Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 5(1):38-43

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Opportunities and challenges facing small-scale cattle farmers living adjacent to Kruger National Park, Limpopo Province

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Abstract
A semi-structured questionnaire was administered to small-scale communal farmers in five communal villages which fall under Mhinga Traditional Authority (TA) in the Vhembe District of Limpopo Province, South Africa. Contrary to what has been documented in the literature, our study finds no evidence that farmers in rural communities keep livestock for non-market benefits such as cultural reasons or social status. Instead our study shows that farmers in rural areas keep livestock in order to enhance their income and to sustain their livelihoods. Furthermore, the study points out that livestock predation and lack of efficient marketing channels are some of the major challenges that continue to undermine the role that livestock play in enhancing the incomes of the small-scale cattle farmers. The study proposes policies that can address the opportunities and challenges facing the farmers in the study area. Establishment of efficient marketing channels and game-proof fences around the park are some of the proposed strategies the government can implement as part of the economic developmental goals in the study area. Thus the significance of this study is to highlight the role that livestock plays in enhancing the livelihoods of small-scale farmers in rural areas and how research of this nature can inform policies that are aimed at addressing the economic development challenges of the rural poor.

Keywords: teacher education, controversy, professionals, African.

INTRODUCTION

Agriculture remains the single largest source of income and livelihoods for rural households in the developing world, normally providing more than 50 percent of household income (Jayne et al., 2003; Otte and Chilonda, 2002). Nearly three quarter of the extremely poor people, about 1 billion people, live in rural areas (World Bank, 2008) and 90 percent of them are small-scale farmers depending directly on agriculture as part of their livelihoods (Lipton, 2005). However, in most developing countries, rural agrarian populations continue to expand while land for sustainable agricultural production is not expanding at the same rate. One of the suggested strategy essential in raising rural income and food security is diversification into livestock and increasing livestock productivity because a large share of the rural poor (communal farmers) already keep livestock and mainly cattle as contributors to their livelihoods (Thorton et al., 2002).

However, inspite of these benefits, communal farmers in rural areas face many challenges that constrain them from generating income from their livestock. These challenges include lack of access to land and water, lack of access to marketing channels, smaller herd size, risks associated with animal diseases, draught and theft (Montshwe, 2006). A study by Musemwa et al. (2007) found that factors such as lack of access to formal marketing channels as well as high transaction costs associated with marketing were the main factors restricting communal farmers from participating in the vibrant formal market where they could earn higher income. However, while the establishment of efficient marketing channels can certainly assist communal farmers to earn higher income, it can also be argued that higher income will not be attainable if farmers are unable to expand their holdings or herds which could potentially assist them in earning higher income. More specifically, famers residing close to the conservation park faces an added challenges such as livestock predation due to wildlife that escape from the park into the communal grazing area where they mingle with livestock. This phenomenon is observable in Limpopo Province where communal farmers living adjacent to the KNP live under constant fear of livestock predation because of wildlife that escape from the park. While livestock remain the major source of livelihoods of communal farmers in this area, these challenges can undermine this very source of their livelihoods. Thus, the main objective of this paper is to give a descriptive analysis of the opportunities and challenges facing the group of small scale cattle farmers in Limpopo Province using data obtained through semi-structured questionnaires. Policy proposals are suggested based on the findings.

MATERIALS AND METHODS

Interviews were conducted in five communal villages adjacent to the KNP. The villages fall under Mhinga Traditional Authority (TA) in the Vhembe District of Limpopo Province, South Africa. According to Statistics South Africa (StatsSA), Limpopo Province, covers an area of 12,46 million hectares and these accounts for 10,2 % of the total area of South Africa (StatsSA, 2003; Department of Agriculture, Forestry and Fisheries (DAFF), 2012). In addition, similar to other provinces in South Africa, Limpopo Province is characterized by two distinct types of agricultural production systems, namely: the large scale commercial farming system and the small holder farming system (StatsSA, 2002; Aliber and Hart, 2009). Figures from DAFF indicate that commercial farmers who practice large scale farming system using the most advanced production technology occupy approximately 70% of the total land area (DAFF, 2012). At present, there are approximately 2934 commercial farming units in Limpopo Province (StatsSA, 2007)

Mhinga TA has 10 villages under its jurisdiction, namely Mhinga 1, Mhinga 2, Mhinga 3, Ka-Matiana, Joseph, Botseleni, Maphophe, Mabililigwe, Makuleke and Nthlaveni. These villages fall under Thulamela municipality situated 70 kilometers east of Makhado; 180 km north east of Polokwane, the capital city of Limpopo Province and it is the gateway to the KNP which is the second largest park in the world (website of Thulamela Municipality). Mhinga TA covers an area of about 20,000 ha and mainly comprised of communal grazing area and village settlements with an estimated 6,880 households and 43,450 people (Chaminuka, 2012).

The villages mentioned above comprised of small-holder communal farmers who mainly depend on agricultural and livestock farming for their livelihoods. Although 10 villages fall under Mhinga TA, only five were chosen as the target populations, namely, Matiyani, Josefa, Botseleni, Maphophe and Mhinga (Mhinga 1, 2 and 3) (Figure 1). These villages were selected because they are representative of the demographics and socio-economic conditions

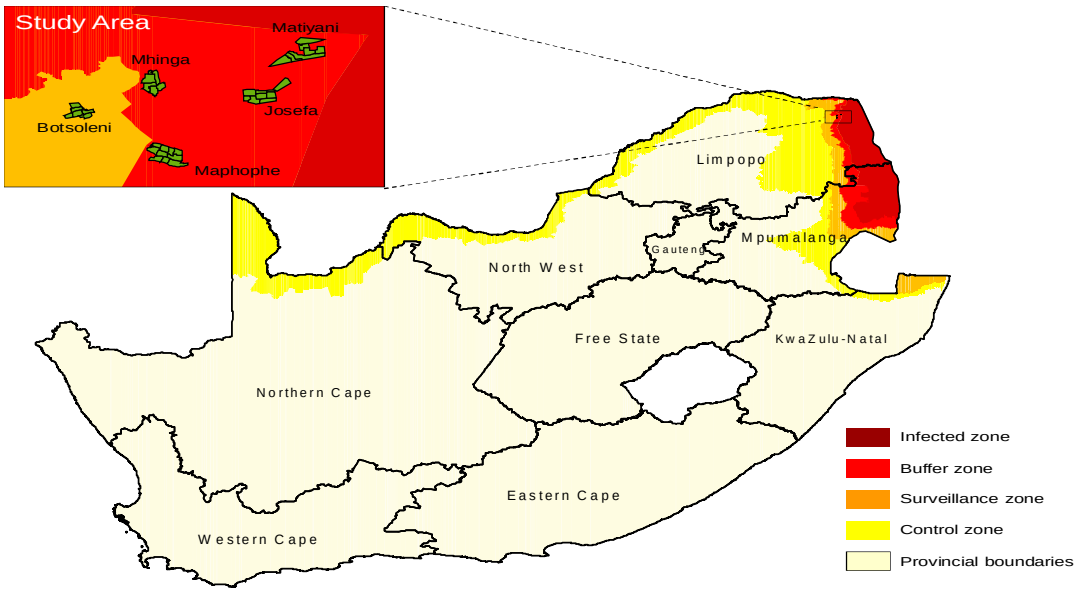

Figure 1: The map of South Africa and the study area

Adapted from Department of Agriculture, Forestry and Fisheries (2012)

According to Government Communication and Information System (GCIS), Limpopo had its highest average real economic growth rate of 3.8% between 1995 and 2001 (GCIS, 2004). However, StatsSA (2012) indicates the real average growth of 2.2 for Limpopo Province as the lowest of the nine provinces. The province is also characterised by high unemployment levels, overall estimated at 20,2% (StatsSA, 2012) but unemployment specific to the study area (Mhinga TA) range between 60% and 80% (Chaminuka, 2012).

of most villages bordering KNP on the northern and western sides and all the above villages are between 0 and 9 kilometres from the KNP (Chaminuka, 2012).

We implemented a cross-sectional survey using semi-structured questionnaire that was administered to the livestock farmers in the study sites based on random sampling design. Sample size estimation for the survey was based on the method proposed by Cochran (1977). The aim of the questionnaire was to gather information on the demographic and economic characteristics of the farmers; livestock and land ownership; marketing channels used by farmers to sell their livestock as well as risk factors such as livestock theft, predation and animal diseases. A list of all farmers at the target villages was obtained from

the Department of Agriculture of the local municipality, Thulamela. The cattle-owning farmers were identified through the dip register kept by the local animal health authorities (AHA). A selected number of farmers was then randomly selected using the farmer's identity card number from the available list and interviewed. The interviews were conducted using a local language which was either Tshivenda or Xitsonga.

RESULTS

Descriptive information on the main attributes of the population in the study area is presented in Table 1 and 2. The results show that most men (77%) and married farmers (67%) with some level of schooling (82%) were involved in cattle farming. Besides cattle farming, some farmers were involved in other forms of employment. About 67% of the farmers interviewed were solely committed to cattle farming while 33% were employed as government officials. About 63% of farmers owned at least 2 hectares of land allocated to them by the local chief. The herd size of the farmers varied between a minimum of one cattle to a maximum of 134 cattle with a mean of 9 heads of cattle. Almost all farmers kept livestock to provide for income (99%) and or as an insurance against unforeseen conditions such as loss of unemployment or severe draughts (100%). Whilst the main reason for keeping livestock was to provide for income, surprisingly about 53% of the surveyed farmers did not sell any cattle during the past year. Those farmers who sold their cattle, about 60% sold their cattle directly to local people while 40% sold to local butcheries. Farmers in the study also reported livestock losses due to predation (11%), 3% due to theft and 23% due to death as a result of animal disease such as FMD transmitted by wildlife (buffalo) that escaped form the park.

Table 1: Attributes of communal livestock farmers living adjacent to the KNP, June 2011

Characteristics/Attributes	N	Percentage
Gender (N=251)		
Female	58	23
Male	193	77
Marital Status(N=253)		
Married	170	67
Unmarried	83	33
Education (N=252)		
No Schooling	47	19
Some schooling	205	81
Employment (N=253)		
On-farm employment	169	67
Off-farm employment	84	33
Welfare grants (N=253)		
Not Receiving	30	12
Receiving	230	88
Land ownership (ha) (N= 159)		
No	92	37
Yes	159	63
Marketing Channels (N=252)		
Local people	150	60
Local butcheries	102	40
Theft of livestock (N=253)		
No	245	97
Yes	8	3
Losses due to natural death (N=253)		
No	194	77
Yes	59	23
Losses due to predation (N=253)		
No	225	89
Yes	28	11
Reasons for keeping livestock		
Keeping livestock for income (N=252)	1	1
No	251	99
Yes		
Keeping livestock for insurance (N=252)	252	100
Yes	9	4
Keeping livestock for social status (N=251)	242	96
No	133	53
Yes	120	47
Cattle sales	1	
No	250	1
Yes		99
Selling cattle for consumption (N=251)		
No		
Yes		

Table 2: Attributes of communal livestock farmers living adjacent to the KNP, June 2011

Characteristics	Min	Average	Max
Age (N=253)	18	58	92
Family size (N=253)	1	6	22
Herd size (N=253)	1	9	134
Herding costs (N=252)	0	161	800
Private land (ha) (N=159)	0	2	6
Income from selling cattle (N=253)	0	6400	120000

DISCUSSION

As already alluded to above, both men and women were involved in cattle farming and men constituted the highest percentage (77%). This figure is similar to that reported for other areas in South Africa. For example, Musemwa et al. (2007) reported that 80% of men engaged in cattle farming in Kamastone village, Eastern Cape. The average age of the head of the family is 58 while the average family size for the study area is 6. Most farmers in study areas have some form of schooling (82%). This figure clearly differs from the one reported for Kamastone village in the Eastern Cape where 57% of farmers were found not to have any form of education (Musemwa et al., 2007). As one would expect in communal areas, most farmers owned land that was allocated to them by the local chief. 63% owned land with an average of 2 hectares per farmer. The herd size of the farmers varied between a minimum of one cattle to a maximum of 134 cattle with a mean of 9 heads of cattle. This suggests that the bulk of the population concentrates around small herd sizes. Similar figures are reported in other parts of South Africa in Rustenburg where herd size varied between five and 149, with a mean of 29 head of cattle per household (Schwalbach, 2001); 10.8 and 7.2 average head of cattle per farmer in Thaba Nchu and Botshabelo, respectively (Moorosi, 1999); and a mean herd size

of eight in Venda (Nthakheni, 1996). The herd structure of the farmers we interviewed in the study area was distributed as follows: 44% had 1- 5 cattle while 32% had 6-10 cattle. Those farmers with 11-15 were 12% while those above 16 were also 12% confirming that the bulk of farmers in our study area had smaller herd size.

Farmers in our study area kept livestock for various reasons. Almost all farmers kept livestock to provide income (99%) and as an insurance against unforeseen conditions such as loss of unemployment or severe draughts (100%). Similar numbers were reported by Schwalbach et al. (2001) for South Africa indicating that 91% of farmers kept cattle to generate cash, 25% for the provision of financial security, while 17% kept livestock to provide for emergencies or insurance. In our study area, 96% kept livestock for social factors such as acquiring social status within the community and this finding is in agreement with the thesis that communal farmers tend to keep large herds in order to gain social standing within the society (Borge- Johannesen and Skonhoft, 2011).
While most of the farmers in our study area kept livestock to generate income, about 53% of the surveyed farmers did not sell any cattle during the past year which could be attributed to their relatively smaller herd size. Farmers who sold their cattle (47%), on average they generated R6400 per annum. Although most farmers keep livestock to generate income, our findings show that some farmers did not sell any cattle during the past year (as indicated by the minimum of zero) which could be attributed to smaller herd size. Similar trend of lower income generation from cattle farming activities is also reported by Schwalbach et al. (2001) with 75.4% of all farmers earning an income of R1000 or less per year from their cattle farming activities.

Communal farmers in the study area used various channels to market or sell their cattle. The most commonly used method was private sales to local people for slaughter for socio-cultural functions like funerals, weddings or religious celebrations and butchers buying livestock for different reasons such as retailing for income (USAID, 2003). About 60% sold their cattle directly to local people while 40% sold to local butcheries. By contrast, 25% farmers in the Kamastone village in the Eastern Cape used private sales, while majority of the farmers (46%) used auctions (Musemwa et al., 2007). These differences in the marketing channels used by farmers can be attributed to factors such as infrastructure or quality of the roads, high transactional costs, as well as lack of information in different regions (Musemwa et al., 2008).

In addition to challenges related to marketing channels, farmers in our study area faced risks such as losses due to theft and predation from wildlife that escape from the KNP. Almost all (99%) farmers interviewed indicated seeing wildlife roaming in livestock grazing areas. Various incidences of livestock predation have been reported in other parts of Africa. According to Holmern et al. (2007) 27% of the households interviewed in seven villages outside the Serengeti National Park in Tanzania reported that they had lost 4.5% of their livestock due to predation. Much higher figures were reported for Shorobe village, northern Botswana where 63 per cent of respondents reported that predators had killed some of their livestock (Kgathi et al., 2012). However, in our study area, farmers estimated that 11% of livestock losses were due to predation, 3% due to theft and 23% due to death as a result of animal disease such as FMD transmitted by wildlife (buffalo) that escaped form the park.

CONCLUSIONS

This paper described the main factors characterizing communal livestock farmers Mhinga District, Limpopo Province. The study further demonstrated that while livestock farming play a major role in sustaining the livelihoods of communal farmers, farmers are constantly faced with challenges that if left unattended, will continue to undermine the efforts increase income in poor rural communities

Our study further shows that while most of the literature argue that in traditional or communal areas cattle ownership is often of greater importance for cultural reasons, as well as an asset signaling social status (Walker, 1993; Perrings and Walker, 1994; Dasgupta and Maler, 1995, Fafchamps, 1998;), we find no evidence of such behaviour or motives in our study area. What stands out in our study is that poor farmers living in rural areas keep livestock mainly as a way of generating income (market benefits) rather than gaining social status or cultural reasons (non-market benefits). This has an implication for government to invest in a strategy that has the potential to raise rural income. One such strategy could be diversification into livestock and increasing productivity because a large share of the rural poor keeps livestock and mainly cattle as the contributors to their livelihoods (Thorton et al., 2002).

However challenges such as lack to well-functioning markets, livestock predation as well as theft pose major challenges to the farmers in realizing the benefits that cattle farming can offer. More specifically, formal marketing channels offer the best cattle prices, the right selling time, cattle breeds and the right age at which to sell the cattle, of which all these factors have potential to give the highest returns (Benson et al., 2001). As already discussed, majority of farmers at Mhinga district did not have access to formal marketing channels, thereby depriving them of an opportunity to earn higher income. Lack of access to formal markets could be due to lack of

government involvement in establishing efficient marketing channels, lack of extension services, poor roads and infrastructure.

In addition, livestock predation poses a serious challenge for this group of farmers due to wildlife that escape from the park into the grazing areas where they mingle with livestock. Without efficient game-proof sense and lack on compensation scheme, the costs of owning livestock outweigh the benefits of farmers. Measures to provide protection against livestock predation and wildlife-livestock disease transmission will greatly reduce livestock losses and in turn enhance the welfare of this group of farmers. This justifies public investments in efficient game proof fences that will effectively deter wildlife from escaping from game parks to come in contact with livestock grazing adjacent to the park communal livestock. Studies show that farmers with some level of education are able to adapt to new technological innovations related to cattle production and are able to acquire skills faster than those without (Musiguzi, 2000). Consequently our study suggests that investing in farmers' education and awareness of new technological innovations and appropriate measures and practices in breeding and veterinary services are critical for improving small-scale livestock farmers' welfare.

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