

Performance and economic return of four indigenous chicken genotype raised intensively in Edo State of Nigeria

¹Imouokhome, J. I.* and ²Ekunwe, P. A.

¹Department of Animal Science and Animal Technology, Benson Idahosa University, Edo State, Nigeria.

²Department of Agricultural Economics and Extension, University of Port-Harcourt, Rivers State, Nigeria.

*Corresponding author (Email: jimouokhome@biu.edu.ng)

ABSTRACT

Indigenous chicken contributes crucially to food security and income generation of Nigerians economy hence the need for the determination of their performance and economic return. One hundred and eleven day old indigenous chicks comprising of twelve naked neck, twenty one frizzle feathered, forty five normal feathered and thirty three short flight feathered chicks obtained from a hatch of self-mated parent stock were used in this experiment. The chicks were randomly distributed based on their parental genotypes into four treatment groups replicated thrice and were fed *ad-litum* for a period of twenty six weeks. Data collected were subjected to analysis of variance using SPSS. The results revealed that weight gain increases as feed intake increased with age. Naked neck had the highest weight ($1134 \pm 70.08\text{g}$), consuming $11242.33 \pm 457.82\text{g}$ and also had the highest cost of production (₦819.77), while the least was observed in short flight feathered chickens having $861.87 \pm 34.61\text{g}$ weight, consuming $6933.66 \pm 226.85\text{g}$ and ₦589.23 cost of production. Economic return after the sale of the chickens indicated that the short flight feather chicken had the highest economic return of ₦2,200 while the naked neck chicken had the least (₦1,093.75). The net profit was highest in short flight (₦1,610.77), followed by normal feathered (₦783.23), frizzle feathered (₦492.23) and naked neck (₦273.98) respectively. The benefit-cost ratio which serves as the economic index for evaluating the profitability and viability of an enterprise showed that for every ₦1.00 spent, a return of ₦2.73, ₦1.25, ₦0.65 and ₦0.33 was obtained for the short flight feathered, normal feathered, frizzle feathered and naked neck indigenous chickens respectively. The study recommended that it was most profitable to invest in short flight indigenous chicken production than the other chicken genotypes due to the net profit associated with production.

Keywords: benefit ratio, economic return, genotype, indigenous chicken, profitability.

INTRODUCTION

Chickens largely dominate flock composition and make up about 98% of the total poultry numbers (chickens, ducks and turkeys) kept in Africa (Gueye, 2003). In Nigeria Poultry population has been reported to be about 172 million, out of which chicken is estimated to have the largest of 160 million, with guinea

fowl, duck and local turkey having 8.3 million, 1.7 million and 1.05 million respectively (FAOSTAT, 2011). RIM, (1992) and Udoh *et al.*, (2012) reported that Indigenous chicken constitutes 80% of the poultry birds raised in the rural areas in Nigeria translating to a population of 128 million (FAOSTAT, 2011). Despite the fact

that they are more numerous than imported chickens Tadelles and Ogle (2001), studies on these indigenous chickens were not tangible enough to show the relative effect of genetic and non-genetic factors on their performance (Alemu and Tadelles, 1997).

Indigenous chickens widely distributed in the tropical and sub-tropical countries are kept by most rural household for socio-cultural and economic purposes. They survive with little or no inputs, adapting and adjusting to fluctuation in feed and adverse environment. These chickens are generally managed under extensive and/or semi-intensive system resulting in low production by small holders coupled with the introduction of exotic type at commercial level resulting to low supply of indigenous chicken meat and egg products. Low standard management, delayed maturity, small body and egg size among other reasons also added to the low production performance of the indigenous chickens (Gueye, 2000). They have also been raised in intensive system with more efficient output per bird (Saadey *et al.*, 2008).

Indigenous chicken is capable of playing a fundamental role in addressing food insecurity in rural households, creating avenue for smallholder farmers to rely on it for income creation, asset amassing and nutritional requirements in order to meet the increasing world population requirement of 35g of animal protein source per caput per day recommended by FAO, (2006) . In this regard, farmers effort should not only be focused on increasing poultry production but also on the production of chickens strains with some desirable attributes such as adaptability to the prevailing environmental conditions, optimum feed consumption at reduced cost but with greater out-put. The valuable resources of indigenous chickens due to their extensive genetic diversity can be exploited by rearing and breeding them under varied environmental condition, provided

improvement are made through careful selection of superior genotypes as it is generally accepted in the temperate zone.(Adebambo, 2005; Jenkins and Ferrell, 2006). However, it is important to be abreast with the information on productivity and profitability of the different indigenous chicken genotypes in the region. This study was therefore carried out to investigate the performance and economics of production of four indigenous chicken genotypes raised intensively in the humid ecological zone of Nigeria.

Keywords: Growth, performance, indigenous chickens, genotypes, economic return, profitability.

MATERIALS AND METHODS

Study area

The experiment was carried out at the Poultry Unit of Benson Idahosa University, Benin City, Nigeria. The area lies within the geographical coordinate of longitude 5° 04' East and 6° 43' East and latitude 5° 44' North and 7° 34' North of the Greenwich in the south-south geopolitical zone of Nigeria. It has a prevailing tropical climate with a mean annual rainfall of 2162mm, average annual temperature of 27.6° C and a mean relative humidity of 72%. (NAA, 2018).

Animal and Management

A total of eighty four (84) foundation indigenous chickens comprising of seventy two (72) females and twelve (12) males were purchased for the study. The parent stock were used to produce the experimental chickens used in this study. The foundation stock were obtained from villages in Afon, laduba, Buduba, Buduagun, Ago-oja, Reke, Ogbodoroko, Oja-oba, Oja-tutun, and other villages in Ilorin, Kwara state. Others were from Ogbomosho and Osogbo in Osun state as well as from Auchi and Benin City in Edo State of Nigeria. The local chickens were

brought to Benson Idahosa University Teaching and Research Farm in the months of May and June 2015. They were given two weeks of adaptation to enable them get use to their new environment. The eighty four (84) foundation stock comprising of eighteen (18) hens and three (3) cocks each for naked neck, frizzle feather, normal feather and short wings chickens respectively. Mating within genotype was carried out. Mating ratio of one to six (1:6) for the different indigenous chicken genotypes was maintained to ensure good mating. The fertilized eggs obtained from the mating were hatched to produce the offspring that were used in this experiment. Before this time their pen were all cleaned and disinfected. Wood shavings were used as litter material; feeders and drinkers were provided and adequately spaced. A total of 111 day old indigenous chicks were used in the experiment comprising of twelve (12) naked neck, twenty one (21) frizzle feather, forty five (45) normal feather and thirty three (33) short flight feather chickens. They were placed into four treatment based on their parental phenotypic feather distribution background. Each genotype was made up of unsexed chicks which were replicated thrice and assigned into their various pen in a completely randomized design. The unequal number of the experimental chickens was as a result of the different fertility and hatchability percentage from the four different inbred strains at the various hatching exercise that were carried out.

Experimental Diets

The composition of the diets used for the experiment is shown in Table 1. Chicks mash was used for the period of 0 – 8 weeks, growers feed diet were fed for a period of 9 – 20 weeks, and that was followed by the layer feeds diets. Ingredients for the formulation were bought and milled from a reputable feed stock dealer. Feed and cool clean water were provided *ad-libitum* during the period of the experiment. Within the first few weeks, flat trays were used as feeders but were subsequently replaced with constructed wooden feeders. To avoid feed wastages, the feeders were not filled up to meet its capacity but ensured adequate feed was available. Feed intake was determined as the difference in the quantity of the feed offered to the birds in each week and the left over at the end of the week. Body weight was calculated weekly by subtracting the initial weight at the beginning of each week from the final weight at the end of each week. The routine management practice for the experimental period involves twice daily feeding (8.00 – 9.00a.m and 2.00 - 3.00p.m). Washing and rinsing of drinkers, cleaning of feeders, observing for sick chickens, checking for mortalities, administration of vaccines, antibiotics and multivitamin supplements when necessary, keeping of appropriate records and occasional changing of litter material were carried out.

Table 1: Composition of Experimental Diets

| Feed Ingredients (%) | Chick Mash | Grower Mash | Layer Mash |
|---|--------------|--------------|--------------|
| Maize | 51.00 | 50.00 | 44.70 |
| Soybean Meal (SBM) | 27.00 | 11.00 | 12.00 |
| Wheat offal | - | 15.00 | 16.00 |
| Brewer Dried Grain (BDG) | 17.00 | 20.50 | 19.00 |
| Bone Meal | 2.60 | 2.00 | 3.10 |
| Limestone | 1.50 | 1.00 | 4.00 |
| Lysine | 0.10 | - | 0.15 |
| Methionine | 0.10 | - | 0.15 |
| Salt | 0.35 | 0.35 | 0.35 |
| Premix | 0.35 | 0.15 | 0.55 |
| Total | 100kg | 100kg | 100kg |
| Calculated chemical and energy composition | | | |
| Crude protein(%) | 21.16 | 17.35 | 17.02 |
| Crude fibre (%) | 5.12 | 5.96 | 5.81 |
| Calcium (%) | 1.43 | 1.07 | 2.52 |
| Phosphorus (%) | 0.91 | 0.88 | 1.03 |
| Ether extract (%) | 4.24 | 4.67 | 4.44 |
| Ash (%) | 3.10 | 3.25 | 3.24 |
| TDN(%) | 75.66 | 64.10 | 70.10 |
| Lysine (%) | 0.44 | 0.50 | 0.60 |
| Methionine (%) | 0.37 | 0.30 | 0.42 |
| Energy (Kcal/KgME) | 2830.93 | 2685.80 | 2502.90 |

*Premix composition per kg diet: Vit A:8,000,000IU, Vit D₃:1,500,000IU, Vit E:7,000mg, Vit K₃:1,500mg, Vit B₁:2,000mg, Vit B₂:2,500mg, Vit B₆:20,000mg, Vit B₁₂:10mg, Niacin: 15,000mg, Pantothenic Acid:5,000mg, folic Acid:500mg, Biotin:500mg, Choline chloride: 175,000mg, Antioxidant:1,250mg, Manganese:40,000mg, Zinc:30,000mg, Iron:20,000mg, Copper: 3,000mg, Iodine: 1,000mg, Selenium: 200mg. Cobalt: 200mg.

Cost Analysis

The cost analysis was computed as all the cost incurred during the experimental period. This include the cost of feed, medication, cost of day chicks, cost of feeders and drinkers, cost of transportation, and cost of labour as they are related to the performance of the different chicken types. Some of the economic indices used includes;

$$\text{Cost of 1kg of feed (₦)} = \frac{\text{Amount per bag of feed (₦)}}{25\text{kg feed(1 bag of feed)}}$$

$$\text{Total feed intake (kg)} = \frac{\text{Feed intake(g)}}{1000}$$

Cost of feed intake (₦) =

Total feed intake (kg) x Cost of kg of feed (₦)
Profitability analysis was used to determine the cost of economic return for the different chicken genotypes. The net farm income (NFI) was the difference between the total return (TR) and the total cost of production (TC) using the procedure of Olukosi and Erhabor, (1998); Law-Ogbomo and Ekunwe, (2011).

The model used for estimating net farm income can be expressed by the equation:

$$\text{NFI} = \text{TR} - \text{TC}.$$

$$NFI = \sum P_{yi} Y_i - \sum P_{xi} X_i - \sum F_k$$

Where:

NFI = Net farm income

Y_i = Enterprise's product(s) (where $i = 1, 2, 3, \dots, n$ products)

P_{yi} = Unit price of the product

X_j = Quantity of the variable inputs (where $j = 1, 2, 3, \dots, m$ variable inputs)

F_k = Cost of fixed inputs

Σ = Summation

The total variable cost (TVC) includes items like total cost of labour (cost of feed and feeding, cost of medication, cost of transportation). The total fixed cost (TFC) includes the cost of day old chicks and the depreciation of farm inputs like drinkers and feeders.

Statistical Analysis: Data collected were statistically analyzed with Statistical Procedure for Social Sciences (SPSS), 2011 version 16, using analysis of variance (anova) appropriate for complete randomized design subjected to descriptive statistics.

RESULTS

Feed intake and Body weight

The mean feed consumption of the four different indigenous chickens fed same diets used in the experiment is depicted in Figure 1. Feed intake increased as the chicken increases in age with naked neck chicken consuming significantly ($P < 0.05$) higher feed ($11242.33 \pm 457.82g$), followed by frizzle feather chicken ($9163.67 \pm 301.26g$). There was no significant difference ($P > 0.05$) in the feed consumption of normal feathered and the short flight feathered chickens ($6930 \pm 63.91g$ and $6933.66 \pm 226.85g$).

The mean body weights of the four different indigenous chickens at different weeks in the experiment are depicted in Figure 2. The result revealed increment in weight as the chicken increased in age with naked neck chicken attaining significantly ($P < 0.05$) higher body weight of ($1134 \pm 70.08g$) at 26th weeks, followed by frizzle feathered chicken ($959.83 \pm 44.93g$). The least body weight was in short flight feathered chicken ($861.87 \pm 34.61g$).

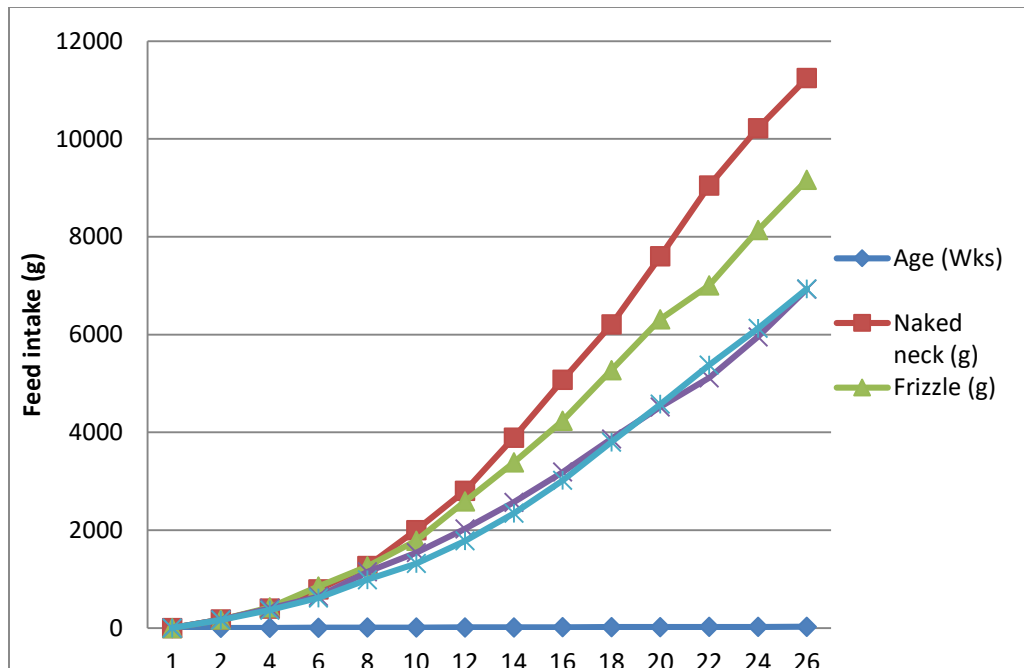


Fig.1. Feed consumption pattern of four strains of indigenous chicken genotypes.

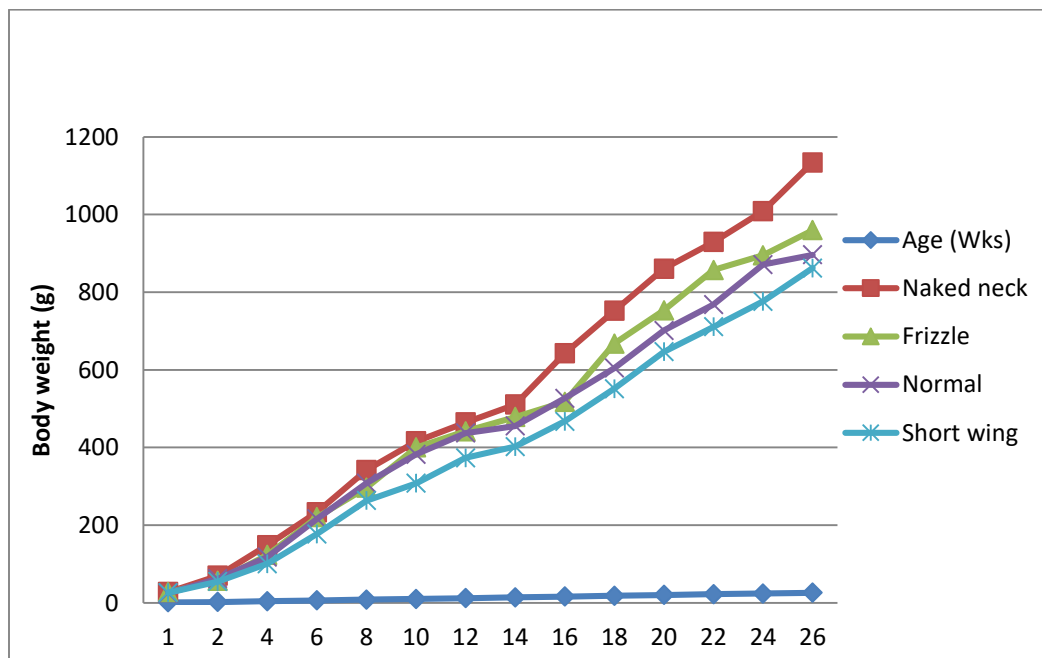


Fig. 2. Growth pattern of four strains of indigenous chicken genotypes with respect to age and weight gain.

Production cost and Economic

The total cost of production per chicken, total revenue per chicken (economic return), Profit (net farm income) and the benefit cost ratio of naked neck, frizzle feathered, normal and the short wing feathered indigenous chickens genotypes are presented in Tables 2, 3, 4, and 5, respectively. The different tables also showed that feed intake had significant influence on the weight of the chicken as well as the cost of feed. The highest cost of production was observed in naked neck chickens, followed by frizzle feathered, normal feathered while the short wing feathered chickens had the least cost of production. From the study an average total cost of ₦819.77 was required to produce a mature naked neck indigenous chicken and ₦751.52, ₦629.02 and ₦589.23 to produce frizzle feathered, normal feathered and short wing feathered chickens of the same age,

respectively. The revenue after the sale of the chickens revealed that the short flight feather chicken had the highest economic return of ₦2,200, followed by normal feather (₦1,412.25), frizzle feather (₦1,243.75) while the naked neck chicken had the least (₦1,093.75). The net farm income or the profit was highest in short wing (₦1,610.77), followed by normal feathered (₦783.23), frizzle feathered (₦492.23) and the lowest profit was recorded in naked neck (₦273.98). The benefit cost ratio which serves as the economic index for evaluating the profitability and viability of an enterprise showed that for every ₦1.00 spent, a return of ₦2.73 was obtained for the short flight feathered chicken. In the same vein, for every ₦1.00 spent a return of ₦1.25, ₦0.65 and ₦0.33 were expected from normal feathered, frizzle feathered and naked neck indigenous chickens, respectively.

Table 2: Profitability Analysis of Naked Neck Indigenous Chickens

| Chicken Type | Period (Wks) | Average Weight (kg) | Feed intake (Kg) | Feed cost (₦) per Kg | Cost of feed (₦) | Cost of labour (₦) | Cost of Medication (₦) | Fixed Cost (Depr.) (₦) | Total cost (₦) |
|--------------|--------------|---------------------|------------------|----------------------|------------------|--------------------|------------------------|------------------------|----------------|
| Naked Neck | 1 – 4 | 0.148 | 0.4 | 104.6 | 41.84 | 130 | 11.5 | 182.91 | 366.25 |
| | 5 – 8 | 0.342 | 1.265 | 102.4 | 129.54 | 130 | 0 | 182.91 | 442.45 |
| | 9 – 10 | 0.416 | 2.003 | 80.3 | 160.84 | 130 | 0 | 182.91 | 473.75 |
| | 11 – 12 | 0.465 | 2.808 | 80.3 | 225.48 | 130 | 6.41 | 182.91 | 544.8 |
| | 13 – 14 | 0.511 | 3.892 | 82 | 319.14 | 130 | 0 | 182.91 | 632.05 |
| | 15 – 16 | 0.643 | 5.074 | 82 | 416.07 | 130 | 0 | 182.91 | 728.98 |
| | 17 – 18 | 0.752 | 6.205 | 85.3 | 529.29 | 130 | 0 | 182.91 | 842.2 |
| | 19 – 20 | 0.86 | 7.598 | 85.3 | 648.11 | 130 | 7.2 | 182.91 | 968.22 |
| | 21 – 22 | 0.929 | 9.048 | 96.8 | 875.85 | 130 | 0 | 182.91 | 1188.76 |
| | 23 – 24 | 1.009 | 10.22 | 102.7 | 1049.59 | 130 | 0 | 182.91 | 1362.5 |
| | 25 - 26 | 1.134 | 11.242 | 102.7 | 1154.55 | 130 | 0 | 182.91 | 1467.46 |

Total cost/ chicken: 819.77

Total revenue/chicken: N1,093.75

Net Profit : 273.98

Benefit cost ratio: 0.33

Depr .:= Depreciation.

Table 3: Profitability Analysis of Frizzled Feathered Indigenous Chickens

| Chicken Type | Period (Wks) | Average Weight (kg) | Feed intake (Kg) | Feed cost (₦) per Kg | Cost of feed (₦) | Cost of labour ((₦) | Cost of Medication (₦) | Fixed Cost (Depr.) (₦) | Total cost (₦) |
|-----------------|--------------|---------------------|------------------|----------------------|------------------|---------------------|------------------------|------------------------|----------------|
| Frizzle Feather | 1 – 4 | 0.123 | 0.42 | 104.6 | 43.93 | 130 | 11.5 | 182.91 | 472.94 |
| | 5 – 8 | 0.297 | 1.258 | 102.4 | 128.82 | 130 | 0 | 182.91 | 544.13 |
| | 9 – 10 | 0.4 | 1.787 | 80.3 | 142.96 | 130 | 0 | 182.91 | 536.17 |
| | 11 – 12 | 0.442 | 2.591 | 80.3 | 208.06 | 130 | 6.41 | 182.91 | 607.68 |
| | 13 – 14 | 0.479 | 3.387 | 82 | 277.73 | 130 | 0 | 182.91 | 672.64 |
| | 15 – 16 | 0.517 | 4.239 | 82 | 347.60 | 130 | 0 | 182.91 | 394.91 |
| | 17 – 18 | 0.668 | 5.272 | 85.3 | 449.70 | 130 | 0 | 182.91 | 398.21 |
| | 19 – 20 | 0.753 | 6.315 | 85.3 | 538.67 | 130 | 7.2 | 182.91 | 944.08 |
| | 21 – 22 | 0.857 | 7.008 | 96.8 | 678.37 | 130 | 0 | 182.91 | 1088.08 |
| | 23 – 24 | 0.895 | 8.136 | 102.7 | 835.57 | 130 | 0 | 182.91 | 1251.18 |
| | 25 - 26 | 0.96 | 9.164 | 102.7 | 941.14 | 130 | 0 | 182.91 | 1356.75 |

Total cost/ chicken: N751.52

Total revenue/chicken: N1,243.75

Net Profit : 492.23

Benefit cost ratio: 0.65

Depr .= Depreciation.

Table 5: Profitability Analysis of Short flight feathered Indigenous Chicken

| Chicken Type | Period (Wks) | Average Weight (kg) | Feed intake (Kg) | Feed cost (₦) per Kg | Cost of feed (₦) | Cost of labour ((₦) | Cost of Medication (₦) | Fixed Cost (Depr.) (₦) | Total cost (₦) |
|------------------------|--------------|---------------------|------------------|----------------------|------------------|---------------------|------------------------|------------------------|----------------|
| Short flight feathered | 1 – 4 | 0.099 | 0.364 | 104.6 | 38.07 | 130 | 11.5 | 182.91 | 362.48 |
| | 5 – 8 | 0.261 | 0.989 | 102.4 | 101.27 | 130 | 0 | 182.91 | 414.18 |
| | 9 – 10 | 0.312 | 1.318 | 80.3 | 105.84 | 130 | 0 | 182.91 | 418.75 |
| | 11–12 | 0.379 | 1.784 | 80.3 | 143.26 | 130 | 6.41 | 182.91 | 462.58 |
| | 13 –14 | 0.404 | 2.345 | 82 | 192.29 | 130 | 0 | 182.91 | 505.2 |
| | 15 –16 | 0.467 | 3.018 | 82 | 247.48 | 130 | 0 | 182.91 | 560.39 |
| | 17 –18 | 0.551 | 3.802 | 85.3 | 324.31 | 130 | 0 | 182.91 | 637.22 |
| | 19 –20 | 0.647 | 4.578 | 85.3 | 390.50 | 130 | 7.2 | 182.91 | 320.11 |
| | 21 –22 | 0.711 | 5.378 | 96.8 | 520.59 | 130 | 0 | 182.91 | 833.5 |
| | 23 –24 | 0.776 | 6.126 | 102.7 | 629.14 | 130 | 0 | 182.91 | 942.05 |
| | 25 - 26 | 0.862 | 6.934 | 102.7 | 712.12 | 130 | 0 | 182.91 | 1025.03 |

Total cost/ chicken: N589.23

Total revenue/chicken: N2,200

Net Profit : 1610.77

Benefit cost ratio : 2.73

Table 4: Profitability Analysis of Normal Feathered Indigenous Chicken

| Chicken Type | Period (Wks) | Average Weight (kg) | Feed intake (Kg) | Feed cost (₦) per Kg | Cost of feed (₦) | Cost of labour (₦) | Cost of Medication (₦) | Fixed Cost (Depr.) (₦) | Total cost (₦) |
|----------------|--------------|---------------------|------------------|----------------------|------------------|--------------------|------------------------|------------------------|----------------|
| Normal feather | 1 – 4 | 0.118 | 0.401 | 104.6 | 41.94 | 130 | 11.5 | 182.91 | 366.35 |
| | 5 – 8 | 0.308 | 1.147 | 102.4 | 117.45 | 130 | 0 | 182.91 | 430.36 |
| | 9 – 10 | 0.382 | 1.539 | 80.3 | 123.58 | 130 | 0 | 182.91 | 436.49 |
| | 11 – 12 | 0.437 | 2.028 | 80.3 | 162.84 | 130 | 6.41 | 182.91 | 482.16 |
| | 13 – 14 | 0.455 | 2.57 | 82 | 210.74 | 130 | 0 | 182.91 | 523.65 |
| | 15 – 16 | 0.526 | 3.19 | 82 | 261.58 | 130 | 0 | 182.91 | 574.49 |
| | 17 – 18 | 0.604 | 3.867 | 85.3 | 329.86 | 130 | 0 | 182.91 | 642.77 |
| | 19 – 20 | 0.701 | 4.521 | 85.3 | 385.64 | 130 | 7.2 | 182.91 | 705.75 |
| | 21 – 22 | 0.768 | 5.117 | 96.8 | 495.33 | 130 | 0 | 182.91 | 808.24 |
| | 23 – 24 | 0.871 | 5.954 | 102.7 | 611.48 | 130 | 0 | 182.91 | 924.39 |
| | 25 – 26 | 0.896 | 6.93 | 102.7 | 711.71 | 130 | 0 | 182.91 | 1024.62 |

Total cost/ chicken: ₦629.02

Total revenue/chicken: ₦1,412.25

Net Profit : ₦783.23

Benefit cost ratio : 1.25

Depr. = Depreciation.

DISCUSSION

The naked neck and frizzle feathered indigenous chickens exhibited a marked difference in their mean weight at hatch with body weight of 27.52 ± 0.40 g and 27.46 ± 0.32 g, respectively as against 24.49 ± 0.21 and 25.44 ± 0.42 g for normal and short flight feathered indigenous chickens, respectively. This observation at hatch according to Oke (2011) may likely be a genetic potential for fast growth. This genetic growth potential was proven by naked neck chickens starting from the 14th week of age but frizzle feather delayed until the 16th week before manifesting this genetic fast growth potential. The short flight feathered chickens however maintained a steady slow growth though the normal feathered chicken was not weighing as much as the frizzle but had higher weight when compared with the short flight feathered type. The manifestation of rapid growth rate when the chickens were approaching maturity was in agreement with the work of Peters *et al.* (2007) and Oke

(2011). From the economic point of view, the study indicated that it was more profitable to invest in short flight indigenous chicken production than the other chicken genotypes. Naked neck production enterprise had the least return (₦1,093.75) compared to short flight feathered chicken (₦2,200) which sold about twice of its price. Since the choice of the farmer going into production is to make profit, the need to consider the availability and financial requirement of the scarce product becomes necessary. It was therefore evident that short flight indigenous chickens though not as heavy as its counterpart as it was revealed in the study, but their demand by consumers for cultural and other aesthetic reasons are quite high thereby attracting higher price which actually make the enterprise a more viable one to explore.

CONCLUSION AND RECOMMENDATIONS

The study showed variation in feed intake and weight gain in the growth parameters of the four indigenous chickens with naked neck having the best growth performance followed by frizzle feathered implying genetically superior growth performance trait than the normal feathered and the short flight feathered but the reverse is the case in term of cost implication with the short flight chicken selling higher, followed by the normal feathered, the frizzle and lastly the naked neck indigenous chicken.

REFERENCES

- Adebambo, O.A., 2005. Indigenous poultry breeds: Genetic improvement for meat and eggs, *Proceedings of the 1st International Poultry Ota*, Ogun State, pp: 1-8.
- Alemu, Y. and Tadelde, D., 1997. The status of poultry production and development in Ethiopia. *Research Bulletin No. 4*, Debra-Zeit, Ethiopia. Page 3-6.
- FAO., 2006. Protein requirements for metabolic stability. Food and Agriculture Organization. Review on Nutritional Studies, Rome. Paper No 5. FAO, Rome, Italy.
- FAOSTAST., 2011. Food and Agricultural Organisation of the United Nations. [Http://faostat.fao.org/default.aspx](http://faostat.fao.org/default.aspx). Accessed July 19,
- Gueye, E. F., 2000. Women and family poultry production in Africa. 1 10, 98-102
- Gueye, E. F., 2003. Production and consumption trend in Africa. *World Poultry*, 19, 12-14.
- Jenkins, T.G. and Ferrell, C.L., 2006. Matching Beef Genetics with Production Environment. USDA, Meat Animal Research Center MARC, U.S., NE. Pp 41-46
- Law-Ogbomo, K. E and Ekunwe, P. A., 2011. Economic yield and profitability of maize/melon intercrop as influenced by inorganic fertilizer application in humid forest ultisol. *Notulae Scientia Biologicae* 3(4), 66-70
- Nigeria Airport Authority., 2018. Meteorological Department, Nigeria Airport Authority (NAA), Benin City, Edo State, Nigeria.
- Olukosi, J. O and Erhabor, P. O., 1988. *Introduction of farm management economics: principles and application*. AGITAB. Publisher, Zaria, Nigeria. Pp 48-56
- Oke., U.K., 2011. Influence of some major genes on early lay traits of crossbred local Pullets in a Humid Tropical Environment. *Online Journal Animal and Feed Research*., 1(3), 92-98.
- Oke, U. K., 2011. Influence of Some Major Gene of Growth Traits of Pullets to Humid Tropical Environment. *Agriculture and Biology Journal of North America*, 2(4), 570-576
- Peters, S. O., Ikeobi, C. O. N., Ozoje, M. O., Famakinwa, O. A., Oshodi, Y. S. and Olufumilayo, A. A., 2007. Egg quality of the Nigerian local chicken as influenced by some major genes. *Nigerian Journal of Animal Production*, 34 (1). 25-31
- RIM, 1992. Resources Inventory and Management of Nigeria. National Livestock Survey of the Federal Department of Livestock and Pest Control Services, Abuja. Nigeria, pp 2
- Saadey, S., Mekky, A., Galal, H.I. and Zein E.A., 2008. Diallel crossing analysis for body weight and egg production traits of two native Egyptian exotic chicken breeds. *International Journal of Poultry Science*, 7 (1), 64 – 71.

SPSS., 2011. Statistical Package for Social Sciences SPSS Inc. (16.0), 444 Michigan Avenue, Chicago.

Tadelle, D. and Ogle, B., 2001. Village poultry production systems in the central highlands of Ethiopia. *Tropical. Animal. Health Production*. 33 (6), 521-537.

Udoh , B. Okon, and Udoh, A.P., 2012. Egg Quality Characteristics, Phenotypic Correlations and Prediction of Egg Weight in Three (Naked Neck, Frizzled Feather and Normal Feathered) Nigerian Local Chickens. *International Journal of Poultry Science*, 11 (11), 696-699.