THE EVALUATION OF THE SUBTROPICAL CROPS EXTENSION AND ADVISORY SERVICE (SUBTROP) AS PERCEIVED BY FARMER MEMBERS AND EXTENSION ADVISORS IN THE SUBTROPICAL REGIONS, SOUTH AFRICA

By

Wilna Anneke Stones

Submitted in partial fulfilment of the requirements for the degree of

M.Sc. Agric

In the Faculty of Natural and Agricultural Sciences

Department of Agricultural Economics, Extension and Rural Development

University of Pretoria

2012

Declaration

I, the undersigned, declare that the dissertation, which I hereby submit for the degree of M. Sc. Agric at the University of Pretoria, is my own work, except where acknowledge in the text, and has not previously been submitted for a degree in any form at this or any other tertiary institution.

Wilna Anneke Stones

Dedication

I dedicate this to my wonderful husband and delightful daughters, who fill my life with endless joy and passion.

Acknowledgements

My sincere thanks to Mr. Piet Muller who created this opportunity.

The Subtrop board members who approved the bursary for this degree. Thank you for this privileged.

Dr. Fanie Terblanché, my study promoter, for his patience, kindness and coaching. He is a passionate agricultural extension advisor whom I admire.

Me. Joyce Jordaan, the statistician from heaven. She is an angel, with the amazing ability to explain statistics.

Mr. Gerhard Nortjé, the Technical Manager of Subtrop. Thank you for your interest in my study and your encouragement.

To the technical advisors of Subtrop who allowed me to invade their study groups with my questionnaire. A special thank you to Mr. Andrew Sheard, technical advisor in KwaZulu Natal – thank you for your special effort with the questionnaires.

To my dear mother, Me. Martie Coetzee, who assisted me in every way she could. You have always been an example to me, thank you for all your sacrifices.

English is not the author's first language and therefore I would like to thank Mr. Roger Stones for the final editing.

To Roger, Cailin and Amberley, for your patience and endurance. Thank you for your sacrifices, I love you!

To my Lord Jesus, who carried me when I thought I could not continue anymore. You are alive!

The Evaluation of the Subtropical Crops Extension and Advisory service (Subtrop) as perceived by Farmer members and Extension Advisors in the Subtropical Regions, South Africa

By

Wilna Anneke Stones

Supervisor: Dr. S.J. Terblanché

Department: Agricultural Economics, Extension and Rural Development

Degree: M. Sc. Agric Agricultural Extension

ABSTRACT

In order to minimize duplication, consolidate resources and strengthen industry representation to government, the South African Avocado Growers Association (SAAGA), South African Litchi Growers Association (SALGA), South African Macadamia Growers Association (SAMAC) and the South African Mango Growers Association (SAMGA); amalgamated under an umbrella organization called Subtrop.

This study focuses on the pre and post effect the amalgamation had on Extension services to the abovementioned organizations. The effect was measured by conducting a survey. The survey measured both Subtrop member and relevant Subtrop staff responses.

The survey used two questionnaire types, one for Subtrop members and one for Subtrop extension advisors. The questionnaires were designed to complement the SPPS V19.0® statistical package. The questionnaires were completed at group interview sessions. A total of 127 farmer respondents, divided in two groups, namely 90 farmer respondents and 37 opinion leader respondents participated in the external survey. The internal survey comprised of six Subtrop extension advisor respondents.

Farmer and opinion leader respondents, (hereafter called respondents), provided their perceptions and rated the extension services of the technical department of Subtrop.

Results showed that the respondents used the Extension services for on farm advice and group based Extension services like study groups. The Subtrop Extension services received a higher rating after the Subtrop amalgamation than before the amalgamation. Subtrop extension advisor responses showed a need for training and coaching, as well as some reconciliation with respect to the increase in work load afforded by the amalgamation. Pre-amalgamation extension advisors served one commodity, while post amalgamation extension advisors now serve four commodities.

The respondents indicated their satisfaction with the organizing of study groups. They also indicated that the study groups met their needs. Although the respondents understood the value of intercommunication and participation, the study showed that the minority realized the need to take ownership of study groups. All the extension advisors indicated that organizing study groups was the single activity that used most of their time. The Subtrop study groups were rated higher after the Subtrop amalgamation than before.

The Subtrop newsletters were rated higher after the Subtrop amalgamation. The respondents indicated the newsletters as valuable and therefore proved newsletters as an appropriate extension communication tool.

The Subtrop websites were indicated as somewhat valuable. Most respondents indicated a lack of awareness of the websites, indicating a need to promote the websites better. Although very few respondents completed the marketing related services section of the survey, those that completed this section were all aware of this service.

The following recommendations emerged:

For extension advisors:

- The development of a curriculum of Subtrop commodities for training purposes;
- Regular technical and soft-skill training;
- The development of a mentorship program; and
- For new extension advisors an orientation program which includes the above mentioned.

To improve the Extension service outputs: programmed extension and the implementation of area committees.

Additional focus on communication and exit interviews.

For farmer members:

- Study group management needs to be improved, combine newsletters, improve awareness of research and promote websites and market services.
- Further: develop an extension policy, maximize area committee involvement and regular member feedback surveys.

TABLE OF CONTENTS **PAGE**

LIST OF TABLES **PAGE**

LIST OF FIGURES

LIST OF CHARTS PAGE

LIST OF ABBREVIATIONS

AIS	**Agricultural Innovation System**
AKIS	**Agricultural Knowledge and Information System**
CGA	**Citrus Growers' Association**
CRI	**Citrus Research International**
DAFF	**Department of Agriculture, Forestry and Fisheries**
DFPT R	**Deciduous Fruit Producers Trust Research**
DFPT	**Deciduous Fruit Producers' Trust**
DFTS	**Dried Fruit Technical Services**
DPA	**Deciduous Fruit Plant Improvement Association**
FCES	**Florida Cooperative Extension Service**
HD	**Human Development**
ITC	**Indian Tobacco Company**
NGO	**Non-Governmental Organizations**
OWK	**Oranjerivier Wynkelders**
POW	**Plan of Work**
PPEA	**Participatory Programmed Extension Approach**
SAAGA	**South African Avocado Growers Association**
SAAPPA	**South African Apple and Pear Producers' Association**
SAFJ	**South African Fruit Journal**
SALGA	**South African Litchi Growers Association**
SAMAC	**South African Macadamia Growers Association**
SAMGA	**South African Mango Growers Association**
SAPO	**South African Plant Improvement Organization**
SASA	**South African Sugar Association**
SASPA	**South African Stone Fruit Producers' Association**

SASRI	**South African Sugarcane Research Institute**
SL	**Sustainable Livelihoods**
ToT	**Transfer of Technology**
TT	**Technology Transfer**
USA	**United States of America**

CHAPTER ONE

INTRODUCTION

1.1 Background information to the study

Subtrop is an umbrella organization that originated when the South African Avocado Growers Association (SAAGA), South African Litchi Growers Association (SALGA), South African Macadamia Growers Association (SAMAC) and the South African Mango Growers Association (SAMGA) amalgamated on the 1st of October 2006. Before this amalgamation each of the Growers' Associations had their own offices and staff. Objectives like research coordination, extension, marketing and general management overlapped with each other. Therefore, the main reason for the amalgamation was to minimise duplicated services, as well as strengthen industry representation when dealing with government.

1.2 Problem statement

Extension is currently one of the services Subtrop provides to its farmer members. Previously the four separate member associations of Subtrop had no formal policy with regards to extension, as is the case currently in Subtrop.

Part of the reasoning behind the Subtrop amalgamation was to provide a greater challenge to extension staff and enhance continuity (Donkin, 2006). Also, it was theorised that a consolidated Extension Service, skilled in all four commodities would reduce the risk of skills loss when staff turnover occurred.

The abovementioned amalgamation occurred and the Extension Service has reached a point where its impact must be assessed. In order to measure the impact the amalgamation had on extension, it was decided that a survey should be implemented. The survey was designed to assess Subtrop members i.e. farmers and opinion leaders, as well as the Subtrop extension staff.

The results of this survey will be used to make recommendations towards an improved Technical Department, and more specifically, the Extension Services.

1.3 Objectives of the study

The following are the objectives of the study:

1.3.1 To perform an internal and external survey with regards to extension with the following role players:

1.3.1.1 Internal: Extension personnel, with regards to their perceptions of the existing Extension services.

1.3.1.2 External: Farmer members (farmers and opinion leaders) of Subtrop with regards to their satisfaction, perception and utilization of the following Extension services in Subtrop:

a) Extension personnel in their respective areas
b) Study groups
c) Newsletters
d) Technical research
e) Websites
f) Awareness of the market information that Subtrop provides

1.3.2 To investigate three major fruit industries (Citrus industry, Deciduous fruit industry trust & Sugarcane industry) in South Africa as part of the literature research with regards to their extension practises. This study aims to determine:

a) If they have extension personnel?
b) What is their extension policy and approach?
c) What can Subtrop learn from these industries with regards to their extension practises?

1.3.3 To provide recommendations from the outcome of 1.3.1 and 1.3.2 above to improve the Extension Services in Subtrop.

1.4 Significance of the study

1. The Technical Department and to be more specific, the Extension Services, need to stay relevant to their farmer members in a Growers' Association.
2. To determine the perceptions and requirements of the farmer members of Subtrop, with the purpose of improvement.
3. To prevent duplication, lessons can be learned from established Growers' Associations (mentioned in point 1.3.2).

1.5 Outline of remaining chapters

In Chapter two the literature review, will discuss the definition and concept of extension. Previous and new extension approaches will briefly be discussed. The extension approaches used in South Africa will be investigated, as well as commodity based farmer associations in South Africa. The chapter will be concluded with a section on surveys in farmer organisations.

Chapter three will discuss the research design and methodology.

Chapter four will provide background information on Subtrop and discuss the profile of the respondents participating in the study.

Chapter five will discuss the farmer respondents' knowledge and perception of Subtrop and its services.

Chapter six will discuss the extension advisors' knowledge and perception of the Subtrop amalgamation and the Extension Services to farmers.

Chapter seven will compare the farmers and extension advisors respondents' knowledge and perception of the Subtrop amalgamation and the Extension Services.

Chapter eight will present the concluding summary and recommendations.

CHAPTER 2

LITERATURE STUDY

2.1 Introduction

This literature study was divided in five sections. It aims to provide an overview and background of agricultural extension approaches in South Africa and internationally. Also to investigate other extension approaches that may be compatible with Subtrop.

Section one defines agricultural extension; section two and three address the previous and present agricultural extension approaches internationally, and section four, the agricultural extension approaches in South Africa. Section five concludes with a section on customer satisfaction surveys in Extension organizations.

2.2 The definition and concept of Agricultural extension.

2.2.1 Definition of Agricultural Extension

During the nineteenth century the term "extension" was derived from an educational development in England (Jones & Garforth, 1997:7). The primary focus of this development was to improve the educational needs – literary and social - of people in urban areas. Agriculture only featured much later in this program (Jones & Garforth, 1997).

The term 'extension' can be used to include a wide variety of services. This services may include any form of *advisory, consulting, technology transfer, research, training, marketing, industry development, learning, change, communication, education, attitude change, collection and dissemination of information, human resource development, facilitation, or self-development activities that are undertaken with the aim of bringing about positive change on farms and in agriculture* (Fulton, Fulton, Tabart, Ball, Champion, Weatherley & Heinjus, 2003:5).

According to Wikipedia, the free encyclopaedia, 'there is no widely accepted definition of agricultural extension'. A few examples from Wikipedia (2010/06/11) range from:

- **1949**: *The central task of extension is to help rural families help themselves by applying science, whether physical or social, to the daily routines of farming, homemaking, and family and community living.*
- **1966**: *Extension personnel have the task of bringing scientific knowledge to farm families in the farms and homes. The object of the task is to improve the efficiency of agriculture.*
- **1973**: *Extension is a service or system which assists farm people, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living and lifting social and educational standards.*
- **1974**: *Extension involves the conscious use of communication of information to help people form sound opinions and make good decisions.*
- **1988**: *Extension is a professional communication intervention deployed by an institution to induce change in voluntary behaviour with a presumed public or collective utility.*
- **1999**: *The essence of agricultural extension is to facilitate interplay and nurture synergies within a total information system involving agricultural research, agricultural education and a vast complex of information-providing businesses.*
- **2004**: *Extension is a series of embedded communicative interventions that are meant, among others, to develop and/or induce innovations which supposedly help to resolve (usually multi-actor) problematic situations.*

Agricultural extension involves both private and public sector services relating to technical, educational and sociological matters (Marsh & Pannell, 2000). Agricultural extension in modern times is also expected to provide a range of new functions, such as advice on food safety programs, e.g. GlogalGap; and the consequences of HIV / AIDS on agriculture, to name a few (Anderson, 2008).

Therefore, to summarize: Agricultural extension can be seen as purposeful activity aimed at sustainable agricultural practise, to benefit both the environment and the social community; changing attitude to adapt new beneficial agricultural practises and to explore new market outlets or trends; and linking agricultural research with the on-farm environment. Agricultural extension aims to enlighten and broaden the mind.

2.2.2 Concept of Extension

The term "concept" according to the Encarta, World English Dictionary, is a "*broad principle affecting perception and behaviour; a broad abstract idea or a guiding general principle, such as one that determines how a person or culture behaves* ". According to Düvel (2008), the perception of the Extension concept will determine the extension approach. The extension organization's internal integrity and viewpoints will also play a role in the chosen extension approach (Düvel, 2008). The concept of extension with regards to this viewpoint can be differentiated on the basis of the following:

(a) Educational Extension: the focus of extension is on education, capacity building and the preparation for future problem situations, it is pro-active and a bottom-up approach;
(b) Informative Extension: where the focus of extension is on current needs, but uses the opportunity to provide knowledge and understanding to increase skills of and independency in decision making;
(c) Persuasive Extension: where the focus of extension is reactive, responds to felt needs and provides very specific advice or recipes regarding the currently felt problems, usually on request. It retains dependency on the extension advisor and is a top down approach (Düvel, 2008:44; Terblanché, 2008:64).

In addition to the above mentioned concepts, extension is advisory, promotional or participatory in approach (Düvel, 2008). Further concepts of extension are Technology Transfer (TT) or Transfer of Technology (ToT) also human development (HD) as the primary focus of extension (Düvel, 2008; Worth, 2006 and Terblanché, 2008).

Transfer of technology was used to improve agricultural practises, resulting in the improvement of the human factor in agriculture. Human development improved the people on the farm (educating them, giving them skills) which improved agricultural practises on the farm.

It is then clear that a firm standpoint regarding all these different concepts and their inter-relationships will be necessary to understand and design a specific extension approach (Düvel, 2008; Worth, 2006).

2.3 Previous Agricultural extension approaches

It is necessary to investigate historic extension approaches to facilitate an understanding of what has been done in the past. Knowledge of what was done can serve as a reference point to improve future extension approaches.

The main focus of Agricultural extension was to comply with the Extension philosophy: "Helping farmers to help themselves" (Terblanché, 2008). Extension services refer to different approaches or models (Blum, 2007). Three approaches to agricultural extension were identified by Röling (1995) as quoted by Worth, (2006;182): 'linear models, advisory models and facilitation models'.

Linear models involved the transfer of technology (ToT or TT) (Probst & Hagmann, 2003; Van de Fliert, 2003; Worth, 2006), where the technology transfer takes place in a linear fashion between individuals. The extension agent is the 'middle man' between the researcher (generator of agricultural knowledge) and the farmer (the adaptor / rejecter of this new knowledge) (Biggs, 1990; Probst & Hagmann, 2003; Worth, 2006; Terblanché, 2008).This can be illustrated as follows (Terblanché, 2008:61):

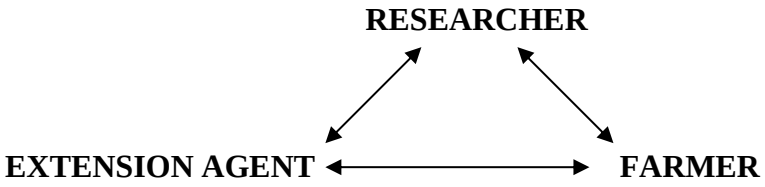
RESEARCHER ⟶ EXTENSION AGENT ⟶ FARMER

The information flow is in one direction and there is no multi-interaction amongst individuals (Terblanché, 2008). This is also a top-down approach where the farmer is at the bottom of the hierarchy. A slight improvement on this linear model, with ToT still the main focus, was one where more interaction took place. This can be illustrated as follows (Terblanché, 2008:61):

RESEARCHER ⟷ EXTENSION AGENT ⟷ FARMER

This was the so-called advisory model that remained technology focused, with the farmer responsible to access technology related information. This model also provided access to technical advice and support (Blum, 2007; Worth, 2006; Terblanché, 2008).

A more liberal improvement of the advisory models was the facilitation models. These models stressed the engagement between and amongst researchers, extension agents and farmers in the pursuit of knowledge / technology development (Worth, 2006; Terblanché, 2008). This can be illustrated as follows (Terblanché, 2008:62):



The farmer, extension agent and the researcher have become 'partners' (Terblanché, 2008) in the pursuit of improved agricultural practises and an improved social environment. The farmer's own local knowledge was also recognized in this approach (Blum, 2007). Table 1 summarizes the different concepts of the main three extension approaches.

Table 2.1: The scenario of the three main extension approaches (Blum, 2007:3-4)

MODELS	Linear Model	Advisory Model	Facilitation Model
PURPOSE	Production increase through transfer of technologies Government policies	Holistic approach to farm entrepreneurship	Empowerment & ownership
SOURCE OF INNOVATION	Outside innovations	Outside innovations and by farm manager	Local knowledge and innovations
PROMOTER'S ROLE	Extensionist	Advisor	Facilitator
FARMER'S ROLE	Adoption of recommended technologies	Asking for advice Taking management decisions	Learning by doing Farmer(s) to Farmer (s) learning
ASSUMPTIONS	Research corresponds to farmer's problem	Farmer knows what advisory services he needs	Willingness to learn to interact and to take over ownership
FARMER'S ROLE	'Passive' role Others know what is best for him		Active role Problem-solving Ownership of process
SUPPLY / DEMAND	Supply	Demand	Demand
ORIENTATION	Technology	Client	Process
'TARGET'	Individuals Contact farmer model (T & V)	Individuals Groups with common problems	Groups and organisations, interaction of stakeholders, networking

2.4 New Approaches of Agricultural extension

The last two decades are characterised by more advanced thinking about the nature of agricultural technology development and the promotion thereof (Zhou, 2008). Vanclay (2004:213) stated that '*agriculture has too long been thought of as a technical issue involving the application of science and the transference of the outputs of that science via a top-down process of technology transfer*'. He further stated that *'agriculture is farming and farming is people'* (Vanclay, 2004:213). The need for linkages and partnerships to support agricultural approaches, innovations and developments, evolved into more demand driven, participatory, market orientated extension approaches (Blum, 2007; Sulaiman, Hall, Raina, 2008; Allahyari, 2009). This need also recognised more farmer involvement in the whole approach (Chapman & Tripp, 2003; Van de Fliert, 2003).

Zhou (2008:2) stated that new approaches to extension emphasize three elements: 1) Strategies to develop agricultural innovation systems, 2) pluralism of service providers and 3) extension services should be demand driven. Extension approaches that came to mind are the Agricultural Knowledge and Information System (AKIS) and Agricultural Innovation System (AIS) (Blum, 2007; Saha & Mukhopadhyay, 2003).

There are more variations of participatory approaches, but only a few of these approaches will be discussed, as the underlying principles of these approaches are similar. In these systems, the farmers are in the central position, where their knowledge and skills are complementary to research and extension. An example of all the important linkages between farmers and other role players can be seen in Figure 2.1 below. Figure 2.1 will not be explained, as it only serves as an illustration which emphasizes the importance of all role players and the linkages between them, with regards to a participatory approach.

Where the AKIS approach strengthened the linkages between agricultural research, extension and education, the AIS emphasized the innovation capacities and learning of all stakeholders; as well as strengthening the following (Blum, 2007:14):

- Institutional capacities;
- Interactions between stakeholders;
- Technical, social and institutional innovations, and
- Policy research

This multiple linkage between all the different role players can now also be 'sources' of new innovations, and not always only the research institutions (Biggs, 1990).

These participatory extension approaches favoured the non-governmental organizations (NGOs) to contribute towards reaching the farmers. NGOs are defined as non-membership development-oriented organisations (Farrington, 1997). As the NGO's tend to have more grassroots networks that can reach isolated resource poor farmers (Mattocks & Steele, 1994; Farrington, 1997; Fulton et al., 2003), they were not only more successful in identifying their problems, but also to get participation from these farmers. These NGOs are in a more favourable position to link with and between local organizations, government research and extension organizations, universities and other organizations that are not easily accessible to members of local organizations (Mattocks & Steele, 1994:57). Another NGO of importance is farmers' organizations. Farmer's organisations can play a vital role in identifying their members' needs and transforming these needs in research priorities and extension services (Saha & Mukhopadhyay, 2003; Anderson, 2008).

Another extension approach along the framework of AKIS, was the 'Agriflection' extension model. Worth (2006) proposed a new extension approach and model ('Agriflection') for the extension services in South Africa, which is in line with the Strategic Plan for South African Agriculture. This model integrates the concepts and principles of Sustainable Livelihoods (SL) with an adaptation of the AKIS framework in which the individual elements of education, research and extension are more fully integrated (Worth, 2006). The Agriflection model adopts a reflective learning approach to development – shifting the extension agenda from technology-centred to learning –centred (Worth, 2006). As Worth (2006:179) stated: "*The model fosters a culture of continuous reflective learning that is submitted as the highest purpose of extension. The model suggests that prosperity can be realised through engaging smallholder farmers in scientific discovery, innovation and technology development based not on what they lack, but on what they have".* In support to this approach, Allahyari (2009) noted that in order to adapt agricultural extension organizations to sustainability, it must become "learning organizations".

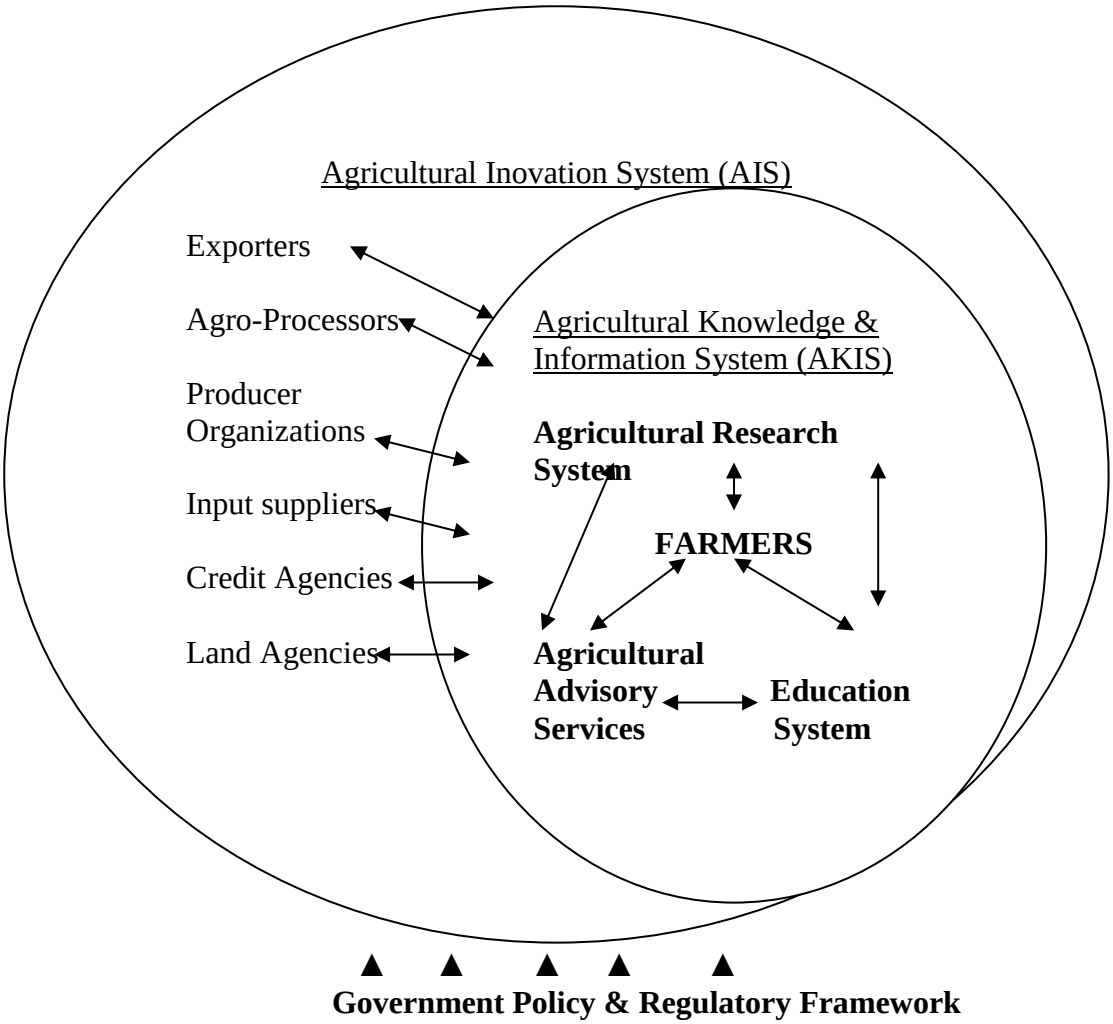


Figure 2.1: Agricultural Advisory Services (Extension) as Component of an Agricultural Knowledge and Innovation System (Blum, 2007:12)

Anderson (2008:13) classified the new extension approaches according to the characteristics of an extension service:

(a) Governance structures: Role of the public, the private and the third sector in providing and financing the service; decentralization to lower levels of government; examples: public-private partnerships, contracting-out of extension services, privatization;
(b) Capacity and management: Financial and human resources available, relative to the number of farmers to be reached; management system (incentives to extension personnel, supervision and reporting; results-orientation); and
(c) Advisory-methods: Numbers of clientele involved (individual, group-based or mass methods); type of training and technology transfer (demonstration plots, field days; courses; farmer-to-farmer exchange; involvement of clients into planning and problem-solving (participatory vs. top-down), specificity of content, type of media used; adult-education-orientation.

The decentralization of extension is a general trend in developing countries and the main expected advantage of this approach was to improve accountability (Anderson, 2008). The management capacity with this approach was reduced to a decision-making unit (Anderson, 2008) and therefore would improve accountability. It was also expected that the incentives for the extension advisors would improve, inducing a better service, as the extension advisors will receive more feedback from their clients (Anderson, 2008). Furthermore, it was also stated that decentralization and pluralism

are the two main characteristics of extension organizations towards sustainability (Allahyari, 2009). However, this approach was challenged with some problems: There was the risk of political interference and the utilization of extension staff for local government duties, as well as better-off farmers that may use their influence on local government to gain privileged access to extension services, to name a few (Anderson, 2008:14).

Ghana, Uganda and India came up with modifications on the decentralization of governance structures, of which India's incorporation of decentralization with other reform models was the most successful (Anderson, 2008). India combined decentralization with a strong coordination across different line departments and with the involvement of farmers' groups, private-sector representatives and NGOs in decision making on extension. Important to note was that together with this approach was a strong shift in India's extension approach to an explicit market orientation (Anderson, 2008:15).

This more market orientation with regards to an extension approach is in line with the general trend to bring knowledge much closer to market and value-chain development, as well as to the creation of social capital at the grassroots level (Anderson, 2008:15). These approaches focus then more on the improvement of income on farm and not only on the improvement of productivity (Anderson, 2008). It was also proposed that governments should withdraw from areas where markets function and rather invest in infrastructure that will enable markets (Fulton et al., 2003).

Other examples of pluralistic extension approaches are the assignment of extension functions to farmers' organisations, rather than to local governments and systems that involve contracting of private sector extension agents (Public-private partnerships (PPPs) (Fulton et al., 2003; Anderson, 2008; Nkonya, 2009).

The use of modern information and communication technologies, such as online advice, as an alternative approach / source of extension is commonly used in industrial countries and has potential in developing countries (Anderson, 2008; Harder & Lindner, 2008). Web-based information is immediately available and the dissemination of information for not only farmers, but also extension advisors, could be hugely improved (Harder & Lindner, 2008). Such an approach was successfully employed in India, the so-called e-Choupal model (Anderson, 2008). This model was designed by the Indian Tobacco Company (ITC) and it involves a village Internet kiosk run by a local farmer, which helps villagers to access free of charge information on farm practices, weather and prices of inputs, services and outputs (Anderson, 2008:21). Anderson (2008) stated that although these 'new' technologies have potential traditional communication channels, for example the local radio station should not be neglected. This statement was also confirmed by Nalugooti and Ssemakula (2006).

With the introduction of eXtension, a Web-based educational resource (Harder & Lindner, 2008), the following concerns were raised by the extension advisors:

- Lack of time to learn how to use eXtension;
- Lack of time to service farmers the 'traditional' way, not to speak about the web-based clientele;
- Lack of time to understand how to incorporate eXtension with their normal duties;
- Concerns about extension advisors' salaries, performance evaluation and county recognition; to name but a few.

The result of the eXtension study showed that educating the adopters of this innovation is crucial in the success of this new extension 'tool' (Harder & Lindner, 2008).

It is important to note that there is no one-size-fit all extension approach (Haug, 1999; Anderson, 2008; Nkonya, 2009). Each country has its own unique situations, national capacities, local needs

that will influence the extension approach. Haug (1999:270) stated:" *Systems and approaches need to be tailored to national capacities and local needs".*

To date there is no concrete evidence of which reform elements, with regards to extension approaches, is effective under which circumstances and why (Anderson, 2008). What is important is the fact that a more pluralistic approach, that involves many service providers, and organizations that have the attitude and the ability to find the right approach in different situations ('best-fit choices')(Haug, 1999; Fulton et al., 2003; Anderson, 2008; Nkonya, 2009) are needed to ensure a demand-driven, market orientated, sustainable extension approach.

2.5 Agricultural extension approaches in South Africa

The agricultural public extension service in South Africa had separate extension services for commercial and small-scale farmers (Düvel, 2004; Williams, Mayson, De Satgé, Epstein & Semwayo, 2008; Greenberg, 2010; Worth 2010). With regards to the commercial farmers, extension approaches developed relatively 'quickly' from transfer of technology (ToT) to more participatory approaches. Koch (2006:7) stated that "*extension approaches during the pre-1945 era included the establishment of service clubs, where the farmer and his family were involved with extension-minded people to improve rural live".* The Conservation Act of 1946 (Act 45 of 1946) also had a huge influence on extension approaches (Koch, 2006). The authors of this act realised the important principle of community involvement in any development program (Koch, 2006). This act formed the baseline of many future extension programs (Koch, 2006:6).

In the small-scale farmers' public extension service, things did not develop as 'quickly'. Koch stated that many of the development programs before 1930 were based upon prescriptive, top-down approaches. It was only in the late 1950s that a need for a more scientific approach was identified (Koch, 2006:24).

In 1994 things changed with the new political dispensation in South Africa (Koch, 2006; Williams et al., 2008; Greenberg, 2010). The dualistic public extension service amalgamated in a new single amalgamated service (Düvel, 2004; Koch, 2006). This service concentrates mostly on previously disadvantaged small-scale farmers (Düvel, 2004). Over a period of 15 – 20 years the public extension service has declined (Düvel, 2004; Greenberg, 2010). Reasons for this are argued that the resources of the Department of Agriculture, Forestry and Fisheries (DAFF) have shrunk and the extension service for commercial farmers have been privatized (Williams et al., 2008; Greenberg, 2010). A new policy for agriculture, the 1995 White Paper on Agriculture was produced (Department of Agriculture, 1995). This paper criticized the conventional ToT approach and called for a more holistic approach (Williams et al., 2008; Worth, 2010). A more integrated extension service and a model for a participatory extension approach was suggested (Williams et al., 2008). The extension worker can then be trained to act as a facilitator to replace the ToT model (Williams et al., 2008).

The University of Pretoria was commissioned by the Department of Agriculture to develop a new extension approach model (Düvel, 2004; Williams et al., 2008). A Participatory Programmed Extension Approach (PPEA) for South Africa's public extension service was suggested (Düvel, 2004; Williams et al., 2008). This approach entails the following (Düvel, 2004; Williams et al., 2008):

- Programmed extension (Extension planning and projects);
- Extension facilitation (Extension linkage and coordination);
- Knowledge and support;
- Education and training; and

- Monitoring and Evaluation.

In order to realise this model, the following was recommended/ highlighted (Düvel, 2004; Williams et al, 2008):

- Dedicated support to extension staff, which includes the establishment of an Extension Knowledge Information and Research Centre, which should be out-sourced to or performed in partnership with existing institutes;
- The frequent restructuring within the Department of Agriculture posed a problem with regards to the interruptions of delivering extension programmes, not to mention the high costs involved;
- The high occurrence of low qualification and competence of extension workers; and
- Monitoring and Evaluation Program should receive the highest priority.

An announcement was made in 2008 by the Minister of Agriculture and Land Affairs that a joint Extension Recovery Plan was on the table which will result in the skills upgrading of more than 1000 extension officers (Williams et al., 2008).

Düvel, 2010, stated that the intension of the participatory process, which entails the involvement of many relevant role players at different levels in the iterative processes, was to promote consensus, acceptability and ownership. He also stated that participatory processes based on maximum interaction between role players bring about consensus and knowledge acquisition (Düvel, 2004:10).

A few other extension approaches were also promoted. A brief description of each will follow:

- Community based extension workers approach (Greenberg, 2010):
  This approach entails using people from the community that had training and technical backup to act in a supplementary role to the formal system. The existing extension officers have then more of a coordination and technical support role. This model argues for conserving resources, involvement of community in their own development and transferring of skills;

- Commodity approach combined with participatory approach (Mudau, Geyser, Nesamvuni & Belemu, 2009):
  Farmers and extension workers in the Mopani and Vhembe areas of Limpopo Province, has worked with strategic partners. This had positive results for both the farmers and the extension workers. The partnership of emerging growers with commodity based commercial growers assisted the emerging growers to have a focussed understanding of the technical and market related aspects of farming. These farmers now have a better understanding of their competitiveness and of their potential improvements. The extension officers also now have a better understanding of their agricultural area and are able to concentrate on those commodities with the best competitive advantage. Koch (2006:26) stated that the pool of expertise that can be found with commercial farmers cannot be transferred to new incumbents in a lecture hall. Linkages with commercial farmers are valuable as they can and want to play a role in growing the emerging farmers of South Africa (Mudau et al., 2009).

- Agriflection model (Worth, 2006):
  This model is based along the framework of AKIS and was described under point 2.4.

  South Africa has a wide diversity of agricultural subsectors and relative scales of production and expertise in the agricultural community (Williams et al., 2008). This requires different approaches specific to each situation. Role players in South Africa involved with extension

services, for example the Universities of KwaZulu Natal, Fort Hare and Pretoria, have agreed that there should not be a single model, but rather a 'family' of models (Worth, 2010). In conclusion, as Düvel (2004:10) stated: "*extension models no matter which, are in general not flexible enough or do not provide enough variation to be the optimum solution in most countrywide situations. Guiding principles appear to be a more appropriate solution".*

2.6 Commodity based Farmer Organizations in South Africa

As previously mentioned, the extension service to farmer organizations has largely been privatised (Williams et al., 2008; Greenberg, 2010). At first there were Agricultural co-operatives (1939) with their own extension services (Koch, 2006). Due to many factors agricultural co-operatives were privatized and their extension numbers dropped to insignificant numbers (Koch, 2006). Many of these extension advisors became private consultants that continue to serve the farmers (Morkel, personal communication 2009).

Several industries organized themselves into commodity organisations and are linked to Agri SA through their chambers (Koch, 2006). A brief investigation to some of them will follow to investigate what extension approaches they have followed.

2.6.1 The Deciduous Fruit Producers' Trust (DFPT)

The Deciduous Fruit Producers' Trust (DFPT) was established on October 1, 1997 (DFPT brochure, 2009). The DFPT is an umbrella body that governs a number of organisations and institutions, each with its own dynamics, disciplines and focus. There are three major role players in the Trust: SA Apple & Pear Producers' Association (SAAPPA), Dried Fruit Technical Services (DFTS) and the SA Stone Fruit Producers' Association (SASPA) (DFPT brochure, 2009).

A board of trustees, representing the above mentioned associations and other stakeholders, directs and oversees the activities of the DPFPT. The trustees ensure maximum stakeholder input, co-operation and cost effective industry services and functions (DFPT brochure, 2009). Other stakeholders include: DFPT Research, including technical transfer; Fresh Produce Exporters' Forum; Deciduous Fruit Industry Development Trust (housing all ex-statutory assets and reserves) focussing on training and development; the South African Plant Improvement Organization (SAPO Trust), Deciduous Fruit Plant Improvement Association (DPA); Government Departments and Institutions. The growers (farmers) are the key in the DFPT and the Trust has to ensure all related issues are managed as identified by the respective producer associations (DFPT brochure, 2009).

The DFPT is funded through statutory levies from the table grapes and the stone-and pomegranate producers. This levy is used to accomplish the objectives and functions as approved by the producers (DFPT brochure, 2009).

However, on 1 October 2009 all the operational industry services and functions of the DFPT were transferred to a new service entity HORTGRO Services. HORTGRO Services is responsible for administrative services, financial administration, as well as some functional services like transformation and training, information, communication and social programmes (media release 30/09/2009). The operational consolidation in HORTGRO Services will soon be continue with a consolidated approach on a strategic industry level with the establishment of an HORTGRO SA identity and profile. HORTGRO SA will act as a national communication platform for its members to address collective issues over the industry value chain (media release 30/09/2009).

2.6.1.1 Agricultural extension

The function of extension falls within the DFPT Research section (DFPT R) (Morkel, 2009) which retained their identity under the HORTGRO Services umbrella. The Technical Transfer Manager is responsible for the dissemination of new information to the grower members of DFPT. This organisation has no extension advisors; they rely on private consultants and fieldsmen. These private consultants and fieldsmen came from the former pack houses and cooperatives that closed down during economically tough times. They formed a Fieldsmen Association and they took it upon themselves to ensure skill continuity with new people entering the industry. These people are used by the DFPT R to convey new concepts to the farmers (Morkel, 2009).

These consultants / fieldsmen are also represented on Regional Technical committees, together with other role players and farmers, which deal with relevant industry problems and represent farmer' needs from different production areas. Study groups are mainly driven by farmers and it is part of the Technical Transfer Manager's task to energize and uses these study groups to convey new technology (Morkel, 2009).

There are also other committees, for example, Peer Working Groups, Research Technical Committees, where experts contribute by discussing problems requiring specific research and other relevant strategies (Morkel, 2009).

In addition to this, farmer-to-consultant interaction, the DFPT R also uses the following strategies to convey important information to the farmers (Morkel, 2009):

- Farmers days
- Research symposiums
- Seminars and information days
- Research Journal – South African Fruit Journal (SAFJ)
- Web
- Pamphlets / bulletins
- Work groups
- Fresh Notes (emailed newsletter)

During November 2007 the DFPT conducted a customer (farmer) survey with regards to their technology transfer and communication strategy (Campbell, 2009). The objective of the survey was to understand their growers' needs and to re-invent ways of remaining relevant.

The findings of this survey were presented by Morkel, 2009:

- Growers' don't have time to attend technical transfer sessions
- Relevant information reaches them via technical experts and exporters.

It was then decided that the DFPT Research and Technology Transfer will focus more on:

- South African Fruit Journal (SAFJ) to be more theme based
- The newsletter – fresh Notes
- Field days and information sessions in production areas.

To summarize: the DFPT R uses several role players, from researchers, farmers, service providers, technical consultants that serve on regional and technical committees to determine industry problems. New technology are transferred through various channels that range from research symposium, information days, field days, study groups, journals and newsletters and information brochures. The extension approach can then be classified as a participatory approach where there exist linkages between industry role players and farmers.

2.6.2 The South African Sugar Association (SASA):

The South African Sugar Association (SASA) is an organisation that promotes the global competitiveness, profitability and sustainability of the South African sugar industry. The SA Cane Growers' Association and the SA Sugar Millers' Association are the two bodies in partnership with the SASA. This partnership is administered by the SASA council. SASA provides specialist support to the cane growers and sugar millers through The South African Sugarcane Research Institute (SASRI). SASRI has an Extension Service, which provides the link between researchers and sugarcane farmers.

2.6.2.1 Agricultural extension:

The Extension services focus its effort in three spheres (Maher, 2008:4; Tucker, 1996:5):

1. Regional Extension: this service is funded via a levy and is divided into different regions and serves medium to large-scale commercial growers;

2. Small-Scale Grower Extension: this service provides a specialised service to small scale growers through a joint venture with the KwaZulu Natal Department of Agriculture and Environmental Affairs. This service operates within the department's structures throughout the industry;

3. New Freehold Grower Extension: this service is a new sphere and the growers in this group vary from medium scale to large-scale and are new to the Sugar industry. As the focus is on land redistribution throughout the industry, this group will grow and will require a specialised extension service in the years ahead.

2.6.2.2 Research, Development and Extension

The objectives and functions of the Extension Division within SASRI are specifically to assist the cane grower in improving the efficiency and level of his sugarcane production (Paxton, 1980:115; Maher, 2008). These services involve the following (Paxton, 1980:115):

- Providing the link between the Experimental Station and the grower community;

- Providing a consultancy service for cane growers and visiting them on request;

- Keeping the grower informed of the services available from the Experimental Station;

- Maintaining close liaison with research staff and keeping up to date with all new developments;

- Representing the Experimental Station on various committees.

Communication with the grower is on a face to face basis, but study groups, discussion groups with farmers or opinion leaders and farm visits are all regularly used for the transformation of information (Paxton, 1980:115; Maher, 2008). Newsletters are used to communicate to the growers (Paxton, 1980; Hewitt, 1996). The Extension division is supported by the scientific staff of SASRI, who consults to the extension advisor (Paxton, 1980; Maher, 2008).

According to Paxton (1980), extension goals are achieved through programmed extension. Through surveys and examination, extension advisors identify problems in their areas. The results are used to determine the objectives and time frame of the extension programme and its evaluation. Paxton, (1980); Hewitt, (1996) and Maher, (2000) show that Regional Research, Development and Extension Committees are established to assist extension advisors to formulate an annual Plan Of Work (POW), and to establish priorities. These committees generally comprise both grower and miller-cum planter representation (Maher, 2008; Maher, 2007; Paxton, 1980). On completion of the programs, these committees assist with the evaluation of the program, and advise on future action (Maher, 2008; Baker, 2005; Paxton, 1980). In this process, the growers and sugar millers are actively involved with the extension advisor (Hewitt, 1996). This active involvement tends to improve sugar production and aids in motivating extension staff (Paxton, 1980).

2.6.3 The South African Citrus Growers' Association (CGA):

The Citrus Growers' Association (CGA) was established in 1997 by citrus growers when the deregulation of the Citrus Board took place. The key strategies of the CGA are as follows (CGA website, 2010):

- To gain and retain market access;
- To set standards for fruit and quality;
- To fund and control research and development;
- To drive industry transformation;
- To represent the growers;
- To communicate effectively; and
- To optimise the structure of the C.G.A.

The CGA represents the interests of export citrus throughout South Africa, including Zimbabwe and Swaziland (CGA website, 2010).

For the Citrus industry, market access is of high importance. Therefore, the production of quality fruit and food safety fruit is a priority for the CGA. This aim is realised through well directed research. Hence, research is considered the primary function of the CGA. Research is conducted through Citrus Research International (CRI). New findings from the research are disseminated to stakeholders via the extension service (CGA website, 2010).

Extension has the objective of cost-effectively coordination the transfer of knowledge to the citrus growers of South Africa and their service agents (CGA website, 2010; Citrus Growers' Association Annual Report, 2010). This involves a partnership between numerous parties and entails a network of primarily researchers, consultants and technical personnel. This includes co-operatives, citrus estates and agro-chemical organisations. Also grower study groups, regional grower representatives and the Technical Manager of CGA (CRI website, 2010).

The CRI's extension objective is therefore to co-ordinate the interaction between these parties. The extension personnel are the extension officers (seconded to the CRI). They also aid in the Transformation Program of CGA to develop emerging farmers (CGA Annual Report, 2010). The extension services are therefore achieved through a network of regional Technology Transfer Groups, annual regional Pack-house Study Group meetings and the development of a Citrus Cold Chain Forum.

Additional information transfer takes place through bulk e-mail, Internet, the SA Fruit Journal, bi-annual Citrus symposia, grower days and road shows.

2.6.4 Summary

With no formal extension officers, the CGA and DFPT R use a network of role players inside their respective industries to reach the farmers.

The SASA employs extension advisors. They work together with extension committees to achieve extension goals. These goals are identified and achieved through programmed extension. In addition, the extension advisors have the support of the Sugar Research Station and its specialists.

2.7 Customer satisfaction surveys in Extension Organizations

Which of the aforementioned extension approaches work? What are the customers (farmers) saying about the extension services they receive? Can a satisfaction survey aid in the improvement of extension services?

The Florida Cooperative Extension Service (FCES) in the United States of America has measured its quality of services since 1988, (Galindo-Gonzalez, Israel, Weston, and Israel, 2011). Their performance standard is that 92 % of their farmer clientele must be "satisfied" or "very satisfied" with the quality of extension services. Some attributes of quality measurement are 1) relevance, 2) accuracy 3) quality 4) impact and 5) overall satisfaction (Galindo-Gonzalez, Israel, Weston, and Israel, 2011:2). The results of these customer satisfaction surveys have enabled Extension Service to identify, prioritize and provide solutions that meet the expectations of their clients (Galindo-Gonzalez, Israel, Weston, and Israel, 2011; Israel, 2007; Kato, 1997). A notable solution was for example, that "*Extension should use more participatory approaches to promote equal involvement among its diverse clientele during the processes of assessing needs and developing Extension programs"* (Galindo-Gonzalez, Israel, Weston, and Israel, 2011:4).

The Florida Innovation Group, a non-profit organization that assists county and city governments in Florida, suggested the use of customer satisfaction survey results to assess the performance of local departments, such as the Extension Services (Israel, 2007:1). The use of customer satisfaction measures are also used as a key component of performance measurement of extension personnel and in the continuous process of program accountability (Israel, 2007; Terry & Israel, 2004).

As agriculture is a dynamic environment, it is important that extension services stay ahead of the changes and evolve as well (Jones, Diekmann & Batte, 2010). Customer satisfaction survey results have indicated that 1) relevant topics 2) communication methods and 3) type of farm/farmer informational needs, could improve the use of extension resources and services (Jones, Diekmann & Batte, 2010). The implication therefore is that the targeting of information products and methods may improve the performance of extension programs and customer satisfaction (Jones, Diekmann & Batte, 2010).

An important finding from extension satisfaction surveys is that agent and customer homophily plays an important role in the success of extension programmes (Strong & Israel, 2009). A customer satisfaction survey conducted in Florida showed that when the customer and the extension agent's race were different, a small but significant decrease in satisfaction scores showed against same race relations (Strong & Israel, 2009). This result stressed the need for extension strategies to overcome the problem of heterophily (Strong & Israel, 2009:70).

The above examples emphasise the benefits and use of customer satisfaction surveys.
It is therefore with the aim of improving the extension services of Subtrop, that a customer survey was conducted.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

Chapter three describes the aim of the study and research design. The research design concludes the sampling and data collection procedures, data processing and the statistical analysis procedure employed.

Subtrop is a relatively new organisation. Each member organization had an extension service peculiar to its industry need. At the time of writing, Subtrop has a relatively recent and amalgamated extension service. In order to improve its extension service, Subtrop is at a point where self-examination is appropriate.

In order to achieve this, member feedback is needed. This need leads to the aim of the study, which is to conduct an internal and external survey of frontline personnel and farmer members respectively in the context of extension. The results of this survey will be used to make recommendations to improve the Technical Department, and more specifically, the Extension Service.

3.2 Research design

3.2.1 Study area

The surveys were conducted in the main Subtropical fruit production areas of Limpopo Province, Mpumalanga Province and KwaZulu Natal. Levubu, Tzaneen and Hoedspruit were surveyed in the Limpopo province. In Mpumalanga, surveys were conducted in Malelane and Nelspruit. KwaZulu Natal consisted of both the North and South coast regions.

3.2.2 Sampling and data collection procedures

3.2.2.1 Sampling

(a) External survey

In each of the respective study areas mentioned above, commodity study groups are organized by the Subtrop extension advisors. In order to optimize resources, Subtrop extension staff facilitated the surveys at the regular study group per commodity and per area. Hence for the external survey, sampling was purposeful and convenient.

The surveys were conducted during March 2010 and November 2010. The surveys were conducted as such:

Limpopo area:

- Levubu: Avocado and Macadamia study groups
- Tzaneen: Avocado, Macadamia and Mango study groups
- Hoedspruit: Mango study group

Mpumalanga area:

- Nelspruit: Litchi and Macadamia study groups
- Malelane: Mango group

KwaZulu Natal:

- North and South coast: Avocado and Macadamia study groups

In some cases there was a commodity overlap, for example in Tzaneen, the litchi farmers overlap with the avocado and macadamia farmers where the same farmer farms both commodities. Therefore, no separate survey was done with the litchi study group in the Tzaneen area. The same principle applies for the other study areas.

Opinion leaders in each of the study areas were surveyed via email. Opinion leaders were included in the survey to determine if there was a correlation between the perceptions and attitudes of the farmers and that of the opinion leaders. A list of opinion leaders was compiled by each of the Subtrop extension advisors of the respective areas. The opinion leaders were chosen on the grounds of their accessibility to other farmers and their expertise. According to Düvel (1998) accessibility is a key dimension of opinion leadership; this attribute is negatively correlated with knowledge or expertise. It was therefore important that the accessibility of the chosen opinion leaders were positively correlated with their expertise. These opinion leaders were telephonically contacted. Only opinion leaders that agreed to participate were included in the survey.

(b) Internal survey

There were six Subtrop extension advisors who were actively working in the study area. All the Subtrop extension advisors, except the author, participated in this survey.

3.2.2.2 Data collection tools and data collection

3.2.2.2.1 External survey

The external survey was conducted through group interviews in the form of a questionnaire. According to Düvel & Lategan (1992), group interviews not only save on available resources e.g. time and costs, but little is compromised with regards to reliability and validity.

A structured questionnaire was developed and used to conduct the survey among the farmers in the study groups. The questionnaire consisted of mainly closed questions using Likert-Type scale response anchors (Vagias, 2006), as well as open questions. Prior to the study the questionnaire (Appendix A) was thoroughly discussed and validated with 1) the Technical Manager 2) the CEO of Subtrop, 3) subject matter specialists and 4) the relevant statisticians. It was first piloted with six farmers in KwaZulu Natal before finalization.

The target farmers in KwaZulu Natal were chosen as they had no prior access to a sub-tropical fruit extension services. It was believed that if they could use the questionnaire, members familiar with an extension service would as well. The extension advisor for KwaZulu Natal accompanied the author of this study thereby gained understanding for other surveys.

A convenience sample was taken by handing the questionnaires out at study groups in the respective areas to be completed by the farmers present. According to Terblanché(2007); study groups are an efficient platform to conduct surveys of this nature. The surveys were therefore mostly done at study groups as mentioned above. The author was present at each one of these study

groups, except for the non-pilot KwaZulu Natal groups. The extension advisor in KZN, using previous exposure already mentioned, facilitated for the author.

The same questionnaire was e-mailed to opinion leaders with a due date

3.2.2.2.2 Internal survey

The internal survey compromised of a group interview. The group interview targeted extension staff in the form of a structured questionnaire. The advantage of a group interview in this context is that data is easily and readily obtained. It is also quicker and increases data quality (Kumar, 1987, Terblanché, 2007). This questionnaire was discussed and validated with the Technical Manager of Subtrop, subject matter specialists and statisticians. The survey took place during a Subtrop technical meeting. All the Subtrop extension advisors (6), except the author, participated in this survey.

3.2.2.2.3 Major Fruit industries in South Africa

Although a literature research was mainly done with regards to the South African Citrus Industry, The South African Sugarcane industry and the Deciduous Fruit Industry Trust, the Technical Manager of the Deciduous Fruit Industry Trust were also interviewed with regards to her association's extension strategy. Unfortunately nobody was available from the South African Sugarcane and Citrus industry for an interview.

3.2.2.3 Data processing and analysis

The data was coded and captured from the questionnaires into a computer using Microsoft Excel. This data was analysed using the SPSS V19.0 statistical package. Single frequencies and frequency cross tabulations were compiled for the Likert-scaled questions, while averages and standard deviations were computed for questions with measurements as answers.

In the external survey it was important to determine whether there was a relationship between the type of farmer (opinion leaders & farmers) and their responses to each question. The Pearson's Chi-square test was used to test this. This test statistic is based on the idea of comparing the observed frequencies in certain categories to the frequencies expected to be found in those categories by chance (Field, 2009: 688). However, the Pearson's Chi-square test needs large samples to be accurate. The total sample size in this survey was 127 respondents and therefore the Fischer's Exact test was performed to overcome this problem. The Fischer's Exact test is a way of computing the exact probability of the chi-square statistic and is normally used on 2 x 2 contingency tables and with small samples (Field, 2009: 690). The Fischer's Exact test can be used on larger contingency tables and with larger samples, but can become computationally intensive. Results will be evaluated at the 5% level of significance. When the p-value associated with Fischer's Exact test value is lower than 0.05, then there is a significant statistical difference between the two variables.

The Cronbach's alpha was used to test reliability of the respondents' answers and ratings. Ho (2006:239) stated that '*The reliability of a measuring instrument is defined as its ability to consistently measure the phenomenon it is designed to measure'*. They also stated that '*reliability refers to test consistency'*. It was further stated that the Cronbach's alpha '*is a single correlation coefficient that is an estimate of the average of all the correlation coefficients of the items within a test'*. Therefore, when the Cronbach's alpha value is high (0.80 or higher) it then indicates that the entire test is consistent with the items within that test (Ho, 2006: 240). However, Hair, Anderson, Tatham and Black (1995:641) stated that α-values below 0.70 are acceptable if the research is exploratory in nature. PsyAsia International (2006) rated α-values between 0.65 – 0.70 as

minimally acceptable. Therefore, for the purpose of this study α-values ≥ 0.65 will be rated as acceptable. Therefore, indicating the items within that test as minimally reliable / consistent.

3.2.3 Shortcomings and sources of error

In retrospect there were two aspects that could possibly be changed in a study like this:

1. **A shorter questionnaire**: No one likes to complete a questionnaire, even if it will benefit you. Although the questionnaire used in this survey only took 30 minutes to complete, it was too long for the farmer respondents at the study groups. Even with 'droëe wors' provided to keep the spirits up! Therefore, it is recommended for similar studies to use shorter questionnaires that only take maximum 20 minutes to complete.

2. **More closed questions in the survey:** There were a few open-ended questions in this survey. The author of this study wanted to investigate the farmers' opinions and perceptions on specific topics written in their own words. These questions were not well answered. The closed questions were well answered as it was easier to choose an answer from a well-defined set of criteria, than to write your own answer down. Therefore, it is recommended for surveys targeting farmers to use, where possible, more close questions in the survey.

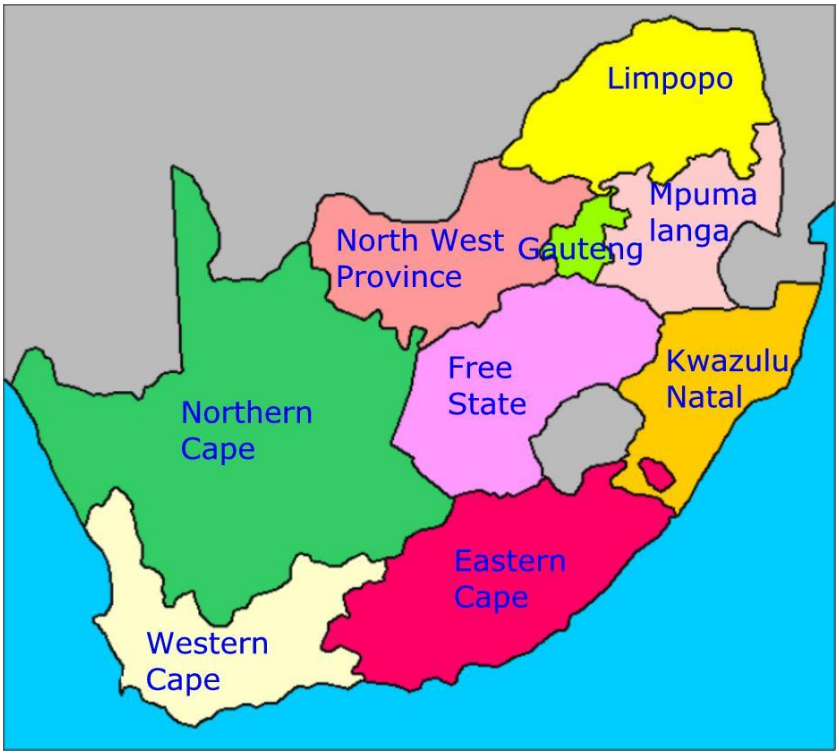
CHAPTER FOUR

BACKGROUND INFORMATION ON SUBTROP AND THE RESPONDENTS PARTICIPATING IN THE STUDY

This chapter will provide some information on the Subtropical fruit growing areas associated with this study, background information on Subtrop itself, as well as a profile of the study respondents.

4.1 Subtropical fruit production study areas

Avocado, Litchi, Macadamia and Mangoes are grown in the Subtropical regions of South Africa. These regions include the Limpopo, Mpumalanga and KwaZulu Natal provinces, as illustrated in Figure 4.1.



(Source: http://www.southafrica.to/provinces/provinces.htm, accessed 25/02/2012)
Figure 4.1: The Provinces of South Africa

4.1.1 Limpopo

In the Limpopo Province there are five district municipalities. Subtropical fruits are grown in the Mopani and Vhembe districts. For the purpose of this study only avocado, litchi, macadamia and mangoes will be considered. Major centres within these district municipalities include Makhado (Louis Trichardt), Levubu, Greater Tzaneen, Greater Letaba and Hoedspruit areas. About 50% of the Subtrop members farm with subtropical crops in these areas. All four of the Subtropical crops are farmed in these areas with the exception of mangoes which are mainly produced in the Hoedspruit area.

4.1.2 Mpumalanga

In the Mpumalanga province there are two main areas where subtropical fruit is produced. For the purpose of this study Mpumalanga is divided into two main areas: Mpumalanga 1 (one) and 2 (two). Mpumalanga 1 consists of Hazyview, Kiepersol, Alkmaar, Nelspruit and Witrivier areas. In these areas mostly avocado and macadamia are grown with mango and litchi on a smaller scale. Mpumalanga 2 consists of Barberton, Hectorspruit, Malelane, Komatipoort and Schoemanskloof. In these areas mango, litchi and macadamia are grown, with avocados on a smaller scale.

4.1.3 KwaZulu Natal

KwaZulu Natal is divided into the North and South Coast. Macadamia and avocado production is higher than mango and litchi in these areas.

4.2 Subtrop – the Organisation

As mentioned in Chapter one, Subtrop is an umbrella organization that manages the affairs of SAAGA, SALGA, SAMAC and SAMGA.

The main objectives of Subtrop are to promote and enable sustainability of Subtropical fruit. However, each association retained its identity and remunerate Subtrop for the individual services it requires. These services include:

a) Management and administration;
b) Liaison and communication;
c) Provision of market information;
d) Provision of economic information to aid competitiveness;
e) Generic market development;
f) Research coordination;
g) Extension services;
h) Facilitation of market access initiatives;
i) Lobby with government and relevant institutions on issues of importance to the industry.

In addition to the above mentioned services Subtrop also serves to:

a) Pool resources;

b) Strengthen group bargaining power;

~~*c)*~~ *Avoid duplication;*

d) Identify possible support structures and regulatory bodies (networking);

e) Liaise with other associated organisations both locally and internationally; and

f) *To conduct all relevant activity that may be deemed incidental or conducive to the attainment of the above objectives* (Subtrop constitution 2010).

Subtrop is governed by a Board of Directors (Subtrop Board) comprising of the following:

a) Chairman – The Chairman is elected by the Board of Directors and hold office for a period of two years;

b) Vice Chairman-The Vice Chairman is elected by the Board of Directors and hold office for two years;

c) Past Chairman – The past chairman is required to serve on the board for the same period as the newly elected Chairman;

d) *Member Association Representatives – Two authorised representatives of each Growers' Association that is a member of Subtrop. In the interest of continuity, member associations appoint representatives for a minimum of two years and stagger new appointments so that both current representatives do not leave the board simultaneously;*

e) *Additional Directors - The Additional Directors represent research, marketing or any other specialist function as deemed necessary. Additional Directors shall also serve for two years and may be eligible for re-election;*

f) *Chief Executive Officer or Executive Director – The Chief Executive Officer is appointed by the Board of Directors, who will be a paid employee of Subtrop; and*

g) *Executive Committee – The executive committee of the Board of Directors consist of the Chairman, Vice Chairman, Past Chairman and Executive Director of CEO* (Subtrop constitution, 2010).

The appointment of the Member Association Representatives is done by each of the Member Associations of Subtrop. Their appointments are confirmed at the respective Annual General Meeting (AGM) of that association. Usually these representatives are the Chairman and Vice Chairman of each one of the Member Associations.

The member associations of Subtrop, SAAGA, SALGA, SAMAC and SAMGA, retained their individuality under the Subtrop umbrella. The respective personnel of these associations now reside with Subtrop. The Boards of the four member associations consist of representatives of the different production areas of that specific commodity and each differ in structure to the other. As the focus of this study is Subtrop Extension, the individual structure of each member associations will not be explained.

The Subtrop structure is depicted Figure 4.2 below.

From Figure 4.2, the Technical Department consist of a Technical Manager and six extension advisors. The main function of the Technical Department of Subtrop is research coordination and the Extension Services.

The Extension Service of Subtrop provides the following:

a) Organizing study groups;
b) Writing of reports and newsletter articles;
c) Farm visits;
d) Processing technical enquiries, example; spraying programs, soil and leaf analysis, etc.;
e) General enquiries;
f) Nursery accreditations;
g) Keeping the commodity tree census of Subtrop up-to-date;
h) Attend meetings, symposia etc.;
i) Assist with accreditation systems, example GlobalGap.
j) Development of government extension advisors.

The minimum recruitment criterion of an extension advisor is a four year B. Sc. Agriculture degree (See Appendix C for job description).

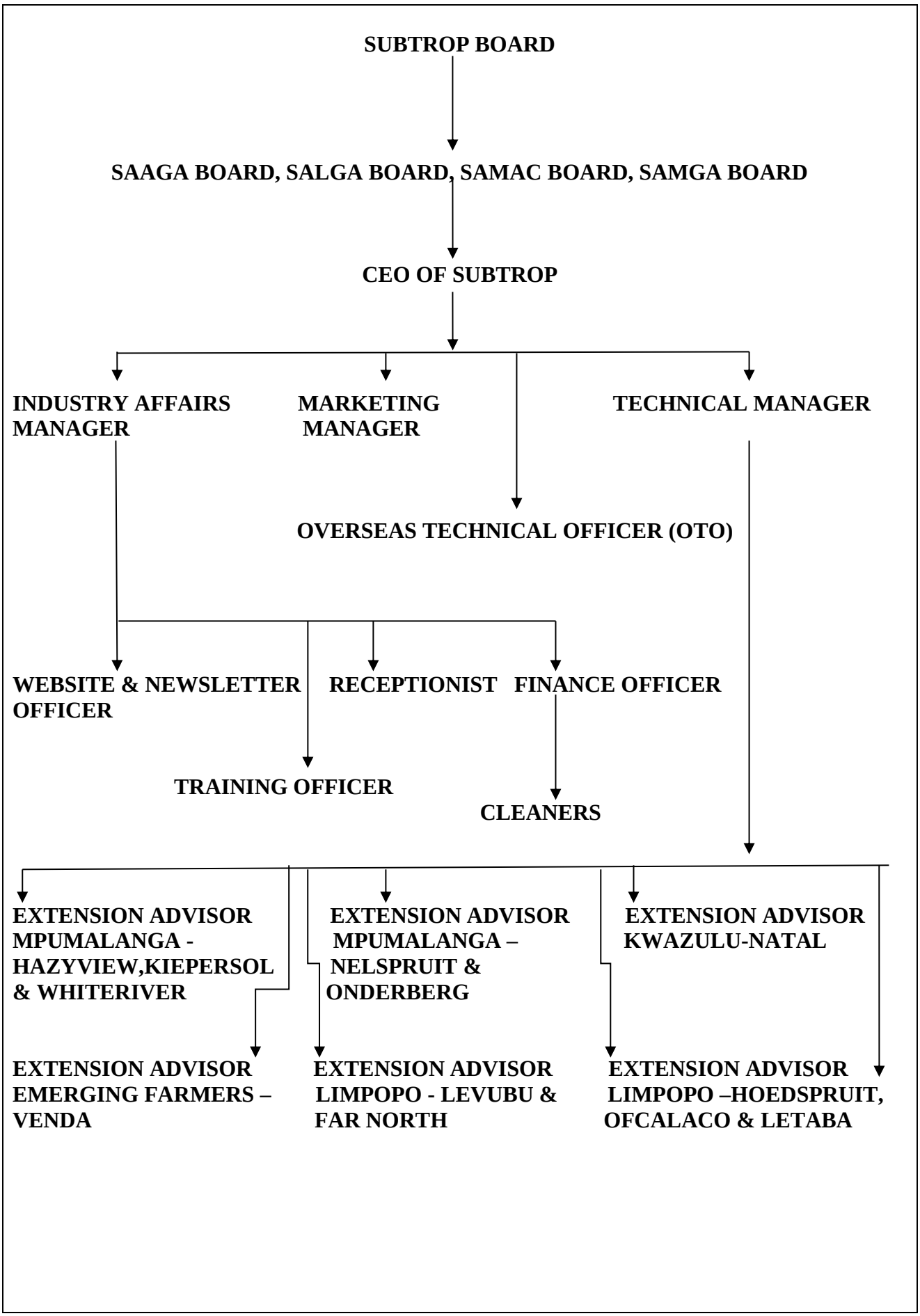


Figure 4.2: The organizational structure of Subtrop

4.3 Profile of Farmer and Extension advisor respondents

4.3.1 Farmer respondents and the commodities they farm with

The farmer respondents consist of two groups 1) farmers and 2) opinion leaders. An opinion leader is a knowledgeable farmer who is accessible to other farmers (Düvel, 1989).

The Subtrop farmer members are distributed as follows:

a) 50 % in the Limpopo provinces,
b) 40 % in Mpumalanga and
c) 10 % in KwaZulu- Natal (Personal communication Subtrop Industry Affairs Manager, 2012).

Subtrop consists of approximately 800 farmer members. In total 127 farmers participated in the survey; yielding a 16% sample size. Table 4.1 provides an overview of the sample of farmers and opinion leaders; while Chart 4.1 presents the farmers and opinion leaders combined. Note that some commodity overlap explains the apparent number errors in Table 4.1.

Table 4.1: Farmer and opinion leader respondents' profile according to the commodities they farm with

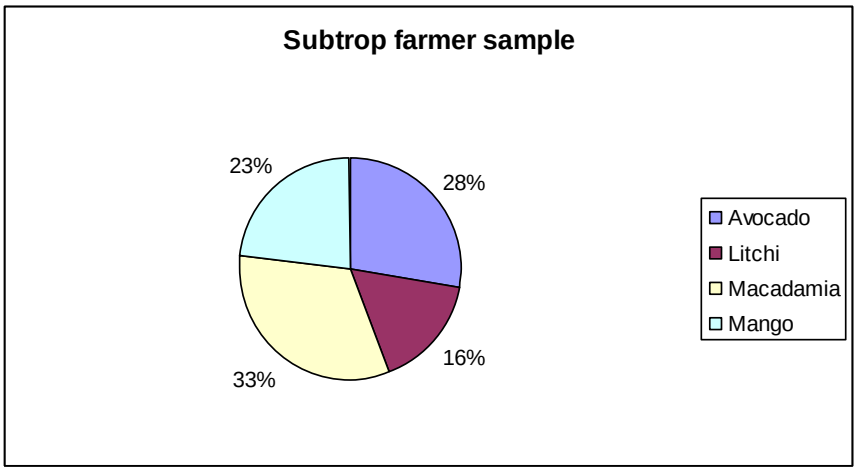
Commodity	Farmers (N)	% within Farmers	Opinion leaders (N)	% within Opinion leaders	Total N	Total %
Avocado	38	26.2%	21	30.9%	59	28%
Litchi	25	17.2%	10	14.7%	35	16%
Macadamia	46	31.7%	24	35.3%	70	33%
Mango	36	24.8%	13	19.1%	49	23%
Total	145	100%	68	100 %	213	100%

*Percentages are based on responses

As demonstrated in both Table 4.1 above and Chart 4.1 below it is clear that the survey sample of respondents consist of:

1. A total of 33% respondents involved with macadamia farming;
2. A total of 28% respondents involved with avocado farming:
3. A total of 23% respondents involved with mango farming; and lastly
4. A total of 16% respondents involved with litchi farming.

Chart 4.1: The combined Subtrop farmer and opinion leader sample group



4.3.2 Farmer respondents and the size of their farm and farming area

In addition to their commodities, farmers were also requested to provide the area under that commodity (ha) and where they farm. The aim of this was to determine and distinguish if there were differences between the commodities, size of farm (larger farms versus smaller to medium farms) and areas with regards to their perceptions on Subtrop. Table 4.2 provides an overview with regards to the commodities, farm size (in terms of the commodity) and the area the farmers farm in. See below Table 4.2 for a definition of farm size.

Table 4.2 yielded the following results:

4.3.2.1 Avocado farms

a) 60 % of the opinion leader respondents farm large farms;
b) 38.2% farm medium sized farms;
c) 35.3% farmer respondents farm smaller farms.

4.3.2.2 Litchi farms

a) Litchi farmers (71.4%) and opinion leaders (80%) respondents indicated to have small size farms;
b) Only 20% of the opinion leader respondents had large litchi farms;
c) Medium size litchi farms resided with 19% farmer respondents;

4.3.2.3 Macadamia farms

a) 47.8% opinion leader and 36.4% farmer respondents farm large macadamia farms.
b) 38.6% farmer and 34.8% opinion leader respondents farm medium sized macadamia farms.

4.3.2.4 Mango farms

a) The majority of both the mango farmers and opinion leaders had large farms (38.2% and 53.8% respectively).

Therefore, the majority of Subtrop farmers and opinion leaders, with the exception of the litchi farmers, farm on medium to large size farms. However, there is a small difference in small and medium size farms for the avocado and mango farmer groups. (See Table 4.2).

Furthermore, the combined farmer and opinion leader respondents, who participated in the survey, farmed with the four commodities in the following areas:

a) **Limpopo – Levubu area**: the commodities farmed are mostly macadamia (46%), avocado (33%), litchi (28%) and mango (7%) to a lesser extent;

b) **Limpopo - Letaba area:** more farmers than opinion leaders farm with avocado (45%), litchi (38%), macadamia (13%) and mango (61%). The Letaba area has all four the Subtrop commodities while macadamia are represented to a lesser extent;
c) **Mpumalanga 1 area:** there were more avocado (13%) and macadamia (13%) farmers while farming with litchi (6%) and mango (4%) was to a lesser extent;
d) **Mpumalanga 2 area**: there were more litchi (22%), mango (26%) and macadamia (10%) farming with avocado (4%) to a lesser extent;
e) **Kwazulu-Natal**: mostly macadamia (18%) farming with litchi (6%), avocado (5%) and mango (2%) to a lesser extent.

Table 4.2: Farmer profile, size of commodity and areas they farm

	AVOCADO		LITCHI		MACADAMIA		MANGO	
Commodity size farm*	**Farmers**	**Opinion leaders**	**Farmers**	**Opinion leaders**	**Farmers**	**Opinion leaders**	**Farmers**	**Opinion leaders**
Small Farms	35.3%	10%	71.4%	80%	25%	17.4%	29.4%	23.1%
Medium Farms	38.2%	30%	19%	0%	38.6%	34.8%	32.4%	23.1%
Large Farms	26.5%	60%	9.5%	20%	36.4%	47.8%	38.2%	53.8%
Area#								
Limpopo – Levubu	31.4%	35%	26.1%	33.3%	47.7%	39.1%	5.9%	8.3%
Limpopo – Letaba	57.1%	25%	43.5%	22.2%	18.2%	4.3%	61.8%	58.3%
Mpumalanga - 1	5.7%	25%	8.7%	0%	4.5%	30.4%	2.9%	8.3%
Mpumalanga – 2	2.9%	5%	21.7%	22.2%	13.6%	4.3%	29.4%	16.7%
KZN	2.9%	10%		22.2%	15.9	21.7%		2.2%

* Small Farm: 1 – 20 ha
Medium Farm: 21 – 50 ha
Large Farm: > 51 ha

Limpopo: Levubu: Soutpansberg, Levubu & Makhado (Louis Trichardt)
Limpopo : Letaba : Agatha, Georges Valley, Tzaneen, Magoebaskloof, Haenertsburg, Politsi, Soekmekaar, Mooketsi, Letsitele, Hoedspruit & Ofcalaco, Deerpark
Mpumalanga 1: Hazyview, Kiepersol, Alkmaar, Nelspruit, Witrivier
Mpumalanga 2: Baberton, Hectorspruit, Malelane, Komatipoort, Onderberg, Schoemanskloof

Charts 4.2(a) – Chart 4.5(b) below represents Table 4.2 visually, farmers and opinion leaders combined. Please note the following key to these charts as described by Table 4.2:

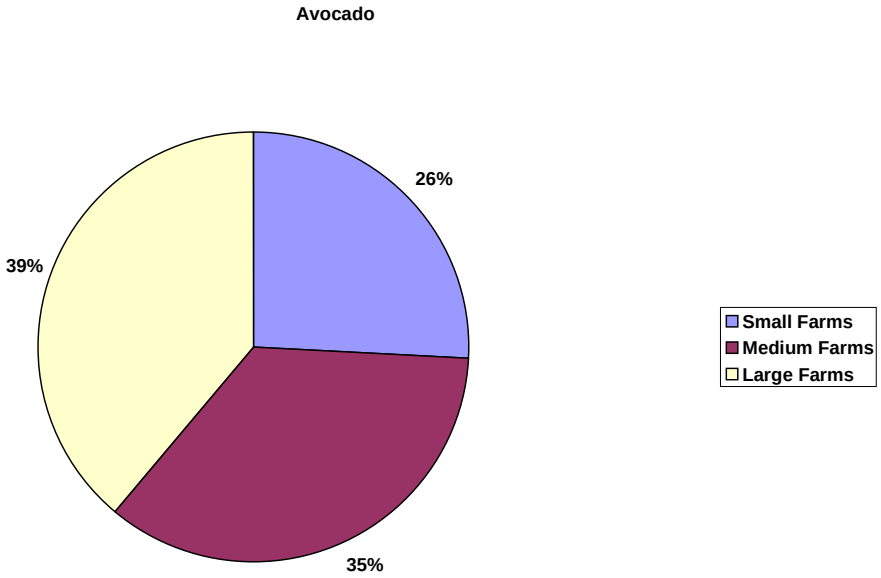
Farm size:
- Small Farm: 1 – 20 ha
- Medium Farm: 21 – 50 ha
- Large Farm: > 51 ha

Areas:

- **Limpopo: Levubu**: Soutpansberg, Levubu & Louis Trichardt
- **Limpopo : Letaba** : Agatha, Georges Valley, Tzaneen, Magoebaskloof, Haenertsburg, Politsi, Soekmekaar, Mooketsi, Letsitele, Hoedspruit & Ofcalaco, Deerpark
- **Mpumalanga 1**: Hazyview, Kiepersol, Alkmaar, Nelspruit, Witrivier
- **Mpumalanga 2**: Baberton, Hectorspruit, Malelane, Komatipoort, Onderberg, Schoemanskloof

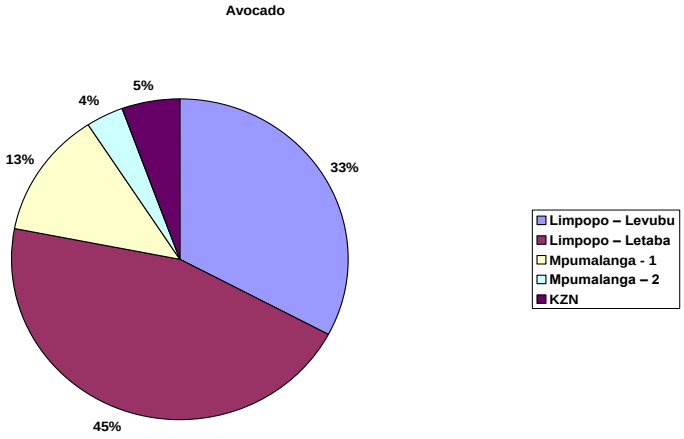
Avocado:

Chart 4.2(a): Avocado farmers and opinion leaders versus farm size



From Chart 4.2(a) it can be seen that the avocado survey sample comprised of 26 % small farms, 35 % medium farms and 39 % large farms.
In Chart 4.2(b) below the areas represented in the avocado survey were 33 % Limpopo – Levubu area, 45 % Limpopo – Letaba area, 13 % Mpumalanga area 1, 4 % Mpumalanga area 2 and 5 % KwaZulu-Natal.

Chart 4.2(b): Avocado farmers and areas of participation in survey



Litchi:

The litchi survey sample as seen by Chart 4.3(a) below comprised of 13 % small farms, 13 % medium farms and 74 % large farms.

The areas involved were 28 % Limpopo-Levubu, 38 % Limpopo – Letaba, 6 % Mpumalanga 1, 22 % Mpumalanga 2 and 6 % KwaZulu-Natal. This is illustrated in Chart 4.3(b) below.

Chart 4.3(a): Litchi farmers and opinion leaders versus farm size

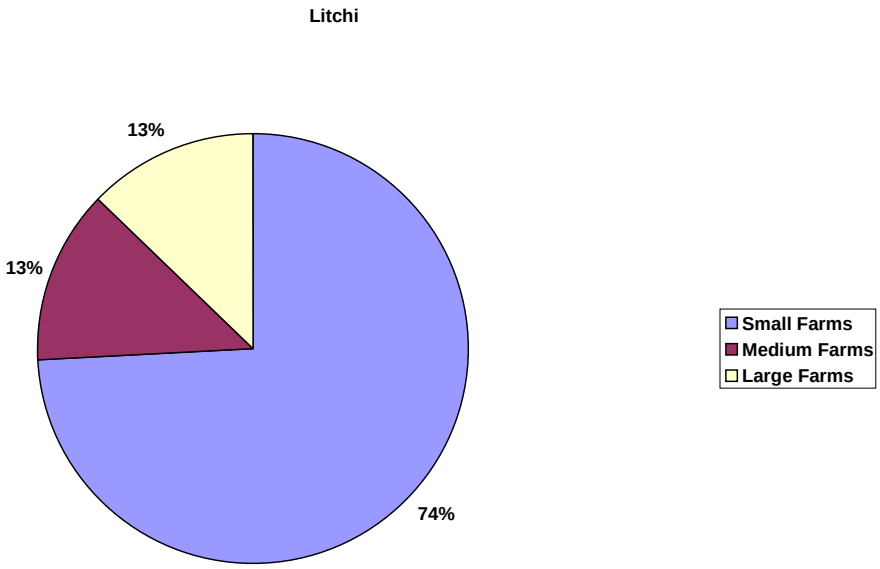
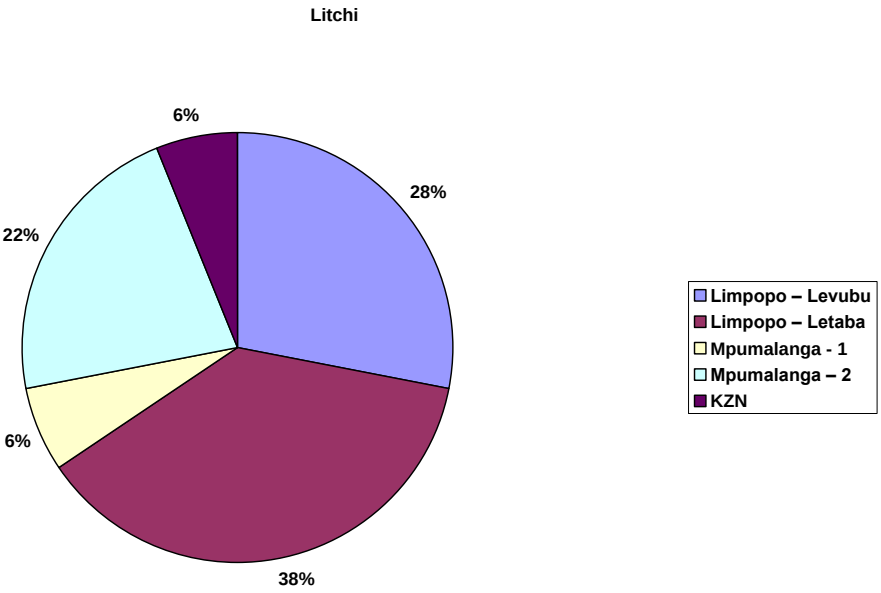


Chart 4.3(b): Litchi farmers and areas of participation in survey



Macadamia:

As can be seen from Chart 4.4(a) below, the macadamia survey involved 22 % small farms, 37 % medium farms and 41 % large farms.
Chart 4.4(b) below illustrates the areas involved. Limpopo-Levubu comprised of 46 %, Limpopo-Letaba 13 %, Mpumalanga 1 13 %, Mpumalanga 2 10 % and KwaZulu-Natal 18 %.

Chart 4.4(a): Macadamia farmers and opinion leaders versus farm size

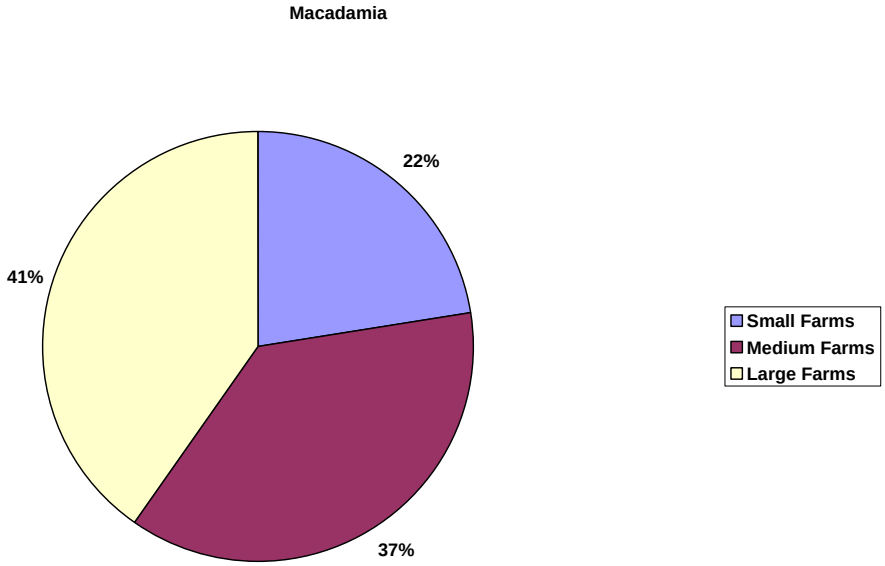
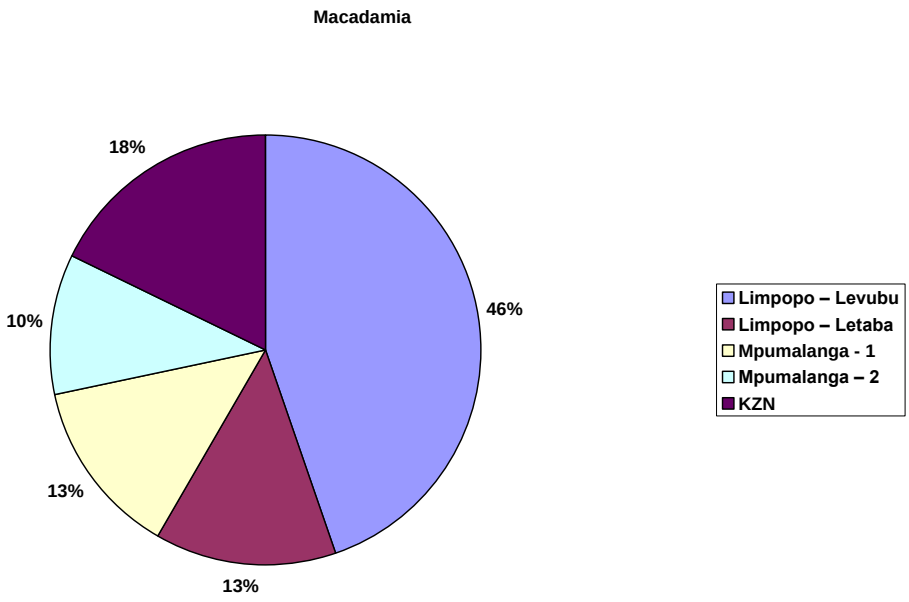


Chart 4.4(b): Macadamia farmers and areas of participation in survey



Mango:

Lastly the mango survey, as illustrated by Chart 4.5(a) below, involved 28 % small farms, 30 % medium farms and 42 % large farms.
The areas involved were Limpopo-Levubu 7 %, Limpopo-Letaba 61 %, Mpumalanga 1 4 %, Mpumalanga 2 26 % and KwaZulu Natal 2 %. The areas involved are illustrated in Chart 4.5(b).

Chart 4.5(a): Mango farmers and opinion leaders versus farm size

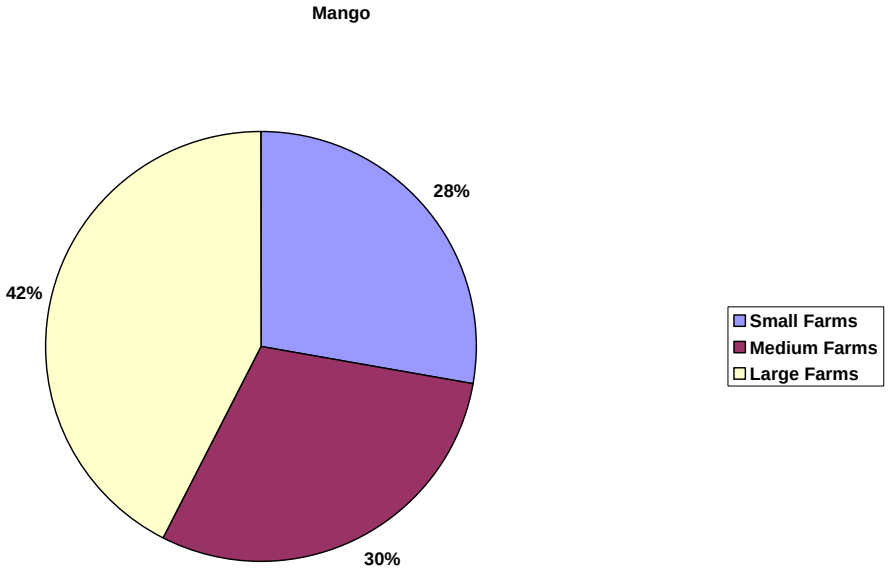
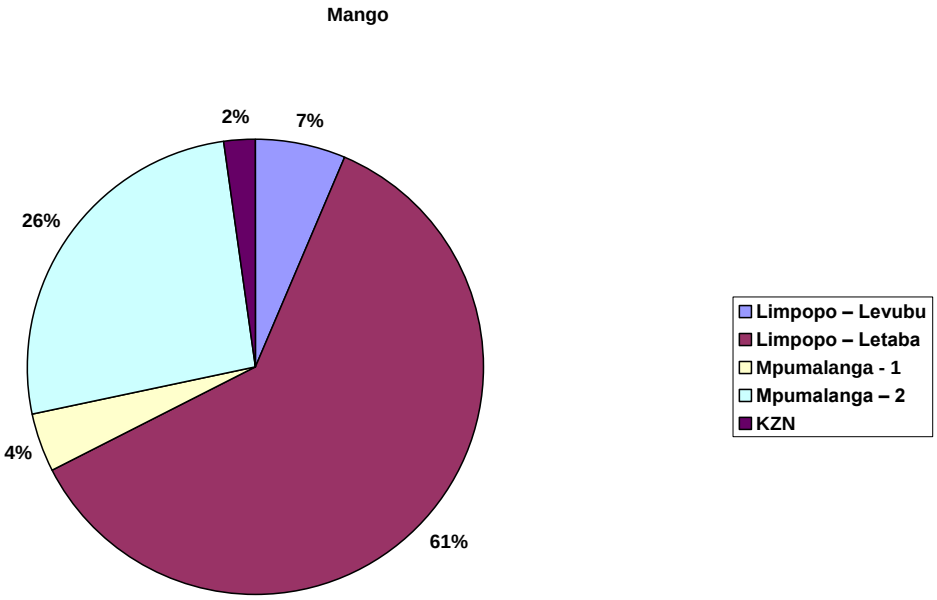


Chart 4.5(b): Mango farmers and areas of participation in survey



4.3.3 Respondents knowledge and perception with regards to the Subtrop organization and their managers

Respondents were questioned on their knowledge of Subtrop and its management. Table 4.3 gives a summary of the results to this.

According to Table 4.3, 64% of the farmers did not know who the CEO of Subtrop was in comparison to the 22% of opinion leaders who did not know. Furthermore 88% of farmers did not know who the Industry Affairs Manager of Subtrop was in comparison to the 49% of opinion leaders who did not know.

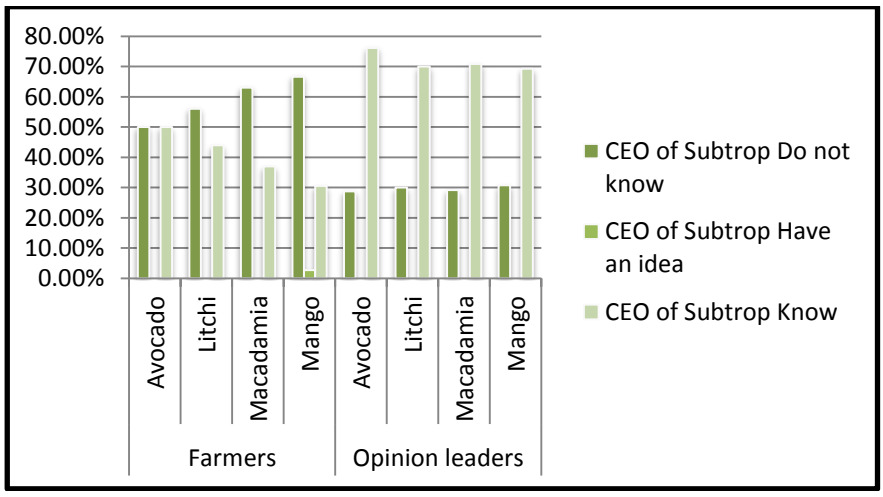
Table 4.3: Farmer knowledge and perception of the Subtrop organization and the management of Subtrop

	CEO		Industry Affairs Manager		Perception of Subtrop	
	Farmers	**Opinion leaders**	**Farmers**	**Opinion leaders**	**Farmers**	**Opinion leaders**
Do not know	64%	22%	88%	49%	64%	35%
Have an idea	1%	0%	0%	3%	21%	14%
Know	34%	78%	12%	49%	15%	51%

The same trend followed with regards to the farmer's perception of Subtrop itself. A total of 64 % of the farmers did not know what Subtrop was and 35 % of the opinion leaders did not know.

It must be noted, that the risk of misinterpretation of this question was reduced because it was explained during the farmer group interviews. However, with regards to the opinion leaders nothing could be explained as the questionnaire was e-mailed to them. However, despite this the opinion leaders had a better understanding of Subtrop.

Cross-tabulations were done between the different commodities', farmer and opinion leader respondents to determine which commodity respondents were the most knowledgeable. Figure 4.3 demonstrates the results on the different commodity respondents' knowledge of the CEO of Subtrop.



*Percentages are based on responses

Figure 4.3: Farmer and opinion leaders of each commodities and their knowledge of the CEO of Subtrop

According to Figure 4.3 the following results were indicated:

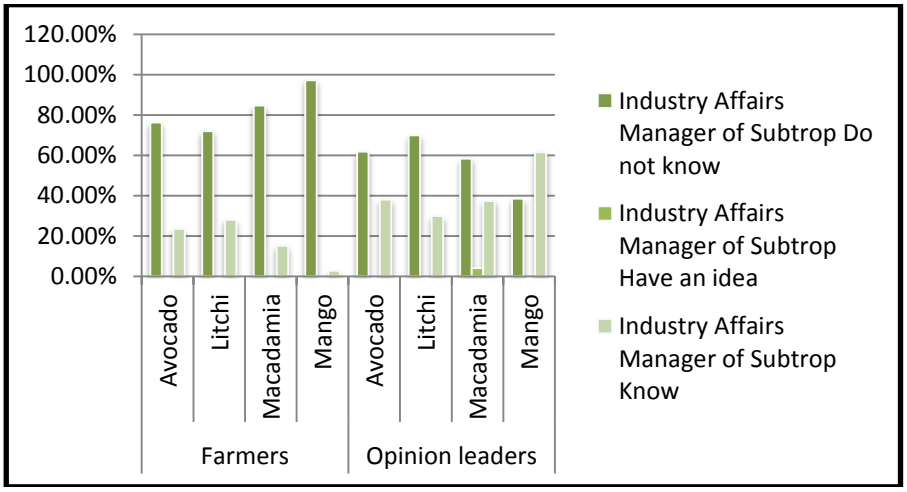
a) More than 50% of farmer respondents from all four commodities did not know the CEO of Subtrop;
b) More than 60% of opinion leader respondents from all four commodities did know the CEO of Subtrop;
c) The SAAGA respondents were the most aware, with 50% farmer and 76% opinion leader respondents who knew the CEO of Subtrop;
d) The SAMGA respondents were the most unaware, with 31% farmer and 69% opinion leader respondents who knew the CEO of Subtrop;
e) Less SALGA farmers (56%) than SAMAC farmers (63%) did not know who the CEO of Subtrop was;
f) Similar ratings - 70% SALGA and 71% SAMAC – were achieved for opinion leader respondents who knew the CEO of Subtrop.

Therefore, it is clear that 50% of farmer respondents of all four commodities did not know who the CEO of Subtrop was and 60% of opinion leaders from all four commodities did know who he was.

The same trend followed with regards to the Industry Affairs Manager and Figure 4.4 provides the results. As demonstrated by Figure 4.4 below the following results were indicated:

a) More than 60% of farmer respondents did not know the Industry Affairs Manager;
b) More than 50% of SAAGA, SALGA and SAMAC opinion leader respondents did not know the Industry Affairs Manager;
c) A total of 60% of SAMGA opinion leaders did know the Industry Affairs Manager;
d) SAMGA farmers were 97% unaware and SALGA farmers 72% unaware of who the Industry Affairs Manager of Subtrop was;
e) SALGA opinion leaders were 70% unaware and SAAGA and SAMAC opinion leaders achieved similar ratings of 62% and 58% respectively for not knowing who the Industry Affairs Manager of Subtrop was;
f) A total of 62% of SAMGA opinion leaders did know the Industry Affairs Manager of Subtrop.

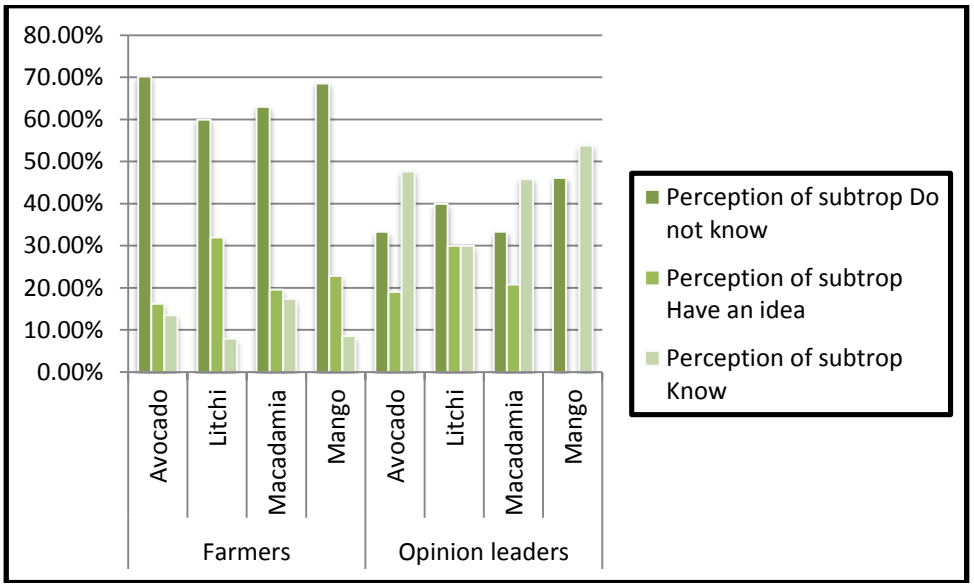
Therefore, it is clear that 50% farmers and opinion leaders from all four commodities did not know the Industry Affairs Manager of Subtrop with only SAMGA opinion leaders who did know the Industry Affairs Manager of Subtrop.



*Percentages are based on responses

Figure 4.4: Farmer and opinion leaders of each commodities and their knowledge of the Subtrop Industry Affairs Manager

Cross-tabulations on the perception of farmer and opinion leader respondents of Subtrop, is presented in Figure 4.5 below.



*Percentages are based on responses

Figure 4.5: Farmer and opinion leader respondents of each commodity and their perception of Subtrop

As demonstrated by Figure 4.5, more than 50% of farmer respondents of all four commodities were unsure of exactly who and what Subtrop was. SAMGA opinion leaders had more than 50% who knew who and what Subtrop was. Therefore, the majority of farmer respondents of all four commodities did not know who and what Subtrop was. Although the opinion leaders had a better understanding of Subtrop it was still low percentages of this group who knew what and who Subtrop was.

It is then clear from the above mentioned results that there is a considerable level of ignorance amongst the farmers and to a lesser extent amongst the opinion leaders to exactly what Subtrop is and who the management of Subtrop are.

In summary:

a) The survey sample comprised of 28 % Avocado farmers, 16 % Litchi farmers, 33 % Macadamia farmers and 23 % Mango farmers.
b) More farmers with large farms participated in the avocado, macadamia and mango survey, while more litchi farmers with small farms participated in the survey.
c) Limpopo- Levubu and Limpopo-Letaba had the highest participation in the survey with regards to avocado and litchi.
d) Limpopo- Levubu and KwaZulu-Natal had the highest participation with regards to macadamia.
e) Limpopo-Letaba and Mpumalanga 2 had the highest participation with regards to mango.
f) There is still ignorance amongst the farmers with regards to Subtrop's management and what Subtrop entails.

CHAPTE FIVE

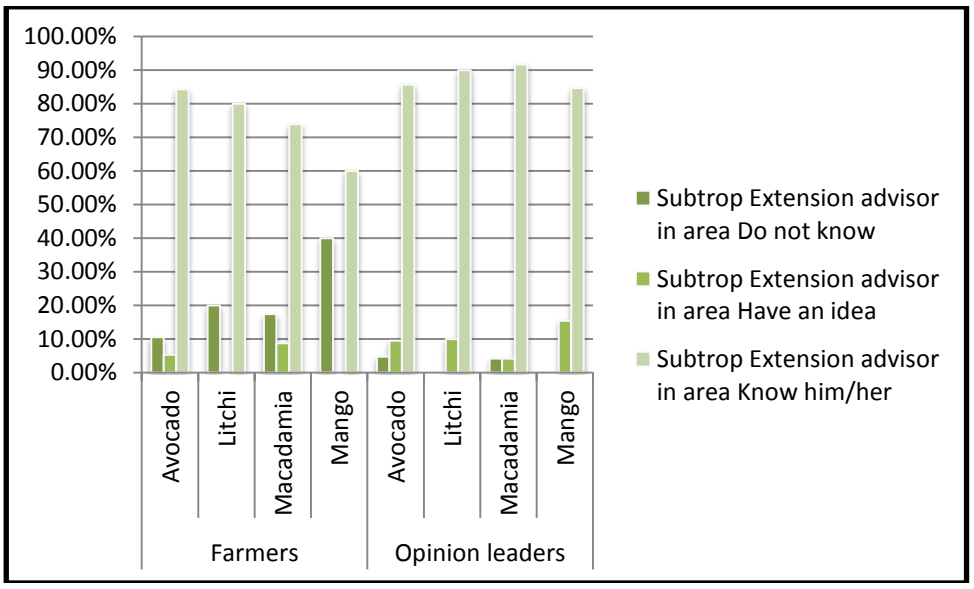
FARMER AND OPINION LEADER RESPONDENTS KNOWLEDGE AND PERCEPTION OF SUBTROP AND ITS SERVICES

5.1 SECTION A: SUBTROP TECHNICAL SERVICES

5.1.1(a) The Extension Advisory Service and their advisors

The questions in this section aim to determine the respondents' perceptions and their expectations of the extension advisors in Subtrop. Respondents also had to rate the extension services before and after the Subtrop amalgamation. It can be argued that the respondents had to be familiar with the extension advisors to answer these questions with credibility. Therefore, the first two questions set out were to determine if the respondents knew the extension advisors and for how long. The majority of the farmer and opinion leader respondents participated in these two questions (99% and 93% respectively).
A total of 71% of the farmers knew their extension advisor, and 25% farmers did not know their extension advisor.
On the other hand 92% of the opinion leaders knew their extension advisor.
Furthermore, 37% of the farmers knew their extension advisor more than two years, 29% between one to two years and 21 % of the farmers less than one year.
However, 74% of the opinion leaders knew their extension advisor more than two years, 17% between one to two years and only 9% less than one year.

Cross-tabulations were done to determine which commodity's respondent groups were the most knowledgeable, with regards to the extension advisor in their areas. Figure 5.1 below presents the results and it is clear that more than 60% of farmers and opinion leaders of all four commodities, were well aware of who the respective extension advisor in their areas was.



*Percentages are based on responses

Figure 5.1: Farmer and opinion leader's knowledge of who their extension advisor is

Only in the SAMGA (mangoes) group of respondents did 40% of farmers not know who their advisor was. This could possibly be attributed to the fact that the extension advisor's position in the Mpumalanga 2 area has been filled three times in five years.

The above results confirmed that both farmers and even more the opinion leaders were well acquainted with the extension advisors in their area. Therefore, these results prove their credibility in answering further questions in this section. It is also interesting (but understandable) to note that the extension advisors were more known to the respondents than the CEO and the Subtrop Industry Affairs Manager. It can be suggested that the extension advisors are the face of Subtrop, the link between a variety of role players.

5.1.1(b) Ratings of individual, group and mass media techniques (services) the extension advisors provide to their farmer and opinion leader members

The following question in this section set out to determine if the respondents use the extension advisors and for what purpose. The majority of respondents, namely 72% farmers and 87% opinion leaders indicated they use the extension advisors. Table 5.1 provides a summary for which purpose the respondents use the extension advisors and the importance of that service. The Fischer's Exact test was done on each one of the individual and group media services. There were no statistical differences between the farmer and opinion leader respondents' ratings. Therefore, it is implicated that both respondent groups agreed on the importance of some of the services the extension advisors provided.

Table 5.1: The extent to which farmer and opinion leader respondents rated the services they received as important and very important

Purpose / Services	**Rating categories (%)**	
Individual services (No. = number of respondents who answered this question)	**Important (No. = number of respondents)**	**Very Important (No. = number of respondents)**
Advice on farm practises (No. = 89)	20% (No. = 18)	54% (No. = 48)
Global GAP (No. = 82)	17% (No. = 14)	26% (No. = 21)
Fertilizer recommendations (No. = 86)	29% (No. = 25)	26% (No. = 22)
General information (No. = 87)	46% (No. = 40)	36% (No. = 31)
Demonstration on farm (No. = 84)	35% (No. = 29)	26% (No. = 22)
Farm visits (No. = 89)	35% (No. = 31)	38% (No. = 34)
Group and mass media techniques		
Study groups (No. = 94)	27% (No. = 25)	69% (No. = 65)
Demonstrations at study groups (No. = 92)	37% (No. = 34)	58% (No. = 53)
Newsletter articles (No. = 90)	39% (No. = 35)	52% (No. = 47)

Table 5.1 demonstrates that both farmers and opinion leaders' rated advice on farm practises (54%), farm visits (38%) and general information (36%) as very important with values > 30%. If a rating of > 50 % is used then it is clear from Table 5.1 that the group and mass media techniques (all > 50%) are very important. However, on the individual services only advice on farm practises received a rate (54%) higher than 50% as very important. Therefore, it can be concluded that the farmers and opinion leaders indicated that the group techniques as well as individual advice on farm practises as their preferred approach of the Extension Services of Subtrop.

These results agree with a survey done amongst small scale farmers in Florida, USA. In this survey farmers indicated group media, for example county workshops, as preferred channel to obtain information (Gaul, Hochmuth, Israel & Treadwell, 2009). However, when information on new farming practises and marketing strategies were required, personal contact with extension advisors were preferred (Gaul *et. al*, 2009). Research done in California (USA) and Australia also indicated a relationship between farming practices and source of information used by farmers (Buchner, Grieshop, Connell, Krueger, Olson, Hasey, Pickel, Edstrom, Yoshikawa, 1996; Vanclay, 2004). These studies also indicated that farmers still prefer personal contacts.

Cross-tabulations were made between the farmer and opinion leader respondents of the different commodity groups and the services the extension advisors provide. The aim was to determine which of the extension services the different commodity groups rated as the most important. The Fischer's Exact Test was performed to validate statistically significant differences. The following results were concluded:

i) Individual extension services as rated by the different commodity groups' respondents:

- SAAGA respondents (n = 45-48 out of 55 (76% - 80%)):
  - General information (82%);
  - Advice on farm (74%);
  - Farm visits (74%);
  - GlobalGap (68%);
  - There were no significant statistical differences between the two respondent groups' ratings in the SAAGA group.
- SALGA respondents (n = 23 – 27 out of 31 (66% - 71%)):
  - General information (82%);
  - Advice on farm (73%);
  - Farm visits (78%);
  - Farm visits were 22% more important to opinion leader respondents than farmer respondents.
  - Only farmer respondents indicated GlobalGap and fertilizer recommendations more than 60% important.
  - There were no significant statistical differences between the two respondent groups' ratings in the SALGA group.
- SAMAC respondents (n = 47 -54 out of 66 (67% - 77%)):
  - General information (87%);
  - Advice on farm (83%);
  - Farm visits (73%);
  - Farm visits were 8% more important to farmer than opinion leader respondents.
  - More than 70% of farmers also indicated demonstrations on farm as important and there was a significant statistical difference between the farmer and opinion leader respondents with a Fischer's Exact test value:(6.438, p = 0.027).
  - Furthermore, 61% of farmers and only 32% of opinion leaders indicated Globalgap as important, with the Pearson's Chi-Square value: (5.630, p = 0.059). This indicates a statistical difference at the 10% level of significance, between the two respondent groups with regards to this service.

- SAMGA respondents (n = 30 – 33 out of 49 (61% - 67%)):
    - General information (77%);
    - Advice on farm (58%);
    - Farm visits (73%);
    - Demonstrations on farm (53%);
    - There were no statistical differences between the two respondent groups' ratings in the SAMGA group.

ii) Group extension services:

- SAAGA respondents (n = 46 – 48 out of 55 (78% - 81%)):
    - Study groups (96%);
    - Demonstrations on study groups (94%);
    - Newsletters (96%);
- SALGA respondents (n = 26-27 out of 31 (71% - 74%)):
    - Study groups (100%);
    - Demonstrations on study groups (96%);
    - Newsletters (96%);
- SAMAC respondents (n = 53 – 57 out of 66 (76% - 81%)):
    - Study groups (96%);
    - Demonstrations on study groups (98%);
    - Newsletters (92%);
- SAMGA respondents (n = 30 – 33 out of 49 (61% - 67%)):
    - Study groups (94%);
    - Demonstrations on study groups (90%);
    - Newsletters (91%);

Therefore, the cross-tabulation results are in agreement with Table 5.1.

Twenty three of the respondents indicated they do not use extension advisors. The most important reasons were: -

- unfamiliar with extension advisors (n = 14);
- did not think of asking the extension advisor (n = 12); and
- other reasons (n = 5).

The most important other reason was the use of consultants.

5.1.1(c) Assessments of the extension advisors according to the farmer and opinion leader respondents

The respondents rated the extension advisors on their professionalism and technical knowledge, as well as Extension Services before and after the Subtrop amalgamation. Table 5.2 below presents the results to these above mentioned questions. The Fischer's Exact test was done on each one of the criteria mentioned in Table 5.2 below. There were no statistical differences between the farmer and opinion leader respondents' ratings. Therefore, it is implicated that both respondent groups share similar perceptions on the extension advisors and the Extension Service before and after the Subtrop amalgamation.

Table 5.2: The rating of the Subtrop extension advisors and the Extension Service before and after the Subtrop amalgamation

Criteria	Number of respondents who answered this question (out of 127 farmers)	Farmers (number of respondents)		Opinion leaders (number of respondents)		Total percentage (%) of farmers + opinion leaders (number of respondents)	
The Extension Advisor		Above average	Excellent	Above average	Excellent	Above average	Excellent
1. Professionalism	107 (84 %)	38% (27)	53% (38)	34% (12)	60% (21)	36% (39)	55% (59)
2.Technical knowledge	104 (82 %)	41% (29)	46% (32)	27% (9)	59% (20)	37% (38)	50% (52)
Extension service:							
(i) before Subtrop	87 (69 %)	41% (22)	20% (11)	21% (7)	9% (3)	33% (29)	16% (14)
(ii) after Subtrop	96 (75%)	56% (34)	31% (19)	37% (13)	40% (14)	49% (47)	34% (33)

It is clear from Table 5.2 that the Subtrop extension advisors were rated high in both their professionalism(55% excellent) and technical knowledge (50% excellent); while the Extension Service after the Subtrop amalgamation received a higher rating (34% excellent) than before the Subtrop amalgamation (16% excellent), which results in a 18% increase. However, when the above average and excellent ratings were combined, it can be stated that it resulted in the following as above average:

- Professionalism of extension advisors: 91% above average;
- Technical knowledge of extension advisors: 87% above average;
- Extension Service before Subtrop amalgamation: 49% above average; and
- Extension Service after Subtrop amalgamation: 83% above average.
- This results in a 34% increase in the Extension Service rating before and after the Subtrop amalgamation.

Therefore, the extension advisors and the Extension Service were rated high as mentioned earlier. However, Subtrop's vision is to provide an excellent service. These results indicate there is still room for improvement.

It was investigated if there was a relationship between the period the two groups of respondents were familiar with the extension advisors and their ratings of the extension advisors. Cross tabulations and The Fischer's Exact Test were performed to validate any statistical significant differences. Table 5.3 below provide the results to the rating of the extension advisors with regards to their professionalism and the period the respondents are familiar with them.

Table 5.3 The farmer and opinion leader respondents' ratings of the professionalism of extension advisors and the period they were familiar with extension advisors

	Criteria	Rating		Respondent familiar with extension advisor				Total
				Do not know him	Less than 1 year	1 - 2 years	More than 2 years	
Farmers	**Professionalism of extension advisor**	**Below average**	number of respondents	1	0	0	0	1
		Average	number of respondents	0	3	3	0	6
		Above average	number of respondents	1	13	17	31	62
			Total	**2**	**16**	**20**	**31**	**69**
Opinion leaders	**Professionalism of extension advisor**	**Below average**	number of respondents	0	0	0	0	0
		Average	number of respondents		1	1	0	2
		Above average	number of respondents		1	5	26	32
			Total		**2**	**6**	**26**	**34**

Fischer's Exact Test Farmers: 15.4, p = 0.04 / Fischer's Exact Test Opinion leaders: 8, p = 0.023

A total of 69 (77%) out of 90 farmers participated in this question and 34 (92%) out of 37 opinion leaders.

It is clear from Table 5.3 that both respondent groups rated the extension advisor's professionalism as above average (31 farmers & 26 opinion leaders) the longer the period (>2years) they were familiar with the extension advisor.

There was a significant statistical difference between these above mentioned criteria, with the Fischer's Exact Test value: (15.4, p = 0.04) for the farmers and (8, p = 0.023) for the opinion leaders.

The rating of the technical knowledge of the extension advisors resulted in similar results.

A total of 67 (74%) out of 90 farmers and 33 (89%) out of 37 opinion leaders participated in this question.

The longer the period (> 2 years) the extension advisor were familiar with both respondent groups the higher (30 farmers & 26 opinion leaders as above average) the extension advisor's technical knowledge were rated.

The Fischer's Exact Test value for the farmers was: (9.6, p = 0.013) and (19, p < 0001) for the opinion leader respondents. Therefore, indicating a highly significant relationship between the period the extension advisor was known to the different respondent groups and the ratings of the extension advisors' technical knowledge. The above mentioned results confirmed earlier findings which confirm the two respondent groups' ability and credibility to rate the extension advisors on their professionalism and technical knowledge.

Cross-tabulations were also done on the ratings of the Extension Services before and after the amalgamation and the period the extension advisors were familiar with the two groups of respondents. A total of 51 (57%) out of 90 farmers and 32 (87%) out of 37 opinion leaders participated in the question to rate the Extension Services before the Subtrop amalgamation. There was no correlation (Fischer's Exact Test: 4.07, p = 0.753) between the period the extension advisor was familiar with the farmer respondent and the rating of Extension Services before the Subtrop amalgamation. However, the opinion leaders' ratings did prove to have a significant correlation between the rating of services and the period the extension advisors were familiar with them, with the Fischer's Exact Test value: (8.5, p = 0.019).

The ratings of Extension Services after the amalgamation and the period the extension advisor were familiar with the two groups of respondents, indicated a correlation between the ratings of farmer respondents and the period the extension advisors were known to them with the Fischer's Exact Test value: (11.8, p = 0.048). There were no correlations between the opinion leader respondents' ratings and the period they were familiar with the extension advisors. A total of 58 (64%) out of 90 farmers and 34 (91%) out of 37 opinion leaders participated in this question. However, in both ratings of before and after the amalgamation, the extension services were rated towards the higher scale (above average) the longer (> 2 years) the extension advisors were familiar with the respondents.

A set of criteria was submitted to the respondents asking what they expected the Subtrop extension advisors to provide. A total of 90 % of respondents answered this question. Table 5.4 below presents the results with only the important and very important ratings of each criteria. The Fischer's Exact test was done on each criteria and there were no statistical differences between the farmer and opinion leader respondent group's ratings. Therefore, it can be stated that the two respondent groups share similar perceptions on the criteria mentioned in Table 5.4 below.

The following criteria were rated as very important to both respondent groups, as can be seen from Table 5.3 below:

- Up to date with the newest technologies (80%);
- Awareness of the latest developments with regards to chemicals (64%);
- Extension advisors' involvement with researchers, to strengthen the link between farmer and researcher (59%)

The following criteria were indicated by both respondent groups as important:

- What the extension advisors are currently doing is satisfactory (63%);
- Self-improvement of extension advisors (54%);
- Extension advisors must have an idea of farm practises (48%)

Table 5.4: Respondents expectations of what the Subtrop extension advisors should be engaged with

Criteria	Farmers (% & no. of respondents)		Opinion leaders (% & no. of respondents)		Total (% & no. of respondents)	
	Important	Very important	Important	Very important	Important	Very important
Up to date with newest technologies	17% (14)	81% (69)	22% (8)	78% (29)	18% (22)	80% (98)
Aware of latest development in chemicals	35% (30)	62% (53)	27% (10)	68% (25)	33% (40)	64% (78)
Have an idea of farm practises and their costs involved	48% (40)	45% (38)	47% (17)	44% (16)	48% (57)	45% (54)
Involved in government developments	28% (22)	23% (18)	32% (12)	11% (4)	29% (34)	19% (22)
Involved with researcher to strengthen link between farmer & researcher	37% (30)	61% (50)	43% (16)	54% (20)	39% (46)	59% (70)
Frequent farm visits	45% (37)	42% (34)	39% (14)	31% (11)	43% (51)	38% (45)
Improve own knowledge (training)	56% (45)	40% (32)	51% (19)	43% (16)	54% (64)	41% (48)
Give feedback on what is happening at board level	43% (34)	29% (23)	35% (13)	30% (11)	40% (47)	29% (34)
What advisors are doing currently is fine	62% (37)	28% (17)	65% (20)	13% (4)	63% (57)	23% (21)

Furthermore, cross-tabulations were done to determine if there were correlations between the time period the extension advisor were familiar with respondents and the ratings of the respondents with regards to what they indicated the extension advisors should do. The following results were indicated:

- There was a correlation between the involvement with government developments and the time period the extension advisors were familiar with farmer respondents, with a Fischer's Exact test value: (12.8, p = 0.004). The farmers indicated this aspect as not important (51%) the longer (>2 years – 73%) they were familiar with extension advisors. There were no correlations within the opinion leader group.
- There was a correlation between what the advisors are currently doing is satisfactory and the time period the extension advisors were familiar with farmer respondents. The Fischer's Exact test value: (7.5, p = 0.032) and indicated this aspect as important (44%) the longer (>2 years – 96%) they were familiar with extension advisors. There were no correlations within the opinion leader group.

- There were no correlations found within the other criteria and the period the extension advisors were familiar with the respondents.

Table 5.5 presents an example of the cross-tabulations with regards to the time period the extension advisors were familiar with respondent groups and one criterion the respondents had to indicate what they expected the extension advisors should be engaged with.

Table 5.5: An example of a cross-tabulation with regards to farmer respondents' preference on what the extension advisors should do and the time period they were familiar with the extension advisors

What in your opinion should the extension advisors do?				How long have you known the Subtrop Extension Advisor?				
				Do not know him	> 1 year	1 - 2 years	< 2 years	Total
Respondent group	**Criteria**	**Not important**	**N**	2	2	1	1	6
				67%	13%	6%	4%	10%
Farmers	**What the advisors currently doing is fine**							
		Important						
			N	1	13	15	23	52
				33%	87%	94%	96%	90%
			Total	3	15	16	24	58

Fischer's Exact test value: 7.5, p = 0.032

Cross-tabulations were also done to determine if the technical knowledge ratings of extension advisors had any correlations with the ratings of the respondent groups on what the extension advisors should be doing, with respect to the importance of training / self-improvement (Table 5.4). No correlations were found between the farmer respondents' ratings on the technical ratings of extension advisors and the importance of self-improvement. However, there was a correlation between the opinion leader respondents' ratings of the technical knowledge of the extension advisors and the importance of self-improvement. The Fischer's Exact test value was: (10.9, p = 0.007) and the opinion leaders (n= 34 out of 37 respondents / 92%) indicated a 100% above average rating on the technical knowledge of extension advisors with a 90.63% important rating of self-improvement. Therefore, it can be stated that the opinion leader group of respondents realized the value and importance of self-improvement and training to sustain an excellent Extension Service.

It can be argued that if it is expected from extension advisors to be up to date with the newest technologies it should be very important for them to know what is currently happening on farm; and therefore have a good knowledge and understanding of farm practises and their costs involved. How else should it be possible to judge whether a new technology will be viable and sustainable to farmers? Diekmann and Batte (2011) noted that relevant information is crucial to a farmer's financial and farming success. Yet, in both Tables 5.1 and Table 5.4 farm visits received low ratings (Very important - Table 5.1: 38 % & Table 5.4: 38 %). It is also expected of the extension advisors to provide advice on farm practises (Very important - Table 5.1: 54 %). However, in order to provide a better service, extension advisors should receive training to improve themselves. As mentioned above, only 54 % of farmers and opinion leaders rated this as important but not as very important. However, from the cross-tabulations it was clear that the opinion leaders, who rated the extension advisor's technical knowledge as above average, also rated self-improvement as important; therefore indicating that training is important to them. Chapman and Tripp (2003) stated

that privatised or public extension will only be effective if the quality of extension services adhere to certain qualities. Some of these qualities included educated, trained and motivated extension advisors. It was also stated that the on-going investment and education of extension advisors were necessary to maintain excellent extension services. Terblanché (2006 & 2008) also noted the importance of extension advisors being technically competent. He also stressed the importance of continuing their development professionally.

The farmer and opinion leader respondents were asked if the extension advisors are still needed in the Subtrop context. A total of 94% of all respondents indicated that the extension advisors are still needed. These results are reflected in other industries, for example the wine (Oranjerivier Wynkelders: OWK) and raisin (Droëvrugte Tegniese Dienste: DTD) industry of South Africa who amalgamated in 2010 to join forces and save costs, as the production requirements for both industries were the same. One of the main reasons for the amalgamation was a request made by the farmers of DTD to have an extension service, as before deregulation (Groente & Vrugte magazine, Oct/Nov 2010:9). Therefore, an extension service is valued by farmers, as proved by the Subtrop survey results.

The respondents were also requested to indicate if farm visits are important and a total of 95% of all respondents indicated that farm visits are important. The most important reasons were:

- Extension advisor needs on-farm exposure (100% farmers & 100% opinion leaders);
- Necessary to visit farmers to build relationships (98% farmers & 100% opinion leaders);
- Extension advisors see other farms; can share what they see with other farmers (97% farmers & 100% opinion leaders).

Therefore, when the total percentages of important and very important are added up (Table 5.4) 81% of respondents indicated farm visits as important in contrast with 95% of respondents, mentioned above, who answered a separate question on the importance of farm visits. Therefore, in comparison to the criteria listed in Table 5.4, farm visits rated slightly lower.

After the Subtrop amalgamation complaints were received from individual board members and farmers that extension advisors do not visit them. Therefore, the survey posed this question. Another reason to this question was to validate the respondents' acquaintances with the extension advisors, as posed earlier in the survey. Most of the respondents (74 %) indicated they did receive a visit from their extension advisor. The Fischer's Exact Test was done to determine if there was a difference between the farmer and opinion leader respondents' indication on farm visits received. The Fischer's Exact Test value was: (8.9, $p = 0.006$), and therefore smaller than 0.05. These results indicate a significant statistical difference between farm visits received by farmer and opinion leader respondents. Therefore, 91% of the opinion leaders received farm visits while 67% of the farmers received farm visits. The 5 % trimmed mean and for the amount of visits for the farmers were 2.94 and 3.37 for the opinion leaders. Field (2009:163) stated that a trimmed mean is simply a mean based on the distribution of scores after some percentage of scores has been removed from each extreme of the distribution. Therefore, a 5% trimmed mean will remove 5% of scores from the top and bottom before the mean is calculated (Field, 2009:163). The mean for the amount of visits for the farmers were 3.35 and 3.48 for the opinion leaders. Therefore, these results confirm earlier findings that the farmers and opinion leaders are well acquainted with the extension advisors. It also proved the complaints received were unfounded.

It was decided by management after the Subtrop amalgamation that extension advisors should visit farmers on request. The reason for this decision was because the farmer:extension advisor ratio is too high; and this was communicated to the farmers. The survey asked if the farmers were aware of this and 96 % respondents answered this question. Most of the farmers (56 %) and opinion leaders

(75 %) were aware of this arrangement. However, only 41 % farmers and 58% opinion leaders requested a farm visit. This defies once again the complaints received and mentioned earlier.

Cross-tabulations were also done between the importance of farm visits and 1) if the respondents were aware they had to phone to request a farm visit; 2) if they had phoned to request a farm visit and 3) if the extension advisor had visited their farm.. The following results were indicated:

- There were no correlations between the importance of farm visits and the respondents' awareness to phone to request a farm visit;
- There were a significant statistical correlation between the importance of farm visits and if respondents did phone to request a visit.
  A total of 56% (48 out of 86) farmer and 42% (15 out of 36) opinion leader respondents indicated they did not phone to request a farm visit and rated farm visits as 56% and 30% as important respectively.
  On the other hand, 42% (36 out of 86) farmer and 58% (21 out of 36) opinion leader respondents indicated they did phone to request a farm visit and rated farm visits as 43% and 100% important.
  The Fischer's Exact test value was: (37.1, $p < 0.0001$) for the farmer and was (13.6, $p = 0.003$) for the opinion leader respondents;
- There were a significant statistical correlation between the importance of farm visits and respondents who did receive a farm visit from the extension advisors.
  A total of 31% (27 out of 86) farmer and 9% (3 out of 35) opinion leader respondents indicated that they did not receive a farm visit and rated farm visits as 31% (26 out of 83) and 3% (1 out of 35) important respectively.
  On the other hand, 67% (59 out of 86) farmer and 91% (32 out of 36) opinion leader respondents indicated they did receive a farm visit and rate farm visits as 66% (57 out of 83) and 100 % (29 out of 29) important respectively.
  The Fischer's Exact test value was: (10.2, $p = 0.018$) for farmer respondents and (7.9, $p = 0.029$) for opinion leader respondents.

Therefore, the above mentioned results indicated that more farmers than opinion leaders who indicated farm visits as important did not phone to request a farm visit, while more opinion leaders than farmers who indicated farm visits as important did phone to request a visit. Furthermore, both respondent groups who rated farm visits as important did receive a farm visit from the extension advisor.

In conclusion:

- Most of the farmers and opinion leaders are well acquainted with extension advisors;
- The extension advisors were rated high in their technical knowledge and professionalism;
- The farmers and opinion leaders use extension advisors mostly for advice on farm practises and via the group techniques;
- The farmers and opinion leaders that do not use the extension advisors posed consultants and not knowing the extension advisors as reasons;
- The farmers and opinion leaders expected the extension advisors to be fully equipped technically, yet rated training and farm visits low;
- Most of the participants of this survey did receive a farm visit and knew they had to phone to request a visit;
- More opinion leaders than farmers did request a farm visit and therefore received more farm visits than farmers;
- The Subtrop Extension Services received a higher rating after the Subtrop amalgamation than before the amalgamation.

However, the Cronbach's Alpha test was performed on the ratings and indications of the Subtrop respondents of the Extension Services and what the extension advisors should do. This statistical analyses test the reliability of the respondents' ratings and indications and the Cronbach's Alpha value should be > 0.650 to prove the results as reliable. Table 5.6 demonstrates these results.

Table 5.6: The Cronbach's Alpha as a reliability statistics to the Subtrop respondents' indications and ratings

Subtrop Services	SAAGA	SALGA	SAMAC	SAMGA	TOTAL
Individual extension services	0.775	0.502	0.778	0.876	0.813
Group extension services	0.789	0.356	0.827	0.754	0.772
Cronbach's Alpha of rating of extension services	0.691	0.816	0.551	0.726	0.655
Cronbach's Alhpa - what extension advisors should do	0.828	0.762	0.823	0.607	0.766

The following results are demonstrated by Table 5.6:

- **Individual and Group extension services (previously discussed in point 5.1.1(b), Table 5.1):**
- SALGA respondents' results were not reliable with the Cronbach's Alpha values < 0.650 on the individual and group extension services;
- SAAGA, SAMGA, SAMAC and Total respondents' indications of individual and group extension services were reliable with Cronbach's Alpha value of > 0.650;
- **Rating of extension services (previously discussed in point 5.1.1(c), Table 5.2):**
- SAMAC respondents' ratings were not reliable with regards to the professionalism and technical knowledge of extension advisors, as well as the extension services before and after the amalgamation with Cronbach's Alpha values of < 0.650;
- SAAGA, SALGA, SAMGA and Total respondents' ratings were reliable with Cronbach's Alpha values > 0.65;
- **What extension advisors should do (previously discussed in point 5.1.1(c), Table 5.4):**
- All respondents' indications were reliable with the Cronbach's Alpha values > 0.650, except for the SAMGA respondents with a Cronbach's Alpha value of 0.607.

Therefore, the above mentioned results indicated in point 5.1.1 by the two respondent groups' Total ratings, proved to be reliable on the majority of accounts, according to the Cronbach's Alpha test. However, α-values of 0.65 – 0.7 is minimally acceptable (PsyAsia International, 2006). The unreliable information received from the farmer and opinion leader respondents is a huge challenge that needs further investigation. Feedback information from members must be reliable to improve the Extension Service of Subtrop.

5.1.2 Study groups

Study groups are one of Subtrop Extension Services most important channel to communicate with farmer members. Terblanché and Düvel (2000) stated that such study groups aim to improve the knowledge of farmers to enhance farming efficiency. In the Subtrop context most of the study groups are run and organized by the extension advisors. This involves a lot of time from the extension advisors. It is therefore important for the farmers to take ownership of study groups; as it is supposed to be theirs and not run and organized by the extension advisors.

5.1.2.1 The role of a study group

The questions in this part of the survey set out to determine:
(1) How often the farmers attend study groups?
(2) Do the study groups meet their needs?
(3) Are they satisfied with the arrangement of study groups?
(4) What is their responsibility as members of the study group?
(5) How can the study groups be improved?
(6) What do they want to achieve through the study groups?
(7) To rate the study groups before and after the Subtrop amalgamation.

The aim of this section is to determine the level of understanding farmers have with regards to study groups. This information will provide insight on how to positively change the study groups to a situation where farmers take ownership.

Figure 5.2: Farmers at a study group on compost making in the Letaba area

A total of 88% of respondents indicated their attendance of study group meetings which varies from 70% to 100%. Eight farmers (6%) indicated that they never attend study group meetings. The most important reasons for not attending were limited time issues, other obligations and unaware of study groups.

The majority (94%) of respondents indicated that the study group meet their needs. The majority (110 out of 117) of farmers (95%) and opinion leaders (91%) were also satisfied with the arrangement of study group meetings and activities (where extension advisors organize and run everything).

Cross-tabulations were done to determine if there was a correlation between the frequency of attending study group meetings and the respondents' satisfaction with the arrangement of study groups. No correlations were found between these two criteria.

Cross-tabulations were also done to determine if there was a correlation between the respondents indication whether the study groups meet the respondents' needs and the way the study groups were organized. There was a significant correlation between these two criteria in the farmer respondents' indications with the Fischer's Exact test value: (19.2, $p < 0.0001$), while there was no correlation in the opinion leader group of respondents.

A total of 95% (78 out of 82) farmers indicated they were satisfied with the organization of study groups and 99% (76 out of 77) indicated the study groups meet their needs.

Therefore, it can be said that Subtrop study groups are well attended, it meet farmer's needs and there is satisfaction from respondents' side to the arrangement of these study groups. However, Terblanché and Düvel (2000) concluded that strong leadership in study groups organized by farmers themselves, contributed to the efficiency of that study group. Especially where the leadership style was task orientated and involved other members in leadership tasks. Therefore, it can be questioned that although the respondents are satisfied with the study groups, where everything is organized for them, are they really matured groups?

Figure 5.2 demonstrates a study group in the Letaba area where an opinion leader shared his on-farm knowledge on compost making with other members of this study group. At this study group, there were > 70 (> 60%) study group members attending in comparison to usually 30 (26%) members attending study groups. Therefore, this confirms Terblanché and Düvel's (2000) conclusion of successful study groups when members of study groups are involved in leadership tasks.

The majority of both respondent groups (89%) indicated participation, attendance and information sharing with other farmers as their most important responsibilities as members of study groups.

Cross-tabulations were done between the study group members' responsibility towards the study groups and their satisfaction with the study groups. The same tendency were shown where respondents who indicated participation, attendance and information sharing as the most important responsibilities of members were all satisfied with the study groups.

Terblanché and Düvel (2000) stated that participating and contributing study group members enhanced the efficiency of study groups and resulted in higher levels of knowledge and skills of members. Table 5.7 provides the results to member responsibilities to study groups, as perceived by the respondents.

Table 5.7: Responsibilities of study group members as perceived by Subtrop farmers and opinion leaders

Responsibilities		Respondent categories		
		Farmers*	Opinion leaders*	Total*
Honest inputs and feedback	n	8	4	12
		7.0%	6.7%	
Participation	n	**29**	**15**	44
		25.2%	**25.0%**	
Attendance	n	**20**	**10**	30
		17.4%	**16.7%**	
Information sharing with other farmers	n	**51**	**25**	76
		44.3%	**41.7%**	
The members are the study group	n	2	0	2
		1.7%	.0%	
SG not the responsibility of Subtrop technical advisor but the member's responsibility	n	2	1	3
		1.7%	1.7%	
Help with organizing	n	2	1	3
		1.7%	1.7%	
To eat and drink beer	n	1	0	1
		.9%	.0%	
Farm visits during study group	n	0	1	1
		.0%	1.7%	
Payments of levies	n	0	1	1
		.0%	1.7%	
If Subtrop organises the meeting, the responsibility is Subtrop to member	n	0	1	1
		.0%	1.7%	
Encourage the technical advisor	n	0	1	1
		.0%	1.7%	
Total	N	115	60	175

*Percentages and totals are based on responses

From Table 5.7 it can be seen that only two farmers and one opinion leader indicated that study groups are not the extension advisor's responsibility, but the members' responsibility. Two farmers and one opinion leader also suggested assisting with organizing of study groups, while two farmers indicated that the members are the study group. One opinion leader stated if Subtrop organize study groups the responsibility is Subtrop to member.

The two respondent groups provided suggestions on how the study groups can be improved. A total of 90% respondents provided suggestions. As the suggestions were much dispersed only the most prominent suggestions will be emphasized:

- A total of 47% of the two respondent groups combined indicated they had no suggestions to offer as it was difficult to accommodate a variety of members;
- There was a 12% of the total respondent group who suggested that farmers should engage in conversation and conduct their own on-farm trials.

The respondents (117 out of 127) indicated that sharing their problems with other farmers lead to the solving of the problems as the most important achievement through study groups.

Cross-tabulations done confirmed these results as respondents who indicated information sharing and participation with other farmers as the main responsibility of members, also indicated these criteria as what they wanted to achieve through study groups.

This result agrees with Terblanché and Düvel (2000) whose research indicated more efficient study groups have members collaborated amongst each other and engaged in discussion. It also correlates

with the suggestions of the small group of farmers, to have more conversation amongst each other, mentioned above.
To get updated on industry trends (100 out of 127) was second in importance and thirdly networking and sharing in a social context (74 out of 127).

This confirms the need of farmers to intercommunicate with each other on a social platform and time must be set aside to provide for this need, as confirmed as well by Terblanché and Düvel (2000). These totals were based on responses.

5.1.2.2 The rating of the study groups

The farmer and opinion leader respondents had to rate the Subtrop study groups before and after the Subtrop amalgamation. The results for each commodity will be discussed below. The Fischer's Exact Test was done on each commodity's ratings and there was no significant statistical difference between the farmer and opinion leader respondent's ratings.

5.1.2.2 (a): SAAGA study groups

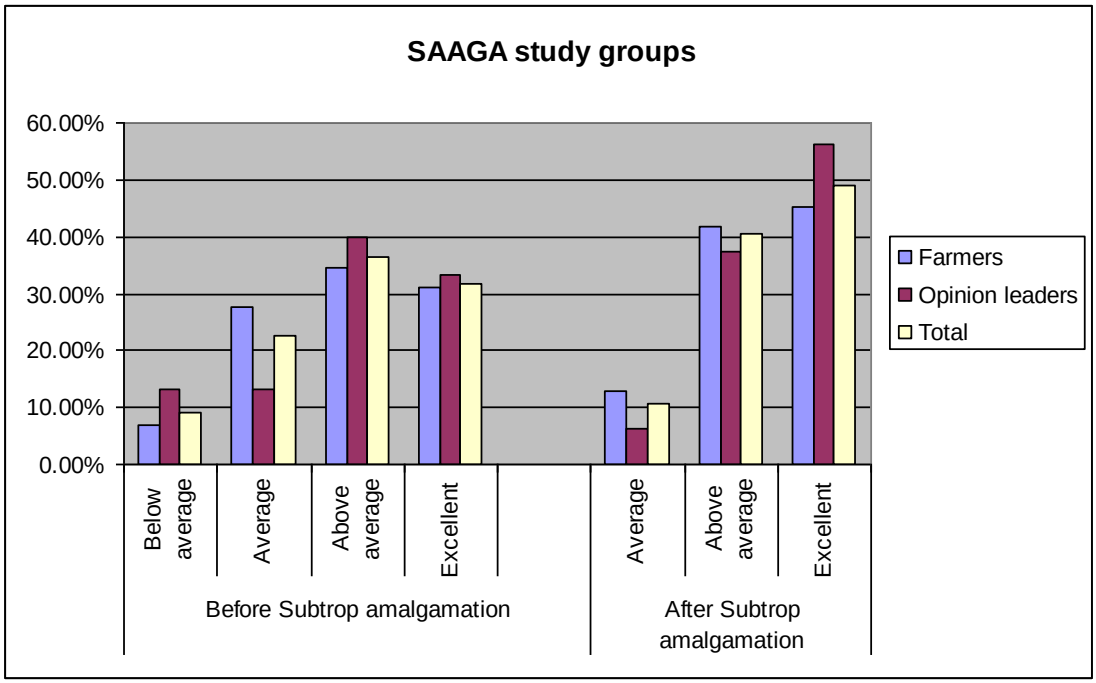


Figure 5.3: The rating of the SAAGA study groups' performance before and after the amalgamation by farmer and opinion leader respondents

It is clear from Figure 5.3 that the SAAGA study groups were rated higher after the Subtrop amalgamation.

A total of 36% rated the SAAGA study group before the amalgamation as above average in comparison to 40% after the amalgamation, an increase of 4%.

Furthermore, a 32% rating was given to excellent before the amalgamation in comparison to 49% after the amalgamation, an increase of 17%.

5.1.2.2 (b): SALGA study groups

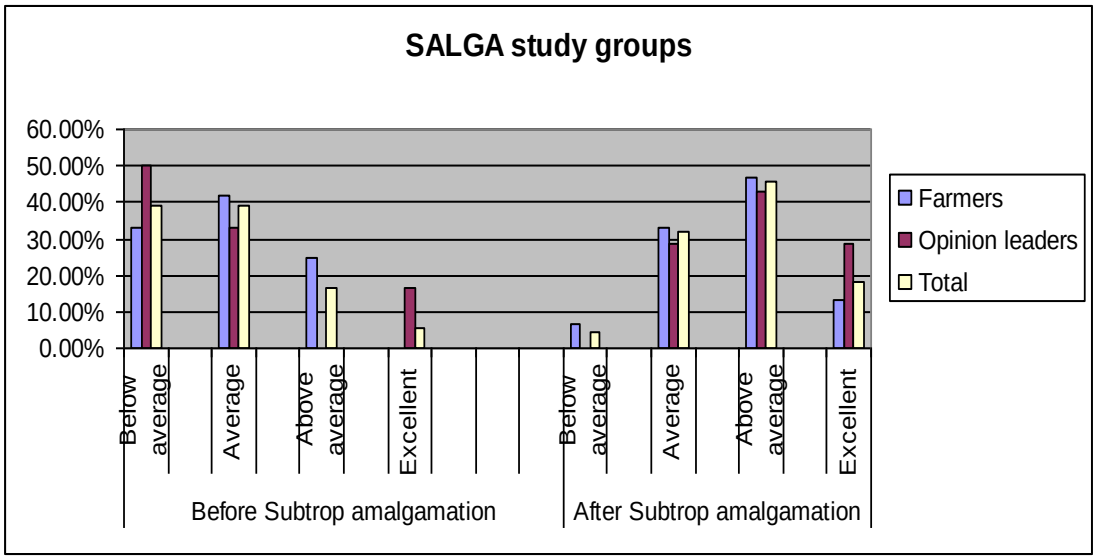


Figure 5.4: The rating of the SALGA study groups' performance before and after amalgamation by farmer and opinion leader respondents

According to Figure 5.4 a total rating of 39% was given to below average and average of the SALGA study groups before the amalgamation.

Only 5% of the respondents indicate a below average and a 32% average rating after the amalgamation.

The above average rating has increased from 18% to 46% and the excellent rating from 5% to 18 % after the amalgamation. This results in a 28% and a 13% increase respectively for the above average and excellent ratings.

Therefore there was a huge improvement to the SALGA study groups after the Subtrop amalgamation.

5.1.2.2 (c) SAMAC study groups

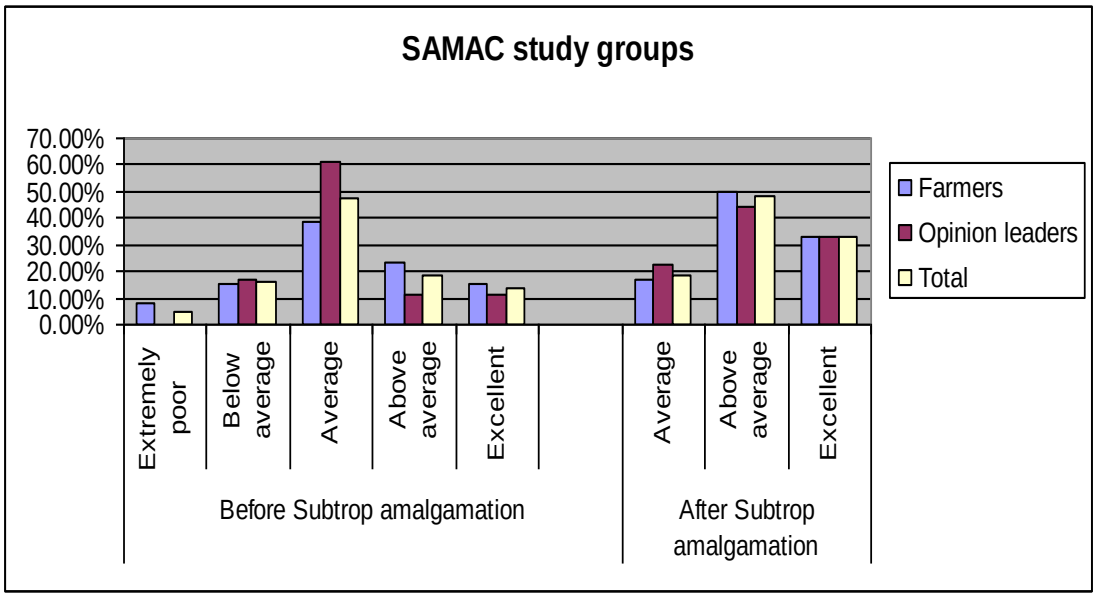


Figure 5.5: The rating of the SAMAC study groups' performance before and after amalgamation by farmer and opinion leader respondents

The SAMAC study groups rated in total 48% average, 18% above average and 14% excellent before the amalgamation.

After the amalgamation the rating was 19% average, 48% above average and 33% excellent. Therefore, there was a 29% decrease in the average rating and a 30% and a 19% increase in the above average and excellent rating respectively.

From Figure 5.5 it is clear that there was a significant higher rating of the SAMAC study groups after the Subtrop amalgamation.

5.1.2.2 (d) SAMGA study groups

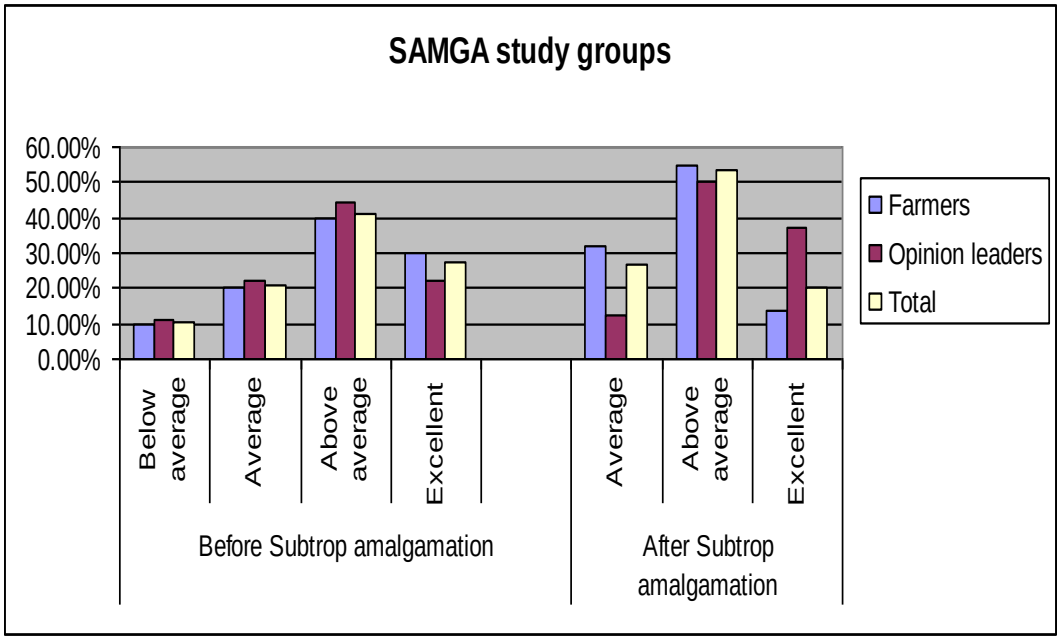


Figure 5.6: The rating of the SAMGA study groups' performance before and after the amalgamation by farmer and opinion leader respondents

The SAMGA study groups before the amalgamation rated in total 41% above average and 28% excellent.

After the amalgamation the ratings were 53% above average and 20% excellent. This results in a 12% increase and a 8% decrease in the above average and excellent ratings respectively.

Therefore, it can be stated that there was also an improvement in the SAMGA study groups after the Subtrop amalgamation, although not as significant as in the other commodities mentioned above. The disappointing aspect is the decrease in excellence after the amalgamation.

Table 5.8 below provides a summary of the farmer and opinion leader respondents' ratings of the performance of the different commodity study groups which Subtrop serves before and after the amalgamation.

Table 5.8: A summary of the ratings of the different Subtrop commodity study groups' performance as rated by farmer and opinion leader respondents

	Above Average				Excellent				
	Before	After	Difference	Rating	Before	After	Difference	Rating	Ave Rating
SAAGA	36%	40%	4%	4	32%	49%	17%	2	3
SALGA	18%	46%	28%	2	5%	18%	13%	3	2.5
SAMAC	18%	48%	30%	1	14%	33%	19%	1	1
SAMGA	41%	53%	12%	3	28%	20%	-8%	4	3.5

Although all the different commodity study groups did improve and achieved higher ratings after the Subtrop amalgamation, the following results can be concluded from Table 5.8:

- SAMAC study groups achieved a 49% improvement;
- SALGA study groups achieved a 41% improvement;

- SAAGA study groups achieved a 21% improvement; and
- SAMGA study groups achieved only a 4% improvement.

The Cronbach's Alpha test could not be performed on these ratings to test the reliability of the results, as there were not enough respondents who rated at least three of the four commodities.

The respondents were asked to motivate their ratings and the results were too dispersed to make any meaningful conclusions. However, the motivation mostly given (27 %) was improved information flow, due to the presence of the Subtrop technical advisor in each area.

In conclusion, from the above results it is clear that Subtrop study groups were rated higher after the Subtrop amalgamation than before. However, the poor improvement of SAMGA study groups should receive attention. The respondents indicated that they were satisfied with the study groups. Although the respondents understand the value of intercommunication and participation between members of a study group, very few realize the need to take ownership of study groups. Therefore, strategies to create awareness on this point need to be investigated.

5.1.3 Newsletters

Each one of the four Growers' Associations Subtrop serve publishes its own newsletter. These newsletters form part of the range of communication channels to members. Several research studies have indicated extension newsletters as a valuable extension channel (Gaul, *et.al*, 2009; Chapman & Tripp, 2003; Buchner et al., 1996). However, writing newsletter articles is time consuming. The questions therefore are to determine to what extent farmer members value the newsletters. The questions asked were:
(1) Do the farmers receive and read / not read their newsletters?
(2) How do they rate their newsletters?
(3) What other agricultural magazines do they read?
(4) To rate the newsletters before and after the Subtrop amalgamation.

5.1.3.1 The reading of the newsletters

The majority (92%) of the respondents indicated they do read and receive their newsletters.

5.1.3.2 The rating of the newsletters

The farmer and opinion leader respondents had to rate the standards of the different Subtrop newsletters. The different newsletters were favourably rated as demonstrated by Figure 5.7 below.

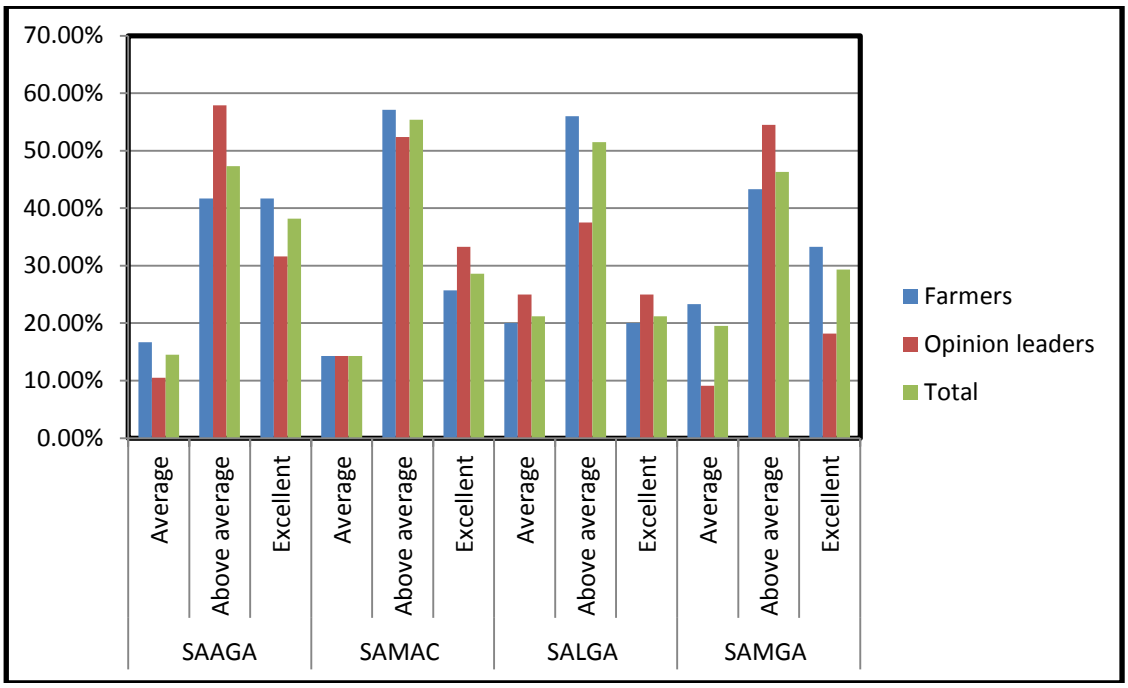


Figure 5.7: The ratings of the standard of the Subtrop Newsletters according to Subtrop respondents

Figure 5.7 demonstrates the following results:

- The standard of the SAAGA newsletter was rated 47% above average and 38% excellent;
- The standard of the SAMAC newsletter was rated 55% above average and 29% excellent;
- The standard of the SALGA newsletter was rated 52% above average and 21% excellent; and
- The standard of the SAMGA newsletter was rated as 46% above average and 29% excellent.

Therefore, the majority farmers and opinion leaders indicated a higher rating to the standard of all the respective newsletters as above average.
There were also no significant differences between the ratings of the farmers and opinion leaders according to the Fischer's Exact Test.

The respondents also had to indicate their agreement according to the following:
(1) The articles in the newsletters are relevant;
(2) The articles in the newsletters are user friendly;
(3) The newsletter adds value to my farming enterprise.

Figure 5.8 below provides the results to this question.

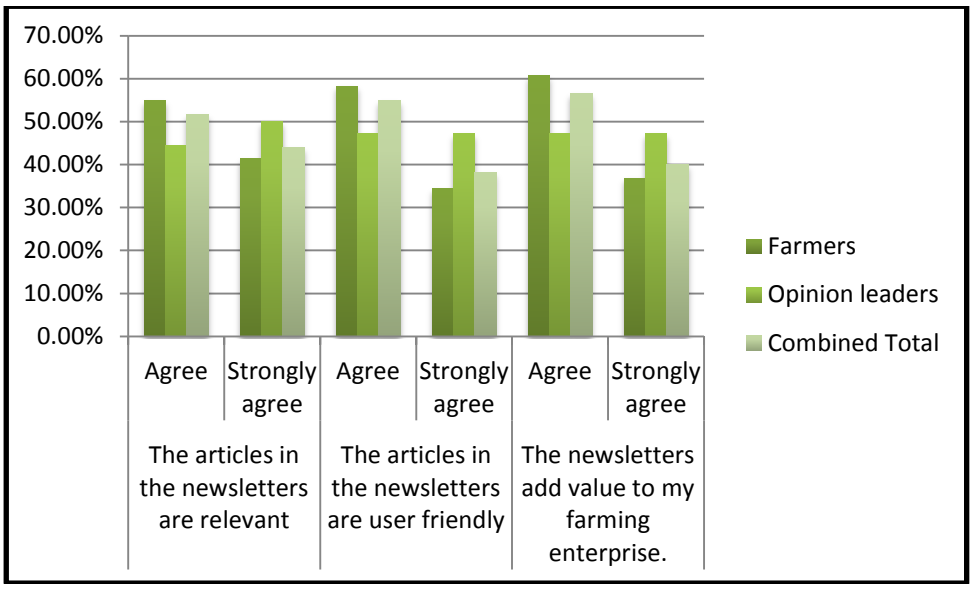


Figure 5.8: Respondents' rating of Statements regarding Subtrop Newsletters

On all three statements more farmer respondents agreed rather than strongly agree with the statements.

However, more opinion leaders than farmers tended to strongly agree on all of these statements. The differences between the ratings were not statistically of importance, according to the Fischer's Exact Test.

The disappointing aspect is that only 40% of both respondent groups strongly agreed that the newsletters did add value to the farming enterprise.
A total of 38% strongly agreed that the articles are user friendly and only 42% strongly agreed that the articles are relevant. Therefore, the improvement of the newsletters needs attention.

The Cronbach's Alpha test was done to test the reliability of the indications of the two respondent groups, on these abovementioned statements. The Cronbach's Alpha test value was 0.724 which indicate the respondents' indications as reliable.

The respondents were asked what type of information they would prefer to be included in the newsletters.

A total of 90 farmers and opinion leader respondents indicated that they prefer more farming tips in the newsletters and 104 requested more recipes.

Fifteen farmer and opinion leader respondents suggested more extension articles and eleven farmer and opinion leader respondents needed feedback on local and export markets.

Sixty four farmer respondents had other suggestions. These suggestions were too dispersed to be mentioned and discussed.

The majority of farmer and opinion leader respondents (92%) were satisfied with the frequency of newsletters received per year.

5.1.3.3 Other Agricultural magazines

It is also important to determine which other Agricultural magazines respondents read and the findings are summarized in Table 5.9. The "Groente en Vrugte", "SA Fruit Journal" and "other magazines" were the most read by the respondents. Therefore, the "Groente en Vrugte" and "SA Fruit Journal" can also be used as a communication tool to reach the farmers.

There were ten other agricultural magazines which were much dispersed and therefore cannot be used as a communication tool to reach the farmers. The fact that 34% (69) of both respondent groups combined read these other magazines need further attention. These magazines were:

1. Tunnel production magazine
2. International articles
3. Processing magazine
4. Pro-Agri
5. The New SA Farming
6. SA Pecan
7. Plant and Soil
8. Sugar journals
9. Timber Times
10. The SA Wood and Forests

Table 5.9: The Agricultural magazines read by the farmer and opinion leader respondents

Agricultural magazines		Type		Total
		Farmers	Opinion leaders	
Landbouweekblad	n	9	6	15
		6.60%	9.70%	7.5%
Farmers Weekly	n	8	5	13
		5.80%	8.10%	6.5%
Groente en Vrugte	n	22	13	35
		16.10%	21.00%	17.6%
SA Fruit Journal	n	48	19	67
		35.00%	30.60%	33%
Other	n	50	19	69
		36.50%	30.60%	34%
Total	N	137	62	199

5.1.3.4 The rating of Subtrop Newsletters

The ratings of the Subtrop newsletters before and after the Subtrop amalgamation are presented and discussed in Figures 5.9 – 5.12 below. The Fischer's Exact Test was done on each of the commodity newsletter's ratings and no significant statistical differences were found.

5.1.3.4(a) The SAAGA newsletter

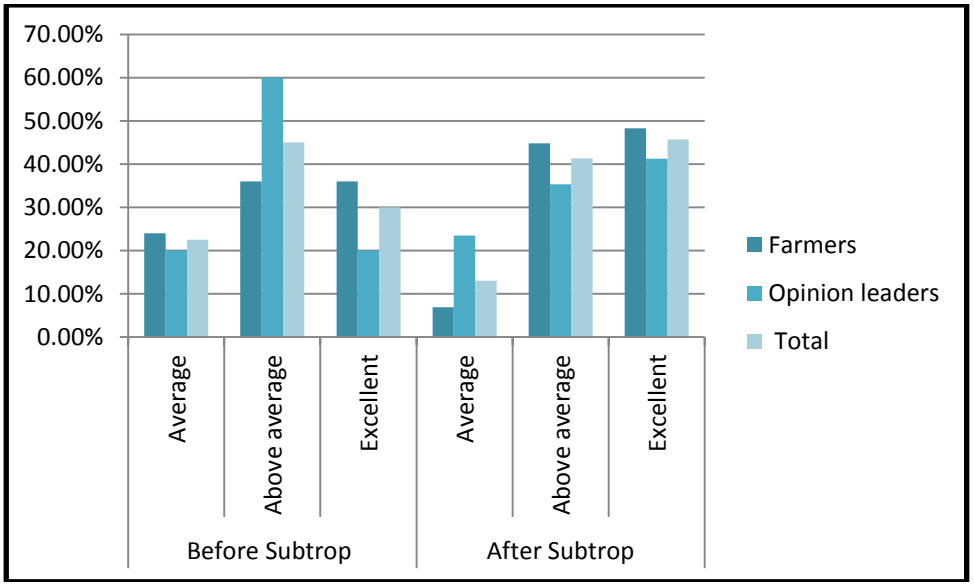


Figure 5.9: Rating of SAAGA newsletter before and after Subtrop amalgamation by Subtrop respondents

A total of 45% of the respondents rated the SAAGA newsletter as above average and 30% as excellent, before the Subtrop amalgamation.

After the Subtrop amalgamation the SAAGA newsletter was rated as 41% above average and 46% excellent.

This results in a 4% decrease in the above average rating but a 16% increase in the excellent rating. Therefore, the SAAGA newsletter has improved after the Subtrop amalgamation, according to the respondent's ratings.

5.1.3.4(b) The SAMAC newsletter

According to Figure 5.10 below it can be seen that the SAMAC newsletter received a 39% above average and a 9% excellent rating before the Subtrop amalgamation.

However, after the Subtrop amalgamation the respondents indicated a 57% above average and 26% excellent rating.

This results in a 18% increase in the above average rating and a 17% increase in the excellent rating. Therefore, it can be suggested that a significant improvement was achieved for the SAMAC newsletter after the Subtrop amalgamation.

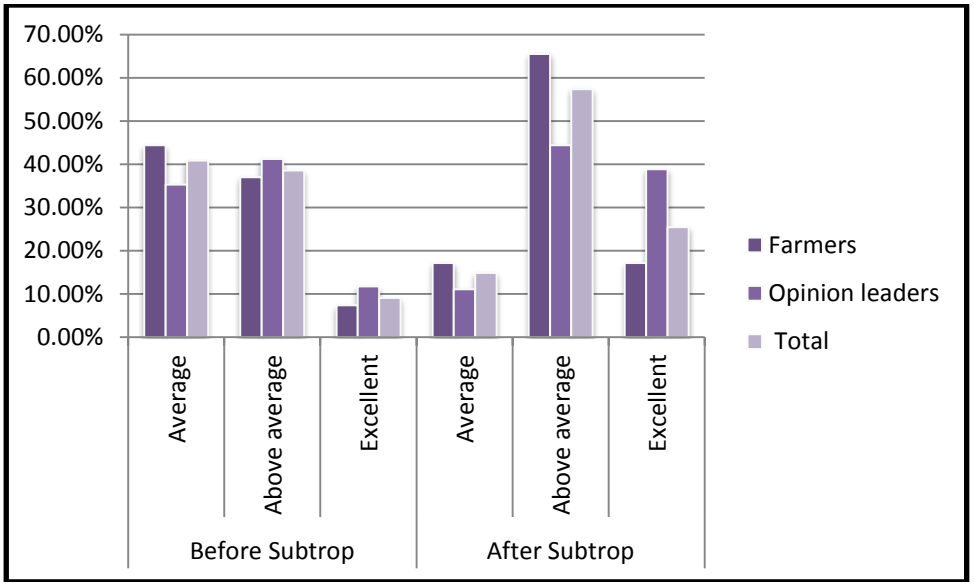


Figure 5.10: Rating of SAMAC newsletter before and after the Subtrop amalgamation by Subtrop respondents

5.1.3.4(c) The SALGA newsletter

The ratings on the SALGA newsletter are presented in Figure 5.11 below.

The respondents rated the SALGA newsletter as 64% average before the Subtrop amalgamation.

The above average and excellent ratings received the same rating of 14% before the Subtrop amalgamation.

However, after the Subtrop amalgamation only a 31% average rating was indicated, which results in a 33% decrease.

A total of 42% above average rating and 19% excellent rating were indicated after the Subtrop amalgamation, which results in a 28% and 5% increase respectively.

Therefore, there was also an improvement of the SALGA newsletter after the Subtrop amalgamation, as perceived by the respondents.

Although some improvement did occur the slight increase of 5% in excellence need serious attention; as well as the fact that less than 20% of all the respondents only rated the SALGA newsletter as excellent.

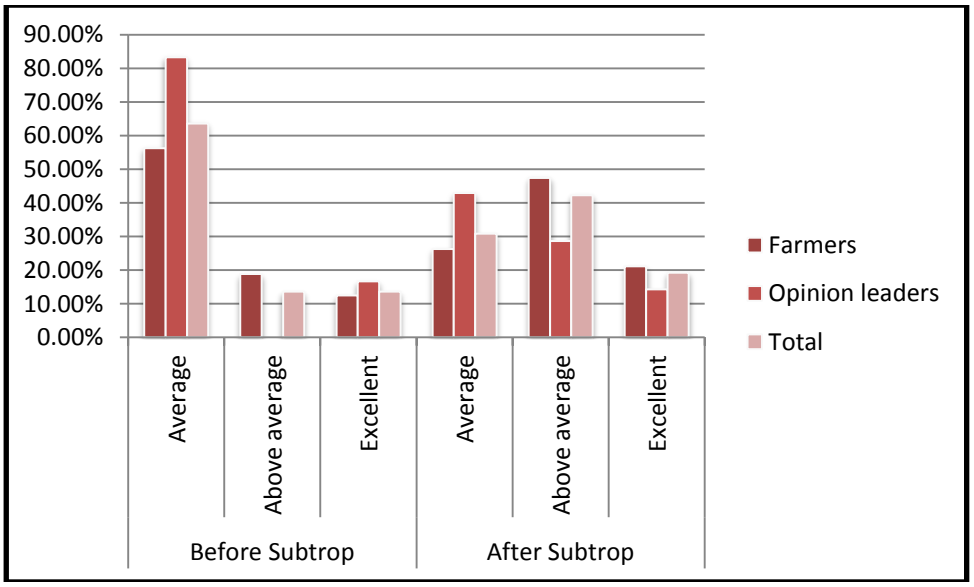


Figure 5.11: Rating of SALGA newsletter before and after the Subtrop amalgamation by Subtrop respondents

5.1.3.4(d) The SAMGA newsletter

Figure 5.12 demonstrate the results of the SAMGA newsletter ratings.

Figure 5.12 demonstrates that before the Subtrop amalgamation 41% of respondents perceived the newsletter as average; 38% of the respondents gave an above average rating while only 21% of respondents perceived it as excellent.

After the Subtrop amalgamation the SAMGA newsletter was rated by respondents as 17% average, 51% above average and 29% as excellent.

This results in a 24% decrease in the average rating, with a 13% and 8% increase in the above average and excellent ratings respectively.

Therefore, a significant improvement of the SAMGA newsletter was also achieved after the Subtrop amalgamation.

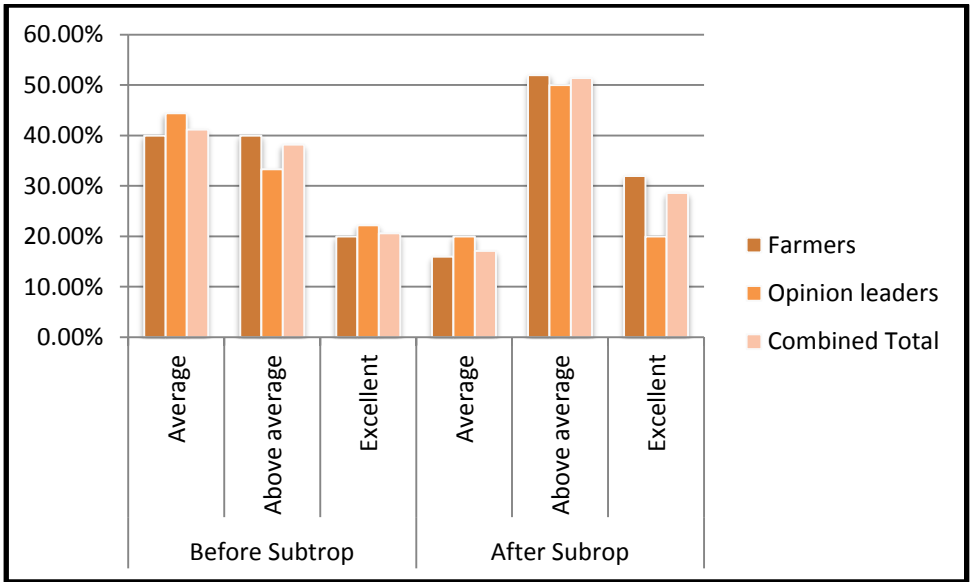


Figure 5.12: Rating of SAMGA newsletter before and after the Subtrop amalgamation

Table 5.10 provides a summary of the farmer and opinion leader respondents' ratings of the Subtrop newsletters before and after the Subtrop amalgamation.

Table 5.10 A summary of Subtrop respondents' ratings of the different Subtrop commodity newsletters

	Above Average				Excellent			
	Before	**After**	**Difference**	**Rating**	**Before**	**After**	**Difference**	**Rating**
SAAGA	45%	41%	-4%	4	30%	46%	16%	2
SAMAC	39%	57%	18%	2	9%	26%	17%	1
SALGA	14%	42%	28%	1	14%	19%	5%	4
SAMGA	38%	51%	13%	3	21%	29%	8%	3

As demonstrated by Table 5.10 it is clear that all the different commodity newsletters were rated higher after the Subtrop amalgamation. The above average and excellent ratings combined indicated the following:

- SAMAC achieved a 35% improvement;
- SALGA achieved a 33% improvement;

- SAMGA achieved a 21% improvement;
- SAAGA achieved a 12% improvement.

However, the vision of Subtrop is to provide a service of excellence to their members. Only the SAAGA and SAMAC newsletters increased with a percentage >10% in excellence, after the amalgamation.

Although the SALGA newsletter had the highest increase (28%) after the amalgamation, this increase was in the above average rating.

The SAMGA newsletter had the third most improvement after the amalgamation overall, with the highest increase of 13% in the above average rating.

Therefore, the improvement of all newsletters to excellence needs attention.

The Cronbach's Alpha test could not be performed to validate these ratings, as there were not enough respondents who rated at least three of the four commodities.

Therefore, the following points can be summarized for the newsletter section of the survey:

- The majority of respondents received and read their respective newsletters;
- The majority of respondents agreed with the content of the newsletters;
- The majority of the respondents would like to see more farm related articles in the newsletters;
- The majority of respondents are satisfied with the frequency of newsletters;
- The newsletters add value to the respondents farming enterprises;
- The "Groente en Vrugte" and "SA Fruit Journal" magazines can be used as additional extension communication channels by the Subtrop extension services;
- The respective newsletters all received higher ratings after the Subtrop amalgamation;
- The improvement of all newsletters to excellence needs attention;
- Therefore, the newsletters are a valuable extension communication channel and should not be discarded.

5.1.4 Technical/ Production Related Research

Subtrop outsource research needed to solve problems in the various commodities Subtrop delivers a service to. One of the most important functions of the Subtrop Extension Services is the coordination of all role players conducting research. The Technical Manager of Subtrop is responsible to perform this coordination duty. The extension advisors are members of the Research / Technical Committees in their respective areas. The aim of this section in the survey set out to investigate the respondents' knowledge about this function.

5.1.4.1(a) The relevance of SAAGA research on farm and for industry

Respondents were requested to indicate the relevance of research being done with regard to (a) their farming enterprise; and (b) to the industry as a whole. Figure 5.13 below presents the results to the SAAGA research.

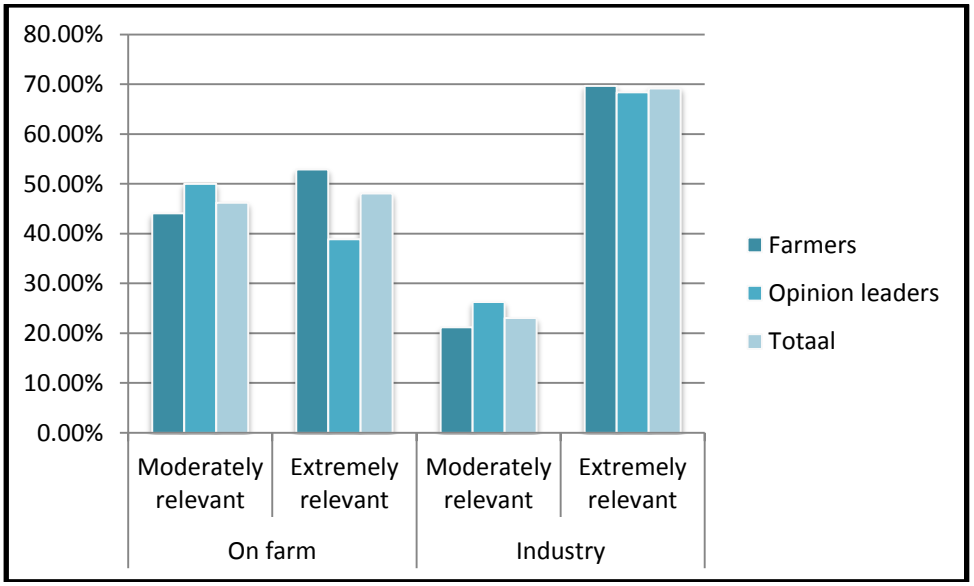


Figure 5.13: The relevance of SAAGA research on farm and to industry as perceived by farmers and opinion leaders (n= 52 / 41%)

From Figure 5.13 it is clear that the two groups of respondents gave similar ratings.

A total of 41% respondents participated in the SAAGA research section.

Sixty nine (69%) percent of the respondents indicated that SAAGA research was extremely relevant to industry; while only 48% indicated the research as extremely relevant to the farming enterprise.

Therefore, it can be stated that SAAGA research is 21% more extremely relevant to industry than for the farming enterprise, as indicated by the majority of respondents.

According to the Fischer's Exact test the differences between the farmer and opinion leader respondents' ratings were not statistically significant with values <5 and p-values > 0.05.

5.1.4.1(b) The relevance of SALGA research on farm and for industry

A total of 22% of respondents answered the SALGA research section. The results are presented in Figure 15.14.

A total of 55% respondents indicated SALGA research as extremely relevant for industry and only 39% indicated research as extremely relevant for the farming enterprise. This results in a 16% difference.

More opinion leaders (75%) than farmers (48%) indicated SALGA research as extremely relevant to industry. Therefore, opinion leader respondents specifically rated SALGA research to industry as 27% more extremely relevant than the farmers.

The ratings were not statistically different according to the Fischer's Exact test between the two respondent groups. However, there were clear differences between the research relevancy for farming enterprises and for industry.

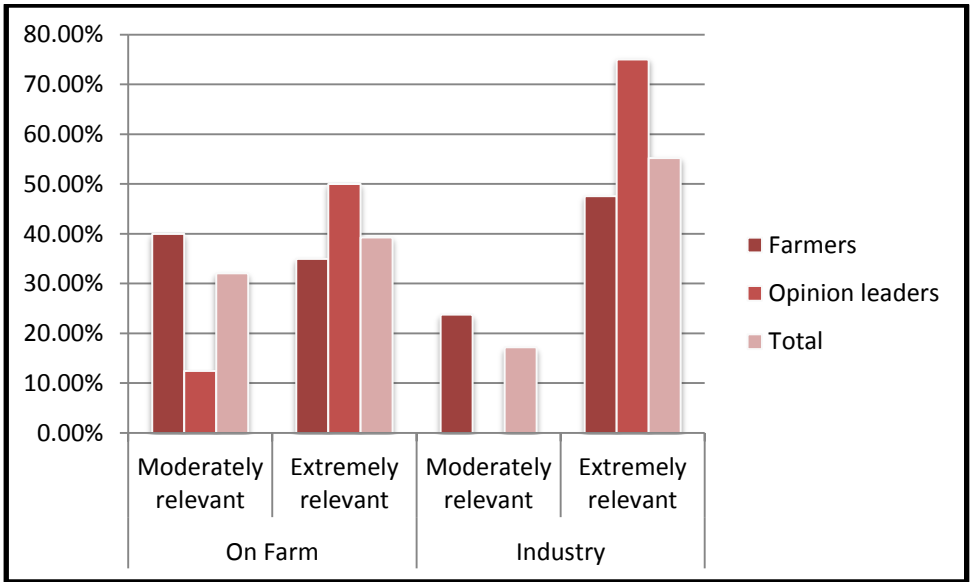


Figure 5.14: The relevance of SALGA research on farm and to industry as perceived by farmers and opinion leaders (n=28 / 22%)

5.1.4.1(c) The relevance of SAMAC research on farm and for industry

A total of 44% of respondents participate in the SAMAC research section. The findings are presented in Figure 5.15.

From Figure 5.15 it is clear that farmers and opinion leaders rated SAMAC research very similar and was confirmed by the Fischer's Exact test with no significant statistical differences between the two respondent groups' ratings.

The majority of respondents indicated SAMAC research to industry as 52% extremely relevant and only 39% extremely relevant to farming enterprises. This results in a 13% difference.

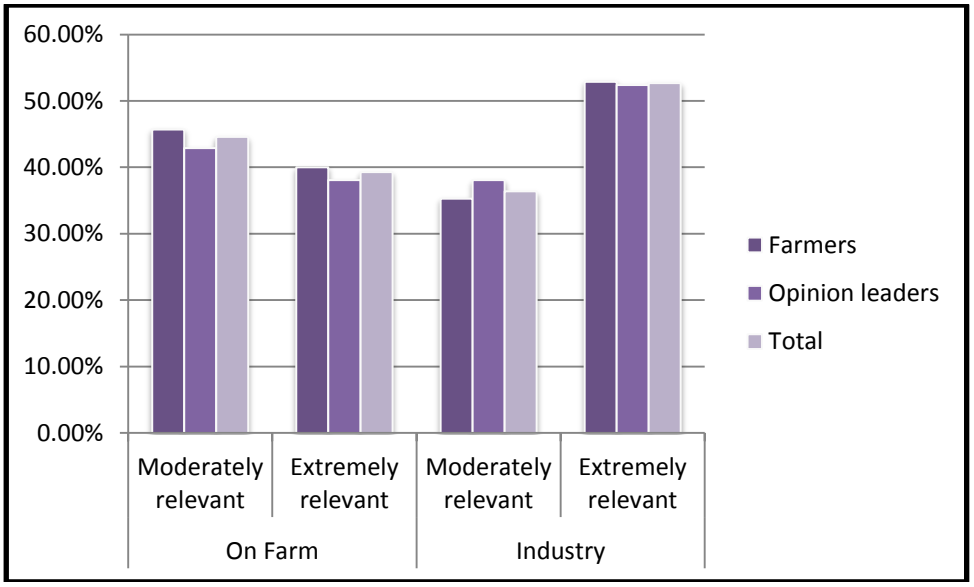


Figure 5.15: The relevance of SAMAC research on farm and to industry as perceived by farmers and opinion leaders (n= 56 / 44%)

5.1.4.1(d) The relevance of SAMGA research on farm and for industry

A total of 32% respondents participated in the SAMGA research on farm section and 30% the industry section and the results are presented in Figure 5.16 below.

The results indicated the same tendency, namely where 47% of the respondents indicated research as extremely relevant to industry while only 30% indicate it to be extremely relevant to the farming enterprise. This results in a 17% difference.

The differences between the farmer and opinion leader respondents' ratings with regards to research' relevancy to industry, were statistically significant according to the Fischer's Exact test with a value: (7.9, p = 0.034).

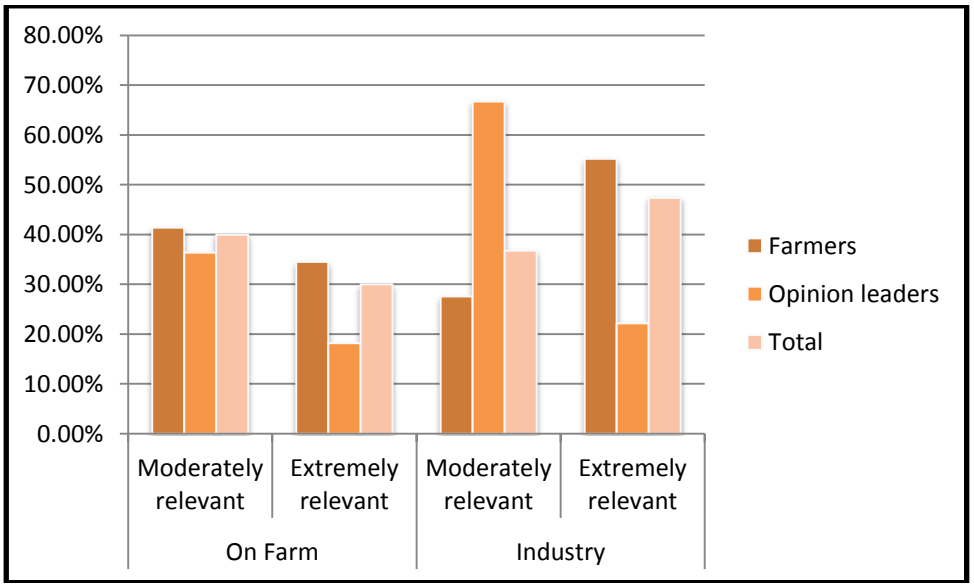


Figure 5.16: The relevance of SAMGA research on farm and to industry as perceived by farmers and opinion leaders (n= 40 / 32% On Farm; n=38/ 30% Industry)

Table 5.11 compare the results between the relevancy of research on farm and to industry with regards to the different commodities.

Table 5.11: Comparisons between the different Subtrop commodities with regards to the extremely relevant rating of research to farming enterprises and to industry as perceived by Subtrop respondents

Research as Extremely relevant to:	SAAGA	SALGA	SAMAC	SAMGA
Industry	69%	55%	52%	47%
Farming enterprise	48%	39%	39%	30%
Difference	21%	16%	13%	17%

It is clear from Table 5.11, as mentioned above in each commodity section, that research is more extremely relevant to industry than to farming enterprises.

Although SAAGA research received the highest extremely relevant rating for farming enterprise, its difference between the extremely relevant ratings for industry and farming were the biggest.

There seemed to be smaller differences between the extremely relevant ratings for industry and farming enterprises with the other remaining commodities.

Therefore, the gap between the relevancy of research to industry and to farming enterprises needs to be reduced, especially with regards to SAAGA research.

However, when these results were compared with the summary of actual time allocation of Subtrop personnel to the four commodities of Subtrop, both SAAGA and SAMGA demonstrated a negative percentage difference (SAAGA -1.36% & SAMGA -2.53%) according to the proportion of the budget; i.e. the time they should receive from Subtrop personnel. These results are demonstrated by Table 5.12 below.

This negative percentage difference results in a R83 124 and R153 980 loss for SAAGA and SAMGA respectively.

Therefore, the survey results agreed with Subtrop's actual time allocation summary results. SAAGA and especially SAMGA should receive more attention with regards to not only research but also relevant industry matters.

Table 5.12: Actual time allocation summary of Subtrop personnel for the period of 1 January 2012 to 30 April 2012

Organization	Annual contributions as per association reflected in the 2009/2010 Subtrop budget	Proportion of budget	Actual % of time utilised per association YTD*	% Variance	Rand value of variance
SAAGA	2 551 897	41.88%	40.52%	-1.36%	-83 124
SAMAC	2 112 593	34.67%	35.94%	1.27%	77 541
SAMGA	1 105 067	18.14%	15.61%	-2.53%	-153 980
SALGA	323 781	5.31%	7.93%	2.62%	159 562
TOTAL	6 093 338				

***Time associated with Subtrop is weighted according to the proportion allocated to an association and divided accordingly e.g. SAAGA 40% contribution, Total number of Subtrop Hours 100 for all associations, results in 40 of the 100 Subtrop hours being allocated to SAAGA.**

Cross-tabulations were done between the relevance of research on-farm and to industry to the respondents' satisfaction with the organizing of the research function and method to determine research priorities. No correlations were found between these criteria and unfortunately the sample sizes were very small. Once again, the Cronbach's Alpha test could not be performed as there were not enough respondents who rated at least three of the four commodities.

5.1.4.1(e) Respondents motivation for their ratings of research relevancy

The respondents had to motivate their ratings by a closed set of criteria. A total of 91% respondents participated in this question. They could choose more than one criterion. The results are presented in Table 5.13 below.

Table 5.13: Motivation of Subtrop respondents of their relevancy ratings of research to farming enterprises and to Industry

Motivation criteria		Farmers	Opinion leaders	Total
Research addresses relevant problems at farm level/ industry level	N	3 2.10%	5 7.10%	8 3.80%
Research is pro-active	N	16 11.20%	8 11.40%	24 11.30%
Research is innovative	N	8 5.60%	2 2.90%	10 4.70%
Research is relevant only to large farmers	N	25 17.50%	15 21.40%	40 18.80%
Need more market research	N	34 23.80%	17 24.30%	51 23.90%
Other	N	57 39.90%	23 32.90%	80 37.60%
Total	N	143	70	213

Percentages and totals are based on responses.

A total of 51 respondents indicated more market research was needed, while 40 respondents indicated that research is only relevant to larger farmers. This could possibly explain why research was rated more extremely relevant to industry than to farming enterprises in the previous section (Table 5.11).

The lower extremely relevant rating to farming enterprises was also reflected by only 8 respondents indicating that research addresses relevant problems at farm level.

Only 24 respondents indicated that research is pro-active.

Although 80 respondents indicated other reasons as motivation for their ratings, only 13 respondents actually provided the other reasons.
The most prominent other reasons were:

- Research priorities must be determined by the farming community;
- Research must concentrate more on value-adding on-farm and not only be export orientated;
- More cultivar research is needed;
- Research must focus more on quality rather than improvement of production;

5.1.4.2 Respondents participation in determining research priorities

Only 55% of farmers submitted their research priorities in comparison to 89% of opinion leaders. A total of 11% of opinion leaders did not submit their research priorities in comparison to 45% of farmers.

The Pearsons Chi-square test value: (12.8, $p<0.0001$). Therefore there was a substantial difference in response between farmers and opinion leaders to this question.

A total of 34% more farmers than opinion leaders did not submit their research priorities.

Cross-tabulations were done to determine if there was a correlation between motivation for relevancy of research on-farm and to industry and if the respondents submitted their research priorities. Although no correlations were found between these criteria there was a tendency of

respondents who indicated that research addressed relevant issues in industry did submit their research priorities. Therefore, indicating their involvement.

The respondents had to indicate from a closed set of possible reasons, why research priorities were not submitted. The reasons why farmer and opinion leader respondents did not submit their research priorities were:

- They did not know when and how to submit them (farmers 68%; opinion leaders 33%).
- Before the Subtrop amalgamation no opportunity exists to submit research priorities (farmers 18 %; opinion leaders 67%).
- The most prominent other reason was they have never participated (50% of farmers)

The respondents had to indicate if they agree with the current method used to determine research priorities.

The majority of respondents (75% opinion leaders and 64% farmers) indicated their agreement.

However, more farmers (29%) than opinion leaders (14%) did not know if they agree with the method used. This correlates with the fact that some farmers are unsure of how the research function of Subtrop operates.

Therefore, it is important that the current method of submitting research priorities should be communicated more clearly to the farmers.

The respondents who disagreed or did not know regarding the current method used to determine research priorities, had to indicate why. They could once again choose from a closed set of criteria. The most prominent criteria indicated were:

- The current method used not scientific enough (20 responses out of 27);
- Research committees not working (7 respondents out of 27); and
- Farmers not involved enough (5 respondents out of 27).

5.1.4.3 Farmer and opinion leader responsibilities towards the Subtrop research function

The respondents had to indicate what their responsibilities towards the research function of Subtrop were. Table 5.14 below presents the results to this question and 60% of respondents answered this question. This results in a 40% of respondents not answering this question which could possibly indicate the respondents' lack of understanding on the research function of Subtrop and needs to be addressed.

It is clear from Table 5.14 that most of the respondents (44% farmers and 57% opinion leaders) indicated to identify research priorities the most prominent responsibility.

More farmers (33%) than opinion leaders (14%) indicated support and participation an important responsibility.

However, more opinion leaders (14%) than farmers (6%) indicated involvement and to be part of research committees an important responsibilities.

Therefore, it is clear that the majority of respondents acknowledge involvement in research priorities, support and participation as key responsibilities on their part.

However, only 6% of respondents realize application of research results as a responsibility. This finding confirms once again the time-lag phenomenon regarding the adoption of new farming practices (Düvel, 1989).

Table 5.14: The responsibilities to the research function of Subtrop according to the farmers and opinion leaders

Responsibilities to Research function of Subtrop	Number	Farmers	Opinion leaders	Total
Support and participation	N	16 33%	4 14%	20 26%
The application of research results	N	4 8%	1 4%	5 6%
To identify research priorities	N	21 44%	16 57%	37 49%
Coordination and control	N	0 0.00%	1 4%	1 1%
None	N	3 6%	1 4%	4 5%
Be part of the research committee - get involved	N	3 6%	4 14%	7 9%
I am not sure what is expected of me	N	1 2%	0 0.00%	1 1%
I do not know - I am doing my own experiments on-farm	N	0 0.00%	1 4%	1 1%
Total	N	48	28	76

Percentages are based on responses

5.1.4.4 Respondents view of the organisation of the research function of Subtrop

A total of 85% of respondents answered this question. Table 5.15 presents the findings below.

A total of 70% respondents indicated their satisfaction. Only 5% farmers and 12% opinion leaders were not satisfied (8 out of 108 respondents).

However, 31% farmers and 3% opinion leaders (24 out of 108 respondents) indicated that they did not know. This supports the earlier findings that farmers are uncertain on how the research function of Subtrop operates.

There was a significant statistical difference between the farmer and opinion leader respondent's ratings with the Fischer's Exact test value: (12.9, $p = 0.001$). These results indicate that more opinion leaders (85%) than farmers (64%) are satisfied with the organisation of the Subtrop research function.

Table 5.15: The satisfaction levels of the Subtrop respondents with regards to the organization of the research function of Subtrop

Criteria			Farmers	Opinion leaders	Total
Satisfaction on the organization of the Subtrop Research Function	Don't know	N	23	1	24
			31%	3%	22%
	No	N	4	4	8
			5%	12%	7%
	Yes	N	47	29	76
			64%	85%	70%
Total		N	74	34	108

Fischer's Exact Test: 12.9, p = 0.001

As motivation to dissatisfaction the most important reasons were:

- Processors and researchers determine the projects to be done and not the farmers;
- The non-involvement of most farmers - always 'the same willing donkeys' to do everything.

Please note that only 10 respondents (8%) motivated their dissatisfaction with the organization of the Subtrop research function.

5.1.4.5 Money spent on Research

The respondents had to indicate if they thought the money spent on research was worth it and the results are presented in Table 5.16.

Table 5.16: Satisfaction levels of Subtrop respondents with regards to money spent on research

Respondent categories	Criteria: Satisfaction with money spent on Research		Farmers	Opinion leaders	Total	Fischer's Exact test
SAAGA	Moderately satisfied	N	2	0	2	3.3, p = 0.354
			6%	0.00%	4%	
	Satisfied	N	16	5	21	
			46%	26%	39%	
	Very satisfied	N	11	9	20	
			31%	47%	37%	
	Extremely satisfied	N	6	5	11	
			17%	26%	20%	
Total		N	35	19	54	
SALGA	Moderately satisfied	N	3	1	4	6.7, p = 0.051
			14%	14%	14%	
	Satisfied	N	12	1	13	
			55%	14%	45%	
	Very satisfied	N	6	2	8	
			27%	29%	28%	
	Extremely satisfied	N	1	3	4	
			5%	43%	14%	
Total		N	22	7	29	
SAMAC	Moderately satisfied	N	4	2	6	2.7, p = 0.475
			12%	10%	11%	
	Satisfied	N	18	8	26	
			53%	40%	48%	
	Very satisfied	N	9	5	14	
			27%	25%	26%	
	Extremely satisfied	N	3	5	8	
			9%	25%	15%	
Total		N	34	20	54	
SAMGA	Moderately satisfied	N	3	1	4	3.2, p = 0.546
			11%	11%	11%	
	Satisfied	N	12	3	15	
			44%	33%	42%	
	Very satisfied	N	7	1	8	
			26%	11%	22%	
	Extremely satisfied	N	4	3	7	
			15%	33%	19%	
Total		N	27	9	36	

From Table 5.16 it is clear that only 54 (43%) of respondents answered the SAAGA research section.
The majority (33) of respondents were satisfied (39%) to very satisfied (37%) with money spend on SAAGA research. No significant differences occur between the two respondent categories.

Unfortunately only 34 (27%) respondents provided their motivations for their ratings. The most important motivations were:

- All research projects address relevant issues in industry (15 respondents / 44%);
- Results of research evaluation should be done more efficiently (6 respondents /18%);
- Only 3 (18%) farmer respondents motivated that research results can be used on farm.

Only 29 (23%) of respondents answered the SALGA research section.

As can be seen from Table 5.16 above, the Fischer's Exact test value for the SALGA research section was: (6.7, p = 0.051). This indicates a statistical difference at the 10% level of significance for the two respondent groups.

A total of 55% (12) farmers were satisfied with money spent on SALGA research, while 43% (3) of opinion leaders were extremely satisfied.

The opinion leaders (29%) and the farmers (27%) had similar ratings with regards to very satisfied with money spent on SALGA research.

However, as the majority of respondents in the SALGA section were 22 farmers in comparison to 7 opinion leaders, it can be said that the majority (13 / 45%) of SALGA respondents indicated to be satisfied with money spent on SALGA research.

A disappointing number of only 15 (12%) respondents indicated their motivations to their ratings. The most important motivations were:

- Research focus on relevant issues in industry (7 respondents / 47%);
- Research is very important but indicated they were not always informed on what is happening (3 respondents / 20%);
- Research also focus on marketing (3 opinion leader respondents / 33%).

As presented in Table 5.16 a total of 43% respondents answered the section on SAMAC research.

The majority (48%) of the SAMAC respondents were satisfied with money spent on research, while 26% were very satisfied. No significant differences occur between the two respondent categories.

Only 37 (29%) respondents provided their motivations for their ratings and the most important motivations were:

- Research projects addressed relevant issues in industry (7 respondents / 19%);
- Results from research can be used on farm (7 respondents / 19%);
- The same type of research has been done for more than 10 years with no usable results (4 respondents / 11%).

A total of 28% of respondents answered the SAMGA research section.

The majority (41%) of SAMGA respondents were satisfied with money spent on SAMGA research, with no significant differences between the two respondent groups.

Only 22 (17%) respondents motivated their ratings. There was a significant statistical difference between the farmer and opinion leader respondents' motivations with the Fischer's Exact value: (12.3, p = 0.046). The motivations provided were the following:

- Too much market access research is done while other research was not well motivated (6 respondents (27%);

- Research results can be used on farm (only 5 farmer respondents / 23%);
- New technologies need more research therefore research stays important (4 respondents / 18%).

The respondents were asked for any suggestions on how to improve the research function of Subtrop. This question was poorly answered as less than 20% of each commodity's respondents provided suggestions. The suggestions were dispersed and therefore the most important suggestions will be provided:

- More farmers need to become involved (15 respondents);
- Funding from government should be applied for; bursaries to young farmers should be given and the identification of new students to study / research agriculture should assist to improve the research function of Subtrop (7 respondents);
- More feedback of research results / progress on study groups should be given (6 respondents);
- A total of 8 respondents indicated they had no suggestions to offer as they were satisfied with the research function.

Cross-tabulations were also done between the submitting of research priorities and suggestions on how to improve the research function of Subtrop. No correlations were found and the sample size of respondents was once again very low. However, there was a tendency of respondents who indicated that they did submit their research priorities suggested to get more farmers involved.

Therefore, from the above suggestions it is clear that the farmers should become more involved. The farmer's own experience and knowledge should be considered with formal research. This correlates with participatory extension approaches and therefore confirms the need of farmers to be a co-partner in research (Terblanché, 2008; Blum, 2007; Hewitt, 1996 & Paxton, 1980). Regular feedback on study groups was a suggestion from only the farmers from all four groups. This confirms the need of the farmers to be informed and also from the previous findings of the farmers not informed on how the research function operates within Subtrop.

5.1.4.6 The rating of the Subtrop research function

Once again the different groups had to rate the research function before and after the Subtrop amalgamation and Figures 5.17 – 5.20 present the results. The Fischer's Exact test was done on each of the commodity's research ratings and no significant statistical differences were found. The Cronbach's Alpha test could not be performed as there were not enough respondents who rated at least three of the four commodities' research.

5.1.4.6(a) The SAAGA research function

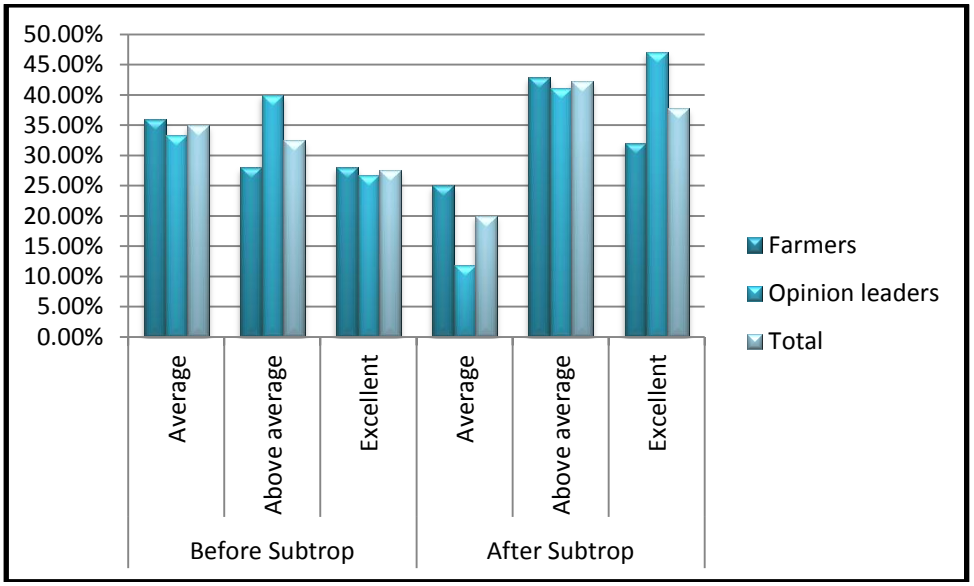


Figure 5.17: The SAAGA research function before and after the Subtrop amalgamation as perceived by farmer and opinion leader respondents

Figure 5.17 demonstrate that 35% of respondents rated the SAAGA research function as average, 33% above average and 28% excellent before the amalgamation.

After the amalgamation 42% of respondents rated the research function as above average and 38% excellent; resulting in a 9% and 10% increase respectively.

Therefore, it can be stated that the SAAGA research function has improved after the Subtrop amalgamation.

5.1.4.6(b) The SALGA research function

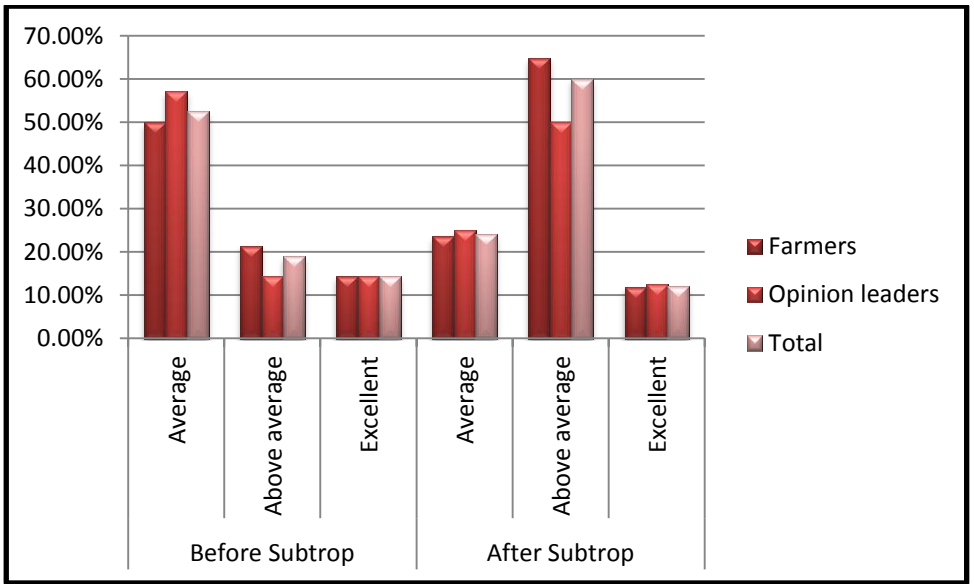


Figure 5.18: The SALGA research function before and after the Subtrop amalgamation as perceived by the farmer and opinion leader respondents

Figure 5.18 presents the results of the SALGA research function and it demonstrates that 52% SALGA respondents rated the research function as average and 19% above average before the amalgamation.

After the amalgamation the SALGA respondents rated the research function as 24% average and 60% above average.

This is a 41% increase in the above average rating and a 28.4% decrease in the average rating. There was a 2% decrease in the excellent rating before and after the amalgamation.

Therefore, it can be stated that the SALGA research function has improved after the amalgamation but is still far from excellent.

5.1.4.6(c) The SAMAC research function

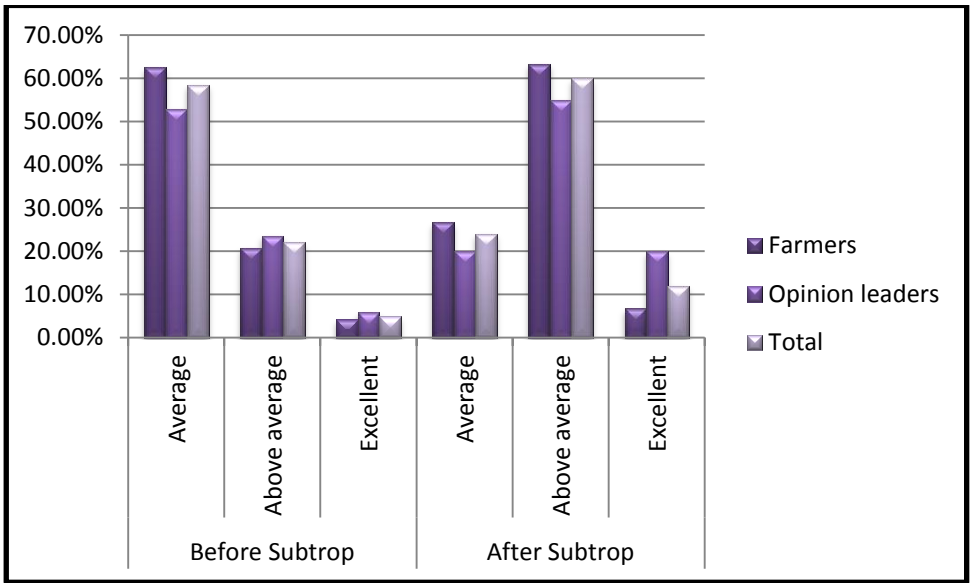


Figure 5.19: The SAMAC research function before and after the Subtrop amalgamation as perceived by respondents

Figure 5.19 provides the results to the SAMAC research function.

Before the amalgamation 59% SAMAC respondents rated the research function as average and 22% above average.

After the amalgamation the research function was rated as 24% average and 60% above average.

This results in a 35% decrease in the average rating and a 38% increase in the above average rating.

The research function was rated as 4% excellent before the amalgamation and 11% after the amalgamation.

This results in a 7% increase after the amalgamation.

Therefore, it can be stated that the SAMAC research function has also improved after the amalgamation. However, there is still room for improvement towards excellence.

5.1.4.6(d) The SAMGA research function

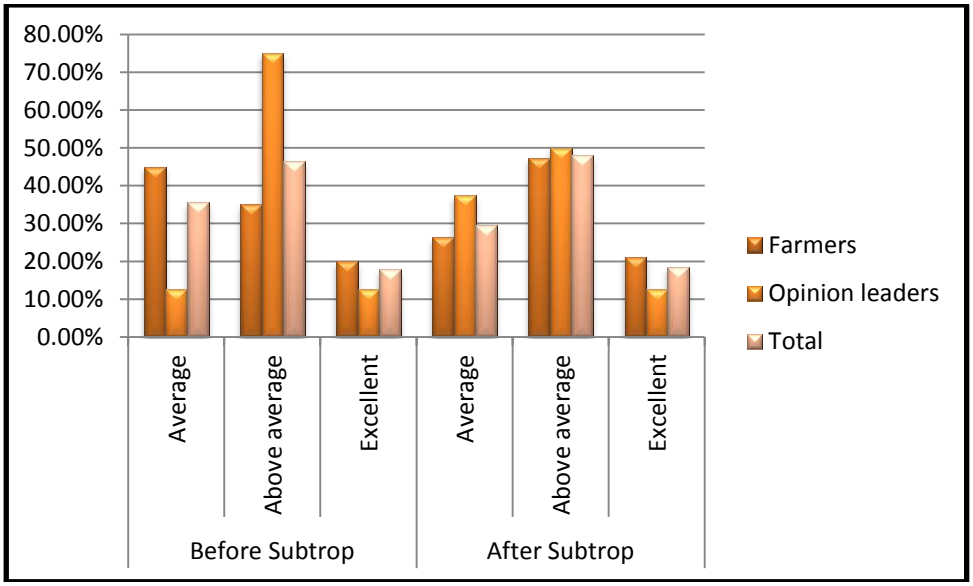


Figure 5.20: The SAMGA research function before and after the Subtrop amalgamation as perceived by the farmer and opinion leader respondents

Figure 5.20 provides the results of the ratings of the SAMGA research function before and after the amalgamation.

Before the amalgamation the respondents rated the SAMGA research function as 36% average and 46% above average.

After the amalgamation it was rated as 30% average and 48% above average.

This results in a 6% decrease in the average rating and a 2% increase in the above average rating.

There was only a 1% increase in the excellent rating.

Therefore, it can be stated that the research function of SAMGA has improved somewhat after the Subtrop amalgamation.

Although there were no statistical differences between the farmer and opinion leader respondents' ratings, it is clear from Figure 5.19 that there were differences between the different group's ratings.

The opinion leader respondents indicated a 13% average and 75% above average rating before the amalgamation, which dispersed into a 38% average and 50% above average rating after the amalgamation.

This result into a 25% increase and 25% decrease in the average and above average rating respectively, according to the opinion leader respondents.

Therefore, it can be stated that the opinion leader respondents of SAMGA indicated that the research function of SAMGA did not really improved after the amalgamation. These findings also confirm the negative percentage difference according to the proportion of the Subtrop budget, previously discussed under point 5.1.4.2, Table 5.12.

Therefore, these results indicated that there is still room for improvement in the SAMGA research function of Subtrop.

Table 5.17 below provides a summary on the ratings of the different Subtrop commodities' ratings as indicated by the Subtrop respondents.

Table 5.17: A summary of the ratings of the different Subtrop commodities' research function as perceived by Subtrop respondents

	Above average				Excellent			
	Before	**After**	**Difference**	**Rating**	**Before**	**After**	**Difference**	**Rating**
SAAGA	33%	42%	9%	3	28%	38%	10%	1
SALGA	19%	60%	41%	1	14%	12%	-2%	4
SAMAC	22%	60%	38%	2	5%	12%	7%	2
SAMGA	46%	48%	2%	4	18%	19%	1%	3

As demonstrated by Table 5.17 the research function of Subtrop of all commodities have improved after the amalgamation. The combined above average and excellent ratings indicate the following:

SAMAC research has improved the most with a 45% increase in total difference ratings of above average and excellent criteria; SALGA in the second place with 39% and SAAGA in the third place with 19%.

SAMGA have improved the least of all four commodities with only a 3% increase in total difference ratings of above average and excellent criteria.

This agrees with earlier findings where it was indicated and confirmed by Table 5.11 and Table 5.12 that SAAGA and SAMGA research need more attention, especially on-farm related research.
.
The last question in this section asked the respondents who the Subtrop Technical and Research Co-ordination manager was.

There was a substantial difference between the farmers and opinion leader's responses, with the Fischer exact test value: (23.1, $p < 0.0001$).

A total of 82% of farmers did not know who this person was in comparison to 37% of opinion leaders; while 63% of opinion leaders knew who this person was in comparison to only 17 % of the farmers.

These results correlate with earlier findings on the CEO and Subtrop Industry manager where most of the respondents were unfamiliar with them.

Cross-tabulations were also done between the submitting of research priorities and the knowledge of respondents with regards to who the Subtrop Technical and Research Coordination manager was. There was no correlation between these criteria in the opinion leader respondent group.

However, 51% the farmer respondents who indicated not to submit their priorities also did not know (94%) who the Technical Manager was. The Fischer's Exact test value: (7, $p = 0.018$), indicating a significant relationship between these two criteria.

This confirms once again the non-involvement of especially the farmer respondent group with regards to the research function of Subtrop.

To conclude:

- SAAGA research was rated extremely relevant to industry and moderately relevant to opinion leaders and extremely relevant to farmers with regards to farming.
- SALGA research was rated extremely relevant to industry and moderately relevant to farmers and extremely relevant to opinion leaders with regards to farming.
- SAMAC research was rated extremely relevant to industry but moderately relevant to farming.
- SAMGA research was rated moderately relevant to farming and extremely relevant to farmers and moderately relevant to opinion leaders with regards to industry.
- The majority of respondents did submit their research priorities and agreed with the method used to determine these priorities.
- There were indications that a group of mostly farmers were unfamiliar with the research function and how the process work.
- Identifying research priorities, support and participation were the main responsibilities the respondents thought to have towards the Subtrop research function.
- Only a very small group of respondents realize the application of research results as a responsibility.
- The majority of respondents were satisfied with money spend on research in all four groups (SAAGA, SALGA, SAMAC & SAMGA).
- Respondents rated SAAGA, SALGA, SAMAC research higher after the Subtrop amalgamation.
- SAMGA research was rated slightly lower. Although the differences were not statistically significant, more attention to this industry's research is needed.
- The majority of farmers did not know who the Subtrop Technical & Research Co-ordination Manager was, while the majority of opinion leaders did know.

5.1.5 Websites

Subtrop, SAAGA, SAMAC and SAMGA have each their own websites where information on a variety of topics is available to farmers. Technical related information is put on these websites as another communication channel of extension to reach the farmers. The following questions were asked in the survey to the farmers:

- Do they use the websites available to them in the Subtrop context?
- If they do which one and if they don't why not?
- What kind of information do they use?
- They had to indicate if they agree/ not agree with a set of statements:
    - The websites are user friendly
    - Their satisfaction with the quality of the website
- If they had any suggestions on how to improve the websites?

5.1.5.1 The use of websites

A total of 89% (113 out of 127) of respondents answered the question if they use any of the websites in the Subtrop context; and 64% of farmers and 42% of opinion leaders indicated that they did not use the websites.

Only 58% of opinion leaders and 36 % of farmers indicated they used the websites. The Pearson Chi-Square Test value: (4.8, $p = 0.041$). This indicates a significant difference between the farmer and opinion leader respondent's indications.

Therefore, 22% opinion leaders use the websites more than farmers.

The respondents had to indicate which websites they use and Table 5.18 presents the results to this question.

Table 5.18: Websites the farmers and opinion leaders use in the Subtrop context

Websites	Farmers	Opinion leaders	Total
SAAGA	11 26%	7 29%	18
SAMAC	10 23%	9 38%	19
SAMGA	10 23%	4 17%	14
Subtrop	12 28%	4 17%	16

*Percentages are based on responses

It can be seen from Table 5.18 that more farmers use the SAMGA and Subtrop website than opinion leaders. More opinion leaders use the SAAGA and SAMAC websites. However there was no statistical difference between the choices the farmers made between the websites. Therefore the SAMAC and SAAGA websites are used more followed by the Subtrop website. The SAMGA website was the least used.

As motivation for not using the websites, the respondents had to indicate why not from a closed set of criteria as demonstrated by Table 5.19.

According to Table 5.19 it can be seen that 23 respondents (mostly farmers) were unaware of the existence of these websites as the most prominent reason. This could possibly explain why the majority of farmers do not use the websites.

Table 5.19: Respondents motivations for not using the websites in the Subtrop context

Motivations for not using websites		Farmers	Opinion leaders	Total
Do not use websites to gain information	N	12 22%	9 53%	21
Forgot my password	N	3 6%	1 6%	4
Do not know there is a website	N	20 36%	3 18%	23
Do not know the website addresses	N	12 22%	3 18%	15
Do not have access to e-mail	N	8 15%	1 6%	9
Total	N	55	17	72

Percentages and totals are based on responses.

Furthermore, a total of 21 respondents indicated that they do not use websites to gain information.

It was also indicated by 15 respondents that they did not know the websites' addresses. This correlates with a study done with California farmers who indicated they do not use websites to gain information on farming enterprises (Buchner et al., 1996).

The respondents had to indicate for what purpose they use the websites from a closed set of criteria.

A total of 55% of respondents indicated they use the websites for technical information and 30% indicated they also use websites for market related information.

These results agreed with surveys Subtrop execute on websites to determine which topics receive the most hits, as Table 5.20 below demonstrates for the SAMAC website.

From Table 5.20 it is clear that market related information, such as suppliers (nut cracking factories), marketing information, UK marketing were the most used during 2011; especially during the months of February to May, which marks the beginning of the macadamia season.

During August September, towards the end of the season, marketing information is used again to monitor prices to be expected for nuts delivered to nut factories.

Technical information, such as farming information and quality standards, are being used mostly towards the beginning and end of the year. This marks the onset of harvesting earlier in the year and preparing for the coming season towards the end of the year.

This indicates that the information on the websites are relevant and being used.

Table 5.20: Hits SAMAC website received 2011

SAMAC ALL PAGES DATA 2011													
Page	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
About Us	81	82	89	78	77	90	88	102	81	89	117	98	**1072**
Overview	65	99	78	92	58	77	90	98	81	93	91	62	**984**
Suppliers (Nut factories)	147	211	213	115	152	164	170	183	152	174	148	116	**1945**
Quality Standards	78	107	99	74	73	78	65	118	71	113	102	66	**1044**
Marketing Info	104	113	96	81	99	97	90	134	89	119	99	88	**1209**
Nutritional Info	48	46	49	48	49	42	38	64	33	58	60	42	**577**
Recipes	43	40	56	61	36	40	53	51	29	53	53	32	**547**
Farming Info	194	213	189	172	210	181	233	336	229	253	260	195	**2665**
Links	62	57	56	45	47	56	56	75	55	50	56	42	**657**
Constitution	25	36	38	28	30	30	40	42	23	52	45	33	**422**
Contact Us	71	77	85	50	76	83	75	115	70	86	87	73	**948**
Future Events	34	49	32	29	32	37	48	62	32	62	50	36	**503**
News-letter	43	3	25	16	24	6	59	23	13	3	45	15	**275**
UK Marketing	149	685	117	719	579	35	46	56	49	54	37	22	**2548**
Library	1	8	46	6	41	3	7	11	1	7	3	2	**136**
Hand-books	2	0	4	15	2	3	2	4	3	2	1	1	**39**
Docs	75	95	89	75	110	123	112	134	103	77	79	62	**1134**
Docs: EstWorldMacProd	75	88	89	62	90	73	42	109	53	96	92	70	**939**
Docs: Production-SalesStats	47	71	57	45	59	51	39	70	60	74	50	36	**659**
Total	**1344**	**2080**	**1262**	**1811**	**1844**	**1269**	**1353**	**1787**	**1227**	**1515**	**1475**	**1091**	

Cross-tabulations were done between the different commodity groups and the type of information they used on the websites. Although the respondent sample size was extremely low, the same results were indicated. Technical and market related information were the main reasons why the websites were used.

The respondents had to indicate their agreement / disagreement with a closed set of statements, as demonstrated by Table 5.21 below.

According to Table 5.21, 54% of respondents agreed that websites were user friendly and 46% of respondents agreed that they were satisfied with the quality of the websites.

However, there were a substantial percentage of respondents who indicated they did not know on both statements (42% & 43% respectively).

This confirms earlier findings that the websites are not sufficiently used and therefore the respondents did not know how to rate the statements in Table 5.21.

Table 5.21: Statements on the websites in the Subtrop context as perceived by farmer and opinion leader respondents

Statements on websites			Farmers	Opinion leaders	Total
The websites are user friendly	Do not know	N	25	11	36
			45%	38%	42%
	Disagree	N	1	1	2
			2%	3%	2%
	Agree	N	29	17	46
			52%	59%	54%
Total		N	55	29	85
I am satisfied with the quality of my industry related website	Do not know	N	26	9	35
			48%	33%	43%
	Disagree	N	3	5	8
			6%	19%	10%
	Agree	N	24	13	37
			44%	48%	46%
Total		N	53	27	81

Cross-tabulations were done between the above mentioned statements in Table 5.21 and if the respondents used the website. Table 5.22 demonstrates the results.

Table 5.22: Cross-tabulations between the indications of the farmer and opinion leader respondents on the statements regarding the Subtrop websites and use of the Subtrop websites

Respondent group	Statement with regards to websites	Rating	Number	Do you use any of the websites available in the Subtrop context?		
				No	Yes	Total
Farmers	The websites are user friendly	Do not know	n	22	0	22
			Row %	100.00%	0.00%	100.00%
			Column %	91.70%	0.00%	43.10%
		Disagree	n	1	0	1
			Row %	100.00%	0.00%	100.00%
			Column %	4.20%	0.00%	2.00%
		Agree	n	1	26	27
			Row %	3.70%	96.30%	100.00%
			Column %	4.20%	96.30%	52.90%
	Total		n	24	26	50
			Row %	47.10%	52.90%	100.00%
			Column %	100.00%	100.00%	100.00%
Opinion leaders	The websites are user friendly	Do not know	Count	7	4	11
			Row %	63.60%	36.40%	100.00%
			Column %	87.50%	19.00%	37.90%
		Disagree	Count	0	1	1
			Row %	0.00%	100.00%	100.00%
			Column %	0.00%	4.80%	3.40%
		Agree	Count	1	16	17
			Row %	5.90%	94.10%	100.00%
			Column %	12.50%	76.20%	58.60%
	Total		Count	8	21	29
			Row %	27.60%	72.40%	100.00%
			Column %	100.00%	100.00%	100.00%

A total of 22 farmer respondents (out of 50 farmer respondents) indicated that they do not know if the websites were user friendly, as they did not use the websites.

However, 27 (out of 50) farmer respondents agreed that the websites were user friendly and 26 of farmer respondents indicated that they do use the websites.

There was a significant statistical difference between the statement and if the farmer respondents used the websites. The Fischer's Exact test value: (55.7, $p < 0.0001$). This indicates a highly significant relationship between these two criteria.

A total of 16 (out of 29) opinion leader respondents agreed with the statement and did use the website; while 7 opinion leader respondents did not use the websites and did not know if the websites were user friendly.

There was also a significant relationship between these two criteria in the opinion leader respondent group, with the Fischer's Exact value: (11, $p = 0.001$).

Therefore, this indicates that if the two respondent groups did not know if the websites were user friendly, they also did not use the websites and vice versa.

Although not demonstrated by Table 5.22, the same trend was observed with regards to the satisfaction with the quality of the websites and if the respondents used the websites. The Fischer's Exact test value: (29.91, $p < 0.0001$) for farmer respondents and (13.3, $p = 0.001$) for opinion leader respondents.

Therefore, the above mentioned results indicated a highly significant relationship between the evaluation of the websites on certain statements and if the websites were used.

The Cronbach's Alpha test could not be performed as there were only two statements and at least three statements were needed to perform this reliability test.

The respondents had to indicate suggestions to improve the websites. The majority (88.6%) of respondents had no suggestions to offer and the rest of the suggestions were too much dispersed to mention or discussed.

In conclusion:

- The majority of respondents did not use or know about the websites;
- More opinion leaders than farmers used the websites;
- Both farmers and opinion leaders indicated they do not use websites to gain information and did not know of the existence of these sites;
- The respondents who did use the websites used it to gain technical and market related information;
- There was a highly significant relationship between the use of the website and specific evaluation statements of the websites;
- The respondents who did use the websites indicated that the websites were user friendly and were satisfied with the quality of the websites; and
- The majority of respondents had no suggestion on the improvement of the websites.

5.2 SECTION B: MARKET INFORMATION

SAAGA, SALGA, SAMAC and SAMGA provide different market information. After the Subtrop amalgamation there were still growers who seemed unaware of all these information, as well as other services that Subtrop provide to its members. Therefore, the aim of Section B is to investigate if this is true or not.

The respondents had to indicate if they were aware of each one of these services and had to rate the importance of this service. A low percentage of the respondents answered this part of the survey.

5.2.1(a) SAAGA market related services

A total of 30% - 35% of respondents answered the SAAGA market related services. Table 5.23 provides the total (farmers + opinion leaders) results to the market information services with regards to SAAGA.

The farmers and opinion leaders answered the SAAGA market related section in the same manner, with the Fischer's Exact test value of <5 and $p > 0.050$. Therefore, only the total percentages of respondents are demonstrated in Table 5.23.

Table 5.23: Respondents knowledge about market related services that Subtrop provides to SAAGA members and their rating of the importance of these services

Information service - SAAGA	Yes	No	Not important at all	Average important	Very important
1. Pack house & exporters estimates	**84%**	**16%**	**3%**	**15%**	**83%**
2. Weekly packing & shipping figures	**81%**	**20%**	**3%**	**11%**	**87%**
3. Competitors' weekly shipments & their estimates (p=0.026)	**72%**	**28%**	**5%**	**18%**	**70%**
4. Export volume recommendation (p=0.027)	**78%**	**20%**	**5%**	**16%**	**78%**
5. Local generic market development	**73%**	**27%**	**5%**	**13%**	**82%**
6. Overseas generic market development	**76%**	**24%**	**5%**	**11%**	**84%**
7. Industry related statistics	**78%**	**22%**	**0%**	**16%**	**84%**

From Table 5.23 it is clear that the majority of respondents indicated they were aware of the SAAGA market information services Subtrop provided. All the above services were rated as very important.

Therefore, the above mentioned statement, for SAAGA members that did participate in this question, was untrue; as the majority indicated they were aware of the information Subtrop provided to SAAGA members. However, it must be noted that less than 50% of respondents participated in this section.

The Cronbach's Alpha test was performed to test the reliability of the SAAGA respondent's indications and ratings. The Cronbach's Alpha test value was 0.795 indicating the results of Table 5.22 as reliable.

5.2.1(b) SALGA market related services

A low percentage (17% - 18%) of respondents participated in the SALGA market information section. Table 5.24 below provides the results to the SALGA market related services that Subtrop provides to its SALGA members.

The opinion leaders and farmers answered this question in similar responses with the Fischer's Exact test value of <5 and p > 0.05. Therefore only the total percentages are indicated in Table 5.24.

Table 5.24: Respondents knowledge about market related services that Subtrop provides to SALGA members and their rating of the importance of these services

Information service - SALGA	Yes	No	Not important at all	Average important	Very important
1. Pack house & exporters estimates	**48%**	**52%**	**8%**	**8%**	**83%**
2. Weekly packing & shipping figures	**48%**	**52%**	**5%**	**19%**	**76%**
3. Local market reports	**57%**	**44%**	**0%**	**9%**	**91%**
4. Industry related statistics	**52%**	**48%**	**0%**	**9%**	**91%**

From Table 5.24 it can be seen that 52% of respondents did not know about information services number 1 and 2; while more than 50% of respondents were aware of information services number 3 and 4.

The percentages of respondents who were not aware and aware of the information services were very close to each other and therefore, it can be stated that with regards to SALGA members, there exists some ignorance to services provided. However, all the above mentioned services were rated as very important.

The Cronbach's Alpha test was performed to test the reliability of the SALGA respondent's indications and ratings. The Cronbach's Alpha test value was 0.883 indicating the results of Table 5.24 as reliable.

5.2.1(c) SAMAC market related services

A total of 30% - 36% of respondents answered the SAMAC market information section. The farmers and opinion leaders had similar responses to the questions with the Fischer's Exact test values of <5 and p > 0.05. Therefore, the results of the combined total of farmers and opinion leaders were used. Table 5.25 demonstrates these results.

Table 5.25: Respondents knowledge about market related services that Subtrop provides to SAMAC members and their rating of the importance of these services

Information service - SAMAC	Yes	No	Not important at all	Average important	Very important
1. Production forecasts	**65%**	**35%**	**2%**	**17%**	**81%**
2. .Local generic market development	**65%**	**35%**	**0%**	**18%**	**82%**
3. Overseas generic market development	**73%**	**27%**	**3%**	**13%**	**85%**
4. Industry related statistics	**67%**	**33%**	**0%**	**13%**	**88%**

From Table 5.25 it can be seen that the majority of respondents rated the SAMAC market information services as very important and were aware of all services provided. Therefore, for the respondents that did participate in this section, the abovementioned statement is also untrue, as the respondents were aware of the market related services that Subtrop provides to the SAMAC members.

The Cronbach's Alpha test was performed to test the reliability of the SAMAC respondent's indications and ratings. The Cronbach's Alpha test value was 0.860 indicating the results of Table 5.25 as reliable.

5.2.1(d) SAMGA market related services

Only 13 – 17% of respondents answered the SAMGA market information related section. The farmers and opinion leaders had similar responses with the Fischer's Exact test values of <5 and p > 0.05. The combined results of the farmers and opinion leaders are therefore displayed in Table 5.26.

Table 5.26: Respondents knowledge about market related services that Subtrop provides to SAMGA members and their rating of the importance of these services

Information service -SAMGA	Yes	No	Not important at all	Average important	Very important
1. Pack house & exporters estimates	**81%**	**19%**	**11%**	**32%**	**58%**
2. Weekly packing & shipping figures	**81%**	**19%**	**5%**	**42%**	**53%**
3. Competitors' weekly shipments & their estimates p=0.044	**65%**	**35%**	**6%**	**35%**	**59%**
4. Local market reports	**91%**	**9%**	**0%**	**36%**	**64%**
5. Local generic market development	**58%**	**42%**	**0%**	**18%**	**82%**
6. Industry related statistics	**75%**	**25%**	**0%**	**32%**	**68%**

From Table 5.26 it is clear that the majority (>50%) of respondents indicated they were aware of these services and rated them all as very important.

Therefore, it can be stated that for the SAMGA members of Subtrop, the abovementioned stated is also not true, as they were aware of the market related services Subtrop provides to the SAMGA members.

The Cronbach's Alpha test was performed to test the reliability of the SAMGA respondent's indications and ratings. The Cronbach's Alpha test value was 0.857 indicating the results of Table 5.26 as reliable.

The abovementioned services are distributed via email to the respective Subtrop members. Therefore, the respondents had to indicate if they have access to email.

A total of 94% of farmers and opinion leader respondents indicated they have access to email and access their email on a daily basis.

Cross-tabulations were done between if the farmers had email and if they use the websites in the Subtrop context.

A total of 26 (out of 70) farmer respondents indicated they have access to email and use the websites.

A total of 40 (out of 70) farmer respondents indicated they have access to email but do not use the websites.

On the other hand fifteen (15 out of 34) opinion leader respondents indicated not to use the websites but have access to email; while 19 opinion leader respondents indicated that they have access to email and use the websites.

This confirms once again the websites are not used and should therefore be actively marketed to increase the awareness of the websites.

5.2.2 Value of the market related services provided by Subtrop

The respondents had to indicate if the above mentioned market information services had value to them on farm. A total of 82% of respondents indicated that it did. The respondents had to motivate their answers. The most important motivations were:

- New information is immediately available which helps with immediate decisions and implementing new practises on farm (farmers – 69%; opinion leaders – 58%);
- Things change too quickly to stay abreast of changes - information helps with keeping up (farmers - 13%: opinion leaders – 21%).

These findings agree with a survey done with California farmers where it was also mentioned that farmers need immediate information to stay abreast of changes and possible markets (Buchner et al., 1996).

Cross-tabulations were done between the different commodity groups and their indications on the value of the market information. All four commodity groups indicated the market information valuable. Motivations given once again indicated market information useful to stay ahead of changes and important in decision making.

The respondents had to provide suggestions to improve the market related services. The majority (78%) of respondents had no suggestions.

5.2.3 General information services

The respondents had to indicate if they would like a timely production related SMS or email during harvesting periods. They also had to indicate which of the two communication channels they would prefer.

A total of 72% of respondents indicated they would like to receive a SMS during harvesting periods; while 95% of respondents indicated that they would prefer emails.

The respondents also had to indicate what other information they would like to receive. Most respondents indicated that they would like to receive information on orchard practises (18%) and market tendencies (22%).

Other information indicated was:

- Emerging problems, for example a build-up of pest population in an area;
- Local market prices and the corresponding volumes on that market;
- Snippets on other industries in South Africa and around the world; and
- Changes with regards to law matters, for example minimum wage.

The rest of the answers were too dispersed to be mentioned.

The respondents had to indicate any other services they need Subtrop to provide. Only 25% of respondents answered this question and the most prominent answers were the following:

- Respondents indicated that there were no other services they can think of;
- It was indicated that they were satisfied with current services;
- Subtrop must be involved on higher level with government, especially now that ‘we have a bigger voice‘(4 industries);
- Subtrop should organise group services such as training sections and GlobalGap auditing, especially for small scale farmers; and
- Subtrop should take over the Banana industry’s affairs.

5.2.4 Final rating of Subtrop services and last comments

The respondents were asked to rate specific services of Subtrop. Figure 5.20 below demonstrates the total percentages of respondents’ ratings, and there were no significant statistical differences between farmers’ and opinion leaders’ ratings.

The percentage of respondents who participated in this question is as follows: Technical extension (77%), Study groups (84%), Newsletters (83%), Research (80%), Websites (68%) and Marketing information (79%).

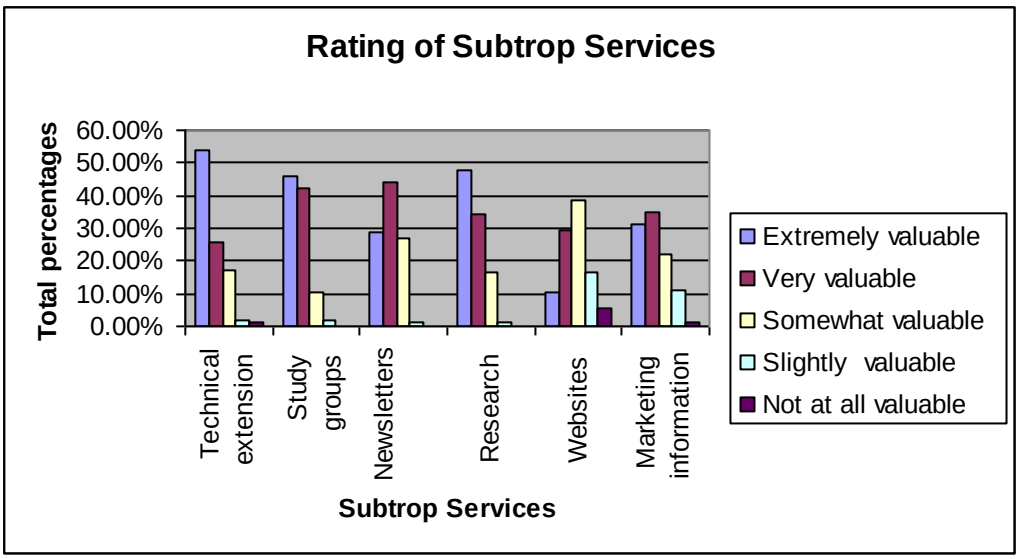


Figure 5.21: Total percentages of respondents rating of Subtrop Services

The following results are demonstrated by Figure 5.21:

- Technical Extension Services were rated as 54% extremely valuable;
- Research was rated as 48% extremely valuable;
- Study groups were rated as 46% extremely valuable;
- Marketing information was rated as 31% extremely valuable;
- Newsletters was rated as 29% extremely valuable;
- Websites were rated as only 11% extremely valuable.

Therefore, it is clear that extension services, research and study groups were the most valuable services to the respondents. This is in line with earlier findings were respondents indicated that study groups and visits of extension advisors are still preferred sources of information.

Newsletters and marketing services rated higher as very valuable and it is still an indication that these services were valuable to the respondents. It is clear however, that the websites were not a valued service. This agrees with earlier findings that respondents do not use the website and are unaware of them.

The Cronbach's Alpha test was performed to test the reliability of the final ratings of the Subtrop services, as indicated by the two respondent groups. The Cronbach's Alpha test value was 0.744 and therefore indicates the reliability of the respondent's final ratings of the Subtrop services.

The last question in the survey was if there were any last comments. The answers were very random and only 37% of the respondents had last comments. The most important comment was:

- Subtrop delivers an excellent service (Farmers – 47%; Opinion leaders – 30%)

Other comments were:

- Subtrop member data basis and commodity census need to be updated;
- Subtrop gives direction to our industries; and
- Subtrop ensures the future of our industries.

In conclusion:

- The section of market related questions were not answered by the majority of respondents;
- The majority of respondents who did answer this section indicated that SAAGA, SAMAC and SAMGA members were aware of market related services Subtrop provided to them;
- Although the SALGA respondents who did answer the market related section indicated they were aware of services provided, the percentage between know and did not know were very similar. Therefore, it can be concluded that amongst SALGA members there are still members who are unaware of market related services;
- The majority of respondents indicated they have access to email and download emails on a daily basis;
- The respondents valued the market related information as it helps with decision making on farm and assist them to stay abreast of changes;
- The majority of respondents had no suggestions to offer to improve the market information services;
- Information on orchard practises and market tendencies were other information the respondents were interested in to receive;
- The majority of respondents could not think of any other services they wanted Subtrop to provide;
- Technical extension, study groups and research rated the highest as extremely valuable to the respondents;
- Market related information and newsletters rated as very valuable;
- The websites were rated as somewhat valuable; and
- The majority of respondents indicated that Subtrop provided an excellent service.

CHAPTER 6

EXTENSION ADVISORS KNOWLEDGE EXPERIENCE AND PERCEPTIONS OF THE SUBTROP AMALGAMATION AS AN EXTENSION SERVICE TO FARMERS

6.1 Introduction

The Technical team of the Extension Services of Subtrop consist of a Technical Manager and six extension advisors. Each of these extension advisors have their own area to manage and the areas are as follows:

1. Zimbabwe, Louis Trichardt / Levubu areas
2. Emerging farmers in the Venda and Tzaneen area
3. Soekmekaar, Mooketsi, Tzaneen, Hoedspruit and Ohrigstad areas
4. Hazyview, Kiepersol, Schagen and Nelspruit areas
5. Nelspruit, Baberton, Malelane and Komatipoort areas
6. Kwazulu Natal and Eastern Cape

The survey tested the extension advisors perceptions of the extension services rendered pre and post amalgamation.

To avoid subjectivity the author was excluded from the survey. Six extension advisors were interviewed, one extension advisor was interviewed shortly after him leaving Subtrop and his replacement was interviewed after an appropriate time of exposure to the industry.

The extension advisors, (hereafter called the respondents) had to indicate if they were employed by one of the commodities associations that Subtrop serves before the amalgamation. Two out of six respondents indicated they were employed previously by SAAGA and SAMAC respectively. The other four respondents were not previously employed by the commodity organisations.

The extension advisors workload will vary according to the prevalence of commodities in each area. Therefore, the respondents had to indicate the prevalence of each commodity in their respective areas. Table 6.1 below demonstrates the prevalence of commodities in each extension area:

Table 6.1: Prevalence of commodities in each area

	SAAGA	SALGA	SAMAC	SAMGA
Very prevalent	100%		83%	17%
Prevalent			17%	
Somewhat prevalent		50%		50%
Not prevalent at all		50%		33%

*Percentages are based on responses

It can be seen from Table 6.1 that SAAGA and SAMAC is most prevalent in all areas. SAMGA is second in prevalence, with SALGA the least prevalent in all areas. This co-inside with the size of these respective industries; as SAMGA and SALGA are relative small industries in comparison to SAAGA and SAMAC. However, it must be mentioned that area 3 (whose extension advisor did not participated in this survey), has a high prevalence of SAMGA and somewhat prevalence of SALGA in her area. It can then be concluded that the majority of respondents, had between two and a half to three commodities to service.

6.2 The Subtrop amalgamation

The respondents had to indicate and motivate if the Subtrop amalgamation was a good idea. All the respondents indicated it was a good idea. They had to motivate their answers from a set of closed criteria. Their motivations were as follow:

- Five (83%) respondents indicated a reduction in duplication of services;
- Three (50%) respondents indicated a unifying voice to government;
- Three (50%) respondents indicated more expertise on board;
- Three (50%) respondents indicated the provision of a better service to members; and
- Four (67%) respondents indicated other reasons.

Other reasons were as follows:

- Cost reductions / overheads;
- Reduced risk of skills loss as a result of staff turnover.
- More levels of management – thus promotion opportunities;
- Provided the extension advisors were adequately competent, the extension advisors would provide a holistic and strengthened service.

6.3 Delivering of a better service to farmers

The respondents had to indicate and motivate if they were providing a better service to their farmer members after the Subtrop amalgamation. Only three respondents indicated they did provide a better service, while one respondent indicated they did not provide a better service and two respondents indicated that they did not know. Table 6.2 provides the respondents' motivation to their answers for this question.

Table 6.2: Extension advisors' motivations for providing / not providing a better extension service after the Subtrop amalgamation

Closed set of criteria	Responses	*Percent of Cases
	Number	
Other	3	50%
Not a lot of time for farm visits	3	50%
Too little time to learn in depth	2	33%
Too many admin functions	2	33%
Spread too thin (ration of extension advisor : farmer too wide)	3	50%
Areas smaller, less travelling	1	17%
Gain more knowledge	2	33%
More exposure to different crops	5	83%
Cross pollination with other advisors	2	33%

***** Percentages are based on responses

The following motivations were indicated as demonstrated by Table 6.2:

- Five (83%) respondents indicated more exposure to different crops;
- Three (50%) respondents indicated time limitations to do farm visits;

- Three (50%) respondents indicated that they are spread too thin, indicating the ratio of extension advisor : farmer too wide;
- Three (50%) respondents indicated other reasons, which were the following:
  - Best practises of each commodity should be on the websites so that extension advisors can focus on special cases / emergencies or new matters;
  - Much time is wasted on unnecessary administration;
  - Communication channels need improvement;
  - Immediately after the amalgamation service levels seemed to drop however service levels seemed to improve as the advisors became familiar with the new situation
  - More budget allocation should be available for advisor training and technology improvement. The above results suggest that the respondents were not entirely convinced that they are providing a better extension service to farmer members post amalgamation.

6.4 The existence of guidelines / orientation program for Subtrop extension advisors

It was requested from respondents to indicate if some guidelines and or orientation program was provided after the Subtrop amalgamation.

Only two (2) respondents indicated that there was an orientation program, while four (4) indicated there was not.

It must be noted that a one day information session for each commodity, except for SALGA, was organized just after the amalgamation. Only two respondents of the original extension team attended the one day program, the other four were not employed by Subtrop at the time. These four "new" advisors had no orientation.

Respondents were requested to indicate if they thought an orientation program would be valuable, especially for newly appointed extension advisors. All six of the respondents indicated in favour of such an orientation program. They had to motivate their answers from a closed set of criteria. Table 6.3 below provides these results.

Table 6.3: Motivating criteria for an orientation program for extension advisors as perceived by extension advisor respondents

Set of criteria for motivations	Number of respondents	Percent of Cases*
Other	4	67%
Enhance professionalism	5	83%
Enhance self-confidence	4	67%
Help to gain knowledge faster	4	67%
Save time	2	33%
It will give direction	5	83%

*Percentages are based on responses

From Table 6.3 it is clear that the majority (5) of respondents indicated that an orientation program would give them direction and enhance professionalism.

It was further indicated such a program will also aid in self-confidence (4 respondents /67%), assist to gain knowledge faster (4 respondents /67%), therefore save time (2 respondents /33%).

Four respondents (67%) indicated other motivations which were respectively:

- Such a program would avoid duplication and standardize the entry level knowledge base;
- As an orientation program should include a soft skills set, it would improve the advisors understanding of client behaviour.
- Subtrop advisors can work more effectively and productively; and
- Unless such a process is implemented as policy, it is doubtful that it will persist in practice.

These findings suggest that the concept of a formal orientation program was favoured by the respondents. Their perceptions indicate a need for standardization that will lead to self-confidence and productivity.

6.5 The extent of work effectiveness

The respondents had to indicate if they work effectively. Two (2) respondents indicated that they do work effectively, while two indicated they don't and two indicated they do not know. In motivating their indications, the results are presented in Table 6.4 below:

Table 6.4: Respondents reasons to motivate the extent to which they work effectively / not effectively

Set of Motivating Criteria	Number	Responses*
Other	3	50%
I get negative / no feedback	1	17%
I do not address the needs of my farmers	4	67%
I do not get to all my work	5	83%
I get positive feedback	3	50%
I address the needs of my farmers	3	50%

*Percentages are based on responses

According to Table 6.4 the following motivations were provided by the respondents:

- Five (5) respondents indicated they do not get all their work done. This agrees with previous finding where respondents indicated the ratio of extension advisors:farmers is too big.
- Four (4) respondents indicated that they do not address the needs of their farmers;
- Three (3) respondents indicated that they address the needs of their farmers;
- Three (3) respondents indicated that they received positive feedback from their farmers;
- One (1) respondent indicated that they received negative / no feedback from his/her farmers;
- Three (3) respondents had other reasons, which were the following:
  - Government structures are used to assist in the development of emerging farmers;
  - Time is wasted on providing basic information to farmers; and
  - As an extension coordinator there is a lot of resources to draw on to assist farmers.

Respondents suggested the following on how to perform their duties more effectively:

- There is no room for upwards promotions – make provision for sideward promotion (N=2 / 67%);
- Mentor farmers were suggested, some advisors had no previous exposure to on-farm practices (N=2 / 67%);
- The current job profile lacks focus and clear direction. (N=1 / 33%);
- Some farm management and administration skill was suggested to address issues like budgets / collate census data etc. (N=1 / 33);
- Priorities for extension advisors must be determined by Subtrop board members – what do the farmers want us to do! (N=1 / 33%);
- Planning of a good extension program is needed as workload is too extensive to give it a 100% attention (N=1 / 33%); and
- Administrative tasks that could be done by office personnel, should not be given to the extension services (N=1 / 33%).

It must be noted that since the respondents participated in this survey, several adjustments have been made in the Extension Service of Subtrop. These adjustments are as follows:

- A grading system has been implemented providing for sideward promotions
- Job descriptions have been amended for each extension advisor per area.
- Each extension advisor conducted a survey to determine problems in their areas. The result were used to develop an extension program for each commodity per area

Terblanché (2008) stated that for an extension program to be effective, it must apply the following principles:

- Extension advisors must be technically competent (at least in one field of Agriculture);
- Extension advisors must be able to communicate (all forms of communication);
- Extension advisors must be able to deal with groups, therefore group facilitation skills;
- Extension advisors must manage their extension service (program planning, monitoring, evaluation, leadership development, etc.)

He further stated that a vision that is future focused (2008:59) will enable extension agents and their organizations to reach the desired outcome to their activities

6.6 Problems experienced by Subtrop extension advisors

The respondents had to indicate what problems they experience as Subtrop extension advisors and these problems are presented in Table 6.5.

Table 6.5 shows that respondents:

- Are frustrated by unnecessary administrative tasks;
- Lack vision and direction in their areas;
- Need more communication from farmer members and their superiors; and
- Farmer members seemed unaware of the new workload while expecting the same service levels experienced pre-amalgamation..

These results agree with earlier results where respondents indicated their lack of training, vision and mentorship. Terblanché (2007: 95) stated that the "*structuring, implementation and management of a mentorship program is essential for organizations and individuals who wish to survive*."

Table 6.5: Problems experienced by Subtrop extension advisors respondents

Problems Subtrop Extension advisors experience	Responses	
	Number	Percent of cases
Administrative tasks		
Census data collated by one person centrally	1	17%
My time is wasted with unnecessary admin that could have been done by the office personnel	2	33%
I am tied down by doing the basic services instead of focusing on more advanced matters	1	17%
Communication		
I battle with Afrikaans in my area as I am English speaking	1	17%
Very poor communication between staff	1	17%
Need more feedback on our performances	1	17%
Lack of cooperation in certain areas like Tzaneen - poor flow of information from the government extension officers to growers	1	17%
We lack priorities that can make a difference	1	17%
Many farmers don't understand that I work for four associations	1	17%
Training / mentoring		
Seeing is believing - I lack hands-on experience in some commodities and desperately needed training to win farmers' trust	1	17%
General		
Travelling long distances - spend many hours on road	1	17%
Too high a workload to give each industry my full attention	1	17%

*Percentages are based on responses

6.7 Request for farm visits by farmers

The extension advisor respondents had to indicate if farmers had phoned them requesting a farm visit and if they did, how often. All six respondents indicated they have been phoned for a farm visit.

Two (2) respondents indicated they received regular phone calls requesting farm visits.

One (1) respondent indicated 4 – 6 phone calls per day while a further one (1) respondent indicated 4 – 5 calls per month, requesting farm visits.

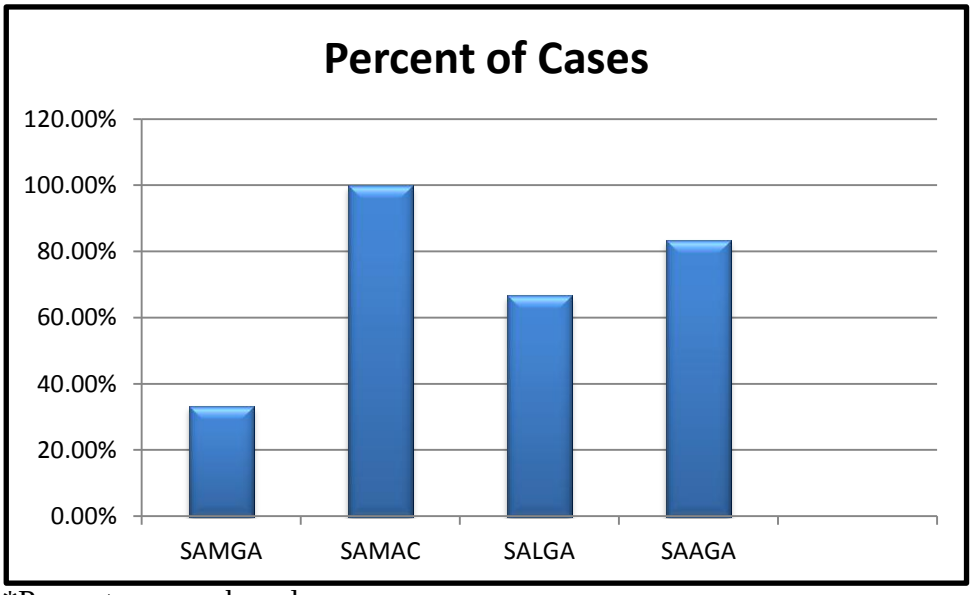
One (1) respondent also indicated 15 phone calls per year.

Therefore, it is clear that some respondents are requested more often than others for farm visits.

The respondents had to indicate as well:

(a) If farmers call on them for assistance;
(b)Which commodity farmers requested assistance; and
(c) For what reason they are called upon for assistance.

All respondents indicated that farmers call on them for assistance. Figure 6.1 below presents which commodity farmers asked for assistance.



*Percentages are based on responses

Figure 6.1: The percentage of Subtrop farmers who requested assistance of the extension advisors as perceived by the extension advisors

From Figure 6.1 it is clear that all (100%) SAMAC farmer respondents requested assistance from the extension advisors.

A total of 83% of SAAGA farmers requested assistance, followed by 67% of SALGA and lastly 33% of SAMGA farmer respondents.

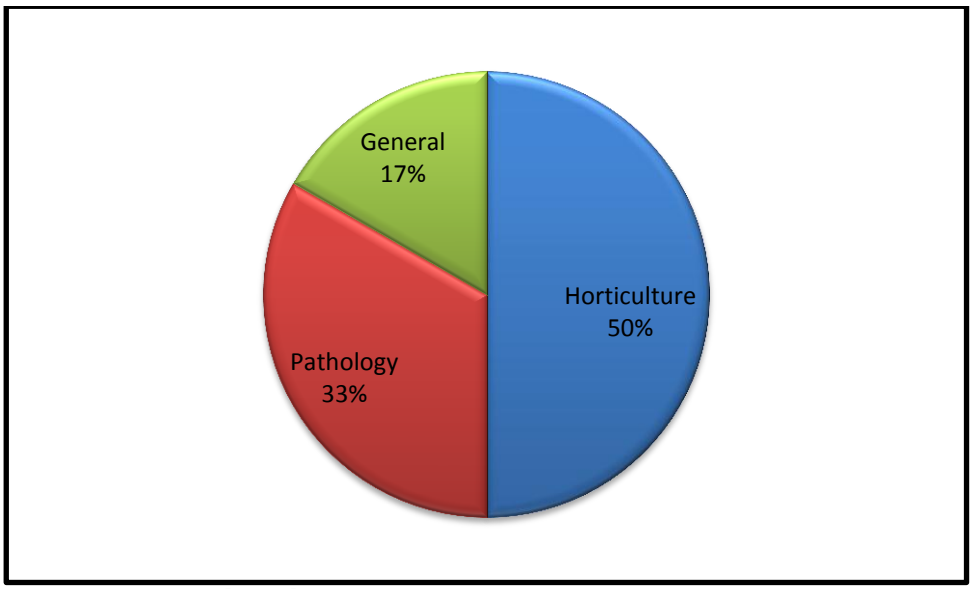
This agrees with earlier results indicated that SAAGA and SAMAC are the bigger industries, while SALGA and SAMGA the smaller industries.

However it is interesting to note, that although SALGA is the smallest industry, it still requires a high level of assistance. Therefore, the size of industry is not directly related to the level of assistance it requires.

The reasons for assistance requested were divided into three main groups:

1. Horticultural assistance: pruning, advice on cultivar planting, plant spacing, fertilizer recommendations, etc.;
2. Pathological assistance: spraying problems / advice, problem identification, scouting, etc.; and
3. General assistance: GlobalGap requirements, general information and market information.

The results are demonstrated in Figure 6.2 below:



*Percentages are based on responses

Figure 6.2:Aspects farmers require assistance from extension advisors

According to Figure 6.2 the majority (50%) of assistance was needed with regards to horticultural enquiries, while 33% of assistance was required for pathology enquiries and lastly 17% on general information. This agrees with earlier findings in Chapter 5 where farmer respondents clearly preferred personal contact when consultation on farm practices was required.

6.8 Organization of study groups

The extension advisor respondents had to indicate and motivate their satisfaction with the organization of study groups. An equal amount (N= 3 / 50%) of respondents indicated that they were and were not satisfied with the organization of study groups. The motivating reasons are demonstrated in Table 6.6 below.

Table 6.6: Motivating reasons for satisfaction / dissatisfaction of organizing of study groups as perceived by Subtrop extension advisors

Motivating reasons for satisfaction / dissatisfaction	**Responses**	
	Number	***Percent of Cases**
Not enough good information - poor speakers	1	17%
Poor leadership in some areas so I have to organize everything with regards to those study groups	4	67%
In some areas there is good leadership so I do not have to organize the study groups on my own	3	50%
Did not isolate all members of study group, everyone was brought in to harmonise things	1	17%

*Percentages are based on responses

Four (67%) respondents indicated poor leadership in some areas; therefore the responsibility of the study groups falls directly on the extension advisor. However, three (50%) respondents indicated good leadership in other areas and therefore responsibilities of study groups were shared.

One (17%) respondent indicated that when it was observed that study group members were not separated into different areas, the study groups were consolidated. However, this resulted in some inter area tension. Terblanché and Düvel (2000) confirmed the importance of a 'we-feeling' amongst members of a study group, ensuring the effectiveness of such a study group. One (17%) respondent indicated that poor speaker selection resulted in dissatisfaction with study group management.

The respondents had to provide suggestions on how to improve the organizing of study groups. The suggestions were as follows:

- Four (67%) respondents indicated that there needed to be a committee for each study group to assist with the organizing of study groups;
- Two (33%) respondents indicated a mix of formal study groups and smaller informal gatherings to discuss significant problem areas;
- Two (33%) respondents indicated that topics for study groups has to come from historical / current issues (a before and after scenario), this to assess the effectiveness of study group topics;
- Two (33%) respondents indicated the need for smaller study groups;
- Two (33%) respondents suggested that certain areas should be split between 3 extension advisors; and
- One (17%) respondent had no suggestions to offer.

The above findings suggest that farmers are uninformed about the correct functioning of efficient study groups.

It is the opinion of the author that most Subtrop study groups are managed by the extension staff to a greater or lesser extent as event managers (organizing venues, sponsorships, 'the braai', etc.),. This seems like a misallocation of professional skill.

Most study groups have an established culture, a culture where the extension advisor manages most aspects of the study groups. However, with a two to three fold average load increase, the extension advisors no longer have the luxury of "waiting tables" at study groups.

In order to match the extension staff's desire to optimise study group effectiveness and change farmer expectations, Subtrop management will need to standardise the study group offering.

6.9 The usefulness of newsletters

The respondents had to indicate their agreement / disagreement to the following statements with regards to Subtrop newsletters as demonstrated in Table 6.7 below.

Table 6.7: Subtrop extension advisors agreement / disagreement on some statements

Statements with regards to Subtrop Newsletters	**Yes**		**No**	
	Number	**Percentage**	**Number**	**Percentage**
Newsletters are relevant and useful to farmers	5	83%	1	17%
Newsletters add value to farmers farming enterprises	5	83%	1	17%

*****Percentages are based on responses

As demonstrated in Table 6.7 it is clear that the majority (N=5 / 83%) of respondents agreed with the statements made with regards to the Subtrop newsletters.

6.10 Research needs and the role of the extension advisor

Respondents had to indicate if they submit their research needs per area. A total of five (83%) respondents indicated that they did submit their research needs. The respondents were also requested to indicate the results of their input. The following results were indicated by five (5) respondents:

- Three (60%) respondents indicated their research needs were not taken into consideration;
- Two (33%) respondents indicated their research needs were discussed at research meetings and appeared as research priorities;
- Two (33%) respondents indicated their research needs should carry more weight, as they were in contact with many farmers and therefore knew what problems farmers experienced;
- One (17%) respondent indicated that there was no feedback on their suggestions for research needs.

The respondents also had to indicate if their research inputs had any value.

Four (67%) respondents indicated that their inputs had value and two (33%) respondents indicated that their inputs had no value.

Therefore, even though some of the respondents indicated that their research needs were not perceived as valuable, the majority of respondents did indicate their inputs as valuable.

The respondents provided suggestions on how to improve the research coordination function of Subtrop as well as the role of the extension advisor in this regard. A variety of dispersed suggestions was generated and is tabulated in Table 6.8 below.

Table 6.8: Suggestions to improve the Research Coordination Function of Subtrop and the role of the extension advisors as perceived by extension advisor respondents

Suggestions	Responses	
	Number	Percent of Cases
Area based suggestions		
Some research needs are area specific and therefore need to get local research companies, like Univ. of Natal, involved	1	9%
It is important to steer the areas in the correct direction (there should be a common goal for each area)	1	9%
Priorities of different areas should be weighted according to area size and Rand value of the problem	1	9%
Extension related		
The extension's opinion should carry more weight based on broader industry exposure.	3	27%
There is too little constructive debate with regards to research at technical meetings / research meetings.	1	9%
We need more interaction with the boards - feels like we are working in isolation with zero feedback	1	9%
Other		
Use measured information and improve on that	1	9%
Research function should be outsourced - too much dominance currently on decision making	1	9%
None	1	9%
Total	11	100%

*Percentages is based on responses

Table 6.8 suggests that the extension advisors inputs carry the greatest concern to the respondents at (45%) emphasis..

6.11 The importance of market related information

As mentioned in Chapter 5, Subtrop provides a range of market related information. The respondents had to indicate if they were aware of these services, and had to rate the importance of each service. All six (6) respondents answered this question and it was indicated that they were all aware of the market related information services and rated these information as very important.

6.12 Impact of Subtrop services on farmers' enterprise

The respondents had to indicate what impact Subtrop had on the farmer's enterprises. According to the extension advisor respondents the impact of Subtrop services on farmers' enterprises are the following:

- Four (4) respondents indicated an increase in productivity on farm and potential returns;
- One (1) respondent indicated more motivated farmers;
- One (1) respondent indicated farmers awareness of farming options were wider;
- One (1) respondent indicated the availability of a valuable source of information; and
- One (1) respondent indicated the forming of a link between industry and relevant role players.

All the respondents indicated that Subtrop is a relevant, valuable organization which serves to add value to farmers and their enterprises in all aspects. The respondents had to rate which of the services provided by Subtrop was the most valuable. Figure 6.3 below provides the results.

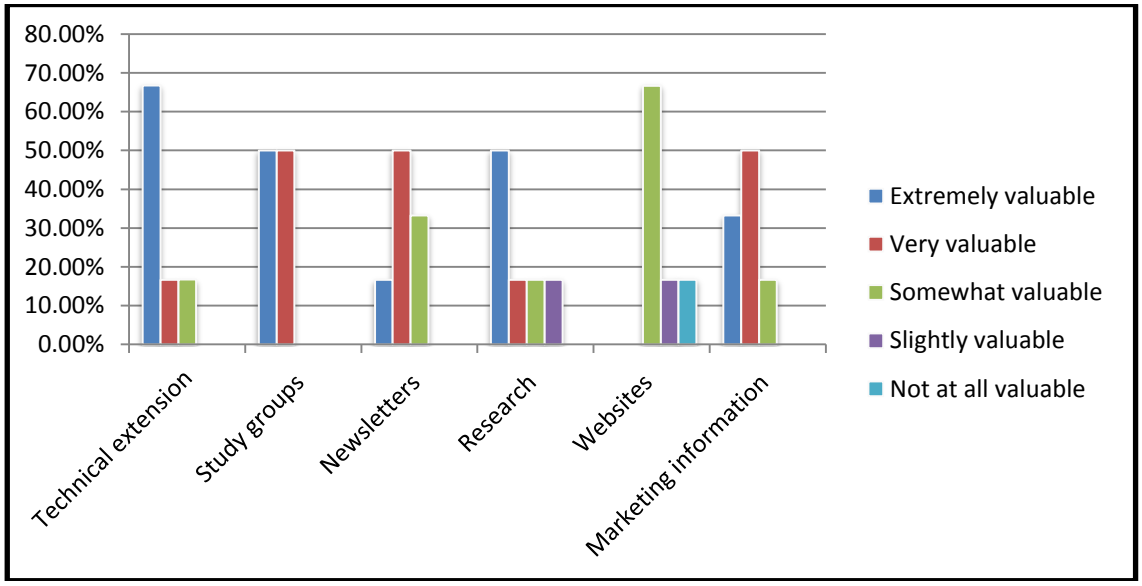


Figure 6.3: The value of Subtrop services as rated by Extension advisors

As demonstrated by Figure 6.3 the respondents rated the services provided by Subtrop as follows:
Extremely valuable:
1. Technical Extension Services: 67%
2. Study groups: 50%
3. Research: 50%

Very valuable:
1. Newsletters: 50%
2. Marketing information: 50%

Somewhat valuable:
1. Websites 67%

6.13 Time spend on specific activities

The respondents had to indicate how much time they spend on a closed set of activities. Table 6.9 below demonstrates the results to this question.

Table 6.9: The mean average percentage of time spend on certain activities according to extension advisors

Activity		**Mean time spent**	**Std. Error**	**Rating**
Administration related activities				
Organizing of study groups	Mean	21.67	3.801	1
	Median	22.5		
Attending meetings	Mean	10	1.826	5
	Median	10		
Other	Mean	5.67	2.29	7
	Median	5.5		
Other coordination functions	Mean	3	1.592	9
	Median	1.5		
Typing minutes of meetings	Mean	2	0.683	10
	Median	2		
Total Mean time spent		**42.34%**		
Technical related services				
Providing information via email / phone	Mean	17	4.359	2
	Median	22.5		
Farm visits	Mean	15	2.582	3
	Median	17.5		
Writing of reports & articles	Mean	15	2.582	3
	Median	12.5		
Fertilizer recommendations	Mean	6.33	1.764	6
	Median	7.5		
Assistance with GlobalGap	Mean	4.33	1.453	8
	Median	5		
Total Mean time spent		**57.66%**		

Table 6.9 indicates that 42.34% of the extension advisors' time is spent on administrative activity, while 57.66% of their time is spent on technical related activities.

Chapter five suggests that the farmer and opinion leader respondents' view on farm and group related services as the most important. Most field activity has some supporting administrative role; however, when administrative activity withdraws from instead of supporting important outputs, it should be managed. Table 6.9 indicates a time saving opportunity with respect to study group management and confirmed in 6.8 above.

Other relevant activity indicated in Table 6.9 is:

- 11.1% - Organizing tours;
- 33.3% - Nursery audits;
- 11.1% for the following respectively:
    - Drawing up of budgets,
    - Census,
    - Arrange information days,
    - Subtrop literature updates,
    - Invader Fruit fly monitoring

Other activities, as specified above, also relate to a high administrative function.

Finally, the respondents were asked for any last remarks. These remarks were divided into two groups, namely training and general:

Training:

1. We need regular training and touching-up of relevant information to stay one step ahead of farmers (22%).
2. We need experience (11%)!
3. Transfer of knowledge to new team members is very important (11%).

General remarks included (11% each):

1. More involvement of emerging farmers and DAFF (Department of Agriculture, Forestry and Fisheries) is required.
2. We are currently only facilitators as we have enough knowledge to draw on other's expertise.
3. I feel not effective at my work – each commodity thinks their work is the most important.
4. Great technical team!

Therefore, in conclusion:

The Subtrop extension advisors agreed that the amalgamation was an improvement. However, the additional commodity load resulted in a two to three times increase in their work load. This caused the extension advisors to lose confidence and question if they provided a better service. To minimize this, the extension advisors agreed that an industry standard orientation training program should be compiled. The extension advisors show that farmer queries, newsletters, and market information are important with web based information less important. Some frustration was expressed by the extension advisors with respect to their inputs towards research and irrelevant administrative work. When time spent on various activities was measured, study group co-ordination emerged as the greatest single time consumer, suggesting management intervention. The need to formalize the extension advisors outputs in a management plan, with both farmer members and extension advisors involvement, seems a solution to activity conflicts.

CHAPTER 7

A COMPARISON OF FARMER AND OPINION LEADER AND EXTENSION ADVISOR RESPONDENTS KNOWLEDGE, EXPERIENCE AND PERCEPTION OF THE SUBTROP AMALGAMATION AND THE EXTENSION SERVICES RENDERED TO THEIR MEMBERS

In Chapter 7 the farmer and opinion leader respondent's knowledge, experience and perceptions will be compared with that of the extension advisors'. The perceptions of farmer and opinion leader respondents of different commodities will also be compared to certain questions in the survey.

7.1 Relevant farmer and opinion leader responses

The two respondent groups had to indicate what they wanted the extension advisors to do, while the extension advisors were asked what services they were required / requested to provide. On the surface this seems like a self-serving test. However, this cross tabulation was designed to test if farmer expectations were in fact being met by the advisors' experiences.

7.1.1. What farmer and opinion leader respondents use the extension advisors for?

In Chapter 5 (Table 5.1) the Very Important category was considered for this test. Further under the Individual Services category, 54% of the farmer and opinion leader respondents rated advice on farm, 38% rated farm visits and 36% rated general information as Very Important.

These results applied to all four commodity groups.

7.1.2 Relevant extension advisor responses

According to Chapter 6 Figure 6.2, the extension advisors showed that 50% of the assistance they provided was of a horticultural nature, while 33% of the queries were associated with pathology and 17% on general information. Furthermore Table 6.9 in Chapter 6 also demonstrated that 58% of time is spend on technical related activities,

The above extension advisor responses show that most of their time is spent on technical related activity.

The above extractions prove that farmer and opinion leader requirements agree with the predominantly technical nature of the extension advisors activity.

7.2 The importance of farm visits

The farmer and opinion leader respondents were asked in two separate questions to indicate the importance of farm visits.

By combining opinion leader and farmer responses both questions yielded an 81% and 95% importance rating respectively.

However when questioned if farm visits were requested; a total of 52% of respondents indicated that they had not request a farm visit, while 46% indicated that they had requested a farm visit. A total of 17% more opinion leaders than farmers requested a farm visit. All of the extension advisors indicated that they had received farm visit requests.

The extension advisors had to indicate how much time they spend on farm visits and it was indicated that they spend 15% of their time on farm visits. There seems to be some disparity between the farmer and opinion leader ratings of farm visits and that experienced by the extension advisors.

7.3 Study groups

The farmer (95%) and opinion leader (91%) respondents indicated in Chapter 5 that they were satisfied with the organization of the study groups,

A total of 50% of the extension advisors were satisfied with the organization of study groups. The other 50% of the extension advisors indicated their dissatisfaction with the organization of study groups because of the following reasons:

- Ineffective leadership in areas (67%);
- Lack of a 'we-feeling' between study group members (17%).

Furthermore, Table 6.9 in Chapter 6 shows that the single greatest time allocation by extension advisors was to the organization of study groups. These results agree with the results of Table 6.6 were respondents indicated they had to organize everything for the study group and this where there was ineffective leadership.

The satisfied 50% of extension advisors attributed their satisfaction to good leadership in their areas and shared responsibilities.

The abovementioned results point to ineffective study group leadership as a source of extension advisor dissatisfaction, while effective study group leadership leads to the extension advisors satisfaction. This dissatisfaction seems to emerge from the extension advisors need to spend productive time on technical matters rather than arranging the social aspects of the study group.

Therefore, in order to better utilize the extension advisors time, the Subtrop farmers need to be educated on how effective study groups should function.

7.4 The usefulness of newsletters

Both the farmer and opinion leader respondent groups and the extension advisors had to indicate if:

(a) The newsletters were relevant and useful to farmers
(b) If the newsletters add value to the farmers enterprises

A total of 83% of the extension advisors indicated that the newsletters were relevant, useful and added value. A total of 98% of the combined farmer and opinion leader respondents indicated their agreement to point (a) and (b) above. Therefore, both the farmer respondents and extension advisors agreed that the newsletters were valuable, relevant and added value to farming enterprises.

7.5 Suggestions on how to improve the research function of Subtrop

The farmer and opinion leader respondents and the extension advisors had to provide suggestions on how to improve the research function of Subtrop. On both accounts the suggestions were dispersed, however, both respondent groups indicated there should be more involvement, interaction and discussions amongst the farmers. The extension advisors also indicated that their contributions should carry more weight as they have a broader industry exposure. Therefore, these findings showed that farmers are not active in the research function of Subtrop.

7.6 The rating of the Subtrop services to their members

Both respondent groups had to rate the services Subtrop provided to their farmer members. Table 7.1 below demonstrates the different ratings of the farmer and opinion leader respondents as well as the extension advisors. The Fischer's Exact test was performed and there were no significant statistical differences between the farmer respondent groups and the extension advisors' ratings.

Table 7.1 The rating of Subtrop services as perceived by farmer respondents and the extension advisors

Subtrop Service	Farmer & Opinion leaders	Extension advisors	Rating
	Rating percentage as extremely valuable		
Technical extension	54%	67%	1
Study groups	46%	50%	3
Newsletters	29%	17%	5
Research	48%	50%	2
Websites	11%	0%	6
Marketing information	31%	33%	4

Table 7.1 indicates that both respondent groups were in unity with regards to the ratings of the Subtrop services. However, the extension advisors rated the newsletters and websites 12% and 11% respectively lower than the farmers and technical services 13% higher than the farmers.

The fact that there was no significant difference between the two respondent groups emphasizes the importance of technical extension, research and study groups as essential elements for the Subtrop Extension Service.

7.7 Last remarks of farmer respondent groups and extension advisors

The respondents had an opportunity to provide last remarks. The farmer respondent groups indicated their satisfaction with Subtrop while the extension advisors indicated their lack of training, experience and not being effective at their work. Therefore, these closing remarks indicated that although the farmers rated the Extension Services high, the extension advisors were not satisfied with the status quo, indicating room for improvement. After the Subtrop amalgamation things have improved for the farmers but not necessarily for the extension advisors.

CHAPTER 8

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

Subtrop is an umbrella organization that originated when the South African Avocado Growers Association (SAAGA), South African Litchi Growers Association (SALGA), South African Macadamia Growers Association (SAMAC) and the South African Mango Growers Association (SAMGA) amalgamated on the 1st of October 2006. Before this amalgamation each of the Growers' Associations had their own offices and staff. Objectives like research coordination, extension, marketing and general management overlapped with each other. Therefore, the main reason for the amalgamation was to minimise duplicated services, as well as strengthen industry representation when dealing with government.

The abovementioned amalgamation occurred and the Extension Service has reached a point where its impact must be assessed. In order to measure the impact the amalgamation had on extension, it was decided that a survey should be implemented. The survey was designed to assess Subtrop members i.e. farmers and opinion leaders (external survey), as well as the Subtrop extension staff (internal survey).

This chapter will summarize and consolidate the findings from Chapters 4 through 7 and follow the same format at Chapter 5.

8.2 Summary of the most important research results

8.2.1 Respondent participation and perception of Subtrop Management.

A total of 127 respondents participated in the survey, yielding a 16% sample size. The sample comprised of the following:

- A total of 28 % Avocado farmers;
- A total of 16 % Litchi farmers;
- A total of 33 % Macadamia farmers; and
- A total of 23 % Mango farmers.

More farmers with large farms participated in the avocado, macadamia and mango survey, while more litchi farmers with small farms participated in the survey.

Limpopo- Levubu and Limpopo-Letaba had the highest participation in the survey with regards to avocado and litchi.

Limpopo- Levubu and KwaZulu-Natal had the highest participation with regards to macadamia.

Limpopo-Letaba and Mpumalanga 2 had the highest participation with regards to mango.

The respondents were divided into two groups, namely: farmers (70) and opinion leaders (37). An opinion leader is a knowledgeable farmer who is accessible to other farmers (Düvel, 1998). Opinion leaders were included in the survey to determine if there was a correlation between the perceptions and attitudes of the farmers and that of the opinion leaders.

The two respondent groups had to indicate who the CEO and the Industry Affairs Manager of Subtrop was. A total of 64% farmers and 22% opinion leaders did not know who the CEO of Subtrop was. Furthermore, 88% farmers and 49% opinion leaders did not know who the Industry Affairs Manager of Subtrop was.

The same trend followed with regards to the two respondent groups' perception of Subtrop. A total of 64% farmer and 35% opinion leader respondents of all four commodities were unsure of exactly who and what Subtrop was.

Therefore, there is still ignorance amongst the farmers and less so amongst the opinion leaders, to Subtrop management and the Subtrop organization.

8.2.2 Internal and external survey results (Objectives 1.3.1.1 & 1.3.1.2)

With regards to objectives 1.3.1.1 (internal survey with extension advisors) and 1.3.1.2 (external survey with farmer members of Subtrop) the following results were indicated.

8.2.2.1 Extension Services and the extension advisors

The farmer and opinion leader respondents had to rate the extension advisors on several criteria and also indicate what they wanted the extension advisors to do. The following results were indicated:

- A total of 71% farmer and 92% opinion leader respondents, (Subtrop respondents), indicated that they were well acquainted with the extension advisors;

- Cross-tabulations were made between the Subtrop respondents of the different commodity groups and the services the extension advisors provide. The aim was to determine which of the extension services the different commodity groups rated as the most important. The Fischer's Exact Test was performed to validate statistically significant differences. The following conclusions were made, with regards to the Cross-tabulations between the different commodity groups and the individual and group services that the extension advisors provide:

    - Individual extension services as rated by the different commodity groups' respondents as the most important:

      SAAGA respondents:
      - General information (82%);
      - Advice on farm (74%);
      - Farm visits (74%);
      - GlobalGap (68%);

      There were no significant statistical differences between the two respondent groups' ratings in the SAAGA group.

      SALGA respondents:
      - General information (82%);
      - Advice on farm (73%);
      - Farm visits (78%);

      Farm visits were 22% more important to opinion leader respondents than farmer respondents.

Only farmer respondents indicated GlobalGap and fertilizer recommendations more than 60% important.
There were no significant statistical differences between the two respondent groups' ratings in the SALGA group.

SAMAC respondents:
- General information (87%);
- Advice on farm (83%);
- Farm visits (73%);

Farm visits were 8% more important to farmer than opinion leader respondents.
More than 70% of farmers also indicated demonstrations on farm as important and there was a significant statistical difference between the farmer and opinion leader respondents with a Fischer's Exact test value: (6.438, p = 0.027).
Furthermore, 61% of farmers and only 32% of opinion leaders indicated Globalgap as important (Pearson's Chi-Square value: 5.630, p = 0.059). This indicates a statistical difference at the 10% level of significance, between the two respondent groups with regards to this service.

- SAMGA respondents:
- General information (77%);
- Advice on farm (58%);
- Farm visits (73%);
- Demonstrations on farm (53%);

  There were no statistical differences between the two respondent groups' ratings in the SAMGA group.

- Group and mass media extension services:

SAAGA respondents:

- Study groups (96%);
- Demonstrations at study groups (94%);
- Newsletters (96%);

SALGA respondents:

- Study groups (100%);
- Demonstrations at study groups (96%);
- Newsletters (96%);

SAMAC respondents:

- Study groups (96%);
- Demonstrations at study groups (98%);
- Newsletters (92%);

SAMGA respondents:

- Study groups (94%);
- Demonstrations at study groups (90%);
- Newsletters (91%);

A total of 90% of all the respondents in the different commodity groups indicated that study groups, demonstrations at study groups and newsletters as most important.

- A total of 55% of Subtrop respondents rated the extension advisors' professionalism as excellent while 50% rated the technical knowledge of the extension advisors as excellent;

- Only 16% of the respondents rated the Extension Service as excellent before the Subtrop amalgamation and 34% excellent after the Subtrop amalgamation; this results in a 18% increase.

  However, when the above average and excellent ratings were combined, it resulted in the following:
  - Professionalism of extension advisors: 91% above average;
  - Technical knowledge of extension advisors: 87% above average;
  - Extension Service before Subtrop amalgamation: 49% above average; and
  - Extension Service after Subtrop amalgamation: 83% above average.
  - This results in a 34% increase of the Extension Service after the amalgamation.

  Therefore, the extension advisors and the Extension Service received higher ratings after the amalgamation. However, Subtrop's vision is to provide an excellent service and not one of above average. These results indicate there is still room for improvement.

- The longer the period the Subtrop respondents were familiar with the extension advisors the higher they rated the extension advisors;

- It was very important to the Subtrop respondents that the extension advisors should be current with the newest technologies (80%), chemical developments (64%) as well as maintaining the link between researchers and farmers (59%);

  It was also seen as relevant that the extension advisors should continue with current services (62%), improve themselves (54%) and be aware of farming practises (48%).

- Cross-tabulations were done to establish the relationship between the ratings of the technical knowledge of extension advisors and importance of self-improvement ratings of Subtrop respondents on what extension advisors should do (Table 5.4).

  No correlations were found between the farmer respondents' ratings on the technical ratings of extension advisors and the importance of self-improvement.

  However, there was a correlation between the opinion leader respondents' ratings of the technical knowledge of the extension advisors and the importance of self-improvement.

  According to the Fischer's Exact Test (Value: 10.9, p = 0.007) 92% of the opinion leaders indicated a 100% above average rating on the technical knowledge of extension advisors with a 90.63% important rating of self-improvement.

  Therefore, it can be stated that the opinion leader group of respondents realize the value and importance of self-improvement and training to sustain an excellent extension service.

Chapman and Tripp (2003) stated that privatised or public extension will only be effective if the quality of extension services adhere to certain qualities. Some of these qualities included educated, trained and motivated extension advisors. It was also stated that the on-going investment and education of extension advisors were necessary to maintain excellent extension services. Terblanché (2006 & 2008) also noted the importance of extension advisors being technically competent. He also stressed the importance of continuing their development professionally.

- A total of 94% of Subtrop respondents indicated that the extension advisors were still needed in the Subtrop context.

- The importance of farm visits was rated by 95% of the respondents as important. However, when farm visits were put amongst other criteria, it received a slightly lower rating (important + very important = 81%, Table 5.4; 73% Table 5.1).

  Cross-tabulations were done between the importance of farm visits and 1) if the respondents were aware they had to phone to request a farm visit; 2) if they had phone to request a farm visit and 3) if the extension advisor had visited their farm. The following results were indicated:

  - There were no correlations between the importance of farm visits and the respondents' awareness to phone to request a farm visit;

  - There were a significant correlation between the importance of farm visits and if respondents did phone to request a visit:
    - A total of 56% farmer and 42% opinion leader respondents indicated that they did not phone to request a farm visit and rated farm visits as 56% and 30% important respectively;
    - On the other hand, 42% farmer and 58% opinion leader respondents indicated that they did phone to request a farm visit and 43% of farmers and 100% of opinion leaders rated farm visits as important.
    - The Fischer's Exact Test were (Value: 37.1, $p < 0.0001$) for the farmer and (Value: 13.6, $p = 0.003$) for the opinion leader respondents.

  - There were a significant correlation between the importance of farm visits and respondents who did receive a farm visit from extension advisors:
    - A total of 31% farmer and 9% opinion leader respondents indicated that they did not receive a farm visit and rated farm visits as 31% and 3% important respectively.
    - On the other hand, 69% farmer and 91% opinion leader respondents indicated they did receive a farm visit and rate farm visits as 66% and 100 % important respectively.
    - The Fischer's Exact Test (Value: 10.2, $p = 0.018$ and 7.9, $p = 0.029$) for farmer and opinion leader respondents respectively.

  Therefore, the above mentioned results indicated that more farmers than opinion leaders who indicated farm visits as important did not phone to request a farm visit, while more opinion leaders than farmers who indicated farm visits as important did phone to request a visit.

- The Cronbach's Alpha test was performed on the ratings and indications of the Subtrop respondents of the extension services and what the extension advisors should do. This statistical analyses test the reliability of the respondents' ratings and indications and the Cronbach's Alpha value should be > 0.650 to prove the results as minimally reliable (PsyAsia International, 2006). The following results were indicated (Table 5.6):

Individual and Group extension services (Chapter 5, Point 5.1.1(b), Table 5.1):

- SALGA respondents' results were not reliable with the Cronbach's Alpha values < 0.650 on the individual and group extension services;
- SAAGA, SAMGA, SAMAC and Total respondents' indications of individual and group extension services were reliable with Cronbach's Alpha value of > 0.650;

Rating of extension services (previously discussed in point 5.1.1(c), Table 5.2):

- SAMAC respondents' ratings were not reliable with regards to the professionalism and technical knowledge of extension advisors, as well as the extension services before and after the amalgamation with Cronbach's Alpha values of < 0.650;
- SAAGA, SALGA, SAMGA and Total respondents' ratings were reliable with Cronbach's Alpha values > 0.65;

What extension advisors should do (previously discussed in point 5.1.1(c), Table 5.4):

- All respondents' indications were reliable with the Cronbach's Alpha values > 0.650, except for the SAMGA respondents with a Cronbach's Alpha value of 0.607.

The above mentioned results indicated by the two respondent groups' Total ratings, proved to be reliable on the majority of accounts, according to the Cronbach's Alpha test.

However, α-values of 0.65 – 0.7 is minimally acceptable (PsyAsia International, 2006). The unreliable information received from the farmer and opinion leader respondents is a huge challenge that needs further investigation. Feedback information from members must be reliable to improve the Extension Service of Subtrop.

- A total of 50% of the extension advisors indicated that their services had not improved, the other 50% felt the opposite post the amalgamation. Despite this equal split, 67% of extension advisors indicated that they did not work effectively. Some of the reasons were due to 1) the high farmer to extension advisor ratio (50%), 2) limited time for farm visits (50%) and 3) the high administration load (42%) of their time.

- The extension advisors indicated that the farmers expected the same level of service but were unaware of the extension workload.

- The extension advisors also indicated that all aspects of their professionalism would improve through an orientation program and regular training. These results agree with other studies where training was identified as a major source of extension service improvement (Düvel, 2007).

8.2.2.2 The study groups

The Subtrop respondents had to indicate what their perceptions were with regards to study groups. The following results were indicated:

- The Subtrop respondents (88%) indicated that the study groups were well attended.

- A total of 94% of Subtrop respondents indicated that the study groups met their needs.

- The majority (93%) of respondents also indicated that they were satisfied with the organizing and arrangements of the study groups.

- A total of 95% farmers indicated they were satisfied with the organization of study groups and 99% indicated the study groups meet their needs.
  Cross-tabulations confirmed these results with a strong correlation between these two criteria in the farmer respondent group with the Fischer's Exact Test (Value 19.2, $p < 0.0001$); there was no correlation in the opinion leader respondent group;

- The majority (89%) of Subtrop respondents further indicated participation, attendance and information sharing with other farmers as the most important responsibilities of study group members:
  Cross-tabulations done confirmed these results as respondents who indicated information sharing and participation with other farmers as the main responsibility of members also indicated these criteria as what they wanted to achieve through study groups;
  This result agrees with Terblanché and Düvel (2000) whose research indicated more efficient study groups have members collaborated amongst each other and engaged in discussion; and

- No suggestions were provided to improve study groups.

- A total of 92% of Subtrop respondents indicated problem-solving with other farmers as the most important goal they wanted to achieve through study groups.

- Study groups were also seen as opportunities to stay current with industry changes.

- The Subtrop study groups were all rated higher after the amalgamation viz:
  - SAMAC study groups achieved a 49% improvement;
  - SALGA study groups achieved a 41% improvement;
  - SAAGA study groups achieved a 21% improvement; and
  - SAMGA study groups achieved a 4% improvement.

- However, extension staff was not in agreement with respect to their perceptions of study group management. A total of 50% of the extension staff showed satisfaction, while 50% showed dissatisfaction. Upon further investigation it was found that all the extension staff showing satisfaction had the benefit of strong study group leadership, while the opposite was true for the dissatisfied 50% of the extension staff sample.

  In this context strong leadership was seen as a study group committee that clearly defined and implemented study group tasks. Poor leadership was seen as no committee or a weak committee where the extension advisor did all the real work with minimum support from the committee. This is confirmed in chapter 6.13 and depicted in Table 6.9, where time spent arranging study groups occupies an average of 21.7% of the extension staffs time, the single biggest time consuming activity overall.

8.2.2.3 The newsletters

The Subtrop respondents had to evaluate the newsletters on a certain set of criteria and also indicate their satisfaction with the newsletters. The following results were obtained

- The majority (92%) of Subtrop respondents indicated that they receive and read their newsletters.
- The standard of newsletters were rated by Subtrop respondents as:
  - SAAGA newsletter: 47% above average and 38% excellent;
  - SAMAC newsletter: 55% above average and 29% excellent;
  - SALGA newsletter: 52% above average and 21% excellent; and
  - SAMGA newsletter: 46% above average and 29% excellent.

- To improve the newsletters, the majority i.e. 104 of the 127 respondents indicated that they wanted to see product related recipes and 90 of the 127 respondents indicated that they wanted more articles relating to farm actives, for example orchard practices.

- More than 50% of Subtrop respondents and 83% of extension advisors agreed that the newsletters were user friendly, relevant and added value to farming practice.

- It was found that 15% of the extension advisors' time is occupied by newsletter writing.

- This study showed that besides Subtrop newsletters, 33% and 18% of the respondents also read 'SA Fruit Journal' and 'Groente en Vrugte' respectively.

- Respondents rated the improvement to newsletters as follows (above average + excellent ratings):
  - SAMAC achieved a 35% improvement,
  - SALGA achieved a 33% improvement,
  - SAMGA achieved a 21% improvement,
  - SAAGA achieved a 12% improvement,

This indicates that the newsletters are relevant and the Subtrop amalgamation improved them. However, only the SAAGA and SAMAC newsletters increased with a percentage >10% in excellence, after the amalgamation.

Although the SALGA newsletter had the highest increase (28%) after the amalgamation, this increase was in the above average rating.

The SAMGA newsletter had the third most improvement after the amalgamation overall, with the highest increase of 13% in the above average rating.

8.2.2.4 The Research function of Subtrop

The Subtrop respondents had to indicate their perception on the research function of Subtrop. The following results were provided:

- SAAGA respondents indicated that research has 21% greater relevance to the greater industry than to on-farm practice;

- SAMGA research was rated 17% more relevant to industry than to farming enterprises;

- SALGA research was rated 16% more relevant to industry than to farming enterprises;

- SAMAC research was rated as 13% more relevant to industry than to farming enterprises.

- When asked to motivate these perceptions from a closed set of criteria, 51 of the 127 respondents indicated that additional market research was needed while 40 respondents indicated that research was only relevant to larger farmers.

- The most prominent other motivations were:
  - Research priorities must be determined by the farming community;
  - Research must concentrate more on value-adding on-farm and not only be export orientated;
  - More cultivar research is needed;
  - Research must focus more on quality rather than improvement of production.

The participation of the respondents within the research function was investigated with the following results:

- A total of 55% of farmers and 89% of the opinion leaders indicated that they submitted their research priorities every year at study group meetings. There was a significant statistical difference (Pearsons Chi-square test value: 12.8, $p < 0.0001$) between the farmer and opinion leader respondent groups' indications, in favour of the opinion leader respondent group.

- Most of the opinion leaders indicated that they understood the research process, while most of the farmers indicated that they did not;

- Cross tabulation tests show that those who submit their research priorities and therefore involve themselves with research, have their problems addressed by the research;

- When asked about their role within the research function, the majority of respondents agreed that 1) participation, 2) support and the 3) identification of research priorities were the most important;

- The rating of the research function after the Subtrop amalgamation was as follows:
  - SAAGA was rated 10% more excellent after the amalgamation;
  - SAMAC was rated 7% more excellent after the amalgamation;
  - SAMGA was rated 1% more excellent after the amalgamation, and only 2% more above average after the amalgamation;
  - SALGA was rated -2% less excellent after the amalgamation, but 41% more above average after the amalgamation.

- Therefore, although all four commodities indicated an improvement after the amalgamation, SAMGA respondents indicated less of an improvement, indicating that more should be done for this industry. SALGA respondents indicated a decrease in excellence after the amalgamation but achieved a 41% increase in the above average rating. Therefore, an improvement towards excellence is indicated and should be addressed.

- Most farmers (82%) did not know who the Technical Manager (also Research Co-ordinator) of Subtrop was, while less opinion leaders (37%) did not know.

- Cross-tabulations proved that farmers (51%) who did not submit their research priorities also did not know who the Technical Manager of Subtrop was (94%), with the Fischer's Exact Test (Value of 7, $p = 0.018$). Therefore, this indicated once again the farmer respondent group's non-involvement in the research function of Subtrop.

- Extension staff agreed that the farmers should have greater involvement with research.

- Further, extension staff indicated that their involvement with the entire industry should bear more weight with respect to identifying research priorities.

8.2.2.5 The Subtrop Websites

The respondents had to indicate if they use the Subtrop websites and indicated their satisfaction with these websites. The following results were indicated:

1) More farmers (64%) than opinion leader (42%) respondents indicated that they do not use the Subtrop websites (Fischer Exact Test value: 4.8, p = 0.041).

2) Motivations for not using the websites were provided and were indicated as followed:
   - Not aware that a web site existed (23 respondents)
   - Do not use websites to gain information (21 respondents)
   - Do not know the website address (15 respondents)

3) The respondents who did use the websites indicated that they used it for technical knowledge and market related information. This was also confirmed by in-house hits on the SAMAC website as demonstrated by Table 5.15.

4) The respondents who use the websites also indicated that they were satisfied with the standard of the website, as well that the website was user friendly.

8.2.2.6 Market related information

The respondents' awareness of the market related information provided to Subtrop farmer members was evaluated in this section. Unfortunately a very low percentage (> 40%) of respondents answered this part of the survey. These respondents were all aware of the market related information provided to them, with SALGA respondents not aware of two market related services. All respondents indicated this information was important with decision making on farm and to assist them to stay abreast of changes. The Cronbach's Alpha test values were all above 0.7 therefore indicating the validity of the responses. The majority of respondents had no suggestions to offer on how to improve the market information services.

The lack of response to this part of the survey is cause for concern, especially in light of the effort and expense related to the acquisition of market information. Further investigation could relate to relevance, accessibility, ease of use, awareness of this service, reliability and trustworthiness of the data etc.

8.2.2.7 Overall final rating

As a general test the farmer and opinion leader respondents had to rate the Subtrop services and the following results were indicated:

- Technical Extension Services were rated as 54 % extremely valuable;
- Research was rated as 48% extremely valuable;
- Study groups were rated as 46% extremely valuable;
- Marketing information was rated as 31% extremely valuable;
- Newsletters was rated as 29% extremely valuable;

- Websites were rated as 11% extremely valuable

The Technical Extension Services received the highest rating of all services provided to the Subtrop farmer members, indicating their value to their members. The Cronbach's Alpha test value for the rating of the Subtrop services was 0.744, indicating the reliability of these ratings.

8.3 Conclusion

Although the Subtrop respondents (farmer + opinion leader) indicated their satisfaction with the Extension Services and study groups, they were not aware of the new workload of the extension advisors. It is the opinion of the author that the Extension Service of Subtrop will improve further and therefore benefit the industry when members play a more active role, for example, manage study groups, and contribute to research and so on.

The farmer group of respondents were also unaware of how the research function of Subtrop works and their lack of involvement were clearly indicated by this survey's research results. Perceptions were that the research was more relevant to the broader industry than to farming practice; yet, the Research Committees are comprised mostly of the farmers themselves. The respondents' non-involvement was further emphasized by the low percentage of respondents who participated in the marketing related information section.

The newsletters were indicated as a relevant extension communication tool, while the websites proved to be somewhat valuable.

The extension advisors indicated their commitment to farmer members but indicated they need more experience, training and feedback. Therefore, the following recommendations are submitted.

8.4 Recommendations

8.4.1 The Extension Services

As indicated by the survey results, the extension advisors indicated a need for training, experience and feedback from their farmer members. The provision of extension is only successful and effective when extension advisors are well trained and able to respond to farmers' requirements (Stevens, 2007; Chapman & Tripp, 2003). Therefore, the following recommendations are suggested to meet these needs:

8.4.1(a) Curriculum of Subtrop commodities

In keeping with the Subtrop aim of knowledge retention and extension, a curriculum of a 'best practise' on each orchard activity, for example, pest control, fertilizer practises, etc. on each of the Subtrop commodities should be compiled as training manual for new extension personnel / existing personnel. This training manual should be compiled in consultation with farmers in the different production areas, existing extension advisors and researchers. Wennink and Heemskerk (2006) stated that farmers through farmer organizations play a vital role in sharing their on-farm knowledge to improve the learning experiences and guide the innovation processes.

The compilation of this curriculum can be done in many ways. However, in order to ensure a high and sustainable standard, it is recommended that this be managed like the research projects. A training budget should be allocated to a project manager responsible for stake holder co-ordination and material compilation.

The training material / or a section on a specific practise must be updated on a regular basis when improved orchard practises emerge over time.

Terblanché (2007) stated that training material for a mentorship program, in line with the organizations goals and objectives are important to the success of that program.

This proposed curriculum for the Subtrop commodities can also form part of the suggested orientation program for newly appointed extension advisors.

8.4.1(b) Regular training of extension advisors

In addition to the abovementioned foundational curriculum, it is recommended that regular training of the extension advisors and extension management take place. Extension advisors should also indicate their training needs. The extension staff should be the first to be updated as new materials, practices and market trends emerge. Stevens (2007) stated that irrigation extensionists should be up to date with the newest development in the irrigation scenario, to provide an excellent extension service to their farmers. Therefore, the same principle applies to Subtrop extension advisors.

It was stated that extension managers need to be specifically trained in extension (Düvel, 2001). Düvel (2001) indicated that managers with managerial skills, but without extension management skills, might not be able to manage extension advisors adequately. Extension management presents its own challenges, and therefore needs specialist knowledge. Therefore the specific training of Subtrop management on extension related managerial skills, is suggested.

8.4.1(c) Training of extension advisors in the 'soft skills'

Soft skills refer to a person's ability to communicate and interact with co-workers and customers in various situations (www.Wikipedia.co.za, accessed 2012/06/02). It is also suggested that soft skills are as important as hard skills (technical competency), and especially important when dealing with people on a regular basis.

Terblanché (2008) also indicated that extension advisors should be able to:

- Communicate in every form of communication;
- Extension advisors must have group facilitation skills;
- They must also be able to manage their own extension service (leadership development, programmed extension, etc.)

Therefore, it is recommended that the extension advisors should receive training in group facilitation methods and skills, as well as training on public speaking. A person who is well spoken and confident tends to create confidence and regard in his/her audience. This will contribute to the credibility of the extension advisor amongst his / her farmers. Extension advisors that are well trained in the soft skills will contribute to the success of Subtrop.

8.4.1(d) Mentors for extension advisors

Mentoring is a recognized strategy to enhance the capacity of employers in a company (Raven, 2011; Terblanché, 2007). Through mentoring working practises are improved which resulted in stronger organizations (Raven, 2011; Terblanché, 2007). Raven (2011: 22) stated that long term mentoring" *is aimed at grounding the individual in experiences that would allow growth and development in a particular career field".*

It is recommended that each extension advisor in Subtrop be allocated to a mentor farmer. One recommendation is that an appropriately experienced, retired extension advisor or consultant acts as mentor. Even experienced extension advisors may benefit from a mentoring program.

However, when mentorship programs are considered, it is necessary to consider the structure, management and implementation of such a program which will benefit not only the protégé and organization, but also the mentor (Terblanché, 2007). These mentors must be carefully selected and should have the following qualities according to Terblanché (2007:99):

- *A desire to help;*
- *Positive experiences;*
- *A good reputation to develop others;*
- *Time and energy;*
- *Up-to-date knowledge;*
- *A positive learning attitude;*
- *Effective managerial skills;*
- *A questioning outlook;*
- *Active listening abilities;*
- *Persistence;*
- *Non-autocratic approach;*
- *Honesty and patience.*

He further stated that the protégé should do the following:

- *Respect and trust the mentor to establish a caring relationship;*
- *Understand that the relationship is mutual in terms of both persons gaining from the opportunity;*
- *Be willing to enter into a mentoring relationship;*
- *Listen to advice and respond appropriately;*
- *Be committed and willing to learn* (Terblanché, 2007:99).

8.4.1(e) Orientation program

The extension advisors indicated that an orientation program will assist a new extension advisor in an area. This orientation program could consist of the following:

- Curriculum: training manual on each commodity
- Training on the soft skills
- Allocation of a mentor to the extension advisor
- Mode of work – Programmed extension, which will provide direction in an area

8.4.1(f) Programmed extension as working method

Currently, the approach of the Subtrop Extension Service is advisory in nature. The focus is on transfer of technology. This model provides access to technical advice and support, but place the onus on the farmer to access the information (Blum, 2007; Worth, 2006; Terblanché, 2008).

A more liberal improvement on the advisory model is the facilitation models. These models stressed the engagement between and amongst researchers, extension agents and farmers in the pursuit of knowledge / technology development (Worth, 2006; Terblanché, 2008). Programmed extension is a method to achieve the participation of all relevant role-players.

Programmed extension is the planning and coordinated activities to bring about purposeful changes that will improve farming practises (Düvel, 2008). It also involves evaluation and feedback in order to improve extension programmes (Düvel, 2008).

The most important reasons for engaging in programmed extension can be summarized as follow (Düvel, 2008):

- It is motivational and pro-active because of its purposeful and evaluative nature;
- It is a method that is priority based and therefore use resources effectively in the appropriate direction;
- The method makes provision for inputs of various role players and therefore increase the relevance of the program;
- This method ensures continuity in the case when extension personnel resign;
- Programmed extension provides the platform for evaluation in all stages of the program, therefore creating opportunity to monitor progress, re-adjust the program if necessary, enhancing the efficiency of the program.

Therefore, this working method is recommended for the extension advisors of Subtrop. However, the extension advisors and management need to be trained on how to compile a working program, based on programmed extension methods and principles.

8.4.1(g) Area committees on program planning

The Sugar Industry of South Africa uses area committees to assist their extension advisors. Problems are identified per area, a program plan is drafted and the program implemented (Paxton, 1980). This is a good practise as it involves the farmers input and needs in a specific area. Successful extension involves strong farmer participation in solving problems (Chapman & Tripp, 2003).

Therefore, it is recommended that area committees should be present in each area on each commodity in the target area. Together with the extension advisor of that area, a program plan, based on the problems of that area, should be compiled. The farmers on this committee could evaluate the extension advisor's progress and provide alternative suggestions if needed. This will ensure farmer participation in solving problems and assisting the extension advisor to address relevant problems.

8.4.1(h) Communication in Subtrop

It was indicated by the extension advisors that they work in isolation and do not know what is going on in Subtrop. Therefore, the communication channels in the Subtrop context should be more open.

8.4.1(i) Resignation of extension advisors

It is recommended that when extension advisors leave the organization, an exit interview be conducted. Exit interviews often add valuable insight into business improvement.

Within the last six years Subtrop has lost five extension advisors. These advisors contributed towards Subtrop and had experience working in the Subtrop context. When they resigned they could have contributed more by interviewing them on their experience in working for Subtrop. In this interview extension advisors could be asked where improvements can be made, what were the positive and negative points of working for Subtrop. This feedback information can be used to improve the extension services of Subtrop.

8.4.2 Study groups

Study groups are a recognised extension method used all over the world. Study groups have many advantages in the sense that producer problems are identified discussed and resolved (Marsh & Pannell, 1999; Hoffmann, Lamers & Kidd, 2000). This survey indicated that most of the respondents were not aware of the true function of study groups. Therefore, the following suggestions will be made:

8.4.2(a) Educating farmers on the function of a study group

It is recommended that a study group information workshop be co-ordinated with the relevant participants, for example study group chairs, opinion leaders and board members.
The role and purpose of the study group and study group members, as well as the role of the extension advisor should receive attention during this workshop. This workshop should lead to a study group strategy and plan appropriate to the members.

8.4.2(b) The implementation of study group committees in each area for each commodity

Grobbelaar and Koch (1989) stated that people will become involved when planning is done with them and not for them. This could possibly explain why Subtrop farmers are passive participators in the planning of study groups as indicated in 8.1.2 above. Therefore, as previously indicated in Chapter 6 by the extension advisors, each area should have a study group committee for each commodity study group. This will improve farmer involvement, as well as share the load on the organizing of the study groups.

8.4.2(c) Frequency of study groups

As seen by the survey results, the organizing of study groups involves more than 40% of the extension advisors' time. Therefore, to enable more farm visits, less study groups can be organized, especially in areas where there is a study group every month. More informal smaller discussions can rather be organized in areas, without a braai event after these discussions.

8.4.3 The newsletters

It was indicated that the newsletters were successful and the farmer and opinion leader respondents indicated their satisfaction with the newsletters. Therefore, the following recommendations will be made:

- The '*Groente en Vrugte'* and '*SA Fruit Journal'* magazines can be used as an additional extension channels, as indicated by respondents as other most read agricultural magazines;
- Local newspapers are also a good extension channel;
- Combined newsletter: a combined quarterly newsletter is recommended. Each commodity will still have its own section and identity in this newsletter. This will not only reduce costs, but will also save on the extension advisor's time for writing articles. A combined newsletter will also provide the farmers with an opportunity to experience and cross-pollinate with other Subtrop commodities.

8.4.4 Subtrop research

According to Sulaiman, Hall & Raina (2006), the nature and quality of the relationship between researchers and extension is important, which has to be reflected in more joint activities. Furthermore, both research and extension needs linkages with a wider range of role players. Interdependence should be encouraged and not independence (Sulaiman *et al*., 2006).

It was indicated in the survey that some uncertainties exist as to the research function of Subtrop. Therefore the following recommendations will be suggested:

- **Research committees in respective areas to be appointed by farmers at study groups:** Although research committees do exist in the Subtrop c context, they are currently not efficient. Only one or two of the committee members will provide feedback and inputs with regards to research priorities. Therefore, it is suggested that new committee members should be appointed by the study group members, and not nominated by extension advisors, as was the case previously. These committees should consist of farmers and the extension advisors to be able to identify research priorities and problems in each area. Relevant role players that can contribute towards research in Subtrop can be identified by these committees. The members of these committees must be willing and committed to the industry.

- **Research priorities to be discussed at study groups:** This will ensure participation and involvement of more farmer members. Farmer involvement is crucial as they have their own knowledge of local conditions and problems and have found ways to overcome these barriers, which can be valuable to the applicability of research knowledge (Vanclay, 2004).

- **Researchers to visit and address farmers at study groups:** The link between farmer and researcher is very important and this will enable farmer members and researchers to engage in conversation, interact with each other and cross-pollinate in a win-win situation. The practical application of the results should be brought to the members not only through the usual symposium, but also through the research committee / researchers themselves within the study group.

- **Regular feedback of research projects at study groups:** Regular feedback on research projects will enable farmers to stay up to date with research in their industry; providing a better understanding of the research function of Subtrop.

- **Information and progress report articles on research in Subtrop newsletters**: Newsletters can be used as a communication channel to inform farmer members of what is happening with regards to research projects.

8.4.5 Websites and market related information

As very little respondents answered this section in the survey, the results indicated that there was still unawareness of these services. Therefore, it is recommended that the websites should be promoted at study groups and through symposiums. Regular feedback should also be given at study groups and symposium with regards to the websites and market related information.

8.4.6 Other recommendations and food for thought

8.4.6.1 Policy, strategy and goal for Subtrop Extension Services

It is recommended that Subtrop should have a brainstorming workshop with relevant role players to reflect on what Subtrop want to achieve through its extension services? The outcome of this workshop should be a policy, strategy and goal for the extension services. In Australia and Germany, more farmer participation and involvement in setting extension policies and priorities has resulted in favourable results (Marsh& Pannel, 1999; Hoffmann, Lamers & Kidd, 2000). However, Vanclay (2004) stated that farmer representation does not necessarily mean participation. Therefore, it is important that farmers and other role players involved in the compiling of a policy for the Subtrop extension services must be interested and committed to the industry.

A farmer in the Cape Province, South Africa, reported that through his involvement and participation in the relevant commodity industry, has enabled and equipped him to make important decisions for his own farming business (SA Fruit Journal, 2011).

8.4.6.2 Combined area committee with sub-area committees for each commodity in an area

To avoid duplication, the suggested area committees could combine the role of 1) program identification 2) research committee and 3) study group committee per commodity. Therefore, an area with the full representation of the four Subtrop commodities will have four area committees.

Where relevant, sub-areas may have their own committee from which a representative will be selected to serve on the area committee. Figure 8.1 below provides an example of a commodity area committee with representation of sub-areas and areas. Where area or sub-area representation is low, it will still be important for such producers to meet with each other to share their views and problems as well as have representation on the area committee.

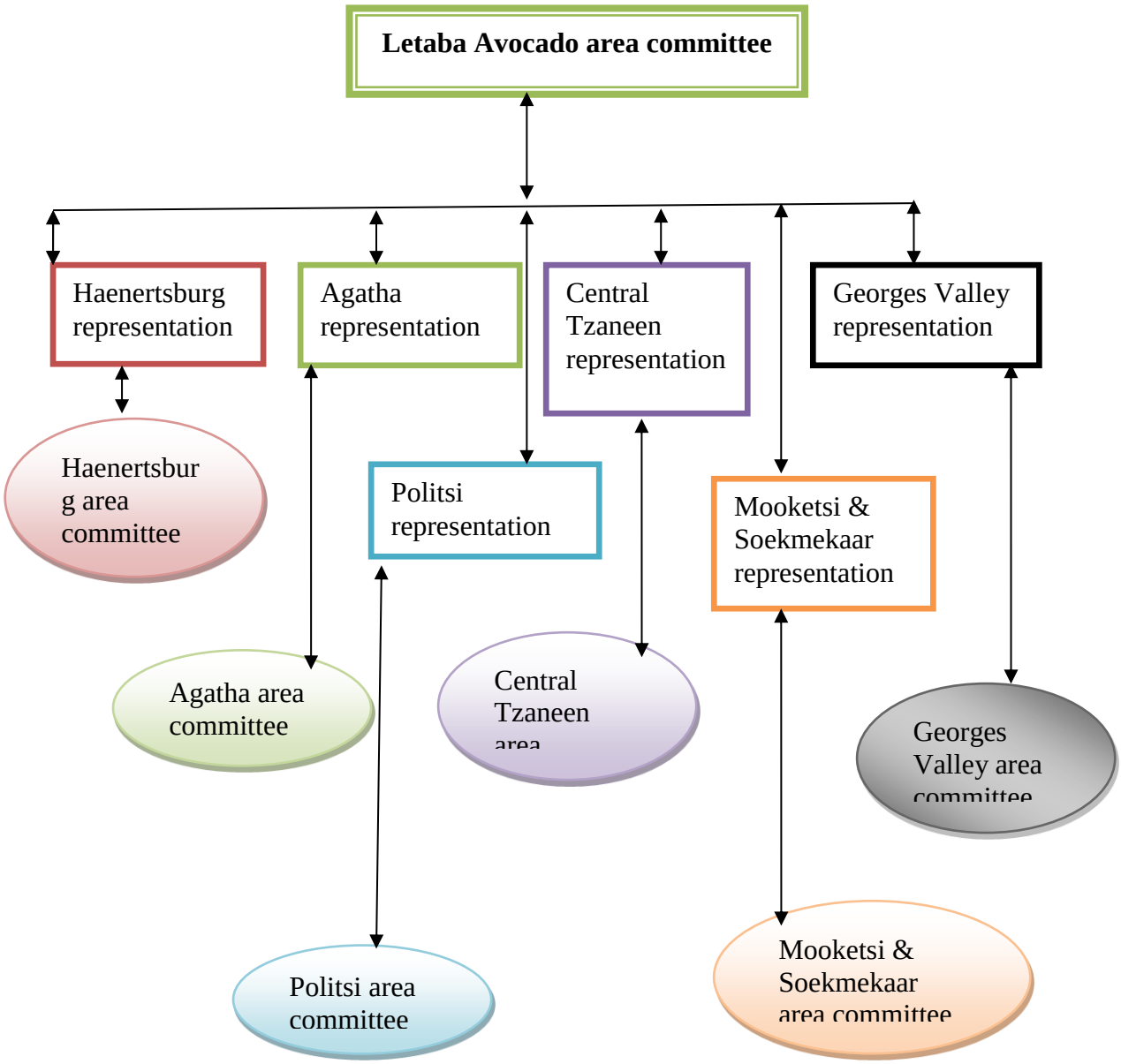


Figure 8.1: An example of a commodity area committee including all the sub-area committees within an area, ensuring representation on the area committee

8.4.6.3 Customer satisfaction surveys

Annual customer satisfaction surveys should be performed to evaluate progress and make improvements in extension programmes where necessary. Customer satisfaction surveys can also be used to establish the impact extension programs make in the farming community of Subtrop (Radhakrishna, 2002). It has been suggested that extension services should benchmark on three important aspects: 1) the relevance of extension programmes, 2) the quality of the extension programmes and 3) the accomplishments of these extension programmes (Radhakrishna, 2002).

However, the reliability of member feedback proved to be a huge challenge. Unreliable information was received during this study with Cronbach's Alpha values of $\alpha < 0.650$. Therefore, reliable feedback information during customer satisfaction surveys needs to be investigated.

8.4.6.4 Food for thought

Although the emerging sector / farmer members of Subtrop were not part of this study, it is important that the services of Subtrop to these farmers should not be neglected. Subtrop can also play a positive role in the rest of Africa with regards to the Subtrop commodities. Subtrop has much to offer to the emerging sector of South Africa and the rest of the African continent.

REFERENCES

Allahyari, M.S., 2009. Agricultural sustainability: Implications for extension systems. Afr J Agric Res 4(9): 781 – 786.

Anderson, J.R., 2008. Agricultural Advisory Services. A Background paper for "Innovating through Science and Technology", Chapter 7 of the World Development Report (WDR) 2008 July 2, 2007.

Baker, C., 2005. Outcomes from the SASRI Survey. The Link (14) 2:7.

Biggs, S.D., 1990. A multiple source of Innovation Model of Agricultural Research and Technology Promotion. World Development 18(11):1481 – 1499, Pergamon Press plc. 0305-750X/90.

Blum, M.L., 2007. Trends and challenges in agricultural extension – Policies and strategies for reform. Building partnerships for technology generation, assessment and sharing in agriculture among West Balkan countries, Workshop, Skopje, 27 – 29 June 2007.

Buchner, R., Grieshop, J., Connell, J., Krueger, W., Olson, W., Hasey, J., Pickel, C., Edstrom, J., Yoshikawa, F., 1996. Growers prefer personal delivery of UC information. Cal Ag 50(3):20-25. DOI: 10.3733/ca.v050n03p20 (http://ucanr.org) Accessed on 03/10/2011.

Campbell, H., 2009. Email conversation (10/03/2009).

Chapman, R. & Tripp, R., 2003. Changing incentives for Agricultural extension – a review of privatised extension in practise. Agricultural Research & Extension Network Paper (AGREN):132 (ISBN 0 85003 679 8), (www.odi.org.wk/agren) Accessed on 22/06/2010.

Citrus Growers' Association Annual Report 2010. www.cga.co.za Accessed 21/11/2011.

Citrus Research International (CRI) website: www.cri.co.za. Accessed 21/11/2011

DFPT Brochure 110408, 2009.

Diekmann, F. & Batte, M., 2011. Information needs of agricultural consultants of Ohio. Journal of Extension (On-line) 49(4). Avaiable at: http://www.joe.org/joe/2011august/rb5.php. Accessed 14/01/2012.

Donkin, D.J., 2006. *A strategy for the integration of four Subtropical Growers' Associations.* Dissertation submitted to Damelin International College of Post Graduate Business Sciences in partial fulfilment of the requirements of the degree of Master of Business administration.

Düvel, G.H. & Lategan, F.S., 1992. The group interview as data collection. S. A. J. Agric. Ext. 23: 28 – 35.

Düvel, G.H., 1989. Towards an optimisation of the Specialist-Generalist ratio in Agricultural extension. S. Afr. J. Agric. Ext. 18: 1 – 7.

Düvel, G.H., 1998. Determinants of opinion leader effectiveness in information transfer. J Int Agr Ext Educ 5(3): 5 – 13.

Düvel, G.H., 2001. Some realities of extension management in South Africa. S.Afr. J. Agric. Ext.30:40 – 51.

Düvel, G.H., 2004. Developing an appropriate extension approach for South Africa: Process and Outcome. S. Afr. J. Agric. Ext. 33: 1 - 10.

Düvel, G.H., 2007. Monitoring in extension: from principles to practical implementation. S. Afr. J. Agric. Ext. 36:78 – 93.

Düvel, G.H., 2008. Class material: Program and Project Development and Management, AGV 726, Chapter 3: 43 – 45. Department of Agricultural Economics, Extension and Rural Development, Faculty of Natural & Agricultural Sciences.

Encarta, World English Dictionary, 1999. Concept. Bloomsbury Publishing Plc. ISBN 0 7475 43712.

Farrington, J., 1997. The role of non-governmental organizations in extension. In B.E. Swanson, R.P. Bentz & A.J. Sofranko (Eds), *Improving Agricultural Extension: A Reference Manual* Chapter 23:213 -220. Rome, Food and Agriculture Organization of the United Nations (FAO). ISBN 92-5-104007-9.

Field, A., 2009. *Discovering statistics using SPPS.* Third Edition Chapter 18:686 – 701. London, SAGE Publications Ltd. ISBN 978-84787-906-6.

Fulton, A., Fulton, D., Tabart, T., Ball, P., Champion, S., Weatherley, J. and Heinjus, D., 2003. *Agricultural extension, learning and change.* A report for the Rural Industries Research and Development Corporation. RIRDC Publication No. 03/032. Canberra, Bytes n Colours.

Galindo-Gonzalez, S., Israel, G.D., Weston, M. & Israel, K.A., 2011. Extension program and customer satisfaction: Are we serving all clients well? EDIS website: (http://edis.ifas.ufl.edu) Accessed 21/11/2011.

Gaul, S.A., Hochmuth, R.C., Israel, G.D. & Treadwell, D., 2009. Characteristics of small farm operators in Florida: Economics, demographics, and preferred information channels and sources. (http://edis.ifas.ufl.edu) Accessed 14/01/2012.

Greenberg, S., 2010. Status report on Land and Agricultural policy in South Africa, 2010. Institute for Poverty, Land and Agrarian Studies (PLAAS) Research Report no 40. (www.plaas.org.za) Accessed 14/12/2010.

Grobbelaar, M.M., & Koch, B.H., 1989. Expectancy discrepancies in explaining study group participation. S.Afr.J.Agric. Ext., 1989: 13 – 18.

Groente & Vrugte magazine, 2010. Wyn-en rosynebedryf span kragte saam. Oktober/November 137:9:

Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C., 1995. *Multivariate data analysis with readings.* Fourth Edition page 641. New Jersey, Prentice Hall, Inc. ISBN 0-02-349020-9.

Harder, A. and Lindner, J.R., 2008. Going global with extension: Barriers to the adoption to a Web-Based Resource. J Int Agr Ext Educ 15(3):69 – 80.

Haug, R. 1999. Some leading issues in international agricultural extension, a literature review. J Agr Educ Ext 5(4): 263 – 274.

Hewitt, P., 1996. Director's Message. The Link 5(1):2. February 1996.

Ho, R:, 2006. Handbook of Univariate and Multivariate Data analysis and Interpretation with SPPS. Chapter 13:239 – 243. Boca Raton, FL USA,`Chapman & Hall/CRC. ISBN 978-1-58488-602-0.

Hoffmann, V., Lamers, J. & Kidd, A.D., 2000. Reforming the organization of agricultural extension in Germany: Lessons for other countries. Agricultural Research & Extension Network (AGREN), 98:1 – 9.

Israel, G.D., 2007. Conducting a Customer Satisfaction Survey. Florida Cooperative Esxtension Service, Factsheet AEC 356, University of Florida. Available at: http://edis.ifas.ufl.edu. Accessed 22/11/2011.

Jones, G.E. & Garforth, C., 1997. The history, development, and future of agricultural extension. In B.E. Swanson, R.P. Bentz & A.J. Sofranko (Eds), I*mproving Agricultural Extension: A Reference Manual* Chapter 1:3-12. Rome, Food and Agriculture Organization of the United Nations (FAO). ISBN 92-5-104007-9.

Jones, L.E., Diekmann, F. & Batte, M.T., 2010. Staying in touch through Extension: an analysis of farmers' use of alternative extension information products. JAAE 42(2):229 – 246.

Kato, D., 1997. Uganda's experience in the use of service delivery surveys. 8th International Anti-Corruption Conference (IACC). Avaiable at: http://8iacc.org/papers/kato.html. Accessed 21/11/2011.

Koch, B.H., 2006. *A story of agricultural extension in South Africa*. Pretoria, South African Society for Agricultural Extension (SASAE). ISBN 978-0-62038399-8.

Kumar, K., 1987. Conducting group interviews in developing countries. A.I.D. Program design and evaluation methodology report no. 8 (Document order no. PN-AAL-088).

Maher, G., 2007. SASRI Extension. The Vital Link. The Link 16(3):2.

Maher, G., 2008. How Extension Work. The Link 17(1):4.

Marsh, S.P and Pannel, D. J., 2000. Agricultural Extension policy in Australia – the good, the bad and the misguided. Aust J Agr Resour EC 44(4): 605 – 627.

Marsh, S.P. & Pannel, D.J., 1999. Agricultural extension policy and practice in Australia: An overview. J Agr Educ Ext 6(2): 83 – 91.

Mattock, D.M., & Steele, R.E., 1994. NGO-Government paradigms in Agricultural development: A relationship of competition or collaboration? J Int Agr Ext Educ 1(1):54-62.

Media release, www.hortgro.co.za: DFPT – a new area. Accessed 21/11/2011.

Morkel, E., 2009. Personal communication (9 / 07/ 2009). Technical Transfer Manager, Deciduous Fruit Producers Trust (DFPT).

Mudau, K.S., Geyser, M., Nesamvuni, A.E. & Belemu, N.D., 2009. Towards sustainable strategies and tactics for agricultural extension recovery. African Crop Science Conference Proceedings, Vol. 9:781 – 784.

Nalugooti,A. & Ssemakula, E., 2006. Limitations and opportunities of NAADS farm led and privately serviced extension system in Nakisunga sub-county, Mukono District. (http://hdl.handle.net/123456789/57) Accessed 22/06/2010.

Nkonya, E, 2009. Current extension service models, what works and what does not work. UN expert group meeting on "SLM and agricultural practises in Africa: Bridging the gap between research and farmers" April 16 – 17, 2009, University of Gothenburg, Sweden. (www.un.org/esa/dsd/susdevtopics/sdt.../presentation_NEphraim.pdf.) Accessed 10/12/2010.

Paxten, R.H., 1980. A strategy for extension in the South African Sugar Industry. Proceedings of the South African Sugar Technologists'' Association, June 1980, pg. 115 - 117.

Probst, K. and Hagmann, J. (2003:24) with contributions from Fernandez, M. and J. A. Ashby, 2003. Understanding Participatory Research in the Context of Natural Resource Management-Paradigms, Approaches and Typologies. ODI-AGREN Network Paper No. 130. (http://www.odi.org.uk/agren/) Accessed 08/12/2010.

PsyAsia International, 2006. What is an acceptable level of reliability for a psycho...Created on: 20 Oct 2006 04:20 PM. Available at: http://www.psyasia.com/supportsuite/index/php? Accessed on 18/06/2012.

Radhakrishna, R., 2002. Measuring and Benschmarking Custormer Satisfaction: Implications for Organizational and Stakeholder Accountability. Journal of Extension (On-line) 40(1):1 -9. Available at: http:www.joe.org/joe/2002february/rb2.html.

Raven, G., 2011. Mentoring to Support Work-Integrated Learning: A source book for strengthening conservation professionals, practise and organizations. Cape Town, C.A.P.E Capacity Development Programme.

SA Fruit Journal, 2011. The Last Word. Oct/Nov 2011: 95-96.

Saha, A. and Mukhopadhyay, S. B., 2003. Agricultural Knowledge information system: An Emerging approach for sustainable development. International Conference on Communication for Development in the Information Age: Extending the Benefits of Technology for All. 07 - 09 January 2003 **Eds Basavaprabhu Jirli Editor in Chief**, Diapk De, K. Ghadei and Kendadmath, G.C., Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (India).

Stevens, J.B., 2007. Professional extension support: a prerequisite for sustainable irrigation development. S.Afr. J. Agric. Ext.,36(1): 170 – 189.

Strong, R. & Israel, G.D. 2009. The Influence of Agent / Client Homophily on Adult Perceptions about Extension's Quality of Service. JSAER, 59:70 – 80.

Subtrop Constitution 2010.

Sulaiman, V.R., Hall, A. and Raina, R., 2006. From disseminating technologies to promoting innovation: implications for agricultural extension, paper prepared for the SAIC Regional Workshop on Research-Extension Linkages for Effective Delivery of Agricultural Technologies in SAARC Countries (20 -22 November, 2006).

Tech Transfer strategy doc.pdf : www.hortgro.co.za. Accessed 21/11/2011

Terblanché, S.E. & Düvel, G.H., 2000. The cattalystic function of leadership in efficient group functioning. S. Afr. J. of Agric. Ext., 29: 105 – 117.

Terblanché, S.E., 2006. The need for a new generation of farmers and agriculturists in South Africa and the role of agricultural extension. S. Afr. J. of Agric. Ext., 32(2):132 – 157.

Terblanché, S.E., 2007. Understanding mentorship and the development of a structure to implement and manage a mentorship program to support extensionists towards professionalism. S. Afr. J. of Agric. Ext., 36(1): 94 – 107.

Terblanché, S.E., 2008. Towards an improved agricultural extension service as a key role player in the settlement of new farmers in South Africa. S. Afr. J. of Agric. Ext.,37:58 – 84.

Terblanché, S.J. (2007). Classmaterial: Evaluation in Extension AGV 728. University of Pretoria.

Terry, B.D. & Israel, G.D., 2004. Agent performance and customer satisfaction. *Journal of Extension* (On-line) 42(6). Available at: http://www.joe.org/joe/2004december/a4.php.

The South African Sugar Association (SASA) webpage, www.sasa.org.za, accessed 21/11/2011.

Tucker, T., 1996. Extension/Research Committees. Keeping in touch with you. The Link,5(1):5 February 1996.

Vagias, Wade M., 2006. Likert-type scale response anchors. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University.

Van de Fliert, E., 2003. Recognising a climate for sustainability: extension beyond transfer of technology. Aust J Exp Agr, 43: 29 – 36.

Vanclay, F., 2004. Social principles for agricultural extension to assist in the promotion of natural resource management. Aust J Exp Agr, 44: 213 – 222.

Wennink, B. & Heemskerk, W., (Eds) 2006. Farmers' organizations and agricultural innovation – Case studies from Benin, Rwanda and Tanzania. KIT Development Policy and Practice Bulletin 374. Amsterdam, The Netherlands, KIT Publishers. ISBN 9068321684.

Wikipedia the free encyclopaedia. Agricultural Extension. (http://www.wikipedia.org) Accessed on 11/06/2010.

Wikipedia the free encyclopaedia. Soft skills. (http://www.Wikepidia.co.za) Accessed 2/06/2012

Williams, B., Mayson, D., De Satgé, R., Epstein, S. and Semwayo, T., 2008. Extension and small holder agriculture. Key issues from a review of the literature. Available at:http://www. Phuhlisani.com;oid%5Cdownloads%5. Accessed 14/12/2010.

Worth, S.H., 2006. Agriflection: A Learning Model for Agricultural Extension in South Africa. J Agr Educ Ext, 12:(3):179 – 193.

Worth, S.H., 2010. Improving SA's extension services. Can it be done? Farmer's Weekly 28 May 2010, pg. 30 – 31.

Zhou, Y., 2008. Reinventing agricultural extension to smallholders. Unpublished. Available at:www.syngentafoundation.org. Accessed 7/12/2010.

APPENDIX A

SURVEY WITH REGARDS TO THE SUBTROP AMALGAMATION:

Please answer the following questions by placing a cross(x) in the appropriate block or writing in the space provided

Questionnaire number — **FOR OFFICE USE ONLY** **v0** ☐

OPTIONAL:

Name:

Farm name:

Cell phone:

GENERAL:

1. Please indicate with a cross with which commodity / (ties) you are farming, the number of hectares and in which region:

Commodity	1	**Hectares** - 2	**Region** - 3
1. Avocado			
2. Litchi			
3. Macadamia			
4. Mango			
5. Other (specify):			

v1.1 ☐ v2.1 ☐
v1.2 ☐ v2.2 ☐
v1.3 ☐ v2.3 ☐
v1.4 ☐ v2.4 ☐
v1.5 ☐ v2.5 ☐

v3.1 ☐
v3.2 ☐
v3.3 ☐
v3.4 ☐
v3.5 ☐

2.1. Who is the CEO of Subtrop? v4 ☐

2.2. Who is the Industry Affairs Manager of Subtrop? v5 ☐

2.3. Please give your perception of Subtrop? v6 ☐

SECTION A: SUBTROP TECHNICAL SERVICE
3. EXTENSION

3.1 Who is the Subtrop extension advisor in your area? v7 ☐

3.2 How long have you known this Subtrop extension advisor? v8 ☐

More than 2 years	1 – 2 years	Less than 1 year	Do not know him/her
4	3	2	1

3.3 Do you make use of the Subtrop extension advisor in your area? v9 ☐

Yes	2	**No**	1

3.4. If yes to 3.3, please specify for which purpose in order of priority: 5 = Very important; 1 = not important at all

	Not important at all - 1	Of little importance - 2	Neutral - 3	Important - 4	Very important - 5	
a Individual						
Advice on farm practises						v10.1 ☐
Global Gap						v10.2 ☐
Fertilizer recommendations						v10.3 ☐
General Information						v10.4 ☐
Demonstration on farm						v10.5 ☐
Farm-visits						v10.6 ☐
b Group media:						
Study groups						v10.7 ☐
Demonstrations at study groups						v10.8 ☐
Newsletter articles						v10.9 ☐

3.5 If no to 3.3, please indicate your reason: **(you may mark more than one option)**

	Yes 2	No 1	
He/she is not competent enough			v11.1 ☐
He/she is not trustworthy			v11.2 ☐
I do not know the extension advisor			v11.3 ☐
I like to do my thing			v11.4 ☐
I have not thought about asking the extension advisor for advice			v11.5 ☐
Any other reason			v11.6 ☐

Please specify any other reason: v12 ☐

3.6 Please indicate how you rate each one of the following:

	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1	
The professionalism of your Subtrop extension advisor						v13 ☐
The technical knowledge of your Subtrop extension advisor						v14 ☐
The extension services **before** the Subtrop amalgamation						v15 ☐
The extension services **after** the Subtrop amalgamation						v16 ☐

3.7 What in your opinion should the Subtrop extension advisors be doing?

	Of no importance at all - 1	Of little importance - 2	Important - 3	Very important - 4	
Be up to date with newest technology					v17.1 ☐
Know about the latest development in chemicals					v17.2 ☐
Must have an idea about farming practises and their costs involved					v17.3 ☐
Be involved in government developments					v17.4 ☐
Be involved with researcher to strengthen link between farmers & researcher					v17.5 ☐
Do frequent farm visits					v17.6 ☐
Improve own knowledge e.g. training					v17.7 ☐
Give feedback on what is happening at board level					v17.8 ☐
What the advisors are currently doing is just fine					v17.9 ☐

If other, please specify:

v 17.10 ☐

3.8. Do you think that Subtrop extension advisors are still needed in the Subtrop context? v18 ☐

Yes	No
2	1

3.9 Please rate the importance of farm visits? v19.1 ☐

Extremely important	Very important	Important	Not too Important	Not at all important
5	4	3	2	1

Please motivate your answer: (You may tick more than one option)

Subtrop extension advisor needs on-farm exposure	6
Subtrop extension advisors see other farms, can share what they see with other farmers	5
Farm visits help to build relationships	4
Subtrop extension advisors not needed, I use private consultants	3
I do not need input from other people on how to farm	2
Other	1

v19.2 ☐ v19.3 ☐ v19.4 ☐ v19.5 ☐ v19.6 ☐ v19.7 ☐ v19.8 ☐

If other, please specify:

3.10 Has the Subtrop extension advisor visited you on your farm? v20 ☐

Yes	2	No	1

3.11 If yes to 3.10, how many visits did you have? v21 ☐

_____ **per year**

3.12 Are you aware that you need to phone your Subtrop extension advisor if you want a farm visit?	Yes 2	No 1
3.13 Have you requested a visit by your Subtrop extension advisor?	2	1

v22 ☐ v23 ☐

4. STUDY GROUPS

4.1 How often do you attend the study groups? v24 ☐

Every time	7
Usually, about **90 %** attendance	6
Frequently, about **70 %** attendance	5
Sometimes, about **50 %** attendance	4
Occasionally, about **30 %** attendance	3
Rarely**,** about less than **10 %** attendance	2
Never	1

v25.1 ☐

4.2 If never to 4.1, please explain why? (You may select more than one option)

Study group previously unavail-able	Unaware of study group	I don't have time	I am not interested	Other
5	4	3	2	1

If other, please specify:

v25.2 ☐
v25.3 ☐
v25.4 ☐
v25.5 ☐
v25.6 ☐

4.3 Do the study groups meet your needs?

Yes	3	No	2	Don't know	1

v26 ☐

4.4 Are you satisfied with the way the study groups are arranged?

Yes	3	No	2	Don't know	1

v27 ☐

4.5 If no or don't know to 4.4, please motivate your answer (You may mark more than one option):

Study group not practical enough	There are insuf ficient orchard visits	The language is a problem	Study group too far from my farm	Too little to eat and drink	Other reason
6	5	4	3	2	1

v28.1 ☐ v28.5 ☐
v28.2 ☐ v28.6 ☐
v28.3 ☐
v28.4 ☐

If other reason, please specify:

v29 ☐

4.6 What according to you are the responsibilities of the members of the study groups?

v30 ☐

4.7 Do you have any suggestions on how to improve the current study groups?

v31 ☐

4.8 What would you like to achieve through the study groups? (You may choose more than one option)

Problem-solving with the help of	Net-working and sharing in	Get updated on current industry trends	Have a good social	Other

v32.1 ☐
v32.2 ☐
v32.3 ☐
v32.4 ☐
v32.5 ☐

other farmers	a social context			
5	4	3	2	1

If other, please specify:

v32.6 ☐

4.9 Please rate the study groups before and after the Subtrop amalgamation?

v33a

4.9 a Before Subtrop

4 3 2 1 ☐ ☐ ☐☐

Growers Association	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1
SAAGA – (4)					
SALGA – (3)					
SAMAC – (2)					
SAMGA – (1)					

Please explain your rating above:

v33 a.5 ☐

4.9 b After Subtrop

Growers Association	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1
SAAGA – (4)					
SALGA – (3)					
SAMAC – (2)					
SAMGA – (1)					

v33b

4 3 2 1 ☐☐ ☐☐

Please explain your rating above:

v33 b.5 ☐

5. NEWSLETTERS

5.1 Do you receive your newsletter/s?

v34

4 3 2 1

	Yes – 3	No – 2	Uncertain - 1
AvoInfo (4)			
SALGA – Litchi news-letter (3)			
In a Nutshell (SAMAC) (2)			
SAMGA – Mango news-letter (1)			

5.2 Do you read your newsletter?

Yes	2	No	1

v35

5.3 If yes to question 5.2, please mark the newsletter(s) you read:

v36

4 3 2 1

SAAGA – Avo-info	SALGA – Litchi newsletter	SAMAC – In a nutshell	SAMGA – Mango newsletter
4	3	2	1

5.4 If no to question 5.2, please explain your answer (You may choose more than one option):

The news-letters contain nothing new	Articles in news-letters are not of a high standard	I find the newsletter very boring	I rather read other sources of informa-tion	Other reasons
5	4	3	2	1

v37.1

v37.2

v37.3

v37.4

v37.5

v37.6

If other reasons, please specify:

v38

5.5 How do you rate the standard of the newsletters?

	Excellent-5	Above average-4	Average-3	Below average-2	Extremely poor -1
Avo – info (4)					
In a Nutshell (3)					
Litchi newsletter (2)					
Mango newsletter (1)					

v39

4 3 2 1 ☐☐☐☐

5.6 Please indicate to which extend you agree or disagree with each one of the following statements.

In your opinion:	Strongly agree - 4	Agree - 3	Disagree - 2	Strongly disagree - 1
The newsletter articles are relevant.				
The articles in the newsletters are user friendly				
The newsletters add value to my farming enterprise.				

v40.1 ☐
v40.2 ☐
v40.3 ☐

5.7 Which of the following would you rather like to see in the newsletters? (You may mark more than one option)

Market feedback on local and export markets	5
Extension articles, example orchard management practises	4
Farming tips	3
Recipes	2
Other	1

If other, please specify:

v41.1 ☐
v41.2 ☐
v41.3 ☐
v41.4 ☐
v41.5 ☐

v41.6 ☐

5.8 Are you satisfied with the number of newsletters you receive per year?

Yes	2	No	1

v42 ☐

5.9 If no to 5.8, how often would you like to receive the newsletter?

Subtrop newsletter	**Times per year**
Avo Info – (4)	
In a Nutshell - (3)	

v43

☐☐☐☐

4 3 2 1

Litchi Newsletter – (2)	
Mango newsletter – (1)	

5.10 What other Agricultural magazines do you read?

Landbou Weekblad	Farmers Weekly	Groente en Vrugte	Fruit Journal	Other
5	4	3	2	1

If other, please specify:

v44.1 ☐
v44.2 ☐
v44.3 ☐
v44.4 ☐
v44.5 ☐

v45 ☐

5.11 Please rate the newsletters before and after the Subtrop amalgamation?

5.11 a Before Subtrop:

v46 a

4 3 2 1 ☐☐☐☐

Newsletters	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1
Avo Info – (4)					
In a Nutshell – (3)					
Litchi newsletter – (2)					
Mango newsletter – (1)					

5.11 b After Subtrop:

v46 b

☐☐☐☐
4 3 2 1

Newsletters	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor -1
Avo Info – (4)					
In a Nutshell – (3)					
Litchi newsletter – (2)					
Mango newsletter – (1)					

6. TECHNICAL / PRODUCTION RELATED RESEARCH

6.1 Please rate the relevance of the research being done to (a) your own on-farm situation and (b) to the industry as a whole?

6.1 (a) On farm:

v47 a

☐☐☐☐
4 3 2 1

Growers Asso-ciation	Extremely relevant - 5	Moderately relevant - 4	Somewhat Relevant - 3	Slightly relevant - 2	Not relevant - 1
SAAGA (4)					
SALGA (3)					
SAMAC (2)					
SAMGA(1)					

6.1 (b) Industry as a whole

Growers Asso-ciation	Extremely relevant - 5	Moderately relevant - 4	Somewhat Relevant - 3	Slightly relevant - 2	Not relevant - 1
SAAGA (4)					
SALGA (3)					
SAMAC (2)					
SAMGA(1)					

v 47 b

4 3 2 1

6.2 Please motivate your answers in 6.1(a) and (b):

Research addresses relevant problems at farm level / industry level	6
Research is pro-active	5
Research is innovative	4
Research is relevant only to large farmers	3
Need more market research	2
Other	1

If other, please specify:

v48.1
v48.2
v48.3
v48.4
v48.5
v48.6

v49

6.3 Do you submit your research priorities in your area?

Yes	2	No	1

If no to 6.3, please explain why not:

There was no opportunity before Subtrop amalgamation	3
I do not know how & when to give my inputs	2
Other	1

If other, please specify:

v50

v51.1
v51.2
v51.3

v52

6.4 Do you agree with the current method used to determine research priorities?

Yes	3	No	2	Do not know	1

If no / do not know to 6.4, please explain your answer:

Technical committees not working	4
Not scientific enough	3
Farmers not involved enough	2
Other	1

If other, please specify:

v53

v54.1
v54.2
v54.3
v54.4

v55 ☐

6.5 What is your responsibility with regards to the research function of Subtrop?

v56 ☐

6.6 In your opinion, would you say that the research function of Subtrop is well organized?

Yes - 3		No - 2		Don't know - 1	

v57 ☐

If no, please motivate your answer:

v58 ☐

6.7 Are you satisfied that the money spent on research is worth it?

v59

4 3 2 1

Growers Association	Extremely satisfied - 5	Very satisfied - 4	Satisfied - 3	Moderately satisfied - 2	Not satisfied - 1
SAAGA (4)					
SALGA (3)					
SAMAC (2)					
SAMGA(1)					

Please motivate your answer:

v60

4 3 2 1

SAAGA (4):

SALGA (3):

SAMAC (2):

SAMGA (1):

6.8 Do you have any suggestions on how this research function can be improved?

v61

4 3 2 1

SAAGA (4):

SALGA (3):

SAMAC (2)

SAMGA (1):

6.9 Please rate the research co-ordination function before and after the Subtrop amalgamation?

6.9 (a) Before Subtrop amalgamation:

Growers Association	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1
SAAGA (4)					
SALGA (3)					
SAMAC (2)					
SAMGA (1)					

v62 a

4 3 2 1

6.9 (b) After Subtrop amalgamation:

Growers Association	Excellent - 5	Above average - 4	Average - 3	Below average - 2	Extremely poor - 1
SAAGA (4)					
SALGA (3)					
SAMAC (2)					
SAMGA (1)					

v62 b

4 3 2 1

6.10 Who is the Subtrop technical & research co-ordination manager?

v63

7. WEBSITES

7.1 Do you use any of the websites available in the Subtrop context?

Yes	2	No	1

v64

If yes to 7.1, which one /s:

Subtrop	SAAGA	SAMAC	SAMGA

v65

4	3	2	1

7.2 If no to 7.1, please explain why not:

Do not have access to e-mail	5
Do not know the website addresses	4
Do not know there is a website	3
Forgot my password	2
Do not use websites to gain information	1

v66.1 ☐
v66.2 ☐
v66.3 ☐
v66.4 ☐
v66.5 ☐

7.3 What kind of information do you usually use?

Technical information	5
Market related information	4
Recipes	3
Nutritional information	2
Other	1

If other, please specify:

v67.1 ☐
v67.2 ☐
v67.3 ☐
v67.4 ☐
v67.5 ☐
v68 ☐

7.4 Please indicate whether you agree or disagree with each of the following statements.

v69 ☐
v70 ☐

	Agree	Disagree	Do not know
The websites are user friendly	3	2	1
I am satisfied with the quality of my industry related website	3	2	1

7.5 Do you have any suggestions on how to improve the websites?

v71 ☐

8. SECTION B: MARKET INFORMATION

8.1 Are you aware that Subtrop offers SAAGA, SALGA, SAMAC & SAMGA market information? Also, please rate the importance of this information according to the scale:
3 = Very important; 2 = Average importance; 1 = Not important at

	Y/N	S
V72	☐	☐

all.

8.1 (a) SAAGA

Information service	Yes	No	Scale	
1. Pack house & exporters estimates (V72)				V73
2. Weekly packing & shipping figures (V73)				V74
3. Competitors' weekly shipments & their estimates (V74)				V75
4. Export volume recommendation (V75)				V76
5. Local generic market development (76)				V77
6. Overseas generic market development (77)				V78
7. Industry related statistics (V78)				

8.1 (b) SALGA

Information service	Yes	No	Scale	Y/N	S
1. Pack house & exporters estimates (V79)				V79	
2. Weekly packing & shipping figures (V80)				V80	
3. Local market reports (V81)				V81	
4. Industry related statistics (V82)				V82	

8.1 (c) SAMAC

Information service	Yes	No	Scale	
1. Production forecasts (V83)				V83
2. Local generic market development (V84)				V84
3. Overseas generic market development (V85)				V85
4. Industry related statistics (V86)				V86

8.1 (d) SAMGA

Information service	Yes	No	Scale	Y/N	S
1. Pack house & exporters estimates (V87)				V87	
2. Weekly packing & shipping figures (V88)				V88	
3. Competitors' weekly shipments &					

their estimates (V89)				V89
4. Local market reports (V90)				V90
5. Local generic market development (91)				V91
6. Industry related statistics (V92)				V92

8.2 Do you have access to e-mail?

Yes	2	No	1

V93

How often do you read your e-mails?

V94

_____

8.3 In your opinion, does the market information mentioned above help with management of your farm?

Yes	3	No	2	Don't know	1

v 95

8.4 Please explain your answer:

v96

8.5 Do you have any suggestions on how to improve this service?

V97

8.6 Would you like to receive timely information on production related matters via e-mail / SMS?

V98

	Yes - 2	No - 1
E-mail (2)		
SMS (1)		

2 1

8.7 What other information would you like to receive?

v99

8.8 Subtrop provides Extension, Information, Research coordination and manages the affairs of SAAGA, SALGA, SAMAC & SAMGA. Are there other functions that you would like Subtrop to do? Please list any:

v100

8.9 In your opinion, which service/s of Subtrop provide the most

value for you on your farm? Please rate these services according to the scale.

Subtrop Service	Extremely valuable 5	Very valuable 4	Somewhat valuable 3	Slightly valuable -2	Not at all valuable 1	
Technical extension (V101)						v101
Study groups (V102)						v102
Newsletters (V103)						v103
Research (V104)						v104
Websites (V105)						v105
Marketing information (V106)						v106

8.10 Do you have any last comments? v107

APPENDIX B

SURVEY WITH REGARDS TO THE SUBTROP AMALGAMATION –

EXTENSION ADVISORS

Please answer the following questions by placing a cross (x) in the appropriate block or writing in the space provided

Questionnaire number	For office use only V0 ☐
Name: **Cell:**	
1. Were you employed at one of the four commodities that Subtrop serve before the Subtrop amalgamation? **Yes** 2 **No** 1	**V1** ☐
2. If yes, please specify: **SAAGA** 3 **SAMAC** 2 **SAMGA** 1	**V2** ☐
3. If no, where were you previously employed?	**V3** ☐
4. Currently in the area that you serve, please rate the prevalence of the Subtrop commodities in your area:	**V4** ☐
5. In your opinion do you think that the Subtrop amalgamation was a good idea? **Yes** 3 **No** 2 **Don't know** 1	**V5** ☐

	Very prevalent - 4	Prevalent - 3	Little prevalent - 2	Not prevalent at all - 1
SAAGA				
SALGA				
SAMAC				
SAMGA				

6. If yes, please motivate your answer (You may choose more than one):

Provide a better service	5
More expertise on board	4
Unifying voice to government	3
Reduce duplication of services	2
Other	1

If other, please specify:

V6.1 ☐
V6.2 ☐
V6.3 ☐
V6.4 ☐
V6.5 ☐
V6.6 ☐

7. If no, please motivate your answer:

V7 ☐

8. Taken all your responsibilities into consideration, do you think you can provide a better service to the Subtrop farmers as before the Subtrop amalgamation?

Yes	3	No	2	Don't know	1

V8.1 ☐
V8.2 ☐
V8.3 ☐

9. Please motivate your answer (You may choose more than one):

Cross pollination with other advisors	9
More exposure to different crops	8
Gain more knowledge	7
Areas smaller, less travelling	6
Spread too thin	5
Too many admin functions	4
Too little time to learn in depth	3
Not a lot of time for farm visits	2
Other	1

If other, please specify:

V9.1 ☐ V9.7 ☐
V9.2 ☐
V9.3 ☐ V9.8 ☐
V9.4 ☐
V9.5 ☐ V9.9
V9.6 ☐ ☐
V9.10 ☐

10. In your opinion were there guidelines / orientation program for you as a Subtrop extension advisor to get you on track after the amalgamation / when you first started with Subtrop?

Yes	2	No	1

V10 ☐

11. Do you think an orientation program is needed for the extension advisors in Subtrop?

Yes	3	No	2	Don't know	1

V11 ☐

12. Please motivate your answer:

It will give direction	9
Saves time	8
Help to gain knowledge faster	7
Enhance self-confidence	6
Enhance professionalism	5
I don't need one I know what to do	4
It will be a waste of time	3
I know whom to ask for help if I need it	2
Other	1

If other, please specify:

V12.1 ☐ V12.7 ☐
V12.2 ☐
V12.3 ☐ V12.8 ☐
V12.4 ☐
V12.5 ☐ V12.9 ☐
V12.6 ☐
V12.10 ☐

13. In your opinion, do you think that you, as a Subtrop extension advisor, work effectively?

Yes	3	No	2	Don't know	1

V13 ☐

14. Please motivate your answer (You may choose more than one):

I plan effectively	7
I address the needs of my farmers	6
I get positive feedback	5
I do not get to all my work	4
I do not address the needs of my farmers	3
I get negative / no feedback	2
Other	1

If other, please specify:

V14.1 ☐ V14.6 ☐
V14.2 ☐
V14.3 ☐ V14.7 ☐
V14.4 ☐
V14.5 ☐
V14.8 ☐

15. Do you have any suggestions on how the Subtrop advisors can work more effectively in order to provide a better service?

V15 ☐

16. In your opinion, what are the problems you experience as a Subtrop extension advisor?

V16 ☐

17. Have farmers phoned you for a farm visit? V17 ☐

Yes	2	No	1

18. If yes, how often per year? V18 ☐

19. Do the farmers in your area call on you to assist them with their problems? V19 ☐

Yes	2	No	1

20. If yes, please specify which commodity farmers call on you and for what reason? V20 4 3 2 1 ☐☐☐☐

SAAGA	SALGA	SAMAC	SAMGA
4	3	2	1

Reasons: V20.1 ☐

21. In your opinion, are you satisfied with the organisation with the study groups at present? V21.1 ☐

Yes	2	No	1

V21.2 ☐

Please motivate your answer: V22 ☐

22. Do you have any suggestions to improve the study groups? V23 ☐

	Yes - 2	No - 1
24.1 In your opinion, do you think that the newsletters are relevant and useful to the farmers?		
24.2 In your opinion, do you think that the newsletters add value to the farmers' enterprises on farm?		

V24.1 ☐

V24.2 ☐

24. Do you give inputs with regards to the research needs for each commodity? V25.1 ☐

Yes	2	No	1

If yes, what are the results of these inputs? V25.2 ☐

25. In your opinion, do your inputs with regards to research needs have any value? **V26** ☐

Yes	3	No	2	Don't know	1

26. Do you have any suggestions on how to improve the research coordination function and the role the extension advisor plays in the Subtrop context? **V27** ☐

27.1 Are you aware that Subtrop offers SAAGA, SALGA, SAMAC & SAMGA market information?

27.2 Please rate the importance of this information according to the scale:

27.1(a) SAAGA

Information service	Yes	No	Important -3	Neutral - 2	Not important - 1	Y/N	S
1. Pack house & exporters estimates (V28)						V28 ☐	☐
2. Weekly packing & shipping figures (V29)						V29 ☐	☐
3. Competitors' weekly shipments & their estimates (V30)						V30 ☐	☐
4. Export volume recommendation (V31)						v72 V31 ☐	☐
5. Local generic market development (V32)						v73 V32 ☐	☐
6. Overseas generic market development (V33)						v74 V33 ☐	☐
7. Industry related statistics (V34)						v75 V34 ☐	☐
						v76	
						v77	
						v78	

27.1(b) SALGA

Information service	Yes	No	Important -3	Neutral – 2	Not important - 1	Y/N	S
1. Pack house & exporters estimates (V35)						V35 ☐	☐
2. Weekly packing & shipping figures (V36)						V79 V36 ☐	☐
3. Local market reports (V37)						v80 V37 ☐	☐
4. Industry related statistics (V38)						v81 V38 ☐	☐
						v82	

27.1(c) SAMAC

Information service	Yes	No	Important - 3	Neutral – 2	Not important - 1
1. Production forecasts (V39)					
2. Local generic market development (V40)					
3. Overseas generic market development (V41)					
4. Industry related statistics (V42)					

27.1(d) SAMGA

Information service	Yes	No	Important - 3	Neutral – 2	Not important - 1
1. Pack house & exporters estimates (V43)					
2. Weekly packing & shipping figures (V44)					
3. Competitors' weekly shipments & their estimates (V45)					
4. Local market reports (V46)					
5. Local generic market development (V47)					
6. Industry related statistics (V48)					

		Y/N	S
V39		☐	☐
V40		☐	☐
V41		☐	☐
V42		☐	☐
	v83		
V43		☐	☐
	v84		
V44		☐	☐
	v85		
V45	v86	☐	☐
V46		☐	☐
V47		☐	☐
V48		☐	☐
	v87		
	v88		
	v89		
	v90		
	v91		
	v92		

28. What in your opinion is Subtrop' influence on the farmers' enterprises

V49 ☐

29. In your opinion, which service/s of Subtrop provide the most value to the farmers on their farms? Please rate these services according to the scale.

Subtrop Service	Extremely valuable -5	Very valuable- 4	Somewhat valuable -3	Slightly valuable -2	Not at all valuable -1	
Technical extension(V50)						V50 ☐
Study groups (V51)						V51 ☐
Newsletters (52)						V52 ☐
Research (53)						V53 ☐
Websites (54)						V54 ☐
Marketing information (55)						V55 ☐

30. Please indicate how much of your time you spent on the following activities:

Activity	Time spend (%)	
Organizing of study groups (V56)		V56 ☐
Farm visits (57)		V57 ☐
Fertilizer recommendations (58)		V58 ☐
Writing of reports & articles (59)		V59 ☐
Providing information via email / phone (60)		V60 ☐
Typing minutes of meetings (V61)		V61 ☐
Other coordination functions (62)		V62 ☐
Assistance with GlobalGap (63)		V63 ☐
Attending meetings (64)		V64 ☐
Other (65)		V65 ☐

Please specify other activities: V66 ☐

31. Do you have any last comments? V67 ☐

APPENDIX C

JOB DESCRIPTION OF A SUBTROP EXTENSION ADVISOR

JOB DESCRIPTION

JOB TITLE : TECHNICAL OFFICER

DATE COMPILED : 26 September 2006

DATE GRADED :

JOB GRADE :

SIGNED AS SEEN BY THE INCUMBENT

……

DATE

……

INCUMBENT'S SUPERIOR Technical Manager……

KEY REPONSIBILITIES

- Provide technical/organisational and managerial support to various entities/organisations
- Provide inputs on industry needs/priorities
- Assist with the development and updating of Industry databases
- Provide information as requested
- Provide a competent extension service to growers/Pack-houses
- Make specific recommendations to growers on cultivars, rootstock and various appropriate agricultural practices
- Conduct preliminary audits in preparation of accredited EUREPGAP audits
- Provide a service to members with regards to EUREPGAP and other legislative requirements
- Keep abreast of market developments
- Keep abreast of volume co-ordination information
- Facilitate co-operation between all relevant role players

SUBTROP

Job description

POSITION

Technical Officer

OVERVIEW OF FUNCTION

Ensuring effective communication between SUBTROP, growers, pack houses and service providers, and to transfer technical and other information on the production ad handling of fruit necessary to improve quality and productivity. This position will create and awareness and understanding of the marketing processes and will furthermore communicate and promote SUBTROP's influence in a positive manner.

ORGANOGRAM

Superior 2nd level	Chief Executive Officer
Superior	Technical Manager
This position	Technical Advisor
Subordinates 1st level	

EMPLOYEE SPECIFICATION

EDUCATION (MINIMUM REQUIRED TO PERFORM THE JOB)

SCHOOL	Grade 12
TERTIARY	BSc (Agric)

MINIMUM EXPERIENCE AND SKILLS REQUIRED

- Good interpersonal relationship skills to ensure professional interaction with all concerned.
- 2 years appropriate experience in managerial and technical related fields
- A working knowledge of fruit trades
- Problem solving skills at technical and managerial level
- Organisational alertness to realise the ability to identify problems and work in conjunction with relevant role players in solving problems.
- The ability to transfer and share technically related information

KEY PERFORMANCE AREA	PERFORMANCE STANDARD
ADMINISTRATION ▪ Provide technical/organisational/ and managerial support	When required provide such support to Study Groups, Regional Committees, for Information days and Technical Symposia with the assistance of Technical Officers in keeping with the Association's commitment to provide such support professionally
▪ Provide subject matter input	When requested to align industry priorities and needs with the latest developments and standards of excellence in Industry
▪ Assist with the development of an Industry database	When requested to provide expert inputs to realise the objective of establishing an accurate industry database
▪ Provide information gathering and distribution service	On an ongoing basis in the agreed format to ensure maximum benefits to industry participants
TECHNICAL ▪ Interact with Technical committees, members and consultants	On an ongoing basis and to also chair meetings with interested parties if necessary to determine the research needs of the Industry
EXTENSION ▪ Provide extension service to growers	In a competent manner through study groups, personal farm visits and the provision of information in electronic format and or mailed bulletin systems
▪ Provide specific recommendations to growers	When required on cultivar, rootstock selection, fertilisation, irrigation, pest & disease mitigation, canopy management and cultural practises in a professional and courteous manner

KEY PERFORMANCE AREA	PERFORMANCE STANDARD
▪ Arrange report back sessions to study groups	When required to inform growers of current progress on research developments, new products and improved cultural practises
▪ Provide information, support and training to members	When required on EUREPGAP, HACCP, Organic and EU legislation requirements to ensure members are kept abreast of such requirements and stipulations
▪ Conduct preliminary audits	As required according to EUREPGAP specifications to assist those members who are preparing for accredited EUREPGAP audits
▪ Provide an extension service to packhouses	As required in a competent manner through site visits and the provision of information in electronic format and or mailed bulletin systems
<u>MARKET DEVELOPMENT</u> ▪ Keep abreast with objectives for market development	When requested through interaction with the CEO and by monitoring progress on reaching these objectives
<u>VOLUME CO-ORDINATION</u> ▪ Keep abreast of activities with regards to volume co-ordination information	On an ongoing basis, keep abreast of relevant volume coordination information in order to be able to inform growers and packhouses accordingly
▪ Facilitate co-operation between all role players	On an ongoing basis to ensure cooperation between role players in production, processing and marketing

KEY PERFORMANCE AREA	PERFORMANCE STANDARD
LEGISLATION	
▪ Ensure awareness of legislation to members	On an ongoing basis make members aware as to their obligations with respect relevant laws and provide guidelines and specific pointers to facilitate compliance where required
ADDITIONAL TASKS	
Coordinate monitoring of fruit fly traps for invasive species.	Liaise with researchers at the ITSC and oversee monitoring of traps placed in the Subtropical growing regions
SAMGA nursery information	Compile a database of current SAMGA nursery tree production, which includes past, present and future mango tree exports. Update database on an annual basis. Update mango nursery practice manuals as necessary