



RESEARCH ARTICLE

TRAINING NEEDS OF RURAL WOMEN FARMERS ON SMALL RUMINANT PRODUCTION
IN ABIA STATE, NIGERIA

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ABSTRACT

The paper examined the training needs of rural women farmers on small ruminant production in Abia State, Nigeria. Structured questionnaire was distributed to one hundred and eighty small ruminant women farmers using multi-stage random sampling techniques. Data obtained were analysed using simple descriptive statistics (mean and percentage) and multiple linear regression analysis. The result of the analysis shows that, majority of the women (57%) were married, 34.4% were within the age range of 40 – 50 years and 45% of them is within 15 – 20 years of enterprise experience and 36.1% had between 15 – 20 flock size. Majority of the farmers practiced extensive system of management. The study revealed that the training needs in order of priority, treating of animal disease ($\bar{x} = 3.55$), oestrus/birth synchronization ($\bar{x} = 3.45$), prevention of animal diseases ($\bar{x} = 3.66$), product disposal ($\bar{x} = 3.37$), feeding of animals ($\bar{x} = 3.37$), ration formulation ($\bar{x} = 2.23$), waste management ($\bar{x} = 2.27$), improve carcass quality ($\bar{x} = 2.13$), artificial insemination ($\bar{x} = 2.17$) and use of modern technology ($\bar{x} = 1.92$). Regression result reveals that accessibility to market, educational level, farming experience, membership of association and access to credit were significantly related to small ruminant production ($R^2 = 0.863$). The findings suggest that improved small ruminant production could be achieved by giving considerations to those training needs and significant variables, and also by creating enabling environment through provision of micro-credit, and regular training of the women organised by extension agents in the study area.

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INTRODUCTION

Among all the livestock that makes up the farm animals in Nigeria, ruminants comprising sheep, goat and cattle, constitute the farm animals largely reared by farm families in the country's agricultural system. Nigeria has a population of 34.5 million goats, 22.1 million sheep and 13.9 million cattle (Lawel, 2012). The larger proportion of these animal population are however largely concentrated in the Northern region probably because of the ecological condition of the region which is characterized by low rainfall duration lighter sandy soil and longer dry season. Notwithstanding this situation, certain breeds of sheep and goat particularly the West Africa Dwarf (WAD) species are particularly adapted to the southern (humid) region of the country and are reared by rural households (Adala and Adeschinw, 2008). The role of livestock is human development is enormous. Protein from it is needed for physical and intellectual development as well as for

developing immunity against diseases (Atinmo, Akinyele and Arinyele, 1983). But the level of domestic livestock production still fall short of demand (NAERLS, 1999). Efforts being made to improve the level of domestic production have not yielded the desired result (Tadesse, 2012). Moreover, livestock is one of the most management intensive sectors of agricultural production. These parameters suggest the high importance of agricultural training for the production of small ruminants. Numerous studies confirm the positive effects of agricultural extension in farms productivity (Alere and Manyong, 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 behaviour (Bala Krishnan, 2010). Small ruminants are an important component of small holder farming systems in south-east Nigeria. As human population increases in this part of the country, access of rural farm families to land, capital and labour diminishes while opportunities for income from off-farm activities become scant. As a result, households are often faced to enter share cropping agreements and face consumption and income shocks (Abiassi, 2002).

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In addition, the rural families do not have the financial means to participate under the present savings before credit conditions for access to credit. Such as scenario leads to low investment in agricultural activities, low production, low income and consequently a vicious cycle of poverty and environmental degradation (Igwe *et al*, 2000). In these situations where formal financial and insurance institutions are absent, small ruminants are also important is a diversification strategy that aims to reduce market, and climatic risks and optimize the use of available resources. Majority of rural owners of small ruminants are farmers involved in food production and tree crop productions, 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). Disease and inadequate nutrition (in terms of quality and 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. Although the productivity of small ruminants in Nigeria is low (Rivera *et.al* 2004) there is an ample opportunity for improved extension education and training of small ruminant producers. However, such extensions 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 define needs of the target group (Harris, 2011).

In addition to the above stated problem, CTA (1993) identifies lack of training as part of the factors militating against women farmers efficiency and effectiveness (Adesoji *et al*, 2006) defined training as acquisition of the best way of utilizing knowledge and skill. Also, Njofor (2016) defined training need as a skill, knowledge and attitude an individual requires in order to avoid creating problem situations. Generally, it involves acquiring influence and developing abilities or attitude which will result in greater competencies in the performance of a work. There are two agents in the training, the trainee and the trainer. The active participation of both agents at every stage of the training programme is very important. Williams (1998) suggested five basic steps to be followed in organising a successful training programme. They are assessment of needs, design of relevant means to meet them, (iii) selection of the trainees, conducting the actual training and evaluating the training. The training needs of rural women are diverse and vary from one enterprise to another. The port of concern is that women are traditionally bound in respect of the knowledge and skills used in most of the projects they are involved. There is a wide gap between modern and local ruminant production hence the existence of training needs which facilities this study; with the following specific objectives to:

- Identify socio-economic characteristics of the women
- Ascertain the capacity of their stock/housing
- Identify the diseases prevalent among the animals
- Identify the sources of feed for the animals
- Ascertain the training needs of the women
- Ascertain constraints faced by the women in small ruminant production.
- Identify the socio-economic factors in the study area.

METHODOLOGY

The study area was Abia State, with 3 Agricultural zones. Abia State has about thirty-eight (38) blocks, two hundred and twenty-eight (228) circles and one thousand eight hundred and twenty-four contact farmers (1824), with each farm females consisting of about 5-10 members who are mainly small-scale farmers (Igwe *et al*, 2013). Multi-stage sampling technique was used in the selection of the sample size. The population of the study comprised all rural women that keep at least 5-10 sheep/goat at the time of the study. A sample size of 180 respondents realized via multi-stage sampling technique was used. In the first stage, all the three agricultural zones of Abia State were selected, followed by a selection of 3 agricultural blocks to give a total of 9 blocks out of the 38 blocks in the state. In the third stage, 20 rural women who are actively involved in small ruminant production were randomly selected to a sample size of 180 respondents. Primary data were generated using structured questionnaire and later analysed using descriptive statistics such as frequency counts, percentages, mean and standard deviation. Regression model was used to identify the socio-economic factors affecting participation in small ruminant production in the study area.

Borien Model (1980) was adopted for the assessment of the training needs of the respondents. The model which assumed the difference in two extreme positions; that is the measure of behaviour, skills and competencies of training and what should be; which is the goal of the programme in order to determine the perceived training needs of the respondents. Their responses were analysed using simple frequency counts and weighted mean score of knowledge, skills and importance of training in selected farm operations. This was used to identify and categorize the training needs of the respondents. Each of the operations was calculated on five-point scale and the weighted mean score of the respondents were rated as follows, 2.5 point and above as high and less than 2.5 points as low. This was used to categorize their points. Multiple regression analysis was used to analyse the factors influencing small ruminants' production in the area. The implicit form is stated as

$$Y = a + \beta_1 + x_1 + \beta_2 + x_2 + \beta_3 + x_3 + \dots \beta_{10} + x_{10} + U \dots \dots \dots (1)$$

Where

Y = Dependent variable, sheep and goats (herds size)

a = Constant

$\beta_1 - \beta_{10}$ = Regression coefficient

u = error term

x_1 = Age (in years)

x_2 = House hold size (number of people living in a household)

x_3 = Educational level (number of years of formal schooling)

x_4 = Farming experience (number of years in sheep and goat production)

x_5 = Access to market (in kilometers)

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents: Results on Table 1, indicated that majority of the respondents (34.5%)% were within the age range of 40-45 years of age. The finding is in line with Umunna *et al* (2014) who reveals that majority of ruminant farmers in southern guinea Savanna of Nigeria fall within the age range of 40-49 years. The age of

the farmers are important factors to consider when examining livestock ownership patterns, particularly among African small holder farmers (Dossa *et al*, 2008). The implication of the result is that younger ones were less involved in small ruminant production. This could be attributed to rural-urban migration by young ones in search of white collar jobs, while some are basically in crop production only. The educational level of the respondents shows that about (45%) had no formal education, while (55%) had either primary, secondary or tertiary education. The percentage of those with no formal education can be attributed to limitations of educational facilities in the rural communities which to great extent had adversely influence adoption of innovation in livestock production. Education is known as an engine room for any development especially to achieve sustainable development in agricultural production, farmers must be well educated (Ibrahim and Ayola, 2017). The study also revealed that majority (57%) of the respondents were married, 40% were widow and (3%) were single respectively. Therefore, the respondents who were married participates more on small ruminant production in the area. This may be connected with the responsibility of satisfying the need of members of her family and sources of saving or getting extra income.

Table 1. Socio-economic characteristics of the respondents in the study area

Variables	Frequency	Percentage
Age		
20-25	21	11.7
30-35	42	23.3
40-45	62	34.4
50-55	54	30.0
60-65	22	12.2
Marital Status		
Single	6	3.3
Married	102	57.0
Widow	72	40.0
Educational Level		
Non-Formal	81	45.0
Primary	54	30.0
Secondary	53	29.4
Others	4	2.2
Enterprise Experience		
5-10	57	31.7
15-20	83	46.1
25-30	50	27.8
Flock Size		
5-10	34	18.9
15-20	65	36.1
25-30	35	19.4
35-40	18	10.0
45-50	28	15.6
Total	180	100

Source: Field Survey, 2017

Table 2. Distribution of respondents based on flock size and management

Housing	Frequency	Percentage
Extensive	92	51.1
Semi Intensive	53	29.4
Intensive	35	19.4
Flock Size (Capacity A)		
Goat only	87	48.3
Sheep only	53	29.4
Both	40	22.2
Total	180	100

Source: Field Survey, 2017

Flock Size and Housing Practiced by the Respondents: Results on Table 2, show that most of the farmers (51%)

operates extensive system of management. The result is in line with (Ajala *et al*, 2008) who cited that majority of small ruminant farmers in Nigeria practiced extensive management system, where the animals depend on for age due to high cost of concentrates, also the extensive system is simple and easy to manage. The result further indicated that 29.4% and 9.4% practices semi-intensive and intensive system of management respectively. The semi intensive and intensive system are too expensive but according to the respondents, it ensured safety of the animals against risk and higher productivity. The type of ruminant kept shows that 48% kept goat, 29.2% kept sheep while (22.2%) of the respondents kept both. The observed difference in type of ruminant kept can be attributed to the type of importance attributed to each animal in each location. Ajala (2004) reported that small ruminants have been reported to form an integral part of the cultural life and farming system of Nigeria peasantry. The observed higher goat flock size may be associated with preference for goat meat over mutton. Goats are also preferred as "sacrificial animals" in observation of traditional rites and festivals. Moreover, the goat is generally claimed to be more handy and resistant to environmental stress than the sheep. This may have influenced the keeping of goat than sheep in the study area.

Table 3. Perceived abilities of the farmers in recognizing disease condition

Variables	Frequency	Percentage
Diarrhoea	86	47.0
Bloat	172	95.6
Enteritis	67	37.2
Catarrh	106	58.9
Foot and Mouth disease	89	49.4
Scabies	153	85.0
Mange	70	
Others	76	

Source: Field Survey, 2017.

Multiple Responses

Table 3, revealed the ability of the respondents in recognizing disease condition in their small ruminant animals. From the table, (85%) of the respondents claimed that they can recognize animals suffering from Scabies, (49%) stated that they can recognize when the animal is suffering from cough and pneumonia, 96% bloat, among others. The implication of the result is that if the farmers were aware of these diseases and can recognize the symptoms of unhealthy conditions among their flock, they can be able to inform veterinary doctors concerning the conditions. This will reduce mortality rate and increase productivity. 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 along with modern veterinary medicine.

Total observation > 100% due to multiple response: Results on table 4, shows that 66% of the respondents feed their animals with household scraps and crop residues. As pointed out by Smith *et.al* (2009) many household scraps or waste 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.

Table 4. Distribution of respondents according to sources of feed for small ruminants

Sources	Frequency	Percentage
Household waste	118	65.6%
Animal fend for itself	106	58.9%
Improved pasture	76	42.2%
Cut forage	174	96.7%
Don't know	58	32.2%

Source: Field survey, 2017.

Table 5. Training needs of small ruminant producers in the study area

S/No	Variables	Mean score (X)	Std. deviation (SD)
1.	Treating of animal diseases	3.55	0.507
2.	Oestrus birth synchronization	3.45	0.765
3.	Prevention of animal diseases	3.36	0.832
4.	Product disposal	3.37	0.765
5.	Feeding of animals	2.82	1.028
6.	Rations formulation	2.23	1.044
7.	Waste management	2.27	0.822
8.	Improve carcass quality	2.13	0.957
9.	Use of modern technology	1.92	0.963
10.	Artificial insemination	2.17	0.957

Source: Field survey, 2017

Table 6. Regression result for factors influencing small ruminant production

Model	Unstandardized coefficient beta	Std. error	Standardized coefficient beta	t-value	Sig.
Constant	4.867	1.412		3.521	.001
Age	0.030	0.024	-0.54	-1.258	.208 ^{NS}
Household size	0.117	0.326	0.13	.360	.720 ^{NS}
Educational level	1.167	0.0159	.234	2.873	0.002 ^{xx}
Farming experience	0.288	0.050	.257	4.982	0.000 ^{xx}
Access to market	0.173	0.083	.082	2.168	.032 ^{xx}
Access to credit facilities	1.660	0.0666	0.90	2.508	.014 ^{xx}
Contact with extension agent	0.047	0.575	.003	.082	.935 ^{NS}
Membership of association	0.101	0.051	.090	1.972	.031 ^{xx}

Source: Field survey, 2017

a = Dependent variable: farm size

R = 0.933

R² = 0.864^{xx} significant at 5% level^{NS} = Not significant

Njorfor (2016) stated that, they could be used as basal feeds, supplemented with better feed materials such as browses, hence the need for training. Table 4, also revealed that 59% of the respondents allow their animals to fend for themselves (free range). Allowing the animals to feed themselves may lead to exposure to danger and may not also get enough feed for improved carcass quality. The result further revealed that 42% of the farmers feed the animals through improved pasture. This practice is in line with Jackson (2008) who stated that, by conservation (in form of hay or silage) and storage of feeds during periods of surplus, livestock keepers can ensure that they have sufficient feed to offer their animals through the year. Finally, 96% of the respondents stated that they cut forage to feed their small ruminant animals. Cut forages and household wastes were major source of feeds. Due to the fact that the animals are by and large confined all year round, cut forage are fed along with household waste such as yam, kitchen grain, offal etc. Only 32% of the respondents indicated using commercial feed. The fact that almost all the respondents confined their animals, justifies the high incidence of cut forage plus utilization of household waste. Results on table 5, revealed the training needs of the rural women on ruminant production in order of priority. Training needs on oestrus/birth synchronization (X=3.45, SD=0.765). Treating of animal disease (X=3.55, SD=0.507), Prevention of animal diseases (X=3.36, SD=0.832), Product disposal (X=3.31, SD=0.727), Feeding of animal (X=2.82, SD=1.028, Ration formation (X=2.23, SD=1.044) Waste management (X=2.21, SD=0.822).

Artificial Insemination (X=2.17, SD=0.957), Improve carcass quality (X=2.13, SD=0.957), Use of modern technology (X=1.92, SD=0.963). Table 5 shows that out of a training needs investigated, the respondents show high interest in 4 out of ten while their interest in the others were low. The result implies that they need more training in those areas with higher mean score of 2.5 points and above. Results on Table 6, revealed that the factors influencing sheep and goat production in the study area using multiple linear regression. The result revealed that, all the explanatory variable fit into the model at 0.05 significant level and R² = 0.863, meaning that 86.3% of the variations in small ruminant production is explained by the independent variable identified. The results show that educational level (2.873^{xx}) was significant at 5% level of probability. The implication is that the more educated the farmers are, the more improvement in their performance. It is known that education is an engine room for any development. Therefore, to achieve more sustainable development in agricultural production, the farmers must be well educated. Accessibility to market (2.168^{xx}) was positive and significantly related to Y (land size). The implication is that the more the farmers have already buyers or (up takers) they will be willing to increase their flock size to satisfy market demand. Membership of an association (1.972^{xx}) was positive and significantly related to Y at 5% level. The associated benefits of joining association will make the respondents to increase their production. The result further indicated that access to credit (2.508^{xx}) was positive and significantly related at 5%

level. This clearly indicates that credit facilities has multiplier effect on farmers productivities, they increase their passions for animal production in order to meet repayment of loan as well as to meet their household responsibilities. Extension agents in the study area should therefore make efforts to organize training programme that will cover those 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.

Conclusion and Recommendation

Small ruminant production is one of the most management intensive sectors of rural economy. Knowledge input through agricultural education/ training programme could improve both, productivity and labour conditions. According to research findings, the respondents focus their training needs on issues relating to animals' health. Reproductive management and marketing should also be prioritized. The regression result reveals that accessibility to market, educational level, farming experience, membership of association and access to credit facilities were having positive impact on small ruminant production (R^2) = 0.863.

The following recommendations were made based on the findings of the study.

- There is need to provide farmers with credit facilities in order to boost their production, since the findings show that credit facilities have the highest contributing factor towards sheep and goat production in the area. For the women to be integrated to modern system of farming the issue of education must be taken into consideration.

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