

Challenges of Small Ruminants Production in Selected Urban Communities of Abeokuta, Ogun State, Nigeria

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Summary

livestock production has become a common trend in urban communities whereby a number of people reared farm animals such as sheep and goats for social and economic reasons. Notwithstanding the associated advantages of livestock production, effective urban production of the small ruminants is greatly challenged by a number of factors. Based on this, the study was conducted with a view to identifying factors that challenged effective sheep and goat production in selected urban communities of Abeokuta, Ogun State. From the selected 12 urban communities where sheep and goats were reared, a total of 217 rearers were non-randomly selected using snow balling sampling method. A reliable and validated interview guide was used alongside field observation to obtain information on challenges to sheep and goats production in the urban areas. The results showed that the challenges were feed, health/disease, environmental, marketing and routine management related. All the respondents (100%) experienced challenges such as high cost of feeding, theft of the farm animals, problem of off-season feeding and problem of sourcing feed variety for the animals. The chi-square test showed that a significant relationship exists between the respondents' socioeconomic characteristics (sex: $\chi^2 = 21.06$, $df = 4$; age: $\chi^2 = 43.26$, $df = 16$; education: $\chi^2 = 78.09$, $df = 12$; occupation: $\chi^2 = 62.57$, $df = 16$; income: $\chi^2 = 56.35$, $df = 16$) and the encountered challenges ($p < 0.05$). Based on this, it was concluded that the identified challenges to urban sheep and goat production remained serious issues in the study area. It was thus recommended that conscious efforts should be put up by rearers of the small ruminants to ensure safety of their animals and good feeding routine for increased productivity and beneficial returns.

Key words

urban communities, small ruminants, management system and challenges

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Introduction

Agriculture, which entails land cultivation for crop production and rearing of farm animals for man and industrial use, is traditionally carried out in the rural areas. The trend of crop and livestock production has however shifted to urban communities where a number of people cultivate land for crop production, mostly arable crops, and rearing of farm animals. As observed in rural communities, commonly raised farm animals in urban areas, particularly in Abeokuta communities include sheep, goat, poultry, pig, rabbits and fishes. While poultry and fishes are commercially produced in the urban areas (Bada, 2004; Aihonsu *et al.*, 2006; Apantaku *et al.*, 2006) farm animals such as sheep, goat, pig and rabbits are largely produced at subsistence level, or at most, on small scale production (Gefu, 1992; Centre for Technical Agricultural and Rural Cooperation – CTA, 2009). The subsistence level of production may have been borne out of high cost of feeding and maintenance of the farm animals (Egbunike and Nworgu, 2006) and longer maturity period it takes the animals to attain table or market size, or optimum breeding and slaughter weight as opined by Muhammad and Abubakar (1998). Specifically, it takes sheep and goats between 2 and 2½ years to attain table size against the range of two to six months it takes poultry and fishes to attain table size. Although, sheep and goats command high market value during the festive seasons, meat from these small ruminants are less patronised or consumed outside the festive seasons owing to the fact that sheep and goat meats are relatively expensive in relation to beef and fish, which are cheaper and as such have become ready source of protein for consumption by most households in the urban communities.

Nevertheless, rearing of the small ruminant animals – sheep and goats, in urban areas has continued to be on the increase largely due to procreative abilities of the animals. For instance both sheep and goat produce or give birth to young ones within a relatively short time of five months. While sheep mostly produce between one and two lambs, goats on the other hand produce twin and at times triplets, and these takes place twice a year for both sheep and goats. In addition, the reared small ruminants served as ready or emergency source of income and meat for households as the animal could be sold or slaughtered in time of dire financial needs (Musa *et al.*, 1998; Thornton *et al.*, 2002). Notwithstanding these advantages of sheep and goat rearing in the urban areas, management of these farm animals has greatly been challenged or hampered by a number of production and environmental factors. According to Conroy (2005) these challenges affect the animals in terms of number (that is kept by households) and productivity. On this ground, the study delved into identifying the actual environmental and production/management factors that challenged sheep and goat rearing in selected urban communities of Abeokuta. In addition, the study proposed possible ways of ameliorating the identified challenges to sheep and goat rearing in the study area. Specifically, objectives are:

1. to describe the socioeconomic characteristics of urban sheep and goat rearers,
2. to examine the number of sheep and goats owned by each of the rearers,

3. to identify the employed production system of sheep and goat management by the rearers,
4. to identify the production constraints that challenged effective sheep and goat management in the urban communities of Abeokuta,

Study hypotheses

Ho: There is no significant relationship between the socio-economic characteristics of the rearers of small ruminants and the experienced production challenges.

Methodology

Study area: The study was carried out in selected urban communities of Abeokuta, Ogun State. The state, which was created in 1976 out of the old Western Nigeria, has a land area of about 16,409 square kilometres and is located on latitudes 6° 30' and 8° 10' N and longitude 2° 15' and 4° 15' E in the coastal region of West Africa. Politically, Ogun state was divided into 20 Local Government Areas (LGAs) out of which two of the LGAs-Abeokuta North and Abeokuta South, constitute Abeokuta, the state capital. Abeokuta communities were largely occupied by the Yoruba speaking tribe and partly by other ethnic tribes. Major occupation in the area include trading, tie and dye, pottery and artefacts, craft work and civil service. However, some of the inhabitants engaged in urban agriculture comprising of crop cultivation and livestock production.

Sampling procedure and sampling size

Study domain: Based on field observation of the prevalence of sheep and goats rearing in urban areas of Abeokuta, a total of 12 urban communities, namely Asero, Obantoko, Elewaran, Lafenwa, Ita-Oshin, Isale-Ake, Adigbe, Onokolobo, Iberekodo, Elega, Kugba and Idi-Aba, were purposively selected. These areas classified urban were characterised by high population density, infrastructural facilities¹, merchandising/commercial businesses and the affective feeling of living in urban community. Each of the respondents (sheep and goat rearers) was however selected through snow balling – a non-probability sampling method, in which residence of the selected communities were asked about the owners of identified sheep and goats roaming the streets, and those having the farm animals kept in sighted enclosures. This method of respondents' selection became appropriate for this study due to non-availability of the list of sheep and goat rearers in the urban areas. Based on this, a total of 217 respondents who cooperatively gave out their time to respond to the conducted interviews were eventually selected for data collection.

¹ The infrastructural facilities include brick buildings, road network, electric power supply, water source – which are mostly wells. These characteristic features differentiate the urban communities from the rural ones. Rural communities on the other hand are characterised by low population density, poorly available or completely lacking infrastructural facilities, farming and agro-processing largely dominate the economic activities of the area, and the dwellers were of the affective feelings that they reside in rural communities.

Data collection

Data on socioeconomic characteristics, sheep and goat management system and challenges to effective production were collected from the rearers through the use of interview guide, interactive discussion and field observation.

Validity and reliability of the interview guide

The interview guide was however subjected to face and content validity with the help of resource persons in community development, animal science and agricultural extension. This was done in order to ensure that the study variables were appropriately and adequately measured. The reliability of the data gathering instrument was conducted using test-re-test method. On this note, the interview guide was administered on about 20 urban goat rearers at interval of two weeks after which the responses were compared facially. Items that were readily responded to were ascertained okay while the ones that were too technical or ambiguous were modified to ensure the reliability and standardisation of the interview guide.

Data analysis

The obtained data were subjected to descriptive and inferential statistics. The descriptive statistical tools used include frequency counts and percentages while chi-square was used as inferential statistics. While the descriptive statistics form the basis for discussion of the obtained results, the inferential statistics was used to establish the relationship between the respondents' socioeconomic characteristics and their production challenges.

Result and discussion

Socioeconomic characteristics of the urban goat rearers

Table 1 shows that most of the sheep and goat rearers (68.7%) were males. This observation suggests that men take the lead to initiate and acquire the small ruminants for rearing. This notwithstanding, all in the households – be it male or female, youth and adult, parents and children, take care of the farm animals, providing them feeds and ensuring their safety. About 33.6% of the rearers fell between the age range of 31 and 40 and 31.3% of them between 21 and 30 years of age. This implies that rearers of sheep and goat in the urban communities of Abeokuta, Ogun State were young. In view of this, the respondents were inferred as dynamic with vigour to carry out the harculine tasks of sheep and goat rearing. With the exception of about 27% of the sheep and goat rearers, nearly all others had one form of formal education or the other. Most of them (37.3%) had secondary school education and 18.9% had tertiary school education. This implies that the enlightened ones in the study were interested in sheep and goats rearing.

Categorisation of the respondents on the basis of their primary means of livelihood showed that most of them (29.0%) were in the teaching profession and 26.3% of them were technicians which include roadside mechanics, carpenters, craft workers, welders, brick layers etc. Others involved in the urban management of sheep and goats include civil servants, traders and retired personnel. A common thing to these professions was the time factor which their primary occupation allowed for other activities. In

Table 1. Socioeconomic characteristics of the urban goat rearers (217)

Variables	Frequency	Percentage
Sex		
Male	149	68.7
Female	68	31.3
Age		
≤ 20	17	7.8
21 – 30	68	31.3
31 – 40	73	33.6
41 – 50	34	15.7
≥ 51	25	11.5
Education		
Vocation education	59	27.1
Primary school	32	14.7
Secondary school	81	37.3
Tertiary school	45	18.9
Occupation		
Trading	23	10.4
Technician	57	26.3
Teaching	63	29.0
Civil servant	50	23.1
Retired personnel	24	11.2
Level of monthly income		
≤ 20,000	29	13.4
21, 000 – 30, 000	72	33.2
31, 000 – 40,000	53	24.4
41,000 – 50, 000	41	18.9
≥ 51, 000	22	10.1

view of this, it was inferred that all the respondents had time for the care and management of small ruminants. Based on the primary occupation of the respondents, most (33.2%) of them had an average income that ranged between ₦21, 000 (US\$140)² and ₦30, 000 (US\$200) per month. Given the economic situation of the country, this level of income is hardly enough to feed a household satisfactorily and as such most households sought additional sources of income or other means by which their level of living could be augmented. Although, some of the households take up crop cultivation as a measure to fill the shortfalls experienced in their quest to meet basic needs, others raised and managed livestock, particularly small farm animals, to augment the means of meeting their needs.

Number of sheep and goats owned, employed production system and purpose of production

Table 2 shows that about 37.8% and 47.5% of the respondents had 6 to 10 sheep or goat, respectively. While none of the respondents had more than 10 sheep, about 30.8% of had between 11 and 15 goats, and 8.3% of them had more than 15 goats. This confirms the submission of National Livestock Project Development (NLPD, 2002) and Conroy (2005) that goat production had higher population than that of sheep in developing countries, of which Nigeria is one. The observed high ratio of goat to sheep rearing by the respondents could be due to goats' potentials of producing twin and sometimes triplet nannies against one lamb that is mostly produced by the sheep (CTA, 2007). In addition, goats are hardy and cheaper to acquire, be it

² One hundred fifty naira equals one dollar of the United States of America (₦150 = US\$1)

Table 2. Number of goats owned, and the employed production system of goat management by the respondents (217)

Variables	Frequency	Percentage
Number of sheep owned		
≤ 5	44	20.3
6 – 10	82*	37.8
11 – 15	00	00
≥ 16	00	00
Number of goats owned		
≤ 5	29	13.4
6 – 10	103	47.5
11 – 15	67	30.8
≥ 16	18	8.3
Purpose of production		
Household consumption	51	23.5
Marketing	27	12.4
Home consumption and marketing	139	64.1
Experience		
≤ 2years	57	26.3
3 – 5years	94	43.3
6 – 8years	43	19.8
≥ 9years	23	10.6
Management system		
Exclusively extensive management system	71	32.7
Exclusively intensive management system	37	17.1
Semi-intensive management system	109	50.2

* Not all the respondents had sheep

weaners or matured buck and doe, than sheep. The reared sheep and goats were done mostly for the purpose of home consumption and marketing as indicated by 64.1% of the respondents. The 23.5% of the rearers of small ruminants who indicated household consumption as the main purpose of rearing also acceded to the fact that the animal were sold for income generation (Adu, 1985; Musa et al., 1998). On a similar note, the 12.4% of the respondents who indicated marketing as the main purpose of rearing the small ruminants also assented to consuming the animals whenever the need arise. Most of the respondents had been keeping the small ruminants for nothing less than 5years thereby putting them in position to relay relevant information on challenges to management of sheep and goats in urban communities. As observed by Adebayo and Ajayi (2001) semi-intensive management system was largely employed by the respondents (50.2%) for care of the farm animals. This was based on the fact that the animals could be released to source for food and exercise themselves in addition to occasional provision of feed such as cassava peels, waste from fermented maize (pap) and kitchen left over for them. The owners also provide the animals water for drinking, shelter to shield them from environmental factors and have a place to lie at night.

About 32.7% of the respondents maintained an extensive management system in which they hardly provide the animals additional feed. However, this livestock management system exposes the animals to environmental dangers and economic losses. As animals roam about the streets, they constitute environmental nuisance, eating anything that comes their way. This may include decorative or horticultural plants, households' foods; defecate and litter the neighbours' compounds with faeces. The resultant effect of this includes maiming and killing of the animals. Also, the animals become exposed to stealing and losses as they roam about.

Challenges to effective sheep and goat management in the urban communities

Given the environment in which the small ruminants were raised, a number of factors challenged effective production of sheep and goat in the study area. As indicated in Table 3, all (100%) the rearers of sheep and goats experienced the challenge of high cost of feeding, problem of off-season feeding and sourcing of variety of animal feeds. This implies that the problem of feeding remained an issue in livestock management. Apart from forages that could be gotten free of charge, all other feed stuff would be gotten at a cost, which at the long run may be too expensive for the rearers to bear. For instance, a 50kg bag of dried cassava peels cost about ₦400.00 (US\$2.67) and this cannot feed more than four goats for 4days. As a matter of fact hardly do rearers provide their animals with concentrates which is much more expensive as ¼kg of growers' mash cost about ₦300.00 (US\$2) and this cannot feed more than four goats for 2days. Even the forages that were gotten free of charge and abundantly during the rainy season becomes rare during the dry season as all available greens turned brown and become unsuitable for consumption of the ruminants. Herding of the animals for foraging was among the feed related challenges indicated by 95.0% of the rearers. Herding exercise consumes time and requires extra hands which the rearers could not bear easily. On a similar note, rearers of the small ruminants find it difficult to source variety of feeds that could be use to ensure a balanced ration for the animals.

Other management challenges to urban rearing of sheep and goats include problem of suitable housing unit for the animals, as indicated by 96.8% of the rearers, and high cost of medicare (97.2%). For effective livestock management and performance, keepers are expected to provide suitable housing unit for their farm animals. It was however observed that most of the animals were not provided housing unit that could give them warmth and shield them from pest and diseases, and other environmental factors. This probably accounted for why 81.6% of the respondents experienced high incidence of pests and diseases, and sudden death of farm animals without visible cause by 44.2% of them. The situation was further compounded by inability of the sheep and goat rearers to afford or take up veterinary services for healthcare of the animals. As observed by Fabusoro *et al.* (2007), most of the sheep and goat rearers considered patronage of veterinary services as expensive and thus resulted to ethno or other alternative treatment of the animals. Those who undertook alternative treatment may however not be able to properly diagnose the animals for the disease(s) being treated and as such may only succeeded in treating the symptoms and not the cause of the disease. This action of the ruminant rearers may probably have accounted for the experienced sudden death of the animals without a visible cause or sign. In addition to the experienced death of the animals was low production performance of the animals indicated by 73.3% of the rearers. This could be attributed to poor feeding of the animals and incidence of pests and diseases on the animals.

As indicated by 93.5% of the respondents, the environmental nuisance constituted by the animals include defecating in the neighbourhood compounds, feeding on their decorative and horticultural crops, and blaring to the disturbance of people in

Table 3. Challenges to effective sheep and goat management in the urban communities

Variables	Frequency	Percentage
High cost of feeding	217	100
Incidence of pest and diseases	177	81.6
Sudden death of the farm animals without visible cause	96	44.2
High cost of medicare	211	97.2
Sustenance of injury by the animals	69	31.8
High time consumption	122	56.2
High cost of labour or tenders of the animals	163	75.1
Low productivity performance of the animals	159	73.3
Problem of herding	206	95.0
Theft of the farm animals	217	100
Problem of off-season feeding	217	100
Environmental nuisance of the animals	203	93.5
Poor market structure for the animals	192	88.3
Problem of housing for the animals	210	96.8
Problem of sourcing feed variety for the animal	217	100

the community, particularly in the depth of night. These actions thus lead to ensuing conflicts between the affected members of the community and owners of the sheep and goats. Reactions of the affected individuals to the irksome actions of the sheep and goats include maiming or killing of the animals thereby demeaning the social and economic value of the small ruminants. Other environmental factor that challenged production of the small ruminants was theft of the animals indicated by all (100%) the rearers. The issue of theft cannot be ruled out as long as the animals were allowed to roam about the streets as this makes it impossible to adequately protect the animals. Due to high cost of the meat from sheep and goats in relation to beef, 88.3% of the keepers experienced less available markets and poor marketing for the raised animals. As indicated by CTA (2006), the informal and poor marketing systems through which the small ruminants, particularly goats, were often sold results in under-estimation of the economic value of the small ruminants.

Chi-square test of the relationship between the respondents' socioeconomic characteristics and the number of sheep and goats owned by them

Chi-Square test of the relationship between the respondents' socioeconomic characteristics (sex: $\chi^2 = 21.06$, $df = 4$; age: $\chi^2 = 43.26$, $df = 16$; education: $\chi^2 = 78.09$, $df = 12$; occupation: $\chi^2 = 62.57$, $df = 16$; income: $\chi^2 = 56.35$, $df = 16$) and the experienced challenges to sheep and goat rearing in urban communities showed a significant relationship ($p < 0.05$) as shown in Table 4. This implies that irrespective of the sex, age, level of education, type of occupation and level of income of the rearers of sheep and goats in the study area, identified challenges to effective small ruminant management remained issues of concern to all. Such challenges, as indicated by Conroy (2005), greatly limit productivity of the animals and hindered their growth in numbers. There was however no significant relationship between the keepers' rearing experience and challenges to effective management of the small ruminants in the study area. This suggests that the more experience acquired by a rearer on management of the small ruminants the better is such one able to manage-

Table 4. Chi-square test of the relationship between the respondents' socioeconomic characteristics and challenges to their effective urban goat management

Variables	χ^2	Df	p value	Decision
Sex	21.056	4	0.018	S
Age	43.264	16	0.049	S
Education	78.091	12	0.038	S
Occupation	62.571	16	0.026	S
Income	56.354	16	0.043	S
Rearing experience	33.859	12	0.647	NS

ment or cushion the effect of the encountered challenges. And this is probably a factor that has enabled the keepers to remain in the urban small ruminant management.

Conclusion and recommendation

Based on the outcome of this study, it was concluded that management of sheep and goats in urban communities of Abeokuta, Ogun State is greatly challenged by a number of factors which could be categorised as feed and feeding, health, environmental, marketing and routine management related challenges. The feed and feeding related challenges were however outstanding among all the identified challenges. In view of this, and all other challenges to effective sheep and goat rearing, there is need to take a conscious and indepth look at the challenges holistically and have them adequately addressed by stakeholders in urban agriculture and livestock production for effective urban production of small ruminants. Meanwhile, keepers of sheep and goats can embark on the following recommendation to ensure successful management:

1. The small ruminants should be provided with well drained, good and protective housing unit.
2. All year round feeding of the small ruminants should be ensured through sourcing of variety of feeds.
3. The animals should be kept indoors or tethered so as prevent them from destroying decorative and horticultural and food crops in the neighbourhood and also safe them from theft and losses.
4. The animals should be given preventive care to check the incidence of pest and diseases of the animals, and where that occurred, veterinary services should be consulted.
5. To ensure good marketing for the small ruminants, rearers should target the festive period when the animals would command good market price.

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