

## BASIC ENTREPRENEURIAL SKILLS FOR SUSTAINABLE PIG FARMING ENTERPRISE: THE CASE OF OSUN STATE, NIGERIA

ALABI, D. L., AJIBADE, I. E.\* AND MUSA, O. A.

Department of Agricultural Extension and Rural Development, Obafemi Awolowo University, P.M.B. 13, Ile-Ife, Nigeria

\*Corresponding author: [icajibade@gmail.com](mailto:icajibade@gmail.com); +2347060932469

### ABSTRACT

*Pig farming has the potential to lift many rural households out of poverty and enhance the consumption of animal protein. This study investigated the basic entrepreneurial skills required for sustainable pig farming in Osun State, Nigeria. It specifically described respondents' personal and socio-economic characteristics, investigated their entrepreneurial skills levels, examined their perception towards pig farming, and identified the constraints limiting their entrepreneurial capabilities. A multistage sampling technique was employed to select 165 respondents for the study, and an interview schedule was used to collect relevant data. Data collected were analysed using appropriate descriptive and inferential statistics, including means, standard deviation, and Pearson product-moment correlation analysis. The results revealed that the mean age of respondents was  $43 \pm 10.90$  years, while their mean annual income from pig farming was  $\text{₦}495,151 \pm \text{₦}592,474$ . The majority (93.9%) of the respondents possessed high entrepreneurial skills in pig farming. The majority (87%) had a positive perception towards pig farming as an enterprise, while limited access to credit (75.8%) and risk of disease outbreaks (69.7%) were among the significant constraints affecting their entrepreneurial capabilities. At  $p \leq 0.01$ , age ( $r = 0.194$ ), family size ( $r = 0.196$ ), and herd size ( $r = 0.316$ ) had positive and significant relationships with the entrepreneurial skills of respondents. The study concluded that most of the respondents possessed several entrepreneurial skills required for a successful and sustainable pig farming enterprise despite the enterprise's constraints. It recommended the provision of low-interest loan schemes, adequate veterinary services, and basic infrastructural facilities by relevant agencies.*

**Keywords:** *sustainable enterprise, entrepreneurial skill, pig farming*

### INTRODUCTION

Proteins are essential for human well-being because they are generally high in essential amino acids and contain them in a balanced ratio needed by the body (Akinsulu *et al.*, 2019). The plant protein sources are deficient in some essential amino acids, including methionine and lysine, which can only be obtained from animal protein sources (Arowolo *et al.*, 2021). The recommended total minimum protein intake for an adult per day is 85.9g, of which between 34g-40g should be of animal origin (Abdulrahman *et al.*, 2013, citing FAO, 1971). In Nigeria, the daily protein intake per capita is 46 g (Obayelu *et al.*, 2022), which is lower than

the minimum recommended intake of 66 g/kg by the Food and Agriculture Organisation (FAO) (WHO, 2007). Akinsulu *et al.* (2019) also reiterated that the crude protein requirement of an adult varies between 65g-85g per person, and it was recommended that 35g of this should be obtained from animal products.

Protein of animal origin is preferred, not just because of its palatability, but because it is essential for man's normal physical and mental development. It has been reported that animal protein contributes only 8.6% of the average Nigerian's estimated 51.7% daily protein intake (Abdulrahman *et al.*, 2013). Meat is consumed primarily for its protein

content. Meat contains essential amino acids in the form of protein and the B group of vitamins (especially niacin and riboflavin), iron, phosphorus, ash, and calcium. Different kinds of meat are the primary sources of animal protein consumed in Nigeria. They include mutton from sheep, chevon from goat, beef from cattle, pork from pig, and chicken from birds (Kaye & Dafur, 2022). Pork accounts for about 38% of meat production worldwide and can play a significant role in solving the problem of protein deficiency in Nigerians' diets while contributing to the employment of millions of Nigerians (Adesehinwa *et al.*, 2024). In 2020, Nigeria and South Africa emerged as the leading producers of pig meat on the African continent, with each country reaching a production volume of approximately 0.3 million (300,000) metric tons (ReSAKSS, 2022). Amuge (2023) also referred to a Statista report that Nigeria is the largest producer and consumer of pork in Africa, accounting for 18.52% of the total pork produced in the last ten years. Though Nigeria is rated as the leading producer and consumer of pork in Africa, it still depends on importation to a certain extent to meet its domestic demand for pork. Amuge (2023) reported a study conducted by the African Union InterAfrican Bureau for Animal Resources (AU-IBAR), where it was indicated that 80 per cent of the pork consumed in Nigeria is imported at an estimated annual cost of approximately \$3 billion. Adding to the concern is the projection that Nigeria's annual per capita meat consumption will be more than triple from 2012 to 2050 due to growth in population and per-capita food demand concerning animal protein (FAO, 2019).

Entrepreneurship is a vital driver of economic growth and development. Entrepreneurs play a critical role in creating new jobs and driving innovation. One key factor contributing to entrepreneurial success

is possessing the proper set of entrepreneurial skills. For instance, Jennefer (2023) identified a combination of technical, management, marketing, networking, creativity, and innovation among the essential skills for entrepreneurial success. Technical skills are the knowledge and expertise required to develop and deliver a product or service. Ahmad *et al.* (2022) place a high emphasis on technical or technological skills, such as information and communication technology (ICT) skills for employability, as entrepreneurs who possess technical skills are better innovators and create new products or services that meet market needs. Management skills refer to planning, organizing, and coordinating resources to achieve business objectives. According to Ngora *et al.* (2022), entrepreneurs with strong management skills can create and implement effective business strategies, manage finances, and lead their teams. Marketing skills refer to the ability to identify target markets, develop effective marketing strategies, and promote products or services effectively. Anderson, Chintagunta, Germann, and Vilcassim (2021) posited that entrepreneurs with strong marketing skills can better understand their customers' needs and preferences and develop products and services that meet those needs.

Networking skills refer to building and maintaining relationships with customers, suppliers, and other stakeholders. According to Davidsson and Honig (2003), entrepreneurs who possess strong networking skills are better able to access resources, information, and expertise that can help them grow their businesses. Creativity and innovation skills refer to the ability to generate new ideas, products, or services and develop creative solutions to business problems. According to Cui *et al.* (2019), entrepreneurs with intense creativity and innovation skills can better identify and

pursue new business opportunities and differentiate their businesses from competitors.

Pig farming has the potential to lift many rural households in Nigeria out of poverty, considering the high level of prolificacy of the animal, with a sow producing up to 34 piglets in one year, coupled with pigs' efficient conversion of feed to flesh (Mpalala *et al.*, 2024). The enterprise requires a range of entrepreneurial skills (including financial management, marketing, leadership, and risk management) for sustainable operation. Dahiru *et al.* (2021) identified the entrepreneurial skills required for sustainable pig farming to include: planning skill, housing skill, breeding skill, health management, marketing skill, and record keeping skill. The need to investigate the entrepreneurial skills possessed by pig farmers to ascertain the sustainability of this enterprise in Osun State, Nigeria, necessitated this study.

## MATERIALS AND METHODS

The study was conducted in Osun State, Nigeria. The state comprises 30 Local Government Areas (LGAs). A multistage sampling procedure was used to select the sample for the study. At the first stage, 20% of the LGAs were purposively selected due to the prevalence of pig farming activities in the selected LGAs, translating to six LGAs, namely: Ilesha East, Ilesha West, Atakunmosa East, Atakunmosa West, Ife East, and Ede South. At the second stage, 15 communities were proportionately chosen from the selected LGAs, namely, Olorunda/Dalemo, Aralokan, and Okutu-ope from Ilesha East; Mokuro and Agbeda from Ilesha West; Ayegbaju and Oke-Agbede from Atakunmosa East; Olorunredo Kajola -Ijesa and Olorunsogo from Atakunmosa West; Erefe, Toro, and Iyanfoworogi from Ife East; Olorunsogo Oke-Iresi and Akoda from Ede South. At the last stage, 11 pig farmers with

a minimum of five years' experience in pig farming were purposefully selected for the study from each of the selected communities, making a total of 165 respondents.

The dependent variable for this study is the entrepreneurial skills needed for sustainable pig farming that were possessed by the respondents. These skills were measured using six indicators adopted from Dahiru *et al.* (2021), namely, planning, housing, breeding, health management, marketing, and record keeping. The respondents were asked to indicate the skill-related activities/tasks that they performed on each of the skill areas. Every task performed was scored one, while every task not performed was scored zero. The total number of tasks for planning skill was 7, for housing it was 9, breeding = 14, health management = 7, marketing = 6, and record keeping = 7, making a maximum obtainable score of 50 and a minimum obtainable score of zero (0). An equal interval was used to categorize respondents into high, medium, and low levels of entrepreneurial skill. Respondents with scores of 16.70 and below were categorized as low, those with scores between 16.71 and 33.40 were categorized as medium, while those with scores of 33.41 and above were categorized as high.

To measure the perception, respondents were asked to indicate whether they Strongly Agreed (SA), Agreed (A), Undecided (U), Disagreed (D), and Strongly Disagreed (SD) with 16 perception statements relating to pig farming. These were scored 5, 4, 3, 2, and 1, respectively, for the positive statements and vice versa for the negative statements. The maximum and minimum obtainable scores were 80 and 16, respectively, so the categorization was done using the interquartile mean to categorize the respondents' level of perception into favourable and unfavourable. Constraints were measured by asking the respondents to

indicate the constraints limiting their entrepreneurial capabilities.

## RESULTS AND DISCUSSION

Results in Table 1 show that the majority (67.3%) of the respondents were between the ages of 33 and 54, with the mean age of  $43 \pm 10.90$  years, implying that most of the respondents were still within their economically active age, with the potential to actively demonstrate the entrepreneurial skills associated with pig farming. The finding is slightly different from the assertion of Mecuriaw and Asmare (2014) that people aged between 21 and 39 years dominated pig farming in their study area. The majority (78.8%) were males, indicating more males than females in the pig farming enterprise. This affirmed the assertion of Osondu *et al.* (2014) that pig farming is mainly carried out by males, probably because of the stressful nature of the enterprise. The majority (80%) were married, in agreement with Motsa'a *et al.* (2018), who observed that most (82.2%) of pig farmers in their study area were married. This could be because married people have family responsibilities, which could prompt their decision to engage in pig farming as a business.

The mean year of experience was  $9.08 \pm 6.78$  years, showing that the respondents were not new to pig farming enterprise. This corroborates the findings of Motsa'a *et al.* (2018) that 55% of their respondents had 10 years of experience in pig farming. Only a few (4.2%) of the respondents had no formal education, while some (23.6%) completed primary education, and many (41.8% and 45.5%) completed secondary education and tertiary education, respectively. The education level of the pig farmers is a critical

factor in determining their ability to acquire and apply knowledge, adopt new technologies, and engage in entrepreneurial activities effectively. Higher education levels, particularly tertiary education, can enhance pig farmers' exposure to advanced skills, critical thinking abilities, and a broader understanding of business concepts, potentially contributing to the sustainability of the enterprise. This corroborates the findings of Motsa'a *et al.* (2018) that only a few (4.4%) of their pig farmers had no formal education. More than two-thirds (72.7%) of the respondents had a herd size not larger than 50 pigs, with the mean herd size of  $47.51 \pm 43.27$ . This is in line with the assertion of Okello *et al.* (2021) that most (46.7%) of their pig farmers had small herd sizes of less than 50 pigs.

Results in Table 1 show further that respondents had multiple sources of capital, with the majority (65.5%) relying on their savings, followed by cooperatives (35.8%) and contributions (21.8%). This shows that informal sources of credit were most prevalent among pig farmers in the study area. The finding agrees with Alabi *et al.* (2018), who reported that the majority of their respondents used their personal savings and contributions for their business start-up capital. Family labour (41.8%) and hired labour (40.0%) were mostly used to carry out pig farming activities. The mean annual income from pig farming was ₦  $495,151 \pm 592,474$ , while the mean annual income from all occupations was ₦  $903,848 \pm 866,349$ . Comparing the mean income from pig farming with that of all occupations shows that pig farming accounted for 54.8 percent of the total income, implying that pig farming enterprises contribute significantly to sustainable income generation among the enterprise owners.

**Table 1: Selected socio-economic characteristics n = 165**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Mean</b>	<b>S.D</b>
<b>Age (years)</b>				
≤ 32	30	18.2	43.67	10.89
33-54	111	67.3		
≥55	24	14.5		
<b>Sex</b>				
Male	130	78.8		
Female	35	21.2		
<b>Marital Status</b>				
Single	19	11.5		
Married	137	83.0		
Divorce	3	1.8		
<b>Years of experience in pig farming</b>				
≤ 10	120	72.7	9.02	6.78
11-24	37	22.4		
≥ 25	8	4.8		
<b>Herd size</b>				
≤ 50	120	72.7	47.51	43.27
51-105	26	15.8		
106-160	15	9.1		
161-215	3	1.8		
≥ 216	1	0.6		
<b>Education level</b>				
No formal education	7	4.2		
Primary education	6	3.6		
Secondary education	69	41.8		
Tertiary education	75	45.5		
Postgraduate education	8	4.8		
<b>*Sources of Capital</b>				
Personal savings	108	65.5		
Cooperative	59	35.8		
Contribution	36	21.8		
Loan	32	19.4		
Salary earnings	23	13.9		
Relative	18	10.9		
Government aid	2	1.2		
<b>Sources of Labour</b>				
Self alone	30	18.2		
Family labour	69	41.8		
Hired labour	69	40.0		
<b>Estimated annual income from pig production</b>				
≤150,000	55	33.3	495151.52	592473.48
150001-400000	57	34.5		

Variables	Frequency	Percentage	Mean	S.D
≥400001	53	32.1		
<b>Estimated annual income from all occupations</b>				
≤400000	59	35.8	903848.8	866348.453
400001-900000	56	33.9		
≥900001	50	30.3		

**Source:** Field survey, 2023

***Entrepreneurial Skills Possessed by the Pig Farmers***

***Planning skill***

Results in Table 2 show that most of the pig farmers in the study area indicated that they usually carried out all the activities that were used as indicators for measuring possession of planning skill including budgeting (97.6%), determination of required financial resources (93.3%), selection of appropriate site for pig farm (92.1%), determination of scale of production (89.1), formulation of specific production objectives (87.9), seeking for professional advice on pig production (85.5) and identification of market outlet (77.6%). The results imply active participation of the respondents in various planning activities essential for pig production. This indicates their conscientious approach to decision-making and strategic planning in establishing and managing successful pig farming enterprises. This agrees with Chukwuemeka (2017), who suggested that before embarking on pig production as an enterprise, individuals must be able to determine the aims and goals, secure available resources, locate a suitable environment and market, and seek professional advice.

***Pig housing skill***

Results in Table 2 also show that respondents carried out all the activities involved in pig housing skill with cleaning and maintenance of the pig house (97.6%) ranking highest, followed by determining the size of pig house based for pig production enterprise (92.7%),

ensuring standard heights of the wall and the roof of the pig house (85.5%), provision of wallowing tank for the pigs (83.6%), selection of durable materials for building pig house (81.2%), construction of water trough for the pigs (81.2%), construction of drainage with sufficient slope (77.0%), installation of strong and durable door for pig house (70.9%) and construction of a feeder designed in a row for easy access and passage for the pigs (61.8%). The findings reflect respondents' understanding of the importance of creating a conducive environment that promotes the pigs' health, welfare, and productivity. This agrees with Chukwuemeka (2017), who reported that the provision of a suitable environment is one of the necessary conditions for achieving sustainable pig farming.

***Pig breeding skill***

Results in Table 2 show that purchase of healthy pig for breeding (96.4%) ranked highest among the pig breeding activities carried out by the respondents, followed by identification of good pig breeds for breeding (92.7%), checking the sow for pregnancy (91.5%), feeding the pregnant sows with balanced diet (91.5%), provision of a balanced diet to piglets after weaning (91.5%), assisted the sow during difficult parturition (86.1%), bringing mature boar to the sow for breeding (77.6%), keeping records of the boar and the sow piglets, including their age and the expected time of breeding (75.8%), gradual weaning for the piglet (67.3%), provision of dry feed to the

sow in the subsequent breeding cycle (58.2%) and dipping of the placenta in iodine to prevent infection (50.3%). The findings show that the surveyed pig farmers were skilful in a range of essential activities related to pig breeding, which could have significant implications on the sustainability of the enterprise.

### ***Pig health management skill***

Results in Table 2 further show that majority of the respondents carried out all the activities involved in health management skill including observation of pigs/piglets for response to treatment (95.8%), ensuring clean and hygiene pig house and environment (95.8%), disinfecting the pig house after treatment of pigs (94.5%), observing pigs daily for symptoms of disease (93.9%), isolating diseased pigs/piglets (91.5%), immunizing the pigs/piglets against diseases (90.9%) and inviting a veterinary specialist for treatment of ill pigs (83.6%). These findings indicate that the surveyed pig farmers possess crucial skills related to pig health management as they actively carried out important health-related activities that could enhance the sustainability of the enterprise.

### ***Pig marketing skill***

Results in Table 2 show that respondents carried out marketing activities like grading the pigs to determine the price value (92.1%), market survey to determine the market price (86.7%), fixing the price of each of the pig based on the grading (72.1%), selling the pigs at determine price (63.0%) and transporting the pigs to market (54.5%). The findings indicate that the surveyed pig farmers possess essential skills related to pig marketing. Good marketing skills are germane to the sustainability of the pig farming enterprise as they will encourage more production and enhanced farmers' income.

### ***Record-keeping skill***

Results in Table 2 show that respondents keep records of equipment (90.9%), records of feeds (90.9%), records of pig purchase (87.3%), records of pigs purchase (87.3%), records of breeding (83.0), record of service, farrowing and weaning dates (67.9%) and record of sick, death and treated pigs/piglets (67.9%) These findings indicate that the surveyed pig farmers possessed the skills to keep important records related to pig farming. This observation reflects the fact that most of the respondents were literate and implies that formal education will enhance sustainable pig farming.

**Table 2: Entrepreneurial Skills of the Respondents**

Skills and their activities	n = 165	
	Frequency	Percentage
<b>*Planning skill</b>		
Budgeting for the pig production	161	97.6
Determination of the financial resources required for pig farm establishment	154	93.3
Selection of an appropriate site for pig farm establishment	152	92.1
Determination of the scale of production	147	89.1
Formulation of specific objectives for the Production of pigs	145	87.9
Seeking professional advice on pig production enterprise	141	85.5
Identification of market outlets for a pig production enterprise	128	77.6

### **\*Housing skill**

<b>Skills and their activities</b>	<b>Frequency</b>	<b>Percentage</b>
Cleaning and maintenance of the pig house	161	97.6
Determining the size of a pig house based on the pig production enterprise	153	92.7
Ensuring standard heights of the wall and the roof of the pig house for adequate ventilation	141	85.5
Provision of a wallowing tank for the pigs	138	83.6
Selection of durable materials for building a pig house	134	81.2
Construction of a water trough for the pigs	134	81.2
Construction of drainage with sufficient slope	127	77.0
Installation of a strong and durable door for the pig house	117	70.9
<b>*Breeding skill</b>		
Purchase of a healthy pig for breeding	159	96.4
Identification of good breeds of pigs for breeding	153	92.7
Checking the sow for pregnancy	151	91.5
Feeding the pregnant sow with balance diet	151	91.5
Bringing a mature boar to the sow for breeding	128	77.6
Keeping the record of the boar and the sow based on age and the expected time of breeding	125	75.8
Gradual weaning of the piglets	111	67.3
Washing the udder-breast of a sow with disinfectant after	104	63.3
Dry feeding the sow for the next breeding cycle	96	58.2
Dipping the umbilical cord in iodine to prevent infection	83	50.3
<b>*Health management skill</b>		
Observe pigs/piglets for response to treatment	158	95.8
Ensure a clean and hygienic pig house and environment	158	95.8
Disinfect the pig house after treatment of the pigs	156	94.5
Observe pigs daily for symptoms of disease	155	93.9
Isolate diseased pigs/piglets	151	91.5
Immunize the pigs/piglets against diseases	150	90.9
Invite a veterinary specialist for treatment of ill pigs	138	83.6
<b>*Marketing skill</b>		
Grading the pigs to determine the price value	152	92.1
Market survey to determine the market price	143	86.7
Fixing the price of each of the pig based on the grading	119	72.1
Selling the pigs at determine price	104	63.0
Transporting the pigs to market	90	54.5
<b>*Record-keeping skill</b>		
Keep records of equipment	150	90.9
Keep records of feeds	150	90.9
Keep records of pigs purchase	144	87.3
Record profit and loss	144	87.3
Keep records of breeding	137	83.0
Record of service, farrowing, and weaning dates	112	67.9
Record of sick, death, and treated pigs/piglets	112	67.9

**\* Multiple responses**

**Source:** Field survey, 2023

***Overall level of entrepreneurial skills possessed by pig farmers***

Results in Table 3 show that most of the pig farmers (93.9%) exhibited a high level of entrepreneurial skills, which connotes a sustainable pig farming operation in the study area, while a smaller proportion (6.1%) fell into the moderate category. The finding

agrees with Chukwuemeka (2017), who suggested that before embarking on a pig production enterprise, individuals should be skillful enough to determine the aims and goals, secure available resources, locate a suitable environment and market, and seek professional advice.

**Table 3: Overall level of entrepreneurial skills possessed by pig farmers n = 165**

<b>Score</b>	<b>Frequency</b>	<b>Percentage</b>
High >33.41	155	93.9
Moderate 16.71-33.40	10	6.1
Low ≤ 16.70	0	0

**Source:** Field survey, 2023

***Respondents' Perception of Pig Farming as an Enterprise***

Based on the scale of measurement, results in Table 4 indicate the respondents strongly agreed to the positive perception statements that "Pig farming is an efficient way to meet the increasing demand for meat products" (mean = 4.61), "Pig farming can provide high-quality and affordable meat products to meet consumer needs" (mean= 4.55), "Pig farming can be a source of nutritious food and protein for communities" (mean= 4.53), "Pig farming can contribute to food security and reduce dependency on imports" (mean= 4.52) and "Pig farming can enhance rural development and provide opportunities for small-scale farmers" (mean= 4.50) while they agreed to the statements that "Pig farming is a viable and profitable enterprise that contributes to economic growth and job creation" (mean= 4.49), "Pig farming can be a source of innovation and technological advancements in the agricultural sector" (mean= 4.42) and "Pig farming can be

practiced in an environmentally sustainable manner through proper waste management and resource utilization" (mean= 4.39).

On the other hand, respondents disagreed with the negative perception statements that "Pig farming is not a profitable venture due to high production costs" (mean= 4.44), "Pig farming is associated with animal cruelty and unethical practices" (mean= 4.02), "Pig farming requires excessive use of antibiotics and other chemicals, which can have negative impacts on human health" (mean= 4.02), "Pig farming poses health risks to both humans and animals" (mean= 3.73) and "Pig farming as an enterprise is unsustainable due to environmental concerns" (mean= 3.57) while they were indifferent to the statements that "Pig farming is not a socially acceptable business due to cultural or religious beliefs" (mean= 3.37), "Pig farming contributes to pollution and contamination of water resources" (mean= 3.22) and "Pig farming is a source of foul odours and unpleasant smells

in the surrounding areas" (mean= 2.81). The fact that respondents agreed with the positive statements but disagreed with the negative

ones provides insights into the respondents' positive perceptions towards the enterprise, which could enhance its sustainability.

**Table 4: Perception of respondents on pig farming as an enterprise n = 165**

Perception statements	Ranked mean scores	Decision
Pig farming is an efficient way to meet the increasing demand for meat products.	4.61	Strongly agreed
Pig farming can provide high-quality and affordable meat products to meet consumer needs.	4.55	Strongly agreed
Pig farming can be a source of nutritious food and protein for communities.	4.53	Strongly agreed
Pig farming can contribute to food security and reduce dependency on imports.	4.52	Strongly agreed
Pig farming can enhance rural development and provide opportunities for small-scale farmers.	4.50	Strongly agreed
Pig farming is a viable and profitable enterprise that contributes to economic growth and job creation.	4.49	Agreed
Pig farming is not a profitable venture due to high production costs.	4.44	Disagreed
Pig farming can be a source of innovation and technological advancements in the agricultural sector.	4.42	Agreed
Pig farming can be practiced in an environmentally sustainable manner through proper waste management and resource utilization.	4.39	Agreed
Pig farming is associated with animal cruelty and unethical practices.	4.02	Disagreed
Pig farming requires excessive use of antibiotics and other chemicals, which can have negative impacts on human health.	4.02	Disagreed
Pig farming poses health risks to both humans and animals.	3.73	Disagreed
Pig farming as an enterprise is unsustainable due to environmental concerns.	3.56	Disagreed
Pig farming is not a socially acceptable business due to cultural or religious beliefs.	3.37	Undecided
Pig farming contributes to pollution and contamination of water resources.	3.22	Undecided
Pig farming is a source of foul odours and unpleasant smells in the surrounding areas.	2.81	Undecided

Source: Field survey, 2023

Strongly agreed=4.5-5.0; Agreed= 3.5-4.4; Undecided=2.5-3.4; Disagreed=1.5-2.4; Strongly Disagreed-0.5-1.4 for positive statements and vice versa for the negative statements

***Distribution of respondents' perception***

Results in Table 5 show that the majority (86.7%) of the respondents held a positive perception of pig farming, while a few (13.3%) had a negative perception. The fact that a significant proportion of the

respondents expressed positive views about pig farming enterprise could have a significant impact on the sustainability of the enterprise in terms of investing more in the business and making more informed decisions.

**Table 5: Distribution of respondents' perception** **n = 165**

Perception score	Frequency	Percentage
Favourable > 48	143	86.7
Unfavourable < 49	22	13.3

Source: Field survey, 2023

**Constraints Affecting Pig Farming**

Results in Table 6 show the constraints identified by most of the respondents to include limited access to capital (75.8%), risk of disease outbreaks or animal health issues (69.7%), poor infrastructure (60.0%), inadequate access to quality inputs (57.6%), limited extension services (53.3%), restricted access to veterinary services or health care for pigs (52.1%). In addition, some of the respondents identified lack of technical knowledge (47.9%), inadequate marketing opportunities (47.9%), the potential for negative public perception of pig farming practices (43.6%), cultural and social attitudes (43.0%), limited availability of

labour (42.4%), government regulations (37.0%), and climate change (37.0%) as part of the constraints. The finding corroborates Ojumu *et al.* (2023), who identified a lack of capital and inadequate veterinary service as constraints to livestock production among rural households in Southwestern Nigeria. Understanding and addressing these constraints is vital for policymakers, stakeholders, and the pig farming communities to develop appropriate strategies, policies, and interventions to create an enabling environment for the growth and development of pig farming enterprises in the study area.

**Table 6: Constraints affecting pig farming** **n = 165**

*Constraints	Frequency	Percentage
Inadequate access to capital	125	75.8
The risk of disease outbreaks or animal health issues.	115	69.7
Poor Infrastructure	99	60.0
Inadequate access to quality inputs	95	57.6
Limited extension services	88	53.3
Limited access to veterinary services or health care for pigs	86	52.1
Limited technical knowledge	79	47.9
Inadequate marketing opportunities	79	47.9
The potential for negative public perception of pig farming practices.	72	43.6
Cultural and social attitudes	71	43.0
Limited availability of labour	70	42.4
Government regulations	61	37.0
Climate change	61	37.0

\*Multiple responses

Source: Field survey, 2023

**Test of Hypothesis**

**Hypothesis:** There is no significant relationship between socio-economic characteristics of respondents and the entrepreneurial skills possessed by them.

**Results of correlation analysis showing the relationship between respondents' socio-economic characteristics and their entrepreneurial skills.**

Results in Table 7 show that at  $P \leq 0.01$  socio-economic characteristics of pig farmers such as age ( $r = 0.32$ ), family size ( $r = 0.196$ ), sources of labour ( $r = 0.18$ ), herd size ( $r = 0.316$ ), years of experience in pig farming ( $r = 0.210$ ), income from pig ( $r = 0.303$ ), and

income from all occupations ( $r = 0.29$ ) had a positive and significant relationship with the entrepreneurial skills they possessed. This implies that the higher the age, family size, number of sources of labour, herd size, years of experience in pig farming, income from pig production, and income from all occupations, the higher the entrepreneurial skill they possessed, showing that these variables influence the level at which the pig farmers possessed the entrepreneurial skills needed for sustainable pig production. The null hypothesis must be rejected since there were significant relationships between respondents' personal and socio-economic characteristics and the entrepreneurial skill they possessed.

**Table 7: Result Pearson's product-moment correlation analysis showing the relationship between selected personal and socio-economic characteristics of respondents and the level at which they possessed entrepreneurial skills**

Variable	Correlation coefficient	r <sup>2</sup>	p-value	Decision
Age	0.320**	0.10	0.00	S
Family size	0.196**	0.04	0.01	S
Years of residency	0.040	0.00	0.64	NS
Source of labour	0.180**	0.03	0.01	S
Herd size	0.316**	0.10	0.00	S
Years spent in formal schooling	-0.40	0.16	0.61	NS
Years of experience in pig farming	0.210**	0.04	0.01	S
Estimated Income from the pig	0.303**	0.09	0.00	S
Estimated income for all occupations	0.290**	0.08	0.00	S

\*\* Correlation is significant at the 0.01 level

S = Significant; N.S = Not significant. **Source:** Field survey, 2023

**CONCLUSION AND RECOMMENDATIONS**

Based on the findings, it can be concluded that pig farming holds significant potential as a viable enterprise, contributing significantly to sustainable income generation while creating jobs for people in the study area. The respondents' possession of essential

entrepreneurial skills is a positive indicator of their potential to succeed in pig farming, thereby transforming the enterprise into a sustainable rural industry. However, certain constraints, such as inadequate access to capital and poor infrastructural facilities, among others, needed to be addressed to maximize the potential of pig farming.

Additionally, respondents' perceptions play a crucial role in determining the success of pig farming as a sustainable enterprise; thus, efforts should be made to create awareness and foster positive attitudes towards the enterprise.

The findings of the study have several policy implications, which include: provision of low-interest loan schemes by relevant government agencies to improve pig farmers' access to credit, adequate veterinary services to mitigate disease risks, and availability of basic infrastructural facilities. These interventions will leverage the high entrepreneurial skills of local farmers to bridge the industry's underexploited market potential. Efforts should also include strengthening extension services for the continuous update of farmers' knowledge. Development of robust marketing platforms/opportunities for broader connection of pig products cannot be over-emphasised. By targeting these key areas and recognizing the farmers' strong entrepreneurial spirit and positive outlook, a thriving pig farming sector that significantly contributes to poverty reduction and local protein consumption can be fostered in the study area.

## REFERENCES

- Abdulrahman, A. M., Mufwa, B. J., Musa, B., & Innocent, S. B. (2013). Pattern of meat consumption in Jalingo Local Government Area in Northern Taraba State, Nigeria. *Journal of Agriculture and Veterinary Sciences*, 5(2), 95–104.
- Adesehinwa, A. O., Boladuro, B. A., Dunmade, A. S., Idowu, A. B., Moreki, J. C., & Wachira, A. M. (2024). Pig production in Africa: current status, challenges, prospects and opportunities. *Animal Bioscience*, 37(4), 730.
- Akinsulu, A. A., Ajijola, S., Odetola, S. K., & Awoyemi, D. O. (2019). Factors influencing meat consumption in Ijebu-North local government area of Ogun State, Nigeria. *Journal of Marketing and consumer Research*, 52, 10-16.
- Alabi, D.L., Akintola, O. M. and M. Famakinwa (2018). Perception of Maize Processors toward Utilisation of Maize Value Addition Techniques: Implication for Rural Entrepreneurship Development: A Study in Nigeria. *The Journal of Agricultural Science* 13 (2):141-152.
- Ahmad, I., Ahmad, S. B., & Alam, B. (2024). Skills and Strategic Planning: Unveiling the Nexus in SMEs-A Case Study. *Journal of Intercultural Communication*, 24(1), 43-62.
- Ojumu, F. O., Aminu, O. O., & Oyesola, O. B. (2023). Constraints to Livestock Production among Rural Households in Southwest Nigeria. *Journal of Agricultural Extension*, 28(1), 68-77.
- Anderson, S. J., Chintagunta, P., Germann, F., & Vilcassim, N. (2021). Do marketers matter for entrepreneurs? Evidence from a field experiment in Uganda. *Journal of Marketing*, 85(3), 78–96.
- Arowolo, O. V., Oladejo, J. A., Oguntoye, T. O., Kabir, G. B., & Salako, B. A. (2021). Analysis of meat consumption pattern in Ogbomoso North Local Government Area, Oyo State, Nigeria. *Journal of Applied Sciences and Environmental Management*, 25(4), 555-559.
- Chukwuemeka, N. (2017). *Establishing pig farm – Planning for the establishment of pig farm*. Agriculture Diary.
- Cui, J., Sun, J., & Bell, R. (2019). The impact of entrepreneurship education on the entrepreneurial mindset of college students in China: The mediating role

- of inspiration and the role of educational attributes. *International Journal of Management Education*, 19(3), 100296.
- Dahiru, D. A., Amonjenu, A., Azuaga, C., & Melaiye, O. R. (2021). Entrepreneurial skills required by youths in pig production for economic security in Kuje Area Council of Federal Capital Territory Abuja, Nigeria. *International Journal of Innovative Agriculture & Biology Research*, 9(2), 22–30.
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331.
- FAO (2019). Africa Sustainable Livestock 2050: Transforming the livestock sector NIGERIA What do long-term projections say?
- Jennefer, J. (2023). Exploring the entrepreneurial ability of women. *Open Access Government*, 38, 252–253. <https://doi.org/10.56367/OAG-038-10708>
- Kaye, J., & Dafur, B. S. (2022). Evaluation of the Nutritional Composition of Selected Ruminant and Poultry Carcasses in Nigeria. *Nigerian Journal of Animal Science and Technology (NJAST)*, 5(3), 29-42.
- Motsa'a, J. S., Defang, H. F., & Keambou, C. T. (2018). Socio-economic and technical characteristics of pig (*Sus scrofa domesticus*) production system in the humid forest with monomodal rainfall agro-ecological zone of Cameroon. *International Journal of Biological and Chemical Sciences*, 12(5), 2318–2327
- Mpalala, N., Obokoh, L. O., & Akinrinde, O. O. (2024). Pig farming and the quest for decent work and economic growth: Evidences from Buffalo city. *Journal of Infrastructure, Policy and Development*, 8(10), 6717.
- Obayelu, O.A., Godwin, D.O., Ibe R.B., & Akinwale E.A. (2021). Demand for selected plant-based protein among the staff of a tertiary institution in Nigeria. Future of food: *Journal on Food, Agriculture and Society*. 9(3), 1-12.
- Okello, D. M., Odongo, W., Aliro, T., & Ndyomugenyi, E. (2021). An assessment of pig feed diversity amongst smallholder pig farmers in Northern Uganda. *Cogent Food & Agriculture*, 7(1), 1937867
- Oluwatusin, F. M., Owoeye, R. S., Kolawole, A. O., Awoyemi, A. O., Sedowo, M. O., Abdu-Raheem, K. A., & Ajayi, G. T. (2019). Determinants of demand for meat among farming households in Ekiti State, Nigeria. *Stem Cell*, 10(1), 31-36.
- Amuge, O. (2023). *Nigeria's pig farming underexploited despite N265bn market potential*. Businessamlive. <https://www.businessamlive.com/nigerias-pig-farming-underexploited-despite-n265bn-market-potential/>
- Ng'ora, S., Mwakalobo, A. B. S., & Lwesya, F. (2022). Managerial skills for micro, small, and medium-sized enterprises (MSMEs). *Management dynamics in the knowledge economy*, 10(4), 343-359.
- Osondu, C. K., Ijioma, J. C., Anyiro, C. O., & Obike, K. (2014). Economic analysis of pig production in Abia State, Nigeria. *International Journal of Applied Research and Technology*, 3, 3–10.
- Regional Strategic Analysis and Knowledge Support System (ReSAKSS). (2022). *An overview of meat processing in Africa* (Chapter 4). International Food Policy Research Institute (IFPRI). <https://www.resakss.org/sites/default>

- [/files/2022\\_ator\\_individual\\_chapters/Chapter%204\\_ReSAKSS\\_AW\\_ATOR\\_2022.pdf](#)
- WHO. (2007). *Protein and amino acid requirements in human nutrition: Report of a joint FAO/WHO/UNU expert consultation*. World Health Organization.
- Mekuriaw, Y., & Asmare, B. (2014). Assessment of pig production and constraints in Mecha district, Amhara region, Northwestern Ethiopia. *Advances in Agriculture, 2014*(1), 329254.
- Yeshambel, M., & Bimrew, A. (2014). Assessment of pig production and constraints in Mecha District, Amhara Region, Northwestern Ethiopia. *Advances in Agriculture, 2014*, Article ID 329254. <https://doi.org/10.1155/2014/329254>