The Economics of Indigenous Management Systems (IMSs) in Small Ruminants Production used by Small Scale Farmers in Gombe State, Nigeria

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Abstract

This study was designed to investigate the economics of using indigenous management systems (IMSs) in small ruminant production in Gombe state, Nigeria. A multistage sampling technique was employed to select 80 small scale goat and sheep producers. Data were collected from the primary sources using pre-tested and validated structured questionnaire supported with oral interview. Both descriptive statistics (percentage and mean) and inferential statistics (chi-square test and correlation analysis) were used to analyse the data. Majority (83.75%) of the small ruminant producers were below the age of 50 years. The results also revealed that 90.0% of the respondents are full time farmers, where about 60.0% are low level income earners of < N 50,000/annum. Only 07.50% of the respondents did not acquire any form of education, while most (51.25%) have the basic education. The study identified four major IMSs used by the livestock farmers in the study area, with the majority (40.0%) embarked on 'Fulani pastoral system' while only 05.0% of the respondents used 'Turka management system'. It's revealed also, being low level income earners, 97.50% of the respondents kept small ruminant animals to serve as live bank. A high patronage of IMSs was recorded with 98.75% and 88.75% because of the familiarity with IMSs and high costs of modern methods respectively. There was significant relationship between IMSs utilisation and Age (r = 0.439, p≤0.05), income (r = 0.498, p≤0.05), occupation (r = 0.638, p≤0.05), education (r = 0.562, p≤0.05), years of farming experience (r = 0.480, p≤0.05). Farmers expressed fear about the extinction of grazing lands. Seasonal change in the availability of some herbs is also identified as a limiting factor of IMSs used in the study area. It is recommended to provide credit facilities and as well adequate extension services so as to motivate and train small scale livestock producers in the State.

Keywords: Indigenous, Management, Small Ruminant, Economics, Production

1. Introduction

The livestock production is an important vector of growth and value added in the developing World. The importance of livestock and their contribution to human welfare and improved agriculture is recognised. The goal is to attain self - sufficiency in the production of livestock and livestock products, most farmers keep ruminants for milk, meat, wool, manure, traction and savings (Hooft, *et al.,* 2008 and Rege, 1997). West Africa contains 25% cattle, 33% sheep, and 40% goats of the total livestock kept (Kamuanga, *et al*. 2004). Livestock rearing is one of the main economic activities on which the poorest populations depend for food and income. Hooft, *et al.* (2008) and Rege (1997) reported that, the contributions of livestock include food security, family income, risk mitigation and other socio-economic roles. The Nigerian Society for Animal Production (NSAP), (2009) reported that the Nigeria Livestock Industry contribute about 9 – 10 percent of the GDP.

In this regard, small ruminants form an integral and important component of the pattern of animal production in most rural communities (Davendra, 2005). Small ruminants are widely distributed in Nigeria in rural and urban areas representing about 63.7% of total grazing domestic animals in Nigeria (Gefu, 2002). In addition, Boyejo and Adedoyin (1994) also reported that small ruminants rearing is a common feature in most rural households in Nigeria and are important items in social, cultural and religion festivals. The role of small ruminants in general is extremely important within most farming systems and they have the potential of accumulating capital (Francis, 1990). The interest in the value of small ruminants as domestic livestock is widespread. This is stimulated by a wide recognition of their role in food production, economic importance in the tropics and sub tropics where they are concentrated and their constituting an important component of traditional farming systems (Devendra, 2005).

Small ruminants rearing is an age long traditional production system in the Northern Savanna where

animals are managed under the extensive system but a system that started to evolve in the last decade in which keepers combine small ruminants production with cultivation (Tiffen, 2004). In Nigeria, the systems of management of small ruminants are dictated by climate, cropping and population density. Gefu, (2000) reported that, small ruminants management system in the traditional sector can be broadly grouped into three; namely extensive, semi-intensive and intensive systems. Small ruminants' production tends to be extensive. According to Obinne *et al.* (2006), small ruminants are kept using a number of different production systems including subsistence in which the animals are tethered, extensive in which they are allowed to roam and tend for themselves and intensive in which they are kept in total confinement. However, Peacock, (1995) reported that Small ruminants are relatively easy to own by farmers, the animals spread the risk inherent in agricultural production and are often used as a first step up and out of poverty; they reproduce very fast and are raised in a wide range of production systems. The importance of small ruminants is primarily associated with their small size, which is significant for the advantage of mankind as it favors low investments, small risk of loss and preference over small ruminants for food and reproductive efficiency and economic use of available land (Omoike, 2006).

The latest and perhaps the most reliable statistics, the population of the various species of livestock in Nigeria are those of Bourn (1993) and the so called RIM reports. It shows that cattle are estimated at 13.947 million, goats 34.495 million, sheep 22.104 million and poultry 102.832 million. Omuorah (1987) estimated that 80.0% of the indigenous stocks are held in the Northern states of Nigeria. Gombe state is therefore a very important area for livestock production and the vast majority of the stock is held by nomadic herdsmen and pastoralists (Oguntona, 1999)

However, production without access to market is a problem for many small ruminants' producers in Nigeria (Usman and Nasir, 2005). Small ruminants like sheep and goats have lasting effects in bringing about social change and improve income. Wilson (1991) reported that, the importance of small ruminants in income generation and households' social and financial security have a number of advantages for being an integral component of the pastoral production system, they require small space, lower feed requirements, and supply both meat and milk in quantities suitable for immediate family consumption.

2. Methodology

2.1 Study Area

The study was conducted in Gombe State, Nigeria. It is located on longitude 11° 10' E and latitude 10° 15′ and situated in the north eastern part of Nigeria. Being located within the expansive savannah allows the state to share common borders with the states of Borno, Yobe, Taraba, Adamawa and Bauchi. Gombe State has an area of 20,265 km^2 and a population of about 2,353,000 people (NPC, 2006). Gombe state has two distinct climates, the dry season (November – March) and the rainy season (April – October) with an average rainfall received of 850mm/annum. Administratively the state is made up of 11 local Government Areas and 14 traditional chiefdoms (GSG, 2013a). About 80% of the population is engaged in agriculture and agro- allied activities. Crops produced include maize, millet, sorghum, cowpea, groundnuts, bambara nuts, rice, vegetables and fruits (such as onion, tomatoes, pepper, okra, pumpkin, pawpaw, cashew, guava, mango etc), also livestock and fisheries (cattle, sheep, goats, poultry, rabbits, and fishes. Gombe state is a confluence of economic activities, by its position as the meeting point for business people from all over country (GSG, 2013b).

2.2. Sampling Technique

Multi-stage sampling technique was used to select the respondents for the purpose of this study. Four of the eleven LGAs of the state were purposively selected for their popularity in small ruminant production. The selected LGAs are; Akko, Yemaltu-Deba, Kwami and Dukku LGAs. A random selection of two villages from each LGA was employed, from where 10 farmers were randomly selected making a total of 80 respondents, as sample size for this study.

2.3 Data Collection and Analysis

Data were collected through the administration of pre-tested and validated structured questionnaire and was supported with personal interview in a situation where the respondents could not be able to understand the questions.

In this study, a mixture of descriptive and inferential techniques was used. The descriptive analysis (such as the frequency distribution table, percentage, means,) were used to present demographical data, and the quantitative or inferential techniques were also used to determine relationship between 'IMSs' used and the selected personal variables of the farmers; in this case chi-square and Pearson correlation analysis were used. Essentially the descriptive statistics help to show what the distributions of the variables are. They are also characterized by simplicity, straight forwardness, utility and dependability (Adetoro, 1986).

3.0 Results and Discussions

3.1 Socio Economics of Small Ruminants Producers in the Study Area

The results of the socio economic status (Table 1.) revealed that majority (35.0%) of the respondents are in the age bracket 40 – 49 years old of age; however 83.75% of the small ruminant producers are below the age of 50 years. This implies that the younger ones are physically and mentally active that could make them able to withstand any tedious activity in traditional livestock production. The mean age of all the respondents was 42. Majority 76.25% of the small ruminant producers were found to be males; this is in line with the assertion that livestock production is a male-dominated occupation in the North-eastern part of Nigeria (Osinowo, 1999). However, this finding does not underscore the role of women in livestock production in Gombe state, as it's revealed that majority of the rural dwellers in the state are Fulani pastoralists where both males and females are known to engage primarily in keeping cattle, goat, sheep and poultry.

About 73.75% of the respondents were married, bearing some responsibilities. This is in line with the fact that majority being rural Muslims are characterized by early marriage and are likely to have taken advantage of family labor in their farming activities. The study however, showed only 07.50% that did not acquire any form of education, majority 38.75% attended primary education, 23 of the respondents constituting 28.75% attended *Tsangaya* schools and only one person (1.25%) acquired tertiary education. This implies that certain level of education is not only determinant of production but also an instrument for successful adoption of innovation for profitability (Roger and Shoemaker, 2001). Similarly, Ingye, (2005) reported that educational attainment has positive impact on the assimilation of new techniques as this allows farmers perceived and implement skills acquired from the expertise and as well the extension agents.

Data from the study indicated that only 26.25% of the respondents were full time livestock producers, and majority 47.50% engaged in mixed farming as their primary occupation. The number of animals possessed by a particular farm family is believed to determine the extent to which other resources (capita, labor etc) are utilized for optimum productivity (Abdullahi, 2012). Investigation depicted that 16.25% of small ruminant producers in the study area kept 50 and above number of animals. However, the results also showed that majority (65.0%) of the producers kept between 1 and 40 animals, implying that most of the livestock farmers were small scale holders. This will not promote production beyond subsistence level (Abdullahi, 2012). The results of this study further revealed that majority (26.25%) of the respondents have between 7 to 9 years experience in small ruminant production, 20.0% have 1 – 3 years farming experience and 12.50% are experienced farmers for 10 and above years. Farm income determines the ability to purchase more inputs so as to bring increase in outputs. The results of this study however, showed more than half (60.0%) of the respondents were in the low income category of less than N 50,000 per annum. This implies that majority of these farmers would not be able to live well and to expand their productivity.

3.2 Reasons for keeping small ruminants by small scale farmers

Results of this study depicted that goats and sheep are kept by farmers primarily as a source of ready cash and secondarily for family consumption. Its noticed that at the beginning of planting time, small animals are often sold and the money realized are used to procure some variable inputs for cropping. Farmers often purchase small ruminants with surplus cash after harvest, which are regarded as live bank with possibilities of yielding high interest through multiplication (Osinowo, 1999). Up to 97.50% of the respondents kept small ruminants as a source of ready cash to meet their sundry needs and as well farming requirements. While 77.50% of farmers in the study area kept these animals for sacrifice during religious festivals and other socio-cultural functions. Also 71.25% kept sheep and goat as reserve against economic and agricultural production risks. But only 30.0% kept small ruminants purposely for gift as shown in Table 2 below.

3.3 Use of Indigenous Management System (IMSs)

The Traditional Management System (IMSs) also called the extensive system or free range; small ruminants are allowed to roam about scavenging for food (forages). The animals raised under this system are very destructive to crops, often prone to diseases, risk of theft and parasites infestation (Weaver, 2005). The system requires low input which consequently results to low productivity. Animals under the 'IMS' are sometimes left to graze by themselves on natural pastures with no supplements being provided. Housing and medical care are often not provided except in some rare cases. In general, the animals are left to nature which exposed them to a great deal of environmental hazards. It is the most predominant system practiced in the rural areas of North Eastern Nigeria (Gefu, 2002). The flocks roam about especially in the day time, graze and browse roadside herbage and sometimes are offered kitchen waste (Sumberg, 1985).

Table 3 below shows the distribution of respondents by the types of 'IMS' used. Four categories of 'IMSs' were identified based on feeding, housing and animal health systems. Majority (40.00%) adopted the *Fulani pastoral system;* which involves grazing of cattle and the small ruminants are involved usually in search of fresh grass. Another 'IMS' is the *Herding system;* where the flocks are herded in large number and are fed

with freshly cut grasses in the raining season and in the dry season are fed with dried hay, bran, dried kitchen waste (*gaya/kanzo*). The study revealed that about 31.25% of the respondents partronised this system. Also, 19 of the respondents constituting 23.75% used *Tethering system* especially during the cropping season mostly to prevent the flock going into the farm. Taiwo (1986) reported that, in the humid zone of Nigeria the system is due to kid pressure, the flocks are tied with long ropes to allow for a degree of movement, but not long enough to cause damage to crops. This system requires relatively little labour, but animal should be tethered in an area of good quality fodder and should be relocated two or three times each day in order to feed on enough vegetation (Beets, 1982).

Turka system is the fourth IMS identified in the study area; this system is an intermediary between the modern and traditional systems such that it combines features of both systems. The system allows for zero-grazing and tethering of the animals. The animals are housed and often released for grazing and browsing of forages. Housing and other infrastructures are provided but the animals are not completely confined. The animals are allowed to graze on improved fenced pastures for some time and are later fed with concentrates as supplements; also salt and potash are sometimes added in the feeds. Traditional health care and other management practices are also provided. It also involves taking the animals out in the morning and tethering them to stakes where they are allowed to graze on pastures unsupervised till evening. These animals are brought back to their thatched pens near the homestead where they are also tethered for security. The results of the study showed only 05.00% of the respondents that adopted this management system. This could be due to socio-economic status of the farmers, as this system requires more inputs, intensive labour and etc.

3.4 Types of small ruminant livestock kept

The commonly domesticated small ruminants in the study area include sheep and goats. Both belong to the same family and sub-family, *bovidae* and *caprinae* respectively. The domestic sheep is of the genus s*ovis* and specie *aries* while the goat of genus *capra* and specie *hircus*. Because both animals are of the same subfamily, they are said to be related (Okunlola, *et al.,* 2010). Results of this study depicted that majority (66.25%) of the respondents kept both goats and sheep and 11.25% keep goats only.

3.5 Reasons for using 'IMSs'

Table 5 indicates reasons why the respondents adopted the various 'IMSs' rather than the modern management systems. The most common reason was that most of these Fulani pastoralists in the study area are traditional in terms of their social living and as well their production practices. Majority (98.75%) of the respondents asserted that IMSs are more used because of their familiarity and do not require vigorous training. About 88.75% of the farmers were of the opinion that modern systems of livestock management are not encouraged as they were expensive when compared with the IMSs. However, 72.50% of the respondents verified that extension services through radio programmes supported them to continue with their IMSs, being them low level income earners.

3.6 Tests of Significance

Chi-square test shows that only occupation and income of the respondents were significantly related to IMS utilisation. This could be due to the fact that majority (90.00%) are full time farmers, and would be able adopt the IMSs which have been verified effective over time.

Pearson correlation analysis depicts that Age ($r = 0.439$, $p \leq 0.05$), farm income ($r = 0.498$, $p \leq 0.05$), primary occupation ($r = 0.638$, $p \leq 0.05$), educational level ($r = 0.562$, $p \leq 0.05$), experience ($r = 0.480$, $p \leq 0.05$) were positively related with IMS utilisation. This implies that the higher the variability in the personal characteristics, the more the IMSs are utilised.

3.7 Problems Associated with IMSs Utilisation

Regardless of the production system, the provision of adequate feeds to small ruminants on sustainable year – round basis poses the greatest challenge to farmers. In the rainy season, farmlands become largely unavailable to livestock for in situ grazing and they must either move away to fallow lands and distant ranges or be confined and zero – grazed, or even tethered (Osinowo, 1999). In the early part of the dry season, the feed situation improves dramatically as farmlands are opened up once again for grazing and vast amounts of crop residues become available for livestock, by the late dry season, feed once again becomes a major constraint as crop residues are exhausted (Alhassan, 1988).

However, Data in Table 6 reveals that, majority (98.75%) of the respondents opined that high incidence of diseases and pests as well as seasonal changes are the major constraints of using the IMSs in the study area. About 90.00% of the respondents viewed extinction of grazing lands due to traditional land tenure arrangement, to a large extent, restricts the adoption of the identified IMSs in the study area. Low level income (86.25%), price variation (87.50%), theft due to lack of adequate security (82.50%) and pre-weaning mortality (75.0%), were among the identified problems affecting the use of IMSs in the study area.

4. Summary and Conclusion

Indigenous management systems are highly utilised by small ruminant farmers in Gombe State. The major IMSs identified are the tethering system, herding system, Fulani pastoral system and *turka* system which are being transmitted through the generation. Reasons adduced for high patronage of IMSs include the expensiveness of modern methods, familiarity of the traditional methods, IMSs are verified easy and simple to use and etc. Almost all the respondents have the fear of extinction of many of the herbs. High incidence of pests and diseases also affects productivity in using the IMS.

4.1 Recommendations

Both basic and applied research should be encouraged to promote the use of IMS and promote the herbs used on grazing lands, so as to forestall the extinction of such useful plants. Farmer based extension services should be provided. Extension officers must be well motivated, trained, well remunerated and provided scheme as this often stimulates livestock production. Government policy should aim at equitable producer and consumer prices to stimulation both production and consumption. As most farmers are low level income, there should be organised credit facilities to help enhance production. There is the need to train livestock farmers especially those that operate at household/family level.

References

Abdullahi, A. (2012), Comparative Economic Analysis of Rice Production by Adopters and Non-Adopters of Improved Varieties among Farmers in Paiko L.G.A. of Niger State, *Nigeria Journal of Basic and Applied Science, 20 (2): 146 - 151*

Adetoro, S.A. (1986), Research techniques for Projects, Proposal, Reports, Thesis and Dissertation, Zaria: Gaskiya Co-operation pp 102

Alhassan, W. S. (1988), Crop residu utilisation with special reference to pastoral reduction. Proc. Nat. Conf., Pastoralism in Nig. NAPRI, Zaria, pp 70 - 94

Boyejo, O. and Adedoyin, S.F. (1994), Production and Marketing of small ruminants in south western Nigeria, *International Journal of Food and Agricultural Research,* 3(2):69 – 79

Devendra, C. (2005), Small Ruminants in Asia; Contribution to food security, poverty alleviation and opportunities for productivity enhancement: Proceeding; International Workshop on Small Ruminant Production and Development in South East Asia Hanoi, Vietnam, 2-4 March 2005, pp 126

Francis, P.A. (1990), Small Ruminants Marketing in Southwest Nigeria, *Journal of Agricultural Economics,* 5(2):71-90

Gefu, J.O. (2002), Socio-economic Considerations in Small Ruminant Production, In: Lakpini,C.A.M., Adamu,A.M., Edoche,O.W. and Gefu, J.O.(eds). Manual for Small Ruminant Production in Nigeria; National Animal Production Research Institute, Ahmadu Bello University, Zaria, Nigeria Pp 8-11.

G.S.G. (2013a), Gombe State Government: General Information. Adapted On 30/01/2014, from; http://www.gombestate.gov.ng/geninformatio n.html

G.S.G. (2013b), Profile of Gombe State: Adapted On 30/01/2014 from; http://www.en.wikipedia.org/wiki/GombeState

Hooft, K, Milar, D., Geerlings, E. and Django, S. (2008), Endogenous Livestock Development in Cameroon, Wageningen:Agromisa Publishers, Pp 56

Igye, Y. (2005), The effect of adoption of improved variety on the productivity of Small-scale farmers in Hawul Local Government Area of Borno State Nigeria, (B.Sc. Agriculture) project submitted to the faculty of Agriculture, University of Maiduguri, (Unpublished) pp 46.

Kamuanga, M., D'Ieteren, G., Tano, K., Mugalla, C., Pokou, K., Swallow, B. and Hall, D. (2004), Improving the productivity of crop-livestock systems under trypanosomosis risk in West Africa: Potentials and opportunities in the next decade. In: Williams T.O., Tarawali S.A., Hiernaux P., Fernández-Rivera S. (eds), *Sustainable crop-livestock production for improved livelihoods and natural resource management in West Africa: proceedings of an international conference held at the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria, 19-22 November 2001*. ILRI (International Livestock Research Institute), Nairobi, Kenya and CTA (Technical Centre for Agricultural and Rural Cooperation, ACP-EC), Wageningen, pp 436-465

Nigerian Society for Animal Production (NSAP, 2009), A Communiqué: 34th NSAP Annual Conference, March 15-18, University of Uyo, Akwa Ibom State

N.P.C. (2006), Annual Statistical Abstract on Nigeria Population Census, Abuja: NPC, pp 22

Obinne, j.i.,Moemeka, A.P and Mmereole, F.U.C. (2006), Farmers Perception of Livestock Farming in Nigeria Oguntona, T. (1999), Appropriate production and management technologies for local feedstuffs towards optimum production of livestock in North-east, Nigeira, In: Orskov, E. R., Adegbola, T. O., Bogoro, S. and Butswat, I.S.R. (eds), Proceedings of International Seminar; *on promoting sustainable small scale*

livestock production towards reduction of malnutrition and poverty in rural and sub-urban families in Nigeria. Held in Zaranda Hotel, Bauchi, March, 7th – 11th, 1999, pp 157 - 163

Okunlola, O.O., Amuda, A.J. and Ayanwamide, F.M.(2010). Farmers Perception of Livestock Farming in OyoState: A case study of small ruminant farmers. Proc. 35th Conf., Nig. Soc. for Animal Prod. 14 – 17 March, University of Ibadan, Nigeria

Omoike, A. (2006), Small ruminant livestock production in Nigeria, *Journal of Agriculture and Social Research, 6(2): 23*

Osinowo, O. A. (1999), Strategies towards Enhancement of small ruminant Productivity by small scale farmers in the Sahelo – Sudan Savanna areas of Nigeria, In: Orskov, E. R., Adegbola, T. O., Bogoro, S. and Butswat, I.S.R. (eds), Proceedings of International Seminar; *on promoting sustainable small scale livestock production towards reduction of malnutrition and poverty in rural and sub-urban families in Nigeria.* Held in Zaranda Hotel, Bauchi, March, 7th – 11th, 1999, pp 42 – 53.

Peacock, C. (1995), In: Nwafor, C.U. (2004), 'Small Ruminant Livestock Marketing in The Gambia: A socio-economic perspective' *Livestock Research for Rural Development, 16(4): 204.*

Roger, E. M. and Shoemaker, F. F. (2001), **Diffusion of Innovations.** 4th edition, Free Press, New York: pp 345.

Tiffen, M. (2004)*, Population pressure, migration and urbanization: Impacts on crop-livestock systems development in West Africa.* Williams T.O., Tarawali S.A., Hienaux and Fernandez-Rivera S (eds). 2004. Proceeding of an international conference held at the International institute of Tropical Agriculture (IITA), Ibadan, Nigeria, 19-22 November2001. ILRI (International Livestock Research Institute), Nairobi, Kenya and 125 CTA (Technical Centre for Agriculture and Rural Cooperation, ACP-EC), Wageningen, pp 3-27

Usman, H. and Nasiru, M. (2005), Commodity Chain Analysis of Cattle Marketing in Nigeria; A case study of K.R.I.P. Area Kano State: A report submitted to ADENI project/NAERLS Zaria: April 2005

Wilson, R.T., (1991), Small Ruminants Production and the Small Ruminants Genetic Resource in Tropical Africa: Animal production and Health paper, Food and Agriculture Organization of the United Nations (FAO), Rome, 88: 20-28.

Table 1. Distribution of respondents by their socio-economic variables

Variables	Frequency	Percentage
Age (Years)		
20 – 29	12	15.0
30 – 39	27	33.75
40 – 49	28	35.0
50 – 59	10	12.5
60 and above	03	3.75
Total	**80**	**100**
Sex		
Male	61	76.25
Female	19	23.75
Total	**80**	**100**
Marital status		
Married	59	73.75
Separated	08	10.0
Single	13	16.25
Total	**80**	**100**
Education		
Primary	31	38.75
Secondary	10	12.50
Tertiary	01	01.25
Adult education	09	11.25
Qur'anic	23	28.75
No formal educ.	06	07.50
Total	**80**	**100**
1° Occupation		
Crop production	13	16.25
Livestock prod	21	26.25
Mixed farming	38	47.50
Trading	06	07.50
Artisan	02	02.50
Total	**100**	**100**
Herd size		
1 – 20	22	27.50
21 – 40	30	37.50
41 – 60	15	18.75
61 – above	13	16.25
Total	**80**	**100**
Experience (yrs)		
1 – 3	16	20.00
4 – 6	33	41.25
7 – 9	21	26.25
10 – above	10	12.50
Total	**80**	**100**
Farm income		
10,000 – 20,000	02	2.50
21,000 – 30,000	32	40.00
31,000 – 40,000	14	17.50
41,000 – 50,000	13	16.25
51,000 – above	19	23.75
Total	**80**	**100**

Table 2: Distribution of respondents based on the reasons for keeping small ruminants

Reasons*	Frequency	Percentage
Ready cash	78	97.50%
Consumption	71	88.75%
Festivals	62	77.50%
Gift	24	30.00%
Reserve	57	71.25%

Source: field survey, 2013 , *Multiple responses

Table 3: Distribution of respondents according to the 'IMSs' utilised.

'IMS'	Frequency	Percentage
Tethering system	19	23.75
Herding system	25	31.25
Fulani pastoral system	32	40.00
Turka system	04	05.00
Total	**80**	**100**

 Source: field survey, 2013

Table 4: Distribution of respondents by the types of small ruminant kept

Category	Frequency	Percentage
Goats	09	11.25
Sheep	18	22.50
Goat + sheep	53	66.25
Total	**80**	**100**

Source: field survey, 2013

Table 5: Distribution of respondents based on reasons for using the 'IMSs'

Reasons*	Freq.	Percent
Familiarity with the IMSs	79	98.75
Simplicity of IMSs	63	78.75
Resource availability in IMS	70	87.50
IMSs are less hazardous	74	92.50
High cost of modern system	71	88.75
IMSs supported by ext. agt.	58	72.50

Source: field survey, 2013
*Multiple Responses

Table 6: Distribution of respondents according to the problems of using IMSs

Problems*	Frequency	Percent
Extinction of grazing lands.	72	90.0
Pre-weaning mortality.	60	75.0
High incidence of pests and diseases.	79	98.75
Theft.	66	82.50
Lack of adequate extension services.	54	67.50
Price variation.	70	87.50
Seasonal changes.	79	98.75
Low level income.	69	86.25

Source: field survey, 2013
*Multiple Responses