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SOCIO- ECONOMIC CHARACTERISTICS OF YANKASA SHEEP AND WEST AFRICAN DWARF GOAT'S FARMERS AND THEIR PRODUCTION CONSTRAINTS IN LAFIA, NIGERIA

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ABSTRACT

A total of 135 farmers randomly selected from nine wards were surveyed to examine the socio-economic and production characteristics of the Yankasa sheep and West African goat's farmers were carried out. From the 135 responding farmers, 73.3% were male while 26.7% were female and about 58.5% were above 30 years while 2.2% were below 20 years of age. In the area Small-scale small ruminant production was (usually) carried out on part time alongside mainly crop production and few other activities. Age, experience and education were important factors in stock owner's management ability. Majority of the respondents practised extensive production system or free-ranging and depended on home remnant/grazing and home/farm remnants sources of feed for animals. The major constraint to small ruminant production was lack of capital while raised finances from personal savings, friends and relations, pests/diseases and drugs as one of the major input supplies increased livestock production and decreased. Majority of respondents dewormed their sheep and goats annually.

Keywords: *Socio-Economic, Yankasa Sheep, West African Dwarf Goats, Constraint, Lafia*

INTRODUCTION

African small ruminants produce only 14 and 15% of the world's milk and skin respectively but 50% of meat consumption in Nigeria (ILCA, 1987). In Nigeria they provide about 36.5% of total protein intake (NISER/CBN, 1991) which still falls short of the minimum animal protein requirement of 50 gramme recommended by FAO/WHO (1993). They however, have potentials for improvement since they have high reproductive efficiency even under harsh environment.

The ownership of small ruminant in Africa differs from cattle. Only a small percentage of the population own cattle, however about 70% of rural household owns small ruminants. Little capital investment is needed for space, building and other materials for maintenance and production (Ademosun, 1988). Small ruminant ownership is considered as a short-time investment.

Their small size makes them ideal for the family. They are sold to meet compelling family financial obligations. They are slaughtered for meat at home and at festivals and ceremonies and, suitable for immediate consumption in the absence of refrigeration for extended storage and inadequate transportation. However, in addition to contributing to Gross Domestic Production (GDP) these animals are also sources of foreign exchange.

Sheep and goats are important in subsistent agriculture on account of their unique ability to adapt and maintain themselves under harsh environment. They promote crop production by supplying manure and raw materials for the agro-allied industries and the manure is also a source of biogas. They also play important socio-cultured roles that are difficult to quantify monetarily; such as their use for sacrifices and rituals, as pets and serve as insurance against crop failure (Nawathe *et al.*, 1985; FDLCS, 1991; Rim, 1991). They are also used for teaching and research. Apart from the Government policies, the problems of livestock production in developing countries are becoming more critical as population increases, demand elasticity is growing and the production systems still remain constrained by socio-economic and biological factors (West, 1990). With primary focus on animal husbandry/veterinary services, acknowledged socio-cultural factors as an appendage of major concern in seeking solution to problems facing livestock production is necessary (Olawoye, 1990). The aim of this study was to examine the

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socio-economic characteristics of the Yankasa sheep and West African dwarf goat's farmers and their production constraints.

MATERIALS AND METHODS

Methodology

The study covered Lafia town, districts and wards in Lafia Local Government of Nasarawa state. Lafia Local Government was randomly chosen in the State. Nine wards were randomly selected out of three districts of the Local Government area. Fifteen farmers were interviewed per ward giving a total sample size of 135 respondents for the study.

Data Collection and Data Analysis

Validated structured questionnaires developed by Rowlands *et al.*, (2003) and modified by Kosgey *et al.*, (2006b) was used to obtain information by personally interviewing farmers. The primary raw data was collected and processed by the use of percentage.

RESULTS AND DISCUSSION

Results

Socio-Economic Characteristics of Respondents

Most of the respondents were males 73.3% and they fall within the age range of greater than 30years 58.5%, while 39.3% were between 20 and 30 years. Less than 2.2% of the respondents were below 20 years (Table 1).

About 75.6% of the respondents were married, 22.2% single, 1.5% and 0.7% were widows and divorced respectively. The results also shows 68.9% of the respondents were Muslims, 25.9%, Christians and only 5.2% were traditional worshippers. The educational levels of the respondents showed that 43.7% had formal education up to tertiary level while 27.4% had non-formal education and 16.3% of those who were formally educated attended secondary school while 12.6% had primary certificates only.

The study showed that 44.4% of the respondents had experiences in keeping livestock of between 10 and 20 years while 43% had less than 10 years of experience and 12.6% had above 20 years. It also revealed that 34.8% of the respondents were involved in farming, 31.1% were involved in rearing animals, 11.9%, traders, 10.4%, civil servants, 8.1%, students, 2.2% were involved in carpentry (Table 1). It was also revealed that 34.8% of those involved in farming as primary occupation claimed that they were involved in both crop and livestock production.

Distribution of respondents According Number of Animals kept

The highest (46.7%) overall distribution of respondents according to the number of Yankasa sheep kept was between 11 and 20 while the least (1.1%) kept more than 30 herd. Most of the respondents (68.9%) kept between 11 and 20 Yankasa sheep males, while very few (0.7%) had more than 30 males in the herd. On the other hand, most respondents (67.4%) kept between 1 and 10 female Yankasa, followed by 24.4% for between 11 and 20, 6.7% and 1.5% from 21 to 30 and above 30 females respectively (Table 2).

For West African dwarf (WAD) goats, most (51.1%) respondents kept between 11 and 20 followed by 37.7% for 1 and 10, while 5.6% each for from 21 to 30 and above 31.

The results showed that most (51.9%) respondents kept between 11 and 20 males followed by 37% between 1 and 10, while 5.9% and 5.2% kept 31 and above and 21 – 30 males respectively. The results also showed that 50.4% of respondents had between 11 – 20 WAD females followed by 38.5% with 1 – 10. About 5.9% of respondents had 21 – 30 females while 5.2% had above 30.

Distribution of breeds of animals kept in districts/wards

Figure 1 indicated that 61.5% of the respondents reared or kept both sheep and goats while 23 and 14.8% respectively had sheep or goats only and 0.7% had other animals. Anguwanrere district had the highest percentage of both Yankasa sheep and West African dwarf goats, 9.6% followed by Ombi II and Ashige with 8.9% each while Ashige had 0.7% of other breeds of animals.

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Table1: Distribution of socio-economic characteristics of respondents

Variables	Grouping	N	Percentage (%)
Gender	Male	99	73.3
	Female	36	26.7
Age	Less than 20 years	3	2.2
	20 – 30 years	53	39.3
	Above 30 years	79	58.5
Marital status	Single	30	22.2
	Married	102	75.6
	Widow	2	1.5
	Divorce	1	0.7
Religion	Islam	93	68.9
	Christianity	35	25.9
	Traditional worshiper	7	5.2
Educational status	Primary	17	12.6
	Secondary	22	16.3
	Tertiary	59	43.7
	Non-formal	37	27.4
Year of Experience	Less than 10 years	58	43.0
	10 – 20 years	60	44.4
	Above 20 years	17	12.6
Primary Occupations	Farming	47	34.8
	Trading	16	11.9
	Rearing	42	31.1
	Carpentry	3	2.2
	Civil servant	14	10.4
	Students	11	8.1

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Table 2: Distribution of respondents according to number of animals kept

Variables	No of animals	No of respondents	Percentage (%)
Yankasa sheep			
Overall	1 – 10	122	45.2
	11 – 20	126	46.7
	21 – 30	19	7.0
	31 and above	3	1.1
Male	1 – 10	31	23.0
	11 – 20	93	68.9
	21 – 30	10	7.4
	31 and above	1	0.7
Female	1 – 10	91	67.4
	11 – 20	33	24.4
	21 – 30	9	6.7
	31 and above	2	1.5
West African Dwarf goats			
Overall	1 – 10	102	37.7
	11 – 20	138	51.1
	21 – 30	15	5.6
	31 and above	15	5.6
Male	1 – 10	50	37.0
	11 – 20	70	51.9
	21 – 30	7	5.2
	31 and above	8	5.9
Female	1 – 10	52	38.5
	11 – 20	68	50.4
	21 – 30	8	5.9
	31 and above	7	5.2

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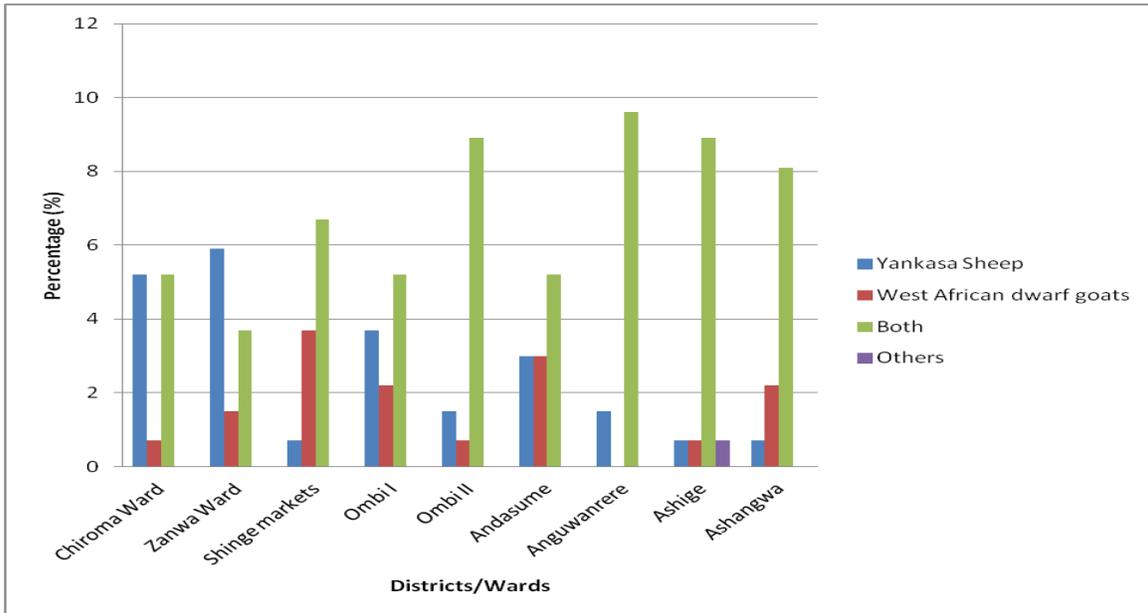
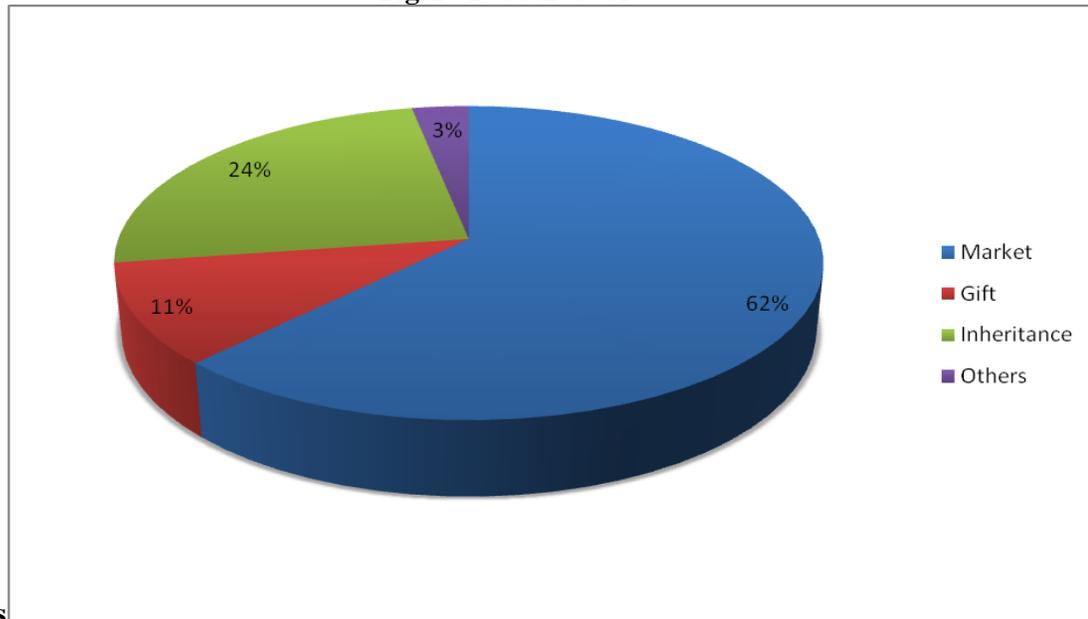


Figure 1: Distribution of breeds of animals kept in districts/wards

Sources of Animals

Most of the respondents (62%) indicated that they bought their animals from the market, 24% inherited them while 11% indicated they got them through gifts and 3.0% from other sources as shown in Figure 2.

Figure 2: Sources of



animals

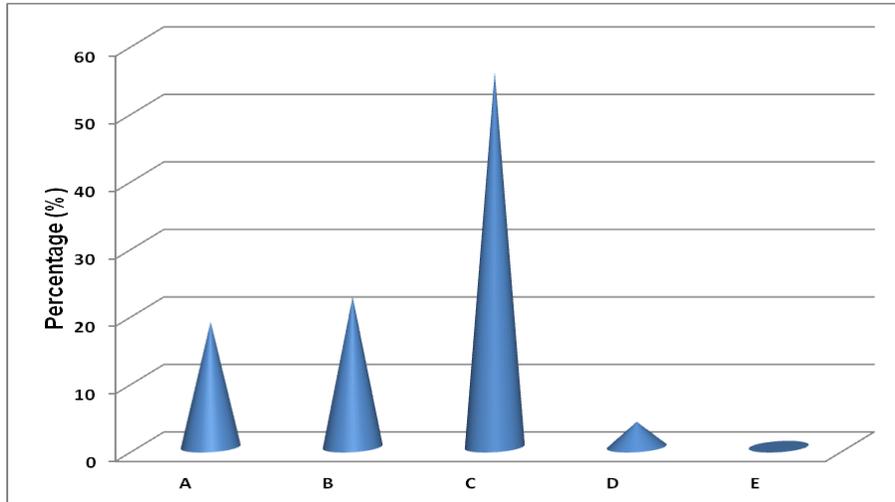
Motivation

Most of the respondents 55.6% kept sheep and goats as secondary sources of income (Figure 3). The percentages of those that kept animals for religious festivals, social ceremonies and as hobby were 22.2, 18.5 and 3.7% respectively while no respondents kept animals for idolatry.

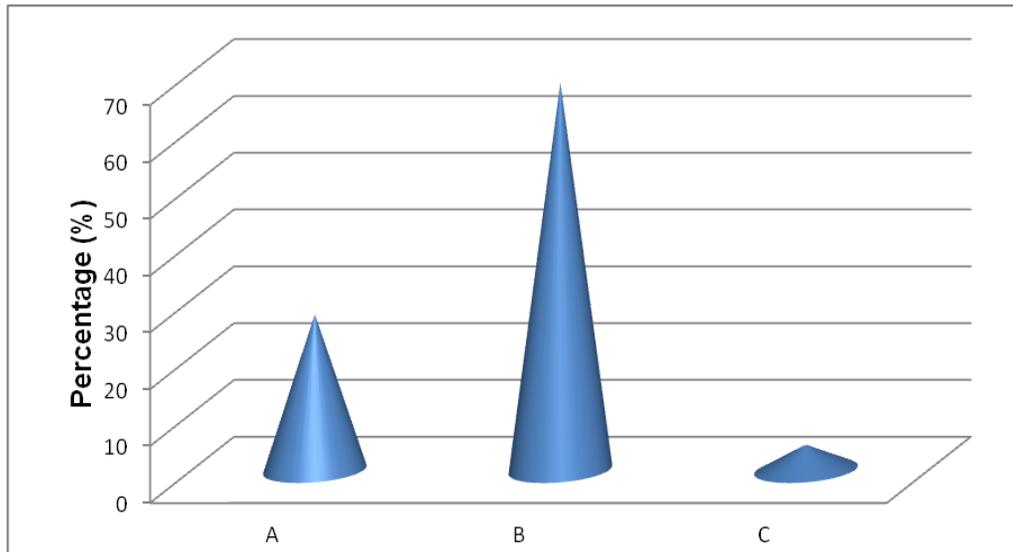
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Source of Finance

The results also shows that 68.2% of the respondents obtained finances for rearing animals from personal savings, friends and relations, 27.4%, loans and 4.4% from their parents (Figure 4).



A= Social ceremonies, B= Religious festival, C= Income, D= Hobby, E= Idiolatry
Figure 3: Motivation for keeping sheep and goats



A = Loans, B= Personal, Friends and Relations, C= Parents
Figure 4: Sources of financing

Management system

Majority of respondents, 33.3%, kept their animals under the extensive system of management. About 28.9% adopted stall feeding, 17.8% practiced tethering, 14.8% applied semi-intensive system while 3.0% and 2.2% practiced the integrated and forage management systems respectively (Table 3).

In addition, most respondents (41.5%) grazed animals together with provision of home remnants while 22.2, 11.8, 8.9, 6.7, 5.2 and 3.7% provided Farm and home remnant, grazing only, farm remnant only, Farm remnant/Grazing, Home remnants only and those who compounded feeds (Table 3).

Majority (62.9%) of respondents housed animals at a corner in the house while 16.3, 15.6 and 5% housed them in open yard, overhang to roof and separate houses of thatched roofs respectively (Table 3).

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Table 3: Management system, Sources of feeds and Type of housing

Parameters	No. of Respondents	Percentage (%)
Management system		
Tethering	24	17.8
Stall feeding	39	28.9
Integrated	4	3.0
Forages	3	2.2
Extensive (Free-range)	45	33.3
Semi-intensive	20	14.8
Sources of Feed		
Home remnant only	7	5.2
Home and Farm remnants	30	22.2
Farm remnants only	12	8.9
Grazing	16	11.8
Home remnants and Grazing	56	41.5
Farm and Grazing	9	6.7
Compound ration	5	3.7
Type of Housing		
One corner of the house	85	62.9
Overhang to Roof	21	15.6
Basement	22	16.3
Separate of thatched roofs	0	0.0
Separate of thatched roofs	7	5.2

Veterinary services

Majority of respondents reported the incidences of both pest and diseases among their animals as compared to 22.2 and 17% for diseases or pest only respectively. Similarly, 45.6 and 34.8% of respondents supplied drugs and chemicals respectively to their animals while 11.9% supply feeds and 7.4% did acquired improved animals. The results shows that 54.1% of respondents obtained vaccines from markets (Table 4) followed by 33.3% who purchased from veterinary clinics, 11.1% from veterinary agents and 1.5% did not use vaccines. About 71.9% of respondents vaccinated their animals annually while 25.9 and 2.2% carried out vaccination monthly and weekly respectively. Most (71.9%) of the respondents used health officers to vaccinate animals while 16.3% administered vaccines by themselves while only 4.4% used the services of veterinary doctors. Majority (89.6%) of respondents dewormed their animals annually, 8.9% do not while 1.5% deworm monthly.

Marketing of Animals and Income

Majority (48.2%) of the respondents sold their animals to the middlemen, while 31.8, 16.3 and 3.7% sold to others (such as butchers etc), in villages and urban areas respectively. Most (50.4%) respondent's income from sale of animals ranged from ₦10, 000.00 to ₦20, 000.00, 28.9% had income from ₦21, 000.00 to ₦40, 000.00, 14.8% above ₦40, 000.00 and 5.9% got less than ₦10, 000.00.

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Table 4: Pests, Diseases, Input supply and veterinary services

Parameters	No. of Respondents	Percentage (%)
Pest and Disease		
Pest	23	17.0
Disease	30	22.2
Both	82	60.8
Input supply		
Drugs	62	45.9
Chemicals	47	34.8
Feeds	16	11.9
Improved animals	10	7.4
Veterinary services		
Sources of vaccine		
Market	73	54.1
Vet. Clinic	45	33.3
Vet. Agent	15	11.1
None	2	1.5
Vaccination schedule		
Weekly	3	2.2
Monthly	35	25.9
Annually	97	71.9
Vaccine administrator		
Vet. Doctor	6	4.4
Health officer	97	71.9
Self	22	16.3
None	10	7.4
Deworming		
Monthly	2	1.5
Annually	121	89.6
None	12	8.9

Discussion

Some Common Characteristics of Respondents

Men were more involved in keeping sheep and goats than women; this is line with the report of Okali and Sumberg (1985). Braker *et al.*, (2002) reported that, in most African cultures women are subordinates to men and hence are socially marginalized in many things. However, there are other reports that children and women are more involved in rearing small ruminants (Kosgey, 2004). The age range of more than 30 years was also more involved in rearing small ruminant followed by 20 – 30 years age group. This indicates the great potential that existed for improved production practices since people within this age ranges would be expected to be more receptive to new ideas and innovative (Ajala *et al.*, 2008). That most small ruminant keepers were married is not unexpected since the job of keeping animals requires several hands, such as in a family. The observation that most respondents were Muslem was due to the fact that majority of Lafia inhabitants were muslems. Tertiary education enabled many more respondents to go into small ruminant production than other levels. However many years of experience was not a strong factors to involvement in the trade. Thus education (more than experience) enabled individuals to be more innovative.

All respondents had other occupations alongside livestock production, but most of them were involved in both crop and livestock agriculture. This confirms Kaufinan and Francies (1990), Charrey *et al.*, (1992) and Ajala and Gefu (2003) assertions that small ruminants were kept as adjunct to other businesses especially crop farming. This also agrees with the findings of Odeyinka and Okunmade (2005) that

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smallholder livestock production is a part time business. Dar *et al.*, (1996) stated that small ruminant production augments the dwindling supply of meat and milk in the country, provides additional income to families of smallholders and optimizes utilization of farm resources.

Distribution of Breeds and Number of Animals Kept in Districts/Wards

Most farmers reared Yankasa sheep and West African dwarf goats although more kept the former than the latter. This could be attributed to the fact that Yankasa sheep are easily reared on free-range, which is less costly. However, that most respondents reared both the two species is a common characteristic of Northern Nigerian livestock farmers who keep sheep, goats and sometimes cattle together. The study area is also a suitable ecological environment for Yankasa sheep. Small ruminants have been reported to form an integral part of the cultural life and farming system of Nigeria's peasantry (Ajala, 2004). Cattle are not easily kept because of trypanosomiasis. Generally, the small ruminant farmers in the study area were small scale livestock owners, since their herd/flock sizes were small. However, that many males were kept indicate that the farmers were both involved in breeding and marketing as proportionately larger number of males than females would not have been reared for breeding only.

Motivation for Keeping Sheep and Goats

The results of this study agree with that of Adu *et al.*, (1979) on Red sokoto goats, where they were also kept for commercial purposes. In typical peasant's farming culture, few animals are kept to augment family income and socio-cultural events which usually come up occasionally. Most respondents stated that, the reason for increase goat production was to make more profit through sales during these festive periods. "Emergency cash sources" has also been reported as the major motivation for ruminant production and they also serve as "savings account" for keepers (Ajala, 2004).

Sources of Finances

Majority of respondents claimed to have raised finances from personal savings, friends and relations for small ruminant production. This may be due to stiff collateral requirements for obtaining loan from financial institutions and lack of cash from parents. This result is in agreement with Ajala (2008) who reported that majority of farmers in south western Nigeria obtained finance for ruminant production from friends and personal savings. He however stated that, loans obtained from friends were usually small since collateral were not required.

Management system

Majority of the respondents practiced extensive system or free-ranging. This is in agreement with the findings of Oladele and Adenegan (1998) and Adeschinwa and Okunlola (2000) who reported extensive system as the most common production practice in south western Nigeria. Ajala and Gefu (2003) also reported that small ruminants were mostly managed under extensive system in northern Nigeria. Although the system is cheap and less labour intensive, it is characterized by low productivity and high losses due to accidents, disease and theft. Furthermore, mating is indiscriminate with high probability of inbreeding since flock sizes are generally small. Consequently, inbreeding depression may set in and genetic gain over time may be minimal. This is supported by the report of Otchere *et al.*, (1987) that management factors which limit the rate of reproduction included uncontrolled mating, inbreeding, insufficient feed for lactating females, insanitary conditions in sheds and other forms of inadequate disease control and prevention.

Other problems encountered in the traditional management system of small ruminants, especially in purely arable environments have been enumerated (Otchere and Kallah, 1990). One of the modifications of the free-ranging traditional system is tethering which confines animals within a restricted location for grazing. Tethering is to restrain animals to avoid crop damage, during the cropping season in south East Nigeria. In the Northern parts of Nigeria, they reported that animals which escaped from tethering and broke into fenced crop fields usually cause damage to crops. This had resulted in feuds and payment of compensation.

Home remnant/grazing and Home/farm remnants as sources of feed were mostly practiced by respondents. This could have been because the range was easily available and, farm and home leftover food was cheap and also readily available (Adeschinwa *et al.*, 2004). In this area of study, fresh grasses

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are available for animal for about 8 months of the year. Ajala *et al.*, (2008) reported that, the genetic limitations of indigenous sheep and goats and heavy reliance on scavenging for food are responsible for the poor performance of the small ruminants because they are unable to meet their nutrients requirements. Adesehinwa *et al.*, (2003) reported that, quality and timely availability of feed affected productivity and growth of animals.

Most respondent's housed their animals at one corner of the main family house. The type of housing varied according to the production system, size of operation and environmental conditions. Animal housing could range from very simple structures made only of a roof with no walls to complex systems with solid walls fitted with automatic ventilators, feeders and waters (Steele, 1996).

Veterinary Services

Majority of respondents reported that, the presence of pests and diseases increased their cost of production and reduced the number of animals kept. This agrees with the report of Adesehinwa *et al.*, (2004) who stated that, increase in cost of production of ruminant animals was attributable to additional costs incurred in transporting and treating sick animals, as well as cost of pest and disease control to prevent epidemic outbreak.

Most respondents claimed that, input supplies such as drugs and feeds increased livestock production and decreased mortality. Level of income usually increases with availability of adequate feed and drugs (Oladele and Adenegan, 1998).

Animal health control services remain an important input support function for any livestock farmer, as high mortality occasioned by diseases, are major constraints to livestock production in developing country (Chukwuma, 2012).

Majority of respondents sourced vaccines from markets. This reveals the inadequacy of veterinary stores and service in the study area.

Some of the respondents even claimed that they were not aware the presence registered veterinary stores for sourcing of vaccines. This agrees with the finding of Chukwuma (2012) that, awareness of the need for veterinary services, no doubt, is a step towards its access and utilization. However, FAO (1997) reported that, successful delivery of veterinary services largely requires the involvement of all major stake holders. Thus the threat posed by diseases and pests in production of sheep and goats can only be effectively managed by a well coordinated and result-oriented veterinary services accessible to all farmers at all times.

Majority of respondents reported that, they dewormed their sheep and goats annually. This is contrary to the reports of Fabiyi (1973) who recommended three strategic drenching annually.

The first during the last week of November to reduce dry season burden, the second, in May to reduce the rate of pasture contamination during the rainy months of June and July and the third, early August to forestall any clinical outbreak of helminthosis until after the rains when the November treatment is given. Waruiru *et al.*, (2005) recommended the use antihelmintics twice a year.

Market Channel and Income

Most respondents marketed animals through middle men. This is an indication that respondents do not utilize markets beyond their immediate environment, probably due to cost of transportation and time factor. This is a disadvantage as they would have made more profit by selling directly at the urban market (NAERLS, 1999; Ajala and Gefu, 2003; Ajala 2008; Baah *et al.*, 2012).

Conclusion

The study has shown that most of the farmers involved in livestock production in the area of study were males, above 30 years of age and usually carried out on part time alongside mainly crop production. Age, experience and education were important factors in stock owner's management ability. Majority practised extensive production system or free-ranging and utilizing home remnants and grasses (grazing) to feed their animals.

Major constraint to small ruminant production was lack of capital while raised finances from personal savings, friends and relations, pests/diseases and drugs as one of the major input supplies increased livestock production and decreased. Majority of respondents dewormed their sheep and goats annually.

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