

SOCIO-ECONOMIC FACTORS INFLUENCING SWINE MANAGEMENT PRACTICES AMONG WOMEN IN JAMA'A LOCAL GOVERNMENT AREA OF KADUNA STATE, NIGERIA

[FACTORES SOCIO-ECONÓMICOS QUE INFLUYEN SOBRE LAS PRÁCTICAS DE MANEJO ENTRE MUJERES PRODUCTORAS DE CERDOS EN NIGERIA]

M.K. Ajala^{1*}, A.O.K. Adeshinwa² and G.S. Bawa³

¹*National Animal Production Research Institute/A.B.U., Zaria*

²*National Agricultural Extension Research Liaison Services/A.B.U., Zaria*

Current Address: Institute of Agricultural Research and Training, Obafemi Awolowo University, Ibadan, Nigeria.

³*Department of Animal Science, A.B.U., Zaria*

**Author for Correspondence.*

SUMMARY

Socio-economic factors influencing swine management practices among women in Kaduna State were investigated. One hundred and twenty questionnaires were administered to randomly selected women swine farmers in Jama'a Local Government Area of Kaduna State. Tools of analysis include descriptive statistics such as percentages, means, ranges and the Pearson's Correlation Procedures. Results of analysis revealed that certain socio-economic characteristics of respondents (household size, experience on pig keeping, and level of investment on pigs) were found to be significantly related to swine management practices. Analysis also revealed that the system of swine management in the study area is largely the semi-intensive system, with poor nutrition and health attention. The survey showed that swine productivity in Nigeria could be enhanced if adequate attention is paid to the health, nutrition and shelter of the animals.

Key words: Production systems, women, productivity, gender.

INTRODUCTION

Pig (*sus scrofa*) is one of the sources of animal protein in Nigeria. Pig production is in the hands of government institutions and private individuals. In Southern Kaduna area, pig production is mostly in the hands of peasant farmers (both men and women) who live in villages.

Pig production in Nigeria is relatively underdeveloped, compared to other livestock. Nigeria has the second largest population of pigs in Africa and it accounts for about 4% of the total meat supply in the country

RESUMEN

Se estudiaron los factores socio-económicos que influyen sobre las prácticas de manejo entre mujeres porcicultoras en Nigeria. Se aplicaron ciento veinte cuestionarios entre porcicultoras elegidas al azar en Kaduna, Nigeria. Los resultados fueron analizados mediante estadística descriptiva y análisis de correlación. Los resultados mostraron que variables como; tamaños de la familia, experiencia en la cría de cerdos y el nivel de inversión en los cerdos estuvieron relacionados con las prácticas de manejo. El análisis también reveló que los sistemas son principalmente se intensivos con mala nutrición y pobre atención sanitaria. Se concluyó que la productividad de las granjas de Nigeria podría ser mejorada si se presta atención adecuada a la salud, nutrición e instalaciones de los animales.

Palabras clave: Sistemas de producción, mujeres, productividad.

(Shaib, 1997) with men and women actively participating in its production and marketing.

In Nigeria, women participate in pig production, though the level of their participation varies from one geographical area to the other. The participation of women in pig production in Southern Kaduna supports the observation by Bawa *et al.* (2004) that more women (61.76%) than men (38.24%) are involved in urban backyard swine production in Kaduna metropolis. Culturally, women participate in pig production which is managed traditionally under semi-intensive systems. Only a negligible proportion of the

Nigerian pigs are managed under intensive system as practiced on research institutes and government farms.

Pig production has contributed to the livelihood of many people in the study area and other parts of Nigeria either directly or indirectly (Ajala, 2003). Although, women participate in pig production, they are often excluded or marginalized by agricultural modernization and development plan (Ijere, 1991).

The Southern Kaduna area constitutes one of the largest pig producing part of the country with pig herd size of 5 – 8% concentrated in this part of Kaduna State. However, pig production in the area has not been subjected to socio-cultural analysis at the rural level. Therefore, there is a general lack of data on the relationship between the socio-economic characteristics of women and pig management practices.

In the light of the above observations, there is a need to understand the fundamentals of the present production parameters on pig improvement in the study area. In this regard, appropriate technology which is compatible with the socio-cultural and socio-economic characteristics of the women (producers) is better developed and utilized to the advantage of the women themselves.

Objectives of the study

The objective of this study was to determine the relationship between the socio-economic characteristics of respondents and the management practices of pig production.

The specific objectives were to:

- (1) describe the socio-economic characteristics of the respondents pig producers in the study area;
- (2) identify the management practices prevalent in the study area and determine the influence of socio-economic characteristics of respondents on the management practice.

MATERIALS AND METHODS

The study area

The study was conducted in Jama'a LGA of Kaduna State, Nigeria. The area is about 3,923 km² and lies between 9° 00' - 9° 30'N and 8° 00' - 8° 30'E (Information Office, 1992). It is bounded in the east by Kaura LGA, in the north by Zango Kataf LGA, in the West by Jaba LGA, all of Kaduna State, and in the south by Akwanga LGA of Nasarawa State. The

population of Kaduna State was 3,969,252 (1991 census); out of which Jama'a LGA has a projected population of 218,713 consisting of 112,409 men and 106,304 women (Population Commission, 1994).

Data collection

The survey was conducted in Jama'a LGA of Kaduna State by means of structured questionnaire administered to a total of 120 respondents selected out of 1804 pig rearing families (KADP, 1990). Regular visits (5 times a week) were paid to the 120 respondents who were randomly selected. The data for the study were collected between April 2000 and June 2001. Data were collected on socio-economic characteristics of the respondents, such as family size, educational level, age, years of experience, major occupation, herd size, pig management practices, etc.

Analytical techniques

Descriptive statistics such as percentages, means, ranges and frequency tables were used to analyze the data related to objective 1. Data related to objective 2 were analyzed using the Pearson's Product Moment correlation to test the relationship between the socio-economic characteristics of women and swine management practices. For convenience, the 0.05 level of significance was selected for statistical decisions. In computing the Pearson's Correlation coefficient, the management component (such as feeding, sheltering, health, watering) were weighted. Swine management practices were ranked in order of their importance as perceived by the women. The most important management component was weighted 5 while the least important was weighted 1. These weighted scores were then computed as the total score on swine management.

RESULTS AND DISCUSSION

Personal and socio-economic characteristics

The personal and socio-economic variables investigated are reported in Table 1. Majority of the respondents (68.3%) were within the age range of 36 – 49 years. The mean age of the respondents was 38 years indicating that a high proportion of the middle age respondents were involved in swine production. Thus swine production is an adult business in the area. Majority of the respondents (70%) had formal education. It could be inferred therefore, that the respondents are predominantly literate. For the purpose of adopting new technologies, education is an important factor which if lacking can impact adversely on future swine production improvement. Most respondents (81.7%) have other occupations besides pig keeping, such as farming (arable crop production),

civil service and petty trading. It was observed that most women are involved in farming as a major/primary occupation. Thus, pig keeping is only taken as a source of secondary occupation for

generating fast and additional income for the households. Analysis of results also shows that majority of respondents (60%) are small holders owning herd size of less than 10 pigs.

Table 1. Percentage distribution of selected personal and socio-economic characteristics of swine producers

Respondent characteristics	No.	%	Respondent characteristics	No.	%
1. Age			7. Number of animals sold		
Young (35 years and less)	20	16.7	1-3 animals	92	76.7
Middle (36 - 49 years)	82	68.3	4-7 animals	27	22.5
Old (50 years and above)	18	15	Above 7 animals	1	0.8
Total	120	100	Total	120	100
Mean = 38 years			Mean = 3 animals		
2. Level of Education			8. Income earned from animal sold		
No formal education	36	30	₦20,000 and less	22	18.3
Primary education	72	60	₦20,001 – ₦40,000	86	71.7
Secondary education	12	10	Over 40,000	12	10
Total	120	100	Total	120	100
			Mean = ₦32,472		
3. Household size			9. Investment on swine		
Small (1 – 5 persons)	38	31.7	Low (₦2,000 and less)	40	33.3
Fairly large (6 – 10 persons)	61	50.8	Medium (₦2,001 – ₦3,000)	20	16.7
Large (11 – 15 persons)	18	15	High (above ₦3,000)	60	50
Very large (16 – 20 persons)	3	2.5	Total	120	100
Total	120	100	Mean = ₦3,260		
Mean = 6 persons			10. Number of swine started with		
4. Swine keeping as only occupation			2-4 animals	107	89.2
Yes	22	18.3	5-7 animals	10	8.3
No	98	81.7	Above 7 animals	3	2.5
Total	120	100	Total	120	100
			Mean = 2 animals		
5. Swine keeping experience			11. Number of veterinary contacts		
Less than 10 years	43	35.8	1-3 contacts	29	24.2
10 – 19 years	54	45	4-6 contacts	8	6.7
20 years and above	23	19.2	Over 6 contacts	2	1.7
Total	120	100	No visits	81	67.5
Mean = 13 years			Total	120	100
			Mean = 2 visits		
6. Herd size			12. Management system		
Small (1 – 5 animals)	14	11.7	Extensive (free range)	26	21.7
Medium (6 – 10 animals)	72	60	Semi-intensive	85	70.8
Large (above 10 animals)	34	28.3	Intensive	9	7.5
Total	120	100	Total	120	100
Mean = 7 animals					

₦ (Nigerian Naira) = US \$139.

The number of pigs sold per annum varied between 1 and 7 with a mean of about 3 pigs. Table 1 revealed that most respondents (about 77%) sold between 1 and 3 pigs annually while about 1% respondents reported selling 7 or more pigs annually.

The amount respondents reported to have earned from the sale of pigs per annum varied between ₦20,000 (or \$143.88) and ₦40,685 (or \$292.70) with a mean of ₦32,472 (or \$233.61). Analysis on Table 1 also revealed that 50% of the respondents are high investors. Most respondents (67.5%) had no contact with veterinary officers while the remaining (32.5%) respondents had occasional contacts with veterinary officers. Most respondents (70.8%) practiced the semi intensive pig production, while 21.7% respondents practiced the extensive system and the remaining 7.5% practiced the intensive system.

Description of swine production system in the study area

Pigs are kept under semi-intensive system in the study area. Under this study, pigs are confined to a limited space like a yard, paddock or run and are provided with shelter consisting of simple constructed pig houses like a hut located at one part of the yard or paddock. The pigs wandered in the run or yard during the day and are shut up at night. Once or twice a day, the pig farmer feeds the animals mainly with crop residues, cut grasses and other pastures, cooked cassava roots, kitchen wastes, by-products of locally brewed alcohol (Ajala and Osuhor, 2004). A similar pattern has earlier been observed by Dawuda *et al.* (1990) and Goska (1995). Pigs are usually not supplemented with any extra protein source. Feeds are usually bulky and of low nutritional quality. Little or no extra clean water is supplied for the pigs besides that used to mix the feed. Analysis in Table 1 revealed that 70.8% of the respondents participated in the semi-intensive system of pig production, while 21.7% respondents practiced the extensive system and the remaining 7.5% respondents practiced the intensive system. This result supports the assertion by Pathiraja *et al.* (1986) that pig production system in Southern Kaduna is described as small scale, semi-intensive and semi-commercial.

Relationship between management variables and selected independent variables

In computing the Pearson correlation coefficient (using the raw data), each of the three management variables (feed, shelter and health) was related to the independent variables. Household size ($r = 0.2167$) was positively related to management score of the respondents (Table 2). This gives an indication of the effect of the household size on stock owners. Table 3

shows that the relationship between shelter management score and socio-economic characteristics of respondents. Level of education ($r = 0.2618$), household size ($r = 0.1786$), pig keeping experience ($r = 0.1343$) and investment on pigs ($r = 0.1062$) were related to shelter management score. Thus, the more educated pig owners tend to score higher on the shelter management variable than other pig owners. Likewise, respondents who score high on household size, pig keeping experience and investment respectively tend to score high on the shelter management variable. Pig herd size ($r = 0.0461$), income earned from pigs ($r = 0.0867$), and number of pigs started with ($r = 0.0106$) were positively related to shelter management score, the relationships were however not significant. No significant relationship between number of visits to veterinary office and age on shelter management score. It seems therefore that age, pig herd size, income, number of pigs started with, number of visits to veterinary are not important consideration in the provision of shelter for animals in the study area.

Table 2. Socio-economic variables as related to feed management variables

Variables	Pearson's R
Age	-0.0641
Level of education	0.1776*
Household size	0.2167*
Pig keeping experience	0.0769
Investment	0.1058*
Pig herd size	0.1083*
Income from pigs	0.2022*
Number of pigs started with	0.1806*
Number of visits to veterinary	0.0650

*Significant at 0.05 level

Table 3. Socio-economic variables as related to shelter management variables.

Variables	Pearson's R
Age	0.0214
Level of education	0.2618*
Household size	0.1786*
Pig keeping experience	0.1343*
Investment on pigs	0.1062*
Pig herd size	0.0461
Income earned from pigs	0.0867
Number of pigs started with	0.0106
Number of visits to veterinary	0.0952

*Significant at 0.05 level

The results in Table 4 indicate that all the selected socio-economic variables are statistically related to health management score. The negative, but

significant value of age ($r = -0.1058$) on health management score means that younger respondents tend to score higher on health management than older pigs owners. This finding is expected since younger respondents are more apt to change and to innovate than the older ones. The result on Table 4 also shows that number of visits to veterinary office ($r = 0.1531$) are significantly related to the health management variable. This implies that respondents who make frequent use of the services provided by the veterinary office perform highly on health care matters of their stock. No significant association between level of education and the health management score was found. This tends to suggest that formal education is not an important factor to be considered in the provision of health care facilities to pigs by respondents in the study area.

A significant relationship between household size and management score was found (Table 5). Larger households score higher on management practices than smaller households. This may be explained by the simple reason that larger households have more labour readily available for pig rearing activities than the smaller households. Furthermore, the sizes of households could be viewed as an important factor determining the scope of economic activities of pig owning household since most of the labour used in productive endeavours are household labour. A positive and significant relationship between pig keeping experience and the total score on pig management was found. This finding is not surprising since over the years, a pig owner is able to learn most of the practices concerning nearly all aspects of pig keeping; and would have learned through experience a better way of doing things. The number of pigs started with is not statistically related to pig management, although the relationship is positive.

Table 4. Socio-economic characteristics as related to health management variable

Variables	Pearson's R
Age	-0.1058*
Level of education	0.0376
Household size	0.1343*
Pig keeping experience	0.1067*
Investment on pigs	0.1424*
Pig herd size	0.1675*
Income earned from pigs	0.1496*
Number of pigs started with	0.1269*
Number of visits to veterinary	0.1531*

*Significant at 0.05 level

The significant relationship between management score and the amount invested on pigs is not surprising since more investment cost is likely to result in the

provision of better input for pig production. These inputs may include improvement on the environment of the animals (feed, health, and so on), the more investment, the more likely it becomes that most, if not all, aspects of pig management will be taken care of.

Table 5. The relationship between total pig management score and selected socio-economic characteristics.

Variables	Pearson's R
Age	-0.0427
Level of education	0.1462*
Household size	0.1317*
Pig keeping experience	0.1386*
Investment on pigs	0.1531*
Pig herd size	0.1082*
Income earned from pigs	0.1481*
Number of pigs started with	0.0096
Number of visits to veterinary	0.1378*

*Significant at 0.05 level

A positive relationship between the pig herd size of respondents and the management score was found (Table 5). Respondents with larger pig herds tend to be more conscious of the benefits and necessity of paying good attention to their animals. On the other hand, respondents with lesser number of pigs tend to care less for the animals as any loss of animal due to lack of adequate maintenance may not be as seriously felt as if the loss were to affect a larger number of animals. There is also a positive and significant association between income earned from pigs sold and management score. This may be due to the tendency that the more pigs an individual own the more likely it is that more attention will be paid to their management, and hence the higher the income tend to be, and the more likely that the individual would be willing to re-invest on his/her stock. Table 5 also shows a relationship between the number of visits to veterinary office and management score of the respondents. The number of visits to veterinary office is likely to increase the awareness of a stock owner on livestock health management practices.

CONCLUSION AND IMPLICATIONS

The study shows that level of education, household size, investment on pigs, herd size, income earned from pigs, number of pigs started with, and contact with veterinary office are correlated to management score. The findings on the economic variables (income, investment, herd size, etc.) are an indicator of the respondents' commercial orientation towards pig keeping. Producers are investing and might even willing to invest more on livestock production and

hence might need help and encouragement from government.

The present systems of pig management is semi-intensive probably because of the size (on the average) of the herd an individual household keeps (about 7 pigs) is small and not until this average is increased substantially will producers be forced to change their methods of production. To raise the productivity of pigs in Nigeria one important and crucial step is to improve the health, nutrition and shelter of the animals.

It is recommended that a well defined, and properly planned extension service for pig producers in the study area to be is needed. With such scheme, pig producers would not only be educated on the essentials of good pig management, but also might be provided with such inputs as feeds and medicine (drugs) for their stock.

REFERENCES

- Ajala, M.K. 2003. Economics of swine production in Jama'a Local Government Area of Kaduna State, Nigeria. *Tropical Journal of Animal Science* 6: 53-62.
- Ajala, M.K. and Osuhor, C.U. 2004. Economic analysis of returns and cost structure in swine production in Kaduna State, Nigeria. *Tropical Journal of Animal Science*. 7: 1-8.
- Bawa, G.S., Balogun, T.F. and Omege, J.J. 2004. Urban backyard swine production: A case study of Kaduna, A Nigerian Metropolitan City. *Nigerian Journal of Animal Production* 31: 237-244.
- Dawuda, P.M., Ehoche, O.W., Otchere, E.O., Rekwot, P.I. and Tegbe, T.S.B.. 1980. Systems of management, herds size and composition in pig farms in Benue State. *NAPRI Annual Report*. pp. 96-98.
- Goska, D.Y. 1995. Pig production under village systems in Jama'a Local Government Area of Kaduna State: A survey. Unpublished PGD Project, University of Agriculture, Makurdi, Nigeria.
- Ijere, M.O. 1991. Women and rural development. *Women in Nigerian Economy*, ACENA Publishers, Enugu, Nigeria.
- Information Office, 1992. Brief History of Jama'a Local Government Area, Kaduna State. Jama'a LGA, Nigeria.
- KADP (Kaduna State Agricultural Development Project) 1990. Contact farmers and extension agents visit schedule in Zango Kataf LGA. Nigeria. pp. 3-74.
- Pathiraja, N., P.I. Rekwot, E.O. Oyedipe, W.S. Alhassan and P.M. Dawuda 1986. Studies on the Pig Production Systems in Southern Zaria. In: *Proceedings of the 11th Nigerian Society for Animal Production Conference*, ABU, Zaria. Pp. 133-138.
- Population Commission 1994. *National Population Commission Census: 1991. National Summary*, November, Nigeria.
- Shaib, B., Aliyu, A. and Bakshi, J.S. 1997. Nigerian National Agricultural Research Strategy Plan, 1996-2010. Department of Agricultural Sciences, Federal Ministry of Agriculture and Natural Resources, Abuja.

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