CHARACTERISTICS OF SMALLHOLDER SHEEP AND GOAT MANAGEMENT PRACTICES IN SOUTH EAST NIGERIA: OBSERVATIONS FROM ANAMBRA STATE

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ABSTRACT

This paper presents the results of a survey of sheep and goat producers in Anambra State, (present day Enugu and Anambra State), Nigeria. The sampled areas represent the agroclimatic and administrative zones of the old Anambra State. A total sample size of 310 spread over 5 LGAS and 25 village areas was drawn. Only households which kept sheep and/or goats at the time of the study were sampled. Data generated included demographic characteristics of small stock owners, sheep and goat distribution by household, management practices and problems associated with current management systems, sources of feed by season and livestock disease profile. Results of analyses showed that ownership distribution of animals was skewed in favour of goats. The mean flock size per household was 2.4 and 6.2 sheep and goats respectively. About 22% of the households interviewed kept sheep alone, another 62% kept goats alone. Over 85% of respondents acquired their foundation stock from the open market, while others came from neighbours flocks. Most respondents expressed the desire to increase their holdings with more wishing to expand their goat herd size than sheep. However, feeding was most frequently mentioned as a limiting factor in increasing sheep or goat herd size. Household wastes and cut forages were the major sources of animal feed. There was a very low awareness level of agroforestry practices. Only 5.2% and 2.3% of the respondents had any knowledge of Intensive Feed Gardening (IFG) and Alley farming (AF) respectively. Reported Smallholder Sheep and Goats Management mortality was low (less

than 3.5% in all herds studied). Implications for improved small ruminant production in Nigeria's humid zone are drawn.

Key Words: Sheep, Goats, Smallholder, Management.

INTRODUCTION

The importance of sheep and goats (small ruminants) in the livestock industry in Nigeria cannot be stressed enough. Sheep and goats represent about 63.7% of the total grazing domestic livestock in Nigeria (Gefu and Adu, 1984). These animals display a unique ability to adapt and survive in areas where they are found and consequently their wide geographical distribution in Nigeria.

Small ruminants have multiple uses (meat, milk, hair, skin and other products) and serve as a flexible financial reserve for the rural population as well as play other socio-cultural roles in the customs and tradition of many Nigerian societies. Devendra and Burns (1976) observed that goats provided 25% of the total lean meat available in Nigeria while Adu *et al.* (1979) reported a higher figure of 30%. The International Livestock Centre for Africa's (ILCA) village surveys in southeast Nigeria indicate that up to 75% of the population in some villages may own these animals (Sumberg and Cassaday, 1984), making sheep and goat potential contributors in improving the animal protein intake of Nigerians which is known to be far short of the recommended minimum level of 65.0 gm per caput per day. It has been observed that only 8.4 gm of the 53.8 gm of protein consumption level of Nigerians is derived from animal sources (Olayiwole *et al.*, 1978) suggesting less than 16% contribution of

animal products to protein consumption of Nigerians. This is very poor indeed when compared with countries like U.S.A. with about 69% of total protein being derived from animal sources (Olayide, 1976). Contribution of meat from sheep and goats to the total meat supplies in Nigeria may be related to the population of these animals in the country. The keeping of small ruminants also serves as an investment alternative and source of additional income to the owners, the income so derived goes a long way in supplementing family and personal incomes. Proceeds from small ruminant sale may be used to meet a variety of needs ranging from social to religious and economic obligations.

Goat milk, another good protein source, has not been fully explored. The nutritional properties of goat milk include, among others, low tubercule bacilli content, high proportion of smaller fat globules which facilitates easy digestion and anti-allergy property contents (Devendra and Burns, 1970; Fajemisin, 1991). All these attributes are indicators of the value and role of small ruminants to the ever-growing Nigerian population.

Of the three major production system recognizable in Nigeria, the traditional (extensive) village system is the most prevalent especially in areas with low population density. This production system has a low-labour-input and low priority adjunct to traditional arable and cash crop farming (Oyenuga, 1967). In the southeastern parts of Nigeria, however, population density is often high with little arable land left to fallow.

The predominant breeds kept in the study area (West African dwarf sheep and goats) are ubiquitous especially in the rural areas; and because they are trypanotolerant their population outnumber cattle and, therefore, occupy roles of importance in terms of total livestock units (Matthewman, 1977; based on FAO, 1966). Under the observed traditional village system of production, animals may be confined or allowed to graze (scavenge) on natural pasture. Labour requirements, however,

often limits grazing time as well as the number of animals kept at any given time period. Due to high population densities and land pressure, animals are frequently tethered or confined while fodder is cut and carried to them. Accumulated manure is often collected and used to maintain or restore soil fertility of farmlands. Under the traditional free range system of production, the animals are grazed on the crop residues left after harvesting the fields.

It is common knowledge that small ruminants spend between 93% and 99% of their total feeding time browsing to obtain about 50% of their total dry matter intake. The growing human population in Anambra State in particular and Southern Nigeria in general coupled with rapid urbanization and the subsequent land squeeze will compel further confinement of grazing animals which will directly necessitate intensive management practices (Adu, *et al.*, 1990). There is, therefore, the need to develop appropriate feeding strategies in consonance with perceived agricultural intensification. The unique position of browse plants in small ruminant feeding system underscores the need for research to fully exploit this feed resource.

This paper reports part of a larger survey of sheep and goat production in Southern Nigeria which investigated the local browse plants utilized by small ruminant producers as well as some of the sociological considerations that may influence the acceptance or otherwise of perceived interventions in the farming systems of producers in the region.

OBJECTIVES OF THE STUDY

The general objective of the study was to study the management practices and problems associated with small holder sheep and goat production in Southeastern Nigeria with the aim of better understanding the prevailing production systems.

The specific objectives include the following:

1. To describe the system and structure of sheep and goat management in the study

area

2. To describe the attitude of small ruminant producers to important management practices as they relate to small ruminant production
3. To draw implications for enhancing sheep and goat research, development and extension services in the study area in particular and Nigeria at large.

MATERIALS AND METHODS

Anambra State (comprising the present geographic delineation of Enugu and Anambra States) was one of the six southern States selected for the larger study. The State occupies some 17,000 Km² but densely populated with about 1,500 persons to the square kilometer. The majority of the state is comprised mainly of vegetation of the southern guinea savanna in the north, but at the southern limits the sub-humid zone sets in. It is a mosaic of savanna woodland and forest vegetation, with savanna now dominating because of intensive burning and cultivation. In the moister southern third of the state, the natural lowland rain forest has been largely replaced by secondary forest (RIM, 1989). This is probably due to combined increased human and livestock activities. Intensified agricultural production activities coupled with rapid expansion in the industrial and agro-industrial sectors has contributed to the opening up of hitherto fallow lands. Furthermore, increased pastoral and agro-pastoral presence and utilization of the rich forage resources has led to the reduction of the dense forest vegetation characteristic of this area some three decades ago.

The State is divided into five agroclimatic and administrative zones comprising Enugu, Abakaliki, Onitsha, Nsukka and Awka. A total sample of 310 households were sampled from five Local Government Areas of the State to represent these agroclimatic and administrative zones. Sixty households were randomly drawn from each LGA. Within an LGA five village areas were selected with at least twelve interviewed in each village area. The sampled

population comprised households which kept sheep and/or goats at the time of the study. The survey was conducted between October 1989 and September, 1990 in order to cover both the dry and wet seasons.

Variables investigated include demographic characteristics of small stock owners, sheep and goat distribution by household, management practices and problems associated with current management systems, sources of feed by season, preferred feedstuff and reasons for choice of feed material, sown pasture utilization and livestock disease profile. The unit of analysis was the household.

RESULTS AND DISCUSSION

Majority of respondents keep more goats than sheep. The mean flock size per household was 2.4 and 6.2 sheep and goats respectively (Table 1). About 22% of the households interviewed kept sheep alone, another 62% kept goats alone, while the remaining 16% both goats and sheep. The observed higher goat flock size may be associated with preference for goat meat over that of mutton. Goats are also preferred as "Sacrificial" animals in observance of traditional rites and festivals. Moreover, the goat is generally acclaimed to be more hardy and resistant to environmental stress than the sheep. This may have influenced the keeping of more goats than sheep in the study area.

Table 2 shows that over 85% of respondents acquired their foundation stock from the market, while others came from neighbours flocks. It was observed that the best breeding stock rarely goes to the market resulting in the use of foundation stock with poor breeding qualities. The results also indicate non-utilization of improved breeds from government farms, increased use of own stock and that of neighbours; this will give rise to inbreeding and consequently low productivity.

Most respondents expressed the desire to increase their holdings with more wishing to expand their goat holding (88.7%) than sheep (61.6%). This observation is in line with the ownership pattern observed earlier where

ownership is skewed in favour of goats. In the event that flock sizes are increased, however, feeding was most frequently mentioned as a limiting factor in coping with either sheep or goat raising (Table 4). The problem of feed arises from the prevailing system of production which is occasioned by the land squeeze phenomenon. Due to high population densities and land pressure, fodder has to be cut and carried to tethered animals. This requires additional labour input.

It was observed that feeding, housing and health constituted the major constraints to increased small ruminant production in the study area and indeed most of the southeast region. Housing and health are interrelated. Inadequate housing can predispose the animals to diseases and possibly facilitate the spread of contagious diseases such as PPR especially where animals have been over crowded in one place. The issue does not seem to be the quantity as it is quality of the variables mentioned above.

Cut forages and household wastes were the major sources of animal feed (Table 5). Due to the fact that animals are by and large confined year round, cut forages are carried to animals in both dry season (86.1%) and wet season (88.1%). Cut forages are fed along with household wastes such as peels of cassava, plantain and yam, kitchen grain offals, etc. Only 11% of the respondents indicated having used any form of commercial feed. Closely associated with feed source was the prevailing management system practiced. The fact that almost 60% of respondents confined their animals year round and another 17% confined seasonally justifies the high incidence of feeding cut forages plus utilizing household waste.

There was a very low awareness level of agroforestry practices. Only 5.2% and 2.3% of the respondents had any knowledge of Intensive Feed Gardening (IFG) and Alley Farming (AF) respectively (Table 6).

The few respondents that claimed knowledge and/or use of any form of agroforestry practices were made up of the National Livestock

Projects Division (NLPD) cooperating farmers who practised alley farming. Respondents generally did not consider it worthwhile to plant fodder solely for the purposes of feeding livestock. It was, however, observed that both *Leucaena* and *Gliricidia* grew in many villages surveyed. These forage plants are more often used to stake yam vines than as livestock feeds.

Reported mortality was observed to be low (less than 3.5%) for either sheep or goats. However, some disease patterns were observed (Table 7). For goat owners, the most prevalent disease mentioned was PPR while it was more of enteritis in sheep flocks. More respondents who owned sheep frequently mentioned more than one disease as the problem faced (41.6%). However, PPR is the most prevalent disease mentioned by the respondents and diarrhoea is also a feature of PPR, therefore, the incidence of PPR may even be higher than the observed results show.

The foregoing can be likened to the general observation regarding livestock disease profile in the country. It is generally recognised that livestock diseases caused by internal and external parasites, constitute impediments to meaningful livestock production especially at the farmers level. Elsewhere, in different parts of the sahel and guinea savannas, mortality in sheep and goats have been estimated to be as high as 32.7% and 32.8% respectively (Otchere *et al.*, 1987).

CONCLUSIONS

It is observed that the state is blessed with a variety of forage species useful (but not presently being fully utilized) for livestock feeds. This is an indication that there exists great potentials for improving small ruminant production if the existing feed resources are properly tapped and utilized.

Disease control programmes if carefully planned and executed should compliment adequate feeding and reduce mortalities and expand productivity. PPR is the most devastating disease of sheep and goats in southern Nigeria and as Mack (1983) and Upton

(1984) noted, the control of such single fatal disease can significantly increase overall productivity. The implications of higher animal productivity at the farmers level can be seen in enhanced income and improved living standards of the farmers and their households as well as increased animal-source protein for Nigerians.

It is envisaged that a reduction in livestock mortality especially under traditional management will go a long way in making more animal protein available to the general populace. In this regard and in the face of prohibitive cost of veterinary drugs and supplies traditional veterinary knowledge should be fully utilized alongside with the modern western veterinary medicine. It is common knowledge that Nigerian pastoralists, especially the pastoral Fulbe, have, before the advent of modern (western) veterinary intervention, relied exclusively on the use of locally available plants and herbal forage in coping with various animal health problems. Such medicinal forage plants are, however, being threatened by extinction as a result of increased pressure on land for competing uses. There is, therefore, an urgent need to understand and preserve the valued medicinal forage as well as ensure continuity of knowledge and technology transfer of the preparation of important locally-sourced therapeutic agents for the control of animal diseases.

Without prejudice to the aforementioned, improved nutrition should be seen as the bottom line of any successful programme of improved and increased ruminant production in Nigeria as a whole. Limited benefits are likely from improved breeding and marketing without prior improvement in nutrition, management and health.

To this end and considering the pivotal role and importance of nutrition in animal production, greater research and development emphasis should be given to the utilization of locally available feed resources. This calls for improved research funding allocation to the livestock sub-sector in general and small ruminant research in particular. The returns on such research and development investments can

easily be translated into increased protein as well as higher individual and national earnings.

As one of the major problems facing livestock production in the country hinges on limited and irregular supply of feed resources, there is the need to (re) introduce locally adapted fodders which have the ability to withstand drought conditions. In other words a well established feed resource-base should be established for the country. Such an endeavour should be conceptualized within a framework of a well formulated and co-ordinated policy on livestock feed. Furthermore, local alternative feed sources should be explored so as to get out of the dependency trap of the conventional feed sources.

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Table 1 SHEEP AND GOAT OWNERSHIP PATTERN

	% owning household	Mean flock size/household
Sheep	22.0	2.4
Goat	62.0	6.2
Sheep + Goat	16.0	6.9

Table 2 SOURCE OF PARENT STOCK*

Source	No	%
Market	265	85.5
Inherited	27	8.7
Neighbour	94	30.3
Bred	76	24.5
Government farm	4	1.3
Borrowed	29	9.4
Other	12	3.9

* Total observation > 100% due to multiple responses

Table 3 DESIRE/PLAN TO INCREASE FLOCK SIZE

	Sheep		Goats	
	No	%	No	%
Yes	191	61.6	275	88.7
No	8	2.6	9	2.9
Not decided	111	35.8	26	8.4

Table 4 ANTICIPATED PROBLEM IF FLOCK SIZE IS INCREASED*

Problem	No	%
Feed	227	73.2
Health	174	56.1
Theft	83	26.8
Accident	43	13.9
Labour	142	45.8
Housing	198	63.9
Other	10	3.2

* Total observation > 100% due to multiple responses

Table 5. SOURCES OF ANIMAL FEED BY SEASON*

Source	Dry season		Wet season	
	No	%	No	%
Household wastes	220	71.0	206	66.5
Animal fend for self	142	45.8	107	34.5
Improved pasture	44	14.2	47	15.2
Cut forage	267	86.1	273	88.1
Don't know	4	1.3	4	1.3

* Total observations > 100% due to multiple response

Table 6. AWARENESS OF IFG AND AF (HEARD AND/OR SEEN)

Heard/seen	IFG		AF	
	No	%	No	%
Yes	16	5.2	7	2.3
No	221	71.3	220	71.0
Don't know	73	23.5	83	26.8
	310	100.0	310	100.0

Table 7 PREVALENT DISEASES IN THE SURVEY AREAS

Disease	Goats		Sheep	
	No	%	No	%
Diarrhoea	49	15.8	22	7.1
Bloat	1	0.3	1	0.3
Enteritis	58	18.7	55	17.7
Cough/Pneumonia	34	11.0	26	8.4
Catarrh/PPR	83	26.8	53	17.1
Foot & Mouth	9	2.9	6	1.9
Scabies	3	1.0	0	0.0
Mange	41	13.2	18	5.8
Other	32	10.3	129	41.6
Totals	310	100.00	310	100.0