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FACTORS INFLUENCING THE TRAINING NEEDS OF FARMERS IN SHEEP AND GOAT PRODUCTION MANAGEMENT PRACTICES IN EKITI STATE, NIGERIA

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Abstract

The study considered the training needs of sheep and goat farmers in Ekiti state, Nigeria. Specifically, the study profiled the socio-economic characteristics of sheep and goat farmers, assessed their knowledge and skill in small ruminant production management practices, determined the productivity of their management practices, identified their training needs and isolated factors influencing it. A total of 183 respondents for the study were selected via a multi-stage sampling procedure. Data for the study was collected using interview schedule and analysed using appropriate descriptive and inferential statistical tools. The average age of the farmers was 50 years and 88.0 per cent of them were literate. The average yearly income from small ruminant production was ₦9, 041. Farmers' level of knowledge was highest in identification of sick animals (x =9.1) but lowest in vaccination (x =1.3). The level of skill of farmers was highest in feeding of animals (x =4.3) but lowest in health management (x =2.5). The average productivity for goat in the study area was ₦29, 642 with many (62.8%) of the farmers producing below the group average value. Also, the average productivity for sheep was ₦50, 066 with 53.0 per cent of the farmers producing below the group average. Construction of modern houses and health management practices are some of the identified training needs of the farmers. Furthermore, age of farmers, their contact with extension agents and level of skill were some of the factors influencing their training needs. The study recommended that the identified training needs should be emphasized in any capacity building programme aimed at improving the productivity of small ruminant farmers in the study area.

Key words**:** *small ruminant, farmer, training needs, productivity, production management practices*

INTRODUCTION

Animal production is a major aspect of the family farming business in a typical rural economy. It is as old as crop production and it ensures substantial contribution to alleviate household poverty and enhance nutritional status through increased household income. Literature is full on the important roles that livestock play in the economies of semi-arid Africa. According to [10] the early literature centred on the cosmological aspects of cattle and other livestock in many African societies, on their influence in the generation of prestige, and on the aesthetics of possessing large herds. The continuing importance of livestock is still very prominent in the value system of many different communities in Africa. For instance, it is reported that in various parts of Burkina Faso, the cattle not the monetary equivalent remain the important aspect of bride price payment. This is equally true among the Yoruba in Southwest Nigeria where goat and not the cash equivalent remain the important component of bride price payment in the rural setting.

According to [20] livestock production in the rural areas is of two major significance. The first one is the socio-economic role and the other, biological role. The biological role of

livestock ensure the provision of animal protein that runs the *chemical-wheel of life* through such animal products as eggs, milk, cheese, meat and other animal products. From the socio-economic stand point, livestock plays the visible roles of wealth creation, income generation and provides a good opportunity to utilize lands not suitable for crop production. According to them, as part of mixed farming practices in the set of effective combinations of enterprises, livestock plays the roles of enhancing productivity and farm incomes as well as ensuring minimization of production risks and uncertainty.

Livestock basically can be categorized into ruminants and non-ruminant animals. The ruminant animals possess complex stomachs and are able to digest grasses and shrubs in large quantities. Non-ruminants on the other hand are without rumen in their digestive tract. Furthermore, ruminant can be further categorised into large and small ruminants. Example of large ruminant is cattle while sheep and goat fall into small ruminant category. Pig, poultry and rabbit belong to the non-ruminant category [12] [7]. It is an age long hypothesis that farm families raise livestock as a buffer to insulate their consumption fluctuations in income. African livestock farmers rarely kill their animals for meat consumption, rather, they prefer to sell the animal and settle whatever the pressing need of the moment is. Livestock affords farmers a ready source of cash for such domestic expenses like clothing, food, taxes, school fees and marriage expenses. Instead of marketable produce or a paying job, many farmers rely on their livestock during the dry season [14] [10]. [5] reported that small ruminants form a major part of the social life and the farming enterprises of the people in the southwest region of Nigeria. Furthermore, sheep and goat production generates additional incomes for the rural people and thereby serves as a buffer against uncertainties in the crop production aspect of the family farming business. It is equally a plan for financial reserve for farmers [8] [1] [17]. Over the years, livestock production and specifically small ruminant production in the rural areas has been with a woman face in the sense that majority of the people in it are of the female gender. [14] reported that seventy-five percent of the semi-intensive livestock raising practiced by farmers in villages is carried out by women and that hundred percent of rural women raise small animals. This he practically concluded to be their only method of saving. To him, such money is important in helping women to be independent. Though livestock production adds to women's already heavy workload of running the home, it is a means of empowerment and an established security for women. Despite the much potential of small ruminants to improve the economy of the rural farm families in Nigeria, it has been recorded that the level of domestic production still lags behind the demand [15] [18] [5]. This low production is rooted in many factors like genetic composition of the local breeds of animals that is not as efficient like the exotic breeds, the ecological environment of tropical Africa which is full of many kinds of weeds, microbes and insect pests causing and transmitting serious animal diseases and inefficient management practices that deals with housing, feeding, vaccination among others [20] [13] [21] [5].

There is therefore, need for sheep and goat farmers to improve their knowledge and skill in small ruminant production management practices thereby boosting their competence in small ruminant production. They need improved knowledge on good foundation stock animals and also skills in modern and improved rearing methods and other production management practices needed for standard desired performance. Furthermore, they need to develop positive attitude towards the adoption of time tested proven methods of livestock production and also start to see small ruminant production as a worthy business venture, not just an addendum to crop production. All these could be achieved through capacity development programmes. Capacity development can be ensured via training and re-training of the farmers. Training is the acquisition of skill, knowledge and behavioural change that is needed in a specific job situation to give a better performance in terms of effectiveness,

efficiency and overall quality output [3]. It is not just cramming information into the heads of trainees but it involves interaction between the trainer and trainees through which the trainees becomes proficient in applying the acquired knowledge and skill [4]. For training to be effective, it must be based on identified training needs established using carefully selected and appropriate analytical tools. This study therefore seeks to determine the training needs of farmers in sheep and goat production management practices in Ekiti State, Nigeria with a view to understanding the crucial factors influencing it.

Objectives of the study

The specific objectives of the study were to:
(i)profile the socio-economic characteristics of sheep and goat farmers in the study area;
(ii)assess the sheep and goat farmers' levels of knowledge and skill in small ruminant production management practices;
(iii)ascertain the productivity of sheep and goat farmers production management practices in the study area;
(iv)determine the training needs of sheep and goat farmers in the study area based on 2 above;
(v)identify the factors influencing the training needs of farmers in sheep and goat production management practices in the study area.

MATERIALS AND METHODS

The study was conducted in Ekiti State in southwest geopolitical zone of Nigeria. The population of the state according to 2006 population census was put at 2, 398, 957 people. Also, the state has a land mass of 5, 435 km^2 [13]. The Ekiti people are culturally homogeneous and speak a dialect of Yoruba language known as Ekiti. Agriculture is the main occupation of majority of the residents in the state. Notable among the crops grown in the state are: Oil Palm; Cocoa and Kolanut while notable food crops grown in the state include Yam, Maize, Cocoyam, Pepper and Tomato among others. The state is one of the rice producing states in the Nigeria. Many of the men and women in the state keep small ruminants. Agricultural Development Project (a government parastatal domiciled in each state of the Federation to see to Agricultural Extension Service delivery) divided the state into two zones for proper coordination: Aramoko and Ikole zones. Respondents for the study were selected using a multi-stage sampling procedure. The first stage involved a purposive selection of 2 Local Government Areas (LGAs) each from the two ADP zones based on the findings of a reconnaissance survey. This gave a total of four LGAs. The second stage involved the proportionate selection of 25 per cent of the communities in each of the four LGAs to give a total of 15 communities. The third stage involved a random selection of sheep and goat farmers from the communities based on the size of the communities. In all, a total of 183 sheep and goat farmers were selected for the study. Data for the study was collected via duly validated interview schedule. Selected socio-economic characteristics like age, number of year of formal education, year of experience in small ruminant production, size of flock, contact with extension agent and income from small ruminant production were measured in their actual numbers. Farmers' level of knowledge in sheep and goat production management practices was measured on a checklist while their level of skill was measured on a 5 point Likert scale. Small ruminant farmers' level of knowledge in the various production management practices was classified into high and low categories using the equal interval approach [19][5]. Furthermore, farmers skill in sheep and goat production management practices was categorised into high and low using 3.05 as the cut point: 0-3.05 was categorised as low while 3.05-5.0 was categorised as high [2][5]. Small ruminant farmer's flock size for goat and sheep was also measured in their actual numbers. The number of male and female animals above the weaning age was recorded while the number of male and female animals below the weaning age was also recorded. These were multiplied by the average prices in the established small ruminant markets for each category. The productivity for the production management practices was calculated by the product of the number of the animal in each of the four groups with the current market prices

for each group. The average was therefore, calculated for the total respondents. Respondent who score above the group mean was considered high productivity while respondent who score below the group mean value is considered low productivity [5]. Skill and knowledge gap model was used to determine the training needs of sheep and goat farmers. Relevant descriptive statistics was used in summarizing the data collected and Multiple Regression Analysis was done to determine the factors influencing the training needs of the small ruminant farmers in the study area.

The regression model for the study was given as

$$Y=a+b_1x_1+b_2x_2+b_3x_3+\ldots b_{14}x_{14}$$

where:
x_1 = age of farmers,
x_2 = year of formal education,
x_3 = household size of farmers,
x_4 = household assistance in livestock production,
x_5 = organization membership score,
x_6 = number of year in small ruminant production,
x_7 = number of goat kept,
x_8= number of sheep kept,
x_9= income from small ruminant,
x_{10}= information sources utilized,
x_{11} = cosmopoliteness of farmers,
x_{12} = level of skill,
x_{13} = level of knowledge and
x_{14} = number of contact with extension agent.

RESULTS AND DISCUSSIONS

Selected socio-economic characteristics of the respondents

Results presented in Table 1 reveal that the average age of the small ruminant farmers was 50.4 years and that 78.7 per cent of them are males. Also from the table, a majority (83.6%) of the small ruminant farmers had one level or the other of formal education. This implies that small ruminant farmers in the study area are literate. This characteristic could help the farmers in accessing production information in various formats ranging from verbal communication to the use of print media and via the increasing social media platforms. The mean family size of the sheep and goat farmers is 6. This finding is in line with [9] who earlier established the average family size in rural Nigeria to be 6. Many (54.1%) of the farmers had family size between 6 and 10 members. Majority (80.9%) of the sheep and goat farmers are married. This could serve as a buffer against social pressure and also help provide necessary assistance in ensuring the welfare of the animals.

Table 1. Distribution of respondents by their socio-economic characteristics

Variables	Frequency	Percentage	Cent. Tendency
Age in years			
< 35	13	7.1	X= 50.4 SD = 10.0
36-45	42	23.0	
46-55	74	40.4	
56-65	43	23.5	
66+	11	6.0	
Sex			
Female	39	21.3	
Male	144	78.7	
Educational level			
No forma education	30	16.4	
Primary education	51	27.9	
Modern school	16	8.7	
Secondary education	37	20.2	
BSc/HND	31	17.0	
MSc/PhD	18	9.8	
Family size			
Up to 5	81	44.3	X= 6.0 SD = 2.3
6-10	99	54.1	
11+	3	1.6	
Marital status			
Single	4	2.2	
Married	148	80.9	
Divorced	4	2.2	
Widowed	24	13.1	
Separated	3	1.6	
[x]Organisational membership			
Religious organization	97	53.0	
Cooperative society	106	57.9	
Esusu group	59	32.2	
Voluntary organization	22	12.0	
Contact with Extension Agent			
Once per month	20	10.9	
Fortnightly	106	57.9	
Weekly	13	7.1	
Not at all	44	24.0	

[x] multiple responses, X = Mean, SD = Standard deviation, Source: Field survey, 2010.

Also from the table, majority (91.8%) of the small ruminant farmers had up to five of their family members assisting in small ruminant management practices. As seen from the table, all the sheep and goat farmers are members of one social group or association. This characteristic could be leveraged for information dissemination on sheep and goat production [6] and also could be useful in marketing of small ruminant products.

About 57.9 per cent of the farmers had contact with extension agents fortnightly while 24.0 per cent of them had no contact with extension agent at all. Farmers contact with the extension agents could help facilitate their capacity development in small ruminant production management practices.

Results in Table 2 reveal that the average year of experience of the sheep and goat farmers is 13.3 years. Almost half (47.5%) of them had up to 10 years' experience in sheep and goat production. This reveals that small ruminant production is not a new venture although its popularity seems to be improving per day due to increased awareness and more demand. Majority (78.1%) of the small ruminant farmers bought their foundation stock while 9.8 per cent and 10.9 per cent got theirs through gift and inheritance respectively. The average flock size for goat and sheep in the study area is 6 and 3 respectively. This established a ratio 1:2 for sheep and goat population in the study area. This according to [11] could be as a result of the higher demand for goat meat in everyday life among the people in both the rural and urban centres in southwest geopolitical zone of Nigeria.

Also, it could be due to the preference for goat for sacrificial and various other traditional rites and festivals among the Yoruba in the southwest geopolitical zone of Nigeria. Also from the table, the average annual income from small ruminant production was ₦9, 041 with 63.9 per cent of the farmers making less than or equal to ₦10,000 yearly from small ruminant production.

Considering the vast potential of sheep and goat production, the average yearly returns of the farmers seems too low. This might not be unconnected with the fact that most farmers do not consider raising small ruminant as a business that should generate profit.

Table 2. Distribution of respondents by small ruminant production characteristics

Variables	Frequency	Percentage	Cent. Tendency
Experience in small ruminant production (year)			
Up to 10	87	47.5	X = 13.3 SD = 2.82
11-20	66	36.1	
21-30	25	13.7	
31+	5	2.7	
Source of foundation stock			
Gift	18	9.8	
Purchase	143	78.1	
Inheritance	20	10.9	
Special programme	2	1.1	
Number of goats owned			
Up to 5	81	44.3	X= 6.0 SD. = 2.0
6-10	101	55.2	
11+	1	0.5	
Number of sheep owned			
Up to 5	163	89.1	X = 3.0 SD = 2.3
6-10	19	10.4	
11+	1	0.5	
Income from small ruminant production in naira (annual)			
< 10, 000	117	63.9	X = 9, 041 SD = 7, 478
10, 001-20, 000	56	30.6	
20, 001-60, 000	10	5.5	
[x]**Source of information on small ruminant production**			
Friends and neighbor	71	38.8	
Extension agent	131	71.6	
Radio	50	27.3	
Television	37	20.2	
Printed materials	5	2.7	
Cooperative meeting	3	1.6	

[x] multiple responses, X = Mean, SD = Standard deviation
Source: Source: Field survey, 2010.

As seen in Table 3, extension agents (71.6%), friends and neighbor (38.8%), Radio (27.3%) and Television (20.2%) are the leading sources of information on sheep and goat production utilized by the farmers in the study area. Although many of the farmers are educated, yet they did not readily access production information via printed materials. This may be due to limited availability of

useful printed materials in various aspects of sheep and goat production.

Farmers Levels of Knowledge and Skill in Small Ruminant Production Management Practices

The weighted mean scores of knowledge and skill in the various production management practices studied were presented in Table 3. Results in Table 3 reveal that farmers knowledge in sheep and goat production was highest in identification of sick animals (x = 9.1). This was followed by selection of foundation stock (x = 6.5) and housing of animals (x = 5.9).

Table 3. Rank-order of respondents weighted mean scores on knowledge and skill in selected small ruminant production management practices

Small ruminant production management practice	Mean	Remark
	Knowledge	
Vaccination	1.3	Low
Record keeping	1.7	Low
Drug selection and administration	2.4	Low
Care of newborn	4.0	High
General routine management	4.1	High
Feeding of animals	4.0	High
Housing of animals	5.9	High
Selection of foundation stock	6.5	High
Identification of sick animal	9.1	High
	Skill	
Health management	2.5	Low
Selection of drugs	2.6	Low
Administration of drugs	2.6	Low
Diagnosis of sick animals	2.7	Low
Slaughtering and dressing of animals	2.9	Low
Construction of modern sheep and goat houses	2.9	Low
Care of newborn	3.2	High
Compounding of small ruminant feeds	3.2	High
Treatment of common diseases	3.5	High
Identification of sick animals	3.7	High
Use of local methods and resources	3.8	High
Feeding of animals	4.3	High

Source: Field Survey, 2010.

Also from the table, small ruminant farmers recorded low knowledge in the following management practices: drug selection and administration (x = 2.4), record keeping (x = 1.7) and vaccination of animals (x = 1.3). Furthermore, results in the table reveal that sheep and goat farmers skill in small ruminant production management practices was highest in feeding of animals (x = 4.3) followed by their use of local methods and resources in production (x = 3.8) and identification of sick animals (x = 3.7). The farmers skill was low in diagnosis of sick animals (x = 2.7), selection of drugs (x = 2.7) and health management (x = 2.5) among others. The high knowledge and skill of the small ruminant farmers in some of the management practices could be attributable to their level of participation in those practices which in turn might help boost their experience in those practices whereas the low levels of knowledge and skill in the remaining management practices could be due to the complex nature of those practices and the technical know-how expected in carrying them out [6].

Productivity of Small Ruminant Farmers Production Management Practices

Results presented in Table 4 show the productivity of farmers' management practices measured in monetary terms for both sheep and goat. The average productivity (worth of the flock in monetary value) for goat is ₦29, 642 with a standard deviation of ₦8, 232 while that of sheep is ₦50, 066 with a standard deviation of ₦11, 388. The findings of the study showed that 62.8 per cent of the sheep and goat farmers had low productivity in goat production while 53.0 per cent of them had low productivity in sheep production. This implies that the productivity of the management practices of the farmers in both sheep and goat production are below average value in the study area. However, the productivity of sheep is relatively higher than that of goat despite that goat population doubled that of the sheep population in the study area.

Table 4. Distribution showing productivity level of management practices of small ruminant farmers

	Frequency	Percentage	Central tendency
Goat			
< ₦30,000	116	62.8	
₦30, 000 – ₦60, 000	65	35.6	Mean = ₦29, 642
Above ₦60, 000	2	1.6	Std. dev. = ₦20, 232
Productivity level			
Low productivity	115	62.8	
High productivity	68	37.2	
Sheep			
< ₦30, 000	50	27.3	
₦30, 000 – ₦60, 000	60	32.8	Mean = ₦50, 066
₦60, 000 – ₦100, 000	59	32.2	Std. dev. = ₦39, 388.1
Above ₦100, 000	14	7.7	
Productivity level			
Low productivity	97	53.0	
High productivity	86	47.0	

Source: Field survey, 2010.

Identified Training Needs of Farmers' in Sheep and Goat Production

The training needs of the small ruminant farmers' in sheep and goat production were identified from the results presented in Table 3 above. Based on knowledge and skill gap analysis, the production management practices with low mean scores in knowledge and or skill presented the areas of training needs. These are the areas that promise better returns on the productivity of sheep and goat farmers if they learn new ways or methods of doing them. The identified areas of training needs included slaughtering and dressing of animals (2.9), construction of modern sheep and goat houses (2.9), diagnosis of sick animals (2.7), drug selection and administration (2.6), and health management (2.5). This corroborates the findings of [2] who identified feeding of animals, selection and administration of drugs as some of the training needs of women farmers in Oyo state, Nigeria. The management practices above could be seen to be somehow abstract, complex, technical or highly specialized in nature according to [5]. These might account for the observed low levels of knowledge and skill in the said management practices.

Factors influencing farmers Training Needs in small ruminant production management practices

Table 5. Result of Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	50.572	9.454		5.349	.000
age of respondent in years	.284	.075	.377	3.798	.000
year spent in school	2.056E-03	.119	.002	.017	.986
household size of respondent	-1.083	.321	-.325	-3.377	.001
household assistance in livestock	-3.924E-02	.394	-.009	-.100	.921
organizational membership score	-.407	.359	-.088	-1.133	.259
number of year in small ruminant production	-.142	.083	-.155	-1.721	.087
number of goat owned	.208	.290	.054	.717	.475
number of sheep owned	-.812	.255	-.248	-3.186	.002
income from small ruminant	1.117E-05	.000	.011	.135	.893
income from major occupation	4.369E-06	.000	.131	1.660	.099
total income	-1.172E-06	.000	-.013	-.135	.893
information sources utilized	-.390	.977	-.031	-.399	.690
number of training attended in the past	.209	.545	.030	.383	.702
cosmopoliteness	.298	.237	.099	1.256	.211
level of skill	.153	.063	.189	2.438	.016
perception on small ruminant	.176	.145	.090	1.212	.227
communication pattern	.254	.266	.080	.955	.341
research extension role	-1.245	.509	-.188	-2.443	.016
government policy	.129	.543	.017	.237	.813
reason for keeping sheep and goat	.192	.170	.087	1.135	.258

$R = 0.538$, $R^2 = 0.290$, Adjusted $R^2 = 0.197$, Std. Error of the Estimate = 6.76245, $F = 3.131$, Sig. = 0.000

Results of the multiple regression analysis carried out (Table 5) reveal that the F statistics was significant.

This implies that the regression model is fit for explaining the variance in the training needs of farmers in sheep and goat production management practices in the study area. The result revealed a medium relationship (R = 0.538) between the training needs of farmers in sheep and goat production management practices and the various independent variables of the study. Also, the result revealed that the regression model explained 29.0 per cent (R^2 = 0.290) of the variance in the training needs of farmers in sheep and goat production management practices. The result presented in Table 4 also showed the coefficients of the various independent variables of the study. As seen from the table, age of farmers (b=0.284), household size of farmers (b=-1.083), number of sheep kept (b=-0.812) at 0.01 level were significant. Furthermore, level of skill of the farmers (b=0.153) and number of contact with extension agents (b=-1.245) at 0.05 level were also significant.

This finding establishes these variables as the key factors influencing the training needs of farmers in small ruminant production management practices.

CONCLUSIONS

Empirical facts from the study led to the following conclusions. The small ruminant farmers were in their middle ages and majority of them were literate and belonged to at least one social or religious association. Also, income accrued to farmers from small ruminant production was very low and farmers', despite being literate do not get information on sheep and goat production via printed materials. The study concluded further, that farmers' knowledge and skill was low in some of the small ruminant production management practices. Furthermore, the productivity of the sheep and goat farmers was higher in sheep production than goat production and many of the farmers need to improve on the productivity of their management practices. The training needs of small ruminant farmers were in the management practices that are somehow abstract, technical or highly specialized. Furthermore, age of farmers, number of sheep kept, contact with extension agent, and farmers' household size together with their level of skill were the crucial factors influencing their training needs in small ruminant production management practices. Based on these conclusions, the study recommends that the training needs identified should be prioritised whenever any programme that will improve the competence of farmers in small ruminant production is being considered. Emphasizing these production management practices in any intervention programme towards improving livestock husbandry will boost sustainable small ruminant production and also improve the productivity of farmers' production management practices in sheep and goat production. Furthermore, the study also recommends that adequate information be supplied to the farmers so as to see small ruminant production as a key business with huge financial potential and not just a hobby nor an addendum to the family farming business.

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