

FARMERS' PERCEPTIONS OF EXTENSION AGENTS' PROFESSIONAL  
QUALITIES AFFECTING SERVICE DELIVERY IN THULAMELA MUNICIPALITY,  
LIMPOPO PROVINCE

by

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## DECLARATION

I Mudzanani Fonzani Joyce declare that the mini-dissertation hereby submitted to the University of Limpopo for the degree of Masters in Agricultural Extension has not previously been submitted by me for a degree at this or any other university; that it is my work in design and in execution, and that all material contained herein has been properly acknowledged.

Signature:

Date:

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## **DEDICATION**

This work is dedicated to my late mother Mudau Takalani Edith Sigidi, my beloved husband Doctor Lufuno Robert Mudzanani, my lovely children Lusani, my son in-law Dylan, my grandson Vhutali Ramathavha and my son Mufunwa Mudzanani. They all played a great part on my achievement. Not forgetting my Pastor Nditsheni Tshililo who kept praying for God's wisdom to abound on me even on my studies.

## LIST OF ACRONYMS

<b>ACRONYM</b>	<b>NAME</b>
ERP	Extension Recovery Plan
EA	Extension Agent
FGB	Farmers' green book
DAFF	Department of Agriculture Forestry and Fisheries
ICT	Information Communication Technology
LDoA	Limpopo Department of Agriculture
LDARD	Limpopo Department of Agriculture and Rural Development
CASP	Comprehensive Agricultural Support Programme
TVBC	Transkei, Venda, Bophuthatswana and Ciskei
SPSS	Statistical Package for Social Sciences
ULREC	University Of Limpopo Research And Ethics Committee
B.Tech	Bachelor of Technology
GRD	Graduate
DIP	Diploma

## **ABSTRACT**

This study investigated farmers' views on public extension agents' accountability to farmers since the introduction of the farmers' green book, improvement in agents' professional qualities following capacity training and their technical competence following qualification upgrade since the implementation of the Extension Recovery Plan (ERP) in 2008/2009. The study was conducted among 80 farmers in Thulamela Municipality of Limpopo where farmers have been supplied with the farmers' 'green book' by the Limpopo Department of Agriculture (LDoA) and where agents of LDARD have undergone qualifications' upgrades and capacity training in competency areas since ERP implementation. The findings in this study suggest that the introduction of the farmers' green book improves AEs accountability to farmers. There is also evidence from the study that seems to suggest that farmers believe EAs farm management knowledge of crop and animal production has also improved. Furthermore, farmers believe that EAs now demonstrate more professional conduct in agricultural extension service delivery. The introduction of the ERP seems to be making a positive contribution to improve the effectiveness of the public agricultural extension in South Africa. Flowing from the findings of this study it is appropriate to recommend that more farmers' green books should be made available to farmers, more funds be available to encourage more extension agents with diploma qualifications to enrol in tertiary institutions to upgrade their qualifications to at least a bachelor's degree and more capacity training in the areas identified in the Norms and Standards (2005) should take place and made mandatory for agents to attend. This should, perhaps, be linked to promotions to encourage agents to attend.

Keywords: Norms and Standards, farmers' green book, ERP, accountability, capacity training, qualification, upgrade.

# TABLE OF CONTENTS

DECLARATION.....	I
ACKNOWLEDGEMENTS.....	II
DEDICATION.....	III
LIST OF ACRONYMS.....	IV
ABSTRACT.....	V
TABLE OF CONTENTS.....	VI
LIST OF TABLES.....	IX
LIST OF FIGURES.....	X
<b>CHAPTER 1.....</b>	<b>1</b>
INTRODUCTION.....	1
1.1 Motivation and background.....	1
1.2 Problem statement.....	1
1.3 Aim.....	3
1.4 Objectives.....	3
1.5 Research hypotheses.....	3
1.6 Definition of terms.....	3
1.7 Significance of study.....	4
1.8 Outline of Dissertation.....	5
<b>CHAPTER 2.....</b>	<b>6</b>
LITERATURE REVIEW.....	6
2.1 Introduction.....	6
2.2 Extension services in south africa: a synoptic account of its genesis to the Present.....	7
2.3 The extension recovery plan (erp) in south africa.....	9
2.4 Competency, professionalism and job performance.....	15
2.5 The role of perception of adoption behavior.....	16
2.6 Summary.....	16
<b>CHAPTER 3.....</b>	<b>18</b>
RESEARCH METHODOLOGY.....	18
3.1 Introduction.....	18
3.2 Description of study area.....	18

3.3 Research Design .....	19
3.4 Target population.....	19
3.5. Sampling Approach .....	20
3.6 Sampling selection and size .....	20
3.7 Data collection .....	20
3.8 Measurement of variables .....	21
3.9 Data Analysis.....	24
3.10 Ethical consideration.....	27
3.10.1 Permission .....	27
3.10.2 Inform consent .....	27
3.10.3 Confidentiality and anonymity .....	27
3.10.4 Protection from harm .....	27
3.10.5 Respect.....	28
3.11 Summary .....	28
<b>CHAPTER 4.....</b>	<b>29</b>
PRESENTATION AND INTERPRETATION OF FINDINGS .....	29
4.1 Introduction.....	29
4.2 Results of Descriptive Analyls.....	29
4.2.1 Demographic Information.....	29
4.2.2 Improvement in agents’ farm management knowledge.....	38
before 2013 and after 2013.....	38
4.2.3 Extension agents’ demonstration of professionalism in service delivery .	40
4.3 Results of Inferential Analyses.....	42
4.3.1 Farmers’ access to the ‘green book’ and influence on Extension agents’ accountability to farmers .....	42
4.3.2 Influence of technical qualifications (Bachelor’s degree) upgrade on agents’ crop farm management knowledge .....	43
4.3.3 Capacity training received in selected competency areas and influence on agents’ professionalism in extension service dilivery .....	45
4.4 SUMMARY.....	46



<b>CHAPTER 5</b> .....	47
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....	47
5.1 Introduction .....	47
5.1.1 Contextual summary .....	47
5.2 Conclusions .....	48
5.2.1 About the problem that was addressed.....	48
5.3 Limitations of the study .....	49
5.4 Recommendations.....	49
5.5 FURTHER RESEARCH.....	49
REFERENCES.....	51
<b>APPENDICES</b> .....	59
Appendix A: University of Limpopo Ethical Clearance Approval.....	59
Appendix B: Letter from LDARD Granting permission to conduct a study in the municipality.....	60
Appendix C: Research Questionnaire.....	61

## LIST OF TABLES

Table 4.1: Demographic profile of the sample of respondents (N= 80).....	32
Table 4.2: Extension agent's accountability to farmers.....	33
Table 4.3: Access to Farmers' green book and Accountability of Extension Agent to farmer.....	34
Table 4.4: Extension agent's other accountability issues to farmers.....	35
Table 4.5: Farmers' opinion on EA's knowledge improvement following upgrade in technical knowledge of animal production, n = 42.....	39
Table 4.6: Farmers opinion on EA's knowledge improvement following upgrade in technical knowledge of crop production, n = 38.....	40
Table 4.7: Agents' accountability to farmers according ownership of farmers' green book.....	43

## LIST OF FIGURES

Figure 3.1 Thulamela Local Municipality Map.....	18
Figure 4.1: Frequency of EA's farm visits before 2013.....	37
Figure 4.2: Frequency of EA's farm visits after 2013 to 2017.....	37
Figure 4.3: EA's demonstration of professionalism in service delivery.....	42

## CHAPTER 1

### INTRODUCTION

#### 1.1 MOTIVATION AND BACKGROUND

The white apartheid government's separated development policy relegated Indians and Black people to the Natal province and the Bantustan Homelands respectively. The separate governments in South Africa had separate extension systems with different resource capabilities and therefore, unequal effectiveness. After the fall of the apartheid government and the 1994 all-inclusive democratic elections in South Africa, the separate extension organizations servicing the different racial groups were re-organized into one national extension system (Koch and Terblanché, 2013). The dawning of the new political dispensation in South Africa also brought with it an intense pressure on the government to bring about agricultural transformation including the land reform programme. The demand is also led to increased demands for quality agricultural extension services to be implemented at a greater pace and frequency. This ushered in the Extension Recovery Plan (ERP) to revitalize the public extension services to insure quality services to its clients.

The sustainability of a quality service requires that it meets the needs of users. In view of the huge expenditures on ERP, it is vital to find out from farmer users of the public extension service what they think of the quality of the service rendered by agents in the period 2012-2013. The important role of perception in adoption behaviour warrants an investigation into farmers' opinions of the extension support provided by extension agents in terms of their professional competencies (Afful *et al.*, 2013). This kind of assessment provides an essential measure of how useful the services rendered are (Israel, 1982). A performance measure of this nature could also give insights into possible areas for improvement of the implementation of ERP by government, if necessary.

#### 1.2 PROBLEM STATEMENT

One persistent complaint by farmer users of the public extension service is its quality, which can be conceptualized in terms of few and irregular visits, poor farm management information and a lack of other professional qualities on the part of extension agents. This study therefore, addressed the problem of lack of

professional qualities on the part of extension agents which reflect in poor quality of public extension services as perceived by smallholder farmers. Overall, there is a general acknowledgement in the literature that agricultural extension has a positive impact on agricultural output and plays an essential role in agricultural development (Anderson and Feder, 2007). To improve the effectiveness of public extension in South Africa, the National Department of Agriculture, has since implementation of the Extension Recovery Plan (ERP) in 2008/2009, been spending a lot of money e.g. R555 517 million (2008/2009 to 2010/2011), to revitalize the public extension service (DAFF, 2011). The Plan has five strategies called pillars: ensuring visibility and accountability of extension promote professionalism and improve image of extension, recruitment of extension personnel, reskilling and reorientation of extension and provision of ICT infrastructure and other resources. Another instrument introduced amongst these strategies to ensure extension agents' accountability to farmers was the 'farmers' green book' (Department of Agriculture, Forestry and Fisheries, (DAFF) 2009). These strategies notwithstanding, extension service effectiveness finally rests on the professional competency (farm management knowledge, skills and other professional qualities) of the agents on the ground who delivers the service to farmers. This professional competency dimension of extension agents in the extension effectiveness problem will be assessed based on four pillars of the Plan except for provision of ICT infrastructure and other resources.

A variety of studies have explored the influence of competency on work performance (Scheer *et al.*, 2011 citing Stern & Kemp, 2004). So far no academic study has been done on the influence of the ERP on improving agents' extension service delivery performance based on their professional competencies and therefore, on the quality of services in the field as seen by the farmers they serve. Such a situation creates a knowledge vacuum and therefore, it becomes difficult for policy makers to assess the impact of the investment in the ERP in improving extension agents' professional qualities as seen in improvements in service delivery. This was the motivation of this study; to fill this knowledge gap.

### **1.3 AIM**

To determine farmers' views on the influence of Extension Recovery Plan (ERP) on extension agents' professional competencies in extension service delivery in Thulamela municipality.

### **1.4 OBJECTIVES**

The following objectives were addressed to assess the influence of Extension Recovery Plan (ERP) on extension agents' professional competencies in extension service delivery in the Thulamela municipality:

- i. To determine if farmers' use of the farmers' green book influences agents' accountability to farmers.
- ii. To determine farmers' opinions on agents' technical knowledge of farm management (crop and/or animal production) improvement since they upgraded their technical qualifications (4-Year Bachelor's degree) following implementation of ERP (2008/2009).
- iii. To assess farmers' views on public extension agents' demonstration of professionalism in the delivery of extension service to farmers following capacity training received.

### **1.5 RESEARCH HYPOTHESES**

- i. Farmers' access to the 'green book' has no significant influence on Extension agents' accountability to farmers.
- ii. Agents' crop farm management knowledge has not improved following upgrading their technical qualifications (Bachelor's degree).
- iii. Agents' professionalism in extension service delivery has not significantly increased following capacity training received in selected competency areas.

### **1.6 DEFINITION OF TERMS**

- **Extension Recovery Plan**

This is an approach developed by the DAFF in 2007 to rejuvenate the state of agricultural extension and its consultative services in South Africa. As part of the South African National Evaluation Plan for 2015-16, the programme was meant to evaluate whether the extension practitioners capacitated through ERP managed to deliver a better service to their clients as expected.

The programme was initiated to achieve the following five pillars: (1) ensuring visibility and accountability; (2) improving image and promoting professionalism; (3) recruitment of extension personnel; (4) reskilling and re-orientation of extension; and (5) provision of information and communication technology (ICT) and other resources. (DAFF, 2011).

- **Farmers' green book**

The book is green in colour and hence the name, Green Book. The Farmer's green book is a record-keeping tool that farmers use to record their daily interactions with various agricultural advisors from government and outside government (Department of Agriculture, 2009). The book provides an opportunity to the farmer to evaluate the quality of the products and services rendered to him/her by the advisor. The information recorded in this book assists farmers and any other interested person to assess the accountability and visibility of extension agents towards the services they render to farmers.

The book was developed in 2008/9 and adopted in 2010 (DAFF, 2014). It is published in English and 11 South African local languages namely, Afrikaans, English, isiXhosa, isiZulu, siSwati, isiNdebele, Sepedi, Setswana, Sesotho, Tshivenda and Xitsonga (DAFF, 2014).

- **Professionalism**

In the Agricultural field, extension practitioners were required to register with the South African Council for Natural Scientific Professions (SACNASP) which was published in Government Gazette Notice No.: 36 on 24 January 2014 (DAFF, 2014).

'Professional qualities' was used in this study to include extension agents' technical knowledge and skills in crop and animal production disciplines acquired through university training (technical competency) and other competencies in selected areas specified in the Norms and Standards (2005) acquired through capacity training on the job for application in the work environment as envisioned in the ERP.

## **1.7 SIGNIFICANCE OF STUDY**

Information gathered from the study will help indicate whether ERP expenditure is yielding desired results regarding agents' accountability to farmers as a result of the

possession of the farmers' 'green book'. Study findings will also reveal whether farmers are benefitting from agents' qualification upgrade and other professional training as a result of the implementation of ERP.

The Department of Agriculture's image will be improved if study results show farmers' positive assessment of agents' improved technical farm management knowledge and skills and other professional competencies. A commitment by the Department of Agriculture of more financial resources to agents' qualification upgrade, and their training in other professional competencies and efforts to ensure more farmers access to the green book will therefore, be justified. Any negative results from the study will call for a re-assessment of the situation by the Department of Agriculture to find out why and how it can be improved.

## **1.8 OUTLINE OF DISSERTATION**

The second chapter reviews the literature to determine what has been studied on ERP since its implementation and to identify any gaps regarding what could be investigated to further advance our knowledge about the effectiveness of ERP in improving the professional competencies of Extension agents. Chapter three presents the methodology employed for the study with justifications for the various methods. The fourth chapter presents the findings of the study in relation to the research questions with discussions. The last chapter provides a summary and conclusion on the research questions and hypothesis as well as appropriate recommendations for management and future research.



## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

A very important aspect of the assessment of the quality of extension service delivered relates to the professional competency of extension agents who provide the service as perceived by farm users. This study investigated farmers' views on public extension agents' service delivery in Thulamela Municipality of Limpopo as a reflection of their professional qualities since the implementation of the Extension Recovery Plan (ERP) in 2008/2009. The purpose of the literature review covered here, was to determine what has been studied on ERP since its implementation and to identify any gaps regarding what could be investigated to further advance our knowledge about the effectiveness of ERP in improving the professional competencies of Extension agents.

A Google scholar search for peer reviewed papers published on ERP in the South African Journal of Agricultural Extension between 2009 and 2016 yielded no results. Similarly, proceedings of the South African Society for Agricultural Extension between 2009 and 2016 were examined for papers presented on ERP at Extension conferences and yielded no results. The literature review provided here therefore, includes information in official government documents on various pillars of the ERP such as ensuring visibility and accountability, promotion of professionalism and improvement in the image of extension, reskilling and re-orientation of extension. The review also gave insights regarding the role of perception in behavior which helped to formulate the objectives of the study.

Hypotheses were subsequently formulated based on the objectives of ERP and tested to increase our knowledge on the effectiveness of ERP in improving agents' professional competencies. The provision of ICT and recruitment of personnel (ERP pillars 3 and 5) were however, not covered in this review because the study does not deal with those pillars.

In view of the fact that this study was about public extension agents' professional qualities in relation to extension service delivery, the literature review covered competency, professionalism and associated influence on job performance. In light

of the importance of perception in farmers' adoption behavior, the literature on the concept 'perception' in relation to farmers' adoption behavior was also reviewed. A review of the history of agricultural extension was made to provide a background to understand the evolution of ERP in South Africa and its implementation in South Africa.

## **2.2 EXTENSION SERVICES IN SOUTH AFRICA: A SYNOPTIC ACCOUNT OF ITS GENESIS TO THE PRESENT**

The history of Extension services in South Africa can be traced back to 1902 when scientists were brought in the country from the United Kingdom. These scientists had one mandate to develop and place the South African agricultural sector in a better position to produce better and quality products that could be marketed outside the country and to support the local farmers (Liebenberg, 2015 citing Van Vuren, 1952). Unfortunately, this group of scientists lacked information related to agricultural conditions in South Africa and as such they were blamed that their guidance and advice were irrelevant and not adding value to the farmers within the country.

The real history however, of when agricultural extension first begun in South Africa as a professional activity was in 1925 when it introduced from the USA by H. Du Toit (Koch and Terblanché, 2013). A separate Division of Extension was set up at this time to act as the link between farmers and the specialist technical services (Liebenberg, 2015). The Apartheid system of government in South Africa at the time ensured that only the white commercial farming sector of the South Africa farming population benefited from this specialized service institution (Van Zyl and Van Rooyen, 1990). The seed of the lines along which agricultural extension was delivered to whites, blacks and Indians in South Africa was sown from that time on. Agricultural Extension education for white South African extensionists was bolstered by agricultural faculties at the Universities of Pretoria and Stellenbosch.

The apartheid government's separated development policy relegated Indians and Black people to the Natal province and the Bantustan Homelands respectively. The country's relatively dry condition and poor agricultural production practices took its toll on soil degradation in those areas as well as in white farming areas. The first School for Agriculture was opened at Teko in 1905 (Koch and Terblanché, 2013). Other Colleges of Agriculture were established in Fort Cox in 1930, Tompi Sleleka in

1960 and Taung in 1965 in the Black areas of South Africa to train black people in improved farming methods to increase yields among the subsistence and small-scale black farming sectors and also to reduce soil degradation (Lilley, 1975). This notwithstanding, the apartheid government seconded white staff to provide invaluable extension service within the black independent states of Transkei, Venda, Bophuthatswana and Ciskei (TVBC) (Coetzee, 1987).

The Regional Seminar on Agricultural Extension in 1961 and the extension workshop in 1962 (SARCCUS, 1962) paved the way for A formal extension service for the black people in South Africa.

The soil erosion problems in the Natal province in the 1950s also prompted the start agricultural extension for Indian farmers in that province and in 1968 agricultural extension services were extended to all Indian farmers in Natal (Rix, 1987). In 1974 the Department of Indian Affairs took charge of extension administration in the Natal province and field extension came to be provided by trained Indian advisors from the M.L. Sultan Technikon and the Cedara Agricultural College (Rix, 1987).

The importance of the sugar cane industry in the economy of the Natal province led the South African Sugar Association to launch its own extension service for its members including the Indian growers (Rix, 1987). In a similar vein along commodity lines, Koch and Terblanché (2013) reckon that Agricultural co-operatives that specialized in wool, citrus and the canning of fruit were the first to employ extensionists (during the late 1930s).

According to Koch (2007) the extension history of the Coloured people in the then Cape Province remains unknown although it probably was quite vibrant.

After the fall of the apartheid government and the 1994 all-inclusive democratic elections in South Africa, the separate extension organizations servicing the different racial groups were re-organized into one national extension system (Koch and Terblanché, 2013). This integration notwithstanding, the new national extension service caters to the needs of the numerous subsistence and smallholder black farming population; the white commercial farming sector relies mainly of private extension (Koch and Terblanché, 2013). The National Department of Agriculture formulates national extension policies for the whole country while the nine Provincial

Departments of Agriculture have the mandate for policy implementation. The dawning of the new political dispensation in South Africa also brought with it an intense pressure on the government to bring about agricultural transformation including the land reform programme.

The demand for agricultural land also led to increased demands for agricultural extension services to be implemented at a greater pace and frequency. This was because the public extension service is mandated by policy through the Comprehensive Agricultural Support Programme (CASP) to support land reform for agricultural development beneficiaries (Department of Agriculture, 2005).

### **2.3 THE EXTENSION RECOVERY PLAN (ERP) IN SOUTH AFRICA**

It is widely accepted among development researchers that certain essentials have to be in place for productive farming to occur. These include land, labour, input supply/capital, marketing services, extension services etc. (Schultz, 1964; Spio, 2002).

Farming knowledge is recognized as an important variable to increased farm productivity and agricultural development (Antholt, 1992). It is within this framework that a consideration of agricultural extension is important. There is a general acknowledgement that agricultural extension has a positive impact on agricultural output and an essential role in agricultural development (Anderson and Feder, 2007; Bach *et al.*, 1992). The question, however, is whether the public sector extension, the major supplier of extension services in South Africa today, has the capacity to meet the farm management needs of all farmers/clients in this country?

The quality and effectiveness of public agricultural extension services in many developing countries globally have received criticisms for many years (Ali, 2013; Jona and Terblanche, 2015). The South African situation is no different. The DAFF (2008) citing Hayward and Botha (1995) lists a wide range of problems facing the public extension service in South Africa among which are the technical competencies of field-level extension workers and the poor quality of extension services. An underlying reason for this state of affairs was the low quality of formal education and the lack of appropriate in-service training for extension agents to meet the job requirements.

The Hayward and Botha (1995) study reflected on the poor state of affairs in agricultural extension in the former homelands during the apartheid era (DAFF, 2008). The new integrated extension service after 1994 democratic elections, thus inherited a black majority of extension personnel that is poorly trained for the job. Koch and Terblanché (2013) highlight this problem when they stated that the level of technical expertise of a significant number of serving extensionists deserves to be upgraded. The extent of the seriousness of the problem is captured in the report on profiling of the government-employed extension and advisory service officers in South Africa (DAFF, 2009).

After the 1994 democratic elections in South Africa, the African National Congress (ANC) government which took over from the apartheid government therefore, set a process in motion to redress some of the imbalances under the apartheid government. This included restructuring and improving the effectiveness of some public institutions (Segal, 1997:4).

Among the reforms that took place in the area of agricultural extension, was the introduction of the Extension Recovery Plan (ERP) to revitalize the state of Agricultural extension and advisory service (DAFF, 2011). The aim was to improve the technical and professional competencies of extension personnel to provide quality services to farmer producers.

To achieve this goal, the ERP has five strategies called pillars: ensuring visibility and accountability of extension, promote professionalism and improve image of extension, recruitment of extension personnel, reskilling and reorientation of extension and provision of ICT infrastructure and other resources (DAFF, 2011).

This research focused on pillars 1, 2 and 4 to achieve the objectives of the study. Another instrument introduced by Department of Agriculture (DoA) to ensure extension agents accountability to farmers was the Farmers' green book (Department of Agriculture, 2009). These three pillars and the green book are described briefly below.

## **Pillar 1: Ensuring visibility and accountability of extension**

Sarker and Itohara (2009) indicated EAs 'as the best source of information and training for farmers' participatory development. Their trustworthiness and frequent contact with farmers is very important for effective extension services.

This pillar sought to create an environment whereby producers know who their advisors are, where to find them and how to relate/communicate with them. The tools which are utilized to achieve the goal included the Farmer's green book, Digital pen system, vehicles and uniform (Department of Agriculture, 2009).

- **Farmer's use of green book**

The book is green in colour and hence the name, Green Book. The Farmer's green book is a record-keeping tool that farmers use to record their daily interactions with various agricultural advisors from government and outside government (Department of Agriculture, 2009). The book provides an opportunity to the farmer to evaluate the quality of the services rendered to him/her by the advisor. The information recorded in this book assists farmers and any other interested person to assess the accountability and visibility of extension agents towards the services they render to farmers.

The book was developed in 2008/9 and adopted in 2010 (DAFF, 2014). It is published in English and 11 South African local languages namely, Afrikaans, isiXhosa, isiZulu, siSwati, isiNdebele, Sepedi, Setswana, Sesotho, Tshivenda and Xitsonga. The six-year review of the implementation of ERP indicated that over 38 000 green books had been printed and utilized by farmers nationwide (DAFF, 2014). The Department of Agriculture finally made a provisional road show to all nine provinces in 2009 on the use of Farmer's green book and the overview of the ERP. In Limpopo province and in the study area specifically, farmers were given the green book in 2011 (DAFF, 2104).

The book is divided into sections of activities which are: farmer's details, advisors' record, daily farmers' interaction, services delivery point, farmers' monthly activity plan, government extension advisor monthly plan for the farmer, notes and follow-up issues and monthly calendar (Department of Agriculture, 2009).

Among others milestones, the green book was to ensure the accountability and visibility of extension officials. This study amongst its objectives attempted to find out if farmers' use of the green book influenced agents' accountability to these farmers who received it.

Even though these strategies are in place, the final outcome regarding the effectiveness of the extension service delivery depends on the professional competency (farm management knowledge, skills and other professional qualities) of the agents on the ground who deliver the service to farmers. This professional competency dimension of extension agents in the extension effectiveness problem will be assessed based on four of the five pillars of the ERP.

## **Pillar 2: Promoting professionalism and improving image of extension**

Extension's effectiveness depends on the overall agricultural policy environment.

The issues limiting extension's effectiveness have been repeatedly mentioned over the past three decades, in many publications and conferences and by many authors (DAFF, 2008; Gebremedhin *et al.*, 2006). These include among others a lack of professionalism, inadequate and unqualified personnel.

- **Professionalism and job performance**

The literature on this subject regarding the effect of professionalism on job performance in many fields seems inconclusive. Perhaps, this is because of the differences in the definition of professionalism used in these studies where academic qualifications and other professional qualities are lumped together. In the nursing field, Kwon *et al.* (2009) found a positive relationship between professionalism and job performance. However, in the Correctional Services Department, Robinson *et al.*, (1997) found a positive relationship between low-education and police job performance (professionalism) but no apparent effect among graduates and police job performance. Similarly, Bartol (1979) found that there did not seem to be any relationship between professionalism and job turnover among computer specialists in field of Information Technology.

In 2014, DAFF published the National Framework on Extension as a Field of Practice which formally recognized Extension as a profession (DAFF, 2014). Extension and Advisory practice in South Africa therefore, came to be governed by a

legal framework, with clear continuous professional development initiatives. Extension practitioners were required to register with the South African Council for Natural Scientific Professions (SACNASP) and was published in Government Gazette Notice No.: 36 on 24 January 2014 (DAFF, 2014). This, again put pressure on extension practitioners to improve their professional conduct. Agents therefore, have been receiving capacity training in areas prescribed in the Norms and Standards (2005) to improve their professional conduct. These include skills in clients' orientation and customer focus, communication, project management, knowledge management, service delivery orientation, problem- solving analysis, people management and empowerment (Department of Agriculture, 2005).

In promoting professionalism and improving the image of extension, this pillar focuses on the affiliation of extension officers with professional bodies and participation of extension officers in those bodies as active members as well as hosting of extension conferences by provinces.

This study however, took the position that much as the above-mentioned issues provide a professional image; the test of this is how the agents demonstrates professionalism in their service delivery to farmers. The study therefore, measured agents' professionalism based on some of the skill items listed in the Norms and Standards 2005 (Department of Agriculture, 2005).

#### **Pillar 4: Reskilling and reorientation of extension**

Given the fact that the effectiveness agricultural extension's service delivery depends among other factors, on the technical qualifications of agents in farm management, this pillar was put in place to address it (DAFF, 2008)

The publication of the Norms and Standards as the guiding document governing the rendering of Extension and Advisory Services in South Africa has put pressure on agents to improve their competencies. The Norms and Standards prescribe the skills and competencies as well as the required qualifications for extension practitioners needed for rendering Extension Services in South Africa. Even though academic qualifications are a part of professionalism, it is treated here separately while professionalism is restricted to certain skills as defined in the Norms and Standards 2005 (Department of Agriculture, 2005).



- **Competency and job performance**

Many definitions of the concept 'competency' exist. The most popular competency definition however, is that of Parry (1996). It views competency as a cluster of related knowledge, skills, and attitudes that affects a major part of one's job (a role or responsibility); correlates with performance on the job; can be measured against well-accepted standards and can be improved via training and development (Parry, 1996). A critical view of the definitions of competency reveals common threads. A summary of these threads show that these include an underlying qualification and attributes of a person (Spencer, 1993) (Spencer and Spencer, 1993); effective and/or superior performance in a job situation (Berger and Berger, 2004) and observable behaviours (Hoffmann, 1999).

Many studies have investigated the influence of competency on work performance (Dubois and Rothwell, 2004). Findings show that competencies serve as the foundation of organizations such as Agricultural Extension to deliver needed programs and improve its value to communities (Maddy *et al.*, 2002). Convergent views exist on core competencies that are critical for the success of various professionals and the future of Extension (Garst *et al.*, 2007; Irani *et al.*, 2004). Technical capabilities are amongst the critical competencies needed by entry-level extension professionals (Harder *et al.*, 2010).

The relationship between competency and job performance has been studied in many disciplines including Public health (Tilson and Gebbie, 2004); Education (Song, 2008); Consumer companies (Cavallo and Brienza, 2001); Business and service industry (Zhongming and Minke, 2002) (Olsen *et al.*, 2006;); Agricultural Extension (Irani *et al.*, 2004).

According to the National Framework for ERP, an Agricultural Advisor has to have a minimum academic qualification of Bachelor's Degree in Agriculture. An officer with lower qualification than this will serve as an Agriculture Development Officer. Since 2008, extension practitioners in South Africa with qualifications below Bachelor's degree have been registering at institutions of higher learning to upgrade their technical qualifications in farm management to improve their competency

(knowledge and skills) in the technical issues of farm management as needed by farmers (DAFF, 2014).

## **2.4 COMPETENCY, PROFESSIONALISM AND JOB PERFORMANCE**

Agricultural extension and advisory services demand one to show professionalism. It involves many things including knowledge, skills and the method of doing things. In this case, competence is important on the side of an extension agent in order to perform high standard and be an example to farmers (Scientific Research and Development, 2015).

The Public Service Regulations 2001 indicated that the services of agricultural extension and advisory should be rendered with understanding. Knowledge, skills, behavior and attitude should form part of the requirements of the extension agents post (Scientific Research and Development, 2015). An extension agent is expected to be competent in the following categories in order to perform good in his/her duties:

- Client orientation and customer focus
- Communication
- Project management
- Knowledge management
- Service delivery innovation
- Problem solving and analysis
- Honesty and integrity
- People management and empowerment

According to the Scientific Research and Development (2015) the extension agent 'is required by the Department of Agriculture to have acquired minimum qualification of a Bachelor's degree or its equivalent in training and experience, a strong commitment to higher education and willingness to assume responsibility and demonstrate competence'. Those who wish to upgrade their qualifications on this field should also register with the professional bodies.

The issue of job performance is also taken as a paramount key on the side of Extension Agents for better service delivery. Extension agents have been found wanting when it comes to job performance. During the evaluation of Agricultural education and training curricula (2008) attributes such as passion, driven and

perseverance, ethical conduct and good behavior were emphasized for better performance.

## **2.5 THE ROLE OF PERCEPTION OF ADOPTION BEHAVIOR**

The strategies outlined under the ERP to revitalize the public extension notwithstanding, extension service effectiveness finally rests on the professional competency (farm management knowledge, skills and other professional qualities) of the agents on the ground who delivers the service to farmers. It is therefore, vitally important to find out how farmers' view agents' competencies and professionalism; the latter has implications for adoption of farm management recommendations provided by agents.

Perception is a complex process by which we (the brain) select, organize and interpret sensory stimuli into a meaningful and coherent picture of the world (Brunswik, 1943). Brunswik's (1943) definition of perception simply boils down to a complex process by which we select, organize and interpret sensory stimuli into a meaningful and coherent picture of the world.

The positive role of perception in innovation adoption has been documented extensively (Meijer, Catacutan, Ajayi, Sileshi & Nieuwenhuis, 2014; Afful, Obi and Lategan, 2013; Aphunu and Otoikhian, 2007).

This understanding guided the formulation of study objectives about farmers' views and opinions on agents' demonstration of professionalism and on the farm management technical knowledge and skills. These views of farmers regarding agents' competencies and professionalism influence farmers' acceptance of what agents present to them. It is thus critical we unearth these for the purposes of effective communication between agents and farmers.

## **2.6 SUMMARY**

The literature review indicated that the first 69 years of extension services in South Africa since 1925 saw the establishment of a diversity of compartmentalized services: to the commercial (white) sector and to the black, Indian and Coloured communities. Koch & Terblanche, 2013). The post-apartheid era (since 1994) has raised questions concerning effective service delivery, agents' technical competencies and professionalism. The South African government implementation of the ERP sought to revitalize the public extension system.

The literature review showed that there are government official reports on the ERP such as the Performance of ERP 2010/2011 Annual Report (DAFF 2011) and the Extension Recovery Plan (2008/9---2010/11): Assessment and evaluation report (DAFF, n.d). These documents have different objectives from our study thus making it difficult to make direct comparisons in many respects. The literature also gave understanding on how to measure the essential study concepts such as professionalism and accountability which were used in the study questionnaire to help achieve the objectives of the study. The literature, however, was virtually silent on academic studies on farmers' perceptions on the ERP and its influence on improvements in agents' professionalism and accountability work competencies and therefore, on their extension service delivery. This gap in the literature provided the rationale for the study.

The next chapter presents the research methods employed in this study to determine farmers' views on the influence of Extension Recovery Plan (ERP) on the quality of public extension service delivered in Thulamela municipality.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 INTRODUCTION

This chapter describes the study area, research design, population, research instruments, data collection and lastly the data analysis.

#### 3.2 DESCRIPTION OF STUDY AREA

This study was conducted within selected wards in the Thulamela Local Municipality (Fig. 3.1) under Vhembe District, namely, Tshiombo, Matangari, Mukula, Tshidimbini, Mutangawandodzi, Mukondeni, Makwarela, Phiphidi, Vhudimbilu, Lwamondo, Khumbe and Tshikonelo.

Thulamela Municipality is situated in the Eastern-most part of South Africa in the Limpopo Province. It is one of the municipalities that makes up Vhembe District Municipality. The municipality shares its borders with Makhado Local Municipality in the West, Musina Local Municipality in the North, Lim 345 Local Municipality in the East and Greater Giyani Local Municipality in the South.

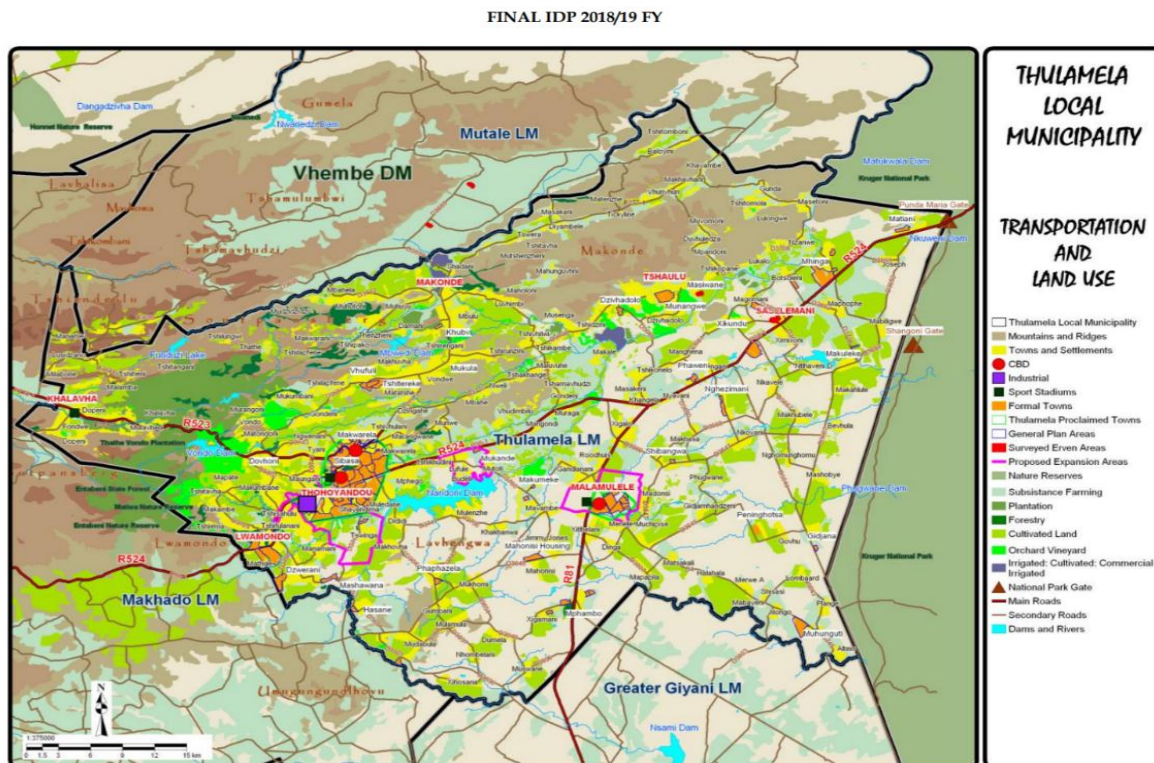


Figure 3.1 Map of Thulamela local municipality

Source: Analysis report for 2018/19 financial year

Farmers in this area have been supplied with the 'farmers' Green Book' by the Limpopo Department of Agriculture (LDoA) and where agents of LDoA have undergone qualifications upgrading and also received capacity training in competency areas as prescribed by the Norms and Standards (2005) since ERP's implementation.

### **3.3 RESEARCH DESIGN**

The study employed a cross-sectional survey approach. This approach made it possible to gather information from respondents at one point in time.

### **3.4 TARGET POPULATION**

The target population comprised all farmers in Thulamela municipality who were given the 'farmers' green book' and were serviced by Extension agents who had undergone technical (qualification upgrade) and professional capacity training since implementation of ERP. There were 136 farmers with farmers' green books; out of this number, only 80 were serviced by extension agents by who had undergone technical and professional capacity training since implementation of ERP. The rest of the farmers with the farmers' green book (56) were serviced by extension agents who had dropped out of the qualification upgrade scheme; these farmers were not included in the study. The cut-off dates (before 2013 and from 2013 to 2017) for farmers' assessments of agents' farm management knowledge and skills improvements were based on the fact that the Limpopo Department of Agriculture and Rural Development started to award ERP bursaries for qualification upgrades in 2009/10 financial year.

Most qualification upgrades took a minimum of two years (DAFF, 2014), hence the cut-off date for any benefits of qualification upgrades for the farmer would be, at least, after 2012, of registration at an institution. To insure comparison, farmers who did not have green books at the time of the study but who were provided with extension service by the same extension agent in the same wards as those who had green books were selected by simple random sampling process for interviews.

### **3.5. SAMPLING APPROACH**

Purposive sampling approach was used to select farmers who were available, have been given the farmers' 'green book', and serviced by extension agents (crop and animal production) who had undergone technical and professional capacity training since implementation of ERP.

### **3.6 SAMPLING SELECTION AND SIZE**

All the 80 crop and animal farmers in Thulamela Municipality who were given the 'farmers' green book', and were serviced by agents who went for qualification upgrade and also received capacity training were included in the survey.

### **3.7 DATA COLLECTION**

The data were collected (26 April 2017 -11 May 2017) through face-to-face interviews using semi-structured questionnaire (Appendix C) to capture both quantitative and qualitative information to achieve the aim of the study. Data were collected from 80 farmers encompassed their views on the farm management knowledge improvement and professionalism improvement of agents who went for qualification upgrade and also received capacity training since implementation of ERP.

Data were collected in Thulamela Local Municipality (Vhembe District). The following Selected wards were visited for this purpose: Tshiombo, Matangari, Mukula, Tshidimbini, Mutangawandodzi, Mukondeni, Makwarela, Phiphidi, Vhudimbilu, Lwamondo, Khumbe and Tshikonelo. The study focused on the farmers who were served by Extension Agents who have undergone qualifications upgrading and capacity training in competency areas since ERP. The cut-off dates were before 2013 and from 2013 to date for farmers' assessments of agents' farm management knowledge and skills improvements were based on the fact that Limpopo Dept. of Agriculture started to awarded ERP bursaries for qualification upgrades in 2009/10 and most qualification upgrades took a minimum of two years (DAFF, 2014), hence the cut-off date for any benefits of upgrades for the farmer would be, at least, after 2012, of registration at an institution.

- **Ensuring reliability of the measuring instrument**

Reliability of the measurement instrument refers to the degree to which measures are free from error and, therefore, yield consistent results (Zikmund, 2003:300). According to Peck, Olsen and Devore (2009: 228), correlations above .80 are referred to as strong; correlations between .50 and .80 as moderate; and values less than .50 indicate a weak relationship. The reliability of the survey measuring instrument used in this study was measured by means of the most commonly used indicators of internal consistency, the Cronbach alpha coefficient (Pallant, 2007). A value of 0.7 is acceptable while values more than 0.7 show a high reliability (DeVellis, 2003 in Pallant, 2007). However, Pallant (2007: 98) indicates that scale items of less than 10 fail to produce decent values; in this case the mean inter-item correlation value is reported and values as low as .6 still suggest strong relationships among items.

In this study, the Cronbach's alpha for the four accountability items was .994 while it was .822 for the 14 items used in the farm management knowledge improvement in animal production. Furthermore, the Cronbach's alpha for the 18 items used in the farm management knowledge improvement in crop production was .887.

With regard to improvement in agents' professionalism regarding service delivery, even though the alpha value was .448, the inter-item correlation matrix shows positive values. This indicated that all eight scale items are measuring the same underlying characteristic, which is the essence of reliability measurement.

### **3.8 MEASUREMENT OF VARIABLES**

Variables in the study were measured as follows:

- **Accountability**

Accountability (1= accountable; 0= not accountable), in hypothesis i, was measured on an accountability index based on the following 4 variables: 1. Extension agent (EA) always signs my green book for services rendered (1 = yes ; 0 = no); 2. EA always helps me to complete the 'services delivery' section of my green book (1 = yes; 0 = no); 3. EA always approves and signs my monthly activity plan (1 = yes; 0 = no); 4. EA always honours follow-up agreements with me (1 = yes; 0 = no). A respondents' mean score for the agent were compared with the total mean score (Accountability index) and standard deviation for all respondents on these 4



variables. Any respondent mean score equal to or higher than the total mean score judges the agent accountable; any respondent mean score less than the total mean score judges the agent not accountable.

- **Improvement in farm management knowledge: crop and animal production**

Improvement in agents' farm management knowledge before 2013 and from 2013 to date (1 = has improved; 0 = not improved) in hypothesis ii, as viewed by farmers was determined by farm management knowledge index on the following selected agents' farm management knowledge variables: crop production activity (information on seed cultivar choice, soil tests, fertilizer issues, seeding, planting dates and distance, crop rotations, climate variability coping information), financial management activity (record keeping), marketing decision activity (produce quality issues, marketing channel to use, niche markets).

A respondent's mean score for the agent was compared with the total mean score (Farm management knowledge index) and standard deviation for all respondents on these variables. Any respondent mean score equal to or higher than the total mean score judges the agent's farm management knowledge as improved; any respondent mean score less than the total mean score judges the agent's farm management knowledge as not improved.

Similarly, improvement in agents' farm management knowledge before 2013 and from 2013 to date (1 = has improved; 0 = not improved) in hypothesis ii, as viewed by farmers was determined by farm management knowledge index on the following selected agents' farm management knowledge variables: animal production activity (Information on the best breed of animal, animal vaccination plan, type of vaccination, vaccination dosage, animal stoking rate/density, isolation of sick animals, information of sick animals, information on disposal of manure, prevention of entry of density into the farm, information to get animal feed, conditions of feed, housing condition, housing condition of animals). Marketing activity (Best time to sell, niche market and information on prices). Financial management activity (Record keeping).

A respondent's mean score for the agent was compared with the total mean score (Farm management knowledge index) and standard deviation for all respondents on these variables. Any respondent mean score equal to or higher than the total mean score judges the agent's farm management knowledge as improved; any respondent mean score less than the total mean score judges the agent's farm management knowledge as not improved.

- **Professionalism in extension service delivery**

The variable, capacity training in hypothesis iii, was measured as (1 = received training between 2009-2016 in one or more areas of competency as prescribed in the Norms & Standards, (DoA, 2005); 0 = has not received training (2009-2016) in any of the areas of competency as prescribed by Norms & Standards (2005) during this period. Professionalism (1 = high professionalism; 0 = low professionalism) was measured on an index based on eight variables of selected competency areas prescribed by the Norms and Standards (2005); these areas include project management (planning: three sub variables: agent always helps me write a plan showing when farm activities will be started and be completed; agent always helps to write my planned expenditure (costs) required to achieve objectives; agent always helps me to identify people who will help achieve my set objectives); client/farmer orientation (one sub-variables: agent always asks how my family and are doing when he/she visits my farm), interpersonal communication (two sub-variables: agent always summarizes what I say to show that he/she is listening to what I am saying; agent always nods his/her head to approve of what I am saying and to show he/she listening to me ), service delivery: (two sub-variables: agent always delivers on promises about my farm management issues; when the Agent does not have information or solution to my farm management problem, he/she tells me he/she will find out and come back to you when we meet again).

A respondent's mean score for the agent on all eight variables was compared with the total mean score (professionalism index) and standard deviation for all respondents on these eight variables. Any respondent mean score equal to or higher than the total mean score judges the agent as having high professional qualities regarding service delivery (high professionalism); any respondent mean score less than the total mean score for all respondents judges the agent as having low professional qualities regarding service delivery (low professionalism).

### 3.9 DATA ANALYSIS

The data used were subjected to both descriptive and inferential analyses. Descriptive analysis was used to describe respondents' socio economic characteristics included the use of means, percentages and charts of selected variables. This gave a better insight into understanding farmer's actions and reactions regarding the issues under study; the latter phenomena help one to predict behaviour more easily.

The analytical techniques used to test the various hypotheses were:

- **Hypothesis 1**

Farmers' access to the farmers' green book has no significant influence on Extension agents' accountability to farmers.

The inferential analytical technique used to test this hypothesis was the Chi-Square test for independence to test probability of variable association in occurring due to chance at 5% level of significance.

- **Hypothesis 2**

Agents' crop farm management knowledge has not improved following upgrading their technical qualifications (Bachelor's degree).

The researcher was interested in making a comparison and analysing differences in two populations of extension agents (those who went for qualification upgrade and who did not) in terms of a categorical characteristic, i.e. whether qualification upgrade leads to improvement in farm management knowledge or not. The aim here was to determine whether there is any difference in the proportions of successes (here, improvement in farm management knowledge: crops and animals) in the two groups (two-tailed test) at 5% level of significance. The evaluation of differences in knowledge between the two proportions was based on independent samples.

The test procedure whose test statistic Z is approximated by a standard normal distribution was used as recommended by Bereson and Levine (1979).

The Z statistic is given by:

$$Z = \frac{P_1 - P_2}{\sqrt{P_1(1-P_1)/n_1 + P_2(1-P_2)/n_2}} \dots\dots\dots 1$$

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$$Z = \frac{P_1 - P_2}{\sqrt{P_1(1-P_1)/n_1 + P_2(1-P_2)/n_2}} \dots\dots\dots 1$$

With

$$P_1 = \frac{X_1}{n_1}$$

$$P_2 = \frac{X_2}{n_2}$$

Where

$P_1$  = Sample proportion of successes in population 1 (with qualification upgrade)

$X_1$  = Number of successes in sample 1 (with qualification upgrade and judged by respondents as knowledgeable in farm management) (= 62)

$n_1$  = Size of sample taken from population 1 (with qualification upgrade) (= 69)

$P_2$  = Sample proportion of successes in population 2 (without qualification upgrade)

$X_2$  = Number of successes in sample 2 (without qualification upgrade and judged by respondents as knowledgeable in farm management) (= 4)

$n_2$  = Sample size taken from population 2 (without qualification upgrade) (= 11)

To test the null hypothesis of no difference in the proportions of the two independent populations (i.e. with qualification and without qualification upgrade) are the same with regard to farm management knowledge and skills at the level of significance .05 with a critical value of  $\pm 1.96$ :

$$H_0: p_1 = p_2$$

The alternative hypothesis that the two population proportions are not the is:

$$H_1: p_1 \neq p_2$$

- **Hypothesis 3**

Agents' professionalism in extension service delivery has not significantly increased following capacity training received in selected competency areas.

The researcher was interested in making a comparison and analysing differences in two populations of extension agents (received capacity training and no capacity training) in terms of a categorical characteristic, i.e. whether capacity training leads to improvement in professionalism in extension service delivery or not. The aim here was to determine whether there is any difference in the proportions of successes in the two groups (two-tailed test) (here, improvement in professionalism for agents who received capacity training and those who did not). The evaluation of differences in knowledge between the two proportions was based on independent samples.

The test procedure whose test statistic Z is approximated by a standard normal distribution was used as recommended by Bereson and Levine (1979).

The Z statistic is given by:

$$Z = \frac{P_1 - P_2}{\sqrt{P_1(1-P_1)/n_1 + P_2(1-P_2)/n_2}} \dots\dots\dots 1$$

With

$$P_1 = \frac{X_1}{n_1}$$

$$P_2 = \frac{X_2}{n_2}$$

Where,

$P_1$  = Sample proportion of successes i.e. received capacity training in population 1

$X_1$  = Number of successes in sample 1 (received capacity training and judged by respondents as professional) (= 52)

$n_1$  = Number of taken from population 1(received capacity training) (= 54)

$P_2$  = Sample proportion of successes i.e. did not receive capacity training in population 2

$X_2$  = Number of successes in sample 2 (did not receive capacity training and judged

by respondents as professional) (= 0)

$n_2$  = Number of respondents taken from population 2 (did not receive capacity training) (= 25)

To test the null hypothesis of no difference in the proportions of the two independent populations (i.e. received capacity training and did not receive capacity training) are the same with regard to demonstration of professionalism in extension service delivery at the level of significance .05 with a critical value of  $\pm 1.96$ :

$$H_0: p_1 = p_2$$

The alternative hypothesis that the two population proportions are not the is:

$$H_1: p_1 \neq p_2$$

Data was analysed using the Statistical Package for the Social Sciences (SPSS) programme. The information was presented in the form of tabulations, frequencies and percentages.

### **3.10 ETHICAL CONSIDERATION**

#### **3.10.1 PERMISSION**

Permission to carry out the study was sought from the Turfloop Research Ethics Committee (TREC) prior its commencement (Appendix A).

#### **3.10.2 INFORM CONSENT**

The researcher informed the interviewees that the participation is voluntary and that they are free to withdraw from participation at any time if they don't feel comfortable. The interviewees were asked to sign a consent form to show that they agreed to partake in the study.

#### **3.10.3 CONFIDENTIALITY AND ANONYMITY**

In this study confidentiality and anonymity of the participants was taken into consideration. The participant's real names will not be mentioned in the study and the information provided will only be used for research or study purposes. The researcher informed the participants before agreeing to participate in the study.

#### **3.10.4 PROTECTION FROM HARM**

The researcher protected the identities and privacy of the participants through anonymity.

### **3.10.5 RESPECT**

The researcher will therefore respect all participants. Indigenous health practitioners' secrets traits were also respected in the process.

Furthermore, the researcher wrote a memorandum to the Limpopo Department of Agriculture and Rural Development (LDARD) to inform the Department and communities alike of the extent, aims and methods of the research as well as the benefits of the study to them. The memorandum highlighted the researcher's commitment to protect participants' rights and their voluntary participation in the study. The LDARD extension agents then discussed all this information with the identified communities and asked for their cooperation to participate in the study. The memo sought approval from LDARD to approach individual community members to participate in the study. The approval from LDARD is attached to this report (Appendix B).

### **3.11 SUMMARY**

This chapter provided a description of the research methods used in the study. It started with the research process followed and finally data analysis techniques employed to test research hypotheses.

The next chapter reports the results and discussion of the results of the empirical investigation.

## CHAPTER 4

### PRESENTATION AND INTERPRETATION OF FINDINGS

#### 4.1 INTRODUCTION

This chapter presents the results from the descriptive and inferential statistical analyses that were conducted as per the methods outlined in chapter 3. The descriptive results are presented in tables and graphs summarizing the frequency and percentage distribution of the various variables. Results from the inferential statistics are presented in tables as per statistical analysis conducted to test various hypotheses of the study.

The results were checked against the only two known official DAFF evaluation documents on the ERP. These are the Performance of ERP 2010/2011 Annual Report (DAFF 2011) and the Extension Recovery Plan (2008/9---2010/11): Assessment and evaluation report (DAFF, n.d). The evaluation documents have different objectives from our study, so for those sections comparisons were not possible.

#### 4.2 RESULTS OF DESCRIPTIVE ANALYSIS

This section presents the results describe respondents' socio-economic characteristics. This helps to give a better insight into understanding farmer's actions and reactions regarding the issues under study.

##### 4.2.1 DEMOGRAPHIC INFORMATION

Table 4.1 provides the frequency and percentage distribution of farmers by their demographic characteristics. Matangari ward had the highest percentage of farmers represented in the research (35%) whilst Tshikonelo ward was least represented with only 1.3% of farmers. These percentages reflect the situation on the ground; there were more farmers in Matangari ward than the other wards such as Tshikonelo, who were served by an Extension Agent, who had undergone qualifications upgrading and capacity training in competency areas as indicated in the Norms and Standards, (2005) since the implementation of the ERP.

The study indicated that more than half of the respondents were females (66.3%). Thagwana (2009) found the point that, it has been a long trend that women have come to dominate farming at Limpopo province, Matangari -Tshiombo Irrigation Scheme to prevent poverty and therefore their participation improves food security in



their households. Men's decline in agriculture is attributed to water shortages, commitment to off-farm jobs and high production costs. The 2011 population census from the three provinces namely: Eastern Cape Kwazulu Natal and Limpopo confirmed that females-headed household farmers were more than fifty percent as compared to male farmers (Liebenberg, 2015).

The study indicated that 62.5 percent are individual farmers and 37.5 percent are group farmers which confirmed Davids (2016) finding regarding the Post-harvest innovation programme pointed that most of the farmers in Thulamela municipality are individual farmers. On the other hand, Olatunji and Letsoalo (2013) indicated that group farming in South Africa appears to be common but not always successful as there is evidence that social factors are a key. For example, Afful (2012) found that most smallholder farmers (80%) interviewed in the Free State province of South Africa engaged in group farming. It appears that in the South African context, group farming has become very common of late because of the nature of the reform grant structure/approach which requires recipients of government support to acquire land and other production resources to operate in groups (Hall, 2007).

Almost four-fifths of the farmers had worked in their wards for 23 years or less. Out of the 80 respondents, slightly more than half had spent between 3 and 13 years in their wards. This analysis indicates that the majority of farmers are beginners who started farming after the introduction of Extension Recovery Plan (ERP) and few are experienced farmers. The introduction of the ERP to revitalize the state of Agricultural extension and advisory service DAFF (2011) has since brought improvement in the technical and professional competencies of extension personnel. This perhaps has increased people's interest in farming because they are now supported by knowledgeable EAs.

In this study there was a small difference in the focus of farming enterprise in Thulamela municipality. Just over half of the farmers (52.5%) were involved in animal farming enterprise while the rest were engaged in crop production. Less than half (42.5%) of farmers in Thulamela were members of farmer organizations. The above findings depict the fact that most of the farmers were engaged in the two types of farming activities, and very few specialized in one production such as fish and piggery productions. Louw (2005) confirms that most of the farming enterprises in

South Africa comprised of several divisions which may be operated as separate business unit.

Farmer organizations or associations provide networks within which information is passed around and evaluated and according to Roling (1988) farmers' associations also provide inputs, credit, marketing and other services besides technological information. There are therefore, benefits for belonging to farmer organizations. Annor-Frempong (2013) found that that 70.3 % of the respondents in his study who belonged to a recognized farmers' association had production efficiencies above the total average (2124.8kg/ha) compared to 33% for those who belonged to other associations or none. The findings in our study show that there were slightly more respondents who did not belong to a farmers' organization (57.5%) compared to those who belonged (42.5%). Extension agents therefore, need to educate farmers about the benefits of belonging to farmers' associations.

**Table 4.1: Demographic profile of respondents (N= 80)**

		Frequency	Percentage
Name of ward	Tshiombo	3	3.8
	Matangari	28	35
	Matangari Tshiombo	11	13.8
	Mukula Tshidimbini	7	8.8
	Mutanga wandodzi	7	8.8
	Mukula Mukondeni	10	12.5
	Makwarela	2	2.5
	Phiphidi	3	3.8
	Mukula Vhudimbilwi	2	2.5
	Lamondo Khumbe	6	7.5
	Tshikonelo	1	1.3
Sex of respondent	Female	53	66.3
	Male	27	33.8
Type of farming arrangement	Individual	50	62.5
	Group	30	37.5
Number of years farming in this ward	3-13 Years	41	51.3
	14-24 Years	23	28.8
	25-35 Years	10	12.5
	36-46 Years	4	5
	47-57 Years	2	2.5
Major farming enterprise	Mainly Crop	38	47.5
	Mainly Animal	42	52.5
Membership of farmer organization	No	46	57.5
	Yes	34	42.5
	Total	80	100

According to the Scientific Research and Development (2015) the extension agent was required by the Department of Agriculture to have attained minimum qualification of a Bachelor's degree or its equivalent in training and experience, a strong commitment to higher education and willingness to accept accountability and prove capability. The academic qualifications of extension agents before 2013, that is, before the implementation of the ERP and after this period when the ERP was implemented are summarised in Table 4.2. The data show at that at the time of the

study in 2017, the number of agents with a degree (B Tech) (GRD) in their area of specialization had increased from 86% to 96%. Simultaneously, the number of agents with a diploma qualification(DIP) reduced from 14% to 4%. This shows that the majority of farmers are serviced by the EAs who have gone for qualification upgrade and very few are served by those who did not go for upgrading.

**Table 4.2: Extension agent’s accountability to farmers**

		Frequency	Percentage
<b>Academic qualification of local extension agent before (2013)</b>			
	DIP	11	14
	GRD	69	86
	<b>Total</b>	<b>80</b>	<b>100</b>
<b>Academic Qualification of current (2017) local extension agent</b>			
	DIP	3	4
	GRD	77	96
	<b>Total</b>	<b>80</b>	<b>100</b>

- **Access to farmers’ green book and accountability of Extension Agent to farmer**

The six-year review of the implementation of ERP indicated that over 38 000 farmers’ books had been printed and utilized by farmers nationwide (DAFF, 2014). The Department of Agriculture finally made a provisional road show to all nine provinces in 2009 on the use of Farmer’s green Book and the overview of the ERP. In Limpopo province and in the study area specifically, farmers were given the green book in 2011.

The green book is divided into sections of activities which are: farmer’s details, advisors’ record, daily farmers’ interaction, services delivery point, farmers’ monthly activity plan, government extension advisor monthly plan for the farmer, notes and follow-up issues and monthly calendar. Table 4.3 indicates that most respondents (80%) did not have the green book; only a few (20%) had it. The reasons given by the rest who did not have the green book were that some lost them and others were not yet farming at the time they were distributed. Some of those without green book

had some other books to record activities exercised by the EAs for their own sake. Furthermore, Table 4.3 provides a general indication that EA's were accountable to farmers on the various activities addressed in this study as provided for by the farmers' green book, that showed the interactions of farmers with their local extension agents.

**Table 4.3: Access to Farmers' green book and accountability of Extension Agent to farmer**

Variable	Response	Frequency	Percentage
Ownership of a farmers' green book.	No	64	80
	Yes	16	20
	<b>Total</b>	<b>80</b>	<b>100</b>
I record in my green book what my local extension agent does anytime he/she visits my farm.	No	64	80.0
	Yes	16	20.0
	<b>Total</b>	<b>80</b>	<b>100.0</b>
Reason for not recording activities by EA.	Lost	08	13.0
	Not given	56	87.0
	<b>Total</b>	<b>64</b>	<b>100.0</b>
EA always signs my green book for services rendered at my farm.	No	64	20.0
	Yes	16	80.0
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA always helps me to complete the service delivery section of my green book.	No	64	80.0
	Yes	16	20
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA always approves and signs my monthly activity plan.	No	18	22.5
	Yes	62	77.5
	<b>Total</b>	<b>80</b>	<b>100</b>
EA always honours follow-up agreement.	No	18	22.5
	Yes	62	77.5
	<b>Total</b>	<b>80</b>	<b>100</b>

A farmer's possession of the green book was meant to indirectly force the extension agent to be more accountable to the farmer he or she was serving.

Various other issues of accountability were addressed in this study and the results are presented in Table 4.4. There was a general indication according to the results in Table 4.4 that EA's were accountable to farmers with regard to the various communication issues addressed in this study with farmers.

**Table 4.4: Extension agent's other accountability issues to farmers**

Variable	Response	Frequency	Percentage
I know the name of the current EA.	No	0	0.0
	Yes	80	100
	<b>Total</b>	<b>80</b>	<b>100</b>
I know the local extension agent's office.	No	7	8.8
	Yes	73	91.3
	<b>Total</b>	<b>80</b>	<b>100.0</b>
Farmer knows agent's contact details.	No	8	10
	Yes	72	90
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA conducts farm visits.	No	3	3.8
	Yes	77	96.3
	<b>Total</b>	<b>80</b>	<b>100.00</b>
EA reaches farmer via telephone.	No	6	7.5
	Yes	74	92.5
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA reaches farmer via e-mails.	No	69	86.3
	Yes	11	13.8
	<b>Total</b>	<b>80</b>	<b>100.0</b>
I meet EA at Farmers Day events.	Yes	80	100
	No	0	0.0
	<b>Total</b>	<b>80</b>	<b>100</b>
EA makes me aware of any meetings in my ward where agricultural development issues are discussed.	No	0	0.0
	Yes	80	100.0
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA participates in any of those meetings in my ward where agricultural development issues are discussed.	No	1	1.2
	Yes	79	98.8
	<b>Total</b>	<b>80</b>	<b>100</b>
I am aware of any government agricultural programmes in my ward.	No	3	3.8
	Yes	77	96.2
	<b>Total</b>	<b>80</b>	<b>100.0</b>
EA is involved in any of those government agricultural programmes in my ward.	No	3	3.8
	Yes	77	96.2
	<b>Total</b>	<b>80</b>	<b>100.0</b>

A vast majority of respondents (90% and over) indicated that they knew where their agent's office was located and they also had their agents contact details. The most

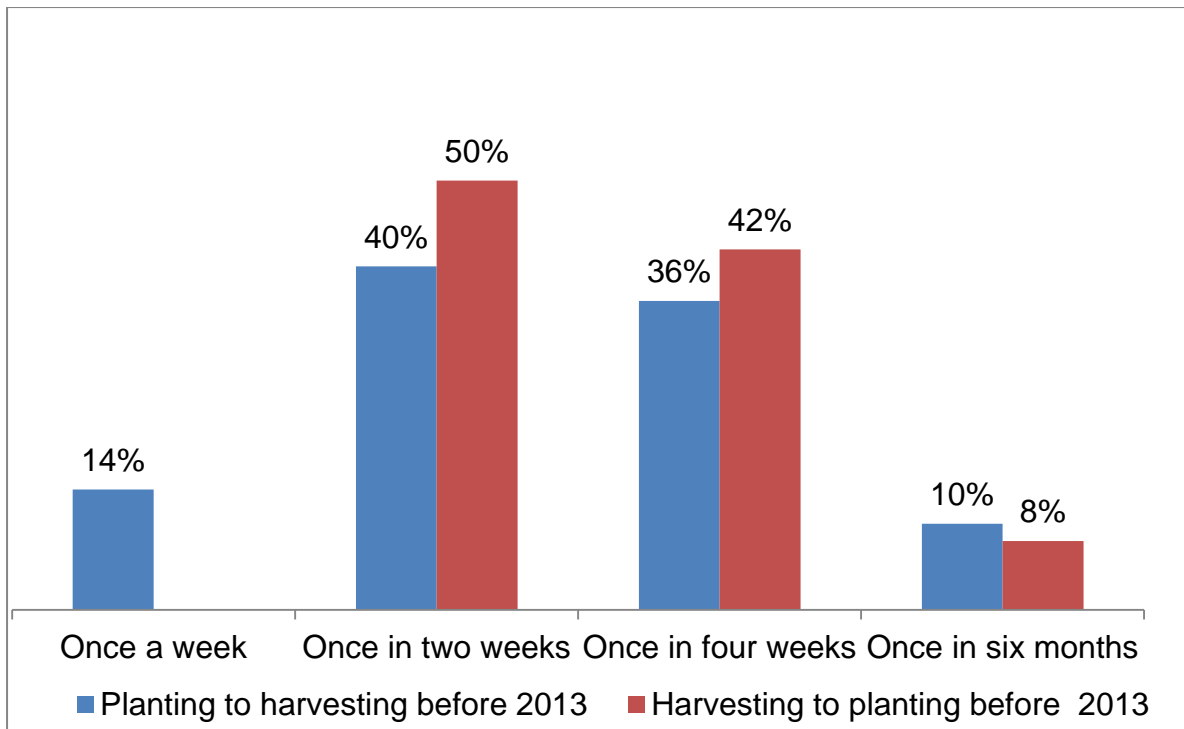
common means of communication between EA's and farmers was farm visits (96.3%) and farmer's day events (100%). Very few EA's made use of emails with only 13.8% of farmers reporting that their EA's communicated using emails. A large number of respondents (96% and over) indicated that they were aware of government agricultural programmes within the ward which EA's were also a part of.

- **Frequency of visits**

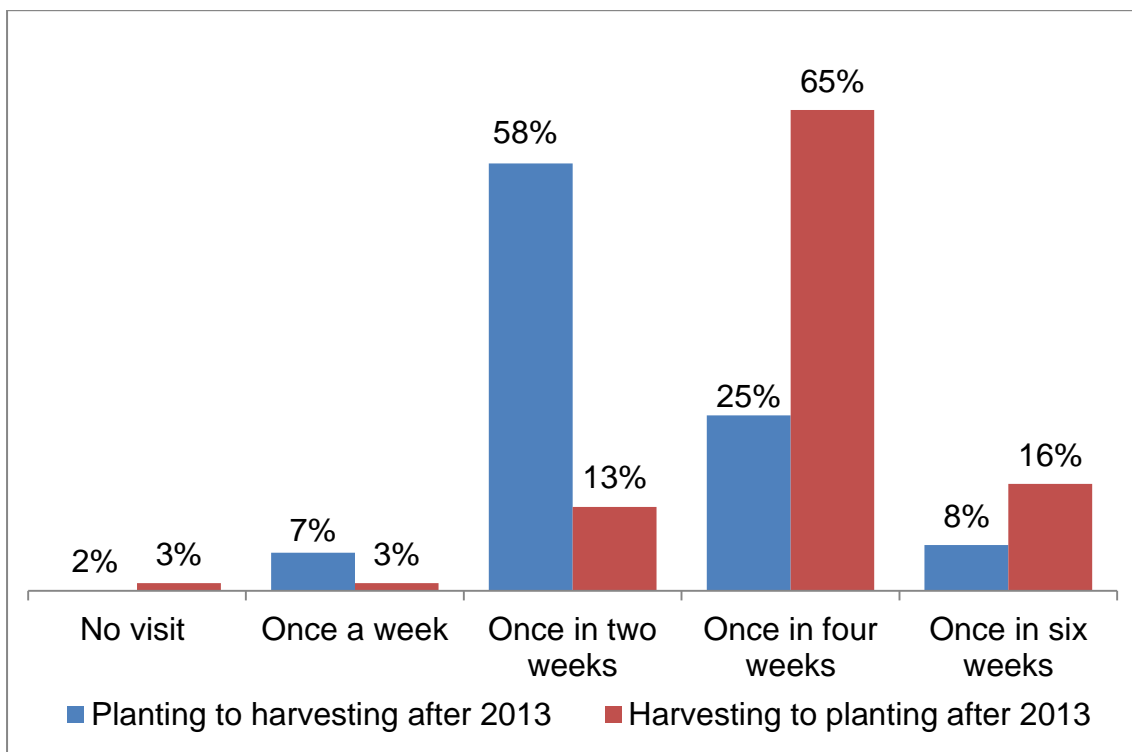
It appears that the most common extension channel through which most smallholder and subsistence farmers receive farm management information from the public extension organizations in most developing countries is farm visits or face-to-face contacts (Agunga, Slehi & Hassan, 2017; Afful, 2012, Ministry of Agriculture, 2012) (Afful, 2012; The Ministry of Agriculture, Palestine, 2011). In view of the importance of such visits to farmers' production (Betz, 2009; Beyene *et al.*, 1998), the study assessed the frequency of farm visits from planting to harvesting and after harvesting to the next planting season in the periods before 2013 and after 2013-2017.

Figures 4.1 and 4.2 compare the frequency of EA's visits in the study area from planting to harvesting and after harvesting to the next planting before 2013 and after 2013. The survey for this study was done in early 2017 and the period 2013 to 2017 was the period when most agents who went for qualification upgrade had completed their bachelor degrees. The findings seem to show an improvement in the number of AEs (40% to 58%) who visited farmers once every two weeks from planting till harvest time (Figures 4.1 and 4.2 respectively) compared with after planting till next planting (50% to 13%) (Figures 4.1 and 4.2 respectively).

The one in two weeks-visit by most EAs found in this study compares well with what is found in literature, e.g. Afful (2012) in the Free State of South Africa, Gautam (2000) in Kenya and Budak and Budak (2010) in Turkey.



**Figure 4.1: Frequency of EA's farm visits before 2013**



**Figure 4.2: Frequency of EA's farm visits after 2013 to 2017**



## **4.2.2 IMPROVEMENT IN AGENTS' FARM MANAGEMENT KNOWLEDGE**

### **BEFORE 2013 AND AFTER 2013**

The information described in this section reflects pillar four of the ERP, which is reskilling and reorientation of extension. The purpose of the pillar was to address the lack of appropriate technical farm management knowledge among field-level extension agents. To give effect to this pillar, extension agents with diploma qualifications were encouraged to enroll at tertiary institutions to upgrade their qualifications to at least a bachelor's degree to be recognized as agricultural advisors.

- **Farmers' opinions on improvement of EA's knowledge following upgrade in their technical qualifications**

Farmer respondents were to evaluate the agents who provided them with farm management information and skills on whether they saw a change (improvement or no improvement) in the EA's farm management knowledge and skills in animal or crop production depending on the enterprise of the respondent.

Table 4.5 reveals respondents' opinions on a question that requested them to give their assessment on the quality of their EA's current technical farm management support or recommendations compared with the quality of the same support before 2013. The current support refers to the period after 2013 up to the time of the survey in 2017. This was the period during which extension agents with diploma qualifications went to tertiary institutions to upgrade their qualifications to bachelor degrees. The respondents were to evaluate the agents who provided them with farm management information and skills on whether they saw a change (improvement or no improvement) in the EA's farm management knowledge and skills in animal or crop production depending on the enterprise of the respondent.

The findings indicate that generally, most respondents believed EA's demonstrated an improved level of farm management knowledge and skills in animal production following their upgrade in their qualifications (Table 4.5). There were over 90% of EA's with an improved level of technical knowledge in the different areas of livestock management according to the farmers' assessments. In the marketing and financial management knowledge area, there were more than 70% of EA's that improved their level of technical knowledge according to the farmers' assessments.

**Table 4.5 Farmers' opinions on EA's knowledge improvement following upgrade in technical knowledge of animal production (n = 42)**

<b>Knowledge Area</b>		<b>Improved</b>	<b>Not Improved</b>
<b>Livestock management</b>	Information on the best breed of animal	95.2	4.8
	Animal vaccination plan	97.6	2.4
	Type of vaccine to use	97.6	2.4
	Vaccination dosage to use	97.6	2.4
	Animal Stocking rate/density	95.2	4.8
	Isolation of sick animals	90.5	9.5
	Information on disposal of manure	95.2	4.8
	Prevention of entry of disease into the farm	97.6	2.4
	Where to get animal feed	97.6	2.4
	Conditions of or how to keep animal feed	95.2	4.8
Housing condition for animals	100.0	0.0	
<b>Marketing management</b>	Best time to sell animals	90.5	9.5
	Where to sell animals	71.4	28.6
	Information on prices	88.1	11.9
<b>Financial management</b>	Record keeping	88.1	11.9

Table 4.6 shows respondents' opinions on whether their EA's had improved their level of knowledge and skills following their upgrade in technical knowledge in crop production. Overall, crop farmers were of the view that their EA's demonstrated an improved level of technical knowledge and skills. More than 80% farmers were of the view that their EAs had improved their technical knowledge in farm management marketing activity. Respondents' assessment also indicated that financial management compared with others areas of farm management, was the only area

where most agents fared slightly lower (78.9%) in their technical knowledge and skills.

**Table: 4.6 Farmers' opinions on EA's knowledge improvement following upgrade in technical knowledge of crop production (n = 38)**

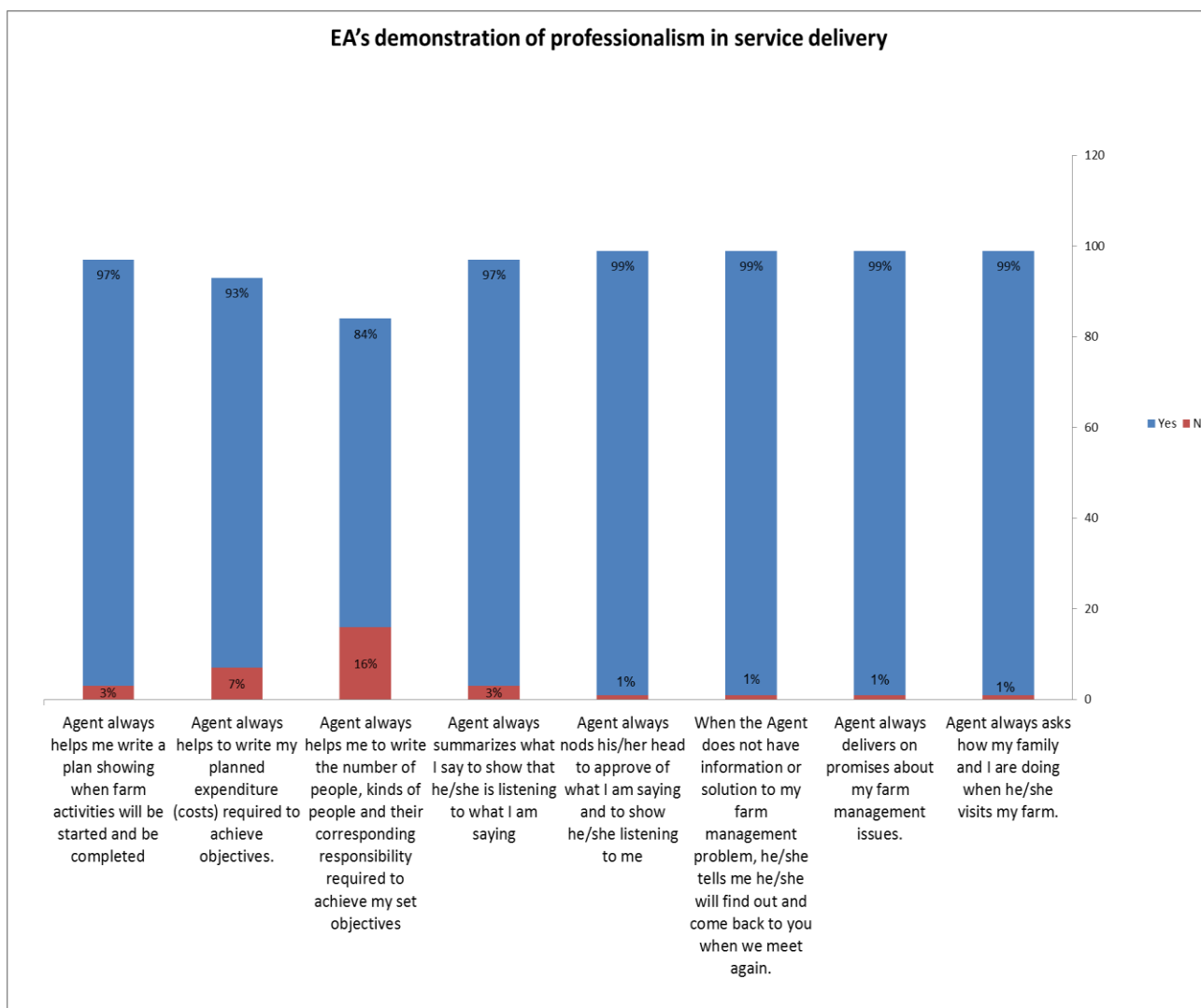
Knowledge area		Improved	Not improved
<b>Farm management</b>	Seed cultivar choice for your area	92.1	7.9
	Fertilizer recommendation	97.4	2.6
	Planting dates	97.4	2.6
	Seeding rate	97.4	2.6
	Planting distance	97.4	2.6
	Pest control	94.7	5.3
	Disease control	94.7	5.3
	Irrigation issues	97.4	2.6
	Land preparation issues	97.4	2.6
	Crop rotations yielding maximum returns	97.4	2.6
	Return on hectare of land	81.6	18.4
	Climate variability information	94.7	5.3
<b>Marketing management</b>	Best time to sell produce	94.7	5.3
	How to sell produce	94.7	5.3
	Information on price	92.1	7.9
	Where to sell produce	94.7	5.3
	Produce quality issues	92.1	7.9
<b>Financial management</b>	Record keeping	78.9	21.1

#### **4.2.3 EXTENSION AGENTS' DEMONSTRATION OF PROFESSIONALISM IN SERVICE DELIVERY**

In order to address the criticism that the conduct of extension agents lacked professionalism, pillar two of the ERP was put in place to promote professionalism and improving image of extension. In promoting professionalism and improving the image of extension this pillar focuses on the affiliation of extension officers with professional bodies and participation of extension officers in those bodies as active members as well as hosting of extension conferences by provinces. This study, however, took the position that much as the above-mentioned issues provide a

professional image, the test of this is how the agents demonstrates professionalism in their service delivery to farmers. The study therefore, measured agents' professionalism based on eight of the skill items listed in the Norms and Standards (Department of Agriculture, 2005). Respondents were therefore, required to evaluate their extension agents on the basis of their demonstration of professional conduct in delivering extension services to them. Professionalism was measured in this study based on the capacity training agents received in the period 2009-2016. The opinions of respondents on agents' demonstration of professionalism are presented in this section.

Figure 4.3 indicates whether or not EA's demonstrated professionalism in the eight key areas of service delivery investigated in this study. The findings indicate that all EA's were reported to demonstrate professionalism by most respondents (93-99%) in all areas investigated. Agunga *et al.*, (2017) indicated in their findings on communication as an element of professionalism among extension agents in Ghana and Ethiopia that, even though most respondents said they were proficient to highly proficient, such claims were exaggerated and showed a refusal to admit a lack of skills.



**Figure 4.3: EA’s demonstration of professionalism in service delivery**

### 4.3 RESULTS OF INFERENTIAL ANALYSES

Three hypotheses tests were set up to assess the influence of farmers’ ownership of farmers’ green book on agents’ accountability to farmers, agents’ qualification upgrade on farm management knowledge and capacity training on agents’ demonstration of professionalism in extension service delivery. The rest of this section provides the results of these tests.

#### 4.3.1 FARMERS’ ACCESS TO THE ‘GREEN BOOK’ AND INFLUENCE ON EXTENSION AGENTS’ ACCOUNTABILITY TO FARMERS

The null hypothesis that farmers’ access to the green book has no significant influence on Extension agents’ accountability to farmers was tested by means of chi-square test for independence. The findings showed a significant difference in agents’ accountability to farmers as a result of ownership of farmers’ green book (Table 4.7).

This implies that farmers' access to the green book has a significant influence on Extension agents' accountability to farmers.

**Table 4.7: Agents' accountability to farmers according ownership of green book**

Index for Agents'	Ownership of farmer's green book		Total
	No	Yes	
Accountability to farmers			
Not Accountable	59	3	62
	92.2%	18.8%	77.5%
Accountable	5	13	18
	7.8%	81.3%	22.5%
Total	64	16	80
%	100	100	100

$X^2 = 39.588$        $df = 1$        $p = .000$

These does not seem to be much empirical or scholarly studies on the farmers' green book and its promotion of farmer accountability since ERP was introduced. Searches using numerous search engines yielded not results. However, the Department of Agriculture's pilot study of the green book in 2009/2010 among Land and Agrarian Reform and CASP beneficiaries to ascertain its usefulness in promoting accountability indicated positive results and high levels of satisfaction among smallholder farmers (DAFF, 2011).

#### **4.3.2 INFLUENCE OF TECHNICAL QUALIFICATIONS (BACHELOR'S DEGREE) UPGRADE ON AGENTS' CROP FARM MANAGEMENT KNOWLEDGE**

Given the fact that the effectiveness agricultural extension's service delivery depends among other factors, on the technical qualifications of agents in farm management, this pillar was put in place to address it (DAFF, 2008). The publication of the Norms and Standards as the guiding document governing the rendering of Extension and Advisory Services in South Africa has put pressure on agents to improve their competencies (Department of Agriculture, 2005).

Tables 4.5 and 4.6 indicate that farmers' positive assessment of the animal and crop knowledge and skills of extension agents after 2013 up to 2017, the period in which most agents upgraded the qualifications in crop and animal production at tertiary

institutions. This positive assessment was tested in hypothesis two of the study which was that agents' farm management knowledge (crop or animal production) has not significantly improved following upgrading their technical qualifications (Bachelor's degree).

The researcher was interested in making a comparison and analysing differences in two populations of extension agents in terms of a categorical characteristic, i.e. whether qualification upgrade leads to improvement in farm management knowledge or not. The aim here was to determine whether there is any difference in the proportions of successes (improvement in farm management knowledge and skills: crop and animal production) in the two groups (two-tailed test). The evaluation of differences in knowledge between the two proportions was based on independent samples.

To test the null hypothesis of no difference in the proportions of the two independent populations (i.e. with qualification and without qualification upgrade) with regard to improvement in farm management knowledge and skills in both crop and animal production, the test procedure whose test statistic  $Z$  is approximated by a standard normal distribution was used as recommended by Bereson and Levine (1979). The level of significance .05 with a critical value of  $\pm 1.96$  was used.

The null hypothesis that the two populations are the same regarding knowledge in farm management was:

$$H_0: p_1 = p_2$$

The alternative hypothesis that the two population proportions are not the same regarding farm management was:

$$H_1: p_1 \neq p_2$$

The test result was  $Z = 3.58$ .

The  $Z$  value is larger than 1.96 at 0.05 level of probability; the  $H_0$  was thus rejected and the  $H_1$  accepted. This means agents who had upgraded their qualifications to Bachelor's degree had improved the farm management knowledge (crop and animal production) as judged by the farmers they serve than those who did not.

This study has therefore concluded that the extension agents who went for educational upgrades in Thulamela Municipality had improved in technical farming knowledge and this brought more trust to farmers towards extension agents and better yield on crop and animal farming. In view of the fact that there seems not to be empirical assessments of this issue since the introduction ERP, it is not possible to draw on literature for any discussion.

#### **4.3.3 CAPACITY TRAINING RECEIVED IN SELECTED COMPETENCY AREAS AND INFLUENCE ON AGENTS' PROFESSIONALISM IN EXTENSION SERVICE DELIVERY**

The third hypothesis test of this study was that agents' professionalism in extension service delivery has not significantly increased following capacity training received in selected competency areas. Again the researcher was interested in making a comparison and analyzing differences in two populations of extension agents (received capacity training and no capacity training) in terms of a categorical characteristic, i.e. whether capacity training leads to improvement in professionalism in extension service delivery or not. The aim here was to determine whether there is any difference in the proportions of successes in the two groups (two-tailed test) (here, improvement in professionalism for agents who received capacity training and those who did not). The evaluation of differences in knowledge between the two proportions was based on independent samples.

To test the null hypothesis of no difference in the proportions of the two independent populations (i.e. receiving capacity training and not receiving capacity training) with regard to demonstration of professionalism in extension service delivery, the test procedure whose test statistic  $Z$  is approximated by a standard normal distribution was used as recommended by Bereson and Levine (1979). The level of significance .05 with a critical value of  $\pm 1.96$  was used.

The test result was:  $Z$  value = 36.9.

The  $Z$  value is larger than 1.96 at 0.05 level of probability; the NH was thus rejected and the AH accepted. This means agents who received capacity training in the following areas: project management, client/farmer orientation, inter-personal communication, service delivery; problem-solving and decision making skills showed



higher levels of professionalism in interacting with farmers in the conduct of their extension work than those who did not.

Again, in view of the fact that there seems to be no empirical assessments of this issue of capacity training received by extension agents in selected competency areas and its influence on agents' professionalism in extension service delivery since the introduction ERP, it is not possible to draw on literature for any further discussion.

#### **4.4 SUMMARY**

Overall, there is a general acknowledgement in the literature that agricultural extension has a positive impact on agricultural output and plays an essential role in agricultural development. To improve the effectiveness of the amalgamated public extension service in South Africa in 1994, the National Department of Agriculture implemented the Extension Recovery Plan (ERP). The aim of introducing ERP was to improve the low professional conduct and poor technical farm management knowledge and skills of AEs, most of who were absorbed into the new service from the former homeland areas of South Africa.

The findings in this study suggest that the introduction of the green book improves AEs accountability to farmers. There is also evidence from the study that seems to suggest that farmers believe AEs farm management knowledge of crop and animal production has also improved. Furthermore, farmers believe that EAs now demonstrate more professional conduct in agricultural extension service delivery. The introduction of the ERP seems to be making a positive contribution to improve the effectiveness of the public agricultural extension in South Africa. We believe that as more research is done on the ERP, our findings will be subjected to further scrutiny and either validated or disputed. The next chapter presents a summary, conclusions and recommendations arising from the study.

## CHAPTER 5

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

The chapter organization begins with summary statements on findings about the study hypotheses, concluding statement on objectives of the study, indications of study limitations and the implications of the findings for extension practice are indicated (recommendations). The chapter ends with suggestion on areas of further research.

##### 5.1.1 CONTEXTUAL SUMMARY

The problem addressed in this study centred around the poor quality of public extension service. The latter was conceptualized in terms of the few and irregular farm visits, poor farm management information and a lack of other professional qualities on the part of extension agents in the delivery of extension services to farmers. The introduction of the ERP in 2008/2009 was supposed to improve the situation. The aim of the study therefore, was to determine farmers' views on the influence of Extension Recovery Plan (ERP) on the quality of public extension service delivered in Thulamela municipality. This aim was addressed by testing the following study hypotheses which were related to the three study objectives:

- i. Farmers' access to the 'green book' has no significant influence on Extension agents' accountability to farmers.
- ii. Agents' crop farm management knowledge has not improved following upgrading of their technical qualifications (Bachelor's degree).
- iii. Agents' professionalism in extension service delivery has not significantly increased following capacity training received in selected competency areas.

In all three scenarios, the null hypotheses were rejected and the alternate hypotheses were accepted as indicated hereinafter.

The hypothesis test for the first hypothesis shows that farmers' access to the farmers' green book following the introduction of ERP, has a significant influence on Extension agents' accountability to farmers. There were positive statements by respondents on almost all areas investigated (communication between agent and

farmer, green book usage, agents visiting farmers etc.) where they had to give their views.

The hypothesis test for the second hypothesis also shows that upgrading of agents' qualifications following the introduction of ERP contributes significantly in improving agents farm management knowledge as judged by the farmers they serve.

The third hypothesis test also yielded positive results. This means that capacity training in the following areas: project management, client/farmer orientation, inter-personal communication, service delivery leads to higher levels of professionalism in interacting with farmers in the conduct of extension work than those who did not receive such training.

## **5.2 CONCLUSIONS**

### **5.2.1 ABOUT THE PROBLEM THAT WAS ADDRESSED**

In light of the positive statistical significant relationships in the hypothesis tests, it can be said that the introduction of the ERP is making a positive contribution in the quality of extension service delivery in the public sector. It needs to be emphasized that there is little empirical study on the ERP since its introduction except DAFF reports and DAFF sponsored evaluation in 2012. Any reference is thus made to these reports which have different objectives from our study. Regarding the green book and accountability, this is what the DAFF sponsored evaluation of ERP in 2010 (DAFF, n.d). determine the effectiveness with which the FGB was being utilized by both farmers and extension officials has to say:

It has solicited very high levels of use and satisfaction among smallholder farmers and extension officers.

It has met the twin objectives of ensuring the accountability and visibility of extension personnel and services.

The farmer's green book initiative has become a valued planning and reporting tool by smallholder farmers who now advocate its continued provision and use.

Our finding that the farmers' green book promotes accountability of the extension agents to farmers is therefore, corroborated. Furthermore, our finding about the capacity training and its positive influence on professionalism as well as improved

technical skills as a result of qualification upgrade resonate well with literature. The areas in which capacity training were offered to extension agents following the introduction of ERP come under what Spencer and Spencer (1993) call 'soft skills'. Spencer (1993) found that better technical skills and the manifestation of soft skills influence high quality work performance.

### **5.3 LIMITATIONS OF THE STUDY**

Eighty crop and animal farmers in Thulamela Municipality were identified who had been given the 'farmers' green book', were serviced by extension agents who had undergone technical and professional capacity training since implementation of ERP, but only 20% of farmers were found to have been in possession of farmers' green book.

Two of the EAs identified in the study did not go for upgrade even though it was required by the Department of Agriculture to have attained minimum qualification of a Bachelor's degree or its equivalent in training and experience.

### **5.4 RECOMMENDATIONS**

Based on the study findings and literature, the following recommendations are made:

5.4.1 More farmers' green books should be made available to farmers.

5.4.2 The Department of Agriculture should make more funds available to encourage more extension agents with diploma qualifications to enrol in tertiary institutions to upgrade their qualifications to at least a bachelor's degree.

5.4.3 More capacity training in the areas identified in the Norms and Standards (2005) should take place and made mandatory for agents to attend. This should, perhaps, be linked to promotions to encourage agents to attend.

5.4.4. The DAFF should re-visit the issue of farmers' green book distributions for the sake of ensuring the recording of the activities rendered by the EAs and their accountability to farmers they serve.

### **5.5 FURTHER RESEARCH**

Farmers have given a good report in favour of the extension agents who provide extension services to them. Another way to corroborate what the farmers have said

regarding for example, improved crop production knowledge of agents' might be to collect evidence of their crop yields, using the counterfactual analysis.

## REFERENCES

- Afful, D.B., 2012. Payment for the delivery of public agricultural extension services: A needs-based analysis of medium and small-scale commercial crop farmers in the Free State Province of South Africa. Doctorate Dissertation, University of Fort Hare, Alice, South Africa.
- Afful, D. B., Obi, A. & Lategan, F. S., 2013. The relative attractiveness of payment for the delivery of public extension visits. *J. Dev. and Agric. Econ.* 5 (12): 490-498, December, 2013.
- Agunga, R., Slehi, R & Hassan, R., 2017. Towards Professionalism of Agricultural Extension: key to Promoting Extension Effectiveness in Africa. *S. Agric. Res.* 6 (2).
- Ali, J., 2013. Farmers' perspectives on quality of agricultural information delivery: a comparison between public and private sources. *J. Agr. Sci. Tech.* 15: 685-696.
- Anderson, J., R. & Feder, G., 2007. Handbook of Agricultural Economics, vol. 3. Chapter 44: Agricultural Extension. Edited by Evenson, R. and Pingali, P. Agricultural and Rural Development Department, World Bank, Washington, DC. Pp. 2344-2367.
- Annor-Frempong, C. 2013. The influence of intervening variables and subjective norms on the adoption behaviour of small scale farmers in South Africa and Lesotho. PhD Thesis, University of Pretoria, South Africa.
- Aphunu, A., & Otoikhian C.S.O., 2007. Farmers perception of the effectiveness of extension agents of Delta State Agricultural development Programme, department of agriculture Extension and management, school of agriculture, delta State Polytechnic, Ozoro, Nigeria.
- Babbie, E.R., 1998. The practice of social research. Wadsworth publishing company Belmont, CA.
- Babbie, E.R., 2010. The practice of social research. Wadsworth. (12<sup>th</sup> ed.), USA.

Bach, H.J.S. von, Koch, B.H., Zyl, & J. van, 1992. Relating perceptions and associated economic criteria to economic survival in commercial dryland farming in South Africa / Die rol van persepsies en ekonomiese kriteria tot die ekonomiese voortbestaan van kommersiële droëland boerdery in Suid-Afrika. *Agrekon* 31, 210–215.

Bartol, K.M., 1979. Professionalism as a predictor of organizational commitment, role stress, and turnover: A multidimensional approach. *Acad. Manage. J.* 22: 815–821.

Bereson, M.L., & Levine, D.M., 1979. *Basic Business Statistics, Concepts and Applications*, 6<sup>th</sup> edition. Prentice-Hall International, Inc. New Jersey.

Berger, L. and Berger, D. (2004), *The Talent Management Handbook. Creating Organizational Excellence by Identifying, Developing, and Promoting Your Best People*, Mcgraw-Hill, New York.

Betz, M., 2009. The effectiveness of agricultural extension with respect to farm size: The case of Uganda. <https://core.ac.uk/download/pdf/6502710.pdf>

Beyene, H., Verkuijl, H., & Mwangi. W., 1998. Farmers' Seed Sources and Management of Bread Wheat in Wolmera Woreda, Ethiopia. Mexico, D.F.: CIMMYT and IAR.

Blanche, M.T., Blanche, M.J.T., Durrheim, K., & Painter, D., 2006. *Research in practice. Applied Method for Social Sciences*. UCT Press.

Brunswik, E., 1943. Organismic achievement and environmental probability. *Psychol. Rev.* 50, 255.

Budak, D.B., & Budak, F., 2010. Livestock producer's needs and willingness to pay for extension services in Adana province of Turkey. *Afr. J. Agric. Res.* 5, 1187–1190.

Bulmer, M., Warwick, D.P., 1993. Social research in developing countries: Surveys and censuses in the Third World. Psychology Press.

Cavallo, C., & Brienza, M., 2001. Emotional competence and leadership excellence at Johnson & Johnson: The emotional intelligence and leadership study. Corporate Consulting Group.

Coetzee, F., 1987. The development of an agricultural extension service for black farmers in South Africa. 21st Anniv. 1966-1987. *S. Afr. Soc. Agric. Ext.* 32–48.

DAFF (Department of Agriculture, Forestry and Fisheries), 2014. National Framework for Extension as a Field of Practice. Directorate: National Extension Reform.

DAFF (Department of Agriculture, Forestry and Fisheries), 2008. The extension recovery plan (2008/9---2010/11): assessment and evaluation report. Directorate Education, Training and Extension Services, DAFF.

DAFF (Department of Agriculture, Forestry and Fisheries), 2011. Annual report: Performance of the Extension Recovery Plan 2010/11. Department of Agriculture, Forestry and Fisheries, Pretoria.

DAFF, n.d. (Department of Agriculture, Forestry and Fisheries) Extension Recovery Plan (2008/9---2010/11): Assessment and evaluation report <http://www.nda.agric.za/daaDev/topMenu/DoAProgrammes/smallholder%20evaluation/Assessment%20and%20Evaluat%20Extension%20Final%20Report%20to%20DAFF.pdf>

Davids, N., 2016. On extending the truncated parameters of transformation in higher education in South Africa into a language of democratic engagement and justice. AOISIS. South Africa.

De Vellis, R. F., 2003. Scale Development: Theory and Applications (2nd ed., Vol.



26). Thousand Oaks, CA: Sage Publications.

DoA (Department of Agriculture) 2005, Norms and Standards for Extension and Advisory Services in Agriculture, Scientific Research and Development, Pretoria.

DoA (Department of Agriculture) 2009. Farmer's green book. Directorate of Agricultural Information Services, Pretoria.

DoA (Department of Agriculture), 2005. Norms and Standards for Extension and Advisory Services in Agriculture. DoA, Pretoria.

Dubois, D., & Rothwell, W., 2004. Competency-Based Human Resource Management: Discover a New System for Unleashing the Productive Power of Exemplary Performers. Nicholas Brealey Publishing.

Garst, B.A., Hunnings, J.R., Jamison, K., Hairston, J., & Meadows, R.R., 2007. Development of a Comprehensive New 4-H Extension Agents Training Program Using a Multi-Module Approach and the 4-H Professional Research, Knowledge, and Competencies. *J. Ext.* 45.

Gautam, M., 2000. Agricultural extension: The Kenya experience: An impact evaluation. World Bank Publications.

Gebremedhin, B., Hoekstra, D., & Tegegne, A., 2006. Commercialization of Ethiopian agriculture: Extension service from input supplier to knowledge broker and facilitator. International Livestock Research Institute.

Gillespie, S.H., 2002. Intestinal Nematodes. Principles and Practice of Clinical Parasitology. <https://doi.org/10.1002/0470842505.ch21>

Hall, R., 2007. Land reform and poverty alleviation in search of solid ground", in S.

Brown (ed.), Leadership and Legitimacy 2007 Transformation Audit, The Institute for Justice and Reconciliation, Wynberg, Cape Town, pp.72-88.

Harder, A., Place, N.T., & Scheer, S.D., 2010. Towards a competency-based Extension education curriculum: A Delphi study. *J. Agric. Educ.* 51, 44.

Hayward, J. W., & Botha, C. A. J., 1995. Extension, training and research 1995. In *Service small-scale farmers. An evaluation of the DBSA's farmer support programmes.* Development Bank of South Africa. Halfway house. SA.

Hoffmann, T., 1999. The meanings of competency. *J. Eur. Ind. Train.* 23, 275–286.

Irani, T.A., Gregg, J.A., & Telg, R., 2004. Choosing to use the web: Comparing early and late respondents to an online web-based survey designed to assess IT computer skills perceptions of county extension agents. *J. South. Agric. Educ. Res.* 54, 168–179.

Israel, A., 1982. *The training and visit system: A warning (Projects Advisory Staff Paper).* Washington, DC: World Bank.

Jona, C. N., & Terblanché, S. E., 2015. Farmers' perception on contact frequency, adequacy, relevance and quality of Agriculture Support Services (ASS) in Oshikoto region in Namibia. *S. Afr. J. Agric. Ext.*, 43 (1): 107 – 121.

Koch, B.H., & Terblanché, S.E., 2013. An overview of agricultural extension in South Africa. *S. Afr. J. Agric. Ext.* 41: 107–117.

Kwon, K.-J., Chu, M.-S., Kim, J.-A., 2009. The impact of nursing professionalism on the nursing performance, job satisfaction and retention intention among clinical nurses. *J. Korean Acad. Nurse. Adm.* 15: 182–192.

Liebenberg, F., 2015. *Agricultural Advisory Services in South Africa.* Discussion Paper. Retrieved 10 March, 2017 from:  
[https://ageconsearch.umn.edu/bitstream/241722/2/agric\\_advisory\\_services.zp64017.pdf](https://ageconsearch.umn.edu/bitstream/241722/2/agric_advisory_services.zp64017.pdf)

Lilley, H.W.L., 1975. „A critical analysis of the present position of agricultural extension in the Bantu Homelands of South Africa“, *S. Afr. J. Agr. Ext.*, 4: 61-69.

Louw, C., 2005. Land Reform is a collective responsibility. *Farmers weekly*.

Maddy, D., Niemann, K., Lindquist, J., & Bateman, K., 2002. Core competencies for the cooperative extension system. Retrieved 22 November, 2016 from:  
[http://www.msuextension.org/Jobs/forms/Core\\_Competencies.pdf](http://www.msuextension.org/Jobs/forms/Core_Competencies.pdf).

Ministry of Agriculture., 2012. Study of market demand on various extension services in Palestine. Retrieved 15 July, 2017 from:  
<http://www.ershad.moa.pna.ps/downloads/reports/20120717112803.pdf>

Meijer, SS., Catacutan, D., Ajayi, OC., Sileshi, GW & Nieuwenhuis, M. 2014. The role of knowledge, attitudes and perceptions in the uptake of agricultural and agroforestry innovations among smallholder farmers in sub-Saharan Africa. Retrieved 25 June, 2017 from:  
<https://www.tandfonline.com/doi/abs/10.1080/14735903.2014.912493>

Mouton, J., & Babbie, E., 2001. *The practice of social research*. Cape Town Wadsworth.

Olatunji, O., & Letsoalo, S., 2013. Value congruence, the success of group farming in agricultural extension. *S. Afr. J. Agric. Ext.* 41: 26–33.

Olsen, B., Munster, V.J., Wallensten, A., Wadenstrom, J., Osterhaus, Albert DME, & Fouchier Ron AM., 2006. Global patterns of influenza a virus wild birds. *Journal science*. Volume 312. Issue 5772. American Association for the Advancement of Science.

Parry, S.B., 1996. *The quest for competencies*. Training 33, 48 practice: Applied methods for the social sciences. Juta and Company Ltd.

Reinard, J.C., 2006. Communication research statistics. Sage Publishers, Inc. Thousand Oaks. London. Delhi.

Rix, D., 1987. The history of extension to the Indian farming community. 21<sup>st</sup> Anniversary: 1966-1987. *S. Afr. Soc. Agric. Ext.* 49-56.

Robinson, D., Porporino, F.J., & Simourd, L., 1997. The influence of educational attainment on the attitudes and job performance of correctional officers. *Crime Delinquency* 43 : 60–77.

Röling, N., 1988. Extension Science. Cambridge. Cambridge University Press.

SARCCUS (Southern African Regional Commission for the Conservation and Utilization of the Soil). 1962. "Extension Methods in Southern Africa: Report on the Proceedings and Findings of Extension Methods Workshop, Salisbury, Rhodesia and Nyasaland, May 1962". Retrieved 12 April, 2016 from:

<http://www.google.co.za/search?q=sarccus>

Sarker, M.A., & Itohara, Y., 2009. Farmers' perception about the extension services and extension workers: the case of organic agriculture extension program by Proshika. *Am. J. Agric. Biol. Sci.* 4: 332–337.

Scheer, S. D., Harder, A., & Place, N. T., 2011. Competency Modelling in Extension. Education: Integrating an Academic Extension Education Model with an Extension Human Resource Management Model. *J. Agric. Educ.*, 52 (3): 64-74.

Schultz, T.W., 1964. Transforming traditional agriculture. Issue 3 of studies in comparative economics. Yale University Press.

Segal, L., 1997. Feminism & Psychology. *Caustic Collision*. Vol 7, Issue 4.

Song, S., 2008. Efficiency and Technology gap in China's agricultural, a regional meta- frontier analysis. *China economic review*. Volume 19 Issue 2, June 2008, pages 287-296

- Spencer, L.M., 1993. Spencer. SM. Competence Work Models Super. Perform.
- Spio, K., 2002. The impact and accessibility of agricultural credit: A case study of small-scale farmers in the Northern Province of South Africa. PhD Thesis, University of Pretoria.
- Sudman, S., & Bradburn, N.M., 1983. Asking questions: a practical guide to questionnaire design.
- Tilson, H., & Gebbie, K.M., 2004. The public health workforce. *Annu Rev Public Health* 25, 341–356. higher education in South Africa into a language of democratic engagement and justice. AOISIS.
- Thulamela Local Municipal IDP (Integrated Development Plan) ANALYSIS REPORT FOR 2018/19 FINANCIAL YEAR. Retrieved 11 July, 2016 from:  
<http://www.thulamela.gov.za/docs/idp/IDP%201st%20draft%202018-19%20FY.pdf>
- Van Zyl, J., & Van Rooyen, C., 1990. Agricultural Production in South Africa: An Overview. Presented at the IDASA Rural Land Workshop. 9-11 March 1990. Houwhoek Inn, Grabouw.
- Zhongming, W., Minke, C., 2002. Managerial competency modelling: a structural equation testing. Retrieved 15 August, 2016 from:  
[http://en.cnki.com.cn/Article\\_en/CJFDTOTAL-XLKX200205000.htm](http://en.cnki.com.cn/Article_en/CJFDTOTAL-XLKX200205000.htm)

## APPENDICES

### APPENDIX A: UNIVERSITY OF LIMPOPO ETHICAL CLEARANCE APPROVAL



University of Limpopo  
Department of Research Administration and Development  
Private Bag X1106, Sovenga, 0727, South Africa  
Tel: (015) 268 3935, Fax: (015) 268 2306, Email:Anastasia.Ngobe@ul.ac.za


#### TURFLOOP RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

**MEETING:** 07 February 2018

**PROJECT NUMBER:** TREC/14/2018: PG

**PROJECT:**

**Title:** Farmers' perceptions of extension agents' professional qualities affecting service delivery in Thulamela Municipality, Limpopo Province.  
**Researcher:** FJ Mudzanani  
**Supervisor:** Prof DB Afful  
**Co-Supervisors:** N/A  
**School:** School of Agricultural and Environmental Sciences  
**Degree:** Masters in Agricultural Management

  
**PROF. TAB MASHEGO**  
**CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE**

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

**Note:**

- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
- ii) The budget for the research will be considered separately from the protocol. PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.



## APPENDIX B: LETTER FROM LDARD GRANTING PERMISSION TO CONDUCT A STUDY IN THE MUNICIPALITY



### DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

Ref: 12R

Enquiries: Dr. SB Dikgwatlhe  
015 294 3229

21<sup>st</sup> December, 2016

MUNDZANANI, FJ (201515302)  
School of Agriculture and Environmental Sciences  
Department of Agricultural Extension  
University of Limpopo,  
Sovenga

**Re: FARMERS' PERCEPTIONS OF EXTENSION AGENTS' PROFESSIONAL QUALITIES AFFECTING SERVICE DELIVERY IN THULAMELA MUNICIPALITY, LIMPOPO PROVINCE, SINCE IMPLEMENTATION OF EXTENSION RECOVERY PLAN.**

1. Your request for permission to do conduct research has reference.
2. Kindly take note that your request to conduct Research in Limpopo Province under Vhembe District has been officially recommended and approved. You will also be required to present your proposal to the LDARD-Research Forum/Committee, failure to do so will result in the retraction of the recommendation and the approval thereof. You are kindly required to visit office of the **Director: Vhembe District** in conjunction with Thulamela Local Agricultural Office before you begin with your work, in order to brief them on the study and your request, this in raising awareness. The department is prepared to embark on any activity to make this research work possible in order to improve the livelihood of the communities in our province.
3. Kindly take note that you will be expected to hand over a copy of your final report to the department for record purposes as well as for reporting. Furthermore, you may also be invited to share your findings in the departmental research platforms.
4. Hoping that you will find this in order.

Kind regards

21, December 2016

Dr. S.B. DIKGWATLHE  
ACTING DIRECTOR - RESEARCH SERVICES

Date

67/69 Biccard Street, POLOKWANE, 0700, Private Bag X9487, Polokwane, 0700  
Tel: (015) 294 3135 Fax: (015) 294 4512 Website: <http://www.lida.gov.za>

*The heartland of Southern Africa - development is about people!*

## APPENDIX C: RESEARCH QUESTIONNAIRE

My Name is Mudzanani Funzani Joyce. I am conducting research about “Farmers’ perceptions of extension agents’ professional qualities affecting service delivery in Thulamela Municipality, Limpopo Province”. This research is being carried out with the consent of the Thulamela Local Municipality leadership.

This research study is for the degree of Master in Agricultural Management (Extension) in the Department of Agricultural Extension, School of Agriculture and Environmental Sciences, Faculty of Science and Agriculture, University of Limpopo, South Africa.

You may not provide me with your name and the information given will be kept strictly confidential and will only be used for the purpose of this study. To ensure the effectiveness of this research, you are requested to be as open and honest as possible with your responses.

### SECTION A: PERSONAL AND DEMOGRAPHIC INFORMATION

Please cross the number that corresponds to your response as: 0 = No; Yes=1 or fill in your response where necessary.

Contact Details (Optional)				
Name of Ward				
1. Sex of farmer	Female	0	Male	1
2. Major farming enterprise	Mainly crops	0	Mainly animals	1
3. Do you farm as an individual or a group?	Individual	0	Group	1
4. Number of years in farming in this Ward				
5. Major farming enterprise	Mainly crop	0	Mainly animal	1
6. Membership of any farmer organization	No	0	Yes	1



**SECTION B: EXTENSION AGENT’S (EA) ACCOUNTABILITY TO FARMER**

7. What is the name of your current (2017) local extension agent?

Mr OR Ms..... (The name was used to identify qualification of agent for analysis since name cannot be reported for ethical considerations)

8. Do you know where his/her office is?	0	1
9. Do you know his/her official contact details (cell phone or office telephone number)?	0	1
10. What method (s)/channel (s) does he/she use to communicate with you or your farmer?	0	1

(Tick as many as apply)

Farm Visit	1
Telephone	2
E-mails	3
Farmer’s Days	4
Other (Specify)	

11. Does your EA make you aware of any meetings in your ward where agricultural development issues are discussed?	0	1
12. Does your EA participate in any of those meetings in your ward where agricultural development issues are discussed?	0	1
13. Are you aware of any government agricultural programmes in your ward?	0	1
14. Is your EA involved in any of those government agricultural programmers' in your ward?	0	1

15. How often does your local extension agent visit your farm (individual or group) to provide farm management support (Extension contact)? (Cross in the spaces provided)

Frequency	Before 2013		After 2013 After the planting season till the next planting season	After the planting season till the next planting season
	From planting to harvesting	After harvesting to next planting		
Once a week	0	1	0	1
Once in two weeks	0	1	0	1
Once in four	0	1	0	1

weeks				
Other (specify)				

FARMER'S GREEN BOOK

16. Do you have a copy of farmers' green book?

0	1
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17. If no: State why.....

.....

18. If yes: Do you record what your local extension agent does anytime he/she visits your farm in your green book?

0	1
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19. If no: State

why.....

.....

20. Extension Agent (EA) always signs my green book for service rendered at my farm	0	1
21. EA always helps me to complete the service delivery section of my green book.	0	1
22. EA always approves and signs my monthly activity plan	0	1

23. EA always honours follow-up agreements with me.	0	1
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SECTION C. AGENTS' FARM MANAGEMENT KNOWLEDGE BEFORE 2013 AND IMPROVEMENTS AFTER

24. Is your EA Mr or Ms .....the same person who provided extension services to you before 2013? (The name of the agent was used to identify the agent's qualification for analysis since the name cannot be reported for ethical considerations)

0	1
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25. If yes (i.e. the same person), please give me your honest opinion of the quality of his/her current farm management support or recommendations to you compared with before 2013 (1. better or improved 2. worse or deteriorated; 3. the same quality- still good or still bad- cross one choice)(Table 1- Crop production OR Table 2 –Animal production).

26. If no, (i.e. a different person), please give me your honest opinion of the quality of his/her current farm management support or recommendations to you compared with the current person who was here before 2013 (1. Better/improved 2. Worse/deteriorated: 3. the same quality- still good or still bad –cross one choice) (Table 1: Crop production OR Table 2: Animal production)

**Table 1: Crop production**

FARM MANAGEMENT KNOWLEDGE AREA	0 Not improved i.e 0.1 still good or 0.2 still bad	1 Better or improved
27. Seed cultivar choice for your area	0	1
28. Fertilizer recommendation	0	1
29. Planting dates	0	1
30. Seeding rate	0	1
31. Planting distance	0	1
32. Pest control	0	1
33. Disease control	0	1
34. Irrigation issues	0	1
35. Land preparation issues e.g. bet time to start, how best to do it	0	1
36. Crop rotations yielding maximum returns	0	1
37. Return on hectare of land (R)	0	1
38. Climate variability information	0	1
39. Other(specify)	0	1

MARKETING ACTIVITY		
40. Best time to sell produce e.g. at harvest time or store and sell later etc.	0	1
41. How to sell produce e.g. marketing channel to use	0	1
42. Information on price (e.g. in the province or district etc.)	0	1
43. Where to sell produce	0	1
44. Produce quality issues	0	1
45. (specify)..... .....		Other

FINANCIAL ACTIVITY		
46. Record keeping e.g. income and expenditure; farm tools/equipment	0	1

**Table 2: Animal production**

FARM MANAGEMENT KNOWLEDGE AREA	0 Not improved i.e 0.1 still good or 0.2 still bad	1 Better or improved
LIVESTOCK MANAGEMENT	0	1

47. Information on the best breed of animal (name it) to keep in my area	0	1
48. Animal vaccination plan (when)	0	1
49. Type of vaccine to use	0	1
50. Vaccination dosage to use (if required)	0	1
51. Animal Stocking rate/density	0	1
52. Isolation of sick animals	0	1
53. Information on disposal of manure	0	1
54. Prevention of entry of disease into the farm.	0	1
55. Where to get animal feed	0	1
56. Conditions of or how to keep animal feed	0	1
57. Housing condition for animals e.g. to protect of animals against extreme weather conditions	0	1
MARKETING ACTIVITY		
58. Best time to sell animals	0	1
59. Where to sell animals	0	1
60. Information on prices	0	1

FINANCIAL ACTIVITY		
61. Record keeping e.g. income and expenditure; farm tools/equipment	0	1

62. Other (specify)

SECTION D: EXTENSION AGENTS' DEMONSTRATION OF PROFESSIONALISM  
IN SERVICE DELIVERY

**Project Management (Planning)**

63. Agent always helps me to set farm management objectives	0	1
64. Agent always helps me write a plan showing when farm activities will be started and be completed	0	1
65. Agent always helps to write my planned expenditure (costs) required to achieve objectives.	0	1
66. Agent always helps me to write the number of people, kinds of people and their corresponding responsibility required to achieve my set objectives	0	1

Effective Interpersonal Communication

67. Agent always interrupts me when I am talking	0	1
68. Agent always has the habit of defending his/her actions.	0	1
69. Agent always stares (which makes me uncomfortable) at me when I am talking to him/her	0	1
70. Agent always summarizes what I say to show that he/she is listening to what I am saying	0	1
71. Agent always nods his/her head to approve of	0	1



what I am saying and to show he/she listening to me		
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Service delivery: Honesty and integrity

72. When the Agent does not have information or solution to my farm management problem, he/she tells me he/she will find out and come back to you when we meet again.	0	1
73. Agent always delivers on promises about my farm management issues.	0	1

Service delivery: Timeliness

74. Agent always arrives on time when I have an appointment with him and her.	0	1
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Service delivery: Appropriate dressing

75. Agent always dresses appropriately when he/she visits my farm.	0	1
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**Problem-solving and decision skills**

76. Agent always helps me to clearly write down my farm management goals	0	1
77. Agent always helps me to identify my most important farm management problem that requires attention.	0	1

78. Agent always helps me to evaluate/weigh the options among alternatives in making farm management decisions.	0	1
79. Agents always help me to choose an option among alternative options in farm management decision-making.	0	1

### Farmer orientation

80. Agent always says hello, greets me by my name when he/she visits my farm.	0	1
81. Agent always asks how my family and I are doing when he/she visits my farm.	0	1
82. Agent always attends to my farm management needs to the best of his/her ability.	0	1
83. Agent always displays a positive attitude. e.g. smile	0	1
84. Agent always suggests alternatives if he/she cannot meet my farm management need at the time.	0	1
85. Agents' farm management recommendations/advice are always relevant (useful and applicable) to my farming situation	0	1
86. Agent always provides farm management advice/recommendations/support at the right time that I need it	0	1
87. Agent always keeps appointments to visit my farm.	0	1

88. Agent always involves me in decision-making to arrive at solutions for my farm management problems.	0	1
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END

THANK YOU FOR YOUR PARTICIPATION!