

Factors Influencing Demand for Animal Health Services by Livestock Farmers Along Border Villages of South Africa and Namibia

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ABSTRACT

This paper examines the factors influencing demand for animal health services by livestock farmers along border villages of South Africa and Namibia. This was due to the high volume of trans-boundary activities particularly with respect to animals. The Northern Cape shares boundary with Namibia. The population of study is all livestock producers in border villages along Northern Cape provinces, a mix of purposive and random sampling were used to select 140 respondents for the study. Data were collected through the use of questionnaires, on farmers personal and farm characteristics and farmers knowledge of livestock biosecurity practices. Descriptive statistics were used to analyze farmers personal and farm characteristics. Regression analysis was used to determine the relationship between livestock farmers' knowledge of biosecurity practices and other study variables. The results show that 32% of the livestock farmers fall within the age

61 years and above. 83.6% of the farmers are male, 56.4% of the farmers are married; most of the farmers are literate, 67.9% of the respondents have less than five dependents, 97.9% of the farmers have livestock based farming system, 70% reported that they have no contact with extension agent, 89.3% have access to market. Farmers personal and farm characteristics were significantly related to the demand for animal health services. The F value of 2.456 at $p=0.05$ shows that there was strong correlation between the independent variable and the demand for animal health service by livestock farmer. The most significant determinant is income ($t=2.487$).

INTRODUCTION

Live stocks play an important role in the economies of most developing countries, accounting for one third of her agricultural output¹. Antenneh² reported that the value of commodity output of livestock in sub Saharan Africa is equivalent to 25% of total food production. It not only provides animal protein, but also income, employment and foreign exchange. Livestock also serves as a source of wealth, provides draught power

and organic fertilizer for crop production. In South Africa Livestock occupies an important and integral component of the farming systems which contributes greatly to agricultural and rural development³. Livestock production is prominent in the Bophirima Central and Bojanla Platinum districts of South Africa. While in the North West Province, 80% of the population, mostly women earn their livelihood from crop and livestock⁴. The South Africa dairy industry provides job directly for about 60, 000 people apart from another 40, 000 who derive their livelihood from processing of dairy products. 85% of the domestic consumption is produced by the livestock sector, which brought about an enormous reduction in beef importation and thereby saving huge foreign expenditure.

However despite this enormous economic contribution of livestock to the economy of the developing countries and South Africa in particular, poor animal health is a major impediment to optimal livestock production in many developing countries. Losses due to diseases comes in different forms, this include death of animals, medication cost, condemnation of products at the processing plants, loss of draught power as a result of weakness, poor growth, poor feed conversion and downgrading. FAO⁵ reported diseases induced estimated losses of about 30% of annual livestock output in developing countries. Therefore maximal livestock productivity is a function of high-quality and regularly provided animal health services. Umali et al⁶ lay credence to the fact that the availability of quality animal health services can play a significant role in enhancing the productivity of the livestock sector. The provision of animal health services in SSA has been the responsibility of the state veterinary service^{7,8}. However the growing fiscal pressures have in no small measures reduced the availability and quality of these services to an abysmal level⁹. Yet, animal health care requires more attention now than ever, given the expected increase in animal health related challenges, coupled with climate change induced influences on pasture growth and diseases incidence.

Additionally animals of most rural farmers are increasingly becoming more vulnerable to diseases because of the cost, lack and unsuitable animal health and production inputs¹⁰. This then implies that the absence of efficient health care delivery systems was also responsible for the prevalence of readily controllable livestock diseases^{7,8}.

¹¹. Therefore strengthening the health care delivery system in developing countries will improve the availability and performance of health services⁹. According to¹² the concept “animal health system” is made up of three components which are the structure, the process and the outcome. The structure is the environment, the process is the interactions between the animal health care/ services provider and the livestock farmers while the outcome is the effect of animal health care on animals and human. Bossche et al¹³ submitted that it is not just the outcome, that is, the extent to which interventions result in to healthy animals and humans that determines the quality of a health service system as assumed in the veterinary service context. Rather, the availability, affordability, and accessibility of these goods and services which are the must be inherent parameters in the “structure” and the “process” of the health care system that leads to the good outcome is what determines the quality of the animal health care delivery system. The implication of this therefore is that, it is not just the efficacy of the services rendered in terms of preventing and curing diseases but the extent to which this system enhances livestock farmers’ health management decisions in availing themselves of these health services. reported that institutional setting, economic factors along other variables like farmers and farming characteristics and biophysical factors as having major influences on livestock farmers’ health management decisions. Boschee et al¹³ also identified specific functions of livestock within the production system, objectives of the livestock production systems, types of disease, and factors determining trends in the livestock sub sector as a factor influencing demand for animal health services among livestock farmers.

Table 1: Personal characteristics of Livestock farmers

Age	Frequency	Percentage
<30	3	2.1
31-40	23	16.4
41-50	32	22.9
51-60	37	26.4
>61	45	32.1
Total	140	100
Gender		
Male	117	83.6
Female	23	16.4
Total	140	100
Marital Status		
Single	19	13.6
Married	79	56.4
Widowed	31	22.1
Divorced	10	7.1
Total	140	100
Race		
African	68	48.6
Colored	68	48.6
Others	4	2.9
Religion		
Christianity	138	98.6
Bahai	1	0.7
Other	1	0.7
Number of Dependents'		
<5	95	67.9
5-10	40	28.6
≥11	5	3.6
Household size		
<5	123	85.7
5-10	16	11.4
≥11	1	0.7
Educational level		
Primary	49	35
Secondary	37	26.4
High school	41	29.3
College	4	2.9
University	4	2.9
Others	5	3.6
Years of farming experience		
<10	60	42.9
10-20	55	39.3
21-30	15	10.7
31-40	6	4.3
≥40	4	2.9

An intensifying and market oriented live-stock production system lead to increase in demand for animal health services because of the change in the profile of livestock farmers from small scale to commercial farmers¹¹. De Haan¹⁴ (1992) reported that the introduction of crossbreed dairy cattle in India and the lean pig policy in China led to change in production system which led not only to increase in demand for animal health services but also for a specialized type of animal health service, therefore, community participation is important in livestock farmers' adoption of animal health strategy. Animal health services must be demand driven. Randella et al¹⁵ submitted that identifying factors that influences livestock farmers demand for animal health services have a lot of implications for policy formulation, planning and extension of livestock disease control programme. This study therefore seeks to understand factors influencing the demand for animal health services among livestock farmers in border villages between South Africa and Namibia.

MATERIALS AND METHODS

The study was carried out in selected vil-lages of the Northern Cape Province. South Africa has land boundaries: total of 4,862 km and has land boundaries with countries such as: Botswana 1,840 km, Lesotho 909 km, Mozambique 491 km, Namibia 967 km, Swaziland 430 km, Zimbabwe 225 km. Land boundaries is the total and individual length for each of the contiguous border countries, when available, official lengths published by national statistical agencies are used¹⁶. The selection of the study area was due to the high volume of trans- boundary activities particularly with respect to ani-mals. The Northern Cape shares boundary with Namibia. Communities were purpo-sively selected based on the concentration of livestock practices, while farmers were randomly selected from each community. The population of study is all livestock producers in border villages along Northern Cape provinces, a mix of purposive and random sampling were used to select 140

respondents for the study. Data were col-lected through the use of questionnaires, on farmers personal and farm characteristics and farmers knowledge of livestock bios-ecurity practices. Descriptive statistics were used to analyze farmers personal and farm characteristics.. Regression analysis was used to determine the relationship between the demand for animal health and other study variables.

RESULTS

Table 1 presents the personal characteristics of livestock farmers, while Table 2 shows the farm characteristics among livestock farmers. Table 3 shows multiple regression analysis of the relationship between farm-ers personal and farm characteristics and farmers knowledge of livestock biosecurity practices

DISCUSSION

Table 1 shows that 32% of the livestock farmers are between 61years old and above. 26.4% of them fall within the age bracket of 51-60 years, while 16.4% of the farmers are between 30-40 years old. Those farmers whose ages are less than 30 years are just 2.1%. The age distribution of the respondent reveals that old people are involved in the management of communal livestock in the study area. This may be as because of the poor interest in farming by the younger pop-ulation, who might have chosen other job as means of livelihood. This finding tallies with findings of¹⁷ which reported that herds were managed by older married men. It is also revealed in table 1 that 83.6% of the farmers are male while 16.4% are female. It shows that livestock farming is a male dominated enterprise. This agreed with the findings of¹⁵ which reported that, dairy cattle keeping is mainly male domain. 56.4% of the farmers are married; the implication of this is that family members the wife and the children will readily supply the labour needs on the farm. Agricultural tasks are at times gender defined, determined either by the difficulty of the various agricultural tasks or by the prevalent culture in an area. Therefore farmers wives will come in handy in carry-

Table 2: Farm characteristics among livestock farmers

Source of land		
Personal	26	18.6
Rented	29	20.7
Allocated	84	60.0
Others	1	0.7
Farm size		
≤50ha	14	10
51-2000ha	36	25.7
≥2000ha	90	64.3
Farming System		
Livestock based	137	97.9
Crop based	1	0.7
Mixed	2	1.4
Labour sources		
Self	71	50.7
Family	29	20.7
Hired	40	28.6
Income		
<5000	35	25
5000-12000	14	10
13000-16000	10	7.1
≥17000	81	57.9
Contact with Extension Agents		
Yes	42	30
No	98	70
Meeting with Extension Agents		
Regularly	60	42.9
Occasionally	39	27.9
Rarely	41	29.3
Source of Extension messages		
Government	139	99.3
Non- Governmental (NGO)		
Parastatals	1	0.7
Access to market		
Yes	125	89.3
No	15	10.7
Access to credit		
Yes	50	35.7
No	90	64.3

Table 3: Multiple regression analysis of the relationship between farmers personal and farm characteristics and farmers demand for animal health services

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-1145.996	1901.680		-.603	.547
Sex	161.325	633.306	.015	.255	.799
Age	13.403	17.808	.048	.753	.452
Marital Status	-44.286	370.497	-.008	-.120	.905
Household Size	-24.810	85.169	-.016	-.291	.771
Source of Land	-120.509	157.135	-.042	-.767	.444
Farm Size	.107	.086	.075	1.235	.218
Group membership	726.968	522.027	.081	1.393	.165
Extension contact	-356.010	476.155	-.042	-.748	.455
Labour sources	287.414	314.004	.057	.915	.361
Income	.019	.008	.162	2.487	.013
Farming experience	14.721	21.514	.040	.684	.494
R	.277a				
R square	.077				
F	2.456				

ing out those tasks that are assumed gender biased. In Livestock processing of milk and fetching of water for the animals is regarded as women tasks. Women play these roles to complement the effort of their husbands and to improve the family income. Hanks et al¹⁸ reported that Fulani women process and market fresh milk as a means of livelihood and to also improve family income. 22.1% of the respondents were widows; Animals kept by these widows must have been inherited from their husbands. It therefore implies that these women must have been actively involved in the raising of these animals while their husbands were still alive and could sustain that because of the experience gathered over the years. This is also made

possible because of the support probably given by the children. 16.4% were single, 7.1% were divorced and 0.7% is widower.

Table 1 also shows that 35% of the farmers have primary school education, 26.4% have secondary school education, 29.3% attended High School, and 2.9% of the respondents went to college and university. This reveals that most of the farmers are literate. High literacy among farmers is a precursor to technology adoption. Table 1. Also reveals that 67.9% of the respondents have less than five dependants, 28.6% have between five and ten respondents and 3.6% have above eleven respondents. These dependants will be readily available for work on the farm.

Farm characteristics

Table 2 reveals that 42.9% of the farmers have less than ten years of farming experience, 39.3% have between ten to twenty years of experience and 10.7% have between twenty one to thirty years of experience. Farmers year of farming experience revealed that majority of the farmers interviewed have been keeping livestock for a long time. This long year of experience come handy in good management practices. It is also seen in table 2, that 18.6% of the farmer own the land they use for keeping livestock, while 20.7% them rented their land. This may not be good for rapid livestock development because farmers' management decisions may be influenced by the land owners. 60% of the farmers have the land they use for livestock keeping allocated to them; this may be as a result of the land reform policy in implementation in South Africa which makes land available to emerging farmers.

Table 2 also shows that 97.9% of the farmers have livestock based farming system, 0.7% practiced crop based farming whereas 1.4% of the respondents practiced mixed farming system. This revealed that livestock farming is the most popular in the area of study. The low percentage recorded by crop based and mixed farming among the respondents may be because crop production is not common among black south African. The luxurious savannah vegetation in the area also support livestock keeping especially ruminants. Table 2 further revealed that 64.3% of the respondents have farm size of about 2000ha, 25.7% have between 51-2000ha whereas 10% of the respondents have less than 50ha. This large area of land owned by farmers revealed that the 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. Table 2 shows that farmers themselves provide 50.7% of the labour requirement, 20.7% comes from the family while 28.6% comes from hired labour. This is because family labour is readily available

and cheap and will reduce cost of production incurred by farmers. 30% of the farmers reported that they have contact with extension agents while 70% reported that they have no contact with extension agent. This may be as a result poor coverage of extension officer which may be due to dearth of extension officer or inadequate livestock extension officer or poor working conditions particularly as it affects logistics, most of the time extension coverage is limited because of poor means of transportation 42.9% of the farmers say that they have regular contact with extension agents, 27.9% said they occasionally meet with the extension agents while 29.3% of the farmers reported that they rarely meet with extension agents. This can also be the fall out of inadequate extension officer either in number or by specialization, it could also be as a result of poor supervision of this the 89.3% of the farmers have access to market while 10.7% of the respondents do not have access to market. Also in table 2, 99.3% of the respondent reported that Government extension agents are the source of their extension messages, while parastatals only provides 0.7% of the extension messages. This development reveals that Non-Governmental agencies are not actively involved in livestock extension in the area of study. 35.7% of the farmers have access to credit while 64.3% of the respondents have no access to credit. This low percentage of farmers having access to credit may be as a result of strict guidelines put in place by credit granting agencies.

Table 3, shows the results of multiple regression analysis of the relationships between farmers personal, and farm characteristics and the demand for animal health service. The independent Variables were significantly related to the demand for animal health service by livestock farmers. The F value of 2.456 at $p=0.05$ shows that there was strong correlation between the independent variable and. the demand for animal health service by livestock farmer. The significant determinants is income ($t=2.487$). This finding revealed that income of farmers is a major determinant of their

demand for animal health services. It therefore means that farmers will demand animal health service if there is an improvement in their income. The R value is 0.277 while the R square is 0.077; this implies that the independent variables predict 77% of the dependent variable.

CONCLUSION

It is seen from this study that income is a major determinant of livestock farmers demand for animal health services. It therefore becomes important that effort should be put in place to enhance low income livestock farmers access to health service. This can be made possible by subsidizing health services and bringing animal health institutions close to the farmers. Animal health personnel should not only be responsive but efficient in the treatment of animals, so as to establish the trust of the farmers in the services provided by their outfit. Livestock farmers also need to be sensitized on the bad impact of livestock diseases on animals, people and the economy, and the need to promptly seek health interventions to forestall outbreak and its grave consequences. Farmers can be encouraged to form themselves into cooperatives so that they can pool their resources together to facilitate easy access to relatively costly animal health services. Livestock extension personnel should emphasize to livestock farmers the importance of availing themselves of animal health services in their domain. Some incentives may be attached to livestock farmers' access of animal health service or a sort of reward for farmers with good record of animal health practices. Also in a very precautionary manner light sanctions may be applied to livestock farmers in case of disease outbreak, due to negligence of good health practices. Effort should be put in place to improve poor income of Livestock farmers, this can be through giving of credits to expand their production base in size or in diversification. Livestock farmers to market should also be facilitated to get good price for their product which will in turn affect their income and invariably facilitate their accessing animal health

services.

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