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Original Research Article

Economics of Rabbit (*Oryctolagus Cuniculus*) Production in IVO Local Government of Area of Ebonyi State

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ABSTRACT

Economics of rabbit production in IVO Local Government Area of Ebonyi State, Nigeria was studied using sixty farmers that were randomly selected using multi stage random sampling technique. Percentage response, Net farm income and ordinary least square regression analyses were used to address the objectives of the study. The result showed that 78.33% of the respondents were male farmers, while the females accounted for 21.67% . In addition, 61.7% of the respondents were below the age of 41years, while 21.67% were above 41 years. 76% of the sampled farmers were married and 15% were single. Furthermore, 83.3% of the respondents were educated, while 8.3% had no formal education. Majority of the rabbit farmers (93.3%) had rearing experience of below 11 years and 6.7% had above 11 years. The determinant factors to rabbit farmers' output were rearing experience, flock size and feed consumed Result of cost and returns showed that pig production is a profitable venture with net farm income of ₦10, 500 and return to scale of 1.089. The major constraints to rabbit production in the study area were lack of capital, feed and feeding, diseases problem and marketing problem. The study recommended on the need to increase farmers' access to credit facilities, good marketing structure and accessibility to improved rabbit breed.

Key Words: Economics of rabbit production, Oryctolagus Cuniculus, IVO Local Government Area, Ebonyi State.

INTRODUCTION

In Nigeria, consumption of animal protein remains low at about 6.0-8.4 g/head/day which are far below the 13.5g per day prescribed by the World Health Organistion (WHO) (Amata and Brat, 2008). Diversification into rabbit production enterprise appears to be gaining in popularity and economic importance as a veritable way of alleviating animal protein deficiency in Nigeria compare to the conventional source from goat, sheep and cattle in many developing countries. This through its intrinsic attributes include short gestation period (20-31 days), larger little size i.e. 5-7 (are 60 nos.), slaughter age of meat purpose (90 days) and breeding age 6-8 months (Jithendran, 2013). Furthermore, the fur is used for clothing, paws and tails for trinkets, and the manure for soil improvement and for new energy source. bio or methane gas (Hassan and Owolabi,

(2011). Rabbit meat has high nutritive value of low fat, sodium and cholesterol contents. Its meat has characteristics of being lean, less fat and calories, hence often recommended for the obese and overweight (Ozor, 2001) and its consumption is not deprived of cultural and religious bias (Komolafe *et al* 2001). However, rabbits are perhaps the most economical and profitable of all kinds of livestock as it can utilize inferior feeds and still provide quality meat and fur. Moreover, with a better quality feeding program, they can increase bunny production thus allowing a higher profit margin for the producer (Ezea, 2004). The relatively small size of the rabbit presents advantages of easy transportation and consumption by a few people (Ozor, 2001).

Although several breeds of rabbit exit, the most popular reared in various countries, Nigeria inclusive is the New Zealand white and Californians. The wide acceptability of these breeds are due to its intrinsic qualities such as high fertility, fast growth and high feed conversion rate for meat (Ezea, 2004). Problems facing rabbit production in most developing countries are high cost of concentrates, relatively smaller weight gain during the dry season, pests and disease, (Komolafe *et al* 2001) unavailability of market when the farmers are ready to sell their stock and inadequate knowledge and information about the advantages of eating rabbit meat (Akintola, 2009). Also, Ajala *et al* (2009) reported that forage inavailability sometimes is the limiting factor in rabbit production especially conventional forage such as groundnut hay in which there is competition between the rabbit and ruminant animals.

In recognition of the potentials of this animal in the improvement of food security and nutrition in Nigeria, there is need for economic analysis of the animal in order to know the full production potential and how to increase its profit. Therefore, the specific objectives of the study are to describe the socio-economic characteristic of rabbit farmers, determine the effects of the socio-economic characteristics on farmers' output, estimate the costs and returns in rabbit production, determine the elasticity of production and return to scale; and identify the limiting factors to rabbit business in the study area.

To fully explore the objectives of the study, the following research questions are to be addressed:

- What were the farmers' socio-economic characteristics?
- What were the effect of farmers' socioeconomics characteristics on the farmers output.
- What were the limiting factors to rabbit production?
- What was the elasticity of production and return to scale in pig production?
- Was rabbit production profitable in the study area?

MATERIALS AND METHODS

Ivo Local Government Area of Ebonyi State, Nigeria was studied. It is located between latitude $5^0$56" and $6^0$59'N and longitude $7^0$35' and $7^0$4E. Its rainfall ranges from 1500-2500mm, temperature of 28-45^{0}C and moderate relative humidity of 75%. Ivo L.G.A comprises of seven (7) autonomous communities and many villages. It covers an area of 350659km^2 with population of 220, 919 people (10). The Ivo Local Government Area people are mainly farmers and engage on other economic activities. Data utilized for this study were primarily sourced and were obtained from farmers using questionnaire. A total of 60 rabbit farmers were randomly sampled from six communities. Baseline information on the farmers' socio-economic characteristics input use and output levels were collected and analysed.

Data Analysis

Objectives I and IV were analyzed using descriptive statistics such as frequency distribution, percentage, budgeting techniques, profitability ration was used to capture objective III and multiple regression analysis was used to address objective II. Multiple regression can

be presented as $Y = X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + - - - - Xn + e$

Where
X_1 =Age(years), X_2 = gender (Dummy), X_3 = rearing experience (years), X_4 = feed consumed (kg), X_5 = cost of drugs (N), X_6 = rearing methods(Dummy), X_7 = No. of dependents (No), X_8 = flock size, X_9 = credit, X_{10} = Educational level, X_{12} = Labour , e = error term
Four functional forms (linear, double log, semi double log and exponential functions) of production function were tried and explicitly represented as

Linear function:

$$Y = b_0+b_1x_1b\ x_2+b_3x_3+b_4x_4+b_5x_5+ei\ldots\ldots\ldots\ldots\ldots (1)$$

Double log function (Cobb Douglas):

$$\ln(y)=\ln b_0 +b_1\ln x_1+b_2\ln x +b_3\ln x_3+b_4\ln x_4+b_5\ln x_5+ei \ldots\ldots\ldots\ldots (2)$$

Semi double log function:

$$Y=\ln b_0+b_1\ln x_1+b_2\ln x_2+b_3\ln x_3+b_4\ln x_4+b_5\ln x_5+ei...(3)$$

Exponential function:

$$\ln Y = b_0+b_1x +b_2x_2 +b_3x_3+b_4x_4+b_5x_5+ei\ldots\ldots\ldots(4)$$

The choice of the best functional form was based on the magnitude of the R^2 value, the high number of significance, size and signs of the regression coefficients as they conform to *a priori expectation*.
Percentage response was used to analyse objective 1, while objective 2 was captured using gross margin analysis. Gross margin=

$$G.M. = TR - TVC \quad \ldots\ldots\ldots\ldots 1$$

$$\text{i.e.} \quad G.M = \sum_{1-1}^{n} P_1Q_1 - \sum_{j-i}^{m} r_i x_i \quad \ldots\ldots\ldots\ldots 2$$

The Net farm income can be calculated by gross margin less fixed input. The net farm income can be expressed as thus:

$$NFI = \sum_{1-1}^{n} P_1Q_1 - \left[\left(\sum_{j-i}^{m} r_i x_i\right) + k\right] \quad \ldots\ldots\ldots\ldots 3$$

Where: GM = Gross margin (₦), NFI = Net farm income (₦), P1 = Market (unit) price of output (₦), Q = Quantity of output (kg), ri = Unit price of the variable input (kg), xi = quantity of the variable input (kg) , K = Annual fixed cost (depreciation) (₦), i = 1 2 3 …….. n, j = 1 2 3

Theoretical framework of multiple regression

The multiple regression studies involve the nature of the relationship between a dependent variable and two or more explanatory variables. The techniques produce estimators of the standard error of multiple regressions and coefficient of multiple determinations. In implicit form, the statement that a particular variable of interest (y_i) is associated with a set of the other variables (x_i) is given as:

$$y_i=f(x_{1,}x_{2,\ldots,}x_k)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

where y is the dependent variable, and x_i.. x_k is a set of k explanatory variables.

The coefficient of multiple determination measures the relative amount of variation in the dependent variable (y_i) explained by the regression relationship between y and the explanatory variables (x_i). The F-statistics tests the significance of the coefficients of the explanatory variables as a group. It tests the null hypothesis of no evidence of significant statistical regression relationship between y_i and the x_is against the alternative hypothesis of evidence of significant statistical relationship. The critical F-value has n and n-k-1 degrees of freedom, where n is the number of respondents and k is the number of explanatory variables.
The standard error of regression coefficients is the measure error about the regression coefficients. The z-statistics is used in testing the null hypothesis that the parameter estimates are statistically equal to zero against the alternative hypothesis the parameter estimates the statistically different from zero. If the computed z-value exceeds the critical value, we reject the null hypothesis and conclude that the parameter estimates differ significantly from zero.
The nature of the relationship between an outcome variable (y_i) and a set of

explanatory variables (x_i) can be modeled using different function forms. The four commonly used algebraic (functional) forms are: linear, log-linear or semi-log, linear-log, and power or double-log. The first functional form is the linear function expressed as:

$y_i=b_o+ b_ix_1 +b_2 + \ldots+B_kx_k+e_1$ .....(5)

where the b_is are the parameters to be estimated and e_i is the stochastic error term. The elasticity estimates of the linear function are given as b_ix_i/y_o where $x_i$and y_i are mean values of x_i and y_i . the second functional form is the log-linear or semi-log function expressed as:

$y_i= \exp(b_o+ b_ix_1 + \ldots+b_kx_k+e_{1)}$..... (6)

by taking the logarithm of both sides the function of expression (3) can be linearised as followings:

$Iny_i= b_o+ b_1x_1 + b_2x_2 +\ldots+b_kx_k+e_{1)}$ .....(7)

Where e is the error term. The coefficient of elasticity given by b_kx_k

The third form is the linear-log function expressed as:

$\exp (y_i)= \exp (b_o+e_1)[x_1^{b1} x_2^{b2}.....x_k^{bk}]$…….(8)

If linearized by taken the log of both sides, the above function will become:

$Y_i =b_o+b_1 \text{ In } x_1+b_2 \text{ In } x_2+\ldots+b_k \text{ In } x_k+ e_i$ .....(9)

The elasticity of the linear-log function is calculated as. $b_k/\bar{y}_i$. The fourth functional form is the power or double-log function expressed as:

$Y_i=b_ox_1^{bi}x_2^{b2}\ldots.X_k^{bk}\exp\{e_t\}$……(10)

By taking the log of both sides the power function of expression (7) can be linearized as follows:

$\text{In } y_y = b_o+b_1 \text{ In } x_1+b_2 \text{ In } x_2+\ldots\ldots+b_k \text{ In } x_k+e_t$ ...(11)

The elasticity coefficient of the power function is defined as the beta-values of the explanatory variables, b_ks.

RESULTS AND DISCUSSION

Table 1 revealed that 75% of rabbit farmers fell below the age range of 41 years, while 25%; above 41 year. Studies revealed that younger people dominated rabbit production in the study area. This age class is very adaptive, energetic and able-bodied individual to carry out the husbandry activities involved in rabbit production (Obasi, 2005). In contrary, Jithendran, (2013) found older people involved in rabbit production in Kenya. He asserted the possible indicator to that interest to the Government efforts in encouraging rabbit farming by establishing a rabbit breeding program in the country.

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

Variables	Frequency	Percentage
Age Range		
21 – 30	15	25.00
31 – 40	22	36.67
41 – 50	17	28.33
51 and above	6	10.00
Gender		
Male	47	78.33
Female	13	21.67
Marital Status		
Single	9	15.00
Married	46	76.67
Divorced	1	1.67
Widowed	4	6.67
Education Level		
No Formal Education	5	8.33
Primary Education	7	11.67
Secondary Education	27	45.00
Tertiary Education	21	35.00
Rearing Experience (Yrs)		
1-10	56	93.33
11-20	3	5.00
21 and above	1	1.67
Household Size (No)		
1-5	18	30.00
6-10	28	46.67
11-15	10	16.67
16-20	4	6.67
Flock size (No)		
Less than 20	41	68.33
21 – 30	10	16.67
31 – 41	6	10.00
42 and above	3	5.00
Membership of Org		
Yes	40	66.7
No	20	33.3
Access to credit		
Yes	15	25.00
No	45	75.00
Labour Source		
Family	36	60
Hire	20	33.33
Communal	4	6.67

Source: Field Survey, (2015)

Furthermore, 78.3% of the respondents were males, while female constituted 21.7%, indicating that rabbit production in the study area is gender sensitive, as males have the physical strength to handle the production. Ozor and Madukwe, (2007) made similar assertion.

In addition, 76.7% of the respondents were married, followed by

singles (15%), while the least (1.7%) were divorced. Married people have the likelihood of having of household members who could serve as source of family labour in carrying out husbandries involved in rabbit production.

Also, 91.7% of the respondents were educated, while only 8.3% had no formal education. The high proportion of educated in rabbit production is recognition of the important of nutritive value of rabbit meat to human health. Ume, *et al* (2010) reported that education helps to enhance managerial skills, resource management, decision making and adaptability of an individual.

As well 93.3% of the sampled rabbit farmers had been in the business for less than 11 years rearing experience and only 6.7% had above 11 years. This implies that the rabbit production is a relatively a new farming enterprise in the study area. This finding does not concur with Ajala, et al (2009) who reported that most farmers in South west Nigeria are well abreast with rabbit production. Tanko, (2004) remarked that experience enables farmers to set a realistic goal and manage their resource prudently for high productivity to ensue. Also, 81.7% of the sampled farmers had no contact with the extension officers, while only 18.3% had contact. The poor extension outreach in many developing countries of sub Saharan African according to Unammah, (2003) could be allied to ill motivation of the change agent as well as the wide ratio between extension agent – farmers.

More so, 46.67% of the farmers sampled had household size of 6-10 people, while the least (6.7%) had household size range of 16-20. The income derived from household members when used as hired labour could help in the business management. Nevertheless, large household size could depict the large number of 'mouths' fed per household .

Moreover, Majority (68.3%) of the rabbit farmers had flock size of less than 20 rabbit and the least (5%) had flock size of 42 and above. The low flock size of the animal could signed the newness of the enterprise in the study area. Therefore, there is dire need to create proper awareness of the enterprise by both government and nongovernment organization considering the nutritional important of this animal through seminars and workshops.

Furthermore, 75% of the rabbit farmers had no access to credit facility, while 25% had access. The high interest rate of loan and short term repayment could be invoked to explain that (Ozor and Madukwe, 2001). Furthermore, 60% of the respondents used family labour in their farms, followed by hired labour (33.3%), while the least (6.7%) was communal labour.. Family labor is critical input in the study area as it is cheap and readily available if well-coordinated. This finding concurred with Ume *et al*. (2010). Finally, 66'7% of the respondents were member of organization, while only 33.3% do not belong to any organization. Obasi (2005) noted that social organizations serve as a forum through which farmers could exchange ideas and learn about new farm practices.

Based on the statistical and econometric criteria, Cobb Douglas production function was chosen as lead equation as shown in Table 2. The coefficient of determination (R^2) was 0.879, implying that 87.9% of the variation in the output of the pig farmers were accounted by various inputs included in the model, while the remaining 12.1% were due to error term. The statistical test of the coefficient of age was negative and significant at 10% probability level. This is in line with Okoli (2012) who reported that innovativeness, motivational and adaptability of individuals decreases with age. Nevertheless, Onyenweaku *et al*. (2010) found a positive relationship between farmer's age and technology adoption and this thought is stem from accumulated knowledge and experience of faming system obtained from years of observation and experimentation with various technologies.

Table 2: Multiple Regression Result

Variables	+Cob Douglas	Exponential	Linear	Semi Log
Constant	597.589 (11.496)***	4.587 (16.882)***	0.246 (2.393)**	616.072 (1.957)*
Age	-2.181 (-4.336)***	-0.561 (-4.502)***	-0.268 (-1.971)*	-54.513 (-1.496)
Gender	-14.143 (-0.887)	-4.714 (-1.128)	-0.021 (-0.156)**	-0.569 (-0.022)
Experience	6.593 (6.346)***	0.049 (3.268)***	0.008 (3.304)***	25.082 (2.082)**
Feed consumed	0.41 (3.291)***	0.133 (2.145)**	-0.121 (-2.821)*	-0.157 -3.007)***
Cost of drugs	1.051 (- 2.098)*	0.020 (2.502)***	0.006 (-1.338)*	-9.507 (-3.276)**
Rearing method	10.410 (5.078)	0.212 (3.359)***	0.025 (5.063)***	3.200 (3.624)***
No. of dependants	0.001 (0.002)	8.239 (1.095)	0.146 (0.951)	20.211 (0.698)
Farm/flock size	0.043 (3.106)***	-0.094 (-1.128)	0.377 (2.731)***	67.428 (2.588)***
Credit	-9.019 (-2.030)**	-0.005 (-0.225)	0.051 (-2.637)***	13.801 (4.286)***
Water	3.052 (2.097)	0.048 (-2.503)**	0.027 (5.067)**	68.428 (-1.078)*
Educational level	0.408 (3.238)	0.019 (0.720)	0.134 (2.577)***	-0.225 (-0.757)
Labour	6.002 (-3.222)	0.115 (-2.232)	0.005 (5.603)***	712.073 (-0.480)*
R^2	0.841	0.801	0.779	0.830
F-value	15.891***	5.587***	5.121***	15.021***

Source: Field Survey, (2015)

*, ** and *** implies significance at 10%, 5% and 1% respectively

As expected, the coefficient of gender was negative and significant at 5% of alpha level. The negative sign of the coefficient could be linked to low female participation in rabbit rearing, since they are engaged in other activities such as caring for the home, rearing of the children, fending for the home as well as other household chores which the women were involved and which may take more of their time(Ume, *et al* 2010). In line to a priori expectation, the coefficient of rearing experience had direct relationship with farmers output and significant at 1% alpha level. This implies that the older a farmer is in keeping rabbits, the more he adopts new information or innovations on rabbitry The aftermath of the farming experience as noted by Onyenweaku, *et al* (2010) is to optimize the farmer's capacity to maximize their output and profit at minimum cost.

The coefficient of feed consumed by rabbit as expected was positive and statistically significant at 1% of alpha level. This finding is in line with Ozor and Madukwe, (2007) who reported that rabbit optimum yield could be best achieved when the animal is fed on concentrates and forages to reach a adult body weight of 4 - 5 kg. As expected, the coefficient of flock size was positive and significant at 1% of alpha level in agreement with a priori expectation that the more the flock size with all things being equal, the more probability the farmers' output. Flock size is a reflection of the availability of capital, access to credit and even good managerial ability (Obasi, 2005).

The table also revealed that the coefficient of cost of drug/vaccine was negative and significant at 10% alpha level. This is in line with a priori expectation that the major problems in the use of these drugs in sub Saharan Africa are high cost, limited availability at right time and problem of adulteration (Ajala, et al 2009). The estimated coefficient of credit was positive in line with the finding of Ozor and Madukwe,(2007) and significant at 5% alpha level. Nevertheless, the diversion of agricultural credit to non farm activities and ignorance of credit facilities by farmers (Onyenweaku *et al*, 2010).

Table 3: Estimation of Cost and Returns for 100 Rabbits

Item	Parameter	* ₦	₦
1	Revenue		52,000
2	Variable cost		
3	Labour cost	9,500	
4	Feeding cost	16,600	
5	Total variable cost (TVC)	34,400	24,400
6	Gross margin		17,600
7	Fixed cost		
8	Depreciation of fixed asset	2,200	
9	Cost of foundation stock	4,870	
10	Total fixed cost (TFC)	7,070	
11	Total cost (TVC + TFC)	39,470	
12	Net farm income (profit) 6-10		10,530
13	Profit margin % (12 ÷ 1 x 100)		41.4%
14	Return Per investment (₦) 1 ÷ 11		1.3
15	Operating expense Ratio (%) 5 ÷ 1		66.1%

Source: Field Survey 2015

The estimated cost and returns to rabbit production enterprise with 100 matured rabbits are shown in table 3. The cost of variable inputs was ₦34, 400, while fixed cost for the average enterprise size was ₦7070 (with depreciation charge of 2,200 and cost foundation of ₦4870). The revenue from sales of matured rabbit was ₦52, 000 (100 matured rabbits X 520) and total cost of ₦39, 470. Gross margin was ₦17, 600, net farm income (profit) and the profit margin percentage was ₦10, 530 and 41.4%, respectively, the ratio of returns to total expenses (return per naira invested) was 1.3 to the enterprise. The operating cash expenses ratio was 66.1% which connoted that 66.1% of the gross revenue was used to cover the operating expenses. About 71% of the gross revenue went to farmer's equity and unpaid labour and management. The return per Naira outlay was 2.3. Using all these measures of performance rabbit production in the area was profitable

Table 4: Production Elasticity and Return to Scale

Variables	Elasticity of Production
Feed consumed	-0.041
Cost of drugs	1.052
Farm/flock size	0.043
Credit	-9.019
Water	3.052
Labour	6.002
Return to scale	1.089

Source: Field Survey, (2015)

Table 4 shows elasticity of production in rabbit production. The elasticity of production is a concept that measures the degree of responsiveness of output to changes in inputs (Onyenweaku,, et al 2010). It measures the proportionate change in output as result of a unit change in input. The estimates for the parameters of stochastic frontier production are the direct elasticity of production for the various inputs given the Cobb Douglas specification of the model. The value of the return to scale of rabbit production in Ivo Local Government Area of Ebonyi State as shown in table 16 was 1.089. This is found to be greater than unity, indicating increasing return to scale. Hence, the pig farmers in the study area were said to be operating in stage 1 (irrational stage) of production. The implication of this is that the rabbit enterprise in the study area is not yet operating at optimum scale of production. Hence, there is need for improvement such as using more variable inputs to boost rabbit production. This finding concurred with Jithendran,(2013), who posited that the actual cases of increasing returns occurred relatively at low level of output that characterized small scale farming.

Table 5 Problems Encountered by the Rabbit Farmers in the Study Area

Constraints	Frequency	Percentage (%)
Climatic Factors	8	13.3
Routine management	15	25.0
Feed and Feeding	6	10.0
Poor Housing	7	11.7
Marketing problem	5	8.3
Diseases	7	11.7
Health care	3	5.0
Marketing of products	4	6.7
Lack of extension services	2	3.4
Poor access to credit	3	5.0
Total	60	100

Source: Field Survey, (2015)

Table 5 shows that 13.3% of that respondents reported that climatic elements affected rabbit production. In the tropics, rabbit growth and development are impaired at ambient temperatures of 28.3°C and above through the disturbance of the rabbit's function. Komolafe, *et al* (2001) reported that short hair and larger ears helped the cooling process in New Zealand White rabbits. Furthermore, 25% of the sampled rabbit farmers encountered the problem of routine management operation problem. Adaku and Olukosi, (2001) reported that the

routine management operation problems encountered by rabbit farmers were problems in handling and restraining animals, care of young litters, fostering young rabbits, weaning of litters, determination of sex, cost of stocks and other materials for rearing rabbits.

Moreso, 10% of the respondents reported on diseases as a limiting factor to rabbit production in the study area. Aduku and Olukosi,(2001) reported that diseases like Infectious myxomatosis is a fatal disease transmitted by mosquitoes, biting flies and by direct contact. The disease is characterized by conjunctivitis and the animal appears listless, anorexic with high temperature. In severe outbreaks animals die within 48 hours after manifesting signs, they maintained. Also, Taiwo, et al(2009)reported that mange is also a major cause of poor production in the rabbit industry in sub Saharan Africa and caused by Sarcoptes scabiei or Notoedres cati, with pruritis and alopecia as major clinical signs. In addition, 11.7% of the respondents reported about poor housing as hindrance to rabbit production in the study area. The rabbit farmers remarked that housing problems ranged from high cost of building materials for constructing the cages, repair works on the hutches, including roofing sheets to the problem of unavailability of land needed for building the rabbit houses. These have prevented the farmers from expanding their herd size (Jithendran, 2013).

Moreover, feeds and feeding problem was encountered by 10% of the respondents The problems of feed and feeding as asserted by Morek, et al, (2011) are difficulties in cutting grasses, hay making, collecting roots, procuring grains, leaves and other feed materials, high cost of feeds and feeding especially during the dry season period. Ozor and Madukwe (2007) reported that nutrition and housing are the constraining factors in the adoption of improved rabbit technologies by small-scale farmer in Nigeria. Healthcare problem was encountered by 5% of the respondents. Such health care problems as reported by the farmers are the difficulty to procure specific drugs for specific treatments of rabbit illnesses, inability to promptly isolate sick animals and difficulty of access to veterinary services (Anochili and Obioha, 2009). Also, 8.3 %of the respondents complained about the marketing problems of rabbit as constraint to its' production. These marketing problems are difficulty in transporting rabbits to the markets, poor acceptability of rabbit meat, low prices of rabbit meat and its products and minimum sources of ready markets for rabbits and its products (Hassan and Owolabi, 2011). In fact, there is no established, state-wide marketing system, just like other livestock industries. In most cases producers must develop their own markets. Poor access to capital as a production constraint was reported by 5 % of the respondents The poor access to credit could be related to high interest and collateral as charged and demanded by leading agencies (Ume and Nwaobiala, 2012).

CONCLUSION AND RECOMMENDATIONS

Most of the rabbit farmers studied were above 30 years of age, predominantly males and educated. The determinant factors to rabbit farmers' output were rearing experience, flock size and feed consumed The major constraints to pig production in the study area were climatic factors, feed and feeding, lack of capital, problem of diseases, housing problem and marketing of rabbits. Based on the results the following recommendations were proffered;

1) There is dire need to grant credit to rabbit farmers through micro finance and commercial banks in order to boost their production.

2) The existence of viable and well-established markets is an important economic incentive for rabbit farmers. This could be achieved through prior marketing research and evaluation conducted in the feasibility and / or at design stage of the rabbit project

3) There is need to acquaint rabbit farmers with information on their production constraints including inadequate information on rabbit management, inadequate veterinary services and poor markets through seminars and workshops by appropriate government agencies and non government organizations in order to boost their productions and productivities.
(4) Rabbit multiplication centres should be created and supported to serve as breeding centres and also to serve as bases for training rabbit farmer groups on best practices in the industry.
(5) The problem of poor housing can be addressed through the design of appropriate low-cost and durable prototype housing through research using materials that are readily available in the market.
(6) Extension workers should be equipped with knowledge, skills and techniques in rabbit production to be disseminated to farmers This could lead to increase in production of the animal (rabbits) and subsequently a higher protein intake.
(7)There is need for orientation of the general public on the nutritional benefits of rabbit meat as this could enhance both the consumption and the production of this animal.

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