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Original Research Article

Economic Analysis and the Determinants of Pig Production in Ogun State, Nigeria

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Abstract

This study examined the economics and determinants of pig production in Ogun State, Nigeria using Obafemi Owode and Odeda Local Government in Ogun State, Nigeria where the enterprise is most prominent. The data used for the study were obtained from 60 respondents as there are very few farmers into this business in the state compared to other livestock production. Pig farmers were sampled through snowball sampling technique. The data collected were analyzed with descriptive statistics, budgetary, and Ordinary Least Square regression model. Results from the study revealed that the mean age of the respondents was 36.6 years and they were predominantly (81.7%) male. Most (68.3%) of the farmers had no access to credit with half of them married. On the cost and returns, returns on investment were positively associated with herd size, breed, and type of management system in the study area. When controlling for years of production experience and herd size, with every 1 naira increase in variable costs, the return on investment decreased by ₦0.879 ≈ $0.0044 ($P < 0.01$). Similarly, when controlling for herd size and variable costs, with every 1 year of increase in production experience, the return on investment increased by ₦1.85 ≈ $0.0092 ($P < 0.01$). When controlling for number of years of production experience and variable costs, with every 1 naira increase in cost of stock, the return on investment increased by ₦1,652.74 ≈ $8.22 ($P < 0.05$). Lastly, when controlling for number of years of production experience and variable costs, every increase of herd size of 1 pig resulted in a return on investment of ₦1, 502.14 ≈ $7.47 ($P < 0.01$). Level of pig production experience, herd size, variable costs items, cost of stock, and access to credit had significant influence on the production of pig in the study area. The study therefore recommends subsidization of input costs, the need for extension officers or experts to educate less experienced farmers on pig production and effective extension services targeted at raising technical knowledge of pig farmers towards effective productivity and profitability.

Keywords: Pig production; economic analysis; socio-economics; costs and returns.

INTRODUCTION

Agriculture is an important sector providing employment for the majority of Nigerians and is responsible for more than one-third of the total gross domestic product (GDP) and labour force (FAO, 2003; Adetunji and Adeyemo, 2012; FinIntell, 2013). The livestock sub-sector is also crucial to the national economy as it is the main supplier of the highly essential animal protein (Okuneye, 2002; Ogbu, 2010). The livestock sub-sector provides 53% (about 35 grams out of 65–72 grams) daily protein intake needed by an individual in Nigeria. Despite that, the country is still inadequate in provision of animal protein to meet the recommended intake level (Omotosho, 2004; Inyang et al., 2014; Onyono, 2015). In the light of this, Nigerian governments have been pursuing programs at national, state and community levels to boost the mass production of food and livestock (Ogbu, 2010; ProCon, 2012). Some of the programs include the farm settlement scheme, agricultural development project (ADP), better life program, and microcredit scheme for livestock parent/foundation stock.

Pig (*Sus scrofa*) is a domestic animal and common animal from the family *Suidae* and order *Artiodactayla* (Adetunji and Adeyemo, 2011). Pigs are the most important domestic animals in Nigeria (Ugbomoiko et al., 2008), not only by the number of farmers rearing it, but also on its economic value (Osondu et al., 2014). Pigs are major important non-ruminant animals reared in the derived savannah (also called open parkland with only few fire tolerant trees) and rain forest zones of Nigeria (Rahman et al., 2008). 'Pig production alongside with poultry production is the fastest growing livestock sector in the world' (FAO, 2012a). The growth in the sector occurs mostly in developing nations and is in either stable or declining position in the transition nations (FAO, 2001; Olarinde et al., 2013). Pig has been included in the diet of Nigerians for decades. It started at small scale level of production and gradually emanated to a more important livestock. Pig production provides

raw materials for agro-based industries (Babatunde and Fetuga, 1990; Tewe and Adesehinwa, 2005; Young, 2005; Okoli, 2008). The skin and hoof of the pig serve as raw materials for agro-based industries.

Pig production is advancing in the societies that are shifting from ruminant to monogastric livestock production due to increasing demand for the animal (like pigs), the by-product (such as pork from pigs), shorter life-cycle with higher returns rates as compared to other livestock such as goat and sheep together with high feed efficiency (Adetunji and Adeyemo, 2011; Ogunniyi and Omoteso, 2011). Pigs are not easy to handle, they need some technical know-how by farmers and their annual growth rate (3.8 percent) in terms of population is more than that of human population (2.3–2.8 percent) (Shaibu et al., 1997). Pigs have been noted for high conversion of feed to flesh among other red meat animals (FAO, 2012b; Ironkwe and Amefule, 2008; Ikani and Dafwang, 1995).

The importance of pigs in the livestock industry in Nigeria cannot be underestimated. Although pigs make up to 4 percent of the total domestic animals in Nigeria, their unique adaptive characteristics to survive in whatever areas they are found give them an edge over other animals (Ajala et al., 2007). According to Ogunniyi and Omoteso (2011), pig production plays a vital role in small scale farming far beyond pork production and income generation. The animal is an asset of wealth or safety net in time of crisis when viewed from the economic perspective and serve as source of protein nutritionally (FAO, 2012b). Swine production contributes significantly to the livelihood of many Nigerians either directly or indirectly (Ajala and Osuhor, 2004; FAO, 2006) with different categories of people involved utilizing varied management techniques. However, the population of pigs in a particular region or locality depends on factors like climate, social and religious beliefs (Ajala, 2007; Ogunniyi and Omoteso, 2011). Also, pigs are omnivorous animals that compete with people for food. However, they are very good utilizers of household waste and by-products.

Despite the increasing growth of human population in Nigeria over years, animal protein consumption has relatively reduced and has become worsened in the past few years (Ezeibe, 2010). The lack or insufficient supply of animal protein resulting in protein malnutrition is a major problem coupled with the challenge of feeding (Adeleke et al., 2005). Animal is proven to be the main source of protein in Nigeria (Ajala et al., 2007), besides that, the livestock production in Nigeria is not encouraging (Adesehinwa et al., 2003; Adesehinwa, 2007). Among the observed animal proteins in Nigeria, pork is one of the fastest means of increasing animal protein. It is relatively easy to set-up an intensive pig production in developing countries for example, Nigeria; if capitals are readily available with assurance of adequate feed supplies. Pig production cannot yield maximum profit unless right structures are put in place to understand the economic, physical, social and religious factors operating to determine effective production (Bawa et al., 2004; Adetunji, 2012; Abiola et al., 2015).

Pig production in Nigeria has not been able to meet the consumption demand of the consumers. Pig farming is a potential protein deficit gap-filler and many agri-business investors are heavily investing in the enterprise. There is fast growing rate of pig's products consumption in Nigeria (Abiola et al., 2015), even with that, the country's demand has not been met via local production but is augmented by importation (Ajala, 2007). It is therefore crucial to address the need for more small-scale farmers (and even large scale farmers) in pig enterprise in Ogun State as their dominance in livestock production have contributed immensely to the increased production rate in the area (Bamiro, 2008). Therefore, this research was planned with the aim of detecting the profitability of pig enterprise. Positive yields of the venture could facilitate the increased supply of pigs by agricultural households to bridge the existing gap between production and consumption. The main objective of the study was therefore to investigate if there is any significant relationship between production costs and returns to pig farmers in Ogun State, Nigeria. The study specifically described the socio-economic characteristics of pig farmers, determined the factors affecting pig production and analyzed costs and returns to pig production by production sizes (herd size) and management systems.

Hypothesis

The only hypothesis tested in this study is stated thus:

Null hypothesis (H_0): There is no significant relationship between pig production's costs and returns to the farmers.

MATERIALS AND METHODS

Description of the study area

This study was carried out in two Local Government Areas of Ogun State, Nigeria. Ogun State is one of the six states that made up the Southwest Nigeria. It is located between latitudes 7°3.5′ and 9°12′ north and longitudes 3°35′ and 5°27′ east with the population of 3,751,140 and area of 16,980.55 km^2 (NPC, 2006). The maximum and minimum temperature is 37° and 26° while the maximum rainfall is 111 mm (Weather 2, 2017).The primary occupation in the study area is agriculture which comprises the cultivation of crops and rearing of animals. The predominant crops grown in Ogun State are cassava and rice. The state is also known for rearing pigs, catfish and chicken.

Sampling procedure

The population of this study comprises pig producing farmers in the area. Odeda Local Government and Obafemi Owode Local Government areas were purposively selected because pig production is concentrated in these areas within the state. Snowball sampling technique was employed to get 60 pig producing farmers in the study areas because the target population was difficult to locate.

Methods of data collection and analysis

Primary data were collected from the farmers through a paper type questionnaire complemented by interview. The interview was conducted in English (see a copy of the interview guide in Appendix 1) and in some cases, questions were interpreted in respondent's local language for their understanding. During the course of this study, several precautions were taken to ensure the protection of the rights of respondents to the questionnaire and interview. No questionnaire administration or interview began without receipt of informed consent from each respondent. The researchers assessed the respondents' ability to make autonomous decisions through a conversation in their own local language and ensured that they expressed understanding of informed consent before interviews were conducted. To avoid respondents' bias, no payments or compensations were offered to the participants. Participants were informed about the potential benefits of the study which served as motivational driver for respondents' participation in the survey. None of the pig farmers declined participation. Three copies of the draft questionnaire were first administered to pig farmers located outside the study areas to validate the questions. Copies of validated questionnaire were thereafter administered to the owners/manager of pig farms by the researchers (three in number) themselves. In cases where both husband and wife were involved in the pig farming only one of them was interviewed and the interview was done at their farms to ensure that the right farmers were interviewed. A total of five pig farmers were interviewed per day by each of the researcher. In four days (January 12–15, 2016), a total number of 60 respondents were interviewed.

The data collected were analyzed with descriptive statistics (frequency, percentages and mean), budgetary analysis and regression analysis using STATA 13 Special Edition, 4905 Lakeway Drive College Station, Texas 77845 United States of America.

Budgetary analysis

This technique was used to estimate the profit level that can be generated from the enterprise. This is stated in equation 1

Profit (Net Returns) = Total Revenue (TR) – Total Cost (TC) (1)

Where:
Total Revenue (TR) = Output (Q) X Unit price (P)
Total Cost (TC) = Total Variable Cost (TVC) + Total Fixed Cost (TFC)
Gross Margin = Total Revenue (TR) – Total Variable Cost (TVC)
Gross Income (Net Profit) = Gross Margin (GM) – Total Fixed Cost (TFC)

Profitability

This is a measure of the performance of the pig enterprise. It was estimated using the returns to investment as stated in equation 2

$$\text{Returns on Investment (ROI)} = \frac{\text{Net Returns}}{\text{Total Cost}} \quad (2)$$

ROI is the amount of money that would be generated on a naira or dollar invested in business. A naira exchanged for 0.00497 USD at the time of survey in the study areas. The higher the rate of return, the more profitable an enterprise is.

Regression model

The ordinary least square linear regression model was adopted for use in this study. The model for the regression analysis is specified in equation 3:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \mu_i \quad (3)$$

Where:
Y ..... Revenue to pig producer (in Naira)
X_1 ..... Age of the farmers (in years)
X_2 ..... Years of production experience (in years)
X_3 ..... Household size (Number)
X_4 ..... Years of education (in years)
X_5 ..... Herd size (Number)
X_6 ..... Variable cost ((feed, labour, drugs and vaccines, processing and cost of transportation) (in Naira))
X_7 ..... Cost of stock (in Naira)
X_8 ..... Access to credit (if yes=1, otherwise, 0)
β_0 ..... Constant
$\beta_1 - \beta_8$ .... parameter estimates
μ ..... Error term

RESULTS AND DISCUSSION

The descriptive analysis of the farmers' socio-economic characteristics is summarized in Table 1. The mean age of the respondents was 36.6 years. This implies most of the pig farmers are within the economically active age for optimum productivity. This is also an indication that a good number of pig farmers in the study area are still within their active age. This is as a result of the demands of the enterprise. This finding is in consonance with those of Durno and Stuart (2005) who stated that the risk bearing abilities and innovativeness of a farmer, his mental capacity to cope with the daily challenges and demands of farming

Table 1. Socio-economic distribution of respondents

Variables	Frequency	Percentage (%)
Age of farmers in Years		
≤30	11	18.3
31–40	21	35.0
41–50	10	16.7
51–60	10	16.7
>60	8	13.3
Total	**60**	**100.0**
Sex of respondents		
Male	49	81.7
Female	11	18.3
Total	**60**	**100.0**
Marital Status		
Single	28	46.7
Married	30	50.0
Divorced	2	3.3
Total	**60**	**100.0**
Level of Education		
Secondary education	13	21.7
Tertiary education	47	78.3
Total	**60**	**100.0**
Religion		
Christianity	40	66.7
Islam	20	33.3
Total	**60**	**100.0**
Years of experience		
≤5	20	33.3
6–10	29	48.3
≥10	11	18.3
Total	**60**	**100.0**
Household size		
≤3	6	10.0
4–6	26	43.3
7–9	21	35.0
≥10	7	11.7
Total	**60**	**100.0**
Herd size (number of pigs)		
≤10	12	20.0
11–20	27	45.0
21–30	5	8.3
31–40	7	11.7
41–50	4	6.7
≥ 60	5	8.3
Total	**60**	**100.0**
Access to credit		
Yes	19	31.67
No	41	68.33
Total	**60**	**100.0**

Table 2. Cost and returns (average values) of pig production

	Herd Size			Management System (Pig per annum)	
	1–20 pigs	**21–50 pigs**	**51–80 pigs**	**Semi–Intensive[1]**	**Intensive[2]**
Revenue (₦)	500,000 ($2,485)	1,200,000 ($5,964)	2,100,000 ($10,437)	970,000 ($4,821)	2,830,000 ($14,065)
Variable Cost (₦):					
Stock purchase	15,000 ($75)	50,000 ($249)	75,000 ($373)	38,400 ($191)	101,600 ($505)
Feeding	250,000 ($1,243)	589,000 ($2,927)	980,125 ($4,871)	540,350 ($2,686)	1,278,775 ($6,356)
Vaccination & drugs	10,000 ($50)	32,000 ($159)	65,000 ($323)	28,000 ($139)	79,000 ($393)
Labour	36,000 ($179)	84,000 ($417)	165,000 ($820)	73,200 ($364)	211,800 ($1,053)
Transportation	12,000 ($60)	39,000 ($194)	81,000 ($403)	40,000 ($199)	92,000 ($457)
Water	36,000 ($179)	100,000 ($497)	204,000 ($1,014)	102,000 ($507)	260,000 ($1,292)
Miscellaneous	2,000 ($10)	5,000 ($25)	12,000 ($60)	5,700 ($28)	12,300 ($61)
Total Variable Cost	361,000 ($1,794)	899,000 ($4,468)	1,582,125 ($7,863)	852,638 ($4,238)	2,035,475 ($10,116)
Fixed Cost (₦):					
Pen	50,000 ($249)	65,000 ($323)	75,000 ($373)	50,600 ($251)	139,400 ($693)
Land	3,000 ($15)	3,000 ($15)	3,000 ($15)	3,000 ($15)	6,000 ($30)
Equipment	5,000 ($25)	7,000 ($35)	10,000 ($50)	8,400 ($42)	13,600 ($68)
Total Fixed Cost (₦)	58,000 ($288)	75,000 ($373)	88,000 ($437)	62,000 ($308)	159,000 ($790)
Total Cost (₦)	419,000 ($2,082)	974,000 ($4,841)	1,670,125 ($8,301)	868,650 ($4,317)	2,194,475 ($10,907)
Gross Margin (₦)	139,000 ($691)	301,000 ($1,496)	517,875 ($2,574)	163,350 ($812)	794,525 ($3,949)
Net Profit (₦)	81,000 ($403)	226,000 ($1,123)	429,875 ($2,136)	101,350 ($504)	635,525 ($3,159)
Returns on Investment (ROI)	0.19	0.23	0.26	0.12	0.29

Note: ₦1 ≈ 0.00497USD as at January 2016 when the data was collected

[1] Semi-intensive system usually allows for keeping the breeding herd outside in fenced enclosures, but the piglets are kept inside houses in pens. In this system, the animals are restricted to a limited area and therefore the farmer takes the whole responsibility of feeding them. Housing is mainly of very simple construction and made from simple and inexpensive materials like mud, bamboo and elevated thatched roof. The animals are fed on kitchen wastes and food by-product.

[2] Intensive system of producing pigs involves keeping the pigs in a restricted area and providing all feed and water. This is the method of pig production under which economic considerations are sole determinant of herd size. Adequate shade, pen space, feed and water facilities are provided to meet requirements of the pigs (Tegbe et al., 1995; Osondu et al.,2014)

business decreases with advancing age (Durno and Stuart, 2005). Although the results have shown that pig farming is mostly carried out by males (81.7%) probably because of the ability of men to handle the stress involved in with pig farming. This result is in line with the report by Osondu et al. (2014). Males have always been highly involved in pig production in the study area. The study reveals that 46.7% of the respondents in the study area are single, 50% are married while 3.3% are divorced. Average percentages (50%) of married respondents do not conform to the study carried out by Ogunniyi and Omoteso (2011) that majority of the adult population of a society consists of married people. It can be observed from Table 1 that 21.7% of the respondents have secondary education while 78.3% have tertiary education, implying that all the respondents have formal education which is a factor that will likely contribute to high returns to their production level. Also, producers in the study area should be able to adopt new production technologies. The study also reveals that 66.7% of the respondents are Christians, while 33.3% are practice Islamic religion. The result implies more Christians are into the production of pigs, however, a considerable number of Muslims are into pig farming as against their religious tolerance and belief.

The average years of experience in pig production by the respondent was 6.7 years. This implies that most of the respondents were experienced pig farmers. This also suggests positive implication for increased productivity and sustainability because the number of years a farmer spent in pig production business may give an indication of the practical knowledge he had acquired on how to overcome certain inherent problems in pig production (Okolo, 2007). The result reveals that 10% of the respondents have less than 3 members in their household, 43.3% have household size within 4–6, 35% have a household size within 7–9 and 11.7% have 10 and more members in their households. Most of the sampled pig producing household size fell within 4 and 6; this may translate to higher use of family labor for pig production. The average herd size was 22.9 pigs; 20% produced less than 10 pigs, 45% produced between 11 and 20 pigs, 8.3% produced between 21 and 30 pigs while 8.3% produced 60 pigs and above. The result obtained shows that most of the respondents are medium scale farmers. According to Megersa et al. (2011), farms can be classified according to herd size

Table 3. Estimates of factors that affect the returns to pig production

Variables	Coefficient	t-value
Constant	207478.22	0.751
Age of farmers in years	–5242.152	–1.374
Years of Production Experience	1.845***	3.922
Household size (number)	12784.89	1.263
Years of Education	9015.233	1.831
Herd size (number of pigs)	1502.141***	3.028
Variable cost (₦)	–0.879***	–4.350
Cost of stock (₦)	1652.741**	2.815
Access to credit (dummy)	46622.124**	2.512
R^2	0.721	
Adj. R^2	0.643	
F	10.026	

Note: (**) and (***) denote significant level of 5% and 1%, respectively

and level of production into smallholder farm (less than 10 animals), medium farms (10 to 50 animals) and large farms with more than 50 animals.

Table 1 further shows the frequency distribution of the respondents according to access to credit. The data show that 68.3% of the respondents were not beneficiary of any agricultural or production credit. Only 31.7% benefit from agricultural credit. Inadequate capital is a major constraint confronting small-scale enterprises including farmers in Nigeria (Osondu et al., 2014). However, lack of access to credit incapacitates the purchase of raw materials and other enterprise inputs. Meanwhile, access to credit is regarded as one of the crucial elements in elevating agricultural productivity (Anyiro and Oriaku, 2011).

Table 2 presents the results of pig production by size, and management system using the standard enterprise budget format. Cost and returns analysis showed that the interviewed farmers having 1–20 pigs made ₦81,000 ≈ 402.91, those having 21–50 pigs made ₦226,000 ≈ $1,124.15 while the farmer that reared 51–80 pigs made ₦429,875 ≈ $2,138.26 profits in the previous year of pig production. The study also revealed that the pig farmers operating under semi-intensive and intensive system of management made a profit of ₦101,350 ≈ $502.13 and ₦635,525 ≈ $3,161.19, respectively.

It was observed that the Returns on Investment (ROI) increased gradually as the herd size increased. The ROI for farmers having 1–20 animals was 0.19. This means on every ₦1 invested in the business, the farmer makes a profit of 19 kobo ≈ $0.00094. Farmers with herd size of 21–50 animals had ROI of 0.23, while those having 51–80 animals almost 0.26. This steady increase in ROI can be easily rationalized as the results of economics of scale. The more animals the farmers have, the higher the rate of returns. Unfortunately, many of the farmers have relatively small herd size of 1–20 animals. Also, farmers using the intensive management system had ROI of 0.12 while semi-intensive management system had ROI of 0.29. This is expected since intensive management involved more intricate management of the animals leading to higher yields and faster growth rate.

Table 3 shows the result of multiple regression analysis on the factors that influence profitability of pig production in the study area. Out of all the functional forms estimated (linear, Cobb-Douglass, semi-log), the linear functional form was the best and more adequate in estimating and explaining the variations in the profitability equation of pig production in the study area. As shown in Table 3, the coefficient of multiple determinations (R^2) indicated that 72.1 percent of the total variations in the dependent variable (Revenue) were explained by its associations with the independent variables. The F-value was 10.026 and significant at 1%. This implies that the null hypothesis should be rejected and accepts the alternative hypothesis. Therefore, there exist a significant relationship between the returns (revenue) to pig produced and the production costs. Also, other statistical and econometric considerations such as the number of significant coefficients and the a priori expectations were in favour of the linear functional form. The results revealed that, five variables out of the estimated seven were found to be statistically significant with respect to the returns to pig farmers in the study area.

The coefficient (1652.741) of stocking cost was positive and statistically significant at 5%. This implies that this variable has negative influence on the revenue generated on pig production in the study area. This finding is at variance with a priori expectation though it may suggest need for efficiency in terms of expansion and as a necessary requisite that could increase chances of increasing the revenue.

The coefficient of variable cost (-0.879) was negative and statistically significant at 1.0% probability level. The sign is in accordance with a priori expectation.

This implies that the higher the price of the variable costs, the lower revenue from pigs. This result supports the findings of Nwaru and Ekumankama (2002) and Osondu et al. (2014) who state that as the input prices increase, the level of revenue by farmers reduces. The coefficients of production experience (1.85) and herd size (1502.14) had positive influence on the farmers' revenue (meaning that a unit increase in each of these variables leads to an increase in the returns by a magnitude of the coefficient). This suggests that the revenue generated from the sales of pigs would increase as the production experience and herd size increase. This result is in consonance with Duniya et al. (2013) where similar result was obtained in a study carried out on measurement of Pig production profitability in Zangon Kataf and Jema'a Local Government Areas of Kaduna State, Nigeria. The coefficient of access to credit (46622.124) was positive and significant at 5% probability level. The result implies that the more pig farmers have access to credit, the higher the level of their output and revenue generated. Although this finding was found to be contrary to that of Osondu et al. (2014), institutional credit should be made available for the smaller holder farmers in Nigeria. Providing pig farmers with greater credit access will lead to expansion of the enterprise in line with Jabbar and Akter (2008).

CONCLUSION AND RECOMMENDATIONS

The study estimated the economic benefit/loss of pig production in Ogun State. The regression result revealed that, stocking cost, variable cost, production experience, herd size and access to credit, were significant factors that affected the returns to pig production in the study area. From the cost and return analysis, it was revealed that pig enterprise is a profitable enterprise that should be encouraged and embarked upon. We concluded from the results that there is a significant relationship between the cost of pig production and returns to pig farmers in the study area. Also, pig farming in the study area is largely at the semi-intensive level of management.

Based on the findings of this study, the following recommendations were made: feed cost (which took the larger percentage of the variable cost) should be curtailed through the process of substituting feed with locally available by-products like banana, maize residues, sugar cane residues, cassava, fish waste, over-ripe fruits and the likes. These can be used as supplements with small quantities of protein concentrates. Policies that would guarantee adequate access to credit facilities by the pig farmers are strongly advocated. This will ensure that the farmers have enough resources for expansion. Also, pig farmers are encouraged to cohort together as cooperative societies in their locality to bridge the gap of non-accessibility to formal credit for them to have sufficient resources for expansion. Government should try to subsidize the cost of production of pig in the study area in order to increase the level of returns, and make the business more attractive to people. Furthermore, directional and effective extension services targeted at raising technical knowledge of pig farmers towards effective revenue generation is advocated.

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APPENDIX 1

Interview Guide for the Pig Farmers

Section A: General Questions

1. Name of Farm/Farmer.....
2. Phone Number.....
3. Location of Farm.....
4. Age.....(year)
5. Sex: male ( ), female ( )
6. Main occupation..... Secondary occupation.....
7. Marital status: Single ( ), Married ( ), Divorced ( ), Widow ( ),Widower ( )
8. Family size (if not single): number of wife (vies) ( ), number of male children ( ), number of female children ( ), Other dependent staying with you ( )
9. Number of years spent in school.....
10. Highest level of education attained: .....
11. Religion: Christianity ( ), Islam ( ), Traditional ( )

Section B: Production Practices and Experience

12. How long have you been in the business of pig production?.....
13. What is your farm size? (m^2).....
14. No. of animals (pig): Male ( ), Female ( ), Piglet ( )
15. Which type of labour do you use? Family ( ), Personal ( ), Hired ( ).
16. Where do you get your stock from? Research farm ( ), Friend ( ), Other farm ( ).
17. How often do you stock in a year? .....
18. What type of feeding stuff do you use? Concentrate ( ), Formulated feed ( ), Others ( )
19. What biosecurity method do you adopt? Chemical control ( ), Biological control ( ) manual control ( ), others.....
20. How do the extension services reach out to you? Media ( ), group ( ), mass ( ) Other ()
21. What method of marketing do you use? Wholesale ( ), Retail ( ), Home delivery ( ), Other ( ).
22. What type of housing is available to you? Concrete ( ), Wooden ( ), Metal ( ), others ( ).
23. What are the tools and equipment used on your farm (Pig farm)? ..... What is your source of funds? Personal savings ( ), family friends ( ), Cooperative societies ( ), Loan from commercial banks ( ). Money lenders ( ), Others ( ).
24. If loan, what is the interest rate? .....
25. In what form do you sell your products? Adult whole pig ( ), dressed pig (), in parts ( ) Others ( ).

26. How do you manage the bye product/faeces? .....
27. Is there any ready market for your products?.....
28. How do you source your water? (a) Stream ( ) (b) Purchase of water ( ) (c) Personal borehole/well ( ) (d) Government supplies ( )

Section C: Cost and Returns

29. Fixed Cost

S/N	Items	Unit Possessed	Cost Per Unit (₦)	Years of Useful Life
A.	Pen			
B.	Farrowing Crate			
C.	Estimated Cost of Land/Rent			
D.	Cost of Equipment Used on Farm/Rent			
E.	Borehole			

30. Variable Cost

S/N	Items	Amount/Number Utilized Per Month	Cost Per Unit (₦)
A.	Pig/Piglet Stock		
B.	Feeding		
C.	Vaccination And Drug/ Vertinary Service		
D.	Labour (I) Casual Labour (Ii) Permanent Labour		
E.	Cost of Transportation		
F.	Water		
G.	Others		
H.	Processing(If Applicable)		

31. Revenue

	Items	Number Sold Per Month	Price Per Unit
A.	Mature Boar		
B.	Mature Sow		
C.	Young Boar (Less Than 10 Weeks)		
D.	Young Sow (Greater Than 10 Weeks)		
E.	Piglet (Less Than 9 Weeks)		
F.	Litters (Waste Product)		
G.	Others		

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