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# Constraints and Adoption of Practices in Poultry Production in the Northern Agricultural Zone of Delta State, Nigeria

**Ajieh, P.C[1] and Oyibojoba, C.O[2]**
[1,2]*Department of Agricultural Economics & Extension, Delta State University, Asaba Campus, Asaba, Nigeria*

**Abstract**

This study examined constraints and adoption in poultry production in the Northern Agricultural Zone of Delta State, Nigeria. A sample size of 80 respondents comprising of supervisors of selected farms was used for the study. Data were collected in March 2017 through the use of a structured and validated questionnaire. Descriptive statistics such as frequency, mean score, standard deviation and percentage were used to summarize data. Results of the study reveal that major constraints to poultry production include: high cost of veterinary services (M = 2.32), high cost of poultry feeds (M = 2.30), lack of credit facilities (M =2.30) and high cost of poultry equipment (M = 2.18). There was high adoption of the following poultry production practices: adequate preparation of the poultry house before arrival of chicks (90%), restriction of sudden entry into the poultry house (93.8%), provision of adequate ventilation (87.5%), provision of clean water without restriction (86.3%) and regular cleaning of drinkers and feeders (83.8%). Strategies identified in this study for enhancing poultry production include: qualified personnel should be used to manage poultry farms (M = 3.19), provision of credit facilities (M = 2.95), subsidy on poultry feeds and equipment (M = 2.91), and the removal of duty on importation of raw materials for poultry feeds formulation (M = 2.69). Furthermore, a significant difference in the mean scores of constraints to poultry production and adoption of poultry production practices implies that constraints affect the adoption of practices in poultry production.

**Keywords**: Constraints, Adoption, Poultry Production, Farm Supervisors

## 1. Introduction

In our world today, especially in Nigeria, there is a growing importance on the need to increase the food supply for every household. The poultry industry is one remarkable industry that is rapidly expanding over the years and has been recognized to be among the most commercialized subsectors of the Nigeria agricultural system (Adene and Oguntade, 2006). The poultry industry is gaining wide acceptability and interest as many have come to see the benefits it provides both in terms to feeding humans and contributing to economic development of nations.

The domestication of poultry took place years ago when chickens and other birds were reared in the traditional way with less emphasis on poultry structure. This may have originated from the people hatching and rearing of young birds from eggs collected from the wild, but later on they were permanently kept inform of captive. With the growing involvement in these practices, a lot of people began to show interest in not only keeping these wild birds but also in using them either for food or source of income. This practice gave foundation to the current practice of poultry farming in the world (Ajieh, 2016).

The popularity of poultry production can be explained by the fact that it has many advantages when compared with other livestock as sources of food especially protein. Some of the benefits of poultry over other livestock, as mentioned by Aromolaran, Ademiluyi and Itebu (2013), include that livestock such as fish, goats, sheep and cattle require a longer time, but poultry production is relatively faster and easier. Also, poultry is most probably the only sector that can grow vertically and produce maximum amount of egg and meat using minimum land space. Moreover, biogas and organic

fertilizer can be prepared well from the poultry industry.

Furthermore, poultry industry as a fundamental part of animal production supplies nations with a cheap source of good quality animal protein in terms of meat and eggs thereby helps in bridging the protein gap in many countries of the world. In addition, the poultry industry plays an important role in the national economy by contributing significantly to agriculture and the gross national product (Ajieh, 2016).

Despite the obvious role played by the poultry industry, it still faces problems including feed-food competition and dependency on the import of improved breeds (Aboul-Naga and Elbeltagy, 2007). It is in view of this fact that this study was conceived to examine constraints and adoption of practices in poultry production in the Northern Agricultural Zone of Delta State, Nigeria.

Specifically, the study focused on the following objectives:

ascertaining farm supervisors' perception of constraints to poultry production,

ii) ascertaining level of adoption of poultry production practices,

iii) identifying strategies for enhancing poultry production, and

iv) determining the level of significant difference between the mean of constraints to poultry production and mean of adoption of poultry production practices.

## 2. Materials and methods

This study was carried out in the Northern Agricultural zone of Delta State, Nigeria. The zone is made up of nine Local Government Areas (LGAs) comprising of Oshimili south, Oshimili north, Aniocha south, Aniocha north, Ika south, Ika north-east, Ndokwa east, Ndokwa west and Ukwuani. The zone is notable for farming, poultry production and fishing.

Poultry farms in the zone formed the population of the study. Four LGAs were randomly selected from the nine LGAs in the zone. The list of registered poultry farms in the selected LGAs was obtained from the State's Ministry of Agriculture and Natural Resources and used as the sampling frame from which sample was drawn. Twenty poultry farms were randomly selected from each of the four selected LGAs. Farm supervisors of the selected poultry farms served as the respondents of the study.

Respondents' perception of constraints to poultry production was ascertained by asking the them to rate the level of seriousness of possible constraints along a three - point Likert - type scale of: not serious, serious and very serious. Values of 1, 2 and 3 were assigned to the response options. The mean of the response values, 2.00, was taken as the cut-off point such that any constraint with score of 2.00 and above was assumed to be a serious constraint, while those with score of below 2.00 were considered less serious constraints.

Adoption of poultry production practices was determined by asking the respondents to indicate from a list of poultry production practices the ones they have adopted. The percentage of adopters was then determined and used to categorize adoption was as follows: low adoption (for adoption percentage of 0-39); moderate adoption (for adoption percentage of 40-69) and high adoption (for adoption percentage of (70-100).

Strategies for enhancing poultry production were identified by asking the respondents to rate the importance of certain strategies in enhancing poultry production along a four-point Likert-type scale of: not important=1, somewhat important=2, important=3, and very important=4. The mean value of the responses options, 2.5, was taken as the cut - off point. Thus, any strategy with score of 2.50 and above was taken as an important strategy in enhancing poultry production, while those strategies with score of below 2.50 were regarded as less important.

Descriptive statistical tools such as frequency count, mean and percentage were used to summarize data, while t-test was used to determine the difference between the mean of constraints to poultry production and mean of adoption of poultry production practices.

## 3. Results and discussion

### 3.1 Households' Respondents' perception on constraints to poultry production

Entries in Table 1 show the mean scores and standard deviations of constraints to poultry production. Results reveal that 11 out of the 18 constraints listed in the study were perceived to be serious constraints. These are: high cost of poultry equipment (M=2.18), lack of credit facilities (M=2.30), price fluctuation (M=2.36), low capital base (M=2.10), high cost of poultry feeds (M=2.30), poor extension services (M=2.21), high cost of veterinary services (M=2.32), high level of disease infestation (M=2.29), high cost of land acquisition (M=2.13), and use of unqualified personnel in managing poultry farms (M=2.09).

This finding supports an earlier study by Fakoya, Banmeke, Sodiya and Fapojumo (2012) which reported that major constraints to poultry production in Ogun State were: high cost of equipment, inaccessibility to credit, and high cost of feeds. Similarly, Oyeyinka, Raheem, Ayanda and

Obiona (2011) found that inadequate capital, high cost of feeds, and marketing problems to be the major constraints to poultry production in Afijo Local Government Area (LGA) of Oyo State.

Constraints identified in this study are known to hamper efficient poultry production. High cost of feeds, equipment and veterinary services for instance can significantly increase cost of production and thus reduce the income accruable to the poultry farmer. Also, poor capital base coupled with inaccessibility to credit to a large extend could influence the size and type of poultry enterprise.

**3.2 Respondents' adoption of poultry production practices**

Data in Table 2 show the adoption of poultry production practices by respondents. Results reveal that there was high adoption of 12 poultry production practices. These include: regular sanitation of poultry house and its environment (77.5%), regular cleaning of the drinkers and feeders (83.8%), disinfectant application on foot dip (81.3%), provision of clean water without restriction (86.3%), vaccination of broilers (70.0%), provision of adequate ventilation (87.5%), and East-west direction for poultry house construction (73.5%). There was also a moderate adoption of four of the poultry production practices. These are: vaccination program for layers (67.5%), addition of calcium grit to layers diet (60.0%), feeding program for layers (63.7%) and egg candling and sorting (52.5%).

Findings of this study with respect to the adoption of poultry production practices agrees with that of Nnadi and Akwiwu (2005) who reported that watering, supplementary feeds and brooding/heating were major practices used by women poultry farmers in Imo State. In the same vein, Lyimo (2013) reported that the major practices used by poultry farmers in Tanzania include: supplementary feed, provision of clean water, vitamins / minerals, use of feeders and drinkers, healthcare and disease control

Practices that recorded low adoption are adherence to floor space (33.8%), adherence to temperature requirement (37.5%) and control of moulting in layers (21.3%). Their low adoption could be as a result of difficulties associated with these practices. Adherence to temperature requirement often proves problematic due to erratic power supply. Similarly, issues associated with land acquisition often make poultry farmers to maximize available space thereby compromising floor space requirement for birds. Control of moulting in layers which usually involves the injection of pituitary gland requires some expertise. Most poultry farmers do not possess this skill and often are not willing to engage the services of experts.

Table 1. Mean Scores and Standard Deviation of Constraints to Poultry Production

| Constraints to poultry production | Mean | Standard deviation |
|---|---|---|
| High rate of mortality of poultry birds | 1.54 | 0.745 |
| High cost of poultry equipment | 2.18* | 0.764 |
| Lack of adequate information on poultry practices | 1.86 | 0.725 |
| Lack of credit facilities | 2.30* | 0.719 |
| Price fluctuation | 2.36* | 0.799 |
| Low capital base | 2.10* | 0.608 |
| High cost of poultry feed | 2.30* | 0.802 |
| Poor extension services | 2.21* | 0.706 |
| High cost of veterinary services | 2.32* | 0.708 |
| High level of disease infestation | 2.06* | 0.700 |
| Inadequate supply of electricity | 2.29* | 0.766 |
| Low quality poultry feed | 1.82 | 0.776 |
| Low income from poultry farming | 1.76 | 0.733 |
| High cost of land acquisition | 2.13* | 0.663 |
| High mortality of day old chicks | 1.91 | 0.660 |
| Lack of Technical know-how for poultry production | 1.90 | 0.648 |
| Pilfering and theft | 1.75 | 0.803 |
| Use of unqualified personnel in managing poultry farms | 2.09* | 0.814 |

Key:* = Serious constraints

Table 2. Percentage Distribution of Respondent According to Their Adoption of Poultry Production Practices

| Poultry production practices | Frequency | Percentage |
|---|---|---|
| Regular sanitation of poultry house and its environment | 62 | 77.5*** |
| Regular cleaning of the drinkers and feeders | 67 | 83.8*** |
| Disinfectant application on foot dip | 65 | 81.3*** |
| Provision of clean water without restriction | 69 | 86.3*** |
| Adherence to floor space requirement. | 27 | 33.8* |
| Adherence to temperature requirement | 30 | 37.5* |
| Vaccination Program for layers | 54 | 67.5** |
| Vaccination program for broilers | 56 | 70.0*** |
| Addition of calcium grit to layers diet | 48 | 60.0** |
| Addition of coccidiostat to broilers diet | 56 | 70.0*** |
| Feeding program for broilers | 62 | 77.5*** |
| Feeding program for layers | 51 | 63.7** |
| Provision of adequate ventilation | 70 | 87.5*** |
| Control of moulting in layers | 17 | 21.3* |
| Egg candling and sorting | 42 | 52.5** |
| Culling of birds from day old to maturity | 60 | 75.0*** |
| Adequate preparation of the poultry house before the arrival of chicks | 72 | 90.0*** |
| Restriction of sudden entrance into the poultry house | 75 | 93.8*** |
| A East-West direction for poultry house construction | 50 | 73.8*** |

Key:* = Low adoption ** = Moderate adoption *** High adoption

Table 3. Mean Scores and Standard Deviation of Strategies for Enhancing Poultry Production

| Strategies for enhancing poultry production | Mean (M) | Standard deviation |
|---|---|---|
| Qualified personnel should manage poultry farms. | 3.19* | 1.080 |
| Subsidy on poultry feeds and equipment. | 2.91* | 1.080 |
| Adherence to good poultry production practices | 2.99* | 0.834 |
| Efficient extension services | 3.01* | 0.934 |
| Provision of credit facilities | 2.95* | 1.042 |
| Creating awareness on nutritional value of poultry products. | 2.91* | 0.944 |
| Making veterinary services affordable | 2.99* | 0.921 |
| Removal of duty on importation of raw materials for feed formulation | 2.69* | 0.963 |
| Ban on importation of poultry products | 2.01 | 1.085 |
| Establishment of Poultry Farmers' Association | 2.83* | 0.991 |
| Provision of quality feed ingredients | 3.10* | 0.894 |
| Use of improved breeds of poultry birds | 3.33* | 0.759 |
| Adherence to vaccination of day old chicks | 3.37* | 0.736 |

Key:* = Important strategies

Table 4. Test of Difference in the Mean of Constraints and Adoption of Poultry Production Practices

| Mean | Standard deviation | Std error mean | T | Df | Sig. 2 tailed |
|---|---|---|---|---|---|
| 2.15000 | 4.48655 | 0.50161 | 48.145 | 79 | 0.00 |

**3.3 Strategies for Enhancing Poultry Production**

Entries in Table 3 show the mean scores and standard deviation of strategies for enhancing poultry production. Out of the 14 strategies that were investigated by the study, 13 were identified as important strategies that could enhance poultry production. They include: quantified personnel should manage poultry farms (M=3.19), subsidy on poultry feeds and equipment (M=2.91), adherence to good poultry production practices (M=2.99), efficient extension services (M=3.01), provision of credit facilities (M=2.95), creating awareness on nutritional value of poultry product (M=2.91), making veterinary services available and affordable (M=2.99), and removal of duty on importation of raw materials for feed formulation (M=2.69).

Strategies for enhancing poultry production that are identified in this study are known to contribute greatly in ensuring efficient poultry

production. For instance, the removal of duty on the importation of raw materials for feed formulation will enable our local producers produce high quality feeds that will not only be available but also affordable by the poultry farmers. Also, making veterinary services affordable will enable poultry farmers patronize the services of qualified veterinarians. This can be done through an effective partnership between the Poultry Farmers' Associations and veterinarians. Extension service can help foster and strengthen such partnership.

Furthermore, subsidizing poultry feeds and equipment can go a long way in reducing production cost of poultry farmers. Poultry feeds and equipment pose major financial challenge to poultry farmers. It is therefore believed that if these two important items in poultry production are subsidized by government just as fertilizer is subsidized for crop farmers, poultry production will be greatly enhanced.

### 3.4 Difference between the mean of constraints and adoption of poultry production practices

Data in Table 4 show the test of difference between the mean of constraints and adoption of poultry production practices. The result of the T-test revealed that the T-calculated (48.145) is greater than T-table (1.684) at 5% or 0.5 probability level. Since the T- calculated is greater than Z-table, it means that there is a significant difference in the mean of constraints to poultry production and mean of adoption of poultry production practices. This implies that production constraints can significantly influence the level of adoption of poultry production practices. By implication therefore, when poultry farmers are faced with production constraints as identified in this study, they are unable to adopt production practices. It is therefore expected that efforts would be made by stakeholders in the poultry production sub-sector to eliminate production constraints so as to enhance adoption of practices by poultry farmers

## 4. Conclusion

Efficient poultry production depends largely on the utilization of good production practices. The extent to which poultry production practices are utilized is usually influenced by certain production constraints. A number of constraints and strategies for overcoming them have been identified and discussed in this paper. It is therefore suggested that strategies articulated in this study should be used by actors in poultry production in ensuring that possible constraints that impact negatively on adoption of practices are removed.

Recommended strategies include: use of qualified personnel in managing poultry farms, provision of credit facilities for poultry farmers, granting subsidy on poultry feeds and equipment, improved extension services, making veterinary services affordable and the removal of duty on importation of feed formulation items.

## References

1. Aboul-Naga, A. M. and Elbeltagy, A. R. (2007). Animal Biotechnology: Applications and Implications in the Near East and North Africa (NENA) Countries. http://aaaid.ae/pdf/magazine /Ani%20Biotechnology%2086-93.pdf

2. Adene, D. F and Oguntade, A. E. (2006). The structure and importance of the commercial and village based poultry industry in Nigeria. Poultry production systems. Journal of Poultry Science, 7(12): 1216-1218.

3. Ajieh, P. C. (2016). Harnessing Investment Opportunities across the Poultry Production Value-Chain, Paper Presented at a Workshop on Strategic Agricultural Development: A panacea for Income Generation at the Local Government Councils. November 9-10

4. Aromolaran, A. K., Ademiluyi, I. O and Itebu, O. J. (2013). Challenges of small poultry farms in layer production in Ibadan, Oyo State. Nigeria. Global Journal of Science Frontier Research in Agriculture and Veterinary Science,13 (2): 20-26

5. Fakoya, E. O., Banmeke, T. O. A., Sodiya, C. I and Fapojumo, O. E. (2012). Farmers' constraints to increased poultry production in Ogun State. African Journal of Livestock Extension, 10 (2): 32-40.

6. Lyimo, H. E. (2013). Impact of adoption of improved local chicken production methods in Tanzania: Case study of UMAEP and ILRP SUA projects. M.Sc Dissertation University of Agriculture, Morogoro, Tanzania

7. Nnadi, F. N and Akwiwu, C, D. (2005). Adoption of improved poultry production practices by rural women in Imo State. *Animal Production Research Advances* 1(1): 39-44

8. Oyeyinka, R. A., Raheem, W. K., Ayanda, I. F and Abiona, B. G. (2011) Poultry farmers' awareness and knowledge of improved poultry production practices in Afijo LGA of Oyo State, Nigeria. Journal of Agricultural Research and Development 1(1): 1–8.