

ASSESSMENT OF THE MANAGEMENT PRACTICES AND PERCEIVED TRAINING NEEDS OF SMALL RUMINANT FARMERS IN TWO SELECTED LOCAL GOVERNMENT IN SOUTHERN ZONE OF TARABA STATE, NIGERIA

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ABSTRACT

The study was conducted to assess management practices and perceived training needs of small ruminant farmers in southern zone of Taraba State, Nigeria. Interview schedule was used to collect data from sixty randomly selected farmers. Data was presented using descriptive statistics. Majority (68.3%) of the respondents were males. Fifty five percent of the farmers kept goats only. Majority (96.7%) kept their animal under the intensive system of management. About 63% of the respondents kept their livestock in cement block houses. Pennisetum purpureum and panicum maximum combination (61.7%) were the most commonly used forage fed to the animals. All the respondents had basic knowledge on how a healthy animal should look like. About sixty two percent indicated that diarrhea was the most frequently observed health problem in their flocks. Majority (71.7%) selected animals for breeding on the basis of fast weight gain while 65.0% on the basis of high rate of multiple births. Respondents indicated training needs in the areas of improve carcass quality (80.0%), ration formulation (75.0%), stock density (80.0%) and forage management (81.7%). Great potentials exist for small ruminant production in the area and this can be achieved through sound extension education to the farmers.

Keywords: Management, Small Ruminants, Farmers, Perceived Training.

INTRODUCTION

In the Savannah zone of Nigeria, small ruminants fit into the small holder production system, as they require low initial capital investment and low operational cost (Pollot and Wilson, 2009). Majority of rural owners of small ruminants are farmers involved in food and tree crop production, or women

involved in food processing and marketing (Rivera *et al.*, 2004). A large percentage of the rural people satisfy their subsistence needs through livestock production which involves the rearing and marketing of livestock (Oladele, 2004). Diseases and inadequate nutrition (in terms of quality or quantity) constitute serious constraints to small ruminant production in Africa (Tadesse, 2012). Good management practices in terms of adequate nutrition, disease prevention, control and breeding, are essential for improved small ruminant production. Nigeria's small ruminant resources are estimated at 34,453,724 goats and 22,092,602 sheep (Ajala *et al.*, 2008).

Although the productivity of small ruminants in Nigeria is low (Rivera *et al.*, 2004) there is ample opportunity for improvement. Such improvement can be achieved through extension education and training for small ruminants producers. However, such extension education and training can only be effective if the training needs of the small ruminant producers are properly identified. Extension educators are responsible for helping farmers to accurately identify their educational needs. Programmes are most often successful when they focus on clearly defined needs of the target group (Harris, 2011). Proctor and Thornton (1961) defined training needs, as skills knowledge and attitude an individual requires in overcoming problems as well as avoiding creating problem situations.

Numerous studies confirm the positive effects of agricultural education and extension in farm productivity (Alene and Manyong, 2007, Atreya 2007) poverty alleviation (Dercon *et al.*, 2009) decision making capacity (Yang *et al.*, 2008) acquisition of general knowledge about new methods and principles in agriculture and animal husbandry (Karbasioun *et al.*, 2008) and development of environmental behavior (Balakrishnan, 2010). This study was therefore conducted to describe personal characteristics of small ruminant farmers determine small ruminant management practices and ascertain small ruminant farmers training needs in southern zone of Taraba State, Nigeria.

AIMS AND OBJECTIVES

The aims of this study is to describe personal characteristics of small ruminant farmers, determine small ruminant management practices and ascertain small ruminant farmers training need in Wukari and Ussa local government area of Taraba state Nigeria.

MATERIALS AND METHODS

STUDY AREA

The study was conducted in Wukari and Ussa local government areas of southern Taraba state the two local governments were randomly selected out of the six local government area in the zone. In Wukari, three villages were selected because of their active participation in small ruminant rearing and also the same they in Ussa. In Wukari 1, Jibu, Kente, and Puje while in Ussa; Lissam, Lumbu and Fikyu villages were selected for the study. In each of these six villages ten farmers were randomly selected making a total of sixty farmers that constituted the sample size for the study.

Semi structured interview schedule was used to collect data for the study. Information on the socio-economic characteristics as well as small ruminant management practices (feeds and feeding, housing, health and disease preventive measures, breeding and record keeping) was sought from the respondents. Information on the perceived training needs of the small ruminant farmers was also elicited. Factors that could discourage their participation in the training programmes were obtained on a four point Likert-type scale of strongly agree (4), agree (3), disagree (2) and strongly disagree (1). A mean score (2.5) was determined by adding 4,3,2 and 1 and dividing the sum by 4. Any factor with a mean score of 2.5 and above was taken as a discouraging factor. Data generated in the study were presented as percentage and mean scores.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents

Majority (68:3%) of the small ruminant produces were males (Table 1) indicating that males are more actively involved in small ruminant production in southern zone of Taraba State (Wukari and Ussa).

The mean age of the respondents was 51.1 year. Indicating that most of the farmers were middle aged. Sixty-eight (68%) of the respondents was married while 91.7% has some form of formal education and could be described as literates in terms of reading and writing. However 56.7% were educated beyond primary school. This relatively high level of educational status suggests that farmers may be willing to attend training programmes when introduced. An attempt to introduce new technologies may also be successful because of the high level of literacy. Only 30.0% of the respondents were full time farmers. The respondents had a relatively large household size (average of 7 persons). The larger the household size, the more likely the availability of farm labours.

SMALL RUMINANT MANAGEMENT PRACTICES IN SOUTHERN ZONE OF TARABA STATE

Type of Small Ruminants Kept

Fifty five per cent (55%) of the respondents kept goats only while 23.3% and 21.7% kept sheep only and both goat and sheep, respectively (Table 2). The observation that majority of the respondents owned goats only is similar to the finding of Aphuru et al (2011) in Delta state of Nigeria. However, the finding contrasts that of (Ajala et al; 2008) in the northern guinea savannah region of Nigeria, where majority of the respondents kept sheep only and goats only. This observed difference in ownership of small ruminants may be due to the fact that, in the southern parts of Nigeria particularly southeast region (where Anambra state is located) goat head particularly known as "esi-ewu" and goat meat pepper soup are delicacies. The goat and sheep kept by the respondents in the study area were the West African Dwarf goat and sheep. This breed has a high degree of adaptability and is trypanotolerant (Ebegbulem, *et al.*, 2011).

Management System Practiced

(96.7%) of the respondents kept their animals under the intensive system of management (Table 2). This is contrary to the findings of Adesehinwa (2000) who reported extensive system as the most common system of production in south western Nigeria. This system is characterized by high productivity as it reduces losses due to accidents, diseases and theft.

Housing Type

Sixty-three percent (63%) of the respondents kept their livestock in cement block houses, while 25.0%, 5.0%, 3.3% kept their goats and sheep in mud housing, Bomboo house and wooden houses respectively and 3.3% did not provide any form of house for their animals. Bomboo and wooden houses can easily be destroyed by the animal due to their fragile nature. Animals housed in wooden houses are prone to heat stress since wood is a good conductor of heat. Traditional barns, pole building and metal buildings are usually the most expensive, but they provide the best protection for the shepherd, feed, and equipment (Siardos and Lioutas, 2008). Inappropriate housing can affect the health and productively of animals. Farmers in the study area should be educated on the best type of housing to be used for their animals. However, site location and ventilation should be considered necessary in the selection of housing site for goats and sheep.

Feeds and Feeding

Small ruminants in the study area were fed essentially with forage; elephant grass (*pennisetum purpureum*) and guinea grass combination (61.7%) being the most commonly used. Individual forages contain specific nutrient elements unique to each one and combination of forages will therefore aid in the attainment of balanced nutrient requirement for livestock (Smith, 1988). The forages used for feeding the animal were indicated by 65.0% of the respondents to be available all year round (Table 3). In addition to grasses, 63.3% of the respondents used browse plants as source of feed to their sheep and goats while 98.3% also provide their animals with household food scraps and crop residue as supplemental feeds (Table 3). Except when well fertilized and harvested young, tropical grasses alone cannot supply small ruminants with the nutrients required for a reasonable production level (Ademosun *et al.*, 1988).

Plants such as *Gliricida* species, *leucaena* species, *Manihot esculanta* (Cassava) and *Phyllostachy's bambusoides* (bamboo) leaves, used by majority of the farmers in the study area contain more crude protein and organic matter (Kanenga, 2012; Wikipedia ND, <http://en.wikipedia.org/wiki/leucocephala>) and less fibre than tropical grasses (vegetables). According to Ademosun (1999) use of browse plants either as supplements to tropical forages or as sole feeds is a viable feeding system in humid West Africa. Most of the browse plant remain green all year round and if well managed could provide substantial amount of foliage during the dry season. The fact that 37% of the respondents in the study area did not use browses suggests need for small ruminant farmers' education on the importance and need to use them in small ruminant feeding.

Use of Household Food Scrap and Crop Residues

In Nigeria, it is a common practice to feed animals with household scraps and crop residue, it is therefore not surprising that nearly all (98.3%) the respondents (Table 3) In the study area use these material in feeding goats and sheep. As pointed out by (Smith *et al.*, 2009) many household food scraps and crop residues are low in protein, highly fibrous and therefore, low in fermentable carbohydrates. Such feeds fail to maintain an efficient rumen ecosystem for their own degradation and/or that of other equally poor quality forages. Whereas household and crop residues (cereal straws, stovers and brans) may not be suitable as supplements to poor quality forages, they could be used as basal feeds, supplemented with better quality feed materials such as browses.

Forty percent (40%) of the respondents provide household food scraps/crop residues to their animals during the afternoon periods only while 23.3% during the morning periods only. The afternoon feeding regimen practiced by 40% of the respondents has been pointed out by Smith (1988) to be advantageous in that rapidly degraded peel, brans and husks fed late in the afternoon or at night will better synchronize the release of energy and nitrogen they contain with those of the less rapidly degraded grass.

During the period of excess forage, 76.7% of the respondents made hay with the excess forage while 60.0% increase animal numbers in the herd or flock and 56.7% lease extra pasture to other livestock producers (Table 3). However, 43.3% of the respondents did not have any defined strategy for dealing with excess forages. The use of hay as a method for conserving forages in a good practice since it can make feed available during times of forage scarcity. This practices is in line with the study of Jackson, (2008) who stated that, by conservation (in form of hay or silage) and storage of feeds available during period of surplus, livestock keepers can ensure that they have sufficient feed to offer their livestock throughout the year. Other farmers should therefore be encouraged to prepare hay during periods when foraged are in excess.

HEALTH MANAGEMENT PRACTICES AMONG SMALL RUMINANT PRODUCERS IN SOUTHERN ZONE OF TARABA STATE

Knowledge of Good Health

All the respondents indicated that they basic knowledge on how a healthy animals should look like (Table 4). This implies that they are able to identify unhealthy animals in their farms. Signs of ill health that could be recognized by the farmers were diarrhea (61.7%), dull appearance (58.3%), weakness (91.7%), weight loss (38.3%), excessive bleating 93.3%) and lack of appetite (21.7%).

Monitoring of Animals

Majority (95.0%) of the small ruminant producers monitored their animals daily. Daily monitoring of animals is important for early detection of signs of diseases in the flock.

Measures used to Reduce Disease Incidence

Majority (71.7%) of the respondents reduce disease incidence by use of cleaner pastures while 61.7% reduce disease incidence by reducing stocking rate through sale of mature and less productive animals. Half (50%) of the respondents indicated that they reduce disease incidence by separating sick

from healthy animals. Application of herbal dewormers and orthodox anthelmintic was used by 50% and 40% of the farmers, respectively to reduce disease problems in their farms.

Health Problem in the Flocks

Majority (61.7%) of the farmers indicated that diarrhea was the most frequently observed health problem in their flocks. Fifty-five per cent (55%) of the respondent reported "bloat" as a frequently encountered health problem. Other health challenges reported by the farmers included ectoparasites, particularly fleas, mites and tick, ocular discharges, dehydration and anorexia. Diarrhea is a clinical sign usually associated with helminthoses and pestes de petits ruminants (PPR) (Ozkul et al. 2002). Helminthoses and PPR have being identified as major disease problem of small ruminants in Edo State Nigeria. (Omoike, 2006). The dehydration reported by the respondents probably results from diarrhea. Ectoparasitic infestation often leads to anaemia. These health challenges result in severe economic losses due to death of affected animals or reduced productivity and live weight gain. As noted by Otchere (2010) high standards of sanitation and management are essential to control these health problems.

BREEDING PRACTICES AMONG SMALL RUMINANT FARMERS

Criteria for Selection of Breeding Animals

Majority (71.7%) of the farmers selected animal for breeding on the basic of fast weight gain while 65.0% on the basic of high rate of multiple births (Table 6), other factors that are taken into consideration when selecting breeding animals included productivity (60%), ability to thrive on forage alone (83%). Mothering ability 91.0%) and resistance to internal parasites (15%). Selection of good quality breeding stock is an essential component for high productivity. However, it has always been recognized that to achieve good result and make the best of the selected characteristics, the animal must be provided with good nutrition, health care and husbandry techniques (Roberts. 2000)

Farm Record Keeping among Small Ruminant Farmers

Majority (75%) of the farmers interviewed kept records (Table 7) this indicates that farmers in the study area are aware of the innumerable importance of record keeping. Yami, (2009) noted that record keeping is an important and necessary aspect of operating even the smallest farming enterprise; where by farm record can assist the farmer in marking farm management and business decisions. Efficient and profitable farm operations

depend on though and accurate record keeping. It therefore essential that livestock extension agents in the area should educate farmers who do not keep farm records on the importance of such record keeping..

Perceived Training Needs

Although farmers need training in all the variable listed on the table (Table 8), respondents indicated very high training need in the areas of : improve carcass quality (80.0%), ration formulation (75.0%), stock density (80.0%) and forage management (81.7%). Extension in the study area should therefore make efforts to organize training programmes that will cover these areas of needs of the farmers. (Farinde and Ajayi; 2005) reported that in order to sustain the interest and motivation of the rural population towards their economic empowerment, their felt needs should be addressed. Failure of agriculture extension training programmes to capture farmers' perceived training needs will result in huge loss of resources.

PERCEIVE FACTORS DISCOURAGING FARMERS PARTICIPATION IN EDUCATIONAL/TRAINING PROGRAMMES

Four perceive factors that could discourage farmers participation in training programmes (Table 9) were identified viz: programmes that target to highly educated farmers (M2.7), not all farmers have free access to educational programmes (M=2.9), lack of educational programmes for livestock farmers and inability to pay for training fee (M=2.7. method used in educational programmes are tailored to farmers' characteristics.

To improve small ruminant farmer' participation in livestock training programmes in the study area, information on these programmes should be disseminated via the various forms of mass media particularly religious organizations and social groups. The training programmes should be designed in such a way that even the uneducated farmers will be actively involved in the training. Thus, training sessions can be conducted in both English and local languages. State and local governments should fully or partially fund the programmes so as to provide opportunities for all small ruminant farmers to participate in the training.

CONCLUSION

The study examined the management practices and perceived training need of small ruminant production in southern zone of Taraba State. Great potentials exist for small ruminant production in southern zone of Taraba State. Nigeria, farmers need sound extension education to achieve these potentials. However for these potentials to be achieved, the training needs and factors discouraging

participation identified in this study should be taken into consideration in developing any livestock training programme in the area, the identified needs must be addressed by all stake holders. That is farmers themselves, government, and livestock scientists, veterinarians and livestock extension agents.

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Appendix

Table 1: Percentage Distribution of Respondents According to Socio-Economic Characteristics

Socio-Economic Characteristics	Percentage (%)	Mean (M)
Sex		
Male	68.3	
Female	31.7	
Age (Years)		
20 - 29	15.1	
30 - 39	13.4	
40 - 49	31.8	
50 - 59	20.2	51.1
60 - 69	15.1	
70 and above	4.4	
Marital status:		
Single	16.7	
Married	68.3	
Widow	15.0	
Educational level:		
No formal education	3.3	
Primary education	40.0	
Secondary education	26.7	
NCE/OND/HND	21.7	
B. Sc/M. Sc.	8.3	
Major occupation:		
Farming	30.0	
Others	70.0	
Household's size:		
1 - 5	43.2	
5 - 10	48.4	6.5
11 - 15	8.4	

Table 2: Distribution of Respondents According to Type of Small Ruminants Kept Management System and Housing Type

Variable	Frequency	Percentage
Type of small ruminants kept		
Goat	33	55.0
Sheep	14	23.3
Both	13	21.7
Management system		
Intensive	58	96.7
Extensive	2	3.3
House type		
Bamboo houses	3	5.0
Cement block houses	38	63.4
Mud houses	15	25.0
Wooden houses	2	3.3
No confined house	2	3.3

Table 3: Distribution of Respondents according to Feed and Feeding Practices use for Small Ruminants

Variables	Frequency	Percentage
Availability of forages all year-round		
Yes	39	65.0
No	21	35.0
Forage Type		
Elephant grass (<i>Pennisetumpurppureum</i>) and guinea grass (<i>Panicum maximum</i>)	37	61.7
<i>Cynodonplectostachyus</i> and spear	28	46.7
<i>Axonopusfissifolius</i> (carpet grass) and <i>Austrostipastipoides bahama</i> grass (<i>cynodondatylon</i>).	27	45.0
<i>Axonopusfissifolius</i> and <i>Pennisetumpurppureum</i>	26	43.3
<i>Axonopusfissifolius</i> and giant star grass (<i>Cynodonplectostachyus</i>)	26	43.3
<i>Pennisetumpurppureum</i> and <i>Cynodonplectostachyus</i>	24	40.0
<i>Panicum maximum</i> and <i>cynodondatylon</i>	20	33.3
Use of browse plants		
Yes	22	63.3
No	38	36.7
Use of household food scrap or crop residues		
Yes	59	98.3
No	1	1.7
Time of the day of use of household food		

Table 4: Percentage Distribution of the Respondents according to Health Management Practices

Variable	Frequency	Percentage
Yes	60	100
No	0	0
Some symptoms recognized by farmers in Unhealthy animals		
Diarrhea	37	61.7
Dull appearance	35	58.3
Weakness	25	41.7
Loss of weight	23	38.3
Excessive bleating	20	33.3
Lack of appetite	13	21.7
Daily inspection/check of animals		
Yes	57	95.0
No	3	5.0
Measures used to reduce disease incidence		
Use of cleaner pastures	43	71.7
Reduce stocking rate by selling off some of the animals	37	61.7
Isolating of sick animals	30	50.0
Use herbal de-wormers	30	50.0
Deworm animals with orthodox Anthelmintics	24	40.0
<hr/>		
Deworm all new animals		
Strategic deworming just before parturition		
Select animals that are resistant to disease		

Multiple Responses

Table 5: Percentage Distribution of the Respondents according to Frequently Observed Health Problems

Health Problems	Frequency	Percentage
Diarrhea	37	61.7
Bloat	33	55.0
Fleas	29	48.3
Mites	23	38.3
Ticks	17	28.3
Ocular discharges	9	15.0
Dehydration	8	13.3
Anorexia	5	8.3
Multiple Responses		

Table 6: Percentage Distribution of the Farmers according to Perceive Criteria used for Selection of Breeding Animals

Selection Criteria	Frequency	Percentage
Weight gain	43	71.7
High rate of multiple births (twining)	39	65.0
Mothering ability	6	10.0
Ability to thrive on forage alone	5	8.3
Internal parasite resistance	9	15.0
Multiple Responses		

Table 7: Percentage Distribution of the Respondents according to Record Keeping Practices

Variables	Frequency	Percentage
Keep farm records		
Yes	45	75
No	15	25
Type of record kept (n=45)		
Financial record	42	93.3
Litter size record	42	93.3
Mortality record	38	84.4
Record of individual animal identification	35	77.8
Health record	25	55.6
Record of breeding of animals	22	48.9
Record of labour used	15	33.3
Weight record	12	26.7
Parturition interval record	11	24.4
Record of age at first parturition	10	22.2
Multiple Responses		

Table 8: Percentage Distribution of the Respondents according to Areas in which they would like to be trained

Variables	Frequency	Percentage
Willingness to be trained		
Yes	44	73.3
No	16	27.7
Livestock producer's perceived training needs		
Treatment of animal diseases	38	63.3
Oestrus/births synchronization	36	60.0
Prevention of animal diseases	45	75.0
Products disposal	42	70.0
Feeding animals	45	75.0
Genetic improvement	36	60.0
Managing pasture	36	60.0
Use of hormones/growth promoters	37	61.7
Ration's formation	45	75.0
Waste management	42	70.0
Artificial insemination	32	53.0
Improve carcass quality	48	80.0
Stockdensity	48	80.0
Forage management	49	81.7

Table 9: Perceive Factors Discouraging Livestock Farmers Participation in Education/Training Activities

Variables	Mean	Std.
The content of education programs does not meet perceived needs	2.22	1.11
Lack free time to devote to training activities	2.33	0.91
Lack of trust in the extension agents who offer Training programs	2.10	1.08
Not comfortable in an educational programme	2.23	0.93
Educational programmes are targeted to well Highly educated farmers	2.65	1.07
Not all the farmers have free access to educational programmes	2.87	1.11
Lack of educational programmes for livestock farmers	2.92	1.05
Methods used in educational programmes are tailored to farmers characteristics	2.42	1.03
Inability to pay for participation fee	2.70	1.23
Participation in a training programme will not really benefit me	2.38	1.14

References to this paper should be made as follows: Mufwa J.B.; et al (2016), *Assessment of the Management Practices and Perceived Training Needs of Small Ruminant Farmers in two Selected Local Government in Southern Zone of Taraba State, Nigeria. J. of Agriculture and Veterinary Sciences*, Vol. 8, No. 1, Pp. 71 - 90.
