

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

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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 paper focuses on the effect the amalgamation had on Extension services to the abovementioned organizations. The effect was measured by conducting a survey which measured Subtrop member responses. The survey used a structured questionnaire which was completed individually at group interview sessions.

Farmer and opinion leader respondents provided their perceptions and rated the extension services of the Technical Department of Subtrop. Respondents indicated that the study group as well as individual advice on farm practises as their preferred approach of the Extension service of Subtrop. A total of 54% of the respondents rated advice on farm practises as very important while 69% rated the study groups as very important. The efficiency of study groups were all rated higher after the amalgamation. More farmer respondents (64%) than opinion leaders (42%) indicated that they do not use the Subtrop website. Based on the findings it is recommended that Subtrop and its stakeholders need to develop an extension policy and strategy to ensure the deliverance of a service of excellence to its members.

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 its own offices and staff. A major reason for the amalgamation was to minimise duplicated common services such as research coordination, extension, marketing, management and to strengthen industry representation when dealing

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with government. Subtrop consist of approximately 800 farmer members served by a Technical Manager and six Extension Advisors.

In order to measure the impact the amalgamation had on the extension services, a survey was implemented. The survey included Subtrop members i.e. farmers and opinion leaders, as well as the Subtrop Extension Staff. This paper will only examine the results from the farmer and opinion leader respondents.

The objective of this paper is as follows:

- To provide a brief overview of the advantages of a customer survey;
- To discuss the survey results of Subtrop members, i.e. the farmer and opinion leaders;
- To provide recommendations for an improved Subtrop Extension Service.

2. CUSTOMER SURVEYS

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 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).

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 continuing process of program accountability (Israel, 2007; Terry & Israel, 2004).

As agriculture is a dynamic environment, it is important that extension services stay ahead of 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, *et al*, 2010). The implication therefore is that the targeting of information products and methods may improve the performance of extension programs and customer satisfaction (Jones, *et al*, 2010).

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.

3. METHODOLOGY

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.

The survey was conducted at study groups in the areas mentioned above. According to Terblanché (2007) study groups are an efficient platform to conduct surveys of this nature. Opinion leaders in each of the study areas were surveyed via email. Opinion leaders were included in the survey to determine if any correlations exist between the perceptions of farmers and that of the opinion leaders. 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.

A structured questionnaire was developed and used for the survey at the study groups and emailed to opinion leaders.

The questionnaire consisted of mainly closed questions using Likert-Type scale response answers (Vagias, 2006), as well as open questions. Prior to the study the questionnaire was thoroughly discussed and validated with Subtrop management, subject matter specialists and relevant statisticians. It was 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.

Farmer and opinion leader respondents had to indicate their 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

The data was coded and captured using Microsoft Excel. These data were analysed using the SPSS V19.0 statistical package. The Pearson's Chi-square test was used to determine any relationships between farmer and opinion leader respondents and their responses to each question. However, the Pearson's Chi-square test needs large samples to be accurate. The Fischer's Exact test was performed to compensate for the relatively small sample which is problematic when using the chi-square test (Field, 2009:690). The sample was 127 respondents i.e. 16% of total membership.

4. RESULTS AND DISCUSSION

4.1 Extension Services and the Extension Advisors

The farmer and opinion leader respondents had to rate the extension advisors on several criteria and indicate what they expected from them. The following results were obtained:

- i) A total of 71% farmer and 92% opinion leader respondents, (Subtrop respondents), indicated that they were acquainted with the Extension Advisors. This indicates that the Subtrop respondents were familiar with Extension Advisors and could answer the rest of the questions with credibility;

ii) It was indicated by 72% farmers and 87% opinion leaders that they use the Extension Advisors. Table one below 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 of the individual and group media services. There were no statistical differences between the farmer and opinion leader respondents' ratings. Table one demonstrates that Subtrop respondents rated advice on farm practises (54%), farm visits (38%) and general information (36%) as very important. Group and mass media techniques were all rated >50% very important. However, on the individual services only advice on farm practises received a rate (54%) higher than 50% as very important. Therefore, both respondent groups indicated group techniques as well as individual advice on farm practises as their preferred approach of the Extension Services of Subtrop.

Table 1: The extent to which farmer and opinion leader respondents rated the services they received as important and very important

Purpose / Services	Rating categories (%)	
	Important (No. = number of respondents)	Very Important (No. = number of respondents)
Individual services (No. = number of respondents who answered this question)		
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)

The above mentioned results agree with a survey done amongst small scale farmers in Florida, USA. In this survey farmers indicated group media and for example county workshops, as preferred channels 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 R, Grieshop J, Connell J, Krueger W, Olson W, Hasey J, Pickel C,

Edstrom J, Yoshikawa F., 1996; Vanclay, 2004). These studies also indicated that farmers still prefer personal contact;

- iii) The Subtrop respondents expected from Extension Advisors to be current with industry norms (80%), chemical developments (64%) and to maintain the link between researchers and farmers (59%) as very important. It was also indicated as relevant that extension advisors should continue with current services (62%) improves themselves (54%) and be aware of farming practises (48%);
- iv) The Subtrop respondents rated the Extension Advisors' professionalism (55%) and technical knowledge (50%) as excellent. The Extension Service was rated as 16% excellent before and 34% excellent after the Subtrop amalgamation; this results in an 18% increase. However, when the above average and excellent ratings of Subtrop respondents were combined, it resulted in the following:
 - Professionalism of Extension Advisors: 91% (above average, 36% and excellent, 55%)
 - Technical knowledge of Extension Advisors: 87% (above average, 37% and excellent, 50%);
 - Extension Service before Subtrop amalgamation: 49% (above average, 33% and excellent, 16%); and
 - Extension Service after Subtrop amalgamation: 83% (above average, 49% and excellent, 34%).

This results in a 34% increase from 49% before to 83% after amalgamation.

However, Subtrop's vision is to provide an excellent service and not one of above average. These results indicate room for improvement.

4.2 The study groups

Subtrop respondents had to indicate their perceptions with regards to study groups. The following results were indicated:

- i) The Subtrop respondents (88%) indicated that the study groups were well attended;
- ii) A total of 95% farmers indicated their satisfaction with the organization of study groups and 99% indicated that 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 of 19.2; $p < 0.0001$; there was no correlation in the opinion leader respondent group;
- iii) The majority (89%) of Subtrop respondents indicated participation, attendance and information sharing with other farmers as the most important responsibilities of study group members. Cross-tabulations 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 member collaboration and engaged in discussion;
- iv) The Subtrop study groups were all rated higher after the amalgamation.

4.3 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:

- i) The majority (92%) of Subtrop respondents indicated that they receive and read their newsletters;
- ii) To improve the newsletters, the majority i.e. 104 of the 127 respondents indicated more product related recipes; and 90 of the 127 respondents indicated more articles relating to farm activities, for example orchard practices;
- iii) More than 50% of Subtrop respondents agreed that the newsletters were user friendly, relevant and added value to farming practices;
- iv) This study showed that besides Subtrop newsletters, 33% and 18% of the respondents also read 'SA Fruit Journal' and 'Groente en Vrugte' respectively;
- v) The Subtrop newsletters were all rated higher after the amalgamation. This indicates that the newsletters are relevant and the Subtrop amalgamation improved them.

4.4 The Research function of Subtrop

The Subtrop respondents had to indicate their perception of the research function of Subtrop:

- 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.

To motivate these perceptions from a closed set of criteria, 51 of the 127 respondents indicated additional market research was needed while 40 respondents indicated that research was only relevant to larger farmers. The participation of the respondents within the research function was investigated with the following results:

- i) A total of 55% of farmers and 89% of the opinion leaders indicated that they submitted their research priorities at study groups. There was a significant statistical difference between the farmer and opinion leader respondent groups' indications with the Pearson's Chi-square test value of 12.8, $p < 0.0001$;
- ii) Most of the opinion leaders indicated that they understood the research process, while most of the farmers indicated that they did not;
- iii) Cross tabulation tests show that those who submit their research priorities and therefore involve themselves with research, have their problems addressed by the research;
- iv) 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;
- v) The rating of the research function was higher after the Subtrop amalgamation.

4.5 The Subtrop Websites

The respondents had to indicate if they use the Subtrop websites and indicated their satisfaction with these websites. The following indications were provided:

- i) More farmers (64%) than opinion leader (42%) respondents indicated that they do not use the Subtrop websites, with a Fischer Exact test value of 4.8, $p = 0.041$;
- ii) Motivations for not using the websites were as followed:

- Not aware that a website existed (23 respondents);
 - Do not use websites to gain information (21 respondents);
 - Do not know the website address (15 respondents).
- iii) The respondents who did use the websites indicated that they used them for technical knowledge and market related information; and
- iv) 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.

4.6 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:

- A total of 54 % rated Technical Extension Services as extremely valuable;
- A total of 48% rated Research as extremely valuable;
- A total of 46% rated Study groups as extremely valuable;
- A total of 31% rated Marketing information as extremely valuable;
- A total of 29% rated Newsletters as extremely valuable;
- A total of 11% rated Websites as extremely valuable

The Technical Extension Services received the highest rating of all services provided to the Subtrop farmer members.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The Subtrop respondents (farmers and opinion leaders) indicated their satisfaction with the Extension Services and study groups. The farmer respondents were generally unaware of how the research function of Subtrop operates. Perceptions were that the research had more relevance to the broader industry than to farming practice; yet, the Research Committees are comprised mostly of the farmers themselves. The newsletters were indicated as a relevant extension communication tool, while the websites proved to be somewhat valuable.

This survey seems to indicate greater farmer involvement with extension. A farmer in the Cape Province, South Africa, reported that he was enabled to make important decisions for his own farming business through his involvement. (SA Fruit Journal, 2011:95-96).

5.2 Recommendations

5.2.1 Study groups

Study groups have many advantages in the sense that producer problems are identified discussed and resolved (Marsh & Pannell, 1999; Hoffmann, Lamers & Kidd, 2000). Grobbelaar and Koch (1989) stated that people become involved when planning is done with them and not for them. This could explain why Subtrop farmers are passive participators in the planning of study groups. In order to increase farmer involvement in study group management it is submitted that each area form a commodity study group committee.

5.2.2 The newsletters

It was indicated that the newsletters were successful and Subtrop respondents were satisfied. The following recommendations will be made:

- The ‘*Groente en Vrugte*’ and ‘*SA Fruit Journal*’ magazines can be used as additional extension channels, as indicated by respondents;
- Combined newsletter: a combined quarterly newsletter is recommended. Each commodity will retain 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 farmers with an opportunity to experience and “cross-pollinate” with other Subtrop commodities.

5.2.3 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 are suggested:

- **Research committees in respective areas to be appointed by farmers at study groups:** The survey indicated low farmer participation. It is suggested that farmer involvement be enhanced in some way.
- **Research priorities must be discussed at study groups:** This will ensure more participation and involvement from 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 give feedback and address farmers at study groups; and**
- **Information and progress report articles on research in Subtrop newsletters:** Newsletters can be used to provide feedback on research projects to farmer members.

5.2.4 Websites and market related information

The survey indicated some unawareness of the websites. Therefore, it is recommended that the websites and their content be promoted at study groups and at symposiums.

5.2.5 Other recommendations

5.2.5.1 Policy, strategy and goals for Subtrop Extension Services

Based on the findings of this survey, it is recommended that relevant Subtrop stakeholders hold an extension workshop the outcome of this workshop can be used to develop updated policy, strategy for the extension services. In Australia and Germany, 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.

5.2.5.2 Combined commodity area committee with sub-area committees

To avoid duplication, the suggested area committees could combine the role of research and study group committee per commodity. Therefore, an area with the full representation of 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.

5.2.5.3 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).

REFERENCES

- 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.
- DÜVEL, G. H., 1989. Towards an optimisation of the Specialist-Generalist ratio in Agricultural extension. *S. Afr. J. Agric. Ext.* 18: 1 – 7.
- FIELD, A., 2009. *Discovering statistics using SPSS*. Third Edition Chapter 18:686 – 701. London, SAGE Publications Ltd. ISBN 978-84787-906-6
- 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.
- GROBBELAAR, M. M., & KOCH, B. H., 1989. Expectancy discrepancies in explaining study group participation. *S.Afr.J.Agric. Ext.*, 1989: 13 – 18.
- 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 Extension Service, Factsheet AEC 356, University of Florida. Available at: <http://edis.ifas.ufl.edu>. Accessed 22/11/2011.
- 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). Available at: <http://siacc.org/papers/kato.html>. Accessed 21/11/2011.

- MARSH, S. P. & PANNEL, D. J., 1999. Agricultural extension policy and practice in Australia: An overview. *J Agr Educ Ext* 6(2): 83 – 91.
- RADHAKRISHNA, R., 2002. Measuring and Benchmarking Customer 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>
- S A FRUIT JOURNAL, 2011. The last word. Oct/Nov 2011:95 – 96.
- SULAIMAN, V. R., HALL, A. & 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).
- TERBLANCHÉ, S. E. & DÜVEL, G. H., 2000. The catalytic function of leadership in efficient group functioning. *S. Afr. J. of Agric. Ext.*, 29: 105 – 117.
- 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.
- 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>.
- VANCLAY, F., 2004. Social principles for agricultural extension to assist in the promotion of natural resource management. *Aust J Exp Agr*, 44: 213 – 222.
- 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.