EFFECTS OF AGE ON EGG NUMBER AND WEIGHT IN CHICKENS

***Olanihun A.O[1].,D.J.U Kalla[2]., Igila T.T[2]., Ebule K[2]**

[1]Department of Agricultural Extension and Management Federal College of Forestry Jos

[2]Department of Animal Production Abubakar Tafawa Balewa University Bauchi, Bauchi State Nigeria

**Corresponding author:adeolutu@yahoo.com mobile No: 08035317340*

ABSTRACT

The study was conducted at Federal College of Forestry, Jos. The objective of the study was to determine effects of age on egg number and egg weight in chickens. A total of 500 pullets were obtained from a reputable hatchery in Ilorin and received in Jos. They were brooded for six (6) weeks during which all recommended vaccines were and antibiotics were administered, they were further transferred to battery cage at fourteen weeks (14). Records were taken daily for total feed consumed per bird per day by weighing feed left over, mortality, egg lay, weight of egg (egg weight was measured using a digital scale) and clutch length. The experiment lasted for twenty (20) weeks from first day of lay. Birds were fed with predetermined weight of feed once a day. Commercial diet was used as the experimental diet. The result showed that a positive and strong significant ($P < 0.01$) correlation was observed between age of hen and weight of eggs ($r = 0.092$). Weak positive correlation ($P < 0.01$) was observed between age of hen and number of eggs ($r = 0.017$). From the finding of this study, it was concluded that, there was a positive relationship between age of birds and egg number. Positive relationship also exist between age of birds and egg weight. However it should also be noted that the correlation between age and egg weight was stronger than the correlation between age and egg number. Further research was recommended

INTRODUCTION

Poultry production is an important and diverse component of agriculture. Poultry are kept in most areas of the world and provide an acceptable form of protein to most people in the world. Many developed countries have adopted intensive poultry production system in order to meet protein demand for humans. Poultry are able to adapt to most areas of the world at relatively low price, they reproduce rapidly and have a high rate of productivity. Layer chicken hens are efficient egg producers.Breeds used for egg production are mostly based on leghorn and Rhode Island Red but selection and cross breeding have resulted in high productive laying hens (FAO, 1992). In Nigeria, poultry contributes about 15% of the total annual protein intake with approximately 1.3 kg of poultry products consumed per head per annum. In the past decades, there has been a recorded improvement in poultry production in Nigeria with its share of the Gross Domestic Product (GDP) increasing in absolute terms. The contribution of chicken egg and meat to the livestock share of the GDP increased from 26% in 1995 to 27% in 1999 with an increase in egg production alone accounting for about 13% during the period. In spite of the significance of the poultry industry to the national economy, poultry farms face challenges inimical to the growth of the industry. Poultry production in general is faced with low capital base, inefficient management, disease and parasite, housing and marketing problems, etc (Akintunde, *et al.,* 2015). Poultry production has become a fulltime job for many and is considered to be a commercially viable enterprise, contributing significantly to Gross National Product (GNP) (Nwagu *et al*, 2007b). Egg production is believed to have complex qualitative traits which are influenced by several factors such as breed, nutrition, age, weight of bird, management practices and environmental factors. Over the last decades, poultry management techniques in Nigeria have improved significantly, with rapidly increasing production. Under subtropical environments, growth rate as well as egg production are generally depressed by high ambient temperature (Bordas and Merat, 1984; Farooq*et al*, 2001). A significant interaction between environments and lines was found for laying traits, which indicated that the selected line was more sensitive to environmental changes than the control line for production level (Chen *et al.,* 2004). Poultry plays an important role in human nutrition, employment and income generation. Therefore the objective of the study was to determine the effects of Age on Egg number and Egg weight laying birds.

MATERIALS AND METHODS

The study was conducted at Federal College of Forestry, Jos. It is located in the central part of the Nigeria between latitude $8^{o}30^{|}$ and $10^{o}30$N and longitude $8^{o}20$ and $9^{0}30^{|}$E, with a surface area of about 9,400km^2. It has an average elevation of about 1,250 meters above sea level. A total of 500

pullets were obtained from a reputable hatchery in Ilorin and received in Jos. They were brooded for six(6) weeks during which all recommended vaccines were and antibiotics were administered, they were further transferred to battery cage at fourteen weeks (14). Records were taken daily for total feed consumed per bird per day by weighing feed left over, mortality, egg lay, weight of egg (egg weight was measured using a digital scale) and clutch length. The experiment lasted for 20 weeks from first day of lay. Birds were fed with predetermined weight of feed once a day. The experimental diet was of commercial origin.

RESULTS AND DISCUSSION

Table 1: Pearson Correlation Between Age and Weight of Eggs

		Age of birds (in weeks)	Weight of eggs
Age of birds (in weeks)	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	4834	
Weight of eggs	Pearson Correlation	0.092**	1
	Sig. (2-tailed)	0.001	
	N	3975	3975

** Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation between age and weight of eggs was presented in table 1. A positive and strong significant ($P < 0.01$) correlation was observed between age of hen and weight of eggs ($r = 0.092$). Also, Pearson correlation between age and number of eggs was presented in table 2. A weak positive correlation ($P < 0.01$) was observed between age of hen and number of eggs ($r = 0.017$). The finding of this study were in agreement with that of Anderle *et al*. (2014) and similar to Zanon *et al*. (2006).

Table 2: Pearson Correlation Between Age and Number of Eggs

		Age of birds (In weeks)	Number of eggs
Age of birds (in weeks)	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	4834	
Number of eggs	Pearson Correlation	0.017**	1
	Sig. (2-tailed)	0.227	
	N	4831	4831

** Correlation is significant at the 0.01 level (2-tailed).

CONCLUSION AND RECOMMENDATION

From the finding of this study, it was concluded that, there was a positive relationship between age of birds and egg number. Positive relationship also exist between age of birds and egg weight. However it should also be noted that the correlation between age and egg weight was stronger than the correlation between age and egg number. Further research was recommended.

REFERENCES

Akintunde, O. K., A. I. Adeoti, V. O. Okoruwa, B. T. Omonona and A. O. Abu(2015).Effect of Disease Management on Profitability of Chicken Egg Production in Southwest Nigeria.

Anderle, V. Sonnaiya, E.M and Chawla, R. (2014). Egg quality of gene reserve, the Czech golden spotted hens. *Poultry science*. 17: 84-86

Bordas, A. and Mérat P. (1984). Effects of the naked-neck gene on traits associated with egg laying in dwarf stock at two temperatures. *Breeding Poultry Science*. Pp. 12-15.

Chen, S. E., McMurry, J. P. and Walzem, R. L. (2004). Overfeeding-induced ovarian dysfunction in broiler breeder hens is associated with lipotoxicity. *Poultry Science*.**85**: 70-81

Farooq, M., Mian, M. A., Durrani, F. R., and M. Syed (2001). Prevalent diseases and mortality in egg type layers under subtropical environment

Food and Agricultural Organisation (1992). FAOSTAT, FAO Statistics Division 1992 Viale delle Terme di Caracalla, 00153 Rome, Italy.

Nwagu, B.I., Olorunju, S.A.S., Oni, O.O, Eduvie, L.O., Adeyinka, I.A., Sekoni, A.A. and Abeke, F.O. (2007b). Response of egg number to selection in rhode Island chickens selected for part period egg production. *International Journal of Poultry Science* 6(1): 18 -22.

Zanon, A. Toritsina, E. S and Tumova , E .(2006) Physico-chemical characteristics of eggs from two Italian autochthonous chicken breeds: Modenese and Romagnolo. In *XII European PoultryConference : Book of Abstracts, Verona, Italy, 10-14 September 2006.* Beekbergen: World Poutry Science Association, Pp. 203.