Costs and returns to rabbit production in Ijebu-Ode LGA, Ogun state

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Abstract

This paper investigated the economic viability of rabbit production in Ijebu-Ode LGA of Ogun State, Nigeria. A total of forty (40) small-scale rabbit farmers were purposively selected for the study and the collected data were analyzed using both descriptive statistics and budgetary analytical techniques. The results of the analyses showed that all the studied farmers were literate and they were averagely 27 years of age with mean farming experience of five years. The majority (87.5%) were part-time male farmers while other were on full-time practices. Rabbit rearing in the study area was found to be profitable with a profitability index of 0.43 and average annual net income of ₦8,792.42. The rate of return on the investment was 405.65%, 11,793.84% on fixed items and 520.23% on variable items the farm net income was estimated to be ₦8,433.90.

Keywords: Economic viability, profitability index, rabbit rearing.

Introduction

Human diets without animal protein component may be incomplete because of the enormous benefits being derived from it. Its high quality protein, for instance, is essential for a healthy growth and development. It is also good for regeneration of worn-out tissues and reproduction; (King, 1978). Eggs, cheese, milk and meat products are examples of sources of

protein. Protein deficiency in diet may cause kwashiorkor in children and disease infections and poor growth in adults (Oyenuga, 1977). Rabbit produces a cheap sources of meat that is relatively lower in cholesterol and higher in protein contents when compared with beef, chicken and pork (Beymen, 1984). Table 1):

Table 1 *Composition of the meat of Rabbit and other livestock species*

	Fat(g)	Protein (g)	Water (g)	Cholesterol (g)	Energy (kcal/g)
Rabbit	8	21	70	50	156
Beef	20	19	60	70	257
Chicken	25	17	57	80	293
Pork	32	10	37	70	508

Source: Beymen, 1984.

Many other importance of rabbit have been pointed out by several past researchers (Oyenuga, 1977 and Abdul, 1994). Mankind had immensely benefited by the products derived from rabbit rearing. But despite series of past efforts made by Nigerian Government to increase the per caput consumption of animal protein and average Nigerian still consumes less than the recommended UN/FAO minimum of 58 grammes per day (Smith, 1993).

Many potential rabbit farmers lack the required skills for effective rabbit production and therefore dread venturing into the business (Agunbiade, 1997). Inadequate supply of factors of production such as land, capital and good foundation stock are some of the problems facing rabbit business in Nigeria (Agunbiade, 1997). These and many other problems limit the production of rabbit as a livestock.

In this paper, the socio-demographic characteristics of the rabbit producers in study area were examined. The cost- return structure of the industry was estimated, the attendant problems were identified and solutions were proffered to the problems.

Materials and Methods

The data used in this study were essentially primary data collected from purposively sampled 40 rabbit producers scattered over the study area. The justification for the use of purposive sampling technique was that the selected farmers must be small scale operators rearing an average of 50 rabbits on their farms

and earn the average annual minimum net income of ₦8,000. The administered questionnaire sought information on socio-economic characteristics of the rabbit farmers, inputs used in production, output, revenue and cost levels as well as constraints to rabbit production, among others, in the study area, relevant publications, journals and other periodicals were used as sources of secondary data for this research. This study was carried out between March and July, 2001. The collected data were analysed using descriptive statistics and budgetary techniques. Frequency tables were drawn and means of quantitative characteristics were computed. The budgetary technique emphasized the costs and returns to the rabbit farming enterprise. The opportunity costs of the resources employed were determined and used as costs for fixed items. The level of profit and profitability index were estimated using gross margin and return to management (Kay, 1981) was also computed. The profitability index (PI) is the total net income (TNI) per unit of gross revenue i.e $PI = TNI/GR$ (Alimi and Odogun, 2001). The value for the gross margin (GM) was estimated by finding the difference between total revenue (TR) and the total variable cost (TVC) i.e $GM = TR - TVC$. The rate of return on investment (%) = $NI/TC \times 100\%$.

$$\text{Rate of return on fixed costs (\%)} = \frac{TR - TVC}{TFC} \times 100\%$$

$$\text{Rate of return on variable cost (\%)} =$$

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Rate of return on variable cost (%) =

$$\frac{TR - TFC}{TVC} \times 100\%$$

Farm Net Income (FNI) = TR - TC, where

FNI = Farm Net income

TR = Total Revenue

TC = Total Cost

TVC = Total variable cost

TFC = Total Fixed cost

Results and Discussion

Socio-economic characteristics of the respondents:

A summary of salient socio-economic features of rabbit farmers in Ijebu-Ode LGA of Ogun State is shown in Table 2:

Table 2 *Socio-Economic Characteristic of Rabbit farmers in Ijebu-Ode LGA, Ogun State (N = 40)*

Characteristics	Distribution (%)
Age (years)	
≤ 20	
21 ≤ 40	37.5
41 ≤ 60	45.0
> 60	15.0
Mean (years)	2.5
Educational Background	~ 27
Primary School	
Secondary School	2.5
Tertiary Institution	52.5
Mode	45.0
Marital Status	Secondary school
Married	
Single	45.0
Rabbit Farming Experience (years)	55.0
1-5	
6-10	70
11-15	27.5
Mean (years)	2.5
Sex	~ 5
Male	
Female	87.5
Type of Rabbit Farming	12.5
Part-time	
Full-time	87.5
Type of Breed of Rabbits	12.5
American Chinchilla	
Flemish Giant	18.4
New Zealand White	11.4
California White	30.7
Dutch	17.5
Estimated value of operation (N)	22.0
≤ 10,000	
10,001 - 20,000	57.0
20,001 - 30,000	32.5
> 30,000	2.5
Obtained Satisfactory farm income	7.5
Yes	
No	83.6
	16.4

Source: Survey Data, 2001.

From Table 2 below, about 83 percent of the rabbit farmers in the study area were 40 years and below. Only 2.5 percent were above 60 years of age. This implied that most of the rabbit farmers were young people and that farmers older than 60 years of age were rarely involved in rabbit farming. These rabbit farmers have the tendency to vigorously carry out production activities with the aim of increasing the farm income.

On educational background, about 55 percent of the respondents attended both primary and secondary schools while 45 percent attended tertiary institutions. This showed that all the respondents were learned and there were great potentials for rabbit farming since most of these farmers could adopt new innovations that could boost rabbit farming in the study area. About 55 percent of the respondents were shown to be single while the remaining 45 percent were married. Married farmers have the potentials of increased farm labour supply more than the single farmers (Adegeye and Dittoh, 1985)

The mean farming experience among the studied rabbit farmers was 5 years. This thus implied that rabbit farming is relatively new among the respondents in the study area (Table 2).

Most of the respondents (about 88.0 percent) were found to be males while the remaining

people were females. This thus implied that rabbit farming activities in study area were dominated by men. Similarly, about 88.0 percent of the respondents practised rabbit farming on part-time while the balance of 12.0 percent did it on full-time basis. This implied that commercial rabbit production had not flourished well in the study area (Table 2). On the type of breed of rabbits this study showed that the largest proportion (30.7 percent) were New Zealand white variety while the fewest (21.9 percent) were Dutch variety (Table 2). This implied that New Zealand variety was the most common rabbit variety reared in the study area probably because of its high prolific nature and ability to resist disease attacks. (Beymen, 1984)

Farm Budget:

Budgeting has been defined as the detailed quantitative statement of a farm plan, or a change in farm plan, and the forecast of its financial result (Adegeye and Dittoh 1985). Put succinctly, farm budget is an estimate of the financial outcome or profitability of a farm plan. The gross margin of an enterprise is the difference between the total value of production (total revenue) and the total variable cost incurred in production. It is also referred to as the income above variable expenses.

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Table 3 Annual Costs and returns to an average rabbit farmer in Ijebu-Ode LGA Ogun State

Items	Value(₦)	Cost Component as % of Total Cost
Gross Revenue (GR)	20,514	
28 Weaners sold @ ₦230 each	6440	
6 Growers sold @ ₦480 each	2880	
2 Bucks sold @ ₦502 each	1004	
2 Doe sold @ ₦610 each	1220	
39 Weaners unsold valued @ ₦230 each	8970	
Variable Costs:		
Breeding Stock (Bucks/Does)	3,900.00	33.3
Feed	1011.13	8.6
Medication	372.25	3.2
Family Labour	1128.70	9.6
Hired Labour	315.50	2.7
Repairs	930.00	7.9
Miscellaneous	308.10	2.6
Total Variable Cost	8695.68	73.4
Fixed Costs:		
Rent on Land	230.00	2.0
Depreciation on Tool/Equipment	2,884.90	24.6
Total Fixed Cost	3,114.90	26.6
Gross Margin	11,907.32	
Total Net Income (TN1)/Return to Management	8792.42	
Profitability Index (TN1/GR)	0.43	

Source: Computed from Survey Data, 2001.

Table 3 shows the results of the analysis of the costs and returns that accrued to rabbit farmers on per farmer basis in Ijebu-Ode LGA of Ogun State. The total revenue per rabbit farmer was found to be ₦20,514.00 while the total cost incurred per farmer was ₦11,720.58. Cost of purchase of foundation (breeding) stock (₦3,900.00) constituted the greatest share of the total costs representing about 33.3 percent. Estimated cost of family labour constituted 9.6 percent of the total costs while cost of purchase of feeds, repairs on housing units, interest paid on loans and medication constituted about 8.6 percent, 7.9 percent, 5.5 percent and 3.2 percent respectively. Miscellaneous costs, which

included costs incurred on water, marketing, fuel and transportation represented 2.6 percent of the total costs.

The enterprise generated revenue through the sale of weaners, growers, bucks and does at different periods. Cash generated was reinvested in the business by using it to buy feeds, drugs and so on and thus more cash income was earned. This made the capital turnover per annum to be greater than one. (Hint: The capital turnover CTO =

$$\frac{\text{Total Revenue}}{\text{Total Cost}} = \frac{20,514.0}{11,810.58} = 1.747$$

This means that for every Naira spent on rabbit farming in Ijebu-Ode LGA about ₦2.00 returned to the rabbit farmer as revenue).

The profitability index was 0.43, which thus indicated that out of every Naira earned as farm revenue about 43 kobo returning to the rabbit farmer as net income. The higher turn-over (₦20,514.00) resulted in a net income (return to

management) of ₦8792.42 per farmer per annum. This indicated therefore, that rabbit enterprise was profitable in Ijebu-Ode LGA. Most of the rabbit farmers interviewed (83.6 percent) (Table 2) expressed satisfaction with the profit level of the enterprise. This finding agreed with those of earlier researchers on rabbits (Cecchini, 1992 and Popoola 1997).

Table 4 Problems encountered by Rabbit Farmers in Ijebu-Ode LGA

Problems	%
High cost of feed	45
Lack of Pure Breeding Stock	25
Lack of awareness/education	20
Inadequate market outlets	7.5
Disease outbreak	2.5

Source Survey data, 2001.

Problems Encountered by Rabbit Farmers in Ijebu-Ode LGA.

Investigations revealed that rabbit farmers encountered a number of problems such as high cost of feeds, lack of breeding stock (pure breeds), inadequate market outlets, and lack of education about rabbit rearing, and disease outbreak with eventual high mortality rate. Majority (45 percent) of the farmers, however, considered high cost of feeds as the most limiting factors to rabbit production in Ijebu-Ode LGA. This finding thus agreed with (Akinwumi and Ikpi, 1980), who found that high cost of production inputs was the main problem plaguing livestock industry in Nigeria.

Summary and Conclusion

In this study the researchers investigated the economic viability of rabbit production in Ijebu-Ode Local Government Area, Ogun State. Both primary and secondary data were collected. Primary data were obtained from purposively sampled rabbit producers through the use of structured questionnaire and secondary data from relevant publications on rabbit production. The data were obtained were analysed using only descriptive statistics and budgetary

techniques. Results of the analyses indicated that all the respondents were literate while about 83 percent were 40 years of age and below. About 55 percent of the respondents were single while others were married. The average family experience of the rabbit farmers in the study area was 5 years and the majority (87.5 %) of these farmers were found to be part-time male rabbit farmers. Budgetary analysis showed that rabbit rearing was profitable with profitability index of 0.43 and total net income of ₦8,792.42 per farmer.

In conclusion, therefore, rabbit rearing was found to be a veritable means of generating revenue for the rabbit farmers in Ijebu-Ode LGA. With a capital turnover of 1.747 and profitability index of 0.43 much more investment in rabbit keeping is capable of bringing higher income to rabbit farmers. If appropriate policy were however put in place towards reducing the constraints facing rabbit farmers in the study area there will be a tremendous improvements in rabbit production and consumption. This eventually will enhance the nutritional value of the diets of the residents of Ijebu-Ode LGA and those of the other members of the consuming public.

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References

- Abdul, M.E.** 1994. "Research on Rabbit Production in Nigeria" *The NAPRI Experience*. Paper presented at the FACU National workshop on Recent Advances in Agricultural Technology in Nigeria.
- Adegeye, A.J and Dittoh J.S.** 1985. *Essentials of Agricultural Economics* Impact Publishers Nigeria Limited, Ibadan. Pp 120 – 123.
- Agunbiade, J.A.** 1997. Prospects of Commercial Rabbit Keeping in Nigeria. *Livestock Echo* 1 (2).
- Akinwunmi, J.A. and Ikpi, A.E.** 1980. Development in Nigerian Poultry Industry: The case of Hatchery and Feed. *Nigeria Rural Development Study Paper* No.8 pp 13-26.
- Alimi, T and Odogun, D.O.** 2001. Income and Employment generation ability of National Directorate of Employment (NDE) Poultry farming participation in Ogun State. *Nigeria Journal of Animal Production*. 28 (1) pp.89-97.
- Beymen, A.C.** 1984. Composition of Rabbit Meat. *Journal of Applied Rabbit Resources*. Volume 7 pp. 133-134.
- Cecchini, G.** 1992. *Keep your rabbit cool*. African farming food processing. Quarterly Bulletin September/ October 1992
- Kay, R.D.** 1981. *Farm Management, Planning Control, and implementation*. McGraw Hill Book Company, pp 154-156.
- King, J.O.** 1978. *The Care and Management of Farm Animal*. Bailliere Tinal, Great Britain. pp.254.
- Oyenuga, V.A.** 1977. *Nigerian's Food and Feeding Stuffs, their Chemistry and Nutritive Value*, University Press Limited, Ibadan. Pp 99 – 103.
- Popoola, O.A.** 1997. Growth performance of Rabbits fed with grass and Non-grass-like forage. Unpublished Bachelor of Agriculture Thesis. Department of Animal Production O.O.U Ago-Iwoye
- Smith, A.J.** 1993. Center for veterinary medicine, University of Edinburgh.

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