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Comparison of Constraints to Poultry Producers in Delta State Nigeria

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Abstract: The study was an inter-disciplinary one designed to investigate the constraints relevant to different poultry production systems. The sample size was 241 poultry farmers made up of extensive (210), semi-intensive (5) and intensive (26). A four-point rating scale was used to measure the constraints. Mean, Analysis of variance and correlation matrix were used in data analysis. The constraints faced by the extensive poultry farmers were inability to diagnose sick birds (M = 3.45), lack of market for eggs (M = 2.52), egg cracking (M = 2.98), lack of finance (M = 3.44) and loss of birds/eggs to thieves, predators and hazards (M = 3.17). The constraints faced by semi-intensive poultry producers were inability to diagnose sick birds (M = 4.00), lack of feeds (M = 3.00), transportation difficulties(M = 2.80), loss of birds and eggs to predators, thieves and hazards(M = 2.60), lack of finance(M = 3.80) and egg cracking (M = 3.40). The constraints to intensive poultry producers were mortality of adult bids (M = 2.85), diseases out-break (M = 2.58), lack of feeds (M = 2.88), transportation difficulties (M = 3.23), lack of finance (M = 2.65.), feather pecking/cannibalism (M = 3.00) and difficulties in sourcing for day-old chicks (M = 2.65). Lack of finance was a common constraint in the three systems of poultry production. There was a significant difference ($p<0.05$) in the responses of the extensive, semi-intensive and intensive poultry farmers to the constraints facing poultry production in the study area. Adequate finance is needed to boost poultry production in the study area.

Key words: Constraints, poultry production systems, extensive, semi-intensive, intensive, Delta State

INTRODUCTION

The poultry industry is one of the most popular livestock enterprises in the world today. Law and Payne (1996) stated that the worlds' production of poultry meat represented 23.6% of all meat in 1992. North America had the highest production at 45.2 kg per head. In the USA chicken consumption alone overlook that of pork in 1986 and beef in 1988. Okunaiya (1986) found that Nigeria had the largest poultry population in black Africa. According to him, poultry contributed highly to animal protein consumption and Gross Domestic Product. Omonona and Oni (2004) maintained that poultry was one of the quickest ways for rapid increase in protein supply in the short run. Izunobi (2002) stated that poultry provided food, income, employment, industrial raw materials and manure for crop production.

Three major types of poultry management systems namely extensive, semi-intensive and intensive are common in tropical countries. In virtually all rural areas poultry production is carried out on small-scale under the extensive or traditional and semi-intensive systems. The number of small scale poultry farms out-weighs the commercial farms in Nigeria. Experts have identified a lot of constraints to poultry production. These constraints included high mortality rates, predation, high incidence of diseases, inadequate supply of day- old chicks, high cost of feeds and veterinary services, inadequate finance and lack of market information (McAinsh *et al*., 2004; Okagbare and Akpodiete 1999; Omonona and Oni, 2004).

There is need to isolate the constraints that are relevant to each poultry production system. The study conducted by Alabi and Osifo (2004) merely identified a few constraints relevant to backyard or traditional poultry production without discussing those, which affected the intensive systems. This study focuses on the poultry production constraints relevant to the various poultry management systems with a view to making recommendations for boosting production at the different levels.

Objectives of the study: The broad objective of the study was to investigate the relationship within the constraints facing extensive, semi-intensive and intensive poultry farmers in Delta State Nigeria. The specific objectives were to:

- Rate the responses of extensive, semi-intensive and intensive poultry farmers on a set of constraints
- Find out the relationship within the constraints facing extensive, semi-intensive and intensive poultry farmers
- Identify the most significant constraints to poultry production in the study area

Hypothesis: One null hypothesis was tested.

Ho_1 : There is no significant difference within the rating of the constraints to poultry production by the extensive, semi-intensive and intensive poultry farmers.

MATERIALS AND METHODS

Data were collected by the use of questionnaire. The respondents were stratified into extensive, semi-intensive and intensive poultry farmers. This agreed with the classification of poultry production systems in the tropics by Izunobi (2002), Omoruyi *et al.* (1999) and Akinsanmi (1994). Simple random sampling was used to select towns and villages as well as the respondents from the three agricultural zones in the state. Ten percent of the poultry farmers corresponding to: extensive (210), semi-intensive (5) and intensive (26) were randomly selected to constitute the sample. Thus, the sample size was made up of 241 poultry farmers. A four-point rating scale was used to measure the constraints. The scale was coded: often = 4, Not Very Often = 3, Not Often = 2, Not Encountered = 1. Constraints with mean values 2.50 and above were regarded as often encountered while, those below 2.50 were not often encountered. The different categories of poultry farmers were made to respond to the same set of constraints for the purpose of comparison. Data were analyzed by the use of means, analysis of variance and correlation matrix.

RESULTS AND DISCUSSION

Constraints facing extensive poultry farmers: The major constraints encountered by extensive poultry producers were inability to diagnose sick birds (M = 3.45), lack of market for eggs (M = 2.52), egg cracking (M = 2.98), lack of finance (M = 3.44) and loss of birds/eggs to thieves, predators and hazards (M = 3.17). Mortality of adult birds (M = 2.39), mortality of day –old/young chicks (M = 2.10), diseases out-break (M =2.05), lack of feeds (M = 1.83), lack of market for birds (M = 2.24), high rate of morbidity (M = 2.37), difficulties in sourcing for day old chicks (M = 1.73), feather pecking/cannibalism (M = 2.42) and transportation (M = 2.44) were not serious constraints to extensive poultry production (Table 1).

McAinsh *et al.* (2004) found that the most visible constraints to local chicken production in Sanyati were high mortality caused by diseases, predators and poor management as well as limited and varying feed supplies. Mortality of adult birds and day old young chicks were not common constraints. Akinsanmi (1994) noted that the costs of feeding and housing were low under the extensive system. The major disadvantages were the dangers of pests, snakes, wild animals and thieves. Similarly, Alabi and Osifo (2004) found that the problems confronting backyard poultry production were diseases and pest, pilfering and lack of capital.

Constraints to semi-intensive poultry production: The responses to the constraints facing semi-intensive poultry production were presented in Table 2. The constraints to - intensive poultry producers were inability to diagnose sick birds (M = 4.00), lack of feeds (M = 3.00), transportation difficulties (M = 2.80), loss of birds and eggs to predators, thieves and hazards (M = 2.60), lack of finance (M = 3.80) and egg cracking (M = 3.40).The constraints that were not often encountered included mortality of adult birds (M = 1.80), diseases out-break (M = 2.20), lack of market for eggs (M = 2.00), high rate of morbidity (M = 1.60), feather pecking/cannibalism (M = 1.80) and difficulties in sourcing for day- old chicks (M = 2,00).

The semi-intensive system was almost like the extensive system because the birds were not confined through out the day in compartments. Akinsanmi (1994) described the semi-intensive system as a system where, birds were kept in fixed solid houses with grass runs attached. The whole area was fenced with wire netting about two meters high. The house could be located at the middle of the land and the runs on either side (Fig. 1).

He further stated that the disadvantages were high costs of fencing, losses from snakes and other wild animals and risk of parasites build up. Adegbola *et al.* (1986)

Table 1: Responses to constraints faced by extensive poultry farmers (N = 210)

Constraint	Score	M (Max = 4)	Remarks
Mortality of adult birds	575	2.39	Not often
Mortality of day- old/young chicks	506	2.10	"
Diseases out- break	494	2.05	"
Inability to diagnose sick bird	831	3.45	Often
Lack of feeds	442	1.83	Not often
Lack of market for birds	539	2.24	"
Lack of market for eggs	607	2.52	Often
High rate of morbidity of birds	571	2.37	Not often
Transportation difficulties	588	2.44	"
Loss of birds and eggs due to predators, thieves and hazards	763	3.17	Often
Lack of finance	828	3.44	"
Egg cracking	718	2.98	"
Feather pecking/cannibalism	583	2.42	Not often
Difficulties in sourcing For day-old chicks	416	1.73	"

Table 2: Responses to constraints faced by semi- intensive poultry farmers (N = 5)

Constraints	Score	M (Max = 4)	Remarks
Mortality of birds	7	1.40	Not often
Mortality of day-old/.young chicks	9	1.80	"
Diseases out-break	11	2.20	"
Inability to diagnose sick birds	20	4.00	Often
Lack of feeds	15	3.00	"
Lack of market for birds	10	2.00	Not often
Lack of market for eggs	10	2.00	"
High rate of morbidity of birds	8	1.60	"
Transportation difficulties	14	2.80	Often
Loss of birds and eggs due to predators, thieves and hazards	13	2.60	"
Lack of finance	19	3.80	"
Egg cracking	17	3.40	"
Feather pecking cannibalism	9	1.80	Not often
Difficulties in sourcing for day-old chicks	10	2.00	"

Table 3: Responses to constraints faced by intensive farmers (N = 26)

Constraint	Score	M (Max = 4)	Remarks
Mortality of adult birds	74	2.85	Often
Mortality of day-old/young chicks	52	2.00	Not often
Diseases out- break	67	2.58	Often
Inability to diagnose sick birds	53	2.04	Not often
Lack of feeds	75	2.88	Often
Lack of market for birds	56	2.15	Not often
Lack of market for eggs	57	2.19	Not often
High rate of morbidity of birds	48	1.85	"
Transportation difficulties	84	3.23	Often
Loss of birds and eggs due to predators, thieves and hazards	44	1.69	Not often
Lack of finance	69	2.65	Often
Egg cracking	51	1.96	Not often
Feather pecking/cannibalism	78	3.00	Often
Difficulties in sourcing For day-old chicks	69	2.56	Often

Fig 1: The lay of a semi-intensive poultry production system, Source: Akinsanmi (1994). Senior Secondary Agricultural Science

found that the semi-intensive system was not popular in the tropics. They maintained that the major constraints in this system were high cost of investment in housing, land space and daily labour.

Constraints to intensive poultry production: The responses of the intensive poultry farmers on the set of constraints were presented in Table 3.The constraints faced by the intensive poultry farmers were mortality of adult birds (M = 2.85), lack of feeds (M = 2.88), transportation difficulties (M = 3.23), lack of finance (M =2.65), feather pecking/cannibalism (M = 3.00) and difficulties in sourcing for day-old chicks (M = 2.65).

The constraints, which were not often encountered included mortality of day-old/young chicks (M = 2.00), inability to diagnose sick birds (M = 2.04), lack of market for birds (M = 2.15), lack of market for eggs (M = 2.19), high rate of morbidity of birds (M = 1.85), loss of birds and eggs to predators (M = 1.69) and egg cracking (M = 1.96).

The study was concerned only with battery cage system of intensive poultry production. Most of the constraints agreed with those identified by Adegbola *et al.* (1986) that the intensive system of poultry production was capital intensive in terms of buildings, cage, fillings and labour costs. Birds were often exposed to parasites and prone to cannibalism. There were reduced incidence of parasites and loss of eggs. Gueye as cited by Alabi and Osifo (2004) stated that the conditions militating against commercial poultry production were lack of inputs, which included poultry drugs, improved birds, feeds, vaccines, equipment, lack of skilled man-power and incidence of diseases.

Valid Constraints Under Extensive, Semi-intensive and Intensive Poultry Production Systems The constraints that were often encountered under each system were identified by ticking (v) against them (Table 4).

There were more constraints under the intensive poultry production system followed by the semi-intensive and extensive poultry production systems. This meant that the farmers found it easy to operate because there were less constraints. The constraints under the semi-intensive and extensive poultry production systems were almost similar except for lack of market for eggs, lack of feeds and transportation difficulties. Most of the constraints under the intensive poultry production system were peculiar because it was more specialized. The lack of market for eggs under the extensive production system was attributed to the fact that the eggs were fertile. McAinsh *et al.* (2004) found that local chicken eggs were never sold and rarely eaten by villagers in Zimbabwe. The eggs were needed for incubation in order to sustain flock size. They further reported that if eggs were removed from nest, hens would stop laying and often abandon the nest completely. Aini (1990) reported that the price of local chicken was 2-3 times higher compared to broilers in south-east Asia.

Relationship in the rating of constraints by extensive, semi-intensive and intensive poultry farmers: The relationship in the constraints by extensive, semi-intensive and intensive poultry farmers were subject to Analysis of Variance and correlation matrix (Table 5-7).

The regression analysis of variance was carried out to show if there was a significant difference in the rating of the constraints to poultry production by the extensive, semi-intensive and intensive poultry farmers (Table 6). The results showed that there was a significant difference ($p<0.05$) in the rating of the constraints by the there categories of poultry farmers.

A fairly strong positive correlation ($r = 0.68$) was found in between the rating of the constraints between extensive and semi-intensive poultry farmers. This meant that the factors affecting poultry production under the extensive and semi-extensive system were almost the same. A negative correlation ($r = -0.36$) was found between the rating of the constraints by extensive and intensive poultry producers and between semi-intensive and intensive producers ($r = -0.051$).

Conclusion and recommendation: The poultry farmers who practiced the intensive system encountered more constraints. This was followed by the semi-intensive and extensive systems. Lack of finance was a common constraint to the extensive, semi-intensive and intensive poultry farmers.

Table 4: Valid constraints under each system

Constraint	Extensive farmers	Semi-intensive farmers	Intensive farmer	Remarks
Inability to diagnose sick birds	√	√		2
Lack of market for eggs	√			1
Loss of birds and eggs due to predators thieves and hazards	√	√		2
Lack of finance	√	√	√	3
Egg cracking	√		√	2
Lack of feeds		√	√	2
Transportation difficulties		√	√	2
Mortality of adult birds			√	1
Diseases out- break			√	1
Feather pecking/cannibalism			√	1
Difficulties in sourcing for day-old chicks			√	1
Total	5	6	7	18

V = Valid under the production system, 3 = Found in the three systems, 2 = Found in the two systems, 1 = Found in only one system

Table 5: Aggregate scores on rating of constraints to poultry production by farmers under the various systems

Constraints	Extensive poultry farmers	Semi-intensive poultry farmers	Intensive poultry farmers
Mortality of adult birds	575	7	74
Mortality of day-old/young chicks	506	9	52
Diseases out- break	494	11	67
Inability to diagnose sick birds	831	20	53
Lack of feeds	442	15	75
Lack of market for Birds	593	10	56
Lack of market for eggs	607	10	57
High rate of morbidity of birds	571	8	48
Transportation difficulties	588	14	84
Loss of birds and eggs due to predators, thieves and hazards	763	13	44
Lack of finance	828	19	69
Egg cracking	718	17	51
Feather pecking/cannibalism	583	9	78
Difficulties in sourcing for day- old chicks	416	10	69

Table 6: Regression analysis of variation

Model	Sum of squares	Df	Mean square	F	Sig
Regression	129175.227	2	64587.618	7.037	0.011
Residual	100957.988	11	9177.999		
Total	230133.214	13			

F = 7.037, p<0.05

Table 7: Correlation matrix of responses to constraints faced by extensive, semi- intensive and intensive producers

Poultry production system	Extensive poultry farmers	semi-intensive poultry farmers	intensive poultry farmers
Extension farmers poultry	1.000	0.675	-0.358
Semi-intensive poultry farmers	0.675	1.000	-0.051
Intensive poultry farmers	-0.358	-0.051	1.000

Adequate finance is needed to boost poultry production in the study area. Governments and Non-Governmental organizations should come to the aid of the poultry farmers by subsidizing production resources particularly for the extensive and semi-intensive poultry producers. Finance is the sole of any successful business venture.

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