

MANAGING NATURAL PASTURE FOR SMALL RUMINANTS: THE CASE OF ALLEY FARMING IN IKWUANO AREA OF ABIA STATE.

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ABSTRACT

Natural pasture for small ruminants must be sustained, enhanced, and where it has been diminished or destroyed, restored, if animal production must contribute meaningfully to national food security. In Eastern Nigeria, farming system, such as bush fallow, are generally based on shifting cultivation. Unfortunately, agricultural lands are relatively scarce, thereby resulting to shortened fallow periods and thus, widespread diminishing and destruction of natural pasture. The urgency of managing deficient and scarce natural pasture in this environment is widely recognized. Not only is this essential for small ruminants' feeding, but a dynamic animal sector is also a key to achieving food security. The paper argues therefore, that alley farming is the right approach to managing deficient and scarce natural pasture, since it is the most promising alternative to traditional slash-and-burn shifting cultivation. Ikwuano Local Government Area of Abia State was used as the study area. The results show that there is a pressing need for alley farming promotion. Small holders' access to this technology would aid in revolutionising animal production in Nigeria. This paper advocates for policies that will incorporate alley farming into production recommendations transferred to small farmers.

Key words: Natural Pasture, small ruminants, Alley farming.

INTRODUCTION

Sheep and goats dominate the population of ruminants in South Eastern Nigeria. The predominant breeds in this part of the country are the West African Dwarf sheep and goats. This is because these small ruminants are trypanotolerant. The importance of sheep and

goats in animal agriculture for food security and sustainability in South Eastern Nigeria is not in doubt. The need to improve the productivity of small ruminants cannot therefore be over-emphasized, especially in the face of population explosion, animal protein shortage and food insecurity situation in many Nigerian rural households.

Small ruminants are reared mainly by small holders who keep few animals under the traditional extensive husbandry (system) in the study area. These farmers are largely ignorant of the principles of feeding although the plane of nutrition is a major factor that determines growth and development of small ruminants (Adeloye, 1994; Chararay et al., 1992; Gefu et al., 1994; Akpa et al., 1994). There are parts of the year in which herbage is lacking either in availability and/or quality (Chesworth, 1992). Also, natural pastures support only satisfactory productive performance of small ruminants for a relatively short time (Chararay et al., 1992). This fact underscores the importance of improving the feed value and yield of natural pastures as a key source of forage for sheep and goats in the study area.

Alley farming is an agroforestry system in which multi-purpose trees, usually fast-growing legumes, are planted in rows, while food crops are planted in the intervening spaces. The fodder from the legume can be used for feeding small ruminants when natural pastures are deficient and scarce. Legume has the potential of increasing the protein yield per hectare in natural pasture (IITA, 1994; Chararay et al., 1992).

Ever increasing populations and therefore, expanding food requirements, with rapid urbanization and, thus increase in land pressure, are seriously threatening the traditional farming systems of South Eastern Nigeria. This has led to deficient and scarce natural pasture. Research has established that alley farming can improve significantly the feed value and yield of natural pasture. The practice is already being encouraged in some regions in Nigeria (Chararay et al., 1992). In the light of the above fact, this investigation

was carried out to determine the extent of awareness and practice of alley farming as a strategy for managing deficient and scarce natural pasture for small ruminants in Ikwuano area of Abia State.

MATERIALS AND METHODS

The study area is Ikwuano Local Government Area (L.G.A.) of Abia State, Nigeria. The relevance of this L.G.A. lies in livestock keeping being recognised as an important agricultural activity in the area. The five communities, namely, Amaoba, Anawom, Ndoro, Umuariaga and Umudike, of interest to this study were among the communities where small ruminant farmers were more predominant in the L.G.A.

A list of small ruminant farmers was made with the assistance of Agricultural development Project (ADP) Extension Agents (EAs) and local leaders within the communities under consideration. This served as the frame from which 20 small ruminant farmers were selected from each of the five communities under consideration and administered copies of small ruminant farmers interview schedule. Altogether, the sample size for the study was 100 small ruminant farmers. Seventy three well completed interview schedules were selected for analysis; made up of 16, 15, 14, 15 and 13 interview schedules from Amaoba, Amawom, Ndoro, Umuariaga and Umudike communities respectively. Twenty seven small ruminant farmers who were originally selected either did not participate to the end of the survey or gave doubtful response. The sampled population comprised small holders which kept sheep and/or goats at the time of the research. The data used for this study were generated in the five communities under consideration over a period of one year covering the entire 1996. Two EAs with several years of field experience assisted the researcher in conducting the interviews. Training was provided to ensure consistent interpretation of the questions.

The variables investigated included personal characteristics of small ruminant farmers, the ownership pattern of small ruminants, sources of small ruminants feed, small ruminant production problems, awareness of alley farming, source of first information on alley farming and practice of

alley farming.

Data from the one set of interview schedule were summarized in master tables using frequency distribution, percentages and ranking.

RESULTS AND DISCUSSION

TABLE 1: PERSONAL CHARACTERISTICS OF SMALL RUMINANT FARMERS

Variables	Frequency	Percent
a. Age group		
21 - 30 years	14	19
} Young		
31 - 40 years	24	33
41 - 50 years - Middle-aged	20	27
51 - 60 years	10	14
} Old		
61 years and above	5	7
b. Farming experience		
1 - 5 years	11	15
6 - 10 years	15	21
11 - 15 years	12	16
16 - 20 years	12	16
21 years and above	23	32
c. Education received		
No formal education	10	14
Primary education	24	33
Secondary education	22	30
Tertiary education	17	23

More than half (52%) of the respondents were young (21 - 40 years), 27% were middle-aged (41 - 50 years) and 21% were old (51 - 61 years and above) as presented in Table 1. Only 21% of the respondents were described as old, and research has established that older people are less receptive to new ideas and are less likely to accept farm innovations than younger people (Obibuaku, 1974). Table 1 indicates that 15% of the respondents had 1 - 5 years of farming experience, 21% had 6 - 10 years farming experience while respondents who had been in farming for 11 - 15 years and 16 - 20 years were 16% respectively. Only 32% had been in farming for 21 years or more years. Out of the 73 sampled small ruminant farmers, 10 (14%) had no formal education, 24 (33%) had attended primary school, 22 (30%) had secondary

education while 17 (23%) had tertiary education (Table 1). This suggests that more and more small ruminant farmers are becoming literate in the study area. This will therefore facilitate transfer of interventions/technologies meant to improve small ruminant production.

TABLE 2: THE OWNERSHIP PATTERN OF SMALL RUMINANTS

	Frequency	percent
Goat	42	58
Sheep and Goat	25	34
Sheep	6	8

TABLE 3: SOURCES OF SMALL RUMINANTS FEED*

Source	Frequency	Percent
Household kitchen waste	45	62
Cut forage	43	59
Small ruminants graze or scavenge on natural pasture or around houses	41	56
Improved pasture	2	3

*Total observation 100% due to multiple responses.

Table 2 indicates small ruminants ownership by small holders in the area of study. Majority of the small ruminant producers rear more goats than sheep. Out of the 73 sampled small holders, 42 (58%) raised goats alone, 25 (34%) reared both goats and sheep whereas only 6 (8%) kept sheep alone. The observed higher and lower flock size of goats and sheep respectively could be attributed to the peoples' preference for goat over sheep as meat, especially during festivals, and for ritual purposes (Gefu et al., 1994).

The bulk of the respondents (62%) fed their small ruminants with household kitchen waste while 59% of the respondents noted that they fed their tethered animals with cut forage (Table 3). Data from this table also show that small ruminants were fed by their grazing or scavenging on natural pasture or around houses as observed by 56% of the respondents. Only 3% of the respondents fed their small ruminants with improved pasture (Table 3). None of the respondents indicated practicing intensive feed gardening. In a similar survey conducted in Anambra State, Gefu et al.,

(1994) reported that there was a very low awareness of intensive feed gardening in the area. Household kitchen waste and cut forage were the major sources of small ruminants feed in that order. This may be explained by the fact that in many rural communities there is a standing order that small ruminants should be confined at least during government or official working hours. These animals are often locked up without feed or forage if the order is flouted by their owners. The animals are only given back to their owners on payment of a stipulated amount of money per animal. No wonder that 56% of the respondents allow their animals to fend for themselves by grazing or scavenging on natural pastures or around the houses. The small percentage (3%) of the respondents that fed their animals with improved pasture is an indication that these farmers are poorly exposed to technological innovations that border on small ruminants feeding. This suggests that livestock extension services are weak and thus, not effective in the study area. This may be explained by the fact that prior to Abia State creation and subsequent bifurcation from Imo State, extension services were crop based with little attention on livestock. The livestock component was brought into the programme in 1992 when Abia State ADP incorporated a Unified Agricultural Extension services (UAES) approach in her extension services delivery system (AADP, 1994).

The respondents identified problems associated with small ruminant production. The most pressing problems were lack of adequate finance or credit, lack of extension/veterinary services, inadequate farm land and shortage of forage (Table 4). Lack of adequate finance or credit is a major constraint to the growth of small ruminant industry. This is because it prevents small holders from having economic access to inputs such as drugs etc. among others. It is the duty of extension/veterinary agencies to transfer improved livestock technologies and practices to livestock farmers. Lack of extension/veterinary services, therefore, hamper adoption of these innovations, and hence, achievement of the objectives of increased

productivity and food security. Appropriate supervision of EAs by their supervisors will enhance extension/veterinary services to livestock farmers. Inadequate farm land is interrelated to shortage of forage. Natural pasture, a major source of feed or forage to animals, are usually destroyed in preference to growing of food crops when agricultural land is limiting in the study area. This is because growing of crops is the major agricultural activity in this part of the country.

TABLE 4: SMALL RUMINANT PRODUCTION PROBLEMS

Problems	percent	Rank* (In order of importance)
Lack of adequate finance or credit	65	1
Lack of extension/veterinary services	58	2
Inadequate farm land	56	3
Shortage of forage	52	4
Shortage of labour	40	5
Others (accidents, theft etc.)	18	6

*Rank: The ranking is in order of importance:
Rank 1 is considered major while 6 is considered minor.

Out of the 73 sampled respondents only 23 (32%) were aware of Alley farming. The remaining 50 (68%) had no knowledge of Alley farming (Table 5). This is a pointer to the fact that agricultural extension is not performing at satisfactory level. The first source of information on alley farming is government agents such as EAs. Fourteen (19%) of the sampled farmers confirmed this fact. The other sources of first information on alley farming include formal education and other sources (friends, neighbours, relatives, etc), which were indicated by 7 (10%) and 2 (3%) sampled farmers respectively (Table 5). Six (8%) out of the sampled farmers claimed to have practiced alley farming in their farms (Table 5). The remaining 24% of the sampled farmers who were aware of the technology but did not practice it may need proper motivation to adopt it. Sixty seven (92%) out of 73 sampled farmers did not practice alley farming (Table 5).

TABLE 5: AWARENESS, SOURCE OF FIRST INFORMATION AND PRACTICE OF ALLEY FARMING

	Frequency	Percent
Aware of Alley Farming		
Yes	23	32
No	50	68
Source of First Information on Alley Farming		
Government Agents (EAs etc)	14	19
Formal education	7	10
Other sources (friends, neighbours, relatives etc.)	2	3
No response	50	68
Practice Alley Farming		
Yes	6	8
No	67	92

CONCLUSION

Ignorance of alley farming by most small-holders constituted a hindrance and militated against the adoption of the technology. Consequently, the role small ruminants should have played in ensuring food security in the study area has remained untapped and undermined. With increase in human population and urbanization, natural pastures are bound to diminish or be destroyed if sustainable measures are not taken. Herein lies the importance of alley farming especially under the traditional extensive husbandry for small ruminant production where natural pasture is a major source of animal feed.

In order to ensure that natural pasture for small ruminants are managed through alley farming, the following recommendations are deemed appropriate.

(a) Small ruminant producers already practicing alley farming should be encouraged and motivated to continue with the innovation through intensified extension activities.

(b) More importantly, campaign on alley farming should be mounted by extension agencies. In order to promote alley farming

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successfully, the following steps should be considered for adoption:

(i) On-farm research should be carried out in the area mapped out prior to alley farming campaign or promotion in the farming communities to ensure mass adoption. Multiple cropping which is characteristic of small scale farmers in this part of the country should be taken into account in the bid to promote alley farming.

(ii) Agroforestry experts, crop and livestock scientists as well as extension specialists should investigate the various modified alley farming systems used by some farmers in other regions of the country with a view of either accepting or modifying the technology before it will be transferred to small ruminant farmers. These include: a form of alley grazing in which widely spaced hedgerows are grazed directly, alley farming on sloping land in the form of contour hedgerows, the use of pigeon pea (*Cajanus cajan*) as the hedgerow species, among others (Carter, 1996).

(iii) in-service training course on alley farming should be provided for the field-level extension workers in order to up-date and up-grade the knowledge and skills of these staff.

(iv) Extension Agents should be made to incorporate alley farming into production recommendations transferred to small ruminant farmers.

Farmers, according to Carter (1996), are known to have adopted alley farming where extension has been appropriately tailored. Therefore, the desired objective of widespread alley farming by small ruminant farmers will be greatly achieved if the above recommendations are taken seriously by the concerned authorities.

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