EVALUATION OF GROWTH PARAMETERS OF DIFFERENT STRAIN OF BROILER CHICKEN IN DAMBATTA, KANO STATE

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ABSTRACT

There is a significant effect of strain on growth rate and body weight of different ages of chicken (Taha et al., 2010). The study was conducted at Audu Bako College of Agriculture, Dambatta. A total of 120 day old broiler chicks were used in the study, comprising 40 each of the Amor, Chikun, and Zatek strains. The data collected was body weight body length, thigh length and and wing length.Chukun had the highest body weight at 2nd and 4th week, but Amor recorded the highest in 6th with 1350.30g and 1904.37g in week 8. In body length, Chukun had the highest followed by Zatek and Amor is the least. Amor had the longest wing followed by Zatek and lastly Chukun. Similarities were recorded in Amor and Zatek while Chukun is the least in terms of thigh length. There is variation genetically in terms of growth performance of Amor, Chukun and Zatek strains of broiler Chicken and it is important in effective selection for meat yield. Amor prove to be the better strain in terms of growth performance.

Key Words: Body length, Thigh length, Body weight, Wing length and Strains

INTRODUCTION

Poultry production is one of the best sources available for the production of high-quality animal protein in terms of meat and eggs (Ahmad *et al.*, 2010). As reported by Defra, in 2010, the domestic chicken population was about 17 billion worldwide. Ojedapo *et al.*, (2016) reported that different strains of broilers have been introduced into the Nigerian poultry industry over the years. To maximise profit, selection of the broiler strain that will reach market weight at the earliest possible age should be considered (Sam, 2019). Growth is a trait that is controlled by two factors, genetics and non-genetic factors (Udeh and Ogbu, 2011). Taha *et al.* (2010) reported a significant effect of strain on growth rate and body weight of different ages of chicken.The poultry industry is among the most effective methods to create high-quality animal protein in the form of meat and eggs (Ahmad et al., 2010). According to Defra, the global domestic chicken population in 2010 was 17 billion.Numerous broiler strains have been introduced into the Nigerian poultry industry over the years, as per Ojedapo *et al.*, (2016). Selection of a broiler strain that will achieve market weight at the earliest practicable age should be considered to maximise profit (Sam, 2019). Development is affected by two different variables: genetics and non-genetic impacts (Udeh and Ogbu, 2011). Taha *et al.* (2010) discovered that strain had a considerable impact on the growth rate and body weight of chickens of varying ages. The aim is to determine the body weight gain of different broiler strains and also the growth parameter of different broiler strains.

MATERIALS AND METHODS

The experiment was conducted at the poultry experiment station, Department of Poultry and husbandry, Faculty of Animal Health Production and Technology, Audu Bako College of Agriculture Dambatta, located within latitude of coordinates $12^0$40N and $10^0$30N, longitudes $7^0$40E and $9^0$30E (Mustapha *et al.*, 2014).

Experimental animal and management

A total of 120 day old broiler chicks were used in the study, comprising 40 each of the Amo, Chukun, and Zartech strains. The chicks were brooded for three weeks using an electric lamp as a source of light and a charcoal burner as a source of heat. They were fed broiler starter, a diet containing 2700Kcal/kg of energy and 23% crude protein, from 0 to 4 weeks, and broiler finisher, a diet containing 21% crude protein and 2900Kcal/kg, from 4 to 8 weeks.

Data collection

The body weight of the birds was individually measured using a weighing scale 2003B model. Body length was measured as the distance between the base of the neck and the pygosthe with a measuring tape. The distance between the hock joint and the pelvic joint was measured as thigh length, while wing length according to Adekoya *et al*. (2013) as taken as the distance between the points of attachment of the wing to the tip end of the wing using a measuring tape.

Statistical Analysis

Data obtained from the measurements were subjected to Analysis of Variance using (SAS v4.3 2010) and means differences were separated using Duncan procedure (Fadare *et al.*, 2020)

RESULT AND DISCUSSION

The body weight of broiler chickens at different weeks is presented in Table 1. Chukun starin had the highest body weight of 185.68g at the 2nd week of age, followed by Amor at 186.50g and 170.40g for the Zartech strain. Chukun had the highest body weight at week 4 at 623.74g, followed by 601.75g for Amo and 567.11g for Zatek. In the 6th week, Amo had the highest with 1350.30g, followed by 1315.97g in Chukun and lastly, 1279.69g in Zartech. In a similar case to the 6th week, in week 8, Amo had the highest weight of 1904.37g, followed by 1860.16g in Chukun, and the least was Zartech, with a 1783.43g bogy weight. Fadare *et al*. (2020) in a similar research reported that Marshall strain had the highest body weight followed by Cobb and Arbor Acre strains. Ahmed *et al.* (2018) reported highly significant difference between in body weight of different broiler strain in week 4 and week 8. The body length of broiler chickens at different ages as presemted in Table 2 shows no significance ($p > 0.05$) on the body length of broiler chicks at week 2 because the results were similar in all the strains. At 4 weeks, Amo had the highest body length at 14.00 cm, while there was no significant difference between Chukun and Zartech. Week 6 prove to be different as zartech was highest with 24.78cm followed by Amo and Chukun which has similar values of 23.94cm and 23.84cm respectively and lastly, at 8th week Chukun was highest with 32.03cm followed by Zartech 31.63cm and lowest was Amo with 30.03cm which shows a significant difference in term of body length between the three strains of broiler chicken. Ojedapo *et al.* (2016) reported that Cobb broiler strain had the highest body length than the other broiler strains during his study. While in this research Chukun had the highest body length than the other two strains. In another study by Olawuni *et al.* (2012) Marshall and Arbor acre had the similar body length The wing length was presented in Table 3 of all the strains. Wing length was similar in week 2 in all three strains, and Chukun had the highest in week 4 with 13.72cm, while Zartech and Amo were similar. However, there is a significant difference between all the three strains in week 6, with Amo recording the longest with 16.55cm, followed by 16.10cm for Zatek and 15.35cm for Chukun. Lastly, Amo has the longest with 24.55cm, followed by 23.98cm and 21.90cm for Zartech and Chukun, respectively, in week 8. Fadare et al. (2020) reported Marshal had longer wing length than Cobb and Arbor acre at week 6 and 8 unlike our findings were Chukun recorded the highest in week 4 while in week 6 and 8 Amo had the highest followed by Zartech and Chukun Strains. In Table 4, the thigh lengths of all the breeds were presented. A significant difference was shown in week 6 between Chukun, which has the least, and the other two strains. Similar cases recorded in the 8th week were Amo and Zartech having similar thigh lengths, and Chukun having the least with 10.81cm. As reported by Fadare *et al.* (2020) the effect of strain was not significant on the thigh length of broiler at starter phase which is similar to the findings of this research and also difference were onlt noticed on Cobb starin as it is in the case of our study were Chukun recorded the least in thgh length.

Table 1. Influence of strain on body weight (g) of broiler chicken ±SEM

Ages (weeks)	Amo	Chukun	Zartech
2	186.50[a]	185.68[a]	170.70[b]
4	601.75[a]	623.74[a]	567.31[b]
6	1350.30[a]	1315.97[b]	1279.69[c]
8	1904.37[a]	1860.26[b]	1783.43c

[abc] Means within a column with different superscript are significantly different ($p<0.05$) for strain

Table 2. Influence of strain on body length (cm) of broiler chicken ±SEM

Ages (weeks)	Amo	Chukun	Zartech
2	8.65	8.54	8.51
4	14.00[a]	12.53[b]	12.60[b]
6	23.94[b]	23.84[b]	24.78[a]
8	30.56[c]	32.03[a]	31.63[b]

[abc] Means within a column with different superscript are significantly different ($p<0.05$) for strain

Table 3. Influence of strain on Wing length (cm) of broiler chicken ±SEM

Ages (weeks)	Amo	Chukun	Zartech
2	8.65	8.75	8.76
4	12.53[b]	13.62[a]	12.47[b]
6	16.55[a]	15.35[c]	16.10[b]
8	24.55[a]	21.90[c]	23.98[b]

[abc] Means within a column with different superscript are significantly different ($p<0.05$) for strain

Table 4. Influence of strain on Thigh length (cm) of broiler chicken ±SEM

Ages (weeks)	Amo	Chukun	Zartech
2	7.41	7.45	7.43
4	9.24	9.21	9.15
6	10.93[a]	10.03[b]	10.12[b]
8	11.85[a]	10.81[b]	11.76[a]

[abc] Means within a column with different superscript are significantly different ($p<0.05$) for strain

CONCLUSION

Amo recorded the highest in 6th and 8th week. In body length Chukun had the highest followed by Zartech and Amo is the least. Amo had the longest wing followed by Zartech and lastly Chukun. Similarities were recorded in Amo and Zartech while Chukun is the least in terms of thigh length.

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