural advisors from the project office in Program 3. The views of the agricultural advisors were shared with the group. This was followed by a log frame analysis with national experts from the South African Society for Agricultural Extension. The two sessions were split due to the size of the groups, as explained in Chapter 3.

5.7. ASSESSMENT TOOL OF THE PERFORMANCE OF THE AGRICULTURAL ADVISOR IN TERMS OF ROLES AND RESPONSIBILITIES IN PRACTICE

The researcher believes that taking these definitions, roles, and responsibilities into account, it is necessary to develop smallholder producers in various ways and not only in one facet. However, the researcher will outline the importance of each role and responsibility an extension practitioner must achieve for quality extension and advisory to improve a farmer's livelihood. The roles and responsibilities identified in short from the above definition will be unpacked below:

5.6.1. Assist Farmers in Completing a Full Farm Assessment on Physical, Natural, Human, and Financial Resources

The researcher believes the agricultural advisor should assess the farm or community's resources. This assessment of the resources is non-negotiable. It is essential to analyse the different resources in the community or on the farm so that the best possible plan is

drawn upon, identifying the resources available or required to make the business sustainable, profitable, or improve production. The assessment is holistic in that it looks at all the aspects referred to in the definition to make the farm or community successful. Numerous authors stated that agricultural extension should result in profit-making and sustainability.

There is no particular order to do the assessment; however, it is systematic in identifying the gaps. The farmer, the agricultural advisor, and other agricultural sector stakeholders do the assessment to ensure inclusivity. Agricultural extension is a complex continuous system that starts with assessing the resources (financial, natural, human, and physical) to improve their well-being. Numerous authors, as stated previously, indicated that it is a system or a process and contains many actions.

5.6.1.1. Physical Assessment

The first function, therefore, is to assess the physical resources of the farm or the community. The Norms and Standards for Extension (2005, p. 2) support the latter in that it refers to the systematic process of working with farmers or with communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability.

The physical assessment must identify the weakness or strengths of infrastructure, equipment, and implements. They will negotiate what is required, if any, so they have the infrastructure they can use to make the enterprise successful. The agricultural advisor and the farmer or other actors will assess all the types of infrastructure, equipment, and implements, regarding adequacy, efficiency, condition, and maintenance required or replacement. The condition of the roads and the distance from the markets for transporting produce or for services required. Sulaiman and Blum (2016, p. 1) state that rural advisory services are critical to agricultural and rural development. In this case, to support the farmer or community, they need the best possible infrastructure to make the business a success.

5.6.1.2. Human Resource Assessment

Human resources will be analysed to identify skills and competencies required to farm sustainably, profitably, and adapt to climate change. After the farmer and the agricultural advisor look at the farm's strengths, weaknesses, opportunities, and threats, they will engage in what the farmer believes will be the best way forward. They will assess the

management structure and the organogram to determine the employment needs. Human resources will be elaborated on later.

5.6.1.3. Natural Resource Assessment

The natural resources will be assessed to identify strengths, weaknesses, and opportunities regarding soil, water, and climate. The farmer and the advisor need to first and foremost analyse the potential of the land and the natural resources. The farmer and the agricultural advisor will assess the total farmable land by evaluating the natural grazing capacity per hectare per large stock unit to determine the ideal stock numbers to prevent overgrazing. They will assess the carrying capacity on irrigated pastures as on dry land (rain-fed). The latter will allow the farmer and the agricultural advisor to negotiate the best practice in terms of the land potential. The yield per ton on irrigated annual crops and perennial crops must be determined. These assessments will give the farmer and the agricultural advisor the available farmable land. They will indicate scientifically if this will be viable for success for the intended purpose of the farm.

The average rainfall will be assessed to determine the water availability regarding crops they wish to plant and the farmers' rights to water. Similarly, they may require water for livestock; however, the water quality is different. It is imperative that the water quantity is legally available, and the quality is fit for irrigation or potential use. The same will apply to stock watering.

They need to analyse the soil as it is necessary to determine if the crop can be sustainable in that type of soil or identify the soil needs for those mentioned above. The strengths and weaknesses are how they can adapt to climate change and farm sustainably while increasing production. The soil analysis will assist with the development of a negotiated plan to prepare the soil for planting. Correct preparation is vital if the agricultural advisor wants to facilitate efforts to increase food production, including increased access to production inputs for the emerging agricultural sector, as stated in the National Policy on Food and Nutrition Security (2008).

The yield per ton on irrigated annual crops and perennial crops must be determined. These assessments will give the farmer and the agricultural advisor the total farmable land available and whether this is viable for the intended purpose by the farmer. The average rainfall will determine the water availability in terms of crops they wish to plant and the farmers' rights to water. The farmer may require water for livestock; however, the water

quality is different. It is imperative that the water quantity is legally available and that the quality is fit for irrigation or potential use.

The same will apply to stock watering. They need to analyse the soil, as it is necessary to determine if the crop can be sustainable in that type of soil or identify the soil needs for those mentioned above. The strengths and weaknesses must be determined to assess whether the farmer can adapt to climate change and farm sustainably while increasing production. The soil analysis will assist with the development of a negotiated plan to prepare the soil for planting. Correct preparation is vital if the agricultural advisor wants to facilitate efforts to increase food production, including increased access to production inputs for the emerging agricultural sector, as stated in the National Policy on Food and Nutrition Security (2013).

At all times, the agricultural advisor and the farmer will assess the natural resources in terms of suitability for current and potential use as well as the status of the resources, namely, erosion, pollution, alien vegetation, and the impact of agro processing.

5.6.1.4. Financial Resources

The financial ability of the farmer or the community is crucial in terms of what is planted, e.g., pome fruits require finances for at least 3-5 years since they will only yield a crop after the same number of years and the farmer cannot expect an income during this time. Since there will be no income for a few years, it needs to be considered. It is vital to know the farm's cash flow to determine sustainability.

The Norms and Standards for Extension (2005, p. 1) refer to the systematic process of working with farmers or communities to help them acquire relevant and useful agriculture or related knowledge to increase farm productivity, competitiveness, and sustainability. It will only be sustainable if the farmer has access to finance if the crop is young fruit trees. The financial assessment will identify the farmer's or community's financial capability or needs.

Likewise, the Norms and Standards (2005, p. 2) further state that extension is a knowledge and information support function for people engaged in agriculture. It has a broader role than just providing advice (advisory service). Agricultural advisors should be applying solutions to farmers' problems. The advisor will assist the farmer in accessing funds to sustain the farming practice so that the farmer can actively participate in the rural economy.

Hence, the agricultural advisor's third role is to assess a farm's financial viability sustainably or competitively.

To assist the farmer with this assessment, the agricultural advisor must have the technical capacity to achieve this or know other actors in this arena to assist with this task. The latter is why the writer omitted the technical role and responsibility since it is inherent in this role.

The agricultural advisor should therefore begin with an assessment of the farm or the community. This is non-negotiable as it is essential to develop a baseline and analyse the different resources in the community or on the farm so that the best possible plan is drawn up to identify the resources available or required.

5.6.2. Assist Farmers in Completing a Resource Assessment on Completion of the Full Farm Assessment

On completing the above with the farmer, the agricultural advisor has to negotiate =what resources the farmer has against what the farmer aims to achieve. Other role players, such as economists or specialists, can assist the farmer and the agricultural advisor in determining what physical, financial, human, and natural resources are needed for the farmer's goals. The latter will consider the physical, financial, human, and natural resources available on the farm.

The farmer and the agricultural advisor need to consider the existing resources' condition and the cost-effectiveness of repairing or replacing physical resources. The financial resources needed to plan the production cycle, such as input costs. The human resources needed to implement the business plan and the natural resources, such as water availability and what is required to prepare the soil for planting.

The National Policy on Extension and Advisory Services (2016, p. 11) refers to the agricultural advisor as "providing technical advice as well as general management support for improved decision making." The latter alludes to assisting the farmer in drawing up a resource plan because of the technical knowledge the agricultural advisor ought to have, as stated by Davis and Sulaiman (2014, p. 11).

5.6.3. On Completion of the Needs Analysis of the Above Resources, Help the Farmer to Complete a Business Plan that will Address the Gaps Identified Above

Sulaiman and Blum (2016, p. 9) stated that the extension practitioner must "provide farm management and business development support as required by the farm's scale, capacity, and resources." They believe that management and business development are vital to the growth of family farming and smallholder farming enterprises. Developing a good business plan is the first step to ensuring that the business enterprise will be successful as it considers all the essential financial, physical, natural, and human resources (Chapota, 2020, p. 6).

The Western Cape Agricultural Land Reform Project Performance Evaluation (2014, p. 17) states that in a business-oriented approach it is more likely that the project (farm) will be more successful. This report (2014, p. 19) further states that "it is critical for a business plan" to ensure the farm's success.

Chapota (2020, p. 6) believes that by making a difference in the life (improving the livelihood) of a farmer (smallholder producer), it is necessary to support them to manage the farm as a business enterprise. It is thus necessary to assist the farmer in developing a business plan that is appropriate to the scale, resources and capacities of the farm or the community. Christoplos (2010, p. 3) refers to it as the "development of business plan management skills." With the farmer's assistance in developing such a plan, the agricultural advisor will create an opportunity to develop this skill in the farmer.

Sulaiman and Blum (2016, p.9) cited several roles that will result in successful family farming in developed and underdeveloped countries. Extension practitioners similarly require these roles to ensure that smallholder producers become successful. To improve the livelihood of farmers (smallholder producers), the support necessary is to develop the farm into a business (enterprise). As stated above, this requires assistance to create a business plan.

5.6.4. Help Farmers Better Understand Markets

Sulaiman and Blum (2016, p. 9) state that the agricultural advisor providing the extension and advisory service must assist the farmer (family farmer) to “understand markets better in terms of prices, seasonality, standards, and value addition.” Christoplos (2010, p. 3) refers to it as other services to disseminate information around markets. The National

Policy on Extension and Advisory (2016, p. 9) indicates that this role ensures the producers overcome their market challenges, such as knowledge around quantity, quality, and crop selection.

According to the SHEP Handbook (2018, p. 42), this will enable farmers to understand markets better in terms of what the formal or informal markets want regarding the quality and quantity of crops. They will be able to understand the seasonality of crops and price fluctuation. The latter can be achieved by encouraging the farmer to do market surveys to compare opportunities in the formal or informal markets.

The agricultural advisor will assist the farmer or community with market readiness and increase market access so that the product can be sold profitably. The advisor will advise the farmer on how to do market surveys to identify demands and target crop selection. The farmer needs to understand the quantity and the quality of the crop the market requires as well as the pricing of the products so that the farmer can estimate the profit margins and whether the planting of such crops will be feasible.

The agricultural advisor will prepare the farmer concerning those mentioned earlier to ensure that their product is sold so the enterprise can be profitable. The agricultural advisor may link the farmer with producer organisations or create farmer-to-farmer groups where they can learn from each other to understand markets better.

5.6.5. Link Farmers with Role Players in the Market to Improve Access

The National Policy on Food and Nutrition Security in the Republic of South Africa (2013, p. 5) cites the Report by the United Nations Special Rapporteur on the Right to Food (2011), where it is recommended that agricultural advisors ensure that “steps be taken to improve access to markets for farmers.” This improved access to markets is again restated in the Food and Nutrition Strategy (2014, pp. 21-22,39). This document stated that the “poor access to markets has impacted negatively on food and nutrition security for the producers and consumers”. They promote the strengthening of access to markets to enhance food security. They promote the facilitation of market information systems for the producers to improve access. The agricultural advisor will assist the farmer or community with market readiness and access so that the product is market ready. The advisor will advise the farmer on how to do market surveys to identify demands and target crop selection.

The agricultural advisor will prepare the farmer about those mentioned above to ensure that their product is sold to make the enterprise profitable. Christoplos (2010) states that extension is a cost-effective stimulant for economic growth, a prerequisite for rural poverty alleviation, and a fundamental tool to meet global environmental change challenges. The advisor expects that they need to play a role in stimulating economic growth by ensuring that the financials, market access, and readiness are in place.

A Report by the United Special Rapporteur on the Right to Food (2011) raised numerous challenges and concerns and made recommendations to address these challenges and concerns. One is the pivotal role of an agricultural advisor to improve market access for smallholder farmers so that the farmers can be active participants in the rural economy. The latter is to achieve the goals set out in The National Development Plan Vision 2030 in the provinces, to improve the rural economy and transform the agricultural sector. The National Policy on Food and Nutrition Security in the Republic of South Africa (2013) affirms this too.

5.6.6. Link Farmers with Economists to Improve Financial Record Keeping

In the Performance Evaluation: Agricultural Land Reform Projects (2019, p. 22), it is stated in the findings that there is “a definite lack of understanding of the importance of record-keeping.” The study found that those projects (farms) that were challenged and not successful lacked the necessary financial statements, such as monthly income and expenditure reports, annual statements, and cash flow reports. They recommend that the farmers are mentored in this arena, and the expert in this field will be the economists. Hence, the extension practitioner needs to link the farmers with an economist, as the success of a business is predicated on having good financial records.

5.6.7. Provide Farm Management and Business Development Support Appropriate to the Scale, Resources, and Capacities of Each Farm or Community

Human resources were analysed to identify skills and competencies required to farm sustainably, profitably, and adapt to climate change. It is necessary to assess the management capability of the farm. A manager must be able to plan the path of the farm or an organisation through detailed structures and systems. It has been found that this needs to be improved, especially with smallholder producers. As stated previously, these management plans that the smallholder producer needs assistance with include the

coordination and implementation of production, financial, natural, and human resources that result in a profitable farming venture. The labour legislation must be adhered to, to show that the farming practice is ethical so that they can access global markets.

5.6.8. Create Platforms to Facilitate Interaction and Sharing Among the Various Stakeholders, Including POS, to Ensure Coordinated Support to Farmers

The extension practitioner must assist the farmer by creating platforms to facilitate and share information and ideas with other stakeholders and producer organisations to support family farmers. The latter is again supported in the National Policy on Extension and Advisory Services (2016, p. 10), where it is stated that another role is facilitating farmers to form commodity groups where they can work as a collective to demand the services they require. This platform will enable farmers to share knowledge and ideas and learn from each other or create enabling platforms to meet the relevant stakeholders from whom they can learn. This role includes assisting farmers in sharing knowledge so that the individual farmers can become more self-reliant.

As stated, “facilitation of access to new technologies and awareness thereof”. The role here is to facilitate access to other stakeholders in the value chain that can make farmers aware of new technologies if the agricultural advisor cannot do so.

5.6.9. Link Farmers to Other Stakeholders Involved in the Provision of Different Sources of Support and Services

Davis and Sulaiman (2014, p. 10) state that the agricultural advisor must make the necessary linkages between the farmers, and they refer to it as “brokering (creating multi-directional relationships among a wide range of actors” that will result in mutual benefits). This view is supported by Christoplos (2010, p. 3) and Sulaiman and Blum (2016, p. 9). They state that linkage is required with various actors in the value chain to access and utilise the different services. In the same way, the National Policy on Extension and Advisory (2016, p.10) promotes the assistance of producers to “access relevant advisory services and facilities that are essential for the enhancement of farm productivity, securing finance and markets.”

The agricultural advisor may use various strategies to facilitate interaction among various stakeholders. The agricultural advisor can arrange field trips where farmers can learn from

producer organisations or study groups where farmers with the same demands can learn from each other. They may hold research days where they share the latest technology.

5.6.10. Support or Facilitate the Formation of Producer Organisations (PO) and Collaborate with POS to Strengthen the Demand and Supply Side of Rural Advisory Services

The National Policy on Extension and Advisory (2016, p. 10) promotes the facilitation of farmers into commodity groups for the sharing of knowledge as a collective so that they can become more self-reliant and bargain as a collective for the rural advisory service that they want or provide it themselves.

Davis and Sulaiman (2014, p10) state that one of the functional responsibilities of the agricultural advisor is the development of farmer organisations so that they can work together as a group. The latter is to demand the services they need and take up agricultural tasks to become less dependent on the government or the extension practitioner. The agricultural advisor supports or facilitates the formation or membership in farmer organisations. Farmers have more bargaining power and negotiate better in groups around market access, finance, and reduced supply costs.

Producer organisations research specific commodities and assist their members, the farmers, improve their production practices through the latest technologies researched. The agricultural advisor must facilitate the formation or membership of these organisations as this is where the farmer can demand that their needs be met through these institutions. These institutions can also lobby the government on behalf of the farmers.

5.6.11. Facilitate Skills Audits and Coordinate Training for Capacity Development

According to Sulaiman and Blum (2016, p. 1), agricultural advisors provide farmers with a "wide range of skills and knowledge and facilitate interactions among different actors to provide a wide range of support." The advisor will assess or audit the farmer's skills and provide the necessary training or develop a skills plan executed by the agricultural advisor or another competent trainer to provide the training.

The National Policy on Extension and Advisory Services (2016, p.10) states that the role of the agricultural advisor is to "enhance the capacity of producers through the facilitation and the provision of ongoing training." Christoplos (2010, p. 3) advocates that the agricultural advisor will "provide training and advice for individual farmers or groups of

farmers". The agricultural advisor needs to facilitate skills audits to develop the capacity of the farmer and the farm workers so that the farmer will have the necessary capabilities to implement the business plan.

The National Policy on Comprehensive Producer Development Support (2018, p. 26) stipulates the importance of addressing the vital training needs essential to the producers in their settings. Reference is made to the lack of business skills to run a commercial operation, in this report (2018, p. 4), they cite Vink, Van Rooyen, and Karaan (no date). In this document, they refer to needs-based assessment and capacity building.

The Performance Evaluation: Agriculture Land Reform Projects (2019, p. 24) states that a large share of the unsuccessful projects (farms) did not have a skills plan, and they did not have a skills audits done so that their capacities could be developed.

The farmers or the community require skills to improve their livelihoods through sustainable, efficient, and profitable farming enterprises by applying the latest research, technological advances, best management practices, market readiness, and adaptation to climate change.

The role of the agricultural advisor is to assess the human resources with the farmer to ensure all the financial, production, and management skills are available to ensure that the capacity is developed to make this enterprise successful. The latter requires a skills audit to be completed to assess the skills deficit so that the agricultural advisor will provide a form of proactive education. A training plan is developed with the farmer and possibly other actors to address the competencies lacking in the business enterprise.

The study has crafted 11 roles and responsibilities discussed under items 5.1 up to 5.6.11. It should be generally understood that these roles are what the writer termed non-negotiables that agricultural advisors must understand and implement. They represent the bigger vision for the department of agriculture. As indicated earlier, these were supposed to be implemented by every agricultural extension practitioner.

However, the department needed to enforce its full implementation, where practically only five roles were expected to be part of the job description of the extension advisor. It is the writer's experience that the performance measured the outputs of the agricultural advisor in terms of the service delivered by the program within this department instead of using the roles and responsibilities around extension and advisory service.

5.8. CONCLUSIONS AND RECOMMENDATIONS

Criteria for an assessment tool was developed containing the non-negotiable roles and responsibilities taken from several definitions policy documents about the extension and advisory services in South Africa. The tool was strengthened by using definitions and roles from position papers from the Global Forum on Rural Advisory Services and the Food and Agricultural Organisation of the United Nations.

It must be noted that the performance assessment tools currently used in provincial departments do not measure the performance of the roles and responsibilities of the agricultural advisor but rather the service delivered by the program. Therefore, it was necessary to develop this tool.

It is recommended that this tool can be used in combination with the performance assessment tool used in the provincial department so that the actual extension performance of the agricultural advisor can be assessed.

CHAPTER 6: FINDINGS ON THE VIEWS OF THE AGRICULTURAL ADVISORS ON ROLES AND RESPONSIBILITIES

6.1. INTRODUCTION

Agricultural extension is pivotal to the transformation of the agricultural sector as outlined in the many strategic and policy frameworks for South Africa. One policy, the National Development Plan Vision 2030 (2011, p. 218), states the role of the extension practitioner is to improve market access of the smallholder and facilitate farmer-to-farmer skills transfer to improve the rural economy. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers. The National Framework for Extension as a Field of Practice (2014, pp. 3-4) states that “extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake.” In the National Policy on Extension and Advisory Services. (2016, p. viii), the Deputy Minister of Agriculture, Forestry, and Fisheries states in the foreword that the provision of extension and advisory services is “undoubtedly sacrosanct in the advancement of agrarian reform.” The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a key driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access. The latter is pivotal to improving the rural economy, and they are identified as the roles and responsibilities of an extension practitioner and an extension and advisory service.

Since the importance of extension has been stated in so many policy documents, the writer felt that it is necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one under the same conditions who do not have a positive effect on the output and consequently the livelihood of a farmer to aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural Extension Science creates such a difference. This study aims to determine if an agricultural advisor with a foundation in Extension Science improves the livelihood of the beneficiaries of their extension and advisory service. There is little or no empirical evidence that having a foundation in Extension Science results in the agricultural advisor providing a better extension and advisory service to improve the farmer's livelihood.

This chapter discusses the findings, which are based on the views of the agricultural advisors in the Western Cape Department of Agriculture in Program 3 where extension and advisory services are located. The findings are about the roles and responsibilities that an agricultural advisor should play to improve the livelihood of the farmers to whom they provide an extension and advisory service.

In this study, the researcher determines the extent to which an agricultural advisor with a foundation in extension science is more likely to positively influence a farmer's life than an agricultural advisor with no foundation in extension science. To conclude, the researcher needs to assess the performance of the agricultural advisors in the field using the same measurement instrument. The researcher developed criteria for a measurement tool as the performance assessment tool used within the Western Cape Department of Agriculture only measures outputs of the service delivered by the program rather than measuring the roles and responsibilities of extension and advisory services.

The findings concerning the views of the agricultural advisors are reported in subsequent sections of this study. Furthermore, the tool was tested in later chapters with the various targeted managers and specialist agricultural advisors, ,and experts in the field from the South African Society for Agricultural Extension (SASAE). This is discussed in Chapter 7. The managers were required to measure the performance of the agricultural advisor against these roles and responsibilities. The latter's findings are discussed in Chapter 8 after the finalisation of the assessment tool.

6.2. CRITERIA FOR THE ASSESSMENT TOOL

The researcher identified some of the most important roles and responsibilities, which were supported through a literature review of the study. Justification was provided for using the roles and functions and their relation to the assessment tool. In addition, the use of the tool for the assessment of agricultural advisor's performance is also provided. The literature was consulted as these roles and responsibilities were reduced to the bare minimum. A synopsis is provided within this chapter to explain the importance of each of these roles and responsibilities. the researcher identified 11 roles and responsibilities as non-negotiables. They are:

6.2.1. Assist Farmers in Completing a Full Farm Assessment on Physical, Natural, Human, and Financial Resources

The Western Cape Department of Agriculture developed a Farm Report in 2016 (see attached Annexure 5), used by the agricultural advisors to provide the farmers with the necessary extension and advisory support. In this report, the first role expected from the agricultural advisor on the first farm visit is to do a full farm assessment. This is important to the farmer or the community and the Department of Agriculture Western Cape. This information is used to monitor the development of the farmer over a period. and is captured on the Agricultural Information Management System (AIMS). The latter is a digital platform used to monitor the extension and advisory system offered by this Department in the Western Cape. This platform prevents repeated requests for information from the farmer. Any agricultural advisor can access this information before visiting the farm and thus be prepared to assist the farmer after gaining insight into all the farm's resources and those needed resources.

The agricultural advisor should therefore begin with an assessment of the farm or the community. This is non-negotiable for the following reasons. It is essential to develop a baseline and analyse the different resources in the community or on the farm so that the best possible plan is drawn up on identifying the resources available or required to make the business sustainable, profitable, or improve the production as cited by Macintosh and Xaba (2017, p. 17). Davis and Sulaiman (2014, p. 11) indicate that at an individual level, the agricultural advisor requires a “good understanding of appropriate, relevant, new technologies in agricultural practice” so that the advisor can assist the farmer in doing a full farm assessment to be able to complete a relevant resource plan and business plan.

6.2.2. On Completion of the Full Farm Assessment Above, Help the Farmer to Complete a Resource Plan That Will Address the Gaps Identified Above

The resource plan requires the farmer to identify and complete the production inputs required for the production cycle. Farmers usually request funding for these resources. These are the disposable inputs. The National Policy on Extension and Advisory Services (2016, p. 11) refers to the agricultural advisor as “providing technical advice as well as general management support for improved decision making.” This alludes to assisting the farmer in drawing up a resource plan because of the technical knowledge the agricultural advisor ought to have, as stated by Davis and Sulaiman (2014, p. 11).

6.2.3. On Completion of the Needs Analysis of the Above Resources, Help the Farmer to Complete a Business Plan That Will Address the Gaps Identified Above

Sulaiman and Blum (2016, p. 9) stated that the extension practitioner must “provide farm management and business development support as required by the farm's scale, capacity, and resources”. They believe that management and business development are vital to the growth of family farming and smallholder farming enterprises. Developing a good business plan is the first step to ensuring that the business enterprise will be successful as it considers all the essential financial, physical, natural, and human resources (Chapota, 2020, p. 6).

The Western Cape Agricultural Land Reform Project Performance Evaluation (2014, p. 17) states that in a business-oriented approach is more likely that the project (farm) will be more successful. This report (2014, p. 19) further states that “it is critical for a business plan” to ensure the farm’s success. In this study, the farms with business plans were more successful than those without.

Chapota (2020, p. 6) believes that to make a difference in the life (improve the livelihood) of a farmer (smallholder producer), it is necessary to support them to manage the farm as a business enterprise. It is thus necessary to assist the farmer in developing a business plan appropriate to the scale resources and capacities of the farm or the community. Christoplos (2010, p. 3) refers to it as the “development of business plan management skills.” With the farmer’s assistance in developing such a plan, the agricultural advisor will create an opportunity to develop this skill in the farmer.

6.2.4. Provide Farm Management and Business Development Support Appropriate to the Scale, Resources, and Capacities of Each Farm or Community

Sulaiman and Blum (2016, p. 9) stated that the extension practitioner must “provide farm management and business development support as required by the farm's scale, capacity, and resources”. They believe that management and business development are vital to the growth of family farming and smallholder farming enterprises. Hence the need for assistance with the business and management plan. Furthermore, suppose the plan is not appropriate to the scale and resources. In that case, it may result in overstocking and overgrazing which will be detrimental to the natural resources and the failure of future

production years. The National Policy on Extension and Advisory (2016, p. 10) refers to it as the “efficient and sustainable use of production resources and technologies.”

6.2.5. Help Farmers Understand Markets Better

Sulaiman and Blum (2016, p. 9), state that the agricultural advisor providing the extension and advisory service must assist the farmer (family farmer) to “understand markets better in terms of prices, seasonality, standards, and value addition. Christoplos (2010, p. 3) refers to it as other services provided as dissemination of information around markets. The National Policy on Extension and Advisory (2016, p. 9) indicates that this role ensures the producers overcome their market challenges, such as knowledge around quantity, quality, and crop selection.

According to the SHEP Handbook (2018, p. 42), this will enable farmers to understand markets better in terms of what the formal or informal markets want regarding the quality and quantity of crops. They will be able to understand the seasonality of crops and price fluctuation. This can be achieved by encouraging farmers to do market surveys to compare opportunities in formal or informal markets.

6.2.6. Link Farmers with Role Players in the Market to Improve Market Access

The National Policy on Food and Nutrition Security in the Republic of South Africa (2013, p. 5) cites the report by the United Nations Special Rapporteur on the Right to Food (2011), where it is recommended that agricultural advisors ensure that “steps be taken to improve access to markets for farmers.” This improved access to markets is again restated in the Food and Nutrition Strategy (2014, pp. 21-22, 39). This document stated that the “poor access to markets has impacted negatively on food and nutrition security for the producers and consumers”. They promote the strengthening of access to markets to enhance food security and encourage the facilitation of market information systems for the producers to improve access.

6.2.7. Link Farmers with Economists to Improve Financial Record Keeping

In the Performance Evaluation: Agricultural Land Reform Projects (2019, p. 22), it is stated in the findings that there is “a definite lack of understanding of the importance of record-keeping.” The study found that those projects (farms) that were challenged and unsuccessful lacked the necessary financial statements, such as monthly income and

expenditure reports, annual statements, and cash flow reports. They recommend that the farmers are mentored in this arena, and the expert in this field will be the economists. Hence, the extension practitioner needs to link the farmers with an economist as the success of a business is predicated on having good financial records.

6.2.8. Create Platforms to Facilitate Interaction and Sharing Among the Various Stakeholders, Including POS, to Ensure Coordinated Support to Farmers

The extension practitioner must assist the farmer by creating platforms that will facilitate and share information and ideas with other stakeholders and producer organisations to support family farmers. This is again supported in the National Policy on Extension and Advisory Services (2016, p. 10), where it is stated that another role is the facilitation of farmers to form commodity groups where they can work as a collective to demand the services they require. This can enable farmers to share knowledge and ideas, learn from each other and create a platform to meet relevant stakeholders. This role includes assisting farmers in sharing knowledge so that the individual farmers can become more self-reliant. As stated, “facilitation of access to new technologies and awareness thereof”. This is another role for the agricultural advisor. The role here is to facilitate access to other stakeholders in the value chain that can make farmers aware of new technologies if the agricultural advisor cannot do so.

6.2.9. Link Farmers to Other Stakeholders Involved in the Provision of Different Sources of Support and Services

Davis and Sulaiman (2014, p. 10) state that the agricultural advisor must make the necessary linkages between the farmers, known as “brokering (creating multi-directional relationships among a wide range of actors)” that will result in mutual benefits. Christoplos (2010, p. 3). This is supported by Sulaiman and Blum (2016, p. 9), who state that linkages are required with various actors in the value chain for the access and utilization of the different services. In the same way, the National Policy on Extension and Advisory (2016, p. 10) promotes the assistance of producers to “access relevant advisory services and facilities that are essential for the enhancement of farm productivity, securing finance and markets.”

6.2.10. Support and Facilitate the Formation of POS and Collaborate with POS to Strengthen the Demand and Supply Side of RAS.

The National Policy on Extension and Advisory (2016, p.10) promotes the facilitation of farmers into commodity groups through the sharing of knowledge as a collective so that they can become more self-reliant and bargain as a collective for the rural advisory service that they want or provide it themselves.

According to Davis and Sulaiman (2014, p. 10), one of the functional responsibilities of the agricultural advisor is the development of farmer organisations so that they can work together as a group to demand the services that they need as well as take up agricultural tasks to become less dependent on government or the extension practitioner.

6.2.11. Facilitate Skills Audits and Coordinate Training for Capacity Development

According to Sulaiman and Blum (2016, p. 1), they provide the farmers with a “wide range of skills and knowledge and facilitate interactions among different actors to provide a wide range of support.” The advisor will assess or audit the farmer's skills and provide the necessary training or develop a skills plan executed by the agricultural advisor or another trainer who is competent to provide the training.

The National Policy on Extension and Advisory Services (2016, p. 10) states that the role of the agricultural advisor is to “enhance the capacity of producers through the facilitation and the provision of ongoing training”. Christoplos (2010, p. 3) advocates that the agricultural advisor will “provide training and advice for individual farmers or groups of farmers.” The agricultural advisor needs to facilitate skills audits to develop the capacity of the farmer and the farm workers so that the farmer will have the necessary capabilities to implement the business plan. Vink, Van Rooyen and Karaan (n.d.) as cited by the National Policy on Comprehensive Producer Development Support (2018, p. 26) stipulates the importance of addressing the vital training needs essential to the producers in their settings. Reference is made to the lack of business skills to run a commercial operation. In this document, they refer to needs-based assessment and capacity building. A large share of unsuccessful projects (farms) does not have skills plans or have not conducted skills audits to develop their capacities (Performance Evaluation: Agriculture Land Reform Projects (2014 – 2019), (2019, p. 24).

6.3. FINDINGS OF THE VIEWS OF THE AGRICULTURAL ADVISORS

The researcher used the 11 points discussed above as indicators to determine the non-negotiable roles and responsibilities. These indicators were used to develop a questionnaire to determine whether the agricultural advisors agreed to these roles and responsibilities. These were tested using a Likert Scale to determine the extent to which they agreed to these roles and responsibilities. See the Annexure 1 attached. This was part (Section D) of the Questionnaire administered to the agricultural advisors.

It should be noted that nowhere in these roles and responsibilities does the researcher refer to the term advice since the researcher believes it is inherent in all these activities listed below. In the same manner, the researcher did not include technical advice in this assessment tool because the researcher believes that this is inherent in the first four roles and responsibilities and the ability to assist the farmer to do a full farm assessment requires the necessary technical skills, as stated by Davis and Sulaiman (2012, p. 11).

The researcher used a Likert scale to determine the extent to which the agricultural advisors agreed with the 11 roles and responsibilities identified. This was done to assess their views and if these roles and responsibilities are not too distant from their views. This was done to determine if the assessment of these roles is akin to what the agricultural advisor believes are expected roles and responsibilities. The respondents were 49 of a possible 61 agricultural advisors, with a response rate of 80,4%.

Table 6.1 illustrates the findings of the responses of the agricultural advisors to the Likert scale, as discussed above.

Table 6.1: Findings of the Views of the Agricultural Advisors on Roles and Responsibilities

Role and Responsibility agreed to	Number score 5	Number score 4	Number score 3	Number score 2	Number score 1	Total respondents
1. Assist farmers in completing a full farm assessment on physical, natural, human, and financial resources.	25 (51,02%)	20 (40,81%)	2 (4,08%)	0 0	2 (4,08%)	49
2. On completing the full farm assessment	27	20	1	0	1	49

above, help the farmer complete a resource plan that will address the gaps identified above.	(55,01%)	(40,81%)	(2,04%)	0	(2,04%)	
3. On completion of the needs analysis of the above resources, help the farmer to complete a business plan that will address the gaps identified above.	27 (55,01%)	20 (40,81%)	1 (2,04%)	0 O	1 (2,04%)	49
4. Provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community	20 (40,81%)	21 (42,85%)	5 (10,2%)	1 (2,04%)	2 (4,08%)	49
5. Link farmers to other stakeholders involved in the provision of different sources of support and services, e.g. banks, economists, specialists, and producer organizations.	31 (63,26%)	16 (32,65%)	0 0	0 0	2 (4,08%)	49
6. Help farmers to understand markets better (i.e., prices, seasonality, standards, value addition, etc.)	25 51,02%	20 (40,81%)	2 (4,08%)	2 (4,08%)	0 0	49
Role and Responsibility agreed to	Number score 5	Number score 4	Number score 3	Number score 2	Number score 1	Total respondents
7. Link farmers with role players in the market to improve market access	25 51,02%	17 (34.69%)	6 (12,24%)	0 0	1 (2,04%)	49
8. Link farmers with economists to improve	26 (53,06%)	22 (44,9%)	0 0	0 0	1 (2,04%)	49

financial record keeping.						
9. Create platforms to facilitate interaction and sharing among the various stakeholders, including POs, to ensure coordinated support to farmers	20 (40,81%)	26 (53,06%)	1 (2,04%)	1 (2,04%)	1 (2,04%)	49
10. Support or facilitate the formation of Farmer Organizations and collaborate with FOs to strengthen the demand and supply side of RAS.	15 (30,61%)	25 51,02%	5 (10,2%)	3 (6,122)	1 (2,04%)	49
11. Facilitate skills audits and coordinate training for capacity development.	14 (28,56%)	30 (61,24%)	3 (6,12%)	1 (2,04%)	1 (2,04%)	49
Total Statements =11x49=539	255	237	26	8	13	539

On examination of the findings, the agricultural advisors responded as follows in each of the eleven statements:

In this statement, 25 agricultural advisors strongly agreed to this role, whereas 20 agricultural advisors agreed with the statement. Three agricultural advisors were uncertain, and two strongly disagreed with the statement.

2 In this statement, 20 agricultural advisors agreed with the statement. No agricultural advisors were uncertain, and two strongly disagreed with the statement.

3. In this statement, 27 agricultural advisors strongly agreed to this role, whereas 20 agricultural advisors agreed with the statement. No agricultural advisors were uncertain, and two strongly disagreed with the statement.

4.In this statement, 27 agricultural advisors strongly agreed to this role, 20 agricultural advisors agreed with the statement. No agricultural advisors were uncertain, and two strongly disagreed with the statement.

5. In this statement, 31 agricultural advisors strongly agreed to this role, whereas 16 agricultural advisors agreed with the statement. No agricultural advisors were uncertain, and two strongly disagreed with the statement.
6. In this statement, 20 agricultural advisors agreed with the statement. Two agricultural advisors were uncertain, and two disagreed with the statement. No one strongly disagreed with the statement.
7. In this statement, 27 agricultural advisors strongly agreed to this role, whereas 20 agricultural advisors agreed with the statement. No agricultural advisors were uncertain, and two strongly disagreed with the statement.
8. In this statement, 26 agricultural advisors strongly agreed to this role, whereas 20 agricultural advisors agreed with the statement. No agricultural advisors were uncertain and disagreed. One strongly disagreed with the statement.
9. In this statement, 15 agricultural advisors strongly agreed with this role, whereas 25 agricultural advisors agreed with the statement. Five agricultural advisors were uncertain, three disagreed, and one strongly disagreed with the statement.
10. In this statement, 20 agricultural advisors strongly agreed to this role, whereas 26 agricultural advisors agreed with the statement. One agricultural advisor was uncertain, and one disagreed and strongly disagreed with the statement.
11. In this statement, 14 agricultural advisors strongly agreed with this role, whereas 30 agricultural advisors agreed with the statement. Three agricultural advisors were uncertain, one disagreed, and one strongly disagreed with the statement.

There were 539 (11 statements x 5 responses x 49 participants) ways the 49 agricultural advisors could respond to questions posed. 255 times (47.3%), the agricultural advisors strongly agreed with the question. 237 times (43,97%), the agricultural advisors agreed with the statements. 26 times (4.82%), the agricultural advisors were uncertain. The combination of disagree (8) and strongly disagree (11) was less than the uncertain, with 3.8%.

Most of the agricultural advisors agreed with the above statements, therefore, indicating that most agricultural advisors agreed to these roles and responsibilities. Thus, all the statements above (11) can be used as a criterion to assess the performance of the agricultural advisor.

6.4. CONCLUSION

The general response of the agricultural advisors is favourable to the roles and responsibilities. The extent to which the agricultural advisors agreed positively, that is agreed and strongly agreed, with the ten statements exceeds 90%. They agreed and strongly agreed (89,3%) on the last statement to “facilitate skills audits and coordinate training for capacity development”. In seven of the 11 statements, the highest number of responses is where the agricultural advisors strongly agree with the statement. The highest scores in the other four of the 11 statements are that they agree with the statements and strongly agree with them. The highest number of strongly disagree responses is two. The highest number of responses that disagree with any statement is three. The highest number of uncertain respondents was five.

6.5. RECOMMENDATIONS

Since the agricultural advisors responded favourably that they agreed to the questionnaire on the roles and responsibilities of an agricultural advisor, the criteria for the assessment tool could then be tested with the district managers, agricultural specialists, and sub-program managers. The questionnaire was further tested with the second stakeholder group from SASAE. These criteria can also be added to the current performance indicators of the agricultural advisors in the various departments that provide extension and advisory services, as well as the commodity groups that provide such a service.

CHAPTER 7: FINDINGS ON THE LOGISTICAL FRAMEWORK ANALYSIS: SASAE EXPERTS AND DEPARTMENT OF AGRICULTURE WESTERN CAPE OFFICIALS (ROLES AND RESPONSIBILITIES ASSESSMENT)

7.1. INTRODUCTION AND BACKGROUND

Agricultural extension is pivotal to the transformation of the agricultural sector, as outlined in the many strategic and policy frameworks for South Africa. This is especially so in the various policy documents of agricultural extension and advisory services and several documents relating to food security and development, especially with smallholder producers. Therefore, it is necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one who, under the same conditions, does not have a positive impact on the farmer to aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural Extension Science creates such a difference. There is little or no empirical evidence showing that having a foundation in extension as a science result in the agricultural advisor providing a better extension and advisory service to the farmer than an agricultural advisor with no such foundation.

This study aims to determine if an agricultural advisor with a foundation in extension science improves the livelihood of the beneficiaries of their extension and advisory service more than an agricultural advisor with no such foundation. This was done to compare the success profiles of the agricultural advisors with a foundation to an agricultural advisor with no foundation in Extension Science. This required that the determinants for the comparison be identified. The first determinant was to compare if these agricultural advisors had any foundation in Extension Science. The other determinants for success were the success rating of the farms and the farmers. The farm's perceptions of the advisory service provided by the agricultural advisors from the two Western Cape Agricultural Land Reform Project Performance Evaluations (2014 and 2019) was also assessed.

The last determinant to complete the success profile of the agricultural advisor was the performance assessment of the participating agricultural advisors in the field. The WCDoA's performance rating tool only measures the performance of Program 3 on extension and advisory services and does not measure the roles and responsibilities of agricultural advisors. Therefore, the development of an assessment tool was required to measure the agricultural advisors' roles and responsibilities. It was necessary to develop

criteria for this assessment tool which was done by determining the non-negotiable roles of an agricultural advisor. The purpose of this measurement tool was to determine what sets the agricultural advisors apart. The researcher triangulated the data of the performance assessment of agriculture using this tool as one of the data sources.

This chapter discusses the development of the assessment tool, using the literature reviewed to identify the roles and responsibilities, the views of the agricultural advisors around these roles and responsibilities, and the methodology used to reach the findings based on the opinions of the SASAE experts and the WCDoA officials.

7.2. DEVELOPMENT OF THE PERFORMANCE ASSESSMENT TOOL

To improve the farmers' livelihood to whom agricultural advisors provide extension and advisory services, it was necessary to determine the roles and functions that an agricultural advisor needs to perform. The literature from various extension and advisory definitions, policy documents on extension and advisory services in South Africa, views of authors regarding the required roles and functions needed to improve farmers livelihoods, and position papers from the Global Forum of Rural Advisory Services and the Food and Agricultural Organization of the United Nations, were used.

7.2.1. The Roles and Responsibilities of an Agricultural Advisor

The above sources were used in Chapter 5 to identify the roles and responsibilities. These are summarised below:

1. Assist farmers in completing a full farm assessment on physical, natural, human, and financial resources.
2. On completing the full farm assessment above, help the farmer complete a resource plan to address the identified gaps.
3. On completing the needs analysis of the above, help the farmer complete a business plan for the production cycle.
4. Provide farm management and business development support appropriate to each farm or community's scale, resources, and capacities.
5. Help farmers understand markets better (i.e., prices, seasonality, standards, value addition.)
6. Link the farmers with role players in the market to improve market access.
7. Link the farmers with economists to improve financial record keeping.

8. Create platforms to facilitate interaction and sharing among the various stakeholders, including producer organisations (POs), to ensure coordinated support to farmers.
9. Link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and POs.
10. Support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of rural advisory services.
11. Facilitate skills audits and coordinate training for capacity development

The agricultural advisors verified these eleven roles and responsibilities using a Likert scale. The latter showed a favourable response, as discussed in Chapter 6. Hence, these roles and responsibilities could be tested by groups from the South African Society for Agricultural Extension (SASAE) and the Western Cape Department of Agriculture (WCDoA) extension managers and specialist agricultural advisors from Program 3.

7.3. THE LOGICAL FRAMEWORK APPROACH: METHODOLOGY

The Logical Framework Analysis (LFA) was used to test the roles and responsibilities of the two groups mentioned earlier. Two separate sessions were held to avoid logistical problems with the group size and the geographical distance.

7.3.1. The Problem Analysis: The Core Problem and Problem Causes

According to Van Rooyen, D'Haese, and Anandajayasekeram (2002, p. 331), the problem tree requires "a negative state of affairs." Therefore, the situation is perceived from a negative perspective in the problem tree. Part of the purpose of the LFA is to analyse the effects that the absence of execution of these roles and responsibilities will have on the farmer's livelihood. Consequently, the root causes of the core problem that were identified are represented diagrammatically (Figure 7.5 and Figure 7.7) as the roots of the tree and listed below:

1. The inability to assist farmers to complete a full farm assessment on physical, natural, human, and financial resources.
2. The inability to, on completion of the needs analysis of the above resources, help the farmer to complete a business plan for the production year.
3. The inability to, on completion of the full farm assessment above, help the farmer to complete a resource plan that will address the gaps identified above.

4. The inability to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community
5. The inability to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition).
6. The inability to link farmers with role players in the market to improve market access.
7. The inability to link farmers with economists to improve financial record keeping.
8. The inability to create platforms to facilitate interaction and sharing among the various stakeholders, including producer organizations (POs), to ensure coordinated support to farmers.
9. The inability to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and POs.
10. The inability to support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of rural advisory services.
11. The inability to facilitate skills audits and coordinate training for capacity development

The researcher and two agricultural extension researchers made a preliminary argument that the core problem caused by an absence of an agricultural advisor's essential roles and responsibilities could be a lack of understanding or inability to execute the roles and responsibilities. Moreover, the overall effect of the latter could result in an agricultural advisor being unable to improve the farmer's livelihood.

These root causes, representing the roots of the problem tree, and the core problem, representing the tree trunk, were captured and illustrated as a schematic diagram formed by cards against a wall to be discussed individually with the two groups (Figure 7.3). The stakeholder groups agreed with the identified causes and core problem. Their task was to continue and complete the branches of the problem tree by identifying the effect of these root causes and core problems.

7.3.2. The Problem Analysis: Process of Identifying the Effects

Each of the 11 root causes was written on an individual and colour-coded card displayed on a wall as part of the diagrammatic representation of the problem tree. The colour-coding of the different root causes assisted with the visual cause-and-effect linkages (Figure 7.3). The responses were collected, and the cards were added to the wall display to build on the schematic of the problem tree. Moreover, the colour coding also assisted with the data

capturing, and the participants could easily read the root cause and effect identified if there was a causal relationship. The respondents could view the responses, comment, and have discussions in the session.

Figure 7.1: Wall Display of the Colour-coded Problem Tree Schematic

7.3.3. The Objective Analysis: The Process of Creating the Objective Tree

The steps in formulating the objective tree included reformulating the negative statements from the problem tree into “positive states achieved in the future.” It is essential to realistically converge the problems, including the causes, into objectives and activities (Van Rooyen, D’Haese, & Anandajayasekeram, 2002, p. 334). Therefore, the core objective identified was the ability of the agricultural advisors to understand and execute the roles and responsibilities of the agricultural advisor, which is the core problem reformulated into a positive state. Similarly, the causes identified and discussed above were reformulated into positive statements, from “inability” to “ability”. The core competencies identified were:

1. The ability to assist farmers to complete a full farm assessment on physical, natural, human, and financial resources.
2. The ability to, on completion of the full farm assessment above, help the farmer to complete a resource plan that will address the gaps identified above.
3. The ability to, on completion of the needs analysis of the above resources, help the farmer to complete a business plan for the production year.
4. The ability to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community

5. The ability to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition).
6. The ability to link farmers with role players in the market to improve market access.
7. The ability to link farmers with economists to improve financial record keeping.
8. The ability to create platforms to facilitate interaction and sharing among the various stakeholders, including producer organizations (POs), to ensure coordinated support to farmers.
9. The ability to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and producer organizations (POs).
10. The ability to support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of rural advisory services.
11. The ability to facilitate skills audits and coordinate training for capacity development.

These core competencies were placed on individual cards and discussed in terms of the activities required to achieve these and the outcomes of such competencies. The tree was built using colour-coded cards and placed on the wall. The responses were placed on the wall to see and comment on, like the problem analysis process (Figures 7.3). The researcher read responses on the card to the participants for comments on the relationship made to the core competencies, the activities required, and the outcomes as the cards were placed on the tree on the wall.

7.3.4. The Strategy Analysis: The Process of Identifying Strategies

On completing the problem and objective tree, strategies were identified to achieve the objective and overcome the problems and causes. This step of the analytic phase involves determining which strategies could achieve the overall goal from the objective tree (Van Rooyen, D'Haese, & Anandajayasekeram, 2002, pp. 335-336). The expert stakeholder group sessions discussed the potential strategies to identify one or more individual strategies to enable the implementation of certain activities from the objective tree and ultimately reach the core objective and the higher-level future goal.

7.4. THE LOGISTICAL FRAMEWORK ANALYSIS FINDINGS: THE ANALYTICAL PHASE

The findings of the analytical phase of the LFA will be discussed below. The writer will report on the two expert stakeholder groups separately. The researcher will discuss the

findings of both groups around the problem analysis or problem tree and then discuss the findings of the objective analysis or the positive tree separately. Finally, the results of the strategy analysis will be discussed.

7.4.1. Findings of the Problem Analysis

7.4.1.1. Negative Tree Created by the WCDoA Expert Group

A negative tree diagram illustrates the findings of the problem analysis conducted by the WCDoA managers and agricultural specialist stakeholder group (Figure 7.5). The core problem in the scenario was agreed upon as the lack of understanding or execution of the roles and responsibilities by an agricultural advisor. The preliminary causes of the core problem, outlined in section 7.3.1. were accepted and effects provided, with the causal relationship for each root cause outlined below. An additional cause was suggested by the group, which is the inability of agricultural advisors to develop, implement, adapt and evaluate an extension plan.

Cause-and-effect 1: The inability of agricultural advisors to assist farmers in completing a full farm assessment around physical, natural, human, and financial resources.

According to the WCDoA expert stakeholder group, the cause would have the following effects. The farmers will not fully understand the whole farm plan, and the development of a plan will be uninformed. The sub-effects will further result in the business plan not containing all the required information, or there may be no basis for planning if the farmer is not assisted correctly. On the other hand, resources will be incorrectly allocated, leading to exploitation when farmers are unaware of the capacity of their natural resources. The risk exists to over or under-capitalise, negatively impacting the business's growth. Farmers would being unaware of skills/human capacity resulting in assistance that is not according to the farmer's resources. This may result in a business enterprise that is unsustainable and failing due to poor planning, and the chances of success diminished. Ultimately, the inability of agricultural advisors to assist farmers in completing a full farm assessment around physical, natural, human, and financial resources would not result in a holistic plan for the farm and the farmer.

Cause-and-effect 2: The inability of agricultural advisors to assist farmers in completing a business plan for the gaps identified in 1.

The discussion around the inability of agricultural advisors to assist farmers in completing a business plan (BP) for the gaps identified in 1 resulted in the following effects identified by the group.

Farmers will not have clear guidance on the needs of the business, e.g., funding options. BP translates to resources required if the business does not address it may impact the enterprise; farmers won't have an idea of their farm's capacity and potential regarding their natural resources, e.g., the potential use of the land for planting. A business plan translates to a road map for a business enterprise, and lack thereof will result in business failure. A sub-effect will be no credibility with the banks or financial institutions. The sub-effect is economic costs for the farmer and may result in the business not growing or failing.

A business plan translates to resources required, and the lack of a business plan generates an unsustainable business. The latter may result in a depletion of resources and degradation of land. If used for the baseline economic data, the wrong baseline information, financial and natural resources, will have a negative effect and result in a poor plan. Focus on resources will not be aligned with the real needs of the farm. The consequence is that they cannot receive assistance i.e., funding, because one cannot assess the plan. Businesses cannot grow as there is no road map for implementation and no real resource needs, so businesses cannot grow.

Cause-and-effect 3: The inability of agricultural advisors to assist farmers to complete a resource plan on completion of farm assessment to address the gaps identified in 1.

The discussion around the inability of agricultural advisors to assist farmers to complete a resource plan on completion of farm assessment to address the gaps identified in 1 resulted in the following effects identified by the group:

Resources must be aligned to the needs of the business and are critical drivers of the business; therefore, the absence of a good business plan without key drivers negatively impacts on resource plan or lead to a poor resource plan. This will result in the ineffective utilization of resources, wrong scenario development, and choices made. There is no road map for the business.

The foundation you built on is not solid. This results in farmers possibly farming or producing the incorrect commodity required at the markets.

If you cannot complete the resource plan, you cannot assess if it is the correct resources, you have or need to get. The sub-effect will result in wrong advice on the land's potential. Over or under-estimations of income or profit may be another sub-effect. The miscalculations of the labour force needed may result. There may be potential losses of produce. A resource plan assists farmers with planning; if not, it can affect farmers' production due to poor physical and natural resource planning. Farmers could potentially require or use more financial resources if it is not properly done. There is no development path for the farmer. Businesses cannot be recommended for financial assistance. The farmer does not see gaps in the plan.

Cash flow not visible; ineffective production; unsustainable farming; budget needed is calculated incorrectly; the wrong baseline for the info to address economic data and financial resources; wrong advice given on the potential of land; over/under estimations of income/profit; resource plan assist the farmer with planning, if not it can affect farmers production; ineffective utilisation of resources.

Cause-and-effect 4: The inability of agricultural advisors to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and producer organisations.

The discussion around the inability of agricultural advisors to link farmers to other stakeholders involved in the provision of different sources of support and services, resulted in the following effects identified by the group:

The negative effect is curbing the potential of the farm. Due to poor network support, the farmer becomes reactive to bad situations. Farmers may lose out on potential information, e.g., funding opportunities or relevant farming information or advice that could potentially assist a farmer's production or farm situation, thus curbing the farm's and the farmer's potential. The producer organisations support farmers who will lose opportunities if not linked, the lack of access to industry information and specialist advice.

The farmer will be stripped of opportunities if not linked to stakeholders, i.e., funding from banks, specialist services, and loss of specialist input that will lead to a lack of access to market information. A sub-effect that leads to limited or no access to markets, not using

external funding sources due to a lack of information. It inhibits a well-informed approach to networks that can assist.

Farmers will have a limited network of support to soundboard ideas and confer around similar problems other farmers have; hence, they will always be reactive to problems due to a lack of specialist information. The farmer may lack industry support and provide advice that could assist a farmer's production or farm situation. Organisations provide linkages for support to farmers.

Cause-and-effect 5: The inability of agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition, etc.)

The discussion around the inability of agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition, etc.) resulted in the following effects identified by the group:

Demand is not linked to supply; therefore, not producing what the market wants, results in either overproduction or underproduction. Both may lead to a loss of profit or loss of income.

Farmers could miss current market prices, price information, and fluctuations, therefore, not catching peak prices. Farmers are not getting competitive prices for his/her produce due to the lack of market information and loss of profit, and the business is either not sustainable or stagnant.

Farmers not having market information could lead to missed opportunities or other opportunities, e.g., value addition. Producing what the market does not want cause financial losses; severely impact the farmer’s production, e.g., lower prices due to lower quality.

Farmers could understand market situations better when agricultural advice is provided, a lack of information on price and fluctuations, demand not linked to supply, loss of income.

Cause-and-effect 6: The inability of agricultural advisors to link farmers with role players in the market to improve access.

The discussion around the inability of agricultural advisors to link farmers with role players in the market to improve access resulted in the following effects identified by the group:

The sustainability of the business is at risk since this hamper's growth of the business, causes problems with getting the best prices, and limits market access because the farmer is not aware of the quality and standards of produce for market readiness. Production of low-quality products with no bargaining power. This will negatively impact farmers as the product cannot be sold, resulting in limited income. This will lead to no cash flow, and the business will not be sustainable. No link to market to gain competitive advantage;, farmers might waste their produce without links to market or supplying supermarkets; hampers growth, e.g., pricing; limited market access for produce; farmers cannot reach maximum price potential for produce; unsustainable business; problems with income; no cashflows; failure of business; lack of growth of the business; impact on job creation; no norms & standards perception; production of low-quality products with no bargaining power; sustainability of business at risk.

Cause-and-effect 7: The inability of agricultural advisors to link farmers with economists to improve financial record keeping.

The discussion around the inability of agricultural advisors to link farmers with economists to improve financial record-keeping resulted in the following effects identified by the group:

Inadequate financial analysis to inform budget planning. Lack of proper bookkeeping and production record will impact productivity and access to finance. Financial recordkeeping is not effective, and farmers will not keep good records. Record-keeping provides guidance on future planning; if not, a farmer might not be sustainable since there are no records of cash flow or production records, so there is no access to financial help. Without proper bookkeeping, proper decisions cannot be made to access financial assistance, thus, no business growth or lack of access to markets.

Poor planning results in an unsustainable business due to improper future planning because cashflow projections may be over or under budget. No second opinion for the farmer.

Cause-and-effect 8: The inability of the agricultural advisors to create platforms to facilitate interaction and sharing among the various stakeholders, including POs, to ensure coordinated support to farmers.

The discussion around the inability of the agricultural advisors to create platforms to facilitate interaction and sharing among the various stakeholders, including POs, to ensure coordinated support to farmers resulted in the following effects identified by the group:

There will be no networking opportunities for farmers, resulting in a silo approach that results in no integrated planning, leading to inefficiencies.

Stakeholders can assist farmers when linked with industry experts to gain information and especially production-related information that can influence their farm positively if they have the linkage and negatively if there is no link with stakeholders. There will be no benchmarks for evaluation. No safety net among peers. Identification of any fallout will be too late if there is no support, missed opportunities to engage and learn from other farmers, missed opportunities to grow business; stakeholders can assist in farmers' linkage to influence their farm; not aware of the latest technology; farmers remain as followers instead of becoming leaders in their field; robs farmers from interaction with peers and commodity groups.

Cause-and-effect 9: The inability of agricultural advisors to provide farm management and business development support appropriate to each farm or community's scale, resources, and capacities.

The discussion around the inability of agricultural advisors to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community resulted in the following effects identified by the group:

A sub-effect will be that there is no transition from a technical to a management level of operation by the farmer. Another sub-effect is the over or too little planning for human resources. The lack of business acumen in any farming enterprise leads to the failure of the business. The business may be exposed to fraud and corruption.

Few chances of success. The low success rate of businesses. Farmers might not take farm to the next level. The farmers will only be workers in their businesses. There is no transition from the technical to management level by the farmer; the farmers will focus on food security and not develop the farm or make it grow. Oversimplification of farm management;

will not know how to interpret financials; it will impact productivity if farmers are not knowledgeable on finances and resources, over or under human resources planning. Farmers will not know what is going on in the business.

Cause-and-effect 10: The inability of the agricultural advisors to support and facilitate the formation of producer organisations and collaborate with producer organizations to strengthen the demand and supply side of RAS.

The inability of the agricultural advisors to support and facilitate the formation of producer organisations and collaborate with producer organisations to strengthen the demand and supply side of RAS will result in POs strengthening the industry. If a farmer is not part of the formation, they might not have access to that support, i.e., capacity development and/or related info on development; uninformed farmers since they have no networks in the industry, and this will result in poor growth or low success rate of farmers. Lack of standing in the industry and lack of understanding of agricultural production. No practical experience in farmer markets. Cross-cutting issues cannot be addressed due to the silo approach. Missed opportunities for learning and development from the producer organisations. Weak produce; silo approach; no networking with industry partners; a lack of collaborations which plays an important role in improving stakeholder relations and leading to increased production, and better market access.

Research or training not correctly identified results in ill-informed farmers; low success rate of farmers; lack of diverse resources or inputs because of fragmented networks; lack of understanding of agriculture; no experience in practical farming markets; no PO information leads to poor decisions; no POs lead to fewer benefits and bargaining power; lack of network for farmers; cross-cutting issues not addressed.

Cause-and-effect 11: The inability of agricultural advisors to facilitate skills audit and coordinate training for capacity development.

The discussion around the inability to do a skills audit and develop a training plan resulted in the following effects identified by the group:

If a farmer does not have a skills development plan, they might not develop the necessary capacity for their farming situation, like production training; therefore, the needs of the farmers/businesses are not identified, and the farmers might not be on par with the industry

norms and standards. They will lack development and lower the success of the farmers because their weaknesses are not attended to.

If no audit is done, it may result in misaligned expertise or knowledge of the business enterprise. It denies farmers opportunities to grow and learn. There will be a low success rate on farms, a limited chance for growth expansion, no optimal development and utilisation of staff, stagnation of level that extension officials can handle, and farmers not being assisted properly concerning training.

Cause-and-effect 12: The inability to develop, execute, implement, adapt, and monitor an extension plan.

An extension plan guides the agricultural advisor to advise farmers according to their farmer needs. Thus, a lack thereof will result in no sustainability, or the farmer will stagnate, and farmers will not progress because the focus will be on the wrong activities. The advice given by the agricultural advisor will be on an ad hoc basis and irrelevant.

The farmer will not receive appropriate advice on systems to farm. If the farmer has no plan, it is a plan to fail. The is no exit from funding, and it will continue depending on sundries. Farmers must be part of the development cycle to monitor progress for sustainable development. The farmer cannot start and finish a project because there is no understanding of agricultural extension. Extension plan guides agricultural advice to farmers according to their farmer needs. Extension official becomes irrelevant without a plan; failing business; no clear milestones to evaluate against in the end; there will be a lack of progress for the farmers that result in the same farmers being supported by the government. New farmers are not able to come into the system for funding. The focus will be all over the space resulting in a failing business. No plan leads to failure from the start. No sustainability in farms; focus will be on the wrong activities.

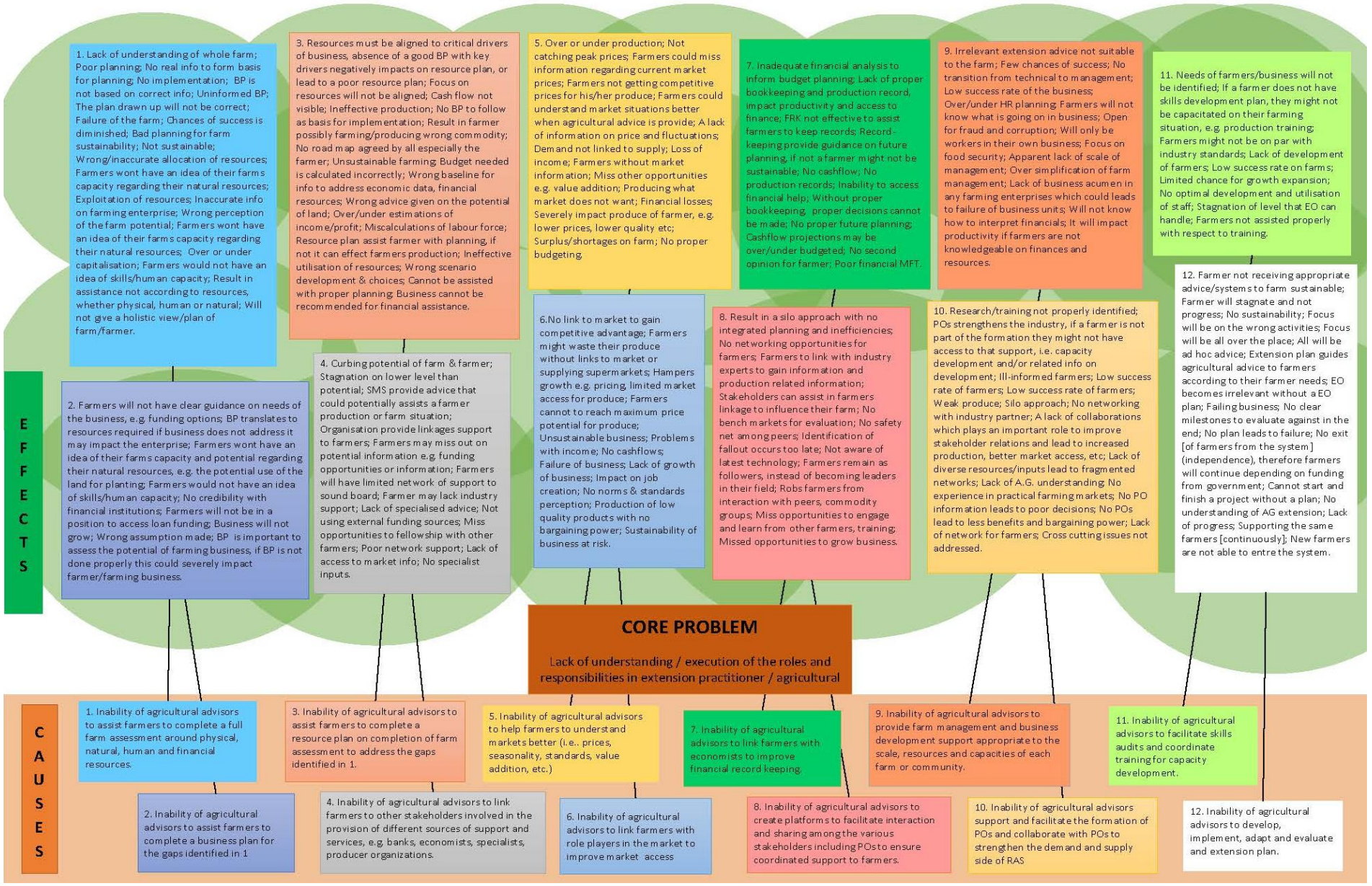

Figure 7.2: Problem Tree: WCDoA Expert Group Session.

7.4.1.2. Negative Tree Created by the SASAE Expert Group

The findings of the problem analysis by the SASAE expert stakeholder group are illustrated through a negative tree diagram (Figure 7.3) with the causal relationship for each root cause outlined below:

Cause-and-effect 1: The inability of agricultural advisors to assist farmers in completing a full farm assessment around physical, natural, human, and financial resources.

According to the SASAE experts, the effects of the first cause of the core problem mentioned would have numerous effects on the farmers discussed below. It would result in physical production losses and affect the farm's profitability. Regarding the physical resources, the farmer cannot plan and allocate the resources based on the potential of the land. This will result in ineffectiveness in farming.

Farmers would not be able to plan for their future which can result in a decline in natural resources. Moreover, limited or restricted growth of the farm or the business enterprise. Natural resources would not be used efficiently in the business. This may result in the improper application of extension and advisory services. Vague performance indicators for the business will result in poor performance. If the appropriate human resources are not used, it may result in compromised relationships due to a lack of skills to perform duties on the farm.

Cause-and-effect 2: The inability of agricultural advisors to assist farmers in completing a business plan for the gaps identified in 1.

The discussion around the inability of agricultural advisors to assist farmers in completing a business plan for the gaps identified and discussed above resulted in the following effects identified by the group:

With no business plan, farmers will have negative growth because there is difficulty in setting goals and subsequent advancement. Moreover, without a business plan, there will be a blind application of funds, and projects will be poorly resourced. Lack of planning of physical resources will lead to marketability challenges, which may hinder development due to poor infrastructure. A lack of human resources and poor networks will hamper growth, while natural resources

will result in limited growth or expansion. Farmers will be unable to plan their finances and resources and, consequently, not know if their actions are feasible. Farm businesses will not be able to succeed because the resources are not assessed according to the farm's potential.

Cause-and-effect 3: The inability of agricultural advisors to assist farmers in completing a resource plan on completion of farm assessment to address the gaps identified in 1.

The discussion around the third cause-and-effect relations resulted in the following effects identified by the group: ineffective resource management and application and planning; misuse and over or underuse of available resources; compromises growth and poor resource management could lead to over or underutilization of resources. Farmers won't know what resources are available and needed. This may result in over or undersupply of certain resources.

Cause-and-effect 4: The inability of agricultural advisors to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and producer organisations.

The effects identified by the stakeholder group for the above cause will result in limited funding opportunities and networking opportunity restrictions from specialists. The consequence will be limited access to information and thus restricted growth due to lack of information. This may result in limited access to capital, limited access to new technologies, an increased dependency on local extension officials, and limited knowledge and information. The farmers won't be able to coordinate their resources while also lacking knowledge of where to get finances or help when needed.

Cause-and-effect 5: The inability of agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition, etc.)

The inability of agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition) will have the following negative effects on the farmer: poor income due to lack of market information leading to low or no profit; profit loss and wastage. Moreover, farmers will not

know the best prices they can get for their products resulting in a loss of income if prices are below market prices. Farmers won't be aware of what product is needed by the markets. Farmers need to understand the standards required from the market and will not know the quantity and quality for that market. The latter will result in wastage.

Cause-and-effect 6: The inability of agricultural advisors to link farmers with role players in the market to improve market access.

According to the expert stakeholders, the inability of agricultural advisors to link farmers with role players in the market to improve market access will affect the farmer in the following ways: The farmers cannot identify who needs to be spoken to, or role players that will give them access to markets; poor or lack of market access for products will result in insufficient income; poor knowledge of what to produce for a particular market; clientele challenges; food wastage contributes to greenhouse gas emissions and pollution which feeds into climate-related challenges.

Cause-and-effect 7: The inability of agricultural advisors to link farmers with economists to improve financial record keeping.

The inability of agricultural advisors to link farmers with economists to improve financial record keeping results in the following disadvantages for the farmer: improper recordkeeping that leads to financial, tax, or cashflow implications; stagnant business operations with no growth may result; not being able to know whether they make profit or losses; inability to understand profits or losses when they occur; and the inability to budget and apply funds appropriately where needed.

Cause-and-effect 8: The inability of the agricultural advisors to create platforms to facilitate interaction and sharing among various stakeholders, including producer organizations, to ensure coordinated support to farmers.

According to the expert stakeholders, the effect of the cause above includes the following: farmers are not empowered; poor decision making; inability to grow business; limited access to information; lack of information leads to uninformed farmers; a lack of farmers' confidence; the inability of the farmer to stay current

with new developments; lack of support for farmers to network; the potential of farmers to lose out on information due to limited access to networks (market-related, operations, and latest technologies).

Cause-and-effect 9: The inability of agricultural advisors to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community.

The inability of agricultural advisors to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community will lead to the following effects: poor goal setting, a lack of a clear vision for farmers, poor farmer's income; ineffective advancement of development; the inability to reach farm goals; little capacity development and low farm development; the use of resources not available; demotivation of farmers; limited growth and development.

Cause-and-effect 10: The inability of the agricultural advisors to support and facilitate the formation of producer organizations and collaborate with producer organizations strengthen the demand and supply side of RAS.

The discussion around the inability of the agricultural advisors to support and facilitate the formation of producer organisations and collaborate with producer organisations to strengthen the demand and supply side of RAS results in ineffective bargaining power for the farmers; lack of knowledge transfer to the farmers; lack of information for the farmers; lack of confidence; poor growth on personal or business; unresolved challenges on the farms; lack of networking opportunities for the farmers; farmers do not remain current with new developments; lack of social support; lack of educational advancement due to a lack of knowledge from other stakeholders; loss of personal growth due to not belonging to organisations that provide training and skills through workshops and information days. Networking helps farmers to interact with different role players, which could lead to a general lack of information; poor decision-making on what to produce, when, and how; a lack of skills of farmers; missed opportunities.

Cause-and-effect 11: The inability of agricultural advisors to facilitate skills audits and coordinate training for capacity development.

The inability of agricultural advisors to facilitate skills audits and coordinate training for capacity development will affect the farmers as follows: Lack of knowledge transfer so that the farmers are skilled; lack of educational advancement for the farmers; lack of skills of farmers/ unskilled farmers; loss of personal growth; inappropriate training; lack of information; poor decision making due to lack of knowledge in terms of what to produce when and how.

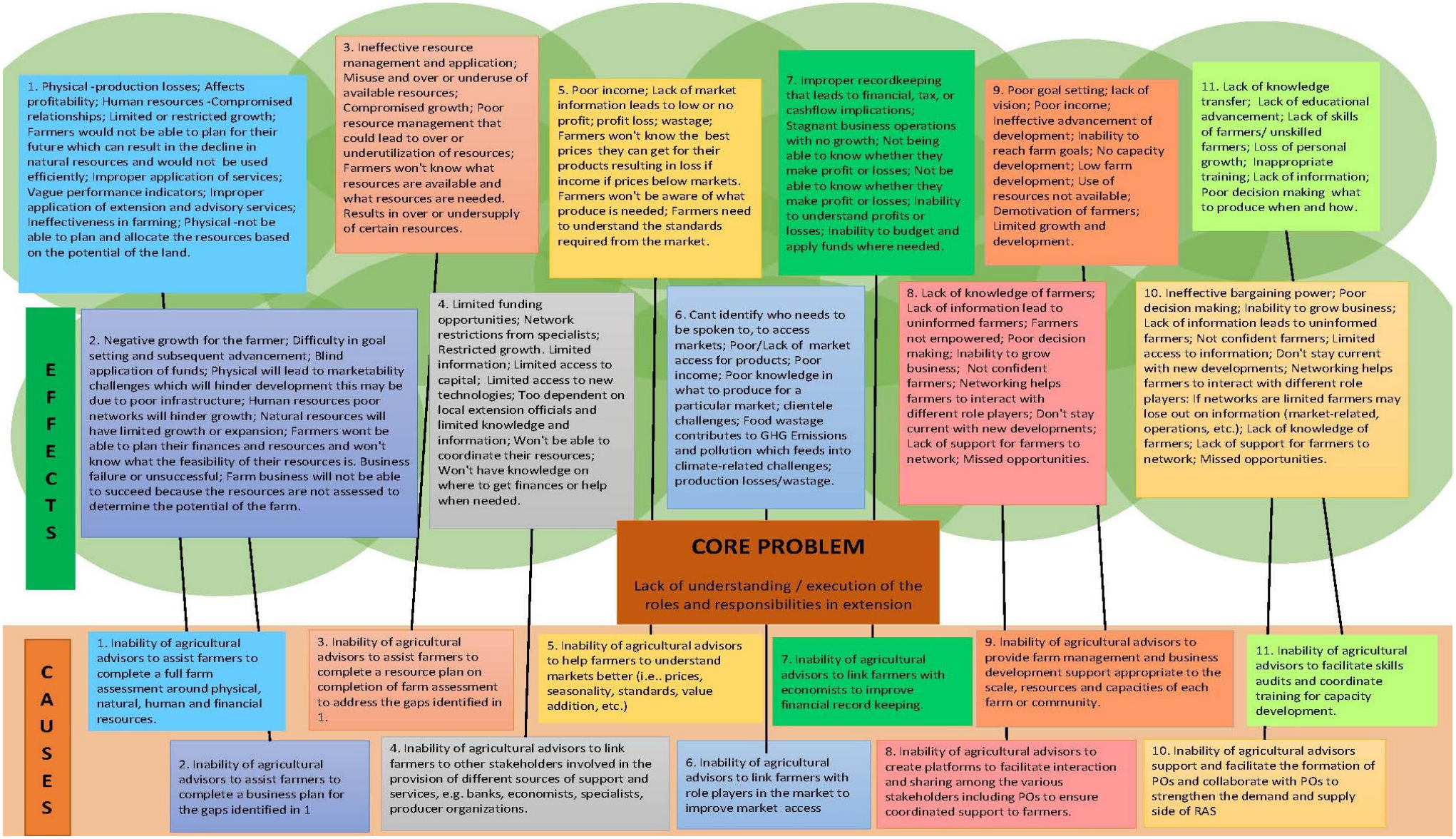

Figure 7.3: Problem Tree: SASAE Expert Group Session

7.4.1.3. Conclusions of the Problem Analysis

The findings of the negative tree show distinct trends on examination. In all the 11 root causes, there is at least one mention of the business or an enterprise not growing, not being sustainable, not profitable, or stagnant. Another trend that the findings show is that there is a loss of profit, income, and poor decision-making resulting in wastage. Moreover, the findings indicate missed opportunities for funding, training, market access, and information. The farmer's livelihood will not be improved due to agricultural advisors not having these competencies.

7.4.2. Findings of the Objective Analysis and Strategic Analysis

The process of determining the findings of the positive tree was done in the same manner as was for the negative tree. The core objective and competencies were identified by the researcher and other researchers of agricultural extension and verified or agreed upon by both expert stakeholder groups. After that, the activities to develop the core competencies required were identified by the expert groups and illustrated through tree roots in the schematic of the objective tree.

Moreover, the expert group continued to identify the outcomes of achieving the core objectives from their expert perspectives, represented in the branches of the objective tree schematic. Finally, the strategic analysis concluded the sessions, where the main strategies necessary to implement the activities and achieve the core objective were identified.

7.4.2.1. Objective Tree Created by the WCDoA Expert Group

Activity-and-outcome 1: The ability of agricultural advisors to assist farmers in completing a full farm assessment in terms of the physical, natural, human, and financial resources

The activities identified during the LFA were: Train agricultural advisors to get farm mapper knowledge so that the extension officer can offer the farmer the best possible Geographical Information Service (GIS) advice. Farm Mapper is a geographical information service the extension officer can use to give the farmer the best knowledge of the area and the farm using this technology. This technology show trends in best practices about crop and livestock types that can be successfully farmed in the area of the farm. Develop sound interpersonal skills training and gain practical experience by working with specialists from the department or the industry. In the same way, the extension officer must get market experience. In-service training on whole farm planning and coaching and mentoring of the extension practitioner. Training on soil profiles and rotational planning; area and farm training; interpersonal skills training; science and maths training; practical experience through accompaniment soil/crop adaptation related to water availability; enterprise budgets; climate interpretation; mentoring; and in-service training.

The outcomes of the core competencies were seen as follows: Farmers will get the best advice; the farm or business will become competitive; farmers and farms will be adequately assisted, and various resources needed for the farm will be identified; effective implementation and sustainability for farmers or farms. A bankable business plan is developed will equal a fundable farm. A better understanding of the whole farm plan allows farmers to plan their activities and resources according to the farm's needs. Agricultural advisors can do a full comprehensive farm assessment.

Activity-and-outcome 2: The ability of the agricultural advisors to assist the farmers in completing a business plan for the gaps identified in 1

The activities identified during the LFA are: training, coaching, and mentoring of farmers and agricultural advisors to reach potential so that they can be used to guide and advise farmers. Training, mentoring, oversight, and experience are

required to achieve this ability. Put an implementation strategy together with the farmer. Training on drafting business plans and farmers can know the training needed. Total farm planning; in-service training for new officials to the district.

The outcomes identified during the LFA were: - the optimal use of resources such as staff and infrastructure. A well-developed business plan, so farmers clearly understand the business, what needs to be done, and when it needs to be done. The farmer takes ownership of the process; he is in charge. Farmers can have better access to funding. Farmers have an idea of their various resources and plan their businesses.

Activity-and-outcome 3: The ability of the agricultural advisors to assist farmers to complete a resource plan on completion of the farm assessment to address the gaps identified in 1

The activities identified during the LFA were: training on drafting business plans. Equip the agricultural advisor with business management training. Training of the agricultural advisor on business plan writing. Facilitate training and practical experience for the agricultural advisor.

The outcomes derived during the LFA were: Farmers can match production according to poor or good resources on the plan. Confident extension officials equip farmers with an accurate resource plan, understood by both farmer and the extension officer farmers can allocate resources according to their needs and not their wishes. Depending on available resources, farmers will be properly assisted by identifying the type of production needs.

Activity-and-outcome 4: The ability of the agricultural advisors to link farmers to other stakeholders involved in providing different sources of support and services, e.g., banks, economists, specialists, and producer organizations.

The activities identified during the LFA were: the extension officer must register as a commodity specialist. Training, coaching, and mentoring experience to achieve this capacity are required. Training to maintain stakeholder relations and develop the capacity of the extension official to build his own networks. Organise farmer days; information days to promote and hold stakeholder meetings frequently.

The outcomes identified during the LFA were: If the farmer is linked to accepted value chains and contacts, they are more likely to be assisted financially, technically becoming less dependent on extension officers for advice. Farmers understand industry norms and certain management practices. Farmers receive advice through networking with other farmers and can gain information from other stakeholders regarding production practices. They are more likely to have increased support from organisations, access to up-to-date, relevant information, and more support for farmers. Well-resourced farmers can make proper decisions.

Activity-and-outcome 5: The ability of the agricultural advisor to help farmers understand markets better (i.e., prices seasonality, standards, value addition)

The activities identified during the LFA were: training, mentoring oversight, and experience needed by the extension officer. Training and linking farmers to economists to get mentoring. First, expose the extension officer to markets. Training on what is happening at local, provincial, national, and world markets. Link farmers to markets and provide farmers with prices regularly. Facilitate exposure to markets by linking them with major markets. Ensure extension officials are clued up on markets. Link them with market programs, local and export. Facilitate the creation of market opportunities by linking them with other programs in the Department, e.g., Program 6, Agricultural Economics.

The outcomes identified at the LFA were: - effective business plan implementation because of a better understanding of markets. Farmers can access better prices through better markets. The farmers may focus on niche markets. The farmer may decide on value-adding to increase farm income. The farmer is more active in all markets. Farmers increase their income due to market contracts they get to offset produce. Better business prospects. Optimal product produced for the market because of knowledge of quantity and quality.

Activity-and-outcome 6: The ability of agricultural advisors to link farmers with role players in the market to improve market access

The activities agreed to during the LFA facilitated market access through collaboration with other key stakeholders. Introduce the SHEP training and program to farmers and agricultural advisors. The agricultural advisor learns to

provide farmers with market-related information. Experience, training, oversight, and mentoring for the extension officer to achieve this ability. Create linkages with the market access role players. Extension officers must have access to all markets, local, provincial, and national to export markets. Training, mentoring oversight and experience; linking farmers to economists; training on what is happening at local, provincial, national and world markets; linking farmers to markets and supplying farmers with prices regularly; facilitating exposure to markets; facilitating the creation of market opportunities by linking them with other programs in the Department, ensure extension officials are clued up on the market.

The outcomes agreed to during the LFA were: - more market opportunities for the farmers. Successful enterprise because farmers secure contracts for their produce at markets. Farmers' income and market access improved good financial outcomes for the farmers due to better and optimal implementation of the business. Better prices are gained because the farmer understands pricing, a broader range of areas to offset produce. The farmer will have options to market products for best practices, markets for all products, and no wastage. Optimal production for markets; effective implementation; farmers can access better prices through better markets; better business prospects; the farmers may focus on niche markets; the farmer is more active in all markets; farmers increase their income and market contracts.

Activity-and-outcome 7: The ability of agricultural advisors to link farmers with economists to improve financial recordkeeping

The activities from the LFA were: Encourage the farmers and the extension staff to attend financial record-keeping training. Attach mentors in financial management to farmers and the extension staff, which results in reliable financial record-keeping. Extension officers to take economists to farmers quarterly for record-keeping workshops. Training, mentoring, experience and oversight so the extension officer can do financial records and planning. Facilitate market access through collaboration with other key stakeholders. Introduce the SHEP training and program to farmers. Provide farmers with market-related information and give experience, training, oversight, and mentoring. Create linkages with the market,

and access role players. Extension officers must have access to all marketers, from fresh produce to export products.

The outcomes derived from the LFA were: - farmers are trained to accurately keep financial and production records that will lead to increased product prices and income. Proper financial management will result in improved farm planning and a sustainable enterprise because experienced mentors guide farmers. Realistic financial planning will result. Business information systems are in place to show the farmer where the business is at monthly. Making sound business decisions based on accurate records result in financial sustainability. Better funding opportunities and better tax records.

Activity-and-outcome 8: The ability of the agricultural advisors to create platforms to facilitate interaction and sharing among various stakeholders, including producer organisations, to ensure coordinated support to farmers

The activities derived during the LFA were: Creating linkages with industry partners or associations to leverage more information for the extension officer and the farmer. Extension officers can access extensive data and ICT to connect farmers to markets and commodity groups. The extension officers must obtain good networks and be introduced to all regional agricultural organisations when they start work in a district. Promote the creation of district forums through training, mentoring, and practical experience in all of the above. More market opportunities. Successful enterprise farmers secure contracts for their produce at markets. Farmers' income and market access improved, good outcomes for the farmers, better and optimal implementation. Better prices. A wider range of areas to offset produce. The farmer will have options to market products for the best prices. Markets available for all produce.

The outcomes derived during the LFA were: - access to industry information. Access to more opportunities, therefore, stronger businesses and prosperous farmers. Farmers are linked from the planning stage to markets via value chains. The network of information for the farmers is broadened. Farmers can access data from other stakeholders, not only agricultural advisors. Access to the latest developments, and access to markets, will result in sustainability because of better access to training on practical and technical aspects.

Activity-and-outcome 9: The ability of the agricultural advisor to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community.

The activities agreed to during the LFA were: - training, mentoring, experience, and oversight on how the extension official must learn to adapt the business plan to fit the climatic conditions, the farm, and the environment. Equip extension officers with farm management and business management skills through the relevant short courses.

The outcomes derived during the LFA were: the farmer will get acquainted with the farm condition from a management perspective, which will result in sufficient planning. There will be no standard business plan for all commodities but a customised plan to fit that farm's resource requirements. No overutilisation of natural resources will result in the optimal use of resources. The farmer is accurately assisted and developed regarding production and financial needs. Farmers will understand the bigger picture regarding the quality and standards of the country they are exporting to. Better-equipped farmers and extension officers will result.

Activity-and-outcome 10: The ability of the agricultural advisors to support and facilitate the formation of producer organisations and collaborate with producer organisations strengthens the demand and supply side of RAS.

The activities derived during the LFA were: create opportunities to link the extension officers and the farmers with the producer organisations. Training, mentoring, and oversight to be able to achieve these abilities. The extension officer must be aware of the dynamics in the district and understand the advantages of associations. Be aware of the creation of dual organisations.

The outcomes agreed to be: the farmers have a greater understanding of their needs in producer groups due to the discussions in the groups about everyday problems. They have bigger and better bargaining power. Farmers relate to fellow farmers and therefore have greater access to industry information leading to a broader support base for the farmer. Challenges will be addressed as a collective.

Activity-and-outcome 11: The ability of the agricultural advisors to do skills audits and coordinate training for capacity development

The activities derived during the LFA were: - the identification of skills gaps correctly. Training, mentoring, experience, and oversight to develop skills around audits and developing and executing a training plan. Training to conduct skills audits and coordinate the logistics for the audits and training. To facilitate skills audits by staff to identify the skills needed for farmers.

The outcomes agreed to during the LFA were: - better-trained farmers will result from having skills audits and training plans implemented. The farmers will be better equipped and knowledgeable producers and know the required skills. Skills development plans for farmers identify skills needs accurately and will have skills aligned to skills development needs. The capacity needs of the business will be addressed, and the farmer's business will grow more quickly.

Cause-and-effect 12: The inability to develop, execute, implement, adapt, and monitor update an extension plan.

An extension plan guides the agricultural advisor to advise farmers according to their farmer needs. Thus, a lack thereof will result in no sustainability, or the farmer will stagnate, and farmers will not progress because the focus will be on the wrong activities. The advice given by the agricultural advisor will be on an ad hoc basis and irrelevant.

The farmer will not receive appropriate advice on systems to farm. If the farmer has no plan, it is a plan to fail. There is no exit from funding, and it will continue depending on sundries. Farmers must be part of the development cycle to monitor progress for sustainable development. The farmer cannot start and finish a project because there is no understanding of AG extension. There will be a lack of progress for the farmers that result in the same farmers being supported by the government. New farmers are not able to come into the system for funding. The focus will not be centered, resulting in a failing business.

Figure 7.4: Objective Tree: WCDoA Expert Group Session

7.4.2.2. Objective Tree Created by the SASAE Expert Group

Activity-and-outcome 1: The ability of agricultural advisors to assist farmers in completing a full farm assessment in terms of the physical, natural, human, and financial resources

The activities identified were: Train the farmers on how to conduct farm assessments. Train agricultural advisors on conducting interviews with farmers when doing farm assessments.

The outcomes identified: the farmers will be more knowledgeable about conducting farm assessments. They will have a well-developed proper farm assessment done. The resources needed for business development are accurately identified. They are in a position to set their goals better and can have a prosperous enterprise. They have a bankable business plan.

Activity-and-outcome 2: The ability of the agricultural advisors to assist the farmers in completing a business plan for the gaps identified in 1

The activities identified were: - the training of agricultural advisors to train the farmer on how to do a proper plan so that they can, in turn, train farmers on how to do business plans through an accurate farm evaluation. They train the agricultural advisors to train farmers on how to do financial statements and market research.

The outcomes identified were: - the farmers made proper decisions that will result in a profitable farming enterprise due to good planning. The farmer can present a proper business plan to funders (viable business plan) to access funds. The farmer becomes knowledgeable on how to do a proper farm plan. This creates a solid foundation for the farmer.

Activity-and-outcome 3: The ability of the agricultural advisors to assist farmers to complete a resource plan on completion of the farm assessment to address the gaps identified in 1

The activities identified to achieve the above are: to train the extension officers how to teach farmers about conducting resource plans, using resources, and conducting a resource analysis and gap identification.

The outcomes identified by the group were: the farmers are more capacitated on completing resource plans that result in effective resource use with a well-developed resource plan that will prevent wastage or under-resourcing of the farm. Ultimately the extension officer will have well-resourced farmers. The farm will then be profitable.

Activity-and-outcome 4: The ability of the agricultural advisors to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., Banks, economists, specialists, and producer organisations

The activities identified were: - the training of extension officials on how to do a proper business plan. Teach them how to help farmers network by creating communication between stakeholders. Encourage them to hold farmer days with stakeholders to assist farmers and link farmers with stakeholders through study groups to develop linkages.

The outcomes derived from having these competencies were: that farmers will be able to collaborate with appropriate stakeholders and develop their sources of support that they can access quicker than an extension officer. They will also have a broader support base than the extension officer. Farmers will be able to know whom to contact for what services. Farmers can make decisions based on the information provided by this support group. They will have better access to knowledge, which may make them more successful. They have better bargaining power as a group. They will have better access to market initiatives or to finance. They have better access to knowledge.

Activity-and-outcome 5: The ability of the agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards, value addition)

The activities derived to achieve these were identified as: - the training of the extension officers on how to transfer information using communication and technology. The extension officers need to learn how to disseminate market information using technology. They need to know how to facilitate the awareness of market information in seasonality, pricing, and quality.

The outcomes derived from this LFA were: the farmers will be more informed about appropriate crops, resulting in better pricing and more profit for the farmer. The farmer will also know the market standards and improve the yield according to market standards to have better market access. The farmer can make better decisions about the quality, quantity, pricing, and crop type, which will result in improved income because the farmer has knowledge about markets on what and when to sell.

Activity-and-outcome 6: The ability of agricultural advisors to link farmers with role players in the market to improve market access

The activities identified were: - the training of the extension officer on marketing so that the extension officer can give the farmer better information on accessing the market. The training must include an introduction to information systems so that the extension officer can train the farmer in this regard. Develop facilitation skills to link farmers to role players in the market and learn who the role players in the market are to disseminate this to the farmers. Encourage the extension officer to organise information days and study groups to open the lines for communication for the farmer-to-market role players.

The outcomes derived at the LFA were: - the farmers had better market access because of better decision-making that resulted in increased and improved income because they had better knowledge about markets, namely what and when to sell.

Activity-and-outcome 7: The ability of agricultural advisors to link farmers with economists to improve financial recordkeeping.

The activities derived during the LFA were: introduction to economics for all extension officers and knowing who the economist, the department, or district are to best guide the farmer.

The outcomes derived during the LFA are better financial planning because of improved record-keeping resulting in better decision-making and a more sustainable business.

Activity-and-outcome 8: The ability of the agricultural advisors to create platforms to facilitate interaction and sharing among various stakeholders, including producer organisations, to ensure coordinated support to farmers

The activities derived during the LFA were: to train farmers on how to use resources sustainably, and farmers will gain knowledge on how to manage farms according to the scale and resources they have at their resources. Facilitate extension officers to link farmers with specialists that will develop the business or farm evaluation or planning.

The outcomes identified during the LFA were: The farmers will have increased support from agricultural producers and farmer organisations; the farmers will have access to up-to-date, relevant information; the farmers can access more support from these organisations that they become well-resourced farmers and well-informed farmers able to make better financial decisions.

Activity-and-outcome 9: The ability of the agricultural advisor to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community

The activities identified during the LFA were: Business planning or farm evaluation training; training on how to advise farmers in terms of this role. Train the trainer.

The outcomes agreed upon during the LFA were: the increased scaling of enterprises. Knowledgeable farmers. Improved business management skills; better understanding of their farm business; better improved farm management and business development support. More successful business.

Activity-and-outcome 10: The ability of the agricultural advisors to support and facilitate the formation of producer organizations and collaborate with producer organizations to strengthen the demand and supply side of RAS

Structuring of study or farmer groups must be part of the work of the extension officer. Linking the agricultural producer organisations so that they can, in turn, do the same for the farmers. Encourage them to encourage the farmers to join producer groups. They must collaborate with producer organisations and get the farmers to do the same.

The outcomes determined during the LFA were: the farmers will have increased knowledge scaling of enterprises in terms of their capacity, concerning the human, physical, financial, and natural resources. The farmers will have improved business management skills and a better understanding of the farm and are more likely to farm sustainably.

Activity-and-outcome 11: The ability of the agricultural advisors to do skills audits and coordinate training for capacity development.

The activities derived during the LFA were: training of extension officer for farmer development and training initiatives so that the extension officer can train the farmers on skills audits and skills development so that they can identify their own needs and plan how to address it or ask the extension officer to assist with the development plan for the farm. Request the extension official or training unit to conduct a skills audit to develop human resources capacity.

The outcomes determined by the LFA were: The farmers had better knowledge, and their skills improved. Their training needs were identified, and their development needs could be addressed accordingly. They could therefore manage the business as the training was done on a need's basis, which will ensure the business's personal growth.

Activity-and-end 12: The ability to develop, implement, adapt, and evaluate an extension plan

The respondents added this to the evaluation tool.

The activities identified during the LFA were: - to assign roles, responsibilities, and tasks to execute and implement an extension plan. Training on a project management cycle for farmers and agricultural advisors is needed. Develop a plan of action to track the progress of farmers. Develop a clear development plan. Develop an implementation plan with an exit strategy and a monitoring and evaluation plan. Training to understand all market and production challenges, mentoring, training, oversight, and experience for all of the above. Coordinate with other stakeholders on the implementation of this extension plan.

The outcomes derived from the LFA are: the agreed deliverables are met or adapted as the process unfolds. Farmers and extension officers can track farmers' progress and fast-track any challenges that hamper development and improvement. The farmers can monitor and evaluate the plan and exit strategy. Exit from funding can be negotiated upfront. Roles and responsibilities are straightforward and can be measured- optimal use of resources, if achieved or not. Better and more sustainable production and farming will result in a bankable business plan. Farmers better equipped to run their farms increase the sustainability of the farm.

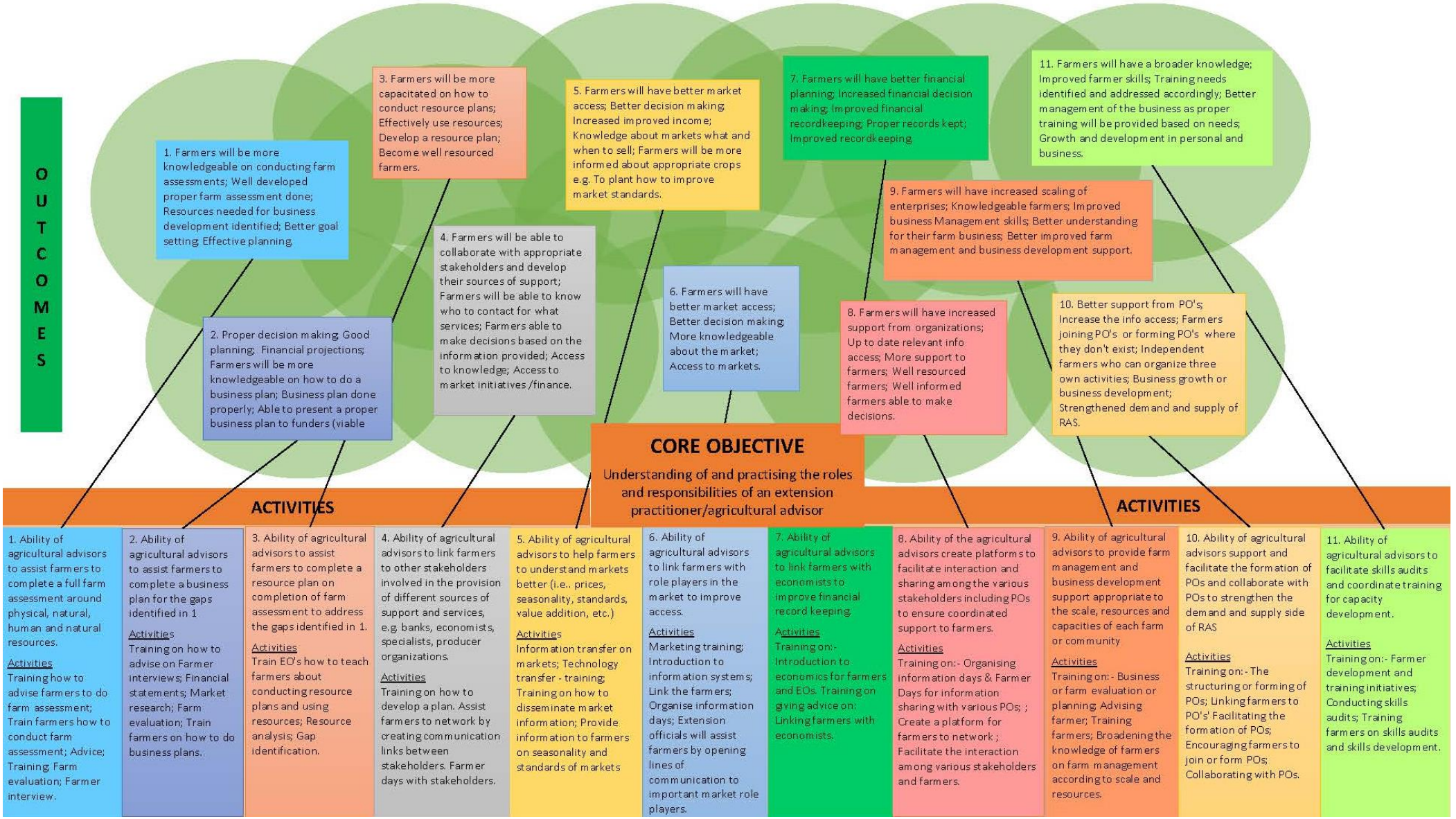

Figure 7.5: Objective Tree: SASAE Expert Group Session

7.4.2.3. Conclusions of the Objective Analysis

The findings in the activities have a golden thread that is pulled through all the activities in the LFA. The first is the need for training agricultural advisors to obtain these competencies. This is followed by the mentoring and coaching of agricultural advisors to reach these competencies. Mention is made of experience through accompaniment to acquire these competencies. Reference was made to in-service training when agricultural advisors are appointed to a new district.

The findings of the positive trees show certain trends in the outcomes if it is shown that agricultural advisors have certain competencies. The first trend of the outcomes clearly shows a growing, profitable and sustainable business. The second trend in the outcomes shows that the business is planned properly, resulting in better production plans, improved market access, and increased income because all the resources are aligned. Another trend of the outcomes is the availability of needed resources and well-informed farmer that makes sound business decisions; all the above will improve the farmer's livelihood.

7.4.2.4. The Strategy Analysis

Four main strategies were identified to achieve the core objective for extension officers or agricultural advisors to understand and implement the roles and responsibilities (competencies) identified to improve farmers' livelihoods. These strategies are (1) training, (2) mentoring, (3) coaching agricultural advisors, and finally, (4) gaining experience through accompaniment. The purpose of the four strategies is to enable the implementation of the activities identified from the objective trees and build the competencies required by agricultural advisors. These strategies are discussed in greater detail in and summarised in the form of an LFA Matrix as part of the third and final phase of the LFA.

7.5. THE PLANNING PHASE

The Logistical Framework matrix is the final phase of the LFA, the planning phase, as indicated in the methodology above. The following section outlines each part of the matrix, including the IL, OVI, SV, and assumption for the goal, purpose, and intermediate results. Finally, a detailed overview of each activity and the associated resources and cost requirements.

7.5.1. The Goal

The IL's goal is to improve the farmers' livelihoods due to the execution and practice of the roles and responsibilities (competencies) identified. The OVI of the goal is a more bankable business plan, as the farmer will have easier access to funding. The business will have better access to funds; therefore, the business will be more profitable and have easier access to markets. The SV will be the financial records that show the business is profitable. The funding agreements will indicate access to finance from the banks, and the market offset agreements will show easier access to markets. The assumption is that the farmer will accept the support and advice from the agricultural advisor.

7.5.2. The Purpose

The IL aims to understand and implement identified roles and responsibilities (competencies). The OVI is, on the assessment of the performance of agricultural advisors, they will be rated as satisfactory. The farmers will be satisfied with the performance of the agricultural advisors during surveys. Performance assessment in the field using the tool with the competencies identified. Surveys of farmers' satisfaction. The assumption is that the agricultural advisor will want to develop these competencies.

7.5.3. The Intermediate Results

The intermediate results are:1. The IL is training, and the OVI is the availability of courses. The SV is attendance registers at courses, competency assessment certification, and attendance certificates. The assumption is that the agricultural advisors want to be trained. The IL is mentoring, and the OVI is the availability of mentorship plans. The SV is records of mentoring and mentorship agreements. The assumption is that the agricultural advisor wants to be mentored. 2. The IL is coaching, and the OVI is coaching plans available. The SV is a record of coaching and coaching agreements. The assumption is that agricultural advisors want to be coached. 3. The IL is accompaniment or experience, and the OVI is available experts to accompany the agricultural advisors and accompaniment plans. The SV is attendance registers. The assumption is that the agricultural advisors want to be accompanied.

7.5.4. The Required Activities

All the activities are summarised in Table 7.1. Each activity involves training, mentoring, coaching, and accompaniment of the agricultural advisors to develop this competency to assist the farmers in the various activities above (completing full farm assessments, business plans, resources plans; linking farmers to other stakeholders involved in providing additional support and services; help farmers to understand markets better [i.e., prices, seasonality, standards, value addition]; link farmers with role players in the market to improve market access; link farmers with economists and improve financial record-keeping; develop competencies to create platforms to facilitate interaction and sharing among various stakeholders, including producer organisations; provide farm management and business development support appropriate to each farm or community's scale, resources, and capacities; support and facilitate the formation of producer organisations and collaborate with producer organizations to strengthen RAS's demand and supply side; do skills audits and coordinate training for capacity development; and developing, implementing, adapting, and evaluating an extension plan). The resources required for these activities are training plans, in-service training, and accompaniment plans by specialist advisors to mentor the agricultural advisors to develop these competencies. Agricultural advisors are also advised to join the various producer organisations to access support structures when needed. Costs for the above activities will be covered by government funding from the extension and advisory services revitalization funds available for training extension practitioners and skills levy funds.

Table 7.1: Logistical Framework Matrix

	Intervention Logic (IL)	**Objectively Verifiable Indicators (OVI)**	**Sources of Verification (SV)**	**Assumptions**
Goals	Improved livelihoods of the farmers due to the execution and practice of the roles and responsibilities (competencies) identified.	More bankable business plan Easier access to funding Business is more profitable Better access to finance from banks Easier access to markets	Financial records Funding agreements Market agreement contracts. Surveys	The farmer will accept the support and advice given by the agricultural advisor
Purpose	The understanding and implementation of the roles and responsibilities identified.	On the assessment of the performance of the agricultural advisor, the agricultural advisor's performance will be more than satisfactory. The farmers will be satisfied with the performance assessment of the agricultural advisor during surveys.	Performance assessment in the field using the tool with the competencies. Surveys of farmers' satisfaction.	The agricultural advisor will want to develop these competencies
Intermediate Results	1. Training	Available courses	Attendance registers at courses. Competency assessments Certification	Agricultural advisors want to attend
	2. Mentoring	Mentorship plans are available.	Records of mentoring and mentorship agreements	Agricultural advisors want to be mentored
	3. Coaching	Coaching plans available	Records of coaching and coaching agreements	Agricultural advisors want to be coached by specialists from the field

	4. Experience/ Accompaniment	Available experts and accompaniment plans available	Records and registers of accompaniment attendance and accompaniment agreements	Agricultural advisors want to be accompaniment by specialists from the field
Activities		**Resources**	**Costs**	
1 Training for the agricultural advisors on how to do whole farm planning. Mentoring and accompaniment of the agricultural advisors to develop the competency to assist farmers to complete a full farm assessment in terms of physical, natural, human, and financial resources.		Training Plan In-service training plan for the agricultural advisors on whole farm planning, taking soil samples, carrying capacity of the land, and sustainable farming practices. Mentoring plan for agricultural advisors by specialist agricultural advisors on how to assess a farm. Demonstrations by specialist agricultural advisors on how to take soil samples. An accompaniment plan allows the agricultural advisor to develop this competency through experience.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds.	
2 Training, mentoring, coaching, and accompaniment of the agricultural advisors to assist the farmers to complete a business plan for the gaps identified in 1		Training Plan on how to complete a business plan for agricultural advisors. Training Plan on project management for agricultural advisors An accompaniment plan for agricultural advisors by specialist advisors to mentor the agricultural advisor to achieve this competency.	Government funding from the extension and advisory services revitalization funds is available for the training of the extension practitioners and skills levy funds.	

3 Training, mentoring, and coaching of the agricultural advisors to assist farmers to complete a resource plan on completion of the farm assessment to address the gaps identified in 1.	Training plan for in-service training of the agricultural advisor to complete a resource plan. Mentoring and coaching of the agricultural advisor by specialists in the field. Accompaniment of the agricultural advisor by specialists in the field from producer organizations so that they can gain the necessary experience.	Government funding from the extension and advisory services revitalization funds is available for the training of the extension practitioners and skills levy funds.
4 Training, mentoring, and coaching of the agricultural advisors to link farmers to other stakeholders involved in providing different sources of support and services, e.g., banks, economists, specialists, and producer organizations.	Training plan for in-service training of the agricultural advisor to develop competencies to link the farmer to different sources of support. Mentoring and coaching plans for the agricultural advisor by specialists in the field on how to do this. An accompaniment plan for the agricultural advisor by specialists in the field from producer organizations so they can gain the necessary experience to achieve this. The agricultural advisor must join the various producer organizations to access support structures when needed.	Government funding from the extension and advisory services revitalization funds was made available for the training of the extension practitioners and skills levy funds.
5 Training, mentoring, coaching, and experience to develop the competency by the agricultural advisors to help farmers to understand markets better (i.e., prices, seasonality, standards value addition, etc.)	Training plan for in-service training of the agricultural advisor to develop competencies to understand markets better. Attend a SHEP program. Mentoring and coaching plan for the agricultural advisor by specialists in the field on how to do this. An accompaniment plan for the agricultural advisor by specialists in the field from producer	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds.

	organizations so they can gain the necessary experience to achieve this. Economists must accompany the agricultural advisor to learn about local, national, and export market readiness. They require training on phytosanitary standards.	
6 'Ability of agricultural advisors to link farmers with role players in the market to improve market access	Training plan for in-service training of the agricultural advisor to develop competencies to link the farmer to different sources of support. Mentoring and coaching of the agricultural advisor by specialists in the field. On how to do this. Accompaniment of the agricultural advisor by specialists in the field from producer organizations so they can gain the necessary experience to achieve this. The agricultural advisor must join the various producer organizations to access support structures when needed.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds
7 Training, coaching, mentoring, and accompaniment of agricultural advisors to develop competencies to link farmers with economists to improve financial recordkeeping	Training plan for in-service training of the agricultural advisor to develop competencies to link farmers with economists to improve financial recordkeeping. A mentoring and coaching plan for the agricultural advisor by specialists in the field on how to do this. An accompaniment plan of the agricultural advisor by specialists in the field from producer organizations so they can gain the necessary experience to achieve this.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds.

8 Training, coaching, mentoring, and accompaniment for the agricultural advisors to create platforms to facilitate interaction and sharing among various stakeholders, including producer organizations, to ensure coordinated support to farmers	Training plan for in-service training of the agricultural advisor to develop competencies to create platforms to facilitate interaction and sharing among various stakeholders, including producer organizations, to ensure coordinated support to farmers. Mentoring and coaching plans for the agricultural advisor by specialists in the field on how to do this. An accompaniment plan for the agricultural advisor by field specialists so they can gain the necessary experience to achieve this.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds.
9 Training, coaching, mentoring, and accompaniment of the agricultural advisor to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community	Training plan for in-service training of the agricultural advisor to provide farm management and business development support appropriate to each farm or community's scale, resources, and capacities. Mentoring and coaching of the agricultural advisor by specialists in the field on how to do this. Accompaniment of the agricultural advisor by specialists in the field so that they can gain the necessary experience to achieve this.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds.
10 Training, coaching, mentoring, and accompaniment of the agricultural advisors to support and facilitate the formation of producer organizations and collaborate with	Training plan for in-service training of the agricultural advisor to develop competencies to support and facilitate the formation of producer organizations and collaborate with producer organizations to strengthen RAS's demand and supply side.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds

producer organizations to strengthen the demand and supply side of RAS	Mentoring and coaching of the agricultural advisor by specialists in the field. On how to do this. Accompaniment of the agricultural advisor by specialists in the field from producer organizations so they can gain the necessary experience to achieve this. The agricultural advisor must join the various producer organizations to access support structures when needed.	
11 Training, mentoring and coaching of the agricultural advisors to do skills audits and coordinate training for capacity development	Training plan for in-service training of the agricultural advisor to develop competencies to do skills audits and coordinate training for capacity development. Mentoring and coaching of the agricultural advisor by specialists in the field. On how to do this. Accompaniment of the agricultural advisor by specialists in the field experience to achieve this.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds
12 Training, coaching, and mentoring on the ability to develop, implement, adapt, and evaluate an extension plan	Training plan for in-service training of the agricultural advisor to develop competencies to develop, implement, adapt, and evaluate an extension plan. Mentoring and coaching plan of the agricultural advisor by specialists in the field. On how to do this. Accompaniment of the agricultural advisor by specialists in the field so they can gain the necessary experience to achieve this.	Government funding from the extension and advisory services revitalization funds available for training of the extension practitioners and skills levy funds

7.6. EXPERT STAKEHOLDER GROUP DISCUSSION AND RECOMMENDATION

During the LFA analytical phase, discussions emerged among the WCDoA expert stakeholder, which resulted in an overarching recommendation from the group on the qualification requirements for agricultural advisors.

The WCDoA participants started discussing their beliefs about the requirements of the extension practitioner to be more successful in improving the livelihoods of the farmers they serve. They agreed with the roles and responsibilities identified in the LFA as core competencies needed for extension officials; however, they argued that there is an additional factor to consider apart from the roles and responsibilities specified. According to the group, the qualifications of agricultural advisors should be considered to improve the farmer's livelihoods. They firmly believed that an agricultural advisor must be able to give advice based on a solid scientific foundation. Hence, they firmly believed that an agricultural advisor must have a minimum of a Bachelor of Science degree in an agricultural field. They stated that the time for a generalist is in the past. From their perspective, an advisor should have specialist knowledge in a specific field, such as crop science or large and small stock. They argued that the management courses in agriculture set the extension practitioner up for failure. They expressed the same view for undergraduate degrees with a mix of extension and animal science. Therefore, the group agreed that there is a need for extension sciences after obtaining an undergraduate degree in pure agricultural science. Moreover, the group highlighted the difference between extension and advisors being made clear instead of the interchangeable use, recommending that extension practitioners do extension and advisors give advice.

They were adamant that the agricultural advisor appointed to a district must have the necessary undergraduate scientific qualification in the commodities prevalent in that area. The group referred to an example stating that an agricultural advisor must be appointed with viticulture or an enology qualification in the Winelands. In contrast, an advisor in Central Karoo must have a small stock qualification.

The other concern they had was that the assessment of the agricultural field did not focus on the roles and responsibilities discussed. They felt this disadvantaged the agricultural advisors as they were not conversant with these expectations or roles. Hence, such roles need to be incorporated into their performance assessment.

7.7. LFA CONCLUSION AND RECOMMENDATIONS

The findings of the LFA showed that the lack of the competencies required for an agricultural advisor to influence the livelihood positively would not achieve such an objective. The negative tree findings showed the opposite. It showed that the business could not grow or that it would stagnate. It also showed that the business plan will be uninformed and will not get funding or loans from the bank because it is not based on accurate findings. This will negatively affect the resource plan as the farmer may over or under-capitalise on the farm. It may result in the degradation of land due to overgrazing. The same is true for the resource plan, as the farmer may under or over-purchase production inputs that may lead to wastage.

The findings of the LFA showed that the competencies identified in the objective tree would positively affect the farmer's livelihood. Hence, these roles and responsibilities can be used in an assessment tool of the agricultural advisor to determine the extent to which they will positively affect the farmer.

Furthermore, since the performance assessments in the provincial departments do not measure all the roles and responsibilities of an agricultural advisor, it is recommended that some of these roles and functions be incorporated into the existing performance assessments. In the discussions of the LFA, some officials indicated a need to assess the agricultural advisor in a more holistic way. They believe that the current assessment tools do not measure agricultural extension per se; hence, they may not practice all the above competencies. This was why an assessment tool that measures the important competencies of an agricultural advisor needed to be developed.

Finally, based on the latter section (7.6) involving the discussion that took place during the LFA analytical phase with the expert WCDoA expert group, the researcher recommends a study into how the qualifications of the extension practitioner affect the livelihood of the farmers they serve.

CHAPTER 8: FINDINGS ON THE SUCCESS PROFILES OF THE AGRICULTURAL ADVISORS

8.1. INTRODUCTION

Agricultural extension is pivotal to the transformation of the agricultural sector, as outlined in the many strategic and policy frameworks for South Africa, such as the National Development Plan Vision 2030 (2011, p. 218). The latter emphasizes that the extension practitioner's role is to improve smallholder market access and facilitate farmer-to-farmer skills transfer to improve the rural economy. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers.

The National Framework for Extension as a Field of Practice (2014, pp.3-4) states that "extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake." In the National Policy on Extension and Advisory Services (2016, p. viii), the Deputy Minister of Agriculture, Forestry and Fisheries states in the foreword that the provision of extension and advisory services is "undoubtedly sacrosanct in the advancement of agrarian reform." The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a key driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access.

The latter is pivotal to improving market access and are identified as the roles and responsibilities of an extension practitioner and extension and advisory service. These are emphasized in the Norms and Standards for Extension and Advisory Services in Agriculture and the National Policy on Food and Nutrition Security Strategy in the Republic of South Africa (2013). Because extension is important, the writer felt it necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one under the same conditions who does not have a positive effect on the farmer. The one with a positive effect will aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural extension science creates such a difference. This study aims to determine whether an agricultural advisor with a foundation in extension science

improves the livelihood of the beneficiaries of their extension and advisory service. There is little or no empirical evidence that having a foundation in extension as a science result in the agricultural advisor providing a better extension and advisory service to the farmer.

8.2. METHODOLOGY TO DETERMINE THE SUCCESS PROFILES OF THE AGRICULTURAL ADVISORS

The researcher determined the target population to prove the hypothesis. These were the agricultural advisors in Program 3 of the Western Cape Department of Agriculture (WCDoA). The purpose was to compare the success profiles of the agricultural advisors with a foundation in extension science to an agricultural advisor with no such foundation. This required that the determinants for the comparison be identified. The first determinant was to compare if these agricultural advisors had any foundation in extension science. The determinants for success decided upon were the success rating of the farms and the farmers. The farmer's perceptions of the advisory service provided by the agricultural advisor was also assessed. The latter determinants were obtained from studies done in the WCDoA and will be discussed in more detail in this Chapter.

The last determinant to complete the success profile of the agricultural advisor was the performance assessment of the participating agricultural advisors in the field. The latter required a tool that ould measure the agricultural advisors' roles and responsibilities. The performance rating tool in the WCDoA measures the performance of Program 3 around extension and advisory services rather than measuring the roles and responsibilities of an agricultural advisor.

Therefore, the development of an assessment tool was required. It was necessary to develop criteria for this tool to achieve the former. The criteria for this tool were done by determining the non-negotiable roles of an agricultural advisor. To determine what sets the agricultural advisors apart, it was necessary to conceptualise measurement tools for this purpose.

Each step in determining the success profile of the agricultural advisor is discussed in detail in this chapter. In this way, the researcher could determine if an agricultural advisor with a foundation in extension science is more likely to positively influence on

farmer's livelihood than an agricultural advisor with no such foundation. The researcher tabulated the results for each participant as outlined in Table 8.1.

Table 8.1: Data Triangulation

Number of Participants	Foundation in Extension Science	Performance Rating by manager	Success rating of Farm	Farmer's' view on extension and advisory service	Years of experience	Qualifications
001	Y/N	%	Moderately successful	Good, bad, acceptable	0-5; 6-10; 11-15; 16-20	

The researcher used the format in Table 8.1 to collate the information to determine if an agricultural advisor with a foundation in extension science is more likely to improve a farmer's livelihood than one with no such foundation. It was easy to identify the agricultural advisor from the table. Thus, the latter has been used but not included in this study to protect the personal information of the agricultural advisor and the manager who rated the advisor. The demographics as discussed in Chapter 4, were also used to determine the success profiles of the agricultural advisors.

8.3. DETERMINING THE CRITERIA FOR THE PERFORMANCE ASSESSMENT TOOL

The researcher believed that the core functions of an agricultural advisor should be the criteria used to assess the performance of an agricultural advisor as stated in the Determination and Directive on the Performance Management and Development System of Employees (2018, p. 4). This necessitated determining the roles and functions the agricultural advisor needed to improve the farmer's livelihood to whom they provide an extension and advisory service. The latter was done through a

literature review of the various definitions of extension and advisory services, policy documents around extension and advisory services in South Africa, the views of authors regarding what roles and functions are required to improve the livelihood of the farmers, and the position papers from the Global Forum of Rural Advisory Services and the Food and Agricultural Organization of the United Nations.

Chapter 5 provided the following roles and responsibilities that were identified to form the criteria for this assessment tool:

1. Assist farmers in completing a full farm assessment on physical, natural, human, and financial resources.
2. On completion of the full farm assessment above, help the farmer to complete a resource plan that will address the gaps identified above.
3. On completion of the needs analysis of the above, help the farmer to complete a business plan for the production cycle.
4. Provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community
5. Help farmers understand markets better (i.e., prices, seasonality, standards, value addition).
6. Link the farmers with role players in the market to improve market access.
7. Link the farmers with economists to improve financial record keeping.
8. Create platforms to facilitate interaction and sharing among the various stakeholders, including producer organisations, to ensure coordinated support to farmers.
9. Link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and producer organisations (POs).
10. Support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of rural advisory services.
11. Facilitate skills audits and coordinate training for capacity development

A twelfth criterion was added during the LFA by the WCDoA group. Develop, execute, implement, adapt, and monitor an extension plan.

8.3.1. Synopsis of Verifying the Roles and Responsibilities of Agricultural Advisors.

After identifying the roles and responsibilities, they were tested by the agricultural advisors. The researcher's view was that testing it with the agricultural advisors would give insight into how much they agree with the roles and responsibilities. If they agree with the roles and responsibilities, it is presumed that they will execute them. This was done by administering a Likert scale questionnaire to measure the agreement with these roles and responsibilities. The full outcome was discussed in Chapter 6. The findings showed a favourable response from the agricultural advisors.

The extent to which the agricultural advisors agreed positively, that is, “agree” and “strongly agree” with the first ten statements of the roles and responsibilities of the agricultural advisors, exceeds 90%. Although, the “agree” and “strongly agree” on the last statement to “facilitate skills audits and coordinate training for capacity development” is 89.3%. In seven of the 11 statements, the highest number of responses was that the agricultural advisors “strongly agree” with the statement. In the other four of the eleven 11 statements, the highest scores are that they “agree” with the statements, followed by “strongly agree” with the statements. The total of “strongly disagree” responses is two for the entire questionnaire. The highest number of responses that “disagree” with any statement is three for the whole questionnaire. The highest number of uncertain respondents was five for the whole questionnaire.

Since the Likert scale of the roles and responsibilities showed a favourable response, the next step was to test these roles and responsibilities with groups from the South African Society for Agricultural Extension (SASAE) and the Western Cape Department of Agriculture (WCDoA) extension managers and specialist agricultural advisors from Program 3, as discussed in Chapter 3.

8.3.2. The Logical Framework Approach: Methodology

The Logical Framework Analysis (LFA) was used to test the roles and responsibilities with the experts from SASAE and the managers and specialist agricultural advisors from The Western Cape Department of Agriculture (WCDoA) in Program 3. The stakeholders chosen as the group from the WCDoA included the immediate supervisors, managers, and specialists in the Western Cape province, who can best indicate the roles and responsibilities required. On the other hand, the SASAE experts

are essential stakeholders in that they are both academics and professionals in this field of agricultural extension.

According to the Guide to the Logical Framework Approach (2011, p. 10), the LFA is an analytical and management tool used in research, monitoring, and evaluation when confronted with extensive program and development ideas. Compared to most other project management tools, the LFA has the potential to organise a considerable amount of information coherently and concisely. Hence, this method was used to determine if the various roles and responsibilities can be used to assess the performance of the agricultural advisor. It is further stated in the Guide to the Logical Framework Approach (2011, p. 13) that it is an iterative process to aid structured and systematic analysis of a project or program idea in a logical way, and it is viewed as an aid to one's thinking. It allows stakeholders to objectively describe information because it is analysed and organised in a structured way so important questions can be asked and answered, and weaknesses can be identified. Informed decisions are made, and achieving an improved understanding of the rationale, in this case, obtaining an improved understanding of why these roles and responsibilities are important for the improvement of the livelihood of the farmer.

The LFA is a way of looking at an existing situation involving a problem analysis and an objective analysis, in this case, the agricultural advisor's roles and responsibilities that improve the farmer's livelihood. However, the problem analysis looks at the above situation negatively. In this situation, it looks at the effects that the absence of execution of these roles and responsibilities will have on the farmer's livelihood. The problem analysis views the situation from a cause-and-effect relationship. In this setting, stakeholders, the SASAE experts, and Department of Agriculture Western Cape officials needed to determine the effect. In this setting, they will look at the causal relationship of the agricultural advisor not having or executing any of these roles and responsibilities. This study aims to determine a causal link between not having these roles and responsibilities and the effect it will have on the farmer. In this manner, the adverse effects will be identified because of a lack of execution or understanding of these roles and responsibilities.

8.3.3. Stages in the Logical Framework Analysis

According to Van Rooyen, D'Haese, and Anandajayasekeram (2002, p. 333), the LFA consists of three phases: first, defining the strategic context, or contextualising the plan and defining the major stakeholders identified. Secondly, the analytical phase, briefly discussed above, involves a problem analysis, an objective analysis, and the strategy analysis. The final phase, the planning phase, involves completing the log frame matrix. These phases of the LFA, as completed in the research, are discussed in short in this section.

8.3.3.1. Phase One: Defining the Strategic Context and the Major Stakeholders

In the first phase of the LFA, the researcher had to identify the stakeholders who would be best suited to determine the roles and responsibilities required to assess an agricultural advisor's performance. As stated earlier, this is an iterative process. The first group of stakeholders was the target population. These agricultural advisors agreed and confirmed the roles and responsibilities as illustrated by the questionnaire results, as discussed in Chapter 6.

LFA Expert Stakeholder Groups Participants

The next group of stakeholders important for the execution of the LFA analytical phase was the WCDoA managers and specialist agricultural advisors from Program 3 and the SASAE agricultural extension researchers, academics, and staff from the Free State Department of Agriculture and Rural Development. These stakeholders are interested in the agricultural advisory services or the roles and functions of the extension practitioner.

8.3.3.2. Phase Two: The Analytical Phase

According to Van Rooyen, D'Haese, and Anandajayasekeram (2002, p. 333), the second phase of the LFA, the analytical phase, is further divided into three parts. Firstly, the problem analysis involves clustering constraints around the major problem and highlighting the effects through a diagram (problem tree) illustrating a cause-and-effect relationship. Secondly, the objective analysis aims to describe and outline a future situation in a positive state, where interventions are identified to speak to and overcome the problems identified in the first analytical step (objective tree). The final step of the analytical phase, strategy analysis, involves identifying strategies to

implement and achieve the objectives. The problem and objective analysis were completed.

8.3.3.3. Conclusions of the Problem and Objective Analysis

The findings of the negative tree showed distinct trends on examination. In all the 11 root causes, there is at least one mention of the business or an enterprise not growing or not being sustainable, profitable or stagnant. Another trend that the findings show is that there is a loss of profit or income or poor decision-making resulting in wastage. Moreover, the findings show a trend in the results indicating missed opportunities such as funding, training, and access to markets or information. The livelihood of the farmer will not be improved as a result of agricultural advisors not having these competencies

The general findings of the positive trees show certain trends in the outcomes if it is shown that agricultural advisors have certain competencies. The first trend of the outcomes clearly shows that the outcomes will be a growing, profitable and sustainable business. The second trend in the outcomes shows that the business is planned properly, resulting in better production plans, improved market access, and increased income because all the resources are aligned. Another trend of the outcomes is the availability of needed resources and well-informed farmers that makes sound business decisions. All the above will improve the livelihood of the farmer.

The findings in the activities have a golden thread that is pulled through all the activities in the LFA. The first is the need for training of the agricultural advisor to obtain these competencies. This is followed by the mentoring and coaching of agricultural advisors to reach these competencies. Mention is made of experience to acquire these competencies. Accompaniment of agricultural advisors by specialists or mentors can achieve these competencies.

8.3.4. Determine the performance rating of the agricultural advisors in the field

Once the criteria were determined, as discussed in 8.3., the researcher packaged it as an assessment rating tool discussed below: The 12 criteria were used as follows:

The researcher used a modified version of the Department of Public Service in South Africa rating categories, Determination and Directive on the Performance Management and Development System of Employees (2018, p. 6). The manager had to rate the agricultural advisors against each of the 12 criteria by stating which

agricultural advisors in your district **best (highly effective)** assist the farmers. For example, question 1 asks which agricultural advisors in your district best (highly effective) assist the farmers they serve to complete a full farm assessment on physical, human, and natural resources. Can you provide an example(s) for this rating? This rating equals a score of 4 (Annexure 2).

A second part for the same criterion (sample) is which agricultural advisors, **to some extent (fully effective)** assist farmers they serve in completing a full farm assessment on physical, natural, human and financial resources. Can you provide an example(s) for this? This rating equals a score of 2.

A third question about the same criterion (sample) is which agricultural advisors in your district are **least (not effective)** assisting farmers they serve to complete a full farm assessment on physical, natural, human and financial resources? Can you provide an example(s) of this? This rating equals a score of 1. If the manager believes the agricultural advisor executes this role and responsibility best or is highly effective, a score of 4 was allocated. If the manager rates the agricultural advisor executing this to some extent or is fully effective, then a score of 2 was allocated. If the manager rates the agricultural advisor as least or is not effective in this role and responsibility, a score of 1 was given. This is the same for all 12 criteria. Therefore, the highest possible score an agricultural advisor can obtain is 48, and the lowest possible score is twelve. The researcher then went further to calculate a percentage. The researcher believed those who scored more than 50% were fully effective.

8.4. FINDINGS OF THE SUCCESS PROFILES OF THE AGRICULTURAL ADVISORS

Data triangulation was used to determine the agricultural advisors' success profiles. UNAIDS (2010, p. 62) defines *data triangulation* as analysing and using three or more data sources from various methodologies:

- The data sources were the demographics of the agricultural advisors, obtained using a questionnaire to determine if an agricultural advisor has a foundation in extension science.
- The ratings of the success score of the farms and the farmers' rating of the extension and advisory services provided by the agricultural advisor. The last

two were obtained from raw data from the Land Reform Performance Assessment Studies 2014 and 2019.

- The fourth source was from the performance rating by the managers using the tool discussed in 8.3.4. The findings of each source will be discussed separately.

8.4.1. Findings of the Performance Rating by Managers.

The sample size of this group was 27, which is a 44.26% participation rate. There was limited participation from the district managers. Some attributed it to time constraints. They preferred to complete the questionnaire independently, and when difficulties were experienced, these were clarified telephonically. Two district managers had face-to-face interviews. In this sample, 13 agricultural advisors have a foundation in extension science. They formed 48.12%.

In the assessment of the performance of the agricultural advisors, seven agricultural advisors scored below 50%. The researcher deemed these seven to be ineffective. One participant scored 25%, 40%, 42%, and 44%, three scored 48%. One of these participants who scored less than 50% had no extension foundation, and another was part of the MSA qualification. Two completed modules of the Big 5, and three had coursework in extension. One with more than 15 years of agricultural experience has been a farm worker and an agricultural advisor for less than five years. Two agricultural advisors with more than ten years of experience. One has no foundation in extension, and the other has no agricultural qualification. Three agricultural advisors worked as community workers, and two were farm workers before they became agricultural advisors. One of the two who were farm workers now have an MSA.

Seven participants scored more than 50% but less than 60%. One participant had 6 to 10 years of experience, four participants had 11 to 15 years of experience, two were community workers previously, and two participants had 16 to 20 years of experience. Two participants had no foundation in extension science; however, one had 11-15 years of experience, and the other had 16 to 20 years of experience. All the participants had a Diploma and a BTech in an agricultural-related field. One had an MSA.

One participant scored higher than 60% but less than 70%. This participant had a foundation in extension science at the undergraduate level and 16 to 20 years of experience. The highest qualification of the participant is at the MSc level.

Ten scored above 70% but less than 80%. Five of the ten have no foundation in extension science, and the other five have a foundation. However, the former group has extensive agricultural experience, and three have an MSc degree. The other has an MPhil, and one has a BAgric. One has 6 to 10 years of experience, another 11 to 15 years of experience, two have 16 to 20 years of experience, and one has more than 20 years of experience. All of which have farming experience. Five have a foundation in extension science, ranging from coursework, diploma, and masters. One has a BSc in agricultural economics, and the remainder has agricultural-related degrees from MSc to PhD. The two agricultural advisors with the highest rating both have an honours and master's level in extension science. The former also has an MSc, and the latter a PhD degree. The former has more than 30 years of farming experience, and the latter has 5 to 10 years of experience.

Overall, 13 (68.4%) of the 19 agricultural advisors with a foundation in extension science were found to be fully effective and highly effective. It must be noted that the agricultural-related experience of those four found ineffective have been farm or community workers. The other does not have an agricultural qualification, and one has no foundation in extension science. However, seven (76.5%) of the eight agricultural advisors with no foundation were found to be fully effective. No one in this category was found to be highly effective.

8.4.1.1. Rational for the rating by managers

The managers were asked to explain why they rated the agricultural advisors as they did. The managers' reasons for scoring agricultural advisors for each of the competencies are as follows:

1. The ability to assist farmers in completing a full farm assessment on physical, natural, human, and financial resources.

   The reason for scoring the agricultural advisor best is that when the business plan is assessed for funding, the farmer quickly obtains funding, and the managers believe the farm is thriving and is becoming sustainable. The farming

enterprise is growing. They use the same criteria mentioned earlier; however, they believe the funding process takes longer for the others they did not rate highly effective than the ones that scored best. The ones that they felt performed this least were the ones that required the support of the specialist agricultural advisors and that these agricultural advisors merely allocated the information provided by the former.

2. The ability to help the farmer complete a resource plan to address the gaps in the whole farm assessment, as mentioned in 1. The reason for scoring the agricultural advisor best is that when the business plan is assessed for funding, the farmer quickly obtains funding, and the managers believe the farm is thriving and is becoming sustainable. They also believe the resource plan is credible and "is not a wish list" without thought. The score, to some extent, does not get the total funding requested because the resource plan needs to be aligned with the size and scope of the farm. For those who least perform the competencies request for funding is exorbitant, or the resource plan has to be done by the specialist agricultural advisor.
3. The ability to, on completion of the needs analysis of the above resources, help the farmer to complete a business plan for the production year. The views expressed here were the same as those in 1 and 2.
4. The ability to provide farm management and business development support appropriate to each farm or community's scale, resources, and capacities. The managers again viewed the extent the agricultural advisor could do this without the assistance of the specialist agricultural advisors. The specialists scored best, and those reliant on assistance scored the least.
5. The ability to help farmers better understand markets (i.e., prices, seasonality, standards, value addition). The managers indicated that in some districts, they have agricultural economists appointed who did this for the agricultural advisors. Therefore, the scoring was determined by who completes this competency. If an economist completes it, the agricultural advisor will score lower than the ones rated earlier. Again, the business’s success came into play on scoring the agricultural advisor.
6. The ability to link farmers with role players in the market to improve market access. The managers indicated that in some districts, they have agricultural economists appointed who did this for the agricultural advisors. Therefore, the

scoring was determined by who completes this competency. If an economist completes it, the agricultural advisor will score lower than the ones rated earlier. They do work closely with the economists in the districts. In one district, the economist was highly rated, and the ability to produce production plans was seen as a bonus. In another district, the manager indicated that the economist could not accurately produce the necessary cash flow records.

7. The ability to link farmers with economists improves financial record-keeping. The views expressed here were same as in 5.
8. The ability to create platforms to facilitate interaction and sharing among the various stakeholders, including producer organisations (POs), to ensure coordinated support to farmers. The managers viewed the performance of the agricultural advisors good for the specialists. They called some of the agricultural advisor's 'generalists'. They believed this was true for those with extensive experience in agriculture.
9. The ability to link farmers to other stakeholders involved in the provision of different sources of support and services, e.g., banks, economists, specialists, and producer organisations (POs). They shared the same views here as they did for number 8 above.
10. The ability to support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of rural advisory services. They again expressed that the agricultural advisors and the specialists are best at this. They indicated that this role and function develops along with years of experience. They indicated that the more senior staff knew the industry experts better.
11. The ability to facilitate skills audits and coordinate training for capacity development. The managers indicated that this was done by persons in the 'Project Office' at the head office and was difficult to rate. However, they expressed concern about the nature of the training provided. They believed that, on occasion, it did not improve the skill set of the farmers.
12. The ability to develop, execute, implement, adapt, monitor, and update an agricultural extension plan for the district where they work. The managers scored the specialists as those who perform this best. It must be noted that three of the five specialists have a foundation in extension science. All the agricultural economists who participated in the study have a foundation in

extension science. All but one of the agricultural economists' advisors were found highly effective in this role and responsibility.

Two district managers indicated that the agricultural advisors could not perform these roles and functions since they are not measured against these criteria in their daily work. Hence, they do not develop these roles and responsibilities. They stated that agricultural advisors are more likely to develop these competencies if measured. One stated that "you get what you measure." This was not the first time such a view was expressed. The same view was shared during the log frame analysis.

8.4.2. Findings of the Agricultural Advisors' Farm Success Rate

In this study, the word project refers to a farm. The Performance Evaluation: Agricultural Land Reform Projects for the Western Cape 2009-2013 and 2014- 2019, assessed the farms' success rate using three dimensions. These dimensions included the environmental dimension, such as the soil condition, the socio-economic dimension, the living standard, and the economic viability dimension, which included production practices and market access. 39 variables were used in total. Each variable was given two points, and the maximum score was 78. A percentage was calculated for each farm based on the score they achieved out of 78. The success rates were categorised as highly successful if they scored 73% upwards, moderately successful if they scored 53% to 72%, and challenged if they scored 33% to 52% and failed below 32%. The project success rate for the first study was 62%, and 72% for the 2019 study. One agricultural advisor provided a service to one failed project. The manager rated the agricultural advisor below 40%, and the advisor has a foundation in extension science with less than five years of agricultural extension experience.

Seven projects were rated challenged. Four of the agricultural advisors scored above 70% in the rating by managers, and three of the latter do not have an extension science foundation. Two of them have a master's level qualification. One of the three has farming experience of 6 to 10 years, one has 11 to 15 years, and the other has more than 20 years of experience. One scored above 80% and has an extension science foundation with more than 20 years of experience and a master's level qualification. One agricultural advisor in this group was rated at 50% and had 6 to 10 years of experience. This advisor has a BAgric qualification. The other has a BTech qualification and was rated below 50% by his manager. Both do not have a foundation

in extension science. One of the advisors in the group with a challenging project has a foundation in extension science.

Thirteen farms serviced by the agricultural advisors who participated in this study were assessed as moderately successful. The agricultural advisors assessed by their managers are as follows: six agricultural advisors got a higher than 50% rating, one scored higher than 60%, five were rated higher than 70%, and one higher than 80%. Ten agricultural advisors who serviced these moderately successful farms have a foundation in extension science. The latter accounted for 76.92% of the agricultural advisors in this category. Six projects were found to be highly successful. Three advisors' performances were rated below 50% by their managers, providing an extension and advisory service to these highly successful farms. They do not have a foundation in extension science. One was rated above 80%, has a foundation at the MSA level, and the same agricultural advisor has a PhD qualification. Another agricultural advisor with a performance rating above 70% by the manager and a foundation in extension science provided an extension and advisory service to a highly successful farm. One agricultural advisor's performance was rated above 50% by the manager and has no foundation in extension science. Hence, four agricultural advisors who provide an extension and advisory service to highly successful projects do not have a foundation in extension science. They were 33.3% of the agricultural advisors.

The number of successful (13) and highly successful (6) farms were aggregated and equalled 19—the latter forms a 70.3% success rate. The latter is between the success rate of the two studies. Twelve (63.2%) agricultural advisors with a foundation in extension science provided an extension, and advisory service to farms rated as successful. Those agricultural advisors without foundation in extension science that contributed to the success of the farms were 36.8%. Only two agricultural advisors' performance rating scores were consistent with the success rating of the farms.

8.4.3. Findings of the Farmers' Views of the Agricultural Support Received

The farmers were asked to rate the non-financial support and the advice given to them by the agricultural advisors. The rating was either very bad or insufficient, bad or not fully effective, acceptable or sufficient, good or above expectations, and outstanding (Performance Evaluation: Agricultural Land Reform Projects, 2014, p.152). No farmer expressed that the advice the agricultural advisor gave was very bad; therefore, no

advisors in this sample were found to have provided bad or insufficient advice. Very few indicated in the survey that the advice was bad or insufficient (4%). However, no agricultural advisor in this study was part of the group that gave insufficient advice. The survey indicated that 35% of the agricultural advisors provided acceptable advice. The number of agricultural advisors who provided acceptable advice in this study was seven (25.92%). Five of these agricultural advisors have a foundation in extension science. Seven agricultural advisors were assessed as providing outstanding advice. Four have a foundation in extension science. The remaining 13 give good advice to the farmers. Ten agricultural advisors who provide good advice have a foundation in extension science. Twenty agricultural advisors, 74% with a foundation in extension science, provided either good or very good advice.

8.5. CONCLUSIONS

On examination of the performance rating by the managers, it was found that, 13 (68.4%) of the 19 agricultural advisors with a foundation in extension science were found to be fully effective and highly effective. It must be noted that the agricultural-related experience of those four found ineffective have been farm or community workers. The other does not have an agricultural qualification, and one has no foundation in extension science. However, seven (76.5%) of the eight agricultural advisors with no foundation were found to be fully effective. No one in this category was found to be highly effective.

Twelve (63.2%) agricultural advisors with a foundation in extension science provided an extension, and advisory service to farms rated as successful. Those agricultural advisors without a foundation in extension science that contributed to the success of the farms were 36.8%. Twenty agricultural advisors, 74% with a foundation in extension science, provided either good or very good advice. Most agricultural advisors with an extension science foundation provided good or very good advice. The managers' rating of the performance was not aligned with the success of the farms in a few cases. There may be several reasons for this. One of the managers indicated that an agricultural advisor was rated so highly due to the turnaround brought to some farms and that the farmer he provides an extension and advisory service to is successful. However, the farm was rated as challenged, according to the Performance Evaluation: Agricultural Land Reform Projects for the Western Cape. Some of the

agricultural advisors with a low-performance rating by the managers were found to be providing a service to a highly successful farm.

The managers gave reasons for their rating. This may be due to the specialist agricultural advisors supporting the other agricultural advisors when providing advisory support to the farmers. It could be that those with extensive experience make better use of the specialists in the district.

However, the agricultural advisors with an extension science foundation performed better in the rating by the managers. The same was found with the success rate of the farms. In the assessment of the challenged farms, there was only one agricultural advisor with an extension science foundation. The findings show that 12 of the 19 successful farms were serviced by agricultural advisors with a foundation in extension science. However, the failed farm was serviced by an agricultural advisor with a foundation in extension science. This correlated with the success rate of 62% in the first evaluation and 72% in the last evaluation. The farmers viewed the advice the agricultural advisors gave with a foundation in extension as 'good' for 74% of the agricultural advisors.

8.6. RECOMMENDATIONS

Due to the success of the agricultural advisors with a foundation in extension science, the researcher believes that a foundation in Extension Sciencedoes lend to improving the lives of the farmers. However, this study should be repeated in one or more provinces to get a larger sample to verify these findings.

The department should include these roles and responsibilities in assessing the agricultural advisors to accurately determine the extension and advisory service they provide. These can be added as the key result areas that describe the core functions of the agricultural advisor according to the Determination and Directive on the Performance Management and Development System of Employees (2018, p.4). The latter will encourage the agricultural advisors to execute these roles and responsibilities to improve the extension and advisory service they provide. The roles and responsibilities can be added to the existing performance assessment tool that is in use as described above. This will establish how well the agricultural advisors perform their extension and advisory service roles and responsibilities. This can be added incrementally to the current assessment tool of the agricultural advisors, senior

agricultural advisors, and specialist agricultural advisors. The first three and the ninth competencies can be added to the specialist agricultural advisors' current performance assessment tool, and the competencies of record-keeping, market access and market readiness can be added to the existing performance assessment tool of the economist agricultural advisors. The remainder of the competencies should be added to all the agricultural advisors' existing performance assessment tools. The latter will contribute to the improvement in the service and progress in the farmer's livelihood.

CHAPTER 9: CONCLUSIONS AND RECOMMENDATION

9.1. INTRODUCTION

Agricultural extension is pivotal to the transformation of the agricultural sector, as outlined in the many strategic and policy frameworks for South Africa, such as the National Development Plan Vision 2030 (2011, p. 218). The latter emphasizes that the extension practitioner's role is to improve smallholder market access and facilitate farmer-to-farmer skills transfer to enhance the rural economy. In the same policy (2011, p. 27), the roles required to improve the rural economy include skills transfer and ensuring food security through improved production practices and market access for smallholder producers. The National Framework for Extension as a Field of Practice (2014, pp. 3-4) states that "extension is invariably the key driver of rural development and not to include it as a role will be a grave mistake." In the National Policy on Extension and Advisory Services (2016, p. viii), the Deputy Minister of Agriculture, Forestry and Fisheries states in the foreword that the provision of extension and advisory services is "undoubtedly sacrosanct in the advancement of agrarian reform." The National Policy on Comprehensive Producer Development Support (2018, p. 40) again states that a critical driver for agricultural advancement requires the facilitation of market access and the use of information, communication, and technologies to create awareness and improve market access.

The latter is pivotal to improving market access and are identified as the roles and responsibilities of an extension practitioner and an extension and advisory service. These are emphasized in the Norms and Standards for Extension and Advisory Services in Agriculture and the National Policy on Food and Nutrition Security Strategy in the Republic of South Africa 2013. Because the extension is essential, the writer felt it necessary to determine what sets apart an agricultural extension official who has a positive effect on the agricultural output of a farmer from one under the same conditions who does not have a positive effect on the farmer. The one with a positive effect will aid the transformation agenda in the rural areas. The writer believes that a foundation in agricultural Extension Science creates such a difference. The study's purpose was to determine whether an agricultural advisor with a foundation in Extension Science improves the livelihood of the beneficiaries of their extension and advisory service. There is little or no empirical evidence that having a foundation in

Extension Science results in the agricultural advisor providing a better extension and advisory service to the farmer.

Data triangulation was used to compare the agricultural advisors' success profiles. UNAIDS (2010, p. 62) defines *data triangulation* as analysing and using three or more data sources from various methodologies for scientific inquiries. The data sources were the demographics of the agricultural advisors, obtained using a questionnaire. The latter compared whether an agricultural advisor has an Extension Science foundation. The comparisons were made between the ratings of the success scores of the farms of those agricultural advisors with a foundation in Extension Science to the success scores of the farms served by an agricultural advisor with no foundation in extension science. The third comparison was made of the farmers' rating of the advisory services provided by the agricultural advisor. The success rating of the farms and the farmers' perception of the quality of the advisory service were obtained from raw data from the Land Reform Performance Assessment Studies 2014 and 2019 done in the Western Cape Department of Agriculture (Program 3). The fourth source was from the performance rating by the managers using the tool discussed in Chapter 8.

9.2. CONCLUSIONS

The researcher discussed the conclusions in each chapter of this study. In Chapter 2, the researcher had difficulty obtaining information about the Coloured People in South Africa. More than one author stated a lack of recorded information. In Chapter 4, the findings of the demographics of the agricultural advisors were discussed. The demographics at the time of the study showed that the gender distribution is short by approximately 5% to what is aspired by the Employment Equity Act. The age distribution shows that nearly 50% are under 40 years. Therefore, agricultural advisors can be deemed a young group since they can work to 65 years of age. The biggest group of this study falls within the age category 41 to 50. They, too, have a minimum of 15 years to work before compulsory retirement. Only two fall within the age category 51 to 60, and none were found older than 60.

Most (73.4%) of the agricultural advisors have more than five years of experience, and the most prominent group category has 11 to 15 years of experience as an agricultural advisor. The agricultural advisors have good experience in this department.

It should be noted that more than half of the agricultural advisors had agricultural-related experience before they were appointed agricultural advisors. However, six had no previous experience.

More than half of the agricultural advisors have a foundation in agricultural extension, ranging from course work, modules, Big 5 Program, diplomas, and degrees in extension. The highest level of education in extension is a PhD qualification.

In Chapter 5, the criteria for an assessment tool were developed that contains the non-negotiable roles and responsibilities taken from several definitions, policy documents about the extension, and advisory services in South Africa. The tool was strengthened by using definitions and roles from position papers from the Global Forum on Rural Advisory Services and the Food and Agricultural Organization of the United Nations Organization. It must be noted that the performance assessment tools currently used in provincial departments do not measure the performance of the roles and responsibilities of the agricultural advisor but rather the service delivered by the Program. Therefore, it was necessary to develop this tool.

In Chapter 6, the criteria for the assessment tool were tested with the agricultural advisors to determine the extent they agreed with the criteria. The general response of the agricultural advisors was favourable to the roles and responsibilities. The extent to which the agricultural advisors agreed positively that is agreed and strongly agree with the first ten statements exceeded 90%. They agreed and strongly agreed (89.3%) with the last statement to “facilitate skills audits and coordinate training for capacity development.” In seven of the 11 statements, the highest number of responses was that the agricultural advisors strongly agreed with the statement. The highest scores in the other four of the 11 statements were that they agree with the statements and strongly agree with them. The highest number of strongly disagree responses was two. The highest number of responses that disagreed with any statement was three. The highest number of uncertain respondents was five.

In chapter 7, the log frame analysis was done to strengthen the roles and responsibilities. The findings of the negative tree show distinct trends on examination. In all the 11 root causes, there was at least one mention of the business or an enterprise not growing or not being sustainable, profitable, or stagnant. Another trend of the negative tree findings showed a loss of profit, income, or poor decision-making

resulting in wastage. Moreover, the findings showed a trend indicating missed opportunities such as funding, training, and access to markets or information. The outcome of the agricultural advisor who does not have these competencies will negatively affect the farmer's livelihood.

The findings of the positive trees show certain trends in the outcomes if it is shown that agricultural advisors have certain competencies. The first trend of the outcomes clearly shows that the outcomes will be a growing, profitable and sustainable business. The second trend in the outcomes shows that if the business is planned properly will result in better production plans, improved outputs, and greater market access. These farmers will make sound decisions based on accurate information. Their income will increase because of better resources and production plans. Another trend of the outcomes is the availability of needed resources and a well-informed farmer that makes sound business decisions. All the above will improve the livelihood of the farmer. It can be concluded that these competencies are linked and necessary to transform the agricultural sector.

The findings in the activities have a golden thread that is pulled through all the activities in the LFA. The first is the need for training of the agricultural advisor to obtain these competencies. This is followed by the mentoring and coaching of agricultural advisors to reach these competencies. Mention is made of experience to acquire these competencies and in-service training when agricultural advisors are appointed to a district for the first time.

Chapter 8, the success profiles of the agricultural advisors were analysed through data triangulation. The managers' rating of the performance was not aligned with the success of the farms in a few cases. There may be several reasons for this. One of the managers indicated that an agricultural advisor was rated so highly due to the turnaround brought to some farms and that the farmer he provides an extension and advisory service to is successful. However, the farm does not perform well, according to the study. This may be due to the studies not being done simultaneously. Some of the agricultural advisors with a low-performance rating by the managers provided a service to a highly successful farm.

The managers gave reasons for their rating. This may be due to the specialist agricultural advisors supporting the other agricultural advisors when providing

advisory support to the farmers. It could be that those with extensive experience make better use of the specialists in the district.

However, the agricultural advisors with an Extension Science foundation performed better in the rating by the managers. The same was found with the success rate of the farms. In the assessment of the challenged farms, there was only one agricultural advisor with an Extension Science foundation. The findings show that twelve of the nineteen successful farms were serviced by agricultural advisors with a foundation in extension. However, the failed farm was serviced by an agricultural advisor with a foundation in extension science. This correlated with the success rate of 62% in the first evaluation and 72% in the last evaluation. The farmers viewed the advice the agricultural advisors gave with a foundation in extension as 'good' for 74% of the agricultural advisors.

9.3. RECOMMENDATIONS

The researcher will discuss the recommendations as they appear in the chapters of this study. In Chapter 2, the researcher found difficulty obtaining information about the Coloured People in South Africa and extension and advisory services. More than one author stated there is a lack of recorded information. Though this history was to give background to this study, the researcher felt that this was an opportune time to state this. The researcher believes that to complete the history of agricultural extension in South Africa, it is necessary to document the history of the Coloured people, so the extension history of all the people is reflected.

In Chapter 4, the findings of the demographics of the agricultural advisors were discussed. As stated before, the Department of Agriculture Western Cape (WCDoA) made great strides regarding gender equity. The WCDoA should aspire to achieve equity in terms of gender and positively discriminate when appointing female agricultural advisors. They can work on a target to ensure gender equity in terms of the Employment Equity Act over a set period and positively discriminate when appointing female agricultural advisors at both entry and senior levels. The latter is allowed in Chapter 3, that a designated employer may positively discriminate to ensure equity in the workplace.

The age distribution shows that the agricultural advisors are fairly young, with more than ten years of experience. Many of the agricultural advisors have previous

agricultural-related experience. This makes these advisors attractive propositions for other departments. This Department should implement retention strategies to guard against staff poaching by other provinces and other agencies.

The appointment of agricultural advisors with no experience is an area that requires attention; an in-service training program should be investigated to ensure that the capacities of the agricultural advisors are enhanced to ensure that the farmer gets the best service. This will be discussed in more detail later when discussing the Log frame analysis (LFA) outcomes.

Since the agricultural advisors responded favourably, they agreed to the questionnaire on the roles and responsibilities of an agricultural advisor; the researcher believes that the criteria can be used in the performance assessment tool of this Department and in the other Departments in the country that offer an extension and advisory service. The latter is because the participants in that part of the study formed more than 80% of the target population and agreed to these roles and responsibilities. The latter can be seen in that they know these roles and responsibilities are expected of them. The sample was more than 80% of the target population, and thus, this can be transferred to other provinces. This will be elaborated on later.

The findings in the activities of the LFA have a golden thread pulled through all the activities. The first was the need for training of the agricultural advisor to obtain these competencies. This was especially true for the newly appointed agricultural advisors to the districts. This must be viewed in conjunction with the statements made by the managers on the appointment of the agricultural advisor. The qualifications of the agricultural advisor must be relevant to the industry in the districts. They cited examples that in the Winelands, you require an advisor with a qualification in Viticulture, and in the Central Karoo, the advisor must have a qualification in small stock. The view expressed is that an agricultural advisor must have a scientific foundation in the commodity prevalent in the district.

They identified the need for mentoring and coaching agricultural advisors to reach these competencies. Mention was made of experience to acquire these competencies. This was referred to as the accompaniment of agricultural advisors by specialists in the field to show them how to execute these competencies. The researcher believes that an accompaniment register must be completed by the agricultural advisor and the

specialist agricultural advisor and that a record of the progress must be kept. A contract must be entered into, and the specialist agricultural advisor must sign off on these competencies. Reference was made to in-service training when agricultural advisors are appointed to a district for the first time. The accompaniment or experience the agricultural advisor gains must be strengthened by in-service training in activities such as how to do soil sampling, business plan development, and how to do demonstrations. The latter are a few examples of in-service training. These are best done in the field in small groups. These activities mentioned earlier can ensure that the agricultural advisor improves farmers' livelihoods.

On examination of the success rate of the farms, it was found that the agricultural advisors with a foundation in Extension Science have a higher success rate. The researcher believes that a foundation in Extension Science does lend to improving the lives of the farmers. However, this study should be repeated in one or more provinces to get a larger sample to verify these findings, as this sample was small (27 participants of a target population of 61).

The Department should include these roles and responsibilities in assessing the agricultural advisors to accurately determine the extension and advisory service they provide. These can be added as the Key Result Areas that describe the core functions of the agricultural advisor according to the Determination and Directive on the Performance Management and Development System of Employees (2018, p.4). The latter will encourage the agricultural advisors to execute these roles and responsibilities to improve the extension and advisory service they provide. The roles and responsibilities can be added to the existing performance assessment tool that is in use as described above. This will establish how well the agricultural advisors perform their extension and advisory service roles and responsibilities. This can be added incrementally to the current assessment tool of the agricultural advisors, senior agricultural advisors, and specialist agricultural advisors. The first three and the ninth competencies can be added to the specialist agricultural advisors' current performance assessment tool, and the competencies of record-keeping, market access and market readiness can be added to the existing performance assessment tool of the economist agricultural advisors. The remainder of the competencies should be added to all the agricultural advisors' existing performance assessment tools. The

latter will contribute to the improvement in the service and progress in the farmer's livelihood.

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ANNEXURE 1: QUESTIONNIARE FOR AGRICULTURAL ADIVSORS

The following questions will assist the researcher to get an understanding of the qualifications and experience of the agricultural advisors in the Department of Agriculture Western Cape

Extension Advisory Service Experience and Qualifications

Please indicate:

Number 00_____

Section A: Demographic information

Mark your response with an X in the block next to the option you choose.

1. Please indicate your gender.

Male	1
Female	2

2. Please indicate your age group.

21 to 30 years	1
31 to 40 years	2
41 to 50 years	3
51 to 60 years	4
61 to 65 years	5

Section B: Employment information

Mark your response with an X in the block next to the option you choose or fill in your response in the space provided.

3. Have you pursued any other careers except that of agricultural advisor?

Yes	1
No	2

4. If yes, please provide the following details for the career you pursued.

Career type: _____

Years of experience in this career: _____

5. Is this your first position as an agricultural advisor?

Yes	1
No	2

6. If no, please indicate your job title and institution of employment of your prior position as an agricultural advisor:

   Job title: _____

   Institution: _____

7. Including your current position, as well as all previous positions, please indicate the total number of years' experience you have as an agricultural advisor.

0 to 5 years	1
6 to 10 years	2
11 to 15 years	3
16 to 20 years	4
21 to 25 years	5
26 to 30 years	6
31 to 35 years	7
36 to 40 years	8
More than 40 years	9

8. Please indicate the position you currently hold in the Producer Support and Development Program in the Western Cape Department of Agriculture.

Agricultural Advisor	1
Senior Agricultural Advisor	2
Specialist Agricultural Advisor	3

Section C: Education

Mark your response with an X in the block next to the option you choose or fill in your response in the space provided.

9. Please complete the table below for all of your qualifications, except the ones in extension:

NAME OF QUALIFICATION Eg. Diploma in Agriculture	YEAR OBTAINED	MAJOR 1	MAJOR 2	MAJOR 3

10. Do you have a foundation in extension science

Yes	1
No	2

If you answered *NO* in the question above, please proceed to Section D.

11. Please provide as much detail as possible about your foundation in Extension Science in the table below.

Name of the extension qualification or course	NQF level	Year Obtained

Section D: Roles and functions of an agricultural advisor

Mark your chosen response with an X in the space provided.

12. Please indicate the extent to which you agree or disagree that each of the stated roles in the table below is non-negotiable to fulfil in your position as an agricultural advisor.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Assist farmers to complete a full farm assessment on physical, natural, human and financial resources.					
On completion of the full farm assessment assist the farmer in drawing up a resource plan for the farm.					
On completion of the analysis after the full farm assessment, help the farmer to complete a business plan that will address the gaps identified in 1 above.					
Link farmers to other stakeholders involved in the provision of different sources of support and services, for example banks, economists, specialists, producer organizations.					
Help farmers to understand markets better (i.e., prices,					

seasonality, standards, value addition.)					
Link farmers with role players in the market to improve access					
Link farmers with economists to improve financial record keeping.					
Create platforms to facilitate interaction and sharing among the various stakeholders including Pos to ensure coordinated support to farmers.					
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Provide farm management and business development support appropriate to the scale, resources and capacities of each farm or community					
Support or facilitate the formation of Farmer Organizations (FO) and also collaborate with FOs to strengthen the demand and supply side of RAS.					
Facilitate skills audits and coordinate training for capacity development.					

ANNEXURE 2: DISTRICT MANAGER INTERVIEW SCHEDULE

INDIVIDUAL INTERVIEWS WITH DISTRICT MANAGERS TO RATE THE PERFORMANCE OF THE AGRICULTURAL ADVISORS IN TERMS OF ACHIEVEMENT OF ROLES AND RESPONSIBILITIES

The following discussions will assist the researcher to get a better understanding of the performance of the agricultural advisors in each district, around the roles and functions they practice and demonstrate in the field, to improve the livelihood of a farmer. These questions and examples of the agricultural advisors' performance will assist the researcher to triangulate the information with other data to assess if a qualification in Extension Science will in any anyway improve the livelihood of the farmer or not. These roles and responsibilities have been finalized after inputs from the agricultural advisors, managers, and specialist advisors in the Western Cape Department of Agriculture and national experts from SASAE. Your perceptions on what best describes the extent to which the agricultural advisors in your district achieve the following: -

1. **Which agricultural advisors in your district <u>best</u> assist farmers they serve to complete a full farm assessment on physical, natural, human, and financial resources? Can you provide an example(s) of this rating? This rating equals a score of 4**

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2. Which agricultural advisors **<u>to some extent</u>** assist farmers they serve in completing a full farm assessment on physical, natural, human, and financial resources. Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisors in your district, **least** assist farmers they serve to complete a full farm assessment on physical, natural, human, and natural resources? Can you provide an example(s) of this? **This rating equals a score of 1**

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3. **On completing the full farm assessment above, which agricultural advisors in your district best help the farmer complete a resource plan to address the gaps identified above? Can you provide an example(s) of this?**
   This rating equals a score of 4

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   On completion of the needs analysis of the above resources, agricultural advisors in your district, **to some extent,** help the farmer to complete a resource plan that will address the gaps identified above. Can you provide an example(s) of this? **This rating equals a score of 2**

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On completion of the needs analysis of the above resources, which agricultural advisors in your district **least** help the farmer to complete a business plan that will address the gaps identified above? Can you provide an example(s) of this? **This rating equals a score of 1**

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4. **On completion of the needs analysis of the above resources, which agricultural advisors in your district best help the farmer to complete a business plan that will address the gaps identified above? Can you provide an example(s) of this? This rating equals a score of 4**

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On completion of the needs analysis of the above resources, agricultural advisors in your district, **to some extent** help the farmer to complete a resource plan that will address the gaps identified above. Can you provide an example(s) of this? **This rating equals a score of 2**

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On completion of the needs analysis of the above resources, which agricultural advisors in your district, **least** help the farmer to complete a resource plan that will address the gaps identified above? Can you provide an example(s) of this? **This rating equals a score of 1**

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5. **Which agricultural advisor in your district <u>best</u> links farmers to other stakeholders involved in the provision of different sources of support and services, for example, banks, economists, specialists, and producer organizations?** Provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community **Can you provide an example(s) of this? This rating equals a score of 4**

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Which agricultural advisor in your district, **<u>to some extent</u>**, links farmers to other stakeholders involved in the provision of different sources of support and services, for example, banks, economists, specialists, and producer organizations? Can you provide an example(s) of this? **This rating equals a score of 2**

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Which agricultural advisor in your district**, <u>least</u> links** farmers to other stakeholders involved in the provision of different sources of support and services, for example, banks, economists, specialists, and producer organizations? Can you provide an example(s) of this? **This rating equals a score of 1.**

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6. **Which agricultural advisor in your district, <u>best</u> helps farmers understand markets better (ie. prices, seasonality, standards, value addition)? Can you provide an example(s) of this? This rating equals a score of 4**

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Which agricultural advisor in your district **<u>to some extent</u>**, helps farmers to understand markets better (i.e. prices, seasonality, standards, value addition) Can you provide an example(s) of this? **This rating equals a score of 2**

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Which agricultural advisor in your district **<u>least</u>** helps farmers understand markets better (i.e., prices, seasonality, standards, value addition, etc.) Can you provide an example(s) of this? **This rating equals a score of 1**

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7. **Which agricultural advisor in your district <u>best</u> links farmers with role players in the market to improve access? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district, **to some extent**, links farmers with role players in the market to improve access? Can you provide an example(s) of this? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district least links farmers with role players in the market to improve access? Can you provide an example(s) of this? **This rating equals a score of 1.**

8. **Which agricultural advisor in your district best links farmers with economists to improve financial record keeping? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district **to some extent**, link farmers with economists to improve financial record keeping? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district **least** links farmers with economists to improve financial record keeping? Can you provide an example(s) of this? **This rating equals a score of 1.**

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9. **Which agricultural advisor in your district best creates platforms to facilitate interaction and sharing among the various stakeholders, including POs, to ensure coordinated support to farmers? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district, to **some extent**, creates platforms to facilitate interaction and sharing among the various stakeholder, including POs, to ensure coordinated support to farmers? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district is **least** able to create platforms to facilitate interaction and sharing among the various stakeholder, including POs, to ensure coordinated support to farmers? Can you provide an example(s) of this? **This rating equals a score of 1.**

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10. **Which agricultural advisor in your district <u>best</u> provides farm management and business development support appropriate to the scale, resources and capacities of each farm or community? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district, **<u>to some extent</u>**, provides farm management and business development support appropriate to the scale, resources, and capacities of each farm or community? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district is **<u>least</u>** able to provide farm management and business development support appropriate to the scale, resources, and capacities of each farm or community? Can you provide an example(s) of this? **This rating equals a score of 1.**

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11. **Which agricultural advisor in your district <u>best</u> support and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of RAS? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district, **<u>to some extent,</u>** support and facilitate the formation of FOs and collaborate with FOs to strengthen the demand and supply side of RAS? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district is **<u>least able</u>** <u>to support</u> and facilitate the formation of POs and collaborate with POs to strengthen the demand and supply side of RAS? Can you provide an example(s) of this? **This rating equals a score of 1.**

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12. **Which agricultural advisor in your district best facilitate skills audits and coordinate training for capacity development? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district **to some extent**, facilitate skills audits and coordinate training for capacity development? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district is **least** able to facilitate skills audits and coordinate training for capacity development? Can you provide an example(s) of this? **This rating equals a score of 1.**

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13. **Which agricultural advisor in your district best develops, executes, implements, adapts and monitors updates an extension plan for the district they work in? Can you provide an example(s) of this? This rating equals a score of 4.**

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Which agricultural advisor in your district, to some extent, draws up an extension plan for the region that they work in? Can you provide an example(s) of this? **This rating equals a score of 2.**

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Which agricultural advisor in your district is **<u>least</u>** able to draw up an extension plan for the region that they work in? Can you provide an example(s) of this?

This rating equals a score of 1.

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Thank you for your participation.

ANNEXURE 3: PERMISSION LETTER

Western Cape Government
Agriculture

Chief Directorate: Veterinary Services
Dr Gininda Msiza
Email: ginindam@elsenburg.com
tel: +27 21 808 5002 fax: +27 21 808 7619

Ms Carol Levendal
Carol.levendal@gmail.com

REQUEST TO CONDUCT SURVEY AT DEPARTMENT OF AGRICULTURE WESTERN CAPE ON AGRICULTURAL ADVISORS

I hereby grant you permission to conduct study titled -
"A foundation in Agricultural Extension Science is a prerequisite for agricultural advisors, to improve the livelihood of the beneficiaries of their extension and advisory services support in the Western Cape".

The aim / purpose of the study is in line with our Department's objectives / offerings and its outcome will greatly assist and contribute towards improved service offerings.

Permission granted entails:

- Questionnaire administration to the Agricultural Advisors
- Focus group discussions with District Managers and Project Office Specialists.
- Access to the raw data of the two land reform surveys done in Programme 3
- Telephonic engagements with District Managers.

I wish you success in your endeavours.

Dr GININDA MSIZA
Acting HEAD OF DEPARTMENT
DATE: 18 December 2020

DEPT. VAN LANDBOU: WES-KAAP
PRIVAATSAK X1, ELSENBURG, 7607
18 DEC 2020
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DEPT. OF AGRICULTURE: WESTERN CAPE

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Ms Marietjie van Jaarsveld | Head of Ministry
E-mail: Marietjievanjaarsveld@westerncape.gov.za
Tel: +27 21 483 9806 Fax: +27 21 483 3892

REFERENCE: 3/1/2/4

Dr GSG Msiza
Department of Agriculture

Dear Dr Msiza

DIRECTIVE IN TERMS OF SECTION 32 OF THE PUBLIC SERVICE ACT, 1994: DELEGATION OF FUNCTIONS/ DUTIES AND RESPONSIBILITIES

In terms of section 32 of the Public Service Act (No 103 of 1994), you are hereby duly directed to perform the functions / duties and responsibilities assigned to the post of Head of Department: Agriculture from **16 December 2020 – 17 January 2021**. This assignment is additional to your current post of DDG: Agricultural Development and Support Services.

In the performance of your duties related to this assignment, please keep in mind that all the appropriate legislation, prescripts, control measures and delegations are applicable. You must also ensure that you take note of and adhere to our Department's management philosophy and work ethos.

It would be appreciated if on return, you would report to the recommendations, approvals and advise you have dealt with under this delegation authority.

Please note that unless specifically authorised, you cannot sub delegate / assign the authority assigned to you.

Thank you for your on-going support, co-operation and positive attitude you portray in the management of your responsibilities and functions.

DR IVAN MEYER
MINISTER OF AGRICULTURE
DATE: 08 December 2020

ANNEXURE 4: FARM ASSESSMENT TEMPLATE

Western Cape Government

Department
Name and Surname
Component
Name.Surname@westerncape.gov.za | Tel: 021 483 XXXX

FARM ASSESSMENT REPORT:

Date of farm visit:

1. FARM IDENTIFICATION AND LOCATION

Property description per title deed; erf no; plot details; stand no						
Physical address (where applicable)						
Name of farm						
GPS Coordinates						
District						
Local Municipality						
Farm size (ha)						
Land category	LRAD	PLAS	Municipal	Private	Other (please specify)	
Name of owner / ownership details as per title deed / lease / Trust/ CC/ Pty Ltd, and/or 'owner documents' stating ownership or right of usage of land						
Contact details of Owner/Custodian(s) of farm						
Contact details of Farm Manager/ Operations Manager						

2. CATEGORIES OF LAND AND POTENTIAL OF NATURAL RESOURCES

Table 1: Illustrating the natural resources on (name of the farm) Farm.

LAND:							
NB!!! Please provide soil analysis.							
Farm Units:	**ha**		**Capacity and yield per farm unit**				
Natural Grazing (veld):			Grazing capacity (ha per large stock unit):				
Irrigated Pastures :			Grazing capacity (large stock unit per ha):				
Dry Land (rain fed):			Total yield (ton):				
			Grazing capacity (ha per large stock unit):				
Irrigated Annual Crops:			Total yield (ton):				
Irrigated Perennial Crops:			Total yield (ton):				
Total Farmable Land:							
Area not suitable for farming (buildings, dams, roads, conservation):							
Total Farm Size:							
Chemical Soil Analysis:	Yes	No	Soil Classification Map:			Yes	No X
Average rainfall (mm):			Summer %	20	Winter %	80	

Soil production potential-cultivation and natural grazing (soil characteristics and inherent capacity to produce competitively according to current as well as potential use i.e. other crops and animals that are suitable)

- .

Water for irrigation and stock watering (quantity that is legally available for irrigation and stock watering as well as the quality thereof regarding current and potential use)

Climate (suitability for current and potential use)

- .

Conservation status of resources (erosion, pollution of water, alien vegetation, impact of agri-processing, legal status regarding relevant regulations)

3. EXISTING FARM INFRASTRUCTURE AND EQUIPMENT

(Overview of all types of infrastructure, implements and equipment regarding adequacy, efficiency, condition and status of maintenance/replacement, for current as well as potential use; Suitability and condition of road to farm in terms of distance from markets, transporting of produce and service provision)

Structure	Number	Total size (e.g. 50m²)	Capacity (e.g. 10 ton/day)	Condition		
Homestead and labour housing:			-	Good	Moderate	Poor
Storage:			-	Good	Moderate	Poor

Vehicles, machinery and implements	Number	Suitable for Purpose		Condition		
None		Yes	No	Good	Moderate	Poor
		Yes	No	Good	Moderate	Poor

4. CURRENT PRODUCTION CAPACITY AND PERFORMANCE

(**Technical and economic data:** Overview of production potential and suitability –competitive in the markets-of all current crops and animal enterprises that are used regarding genetics/technology, types, rootstocks, varieties, cultivars and age structure; Comparison of current performance with norms of industry and area; potential for other crops and animals)

5. CURRENT FINANCIAL PERFORMANCE

(Profitability of every existing enterprise and business as a whole; Liquidity; **- should be linked and verified against the current financials of the business**)

6. CURRENT AND FUTURE MARKETS

(Historic picture and current market access, agreements and arrangements; Risks involved to retain markets)

7. MANAGERIAL STRUCTURE, EMPLOYMENT, ADMINISTRATION AND FINANCIAL SERVICES

(Details of management structure/organogram, employment and human resources, data/record/information and bookkeeping systems as well as external services and other support that are used);

*Management position held (e.g. Production, Finance, Marketing, Labour, Administration and Information)			
Name and Surname:		Farming Experience:	
*Position:		Education:	
Name and Surname:		Farming Experience:	
*Position:		Education:	

Name and Surname:		Farming Experience:	
*Position:		Education:	
Name and Surname:		Farming Experience:	
*Position:		Education:	

8. BEST OPPORTUNITIES AND BIGGEST RISKS

(**Very important** - Most obvious opportunities that exist and most threatening risks that could jeopardise survival of this farm as a standalone business)

9. SOURCES OF INFORMATION AND CONSULTATION

(References of institutions, documents as well as internal and external experts that have been used and consulted to supply information on speciality items regarding norms, standards, confirmation and verification)

10. CONCLUSIONS AND REMARKS

Potential of farm to be a viable and sustainable business unit

Low potential	Some potential	Adequate potential	Good potential	High potential

Farm as an asset regarding agricultural value

Poor agricultural asset	Reasonable agricultural asset	Satisfactory agricultural asset	Good agricultural asset	Top agricultural asset

Suitability of current enterprises according to potential of farm

Not suitable	Slightly suitable	Satisfactory Suitable	Good Suitability	Perfect suitability

Efficiency of current operations

Low efficiency	Reasonable efficient	Satisfactory Efficiency	Good Efficiency	Best efficiency

Other remarks:
The beneficiaries highlighted that the strategic partner, Mr JW van Wyk, didn't include them when deciding on the removal of the apple orchards and they don't understand the reasons thereof.

....

Compiled by: (Name and Surname) **Date**

Senior/Agricultural Advisor

……	……
(Name and Surname)	**Date**
Deputy Director	
……	……
(Name and Surname)	**Date**
Director:	

ANNEXURE 5: FARM ASSESSMENT REPORT

Western Cape Government

Department of Agriculture
Isaac Maphalle
Agricultural Producer Support and Development
Isaac.Maphalle@westerncape.gov.za | Tel: 023- 312 1021

FARM ASSESSMENT REPORT:

Date of farm visit: 23/05/2022

1. FARM IDENTIFICATION AND LOCATION

Property description per title deed; erf no; plot details; stand no	2013/009565/24					
Physical address (where applicable)	Nduli Farm, R46					
Name of farm	Tweefontein 3738					
GPS Coordinates	-33.35274444986 19.3514196451					
District	Cape Winelands					
Local Municipality	Witzenberg					
Farming size (ha)	54.8180 Hectares in extent (T29216/2002)					
Land category	LRAD	PLAS X	Municipal	Private	Other (please specify)	
Name of owner / ownership details as per title deed / lease / Trust/ CC/ Pty Ltd, and/ or 'owner documents' stating ownership or right of usage of land	Eunice Ndoda					
Contact details of ownership custodian(s) on (farm)	Tel: 078 3906 522 Fax: Email: ndulifoods@yahoo.com					
Contact numbers of Farm Manager / Operations Manager	Tel: 083 473 0447 Fax: Email: dumisaninomj@gmIL.com					

2. CATEGORIES OF LAND AND POTENTIAL OF NATURAL RESOURCES

Farm Units:	**ha**	**Capacity and yield per farm unit**			
Natural Grazing (veld):	0	Grazing capacity (ha per large stock unit):			
Irrigated Pastures :	0	Grazing capacity (large stock unit per ha):			
Dry Land (rain fed):	0	Total yield (ton):			
		Grazing capacity (ha per large stock unit):			
Irrigated Annual Crops:	44ha	Total yield (ton):			
Irrigated Perennial Crops:	4ha	Total yield (ton):			
Total Farmable Land:	54 ha				
Area not suitable for farming (buildings, dams, roads, conservation):	11.8180				
Total Farm Size:	54.8180				
Average rainfall (mm):	1088mm	Summer %	15	Winter %	85

Soil production potential-cultivation and natural grazing (soil characteristics and inherent capacity to produce competitively according to current as well as potential use i.e., other crops and animals that are suitable) The farm offers a relatively gentle slope in a north – westerly direction which ensure good drainage ability. The soil composition can be described as loan and sandy loam with clay deposits evident in particles

The soil has a high PH due to slightly brackish water, with high sodium content serving as confirmation. This will not pose threat as Gypsum can be incorporated to leach sodium. Potassium quantities are high less fertiliser is applied with sufficient Phosphorus. Copper and Zinc quantities are high due to repeated application of superphosphate or NPK and Bordeaux mixture. This does not pose a serious threat beneficial of butternut production and soil management. Availability of Iron and manganese are then reduced. The soil is suitable for vegetable and fruit farming.

Water for irrigation and stock watering (quantity that is legally available for irrigation and stock watering as well as the quality thereof regarding current and potential use) under borehole inventory: there are boreholes on the farm with a capacity of 252 600m^3, registered at the Department of Water Affairs. Beneficiaries indicated that the boreholes need to be revamped. With new cables, pipes, and pumps. The farm has a 7.3hectare dam with a holding capacity of 180 000 m^3 registered at the Department of Water Affairs.

A 15 000 m^3 water rights were allocated from Titus River and 16 hectares of basic water usage rights from the Rietvallei irrigation Board. Water in the dam is contaminated by the sewerage from the Nduli

community sewerage tank that is next to the farm dam. Therefore, the water from the dam cannot be used for vegetable irrigation. The farm mainly depends on the boreholes for irrigation water.

Climate (suitability for current and potential use) The climate in Ceres is characterised by major variance between the summer maximum and the winter minimums. January and February are regarded as the hottest months of the year with an average maximum of 29.9°c measured during February whilst the average minimum of 2.4 °C is measured during July. Ceres falls within Mediterranean climatic zone. An average annual rainfall of 1088mm which occurs mainly during winter months reaching a peak during July of approximately 22mm. Snowfall on the high mountains peaks is a common occurrence during winter and remains for up to two weeks at times. No Significant problems in terms of the weather are expected, hail and frost seldom occur. The climate suitable for vegetable and fruit farming activities.

Conservation status of resources (erosion, pollution of water, alien vegetation, impact of Agri-processing, legal status regarding relevant regulations)

There is no soil erosion alien vegetation at the farm. However, the dam has been contaminated by polluted sewage water from Nduli Community.

3. EXISTING FARM INFRASTRUCTURE AND EQUIPMENT

(Overview of all types of infrastructure, implements and equipment regarding adequacy, efficiency, conditions and status of maintenance/replacement, for current as well as potential use; Suitability and condition of road to farm in terms of distance from markets, transporting of produce and service provision)

Farming infrastructure on the farm consists of the following: - The farm buildings are, and the dam occupies 10.8 ha. Electricity network on the farm is well developed and each point has a transformer and a meter which make managing the electrical account difficult for beneficiaries. Electric cables for all the pump houses in the farm have been stolen, as a result the business was not in production in the last season.

Infrastructure Inventor

STRUCTURE	M²
Main Residence	254.85
Garage	37.2
Porch	101.89

Loading area	420
Separate Garage	111.28
Workshop and tool shed	61.08
Pack shed/store	283.65
Pump house	71.68
Labour Cottages	38.94
Toilets and restroom	150
De – humidifier store	720

The buildings are in good condition. The pack shed and the de – humidifier store added tremendous marketing advantages to the farming operations. The condition of the road from the farm is gravel and the main road is tarred going to the market.

Existing movable Assets

- Forklift
- 2 x Trucks
- Tractor
- Trailer
- Agrico weed sprayer
- Boom Sprayer
- Offset disc
- 3 tine ripper Kongskilde 27 tine cultivator
- 7 tine ghrop
- Furrow plough
- Perfecto cutter
- Rotarvator
- Murray scrapper
- Steel Bins

The tractor and Implements are in a good condition. A full mechanisation evaluation was conducted and all equipment that the beneficiaries need is available at the farm.

4. CURRENT PRODUCTION CAPACITY AND PERFORMANCE (Economic data)

(Technical and Economic data: Overview of production potential and suitability –competitive in the markets-of all current crops and animal enterprises that are used regarding genetics/technology, types, rootstocks, varieties, cultivars, and age structure; Comparison of current performance with norms of industry and area; potential for other crops and animals).

Beneficiaries has planted three hectares of Squash and one hectare of Spinach. The farm business has potential and suitability to produce vegetables at commercial level due to farm size of 44

hectares. Currently beneficiaries have average knowledge of understanding technology, hence technology encompasses a huge body of knowledge and tools that is the use of economic resources as way to produce vegetables efficiently and innovatively. Technological process is essential to economic growth and development. Advanced available technology quickly improves local and global economy.

5. CURRENT FINANCIAL PERFORMANCE

Profitability of every existing enterprise and business as a whole; Liquidity; - should be linked and verified against the current financials of the business)

Financial records are kept on both manual and electronic record keeping systems. The beneficiaries make use of management accounts and financial statements for planning and decision-making. The beneficiaries are responsible for managing the budget; this involves allocating money to different activities allowing the farm business to continue operating. Sales revenue decreases every year because of cable theft and vandalism of the pump houses and drainage challenges that are experienced in the farm. As a result, the business has been operating at a loss since 2019. The sale of vegetables decreased drastically in 2020 due to the outbreak of Covid – pandemics in the area and it was declared disastrous year. Shareholders have been advised to consider production of high value vegetables and undercover production to improve income.

Nduli food security shareholders have managed to acquire more assets through grant funding from the Department of Agriculture in 2019/2020 financial year. The business received an amount of R812 805 in 2019/2020 financial year to acquire a delivery van, tractor, labour costs, sprayer and spreader. In 2021/2022 financial year the Department of Agriculture approved an amount of R1 079 373 and only 6% of the funds have been spent. Implementation had to be stopped and re-planning had to be done, due to vandalism and theft challenges .

The beneficiaries rolled the financial projections for the business, indicating the knowledge of how much the product is expected to cost and how much revenue it is expected to earn from the investment. Furthermore, the beneficiaries indicated that sales of vegetables usually fluctuate yearly depending on climatic conditions. Financial statements of 2020/2021 and 2019/2020 will be provided for analysis.

This is an agricultural business where beneficiaries buy the assets to replace worn out for the farm to be productive and improve infrastructure to be efficient. Another strong opportunity cost of the business is the availability of contractual well-known markets of retails as sellers are willing to provide these contracts to the coming entrance.

6. CURRENT AND FUTURE MARKETS

(Historic picture and current market access, Agreement and arrangements; Risks involved to retain markets with new ownership) The beneficiaries did disclose their market arena supplying the vegetable products and exposed to national and local markets as nature of trade; however, the focus on the marketing of vegetables is competition with commercial farmers. To improve productivity, farming is all about diversifying production system within the farm. Beneficiaries did supply vegetables to retailers like Pick 'n Pay, Shoprite, Spar, Rhoda (Agro-processing company) and Patagonia with vegetables. Surplus vegetables are sold to hawkers within the communities of Witzenberg.

In terms of market opportunities, the beneficiaries allow the vegetable industry to conduct research as well. Where there is a need, the Agricultural Economic Services communicate price trends. The beneficiaries consider product varieties to meet future marketing demand. The beneficiaries do have potential to exploit the market, and comfortably share ideas amongst surrounding farmers. The beneficiaries have capacity to respond to changing market needs. The beneficiaries are attended workshop giving opportunity to expand the markets.

, the beneficiaries have farming experience as a contribution towards obtaining market revenues. The beneficiaries agreed that initial capital for any farming business is the barrier to market entry. The farm has South African Gap accreditation that is renewed yearly. The beneficiaries had contract agreements with the following markets when in production:

- Pick 'n Pay
- Shoprite
- Spar
- Golden Harvest
- R and A
- and Patagonia

7. AGRI-PROCESSING FACILITIES, PERFORMANCE AND POTENTIAL

(Very important- current operations or potential for agri-processing)

There is no existence of Agri-Processing Facilities.

8. MANAGERIAL STRUCTURE, EMPLOYMENT, ADMINISTRATION AND FINANCIAL SERVICES

(Details of management structure/organogram, data/record/information and bookkeeping systems as well as external services and other support that are used)

The financial statement of the farm is prepared by the accountant who was appointed by the Department of Agriculture, Land Reform and Rural Development on behalf of the farm business. Ms Eunice Ndoda organize and manage daily operation, management of people and customer

relations and manages the budget. Mr Dumisani Nomjana is the farm manager who oversees the function as well as day to day operations of the farm.

9. BEST OPPORTUNITIES AND BIGGEST RISKS

(**Very important** - Most obvious opportunities that exist and most threatening risks that could jeopardise survival of this farm as a standalone business)

Opportunities:

- Increase Vegetable volume to provide continuous cash flow.
- Facilitate communication with organized commercial farmers with view to enter into a mentoring/coaching agreement.
- Record-keeping training offered by WCDoA.
- Acquire proper accounting software for proper record keeping.
- High value crops
- High prices achieved from local market.
- Adequate capital for expansion.

Threats:

- If unsupported the farming business might be highly geared with liability experience on vegetable enterprise (Applied knowledge)
- In adequate resources by two permanent staff and less than 10 seasonal workers on 34 hectares.
- 50% Beneficiaries participation
- Absents of any accumulated profit provide adverse chance in the vegetable business cycle.
- Thieves remain prevalent in the area.
- Sales margins did not improve the project could face insolvency.
- Current Status: small holding farming instead of commercialisation

10. SOURCES OF INFORMATION AND CONSULTATION

(References of institutions, documents as well as internal and external experts that have been used and consulted to supply information on speciality items regarding norms, standards, confirmation and verification)

- DALRRD
- WCDoA

11. CONCLUSIONS AND RECOMMENDATIONS

Potential of farm to be a viable and sustainable business unit

Low potential	Some Potential	Adequate potential **X**	Good potential	High potential

Farm as an asset regarding agricultural value

Poor agricultural asset	Reasonable agricultural asset X	Satisfactory agricultural asset	Good agricultural asset	Top agricultural asset

Suitability of current enterprises according to potential of farm

Not suitable	Slightly Suitable X	Satisfactory Suitable	Good suitability	Perfect suitability

Efficiency of current operations

Low efficiency X	Reasonable efficient	Satisfactory Efficiency	Good efficiency	Best efficiency

Capital requirements

(Estimated annual capital requirement for first three years regarding Infrastructure investment and operational expenses separately)

Capital requirements will dependent on the nature and type of farming activities that will be undertaken on the property in future. It is therefore advised that a business plan should be drafted for the farm, with capital requirements budgeted for in accordance with planned future farming activities.

Note: This information is compiled from various sources& systems available to the Extension Officer at the time, including a physical site-visit to the said erf/erven and therefore represents a particular view as at the time or date of the completion of the report and may be subject to changes/amendments, etc.

Other remarks:

Other remarks:

- This part is action plan that need to be considered – Soil profile of 2-metre-deep need to dig to get soil horizons or profile.

- Map of transformers – out of seven transformers four transformers do not work, beneficiaries can only use three transformers.
- Ceres is associated with sensitive strong winds therefore beneficiaries need to have strong windbreaker if they are considering tunnel production and strong material will have to be used for tunnels to avoid high repair costs every year. .
- Planting of windbreaker plants is a good option to be considered by beneficiaries.
- Beneficiaries need to explore double security measures, furrow around the farm.
- Beneficiaries to consider border fencing first and then furrow.
- The third border can be built using sisal or num trees.
- The following are recommended are as follows: Tomatoes, Green Mealies, Pumpkin, Cabbages, sweet Potatoes, Peppers, and Cauliflower, herbs, chillies, etc
- Securing the pump.
- Possibility of having ridges and furrows.

Complied by:

Compiled by: Isaac Maphalle
Senior Agricultural Advisor: Cape Winelands
Date:27/07/2022

Dikeledi Pitso

Digitally signed by Dikeledi Pitso
Date: 2022.08.04 09:24:47 +02'00'

Dikeledi Pitso
District Manager: Cape Winelands
Date:

Mr. Douglas Chitepo
Director: Cape Winelands, Cape Metropole & Overberg
Date: 4/8/2022

Annexure1: Map of Nduli Food Security Cooperative Limited

ANNEXURE 2: Farm Picture

Figure 2: Storage Facility

Figure 3: Farm Worker Dwellings

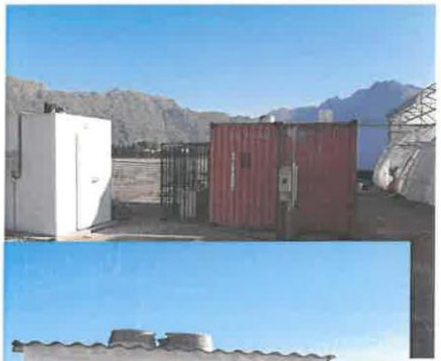

Figure 8: Chemical Store

Figure 9: Main Dwelling

Figure 10: Dilapidated tunnels

Figure 11: Borehole

Figure 12: Equipment

Figure 13: Steel Trailers

agriculture, land reform
& rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

CAPE WINELANDS DISTRICT: LAND REDISTRIBUTION AND DEVELOPMENT: 15 Market Street, Stellenbosch, Private Bag X5069, Stellenbosch, 7599, Tel: 021 887 7448, Fax 021 887 7510

ATTENTION: MS DIKELEDI PITSO

Manager: Department of Agriculture
Farmer Settlement and Development
Cape Winelands

REQUEST FOR A FARM ASSESSMENT ON ERF 3738, MEASURING 54.8180 HECTARES, SITUATED IN THE CERES, IN THE WITZENBERG LOCAL MUNICIPALITY, WESTERN CAPE, COMMONLY KNOWN AS LANGBOOM PLAS FARM.

Dear Madam

The Department of Agriculture, Land Reform and Rural Development: Stellenbosch District Office is on the process of requesting the National Land Acquisition and Allocation Committee for approval for the Reallocation for the farm Langboom Plas farm, It is a requirement for a farm assessment report to be included when requesting approval from NLAAC.

Currently Langboom Plas farm has no lease Agreement in place as clause 6 in the lease agreement between Nduli farming co-op and the DALRRD indicates that the lease shall be subjected to an initial probation period of 5 years after which the performance of the lessee shall be evaluated by the lessor on the implementation plan of the approved Business Plan and on the compliance with the provisions of the lease.

The DALRRD is in the process of finalising the above process.

Therefore the Stellenbosch District office (Strategic Land Acquisition) is requesting for a farm assessment to be conducted on the farm.

Your assistance will be highly appreciated.

Yours sincerely

_____
MS. OG SOLDAAT
PROJECT COORDINATOR: SLA: CAPE WINELANDS DISTRICT OFFICE
DATE: 16/05/2022

ANNEXURE 6: ETHICAL APPROVAL LETTER

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

14-Jun-2022

Dear Ms Carol Levendal

Application Approved

Research Project Title:
A foundation in Agricultural Extension Science is a prerequisite for agricultural advisors, to improve the livelihood of the beneficiaries of their extension and advisory support services in the Western Cape.

Ethical Clearance number:
UFS-HSD2022/0553/22

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

Dr Adri du Plessis
Digitally signed by Dr Adri du Plessis
Date: 2022.06.14 09:03:20 +02'00'

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ANNEXURE 7: CERTIFICATE OF EDITING

Certificate of Editing

Authors names:
Carol Levendal

Date issued:
25 November 2022

Thesis title:
A Foundation in Agricultural Extension Science is a Prerequisite for Agricultural Advisors to Improve the Livelihood of the Beneficiaries of Their Extension and Advisory Support Services in the Western Cape

This document certifies that the above mentioned thesis was proofread and edited by Emend.it. The document was edited for proper English language, grammar, punctuation, spelling, and overall style by one or more of our professional editors. The editor endeavored to ensure that the author's intended meaning was not altered during the review. All amendments were tracked with the Microsoft Word "Tracking Changes" feature. Therefore, the authors had the option to reject or accept each change individually.

Kind regards,
Emend.it Team

ANNEXURE 8: TURN IT IN REPORT

Carol Levendal Final PhD Thesis_Edited.docx

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