Competency of Rabbit Farmers in Ika South Local Government Area of Delta State, Nigeria

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Abstract

The purpose of this study was to ascertain the competency level of rabbit farmers in Ika South Local Government Area of Delta State, Nigeria. The specific objectives were to: describe the socio-economic characteristics of the rabbit farmers; determine the competency level of the rabbit farmers in some selected major tasks on the farm; identify the tasks in the farms were rabbit farmers need training; and identify factors affecting competency level of rabbit farmers. The probabilistic simple random sampling technique was adopted in the selection of a sample size of 87 respondents. Descriptive (mean, frequency counts, percentages, standard deviation and frequency distribution table) and inferential (binary logistic regression model and t-test) statistics were used for data analysis. The instrument for data analysis also included the non-parametric Likert scale. The results of the study showed that of the nine major tasks identified, the respondents were competent in only three which included feeding/watering of animals, waste disposal and marketing/sales of product. The major factors responsible for the incompetency of most of the respondents were poor education/lack of technical knowledge (97.7%), inadequate training (94.3%), size of the farm (64.4%) and low level of extension contact (40.2%). The results of the regression analysis indicated that educational attainment of respondents (X_4), farming business experience (X_5), and farm or flock size (X_6) were the only significant socio-economic variables($P < 0.05$) determining the competency of rabbit farmers in the study area. Therefore, the overall current job performance of the respondents fell below the expected job performance. Arising from this, it was recommended, among others, that training should be provided for the rabbit farmers in the tasks where they lacked competence to improve their competency.

Key words: Competent, training, rabbit farmer, regression, performance

Introduction

The quest for increased nutrients, high productivity and job creation can be said to be the high points of agricultural activities in the country, particularly in the field of animal husbandry. The rabbit is one of the farm animals that is rapidly increasing in importance in Nigeria. Baruwa

(2014) stated that, there has been increased awareness of the advantages of rabbit meat production in Nigeria as a means to alleviate food shortages. This is largely due to the rabbit's high rate of reproduction, early maturity, small body size, and rapid growth rate which is comparable to that of broiler chickens in terms of genetic potential. The rabbit also exhibits efficient feed and land space utilization, limited competition with humans for similar food; and produces highly nutritious meat. Rabbit has the ability of turning forage into high quality protein, and yet remains within the investment ranges of the poorest families. Rabbit has been identified as an economy livestock that could bridge the wide gap in dietary protein intake in Nigeria. It is a micro-livestock producing about 47 kg of meat per doe per year (Baruwa, 2014), which is enough to solely meet the animal protein requirements of a medium sized family under small scale rural farming systems. Rabbit meat is rich in vitamin B and extremely low in cholesterol and sodium (Odeyinka *et al.*, 2008). As a result of a number of characteristics that are advantageous to smallholder rabbit farmers coupled with a greater recognition that rabbit farming has significant potential to improve food security and nutrition in Nigeria which can reduce, to some extent the country's malnutrition problems, and the diminishing bush meat supply, has been a strong impetus to small-scale rabbit farming.

Odeyinka, *et al.* (2008) observed that the rabbit (*Oryctologus cuniculus*) is the most productive meat producing animal among all domesticated animals. The feeding habit offers no appreciable competition with man. This is because it can thrive very well on forages as basal diet. The combination of these characteristics is unique. Rabbits also have a short generation interval with a relatively short gestation period average of 30-31 days, high daily weight gain in relation to body weight, and early sexual maturity. Rabbits can therefore be promoted as tools in poverty alleviation programmes. In sharp contrast, Oseni (2012) noted that for over three decades now, the contribution of smallholder rabbit units to food security in developing countries has been clearly recognized. Rabbits are particularly favoured for poverty reduction programmes on account of their low investment and early benefits, and subsistence on renewable resources for feeding, housing and general management.

Malifia, *et al.* (2012) opined that rabbit farming in Nigeria is faced with a myriad of problems, which have resulted to a gross shortage of meat to meet up with increased demands in our country. The growth rate of the Nigerian agricultural sector is below the potentials of natural and human resources due to high cost of agricultural inputs, poor funding of agriculture, inadequate functional infrastructural facilities, inconsistencies of government agricultural policies, inadequate private sector participation, poor mechanized farming and little or no adoption of some simple agricultural technologies developed by scientists. Backyard rabbit production is particularly well suited to small farmers, whether they own land or not. The advantages are closely related to the reproductive and feeding behaviour of rabbits and the fact that the species is both profitable and easy to integrate. As a small monogastric herbivore, the rabbit easily accommodates a fairly wide range of cellulose-rich foods; it is adaptable to the family diet and food preservation techniques available on small rural and peri-urban farms; it is highly productive in terms of offspring (kg /year dam), thanks to mating-induced ovulation, short gestation and lactation periods and great prolificacy. Rabbit is easy to transport and market, and the recurrent costs for maintaining animals beyond the optimum marketing age are low; labour costs are low and the work can be done by family members: women and children, or perhaps aged or handicapped people. Corroboratively Olowofeso *et al.* (2012) observed that

a prerequisite for this improvement is the knowledge of their breeding pattern and the ability to select highly prolific animals. In searched literature, litter growth and weaning characteristics in two generations of straight-bred and crossbred rabbits have been reported by Malifia *et al.* (2012). However, because of inbreeding depression which is often associated with pure-breeding activities in livestock production enterprises, it is desirable to encourage cross-breeding among breeds so as to exploit the full potentials of different breeds.

Ebewore (2013) explained that a farmer is competent when he performs a job according to expectation/standard practice. Training need is the gap between current job performance and requirements or expectation/standard practice. Training need therefore exist when an individual or an employee lacks the knowledge and skills to perform an assigned task satisfactorily to standard practice. Hence, training need results from a performance problem. Training need is a condition where there is a gap between 'what is' and 'what should be' in terms of incumbent knowledge, skills, attitude and behaviour for a particular situation at a particular time. The gap is a problem which usually occurs when a difference exists between desired performance and actual performance. Consequently, Owhuche *et al.* (2015) observed that farmers' training is directed towards making them competent in the performance of a job. Extension education is not just training for knowing more but to behave differently. That is to say, farmers who acquire training have to put it in practical use to bring out the best productivity as compare to the ones who had no training. Trainings are conducted at various levels for which the programmes are designed based on the clientele problems, their needs and interest.

Ifejika *et al.* (2013) agreed that it is necessary to support the adoption of emerging Agricultural innovations and technologies for positive impact on wellbeing. But prerequisite to conducting training that meets the requirements and felt need of a target group is situation analysis on clients training needs. Accordingly, training need assessment is the assessment of the gap between the present and the desired future. Benefits of training need assessment include determining felt need, categorization of trainees, identification of adequate training methodology and knowing the appropriate time to deliver. Consequently, Ekerete and Ekanem (2015) opined that agricultural extension is saddled with the responsibility of communicating relevant and timely information to rural dwellers on improved agricultural innovation (making them competent) for increased agricultural production and income.

Ayanda *et al.* (2013) observed that Agricultural transformation will not take place in developing countries such as Nigeria unless there is improved technical knowledge and willingness of farmers to utilize such knowledge. Consequently Ugowuoke and Osinem (2014) opined that Competency is the quality or state of being functionally adequate or having knowledge, skills and strength (as for a particular duty or respect). Competency is the ability to do something well, measured against a standard especially the ability acquired through experience or training. Competencies are essential knowledge and skills obtainable in a profession and those which the professionals in the field must possess and be able to demonstrate at optimal level of acquisition and functioning.

Identifying the competency level among rabbit farmers in Delta state shall be the focal point of this research with emphasis on competency , training, educational qualifications and government assistance among others. Usang *et al.* (2007) stressed that training is the difference

between the required level of individual competence and his current level of competence. They further expressed training need mathematically as:

M-I = Dk

Where M = Standard job performance

I = inventory or actual performance

Dk = Potential deficiency

The word potential is used because it is not always certain that fall in standard is only due to training need, that is, difference in knowledge and skill is not always only due to training need. They observed that the difference between the "must do" and "is doing" stems from other causes which he called "deficiency of execution". This kind of deficiency could be lack of feedback, badly engineered jobs or punishing consequences. There are two types of training needs and these are organizational and individual needs. The two are independent since corporate achievement of a group or a whole organization ultimately depends on collective performance of the individual or individual employee. Both types of training needs are relevant to the rabbit industry depending on the scale of operation.

Agbamu (2004) evaluated training needs based on combined findings of task analysis and self-assessment. Task analysis was conducted based on crucial role of task and the frequency of task performance. Frequency of performance was assessed using a five point continuum of seldom, occasional, monthly, weekly and daily with scores assigned as 1, 2, 3, 4 and 5 respectively. Also, training need through perceived level of competence and level of importance is placed on selected professional skills of agricultural media practitioners. To achieve this, he developed a four point Likert-type scale with values: not competent = 1, little competent = 2, competent = 3 and very competent = 4 to measure levels of competence; and unimportant = 1, little importance = 2, important = 3 and very important = 4 to measure levels of importance. From this it is obvious that there is a relationship between training need and the level of competence. In fact the need for training arises when the farmer or trainee is assumed to be incompetent.

Low level of farmers' education or training, decrease in government agricultural extension service to farmers and drop in agricultural production are usually identified as some of the major factors bedevilling the agricultural sector. Adequate training is usually a pre-requisite in improving the competency of farmers. Studies assessing the competency level of farmers in other aspects of livestock production have been carried out (Ebewore, 2013). However studies on the competency levels and training needs of farmers involved in rabbit production in Delta state, particularly Ika South Local Government Area are non-existent; this constitute a research gap in the literature. There is therefore the need to assess the competency level and training needs of rabbit farmers in this area.

Rabbit production in Nigeria could be described at best as rudimentary, developing or emergent when compared with France,Hungary,China, and the United States in which gender bias and sociological status of rabbit keepers ,weak inventory of rabit keeping infrastuture, low consumption of rabbit meat, absence of organised or thriving market for rabbit meat products,and lack of government and institutional support, limit the expansion of rabbits. This

is particularly so in Delta State, Nigeria. Arising from the foregoing challenges, it becomes imperative to develop the livestock sub-sector as a critical element of the growth of agriculture in Delta State. One of the ways of attaining this is to assess the competency level of the operators in the livestock sector in Delta State. For the rabbit farmers, this is very crucial. Hence the following research questions arise : What are the socio-economic characteristics of rabbit farmers? What is the current level of of competency of rabbit farmers? In which areas of their jobs do these farmers require training? What are the factors likely to influence competency of farmers?

The purpose of carrying out the research work was to establish the competency level of rabbit farmers in Delta State. The specific objectives were to: describe the socio-economic characteristics of rabbit farmers; determine the competency level of rabbit farmers in some selected major tasks on the farm; identify the tasks in the farms where rabbit farmers need training; and Identify factors affecting competency level of rabbit farmers

The following hypotheses stated in their null forms were tested:

H_{O1}: there is no significant relationship between the competency level of rabbit farmers and their socio economic characteristic

Ho_2: there is no correlation between the current job performance and the expected job performance of rabbit farmers

Materials and Methods

Area of Study

The study was conducted in Ika South LGA of Delta State. Ika South is roughly between latitude 6º13' and 6º20'North and longitude 6º25' and 6º29'East. It occupies a land area of 436km^2 with a population of 162,594 people (NPC, 2006). Rainfall is from about 2500mm to 2800mm per annum, with an average monthly temperature of 30.4ºC-36.4ºC and relative humidity of 56-58% per year. The area is located in the tropical rainforest zone of the South-South geo-political zone of Nigeria. The predominant occupation of the people is farming, trading, and civil service. Occupation of significance in the area included crop production, fish farming and animal husbandry.

Sampling Technique and Sample Size

The probabilistic simple random sampling technique was adopted in the selection of sample, in which a list of identified rabbit farmers was compiled with the help of the extension agents covering the local government area. Eight hundred and seventy-nine rabbit farmers were identified in the area. Ika South has twenty-two (22) semi-urban towns which include Abavo, Agbor, Alihame, Ekuku Agbor, Idumuoza, Oza Nagogo, Ewuru, Alifekede, Alisimie and Oki, to mention a few. The sample was drawn from these communities. The sample size of 87 rabbit farmers was composed.

Method of Data Collection

Primary data were collected with the aid of a well-structured and validated questionnaire as well as personal interview of respondents. The questionnaire was structured in such a way as

to reflect the objectives of the study. Primary data were collected on socio-economic variables, such as age of rabbit farmers, gender, marital status, farm size, labour source, educational level and farming experience and other relevant variables.

Method of Data Analysis

Both descriptive and inferential statistics were used for data analysis. Descriptive statistics used included mean, frequency counts, percentages, standard deviation and frequency distribution table. The instrument for data analysis also included the Likert scale with values 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree.

The inferential statistics used to test the stated hypotheses were the binary logistic regression model and t-test. The binary logit model is specified as follows:

$$\text{Ln } Y = \text{Ln } (P/1\text{-}P)$$

$$\text{Ln } (P/1\text{-}P) = b_0 + b_1 X_1 + \ldots + b_7 X_7 + et$$

Competent = 1; 0, otherwise
X1 = Gender (male = 1; otherwise = 0)
X2 = Age (in years)
X3 = Marital status (Married = 1; otherwise = 0)
X4 = Level of education (in years)
X5 = Farming experience (in years)
X6 = farm size (in numbers of rabbit)
X7 = household size (in numbers)
et = error term
Ln = natural logarithm

Results and Discussion

Socio-economic Characteristics of the Respondents

The socio-economic variables of the rabbit farmers are present in Table 1. The results indicate that rabbit production was dominated by males, as about 93.1% of the farmers were males, whereas only about 6.9% were females. This may be as a result of the strenuous nature of rabbit keeping. Baah *et al*. (2012) and Oladeji and Oyesola (2008) had similar observation among livestock farmers. The results of age distribution of the respondents showed that majority of them (86.3%) were in the economic active age bracket of 21 to 60 years, thus indicating that those involved in rabbit farming in the study area were energetic. Adesope *et al.* (2012) and Mutisya (2014) asserted that farmers in this age group usually possess the required commitment, ability to withstand stress and effective decision-making ability, which can boost the productivity of the farmers. The results on marital status indicated that most of the respondents (66.7%) were married. Most of the rabbit farmers surveyed attended one form of formal school or the other: 27.6% of them completed primary school, 48.3% completed secondary school and 11.5% completed one form of tertiary education or the other. Only about 12.6% of the respondents did not attend any formal school. Mutisya (2014) asserted that education is very important in the adoption and use of production technologies and innovation necessary to improve rabbit production. Majority of the rabbit farmers were still new entrants into the business as about 58.6% of them had less than 5 years farming experience. This means

that most of them were yet to acquire the necessary skills to operate their farms efficiently. According to Mutisya (2014), experience, including rabbit production, is very crucial and cannot be over emphasized, for improving the productivity and efficiency of farmers. Experience assists farmers to overcome farming challenges which are unavoidable.

Table 1: Distribution of the respondents according to their socio-economic characteristics

Variable	Frequency (87)	Percentage (100)	Variable	Frequency (87)	Percentage (100)
Gender			**Household size (number)**		
Male	81	93.1	5 and below	23	26.4
Female	6	6.9	Greater than 5	64	73.6
Marital status			**Farming experience (years)**		
Married	58	66.7	Less than 5	51	58.6
Never married	15	17.2	5-10	30	34.4
Widow/divorce/separated	14	16.1	More than 10	6	6.9
Age (years)			**Size of rabbit farm (number)**	6	6.9
Below 20	3	3.4	50-100	46	52.9
21- 30	12	13.8	101-150	24	27.6
31-40	21	24.1	Greater than 150	17	19.5
41-50	30	34.5			
51-60	12	13.8			
Greater than 60	9	10.3			

As regards farm size (flock size), 52.9% of the rabbit famers (i.e. more than one-half) had no more than 100 rabbits in their farms. This finding was corroborated by that of Oluwatusin (2014) who observed that most rabbit farmers in Nigeria kept less than 100 rabbits. The implication of this finding is that most farmers were still small operators.

The average household size was 6. According to Oluwatusin (2014), large family is necessary for cutting of forages for the rabbits.

Competency Level of Rabbit Farmers in Some Major Tasks

The competency level of the rabbit farmers in some major tasks in rabbit farms is presented in Table 2. Nine major tasks were identified. The respondents were competent in only three out of the nine major tasks identified. Mutisya (2014), also observed incompetency among rabbit farmers in his study. These tasks included feeding/watering of animals, waste disposal and marketing/sales of product. The implication of this finding is that the rabbit farmers are not skilled in performing most of the operations in the farm. There is therefore the need for training in the remaining six areas where the rabbit farmers are incompetent. Lukefahr (2016) opined that training is required to improve the competency of rabbit farmers.

Table 2: Competency level of rabbit farmers in some major tasks

Task	Standard Deviation	Mean score	Remark
Feeding/watering	0.82	4.76	Competent
Identification of diseases	0.53	1.98	Not competent
Diseases control	0.28	2.45	Not competent
Breeding	0.48	2.22	Not competent
Vaccination	0.86	2.02	Not competent
Waste disposal	0.75	4.22	Competent
Selection of breeds	0.55	1.92	Not competent
Housing management	0.66	2.11	Not competent
Marketing /sales management	0.38	4.35	Competent

Likert scale codes were: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree

Factors Influencing the Competency Level of Rabbit Farmers in the Area

Several factors were adduced by the respondents to be responsible for the incompetence of the rabbit farmers in certain basic tasks in the study area as presented in Table 3. The major factor responsible for the incompetence of most of the respondents was poor education/lack of technical knowledge.

Table 3: Factors affecting competency of rabbit farmers*

S/N	Factor	Frequency (87)	Percentage (100)
1.	Lack of Education/ technical know-how	85	97.7
2.	Training	82	94.3
3.	Size of flock/farm size	56	64.4
4.	Extension contact	35	40.2

*Total greater than 87 due to multiple responses

Most (97.7%) of the respondents asserted that poor knowledge about rabbit management practices was the major factor responsible for the poor competence level in the management of their farms. Opara (2010) asserted that education enables a farmer to know how to look for and apply information on improved farm practices, thus improving his competence. Next and closely related, was training; about 94.3% of the rabbit farmers indicated that they did not receive/attend any workshop or training on how to manage rabbit farms. They asserted that what most of them were doing was through trial and error. Other factors affecting the competency of the farmers were: size of the farm (64.4%) and lack of extension contact (40.2%). Appiah *et al*. (2011) asserted that extension contact had a significant effect on the taking up of rabbit technologies, which invariably affect the competency of rabbit farmers. Tembachako and Mrema (2016) indicated that increased contact of extension service with rabbit farmers leads to higher production of rabbits due to improved competence

Relationship between Competency of Rabbit Farmers and their Socio-economic Characteristics

The logistic regression was used to test for this hypothesis. The results of the regression analysis are presented in Table 4. To ascertain the factors determining the competency of the rabbit farmers in Ika South LGA of Delta State, tests were initially done to check the presence

of multi-colinearity between the socio-economic variables. The tests conducted indicated the absence of multi-colinearity. Therefore, all the socioeconomic variables of interest were entered and the logistic regression model estimated. Education attainment of respondents (X_4), farming business experience (X_5), and farm or flock size (X_6) were the only significant socio-economic variables, and they were found to be significant at $P<0.05$, suggesting that these socio-economic variables were important factors determining the competency of rabbit farmers in the study area.

Table 4: Regression results of the socioeconomic determinants of competency of rabbit farmers

S/N	Variable/relevant statistics	Regression coefficients	T-values
1	Gender (X_1)	-0.089	-1.278
2	Age (X_2)	-0.061	-1.671
3	Marital status (X_3)	0.087	1.589
4	Educational level (X_4)	0.081	3.441*
5	Farming experience (X_5)	0.094	3.859*
6	Farm/flock size (X_6)	0.088	3.331*
7	Household size (X_7)	-0.045	-1.082
8	Constant	-21.988	-5.999
9	Chi-square	69.774	
10	Sample size	87	

*significant at $P < 0.05$

Farmers who are educated especially in their fields are likely to be more competent than those with little or no education. Moreover, those rabbit farmers who are experienced and having large flock size are more likely to seek opportunities to improve their production techniques. Gender (X_1), age (X_2), marital status (X_3) and household size (X_7) were not significant ($P>0.05$), showing that these variables were not crucial in influencing the probability of the rabbit farmers' competency in performing their tasks.

Relationship between Current Job Performance and Expected Job Performance

Table 5 clearly shows the relationship between current and expected job performance. T-tests were conducted to ascertain whether there were significant differences between current job performance and expected job performance of respondents (i.e. performance par excellence).

Table 5: Relationship between current job performance and expected job performance of rabbit farmers

Major tasks	Current Mean	Expected Mean	T-value	Remark
Feeding/watering	4.76	5.00	1.18	Not significant
Identification of diseases	1.98	5.00	1.56	Significant
Disease control	2.45	5.00	1.21	Significant
Breeding	2.22	5.00	1.12	Significant
Vaccination	2.02	5.00	1.06	Significant
Waste disposal	4.22	5.00	0.98	Significant
Selection of breeds	1.92	5.00	1.33	Significant
Housing management	2.11	5.00	1.46	Significant
Marketing/sales management	4.35	5.00	1.43	Not significant

Source: Survey Data, 2017 Significant at $P < 0.05$

The results indicated that there were statistically significant ($P<0.05$) differences in nearly all the tasks except on only two, namely, feeding/watering and sales/marketing. The implication of this finding is that gaps exist in seven of the nine tasks considered in this study. This finding is corroborated the earlier finding in Table 2. The existence of such gaps intuitively suggests that training of the respondents in these tasks is imperative.

Conclusion and Recommendations

The findings of this study succinctly indicated that the socio-economic variables of rabbit farmers in Ika South local government area had a significant relationship with their competency; also present job performance and expected performance of the rabbit farmers showed that there were significant differences in almost all the tasks except on only two, namely, feeding/watering and sales/marketing, thus implying that significant differences exist between current job performance and expected job performance. Therefore it can be concluded that most of the respondents were not competent in carrying out the various tasks involved in the management of rabbit farms.

Based on the results obtained from this study, the following recommendations were suggested to boost rabbit production in the area:

(i) Provisions should be made by the government and other stakeholders in the agricultural sector to grant credit to rabbit farmers. This will encourage farmers to embark on large scale rabbit production and to purchase quality feed.

(ii) Training should be provided for rabbit farmers in tasks were they lacked competence as this would improve the competency of the rabbit farmers.

(iii) Farmers in general should be encouraged to delve into rabbit production as long as training to improve their competency should be made available.

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