



Enterprise characteristics of geese farming in selected areas of Oyo state in the tropical region of Nigeria

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ABSTRACT

Geese enterprise in most tropical countries is still at the rudimentary stage. Yet, if produced on a large scale, geese production could bring maximum profit. This study focused on providing detailed information on the enterprise characteristics of geese farming in Oyo State, Nigeria. Quantitative data were collected using semi-structured questionnaires. Geese farmers across selected local government area in Oyo State were interviewed. A descriptive cross-sectional design was used for this study. Some of the geese farmers had been involved in geese production for about five 5 years. Many of them solely engaged in the geese production to sell them while not too many (39%) engaged in geese production to sell and consume them. Many of the geese farmers (59.3%) reported that they adopted the free-range production system while some of the farmers (32.2%) used the deep litter production system, while few of them (8.5%) raised their geese in cages. Most of the geese farmers (71.2%) reported they got their foundation stock from commercial hatcheries. Many farmers reported that they produced geese eggs to sell the hatchling and their eggs hatched naturally. Also, some farmers reported that they fed their geese using formulated feeds. It was concluded from this study that geese are mostly reared on free range and fed with formulated feed and the hatchings of their egg is usually by natural brooding in Oyo State, Nigeria. However, geese farmers must be more aware of modern ways of geese production and adoption. Also, the scientific management practices including all technical aspects of geese production like breeding, feeding and housing must be enhanced.

Keywords: Geese characterization, Geese enterprise, Nigerian geese farmers, Profitability

In Nigeria, goose farming is just becoming a growing poultry enterprise that is mostly reared in an extensive management system (Baruwa *et al.* 2018). Local producers dominate poultry production in the Nigeria for domestic consumption while just very few quantities are sold commercially (Adene and Oguntade 2006). As of now, the poultry industry especially geese farming is faced with many problems such as the poor management of farm which include malnutrition, absence of steady veterinary treatment, poor shelter, housing, the prevalence of infectious local diseases that destroy the lives of geese, and weak production (Yusuf *et al.* 2016). In most developing nations, geese do not fully become mature until they are over two years old, which serves as a huge limiting factor. An exception to this is the Chinese geese however they are not prolific layers as their overall fertility rate is considered low. Another factor associated with geese processing is much rigorous as compared to chickens especially if down and feathers are involved, therefore, it requires more technical skills to pluck the birds using equipment to handle

the down and feathers without causing harm to the goose (FAO 2001, FAO, 2011). Hence, better ways of improving geese production is paramount for profitability.

Generally in the tropical region of Nigeria, only few studies have been conducted using geese as the animal model (Amao and Oluwagbemiga 2016, Akinbola and Ewuola 2020, Akinbola *et al.* 2021, Ewuola *et al.* 2022 a,b, Ewuola *et al.* 2023, Akinbola and Ewuola 2023; Ewuola *et al.* 2024, Akinbola and Ewuola 2024). Empirical data on the enterprise characteristics of geese farming in Nigeria is therefore scarce. Although available literature shows many studies have been conducted on poultry production, the attention has not been on the enterprise analysis of geese farming. There has been a lack of scientific studies aimed at controlling and genetically developing geese in several states of Nigeria, including Oyo State. Therefore, the objective of this study was to describe the enterprise characteristics of geese farming in selected local government areas of Oyo State in the tropical region of Nigeria.

MATERIALS AND METHODS

Study area: The location of the study was Oyo State, Southwest of Nigeria. Oyo State covers approximately an

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area of 28,454 square kilometres and falls to the tropical rainforest zone, but close to the boundary between the forest and the savanna. Oyo State experiences the wet season between March and October and dry season between November and February. The state has a steady temperature with mean highest temperature of approximately 27°C and mean lowest temperature of 21°C. The relative humidity of the state is about 75% in average for most part of the year with annual rainfall of 109 days estimated at 1420 mm.

Research design: A descriptive cross-sectional design was used for this study. Quantitative data were collected using a semi-structured interviewer-administered questionnaire.

Sampling technique and sample size: A snowball sampling technique was used to select a total of 60 respondents across Ibadan North (8), Ibadan South (11), Akinyele (14), Ido (6), Lagelu (12) and Afijio (9) local government areas in the state in which a structured questionnaires were administered.

Data collection, pretesting and management: A pretested questionnaire was used to collect information from geese farmers across the selected LGAs in Oyo State. The questions addressed information on the enterprise characteristics of the geese reared. A measure of internal consistency called Cronbach's AlpZha was used to test for consistency and completeness of the observed information. The study was conducted over a period of 6 months.

Data analysis: Data collected were analysed with the Statistical Package for Social Scientist (SPSS) version 23 using frequency distribution and percentages.

RESULTS AND DISCUSSION

The result presented in Table 1 shows the years of involvement in geese production, number of other geese farmers known by respondents and purpose of production. It revealed that majority of the respondents (48.3%) had been involved in geese production for about 5 years. There were about 12.1% of the respondents who were in this occupation for about 5–10 years and 24.1% had been involved for about 10–20 years. There were very few respondents who had been rearing geese for more than 20 years. The numbers of other geese farmers that respondents know also revealed that most of the respondents (49.2%) knew less than 5 other active geese farmers that are

involved in geese production business. Moreover, almost one-third of respondents (32.2%) claimed the number of other active geese farmers they knew were between 5 – 10 farmers. Some of the respondents (15.3%) claimed they knew between 10 - 20 other active geese farmers; while very few (3.4%) disclosed that they knew more than 20 other farmers actively engaged in geese production. The purpose of engaging in geese production shows that most of the respondents (55.9%) solely engaged in the geese production to sell them. Over one-third of the geese farmers (39%) reported that they were engaged both to sell and consume while few of the respondents stated that they produce only for personal consumption and a minority of them revealed that they produce geese solely for research purposes. This report was not in line with the findings of Adene and Oguntade (2006) who stated that most poultry farmers rear their birds for domestic consumption while few sold birds commercially. This may be due to higher cost of geese in Nigeria as compared to many other poultry species. Hence, only few farmers can afford to raise them only for consumption purpose when there are other cheaper poultry meats that they can consume.

Table 2 presents respondents' production system adopted, breeds of geese raised and sources of foundation and replacement stock. Generally, the respondents reportedly made use of three types of production systems, which include the deep litter system, free-range system, and cages. This supports the claim of Rosinski *et al.* (1996) that geese are reared either in cages, deep litter, or allowed to scavenge in the free-range production system. Majority of the respondents (59.3%) adopted the free range production system. Almost one-third of them (32.2%) used the deep litter production system, while a few of the respondents raised their birds in cages. Less adoption of cage system of rearing by farmers might be due to high cost of the said practice. This supports the findings of Baruwa *et al.* (2018) which affirmed that goose farming is just becoming a growing poultry enterprise that is mostly reared in an extensive management system. This study also resonates with Ashton (2015) report about many farmers expending a relatively small amount of money in setting up housing units for geese production. Hence, the commonest production systems adopted by respondents interviewed in

Table 1. Respondents' Years of involvement in geese production, number of other geese farmers known and purpose of production

Years of involvement in geese production		Number of other geese farmers known		Purpose of producing geese	
1 -5 years	48.3%	<5 farmers	49.2%	Research	1.7%
6-10 years	12.1%	5 – 10 farmers	32.2%	Consumption	3.4%
11-20 years	24.1%	10 -20 farmers	15.3%	Sales and consumption	39%
Above 20 years	15.5%	>20 farmers	3.4%	Sales	55.9%

Table 2. Respondents' production system adopted, breeds of geese raised and sources of foundation and replacement stock

Production system adopted		Breeds of geese raised		Sources of foundation stock		Sources of replacement stock	
Free range	59%	Heavy breed	74.6%	Captivity	15.3%	Captivity	16.1%
Cages	9%	Local breed	25.4%	Commercial hatcheries	71.2%	Commercial hatcheries	69.6%
Deep litter	32%			Others	13.5%	Others	14.3%

the study were deep litter systems and free-range systems since they do not cost much. As pertaining to the breeds raised, majority of the interviewed geese farmers (74.6%) reported that they solely raised the heavy breeds of geese while the remaining respondents (25.4%) reported that they raised the local (light) breeds of geese. The result on respondents' source of foundation stock also shows two germane sources of their foundation stocks which were commercial hatcheries and captivity sources. Most of the geese farmers (71.2%) procured their foundation stocks from commercial hatcheries. A few of the farmers (15.3 %) claimed they sourced for their foundation stocks from captivity; while very few sourced from other sources than hatcheries and captivity. The sources of replacement stocks chosen by geese farmers were similar to their sources of foundation stocks as shown in Table 2.

Table 3 presents respondents' farm capacity, reason for focusing on geese egg production and geese nesting place provided. The result on farm capacity of geese farmers revealed that majority of the farmers (58.6%) could hold up to 50 geese on their farms while one-third of the farmers (29.3%) reported that their farms could hold between 51 - 100 geese. Very few of the respondents had farms that could hold above 200 birds. Geese are often expensive compared to many other poultry species. Hence, only few farmers can afford the capital cost required to have plenty of them on their farms. The results on the reason why geese farmers focus on geese egg production revealed most of the respondents (64.9%) producing geese eggs to sell the hatchlings. One-third of the respondents (33.3%) claimed they engaged in edible egg production for personal consumption. The result on geese nesting place provided revealed that most of the farmers (52.8%) did not provide a nesting place for their geese and they laid eggs in hidden places. Whereas, about 36% respondents reported their geese laid in a nesting box provided by them.

Table 4 presents the results on geese egg hatchability, method of hatching, feed used in rearing and frequency of feeding geese. The results on hatchability of eggs revealed that more than 90% farmers reported good hatchability of the eggs produced on their farms (Table 4). The study also revealed that about 60% respondents used natural brooding method for hatching and about 35% through

commercial hatchery. Very few of the respondents reported egg hatching using personal incubators. This report buttresses the fact that local producers dominate geese production in the Nigeria (Adene and Oguntade, 2006). Also, natural brooding may be more commonly used due to the challenges experienced in using commercial hatcheries such as different temperature and humidity requirement for geese egg compared to other poultry eggs, longer incubation length of up to 35 days and thereby resulting to low hatchability (Akinbola and Ewuola, 2023; Akinbola and Ewuola, 2024). The result on the type of feed used by geese farmers in feeding showed that more than 41% fed their geese using locally formulated feed. About 37.7% used commercial feeds while a few of the farmers made use of green forages in feeding their geese. Majority of the farmers (75.6%) fed their geese twice a day, 20% of the farmers fed their geese once a day, while only few respondents fed them *ad-libitum*. Majority of the interviewed farmers that reported making use of formulated feed from locally sourced materials corroborates the findings of Marasli *et al.* (1996) who posit that despite feeding geese from locally made feed resources even though low in protein supplements, geese productivity is still normal. Advantages of feeding animals with unconventional feed ingredients like agro-wastes,, waste products from food processing industries include reducing reliance on imported feed and conventional feed ingredients which are expensive to purchase, supporting the circular economy through waste recycling (Chisoro and Nkukwana, 2020a,b; Jalal *et al.* 2023). Geese are excellent waste converters as they make use of agro-wastes and convert them to flesh with good growth rate.

As revealed from this study, geese are mostly reared on free range, fed with formulated feed and hatching of their egg is usually by natural brooding in Oyo State, Nigeria. Therefore, limited investment by farmers into geese production has resulted in several challenges in geese production in Nigeria which include poor management of farm, malnutrition, low access to veterinary health care, poor housing, prevalence of infectious local diseases, weak production system. Hence, in order to improve the performance of geese and increase profits, there is a need for the farmers to adopt modern ways of breeding geese

Table 3. Respondents' farm capacity, reason for focusing on geese egg production and geese nesting place provided

Farm capacity		Reason for focusing on geese egg production		Geese nesting place provided	
<50	58.6%	Edible egg production	33.3%	Anywhere	11.4
51-100	29.3%	Fertile egg production	64.9%	Nesting box	35.8
101-200	10.3%	Others	1.8%	Hidden places	52.8
>200	1.7%				

Table 4. Respondents' geese egg hatchability, method of hatching, feed used in rearing and frequency of feeding geese

Geese egg hatchability		Method of hatching geese eggs		Feed used in rearing geese		Frequency of feeding geese	
Yes	90.2%	Natural brooding	59.6%	Formulated feed	41.5%	Once	20.4%
No	9.8%	Commercial hatchery	34.6%	Commercial feed	37.7%	Twice	74.1%
		Home-made incubator	1.9%	Green forage	15.1%	Ad-libitum	5.6%
		Others	3.7%	Others	5.7%		

and improved methods of geese production.

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