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Incidence and Prevalence of Livestock Diseases along Border Villages of South Africa and Namibia

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Abstract: This study examines the incidence and prevalence of livestock diseases along border villages of South Africa and Namibia. 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 incidence and prevalence of livestock diseases. Descriptive statistics were used to analyze farmers personal and farm characteristics. The results show that 32% of the livestock farmers fall within the age 61 years and above. The 83.6% of the farmers are male. The 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.

Key words: Livestock farmers, incidence, prevalence disease, farm characteristics, extension agent

INTRODUCTION

Livestock contribute significantly to food supply and nutrition. Animals are a major source of food, particularly of high-quality protein, minerals, vitamins and micro-nutrients for the majority of African people. It is estimated that meat, milk and eggs provide about one fifth of the protein in African diets. Animals also make indirect contributions to human nutrition and play a major role in improving food security in Africa because cash incomes obtained from the sale of animals are regularly used to buy non-livestock food items and farm inputs.

Livestock keeping is a fundamental component of farming systems in South Africa and it contributes greatly to agricultural and rural development (Bembrigde, 1988). This sector contributes about 49% of the country total agricultural output. The South African livestock industry supply 85% of meat consumed locally. The dairy industry employs 60,000 farm workers and also provides indirect job for 40,000 people. However, despite this huge contribution of livestock to the national economy, animal diseases remain a bane to animal production. Threats from diseases has resulted into deaths of animals, human health problems due to zoonotic diseases, sickness of animals and loss of draught power due to weakness, product condemnation, loss of trade and inability to participate in socio cultural ceremonies (Mutambara *et al*., 2012).

Loss in livestock productivity due to disease in developing countries is about 30% (FAO, 2004). Climatic conditions, poor nutritional status and poor management patterns have been identified as reasons for the prevalence of livestock diseases (Duguma *et al*., 2012). Sansoucy *et al*. (1995) reported that international trade of live animals and animal products is also a contributing factor to the spread of animal diseases. Migration of insects and other vectors that carry diseases to other ecological zones in order to escape the harsh weather conditions as a result of climate change has contributed to variation in the forms of incidence of livestock diseases. Belay *et al*. (2012) also submitted that structural changes in the livestock sector and the movement of animals, people and pathogens between intensive and traditional production systems which rely on different disease-control strategies can lead to outbreak of livestock diseases. Maropofela and Oladele (2012) classified livestock diseases into three group namely, endemic diseases (tick and tick borne diseases, trypanosomiasis and gastro intestinal parasites), Zoonoses and food borne diseases (hydatidosis, cyticercosis, brucellosis and tuberculosis) and epidemic diseases (Classical swine fever, African swine fever, Contagious bovine pneumonia, foot and mouth diseases and rinderpest). However, a definition of the occurrences and severity of diseases in an area become necessary so as to know the impact of these diseases on livestock, the

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farmers and their households, in order to delineate their animal health needs. FAO (1990) reported that an understanding of the impact of specific diseases on poor households will inform the different needs of the poor as consumer of animal healthcare.

MATERIALS AND METHODS

The study was carried out in selected villages 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 and 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 used (CIA, 2012). The selection of the study area was due to the high volume of trans-boundary activities particularly with respect to animals. The Northern Cape shares boundary with Namibia. Communities were purposively 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 collected through the use of questionnaires, on farmers personal and farm characteristics and incidence and prevalence of livestock diseases. Descriptive statistics were used to analyze farmers personal and farm characteristics.

RESULTS AND DISCUSSION

Table 1 shows that 32% of the livestock farmers fall within the age 61 years and above. The 26.4% of them fall within the age range of 51-60 while 16.4% of the farmers fall within the age range of 30-40 years. Those farmers whose ages are <30 years are just 2.1%. The age distribution of the respondent revealed that older people are involved in the management of communal livestock in the study area. This may be as a result of experiences and skills needed in the management of cattle in this type of system which the young people lacked. This finding tallies with findings of Oladele and Moilwa (2010) 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 whereas their female counterparts are just 16.4%. This show that livestock farming is male dominated. This agreed with the findings of Duguma *et al.* (2012) which reported that dairy cattle keeping is mainly male domain. The 56.4% of the farmers are married; this implies that family members will help in meeting the labour demands on the farms. Some roles in livestock production by culture seem gender specific, for example the processing of milk and fetching of water for the animals. Women play these roles to complement the effort of their male counterpart in taking care of the animals and also generating income for the family. This is supported by the findings of Vabi *et al.* (1993) which reported that Fulani women process and market fresh milk as a means of livelihood and to also support the family financially. The 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. The 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. It is also revealed in Table 1 that 67.9% of the respondents have less than five

Table 1: Personal characteristics of livestock farmers

Variables	Frequency	Percentage
Age		
<30	3	2.1
30-40	23	16.4
41-50	32	22.9
51-60	37	26.4
≥61	45	32.1
Gender		
Male	117	83.6
Female	23	16.4
Marital status		
Single	19	13.6
Married	79	56.4
Widow	31	22.1
Divorced	10	7.1
Widower	1	0.7
Religion		
Christianity	138	98.6
Bahai	1	0.7
Hinduism	-	-
Islam	-	-
Other	1	0.7
Educational level		
Primary	49	35.0
Secondary	37	26.4
High School	41	29.3
College	4	2.9
University	4	2.9
Others	5	3.6
Number of dependants		
<5	95	67.9
5-10	40	28.6
≥11	5	3.6

dependants, 28.6% have between five and ten respondents and 3.6% have above eleven respondents. These dependants are ready and cheap sources of labour for the farm.

Farm characteristics of farmers: Table 2 reveals that 42.9% of the farmers have <10 years of farming experience, 39.3% have between 10-20 years of experience and 10.7% have between 21-30 years of experience. This length of farming experience reveals that the farmers are not new entrants into the business of animal husbandry and might have graduated into owning livestocks by inheritance from their parents. This years of experience also counts in good management practices which evolves over many years of livestock farming, particularly as it affects distinct identification and record keeping of diseases that affect their animals. As revealed in Table 2, 18.6% of the farmer own the land they use for keeping livestock, 20.7% rented their land. This may not be good for rapid livestock development because farmers' smanagement decisions may be subjected to the whims and caprices of the land owners. The 60% of the farmers have the land they use for livestock keeping allocated to them; this may be a fall out of the land reform policy in implementation in South Africa which makes land available to emerging farmers.

Table 2: Farm characteristics of livestock farmers

Variables	Frequency	Percentage
Years farming experience		
<10	60	42.9
10-20	55	39.3
21-30	15	10.7
31-40	6	4.3
≥41	4	2.9
Source of land		
Personal	26	18.6
Rented	29	20.7
Allocated	84	60.0
Others	1	0.7
Farming system		
Livestock based	137	97.9
Crop based	1	0.7
Mixed	2	1.4
Farm size		
<50 ha	14	10.0
51-2000 ha	36	25.7
≥2000 ha	90	64.3
Contact with extension agent		
Yes	42	30.0
No	98	70.0
Frequency of contact with extension agent		
Regularly	60	42.9
Occassionally	39	27.9
Rarely	41	29.3
Source of extension messages		
Government	139	99.3
Parastatals	1	0.7
Labour sources		
Self	71	50.7
Family	29	20.7
Hired	40	28.6
Access to market		
Yes	125	89.3
No	15	10.7
Access to credit		
Yes	50	35.7
No	90	64.3

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 culture in the area of study. The low percentage recorded by crop based and mixed farming among the respondents may be as a result of the poor rainfall because of the arid nature of the area and the vast area of savanna which support livestock farming, especially ruminants. Also, farmers' poor awareness and knowledge of the benefits inherent in these practices, specifically as it affects mixed farming in which animal wastes, dungs and dropping serves as manure and the remains of harvested crops serves as fodders for animals. Table 2 further revealed that 64.3% of the respondents have farm size of about 2000 ha, 25.7% have between 51-2000 ha whereas 10% of the respondents have <50 ha. 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. The 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.

Table 3: Incidence and prevalence of livestock diseases

Diseases	Frequency	Percentage	Estimated cost of treatment/vaccination
Lumpy skin	50	35.7	43985.50
Brucellosis	39	27.9	849.81
Anthrax	30	21.4	3225.00
Heartwater	25	17.9	2079.50
Sheep scab	20	14.3	1657.20
Blackquarter	5	3.6	16.05
Cattle rabies	3	2.9	77.37
CBPP	2	1.4	225.00
Newcastle disease	2	1.4	4.28
Rift Valley fever	2	1.4	13.58
Corridor	1	0.7	2.86

This development reveals that non-governmental agencies are not actively involved in livestock extension in the area of study. The 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 stringent conditions attached to accessing credits by lending institutions which farmers find difficult to meet up with.

Incidence and prevalence of livestock disease as perceived by farmers: According to Table 3, diseases identified in the study area include Lumpy skin, Brucellosis, Anthrax, Heartwater, Sheep scab, Blackquarter, Cattle rabies, CBPP, Newcastle Disease, Rift Valley fever and Corridor. However, Lumpy skin disease (35.7%), Brucellosis (27.9%), Anthrax (21.4%), Heart water (17.9%) and Sheep scab were reported to be prevalent in the study area. However, Lumpy skin is the most severe disease plaguing livestock in the area of study. This report of prevalence of Lumpy skin disease in the study area agreed with the findings of Duguma *et al.* (2012) which reported high incidence of Lumpy skin disease among cattle in small scale livestock production system in Jimma.

CONCLUSION

This study has highlighted that livestock farmers along border villages of South Africa and Namibia fall above 61 years of age, male, married; literate have less than five dependents have livestock based farming system have no contact with extension agent and access to market. Prominent diseases are Lumpy skin, Brucellosis, Anthrax, Heart water and Sheep scab while other diseases are reported to be minimal. It therefore, implies that there is need to educate livestock farmers to introduce preventive practices in order to limit the incidences and prevalence of these diseases.

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