PERCEIVED IMPACT OF PIG FARMING TECHNOLOGY ON FEMALE FARMERS IN IMO STATE, NIGERIA

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Abstract

The study examined the perceived impact of adopting pig production technology on female farmers. Primary data were collected from 73 adopters from the three (3) agricultural zones of the Imo state with the aid of structured questionnaire. Random sampling and purposive sampling technique were adopted. Frequencies, percentages, classical adoption model and t-test were employed to answer research questions while multiple regression models were used to taste hypotheses. Approximately 58% of the farmers were married to one husband living in the city while 27% of farmers were widows. There is positive significant relationship between respondents' socioeconomic characteristics and their level of adoption of pig farming technology (R^2=0.544, F-ratio =12.543). The study revealed significant increase in the income of the farmers which resulted to improved social well-being. However, their major constraints were cost of feed and improved breed. Therefore, recommends establishment of institutional loan scheme to promote pig production. There is need to improve farmers access to credit facility and improve their access to new breed and feed for their stock in order to encourage piggery entrepreneurship in the study area. Furthermore, government and stakeholders should drive a sensitization programme that will encourage the citizens to consume pork meat to meet up with their daily protein requirements. By so doing, more farmers will be encouraged to go into piggery production.

Key words: perceived impact, female-headed household farmer, adoption and Local.

Pig as mostly found in the rural areas are variously referred to be a native scavenging, indigenous, and local or village pigs (Swine). These are terms used to distinguish them from the more exotic breeds reared under Intensive, commercial production systems. The scar verging pig has always been described as animal, an object of distaste. When kept under well-managed confounded condition, the pig is the opposite of the above description (Mpofu and Makuza, 2003). The Pigs has some advantages over all the animals to multiply extensively, to combat protein shortages (Oguniyi and Omoteso, 2011). In addition, local Pigs are well adapted to tropical conditions as they are adapted to local production conditions and environments. They are also susceptible to common disease and parasites. They have the ability to survive long period of feed and water deprivation (Drucker and Anderson, 2004) compare to exotic breed.

In Nigeria, consumption of animal protein plays an important role in the food supply for the human society. This is as a result of relatively high content of essential amino acid in these types of protein as compared to proteins of plant origin which contain mostly lower amount of essential amino acid (Adebayo, 2003). In the southern Nigeria, the production and consumption of pork meat for our daily dietary requirement have not been fully exploited. Studies have revealed that Nigeria produces more of beef and poultry products than pork (Ogar, 2017); although, commercial Pig production has been existing but has not grown significantly overtime. Lekule and Kyvguard (2003) stated that experiences from Africa shows that intensive Pig farming is stagnant and the sustainability of the traditional is better than that of the intensive sector. Traditionally livestock disease remains a veritable threat to the animal production industry mean while animal products are constantly under threat by disease that affect livestock and reduce productivity (MacRae et al.2005). Ogunfowora *et al* (1980) stated that studies on Pig industries seem to reveal that the initial enthusiasm in the enterprises especially Pig production is being constrained due to dwindling profit margins. The decline in livestock growth rate of livestock population in Nigeria from 7.6% in 1990 to 1.9% in 1994 was as a result of poor management as well as inadequate supply of feed, water, warm infestation, good health, management, veterinary services, and housing, waste disposal e.t.c(Igwe, et al 2013 .) Agbada (1991) in a study revealed that the neglect or slow growth of pig industry can attribute to acceptable and management problems. The management problems include disease out brake, feed efficiency and high cost of feed stuff, which comes as a result of lack of knowledge (Omaga, 2004).

In order to achieve increase livestock productivity ADP extension service has continuously introduced management interventions practices to small-scale farmers for mitigating these challenges. However, some women farmers have adopted pig management intervention practices disseminated by ADP to boost their productivity. The management intervention practices include housing, feed supplementation, vaccination, intensive rearing system.

In most south-eastern states of Nigeria farming activities are dominated by women and children. According to Rahman and Haruna (1999) women make a significant contribution to food production; they provide 60-80% of agricultural labour and are responsible for 80% of food production. Though, socio-economic and political obstacles have for long been intensifying gender inequality and exacerbating poverty among women (Mgbada, 2002 & Rahman, 2004)

Objectives of the Study

The study was carried out to examine the perceived impact of adoption of Pig production technology in the areas of Imo State, Nigeria; while specific objectives were to:
1) identify the respondents' sources of information on Pig production technology.
2) determine the respondents' level of adoption of Pig production technology.
3) identify the respondents' socioeconomic characteristics influencing their level of adoption of Pig production technology
4) identify the effect of adopting pig production technology as perceived by the respondents'

Hypotheses of the Study
1) Age, household size, farming experience, cost of feed are negatively related to Y (level of adoption) of Pig production technology.
2) Level of education, size of stock produced, membership of cooperative society and income are positively related to Y (level of adoption) of Pig production technology.
3) There is no significant difference between the present income of adopters and before adoption of pig production technologies.

Methodology

The research took place in the three agricultural zones of Imo state, Nigeria. Imo state is situated in southeastern part of Nigeria. The State covers an area of 4,200square kilometers with a population of 1,150,000 people (NPC, 2007). The target population of the study constituted the rural female-headed household farmers in the three agricultural zones of Imo State. This study employed multi-stage random sampling of 75 adopters and 69 non adopters. The sampling procedure was as follows, three agricultural zones, followed by random selection of the blocks, circles, and sub-circle farmers.
Stages involved in the selection of sample size.
Stage 1: All the three agricultural zones in the state (Orlu, Owerri and Okigwe) were used.
Stage 2: Simple random selection of 1block per zone (3blocks for the 3zones)
Stage 3: Simple random selection of 3circles per block (9circles for the 3blocks)

Stage 4: Simple random selection of 3sub-circles per circle (27sub-circles for the 3blocks)

Stage 5: Simple random selections of 81 adopters were selected. Out of the 81 copies of questionnaire were distributed with the help of extension agents serving in the three (3) agricultural zones of the state and community women leaders. The extension agents administered copies of questionnaire to contact farmers. Seventy-three (73) copies of questionnaire were returned with information needed for the study.

A Likert –type scale of 1-6 the classical adoption model was adopted to determine adoption score as follows: 1- unaware, 2- awareness, 3- interest, 4- evaluation, 5- trial, and 6 - adoption. The scale multiplied the number of respondents at each stage and the values added to obtain the total adoption score for the technology. The mean adoption score was computed by dividing each adoption score by the number of respondents. Influence of socio-economic characteristics of the respondents on their level of adoption of Pig production technology, was analyzed using regression models and lead equation based on the value of R^2, F-statistics and the conformity of the signs of coefficient to a priori expectation was chosen. The explicit of one functional form was chosen which the Linear is, Specification; Linear- $Y = Bo + B_1 X_1 + B_2 X_2 + \text{------------} + U$ The following are the a priori expectation with regard to the estimated regression. The equation on level of adoption was stated as follows:
$Y = f (X_1, X_2, X_3 \ldots \ldots \ldots \ldots \ldots X_8 + e) \ldots (u)$, Where: Y = Level of adoption

Results and Discussion

Table 1: selected socio-economic characteristics of the Female farmers' reveals that the mean age was 38 years. This is an indication of high proportion of middle-aged women in the study area implying that the middle aged women are more concentrated on agricultural activities than the youths. Similarly, the mean household size was approximately 4. This means that respondents had a ready source of labour and family responsibility. Again, 57.53 percent of the farmers were married to one husband living in the cities respectively.

Approximately, 28percent of the farmers were widows. Only 10 had no formal education. This result shows that majority of the farmers are literate. This implies that education is an effective factor for adoption since it helps farmers to readily acquire and use information efficiently. Furthermore, the respondents were dominated by farmers, (24%) of them had farming as their primary occupations compared to 41.10% of them had farming as their secondary occupation. The result further revealed that the mean years of farming experience of the farmer was approximately 24 years. The study reveals that adopters of Pig production technology realized a mean income of N19, 027.39k per annum. This is indication that the majority of the respondents can be described as low income earners. It also, revealed that women make more money after the adoption of management intervention of pig farming technology.

Table 1: Socio-economic Characteristics of Respondents

Variables	Adopters Frequency	%
Age Range		
25-30	17	23.29
31-45	39	53.42
46-50	17	23.29
Total	**73**	**100.00**
Mean Age	38year	
Household Size		
1-4	22	30.14
5-8	48	65.75
9-12	3	4.11
13-15	-	-
Total	**73**	**100.00**
Mean (x) Household	4	
Marital status		
Married (Monogamy) with husband living in cities	42	57.53
Widowed	20	27.40
Married (Polygamy)	11	15.07
Total	**73**	**100.00**
Level of formal education		
No formal education	8	10.96
Primary education	41	56.16
Secondary education	12	16.44
O.N.D	10	13.70
B. SC	2	2.74
TOTAL	**73**	**100.00**
Primary occupation		
Farming	30	39.73
Civil service	14	19.18
Trading	29	41.10
Total	**73**	**100.00**
Years of Experience		
1-5	25	34.25
6-10	27	36.99
11-15	10	13.70
16-20	11	15.07
TOTAL	**73**	**100.00**
Mean years of experience	24 years	
Annual Income (N)		
81,000.00-120,000.00	-	-
121,000.00-160,000.00	-	-
161,000.00-200,000.00	7	5.11
201,000.00-240,000.00	13	9.49
241,000.00-280,000.00	19	13.87
281,000.00-290,000.00	34	24.82
TOTAL	**73**	**100.00**
Mean Income (N)	N19, 027.397k.	

Source: Field Survey, 2009

Table 2: Calculation in the table 2 reveals that piggery has mean adoption score (X= 4.99). Investigation during the survey revealed that, there is a high demand for pig meat (pork meat) in the market; also they have ability to resist disease/ infection, though the application of modern technology is expensive. The women blamed the non-adoption of

the technology on the scarcity of land and capital to practice pig production technology. This is in line with Ekong (2003) was of the opinion that innovations that are simple in nature, divisible for trial and compatible with previous experience may have shorter adoption period. Farmers readily adopt /accept innovations that satisfy their needs and expectations.

Table 2: Distribution of respondents according to level of adoption of pig farming technology.

Technology	Not aware (1)	Aware (2)	Interest (3)	Evaluation (4)	Trial (5)	Adoption (6)	Total adoption score	Mean adoption score
Piggery	4	8	15	4	6	73	549	4.99

Source: Field survey

Table 3: Regression result on factors in the linear functional form was chosen to determine the factors that influence the adoption of pig production technology by the respondents. The choice of linear regression model was based on the number of technologies under study. The result shows that R^2 (Coefficient of linear multiple determination) is 0.544 indicating that variations in the explanatory variables in the model explain 54% of the total variation in the adoption level of pig farming technology.

Farming experience is highly significant variable influencing adoption level of pig farming technology. This implies that as years of farming experience increases, adoption of pig farming technology increases. It could mean that farming experience builds managerial skill.

Membership of cooperative was significant and positively related to adoption of pig farming technology. This is in conformity with *a priori* expectation.

Cost of feed was one of the major determinants of adoption of pig farming technology. This implies that as the cost of feed increases, level of adoption of pig farming technology decreases.

From table 2 therefore, the null hypothesis 1&2 which states that, "Age, household size, farming experience, cost of feed are negatively related to level of adoption of selected livestock technologies and 2 which states that," level of education, number of livestock produced, membership of cooperative society and income are positively related to Y (level of adoption)" was rejected and alternative accepted.

Table 3: Regression Analysis of Factors Influencing Adoption of Pig Production Technology

Explanatory variables	Coefficients	T-values
Constants	0.546	2.119**
Age	0.004	1.057
House size	0.010	0.726
Level of education	0.003	0.418
Number produced	7.93E-005	0.517
Farming experience	0.036	0.036***
Membership of cooperative Society	0.115	1.563*
Cost of feed	-1.21E-005	-3.3855***
Income	1.01E007-	0.323
R^2	0.544	
R^{-2}	0.501	
F-ratio	12.543***	

Source: Calculated from the field Survey, 2009
Significant at 10.0 percent, ** Significant at 5.0 percent, *** Significant at 1.0 percent

Table 4: Shows that there is significant difference between the outputs of adopters of pig farming technology .This implies that women farmers pig production technology had higher farm output since they started practicing the technology. This means that the adoption of pig farming technology led to increase in output of the adopters. Adoption of innovation provides means of achieving sustainable increase in farm output.

From the table 4, therefore, the null hypothesis 3 which states that,'' there is no difference between the present agricultural output of female rejected and alternative accepted.

Table 4: Analysis of Difference Between Mean Output of Adopters (After) and Before Pig Farming Technology

Enterprise	Respondents	Mean output
Piggery	After adoption Before adoption	387.34 45.72

Source: field survey, 2009

2.8: Perceived Impact

Mean score of positive and negative impact of adopting the selected livestock technologies as perceived by the adopters (female headed household farmers).

Table 4.20: Distribution of Respondents According to their Perceived Impact of Selected Livestock Technologies

S/N	Perceived impact	Not at all (1)	Little extent (2)	Some extent (3)	Great extent (4)	Very great extent (5)	Mean (X)	Remark
1	Increase in purchasing power	-	5	5	20	43	4.38	(P)
2	Improved household food intake	-	-	2	10	61	4.81	(P)
3	Access to health facilities	7	20	12	32	3	3.10	(P)
4	Offer better clothing	-	14	15	44	-	3.41	(P)
5	Encourage socialization	-	8	35	20	10	3.44	(P)
6	Less time for education	30	18	22	3	-	2.63	(N)
7	Improved skill for farming	2	3	11	19	38	4.21	(P)
8	Increase in work load	-	16	27	20	10	3.33	(P)
9	Reduced leisure time	-	10	9	30	24	3.39	(P)
10	Leads to better family upkeep	-	7	6	24	36	4.22	(P)
11	Acquisition of properties	-	7	11	35	20	3.93	(P)

Source*: Field survey, 2009 3 and above = Positive (P) Below 3 = Negative (N)*

Table 4.20 shows the mean scores of women perception of impact of selected ADP livestock technologies on their socioeconomic well being.

The findings revealed that the adoption of these technologies had a positive impact in the area of improved household food intake (X=4.81), Access to health facilities (X=3.10) increase in purchasing power (X=4.33), improved skill for farming (X=4.21), reduced leisure time (X=3.39), lead to better family upkeep (X=4.22), acquisition of properties (X=3.93), increase in workload (X=3.33), encourages socialization (X=3.44) and offer of better clothing (X=3.41). This is in agreement with Odurukwe *et al* (2004) who recorded positive impact in the socio-economic lifestyle of women on adoption of women in Agriculture (WIA) packages.

The result further showed that the women perceived negative impacts in some areas such as less time for education (X=2.63).

Conclusion

The finding of the study shows that the farmers had increase in their productivity after the adoption of the ADP improved pig farming practices. They recorded a great change in their socio-economic well-being as a result of increase in their farm productivity. There is room to for small scale pig farming to be transformed in a big industry in Imo state: if these problems identified can be handled by government and stakeholders' in the livestock sector of the state. From the study there is need for establishment of institutional loan scheme to promote pig production. There is need to improve the farmers access to credit facility, improved their access to new breed and feed for their stock in order to encourage piggery entrepreneurship in the study area. Furthermore, government and stakeholders should drive a sensitization program that will encourage the citizens to consume pork meat to meet up with their daily protein requirements. These will encourage more farmers to go into piggery production.

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