

Analysis of Extension Needs of Commercial Farmers in North-West Province, South Africa

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ABSTRACT The study examines extension needs of commercial farmers in the North West province. Commercial farming is one of the most important rural development investment strategies that can have both direct and indirect impact on poverty and food security. The sampling frame of the study consists of 88 farmers which is the study population and a sample of 32 farmers was selected for the study. Data was collected using a structured questionnaire which was subject to analysis using SPSS. Frequency counts and percentages were used to describe demographic characteristics, multiple regression analysis was used to determine the relationship between information needs and socio-economic characteristics of commercial farmers. The results of multiple regression analysis show that the significant determinants of commercial farmers information needs were attitude to public extension ($t = 2.84$); marital status ($t = -4.00$); educational level ($t = 2.107$) membership of farmers groups ($t = 2.168$), and extension contacts ($t = 1.78$).

INTRODUCTION

South Africa has long been branded as having two agricultures, explained by the commercial- subsistence farming dichotomy which characterizes their agricultural landscape. The then apartheid policies undermined the productive and innovative potential of the smallholder farmers and positively skewed towards encouraging the growth of the existing commercial farmers (Mudhara 2010). Besides the limitation on the amount of land available for farming for the small holder Black farmers, research and development was concentrated on addressing the needs of the large scale commercial farming sector. However in the post-apartheid South Africa efforts were made to restore the imbalances of power and unequal land ownership pattern witnessed in the past through a land reform policy. Land reform provides a unique opportunity to generate socio-political and economic transformation in rural South Africa through the redistribution of land to the landless, tenants and farm labourers thereby spreading formerly elusive socio-economic rights to Black South Africans. This policy which was aimed at making farming a career among Black emerging farmers resulted in a paradigm shift in the focus of relevant government machinery whose primary function is to enhance agricultural development (Maruiki 2004). It is therefore in this regard that the public

extension services focused on government driven programs such as land reform with less focus on the private sector such as commercial farming. Ozowa (2011) reported that information is an essential element in agricultural development programs but the information provided is influenced by policy makers, researchers, and those who manage policy decisions with little consideration given to the information peculiarities of those for who the information was meant. Chah et al. (2013) therefore opined that agricultural development programs approaches will be workable if agricultural information dissemination and management is premised on understanding of what farmers' information needs are. The information needed differs among categories of farmers and can be based on specifics that delineate these group of farmers, for example, land tenure, farm size or agro climatic region (Rivera 1996). Swanson (2008) submitted that apart from varied information required by different farmers and the different information source available to them, farmers' literacy level and resources accessibility, impacts on information needs, searching behaviour, access and use of information by farmers. Farrington et al. (1997) in a study in India reported that information needs of farmers who work under rainfed condition will be different from the needs of farmers working under irrigated condition. Moagi and Oladele (2012) found that information needs of Land

Redistribution for Agricultural Development (LRAD) beneficiaries in Waterberg district, Limpopo were high in the areas of pesticides, agricultural equipment, disease management, market prices and collaterals. Information needs of farmers become critical as market conditions became increasingly affected by global factors and as technologies become more complex. Oladele (2010) reported that farmers in significant determinants of information seeking by farmers in Lagos and Ogun States, Nigeria on seeds and planting materials were age, educational level, farming experience, family size, credibility of source of information, language of instruction, and organization membership. According to Oladele (2010), information is one of resources required for improvement of agricultural production that must acquire and used to make informed decisions. Considering the roles played by farmers, it is important to provide information to them as to boost their production and ensure their economic role in South African economy.

Despite the unified extension services by the public sector to serve all farmers in South Africa, issues of extension services neglecting commercial farmers and focusing on subsistence and emerging farmers still prevails. This study attempts to examine the extension needs of commercial farmers and if such are met by the public extension services. The main objective of the study is to assess extension needs of commercial farmers. The specific objectives were to: Identify personal characteristics of commercial farmer, Evaluate agricultural enterprises of commercial farmers, Determine information needs of commercial farmers, Ascertain information sources used by commercial farmers, Determine the attitude of commercial farmers to public and private extension services.

METHODOLOGY

The study was conducted in the Ngaka Modiri Molema District, North West Province is located in the far north of South Africa and on its Southern Flank from east to west, the province shares borders with Botswana, Zimbabwe and Mozambique. Ngaka Modiri Molema district consists of five municipalities: Ratlou, Ramotsheri Moilwa, Mafikeng, Tswaing and Ditsobotla, This research only focused only one municipality namely; Ratlou. The district is mostly inhabited by Blacks (Tswana, Sotho, Xhosa, Ndebele), Whites (Afrikaans) and Indian.

The district is predominantly rural with livestock production as a major agricultural practice. However production of crops like cotton, maize sunflower, tobacco and soybean also take place in the district. The area is characterized by dry and wet cycles, but a very dry year can be expected at least once every ten years. The climate is generally hot and dry, with annual rainfall of about 60mm and a high evaporation rate. Rainfall is predominantly in summer with an estimated average range of 20.8 to 123.3mm between September and April. Its great diversity in agricultural potential is due to different soil types, access to water and grazing capacities. The soils type is good red sandy loams with a pH that ranges between slightly acidic to neutral, with most soils high in lime.

The population consisted of all crops and livestock farmers in the Ngaka Modiri Molema District, North-West. Ngaka Modiri Molema District has five municipalities from which one municipality was randomly selected. According to the Department of Rural Development and Land Reform (DRDLR), in the North West province the population of commercial farmers in the province is 88 in number. The list of commercial farmers serves as the sampling frame for the study. A total of 32 farmers were randomly selected, and this forms the sample of the study.

Data was collected through a structured questionnaire on personal characteristics of the respondents, their agricultural enterprise, information needs, information source of and attitude of commercial farmers to public and private extension services which was measured on a five point Likert scale of strongly agree (5), Agree (4), Undecided (3), Disagree (2) and strongly disagree (1). Data analyzed and the SPSS version 18. Frequency count percentages mean, and standard deviation was used to describe the data, while multiple regressions were used to identify the determinants of information needs among farmers

RESULTS AND DISCUSSION

Table 1 indicates that 85% of the respondents were males while few 8.8% were females. This implies that there are more male commercial farmers in the study area. This may be due to the fact that livestock production is predominant in the area and whose management practices may be too tedious for females than their male

counterpart. It may also be because of access to productive resources in the study area which is more positively skewed towards male farmers. This agrees with the findings of Moloi (2008) who reported that despite the gains that have been made with respect to gender equality, the redistribution of resources and power has not shifted the gender disaggregation in farming.

Table 1 shows that 62.2% of farmers fall within the age of 46-55 years, while 14.7% of the farmers are within the age range of 56-60. Six percent of the farmers were above 60 years. The age distribution of respondent revealed that older people are involved are in the management of commercial farmers in the study area. This may be as a result of experiences and skills needed in the management of commercial farmers which the young people lacked. This is supported by Moloi (2008) that farming is mostly considered as an alternative job for people who are retiring from their lucrative job and, the educated, young and active people migrate to the urban areas to seek better employment and they do not consider farming as a potential business.

It is also revealed in Table 1 that 65% of the farmers were married. These suggest that there may be high demand for food and additional income as the family size increases. About 6% of the farmers were single, which indicates that they are youth and they still have strength to work. Table 1 also shows that 5.9% of respondents were widows the implication of this is that these women must have been actively involved in farming while their husband were still alive and sustain this as livelihood option to cushion the effect the vulnerability to poverty and food insecurity created by the death of their husband. About 18% of the respondents were divorced.

It is also revealed in Table 1 that 76.4% of respondents have 1-5 people in their households while 23.6% indicate that their household consists of 6-10 people. Families with small households are richer and have enough resources. Table 1 indicates that 35% of the respondents had high school education, 24% have diploma while 24% were university graduates. It is interesting to note that majority of the respondents are educated which implies that these commercial farmers had one form of tertiary education or the other. The ability of farmers to read and write may contribute to their information seeking behavior.

Table 1: Personal characteristics of commercial farmers

<i>Variables</i>	<i>Frequency</i>	<i>Percent</i>
<i>Sex</i>		
Female	3	8.8
Male	29	85.3
<i>Age</i>		
35-45	5	20.5
46-55	20	62.2
56-60	5	14.7
> 61	2	5.9
<i>Marital Status</i>		
Single	2	5.9
Married	22	64.7
Widowed	2	5.9
Divorced	6	17.6
<i>Religion</i>		
Christianity	31	91.2
Other	1	2.9
<i>Household</i>		
1-5	26	76.4
6-10	6	23.6
<i>Educational Level</i>		
Primary	1	2.9
Secondary	3	8.8
High school	12	35.3
College	8	23.5
University	8	23.5

Farm Characteristics of Commercial Farmers

Table 2 indicates that 47% of respondents' farming experience range between 11-20 years and 41.1% of farmers have 6-10 years of experience while 2.9% of the farmers have between 1-5 years of farming experience and 21 years and above respectively. Majority of the farmers have more than ten years of experience in livestock farming, this implies that the entrance rate of people into commercial farming from subsistence farming is rapid in the recent past. This may be due to the potential of farming as a profitable venture and source of income. This years of experience also accounts for the good management practices which evolves over many years of livestock farming, particularly as it affects record keeping, financial management and knowledge of commonly persisting livestock diseases. This is in line with the submission of Sebopetizi (2009) which reported that farmers experience counts in the management of credit in technology adoption, and to ensure economic efficiency.

Findings of this study also reveals that 50% of farmers owned the land they use for keeping their livestock and for cropping purpose, 26.7%

of rented their land while 14.7% have their land allocated to them. This is good for rapid livestock growth and development because farmers management decisions will not be subjected to the whims and caprices of the land owners, since majority have secured access to the land they use. This may be as a result of the land reform policy in implementation in South Africa which makes land available to farmers. This finding disagrees with the submission of Asadu et al. (2004) which reported that most of the tenure and allocation system restrict ownership to clan and community members in Nigeria. This situation affects agricultural land uses because excess land fragmentation.

Table 2 shows that 20.5% of the respondents have above 400ha, displays the differences in the results. The farms showed a wide lucrative in size with the smallest farm consisting of 325 and the largest being >400 ha with the smallest size of farm may have a negative influence on the representativeness of the results. This large areas of land revealed that most of the animals keep large stock; it also typifies the large land area requirement for livestock production particularly large area for pasture which animals can graze interchangeably to avoid overgrazing. Among commercial farms in general there are discrepancies in farm size, making it difficult to generalize about commercial farms in South Africa.

A large number of farmers 73.7% indicated that they use hired labor, 17.6% comes from their family. And only 2.9% shows that farmers themselves provide labor requirements. Most of these farmers have 1-6 workers. One of the reasons for having few workers is that farmers cannot afford to hire more people or the area cultivated is small. About seventy nine percent of the farmers reported that they are members of farmer group whereas 14.6% said they are not. A large percentage of the respondents 78.2% indicated that they fall under the income of bracket of R5000000 per annum whereas 21.9% falls under the income bracket of above R5000000 per annum. Schwalbach et al. (2001) revealed that farmers earn income Of R1000 or less per year from their farming activities.

Table 2 reveals that 47.1% of the farmers have livestock based farming system, 23.5% practiced crop farming based whereas another 23.5% of

the respondents practiced mixed farming system. This reveals that livestock farming is the culture in the study area. The low percentage recorded by crop based and mixed farming among the respondents may be as a result of the poor rainfall pattern in the area. The expanse of vast savanna land area may also be a precursor to livestock farming, especially ruminants because there is enough natural growing grasses which serves as food for these animals. Also farmers poor awareness and knowledge of the benefits inherent in mixed farming in which animal waste, dung's and dropping serves as manure and the remains of harvested crops serve as fodders may also behind the low record of this practice among farmers.

Table 2: Farm characteristics among commercial farmers

Characteristics	Frequency	Percent
<i>Years Farming Experience</i>		
1-5	1	2.9
6-10	14	41.1
11-20	16	47
21<	1	2.9
<i>Sources of Land</i>		
Personal	17	50.0
Rented	9	26.5
Allocated	2	14.7
<i>Farm Size</i>		
300-325	15	55.7
326-350	8	23.4
351-400	6	17.6
>400	7	20.5
<i>Farmer Group Member</i>		
Yes	27	79.4
No	5	14.6
<i>Labor Source</i>		
Self	1	2.9
Family	6	17.6
Hired	25	73.7
<i>Income Per Year</i>		
Less than R5000000	25	78.13
R5000000 and above	7	21.87
<i>Farming System</i>		
Livestock	16	47.1
Crop	8	23.5
Mixed	8	23.5
<i>Access to Market</i>		
No	1	2.9
Yes	31	91.1
<i>Access to Credit</i>		
Yes	28	82.4
No	4	11.8
<i>No. of Animals Kept</i>		
100-250	5	14.6
251-300	12	41.2
351-400	7	20.4
> 400	7	20.4

Information Sources Used by Farmers

A large percentage of the respondents (91.1%) reported that they have access to market while (2.9%) of the respondents do not have access to market (28%) of farmers have access to credit whereas (82.4%) farmers have no access to credit. This low percentage of farmers that have access may be as results of stringent conditions attached to accessing credits by lending institutions which farmers find difficult to satisfy. Majority of farmers (41.2%) reported to have kept 251-350 livestock, 20.4% of respondents reported to have kept 351-400 and 400 and above only few 14.6% farmers reported to have kept between 100-250 livestock.

Table 3 shows the sources of information used by farmers. Majority 100% Of farmers indicated that computers, mobile phone and internet as their most common source of information. The second most used source is other farmer/association 97.1% newspapers 94.1%, radios 91.2% friends and relative 91.2% which was utilized 29- 31 farmers, followed by libraries, personal e-mail, extension television 88.2% agents and other friends and relative which is utilized by from 11-24 farmers world wide web, library, organizational e-mail, overhead projector electronic mail and flash drive were found to be the least used channels as they were only assessed by 47.1%,26.5%,38.2%,26.5%, and 29.4%. farmers respectively. The results of this study disagrees with Ozowa (2011) that majority of the farmers use radio as the most common information channel but agrees that the second most used channel is television.

Table 3: Information sources used by commercial farmers

Information sources	Yes	No
Mobile phones	32 (100)	0 (0)
Computer	32 (100)	0 (0)
Internet	32 (100)	0 (0)
Fax machines	17 (55.9)	15 (44.1)
Organization e mail	7 (26.5)	25 (73.5)
Overhead projector	11 (38.2)	21 (61.8)
Organization website	8 (29.4)	24 (70.6)
Personal email	28 (88.2)	4 (11.8)
Radio	29 (91.2)	3 (8.8)
Electronic mail	14 (47.1)	18 (52.9)
World wide web	8 (29.4)	24 (70.6)
Flash drive	16 (52.9)	16 (47.1)
Extension agents	26 (76.5)	8 (23.5)
Television	30 (88.2)	2 (11.8)
Newspapers	30 (94.1)	2 (5.9)
Library	24 (76.5)	8 (23.5)
Other farmers/association	31 (97.1)	1 (2.9)
Friends/relatives	29 (91.2)	3 (8.8)

Information Needs of Farmers

It is revealed in Table 4 that most farmers 80.6% and 83.9% indicated that they have high information need on pesticides, fertilizers and seeds respectively whereas low information was needed include seeds 12.9% and fertilizers 12.9, agricultural equipment 3.2% and agric input companies 6.5%. According to Okwwu and Umoru (2009), the areas in agriculture where majority of Nigerian farmers needed information on, included pesticides, fertilizers and improved farm implements. A high proportion of farmers, 74.2%, 90.3%, 74.2% and 83.9% revealed that information needs on diseases management, pests management, technical knowledge and available agriculture markets respectively.

The table further reveals that 67.7%,64.5% and 61.3% of the respondents only need less information on climate and weather, soil fertility, sowing and land preparation respectively. The findings contradicts Narula (2010) who observed that information on weather and climate, and sowing practices was the most important amongst farmers. Majority of farmers 83.9% highlighted that their information needs on procurement (supply) companies 87.1%, product's demand 87.1%, available agricultural markets 83.9% and market price 77.4% is high. They also reported a high information need on grading 80.6%, processing 77.7% and transportation 74.2%. The table shows that storage method 67.7%, export procedures 67.7% and market companies 61.3% scores lowest as areas in which is needed by commercial farmers. Respondents commented that their marketing opportunities are limited. A study by Narula (2010) correlates that information on commodity prices and an agricultural market is extremely important.

Attitude of Commercial Farmers towards Public Extension

The respondents were asked to rate statement using 5 points scale as follows, strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1). The results revealed an overwhelming negative attitude by farmer towards public extension (Table 5). The prominent attitudinal statement as ranked by farmers were poor services, lacks working tools and equipment (3.67) system has persistent funding difficulties (2.58), the system require high level

Table 4: Information needs of farmers on agricultural inputs, production and market and supply chain

<i>Information needs</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>
<i>Agricultural Inputs</i>			
Seeds	25 (80.6)	2 (6.5)	4 (12.9)
Fertilizers	25 (80.6)	2 (6.5)	4 (12.9)
Pesticides	25 (80.6)	4 (12.9)	1 (3.2)
Agric equipments	26 (83.9)	4 (12.9)	1 (3.2)
Agric-input companies	25 (80.6)	4 (12.9)	2 (6.5)
<i>Production</i>			
Weather and climate	21 (67.7)	7 (22.6)	3 (9.7)
Soil fertility	21 (67.7)	6 (19.4)	4 (12.9)
Land preparation	19 (61.3)	8 (25.8)	4 (12.9)
Sowing	20 (64.5)	7 (22.6)	4 (12.9)
Fertilizer application	19 (61.3)	7 (22.6)	5 (16.1)
Irrigation methods	21 (67.7)	6 (19.4)	4 (12.9)
Disease management	28 (90.3)	2 (6.5)	1 (3.2)
Insects/pests management	23 (74.2)	6 (19.4)	2 (6.5)
Weeding	21 (67.7)	5 (16.1)	5 (16.1)
Time and techniques of harvesting	20 (64.5)	6 (19.4)	5 (16.1)
Post-harvest techniques (handling)	20 (64.5)	8 (25.8)	3 (9.7)
Technical knowledge	23 (74.2)	5 (16.1)	3 (9.7)
<i>Market and Supply Chain</i>			
Available agric markets	26 (83.9)	3 (9.7)	2 (6.5)
Market prices	24 (77.4)	5 (16.1)	2 (6.5)
Procurement (supply) companies	27 (87.1)	4 (12.9)	
Products' demand	27 (87.1)	4 (12.9)	
Products' supply	24 (77.4)	5 (16.1)	2 (6.5)
Grading	25 (80.6)	6 (19.4)	
Processing	24 (77.4)	6 (19.4)	1 (3.2)
Transportation	23 (74.2)	8 (25.8)	
Storage methods	21 (67.7)	8 (25.8)	2 (6.5)
Export procedures	21 (67.7)	7 (22.6)	3 (9.7)
Marketing companies	19 (61.3)	11 (35.5)	1 (3.2)

of training (2.42), system is non-excludable it, (2.4), public service are merit good that is services which may be under provided by market. The least is (1.97) the services are of low quality, service, possess staff incompetency (1.78), no creative and innovation throughout the service (1.97), followed by service rendered by untrained personnel, service possess staff incompetency.

Attitude of Commercial Farmers towards Private Extension

Table 6 presents the results of respondents rating of statements on private extension using 5 points scale as follows, 1 (strongly agree), 2 (agree), 3 (undecided), 4 (disagree) and 5 (strongly disagree). The actual mean is 3.0 which imply that all means below 3.0 are negative and those above 3.0 are positive. prominent attitudinal statements rated as positive are service affects solely the person who is consuming it (3.13), there is creativity and innovation throughout the service (3.68), service is cost recovery sys-

tem (3.55), service is excludable (3.71) and service rendered by private companies, NGOs (3.68). The results reveals that private extension is not substitute of public extension, the findings tallies with (Rajendranagar 2001) who reported that public extension is the only set up in the country, which is capable of serving 200 million farmers and farming families but for public extension also, it is impossible to meet all the farmers, all the time. Bloome (1993) indicated that, private extension involves personnel in the private sector that delivers advisory services in the area of agriculture and is seen as an alternative to public extension. Whereas, Van den Ban and Hawkins (1996) stated that, farmers are expected to share the responsibility for this service and pay all or part of the cost.

Multiple Regression Analysis

Table 7 shows the multiple regression analysis of the relationship between commercial farmers' socio-economic characteristics and information needs. The independent variables were

Table 5: Attitude of commercial farmers to public extension services

<i>Attitudes</i>	<i>Mean</i>	<i>SD</i>
System has persistent funding difficulties	2.58	0.88
System has weak accountability	2.12	0.76
Public service are merit good (that is, services which may be Under-provided by market)	2.29	0.82
Service require high level of training	2.42	0.81
Service is non-excludable(you cannot exclude anyone from consuming it)	2.42	0.76
Service is non-revolver (its consumption by one person does not diminish its availability to others)	2.26	0.73
Service is continuous to public	2.19	0.83
Service perceive poor administration	2.09	0.59
Lacks co-ordination	1.97	0.75
Staff not having the right training and not being supervised	2.26	0.68
No creative and innovation throughout the service	1.97	0.98
The service delivered free of charge	1.93	0.73
Service are easily accessible	1.93	0.35
Service affects a lot of people	2.03	0.48
service rendered by untrained personnel	1.90	0.54
Service possess staff incompetency	1.78	0.72
Service has inefficient appointment system	1.67	0.65
Service is not good in doing their job	1.81	0.60
Service lacks working tools and equipment	3.67	21.4
Service perceive poor management system	2.29	0.78
Service lack subject matter specialists	2.16	0.78
Service rendered by government and public servants	1.94	0.57
Service are of low quality	1.87	0.62
Staff being not responsive to service users	2.48	1.03
Lack of competition	2.29	0.82

Table 6: Attitude of commercial farmers to private extension services

	<i>Mean</i>	<i>SD</i>
Service affects solely the person who is consuming it	3.13	0.43
Service rendered by well trained personnel	1.71	0.53
Services staff competency	1.77	0.50
Service is good in doing work	1.68	0.50
Service has efficient appointment system	1.52	0.63
There is creativity and innovation throughout the service	3.68	0.70
Service is cost recovery system	3.55	6.50
Service perceive good management system	1.61	0.67
Services sufficient working tools and equipments	1.68	0.50
Staff having the relevant training and well supervised	1.94	0.63
Service has good co-ordination	1.84	0.45
Service has good administration	1.90	0.70
Service is continuous those in need of it	2.06	1.97
Service does not require high level of training	1.81	0.60
Service is excludable	3.71	0.46
Service are not merit good	1.74	0.58
Service have good accountability	1.74	0.69
Service do not perceive funding difficulties	1.84	0.64
Service affects certain group of farmers	1.78	0.56
Service possess enough extension specialists	1.81	0.54
Service rendered by private companies, NGO's etc	3.68	0.79
Being responsive to service users	1.84	0.82
Service possess good competition	1.55	0.81
Service are of high quality	1.74	1.58
Service are private utility	1.58	0.72

significantly related to the farmers information needs. The F value of 2.28 shows a strong relationship between the independent variable and

farmers' information needs. The significant determinants of commercial farmers' information needs are attitude to public extension (t = 2.84, p

Table 7: Multiple regression analysis of information needs and commercial farmers' socio-economic characteristics

	<i>Unstandardized coefficients</i>		<i>Standardized coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
(Constant)	7.025	34.082		2.206	0.01
Attitude to public extension	.308	.108	.640	2.836	.011
Attitude to private extension	.096	.156	.103	.618	.545
Sex	5.258	7.108	.127	.740	.470
Age	.022	.449	.011	.049	.961
Marital status	-10.623	2.656	-.903	-4.000	.001
Race	2.081	4.100	.101	.508	.618
Household no	.338	.816	.076	.414	.684
Educational level	4.383	2.080	.450	2.107	.050
Farm size	-.004	.029	-.027	-.138	.892
Farmer group	6.303	2.907	.404	2.168	.045
Extension contact	11.573	6.506	.403	1.779	.093
Market access	12.000	7.092	.290	1.692	.109
Credit access	-1.938	3.645	-.098	-.532	.602
R	.797				
R Square	.635				
F	2.28				
P	.05				

Table 8: t-test statistics showing differences in attitude of commercial farmers towards public and private extension services

<i>Attitude</i>	<i>N</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error mean</i>	<i>T</i>	<i>DF</i>	<i>P</i>
Private extension	31	53.13	8.13	1.46	2.95	60	0.004
Public extension	31	45.87	11.01	1.98			

< 0.05); Marital status ($t = -4.00$, $p < 0.05$); Educational level ($t = 2.107$, $p < 0.05$) membership of farmers groups ($t = 2.168$, $p < 0.05$) and Extension contacts ($t = 1.78$, $p = 0.09$). Only marital status shows an inverse relationship with commercial farmers' information needs. This implies that the more the attitude to public extension remain the same, higher education level, membership of farmers group and contact with extension the higher the information needs of commercial farmers.

t-test Analysis Showing Difference in Farmer's Attitude Towards Public and Private Extension

Table 8 shows the t-test analysis of differences in attitude of commercial farmers towards public and private extension services. There is a significant difference ($t = 2.95$, $p < 0.05$) in attitude of commercial farmers towards public and private extension services. The mean score for the attitude towards public extension services (45.87) attitude towards private extension ser-

vices is lower than attitude towards private extension. This may be due to the fact that the information needs of commercial farmers are not often met by the extension services. Duvel (2003) reported that given the low qualification and competence of extension workers, commercial farmers had opted for privatized extension services.

CONCLUSION

This study concludes majority of farmers are males within an age range of 46-55, they are mostly married and are Christian. Most of farmers' have household size of 1-5 members their level of education is mainly high school. It also reveals that they have between 11-20 years farming experience, utilized personal land with 300-325 farm size and use hired labor. Their income is less than R500000 mainly practicing livestock farming system and majority of them have access to market and credit, they also kept 251-300 animals.

The study also concludes that information sources used by farmers are e-mobile phones, computer, internet, personal email, newspapers and other farmers or farmer association. There is a high need of agricultural inputs, production and market and supply chain on diseases and management, seeds, fertilizers, pesticides, agricultural equipment available markets and product's demand.

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