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PERFORMANCE AND CARCASS CHARACTERISCTICS OF BROILER FINISHER CHICKEN FED DIFFERENT CEREAL FIBER SOURCES.

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ABSTRACT

A feeding trial was conducted at the poultry research and teaching farm of Federal College of Horticulture Dadin- kowa, Gombe state to evaluate the effect of different cereal fiber sources on the performance and carcass characteristics. The finisher bird were fed different fiber source (maize bran, rice bran, sorghum bran, millet bran), which replace wheat offal at 10% level of inclusion in each treatment. Two hundred and twenty five chukun birds of chicken were use in this experiment at four weeks old and were allocated to five different treatment with three replicate each.(15 birds per replicate) using completely randomize design (CRD) and were fed with known quantity of feed and water ad-libitum. There were no significant ($p>0.05$) different among the parameters except final body weight. Most of carcass measurements were affected by the inclusion of fiber source. However there were significance ($p<0.05$) difference among the treatment for dressing percentage, neck, heart intestine and liver. Therefore different fiber source can be use to replace wheat offal in the broiler finisher diet.

***Keyword**: Broilers finisher chicken, cereal, fiber, Ad-libitum bran and carcass.*

INTRODUCTON

There is need to improve poultry production due to rapid population growth in Nigeria (Ekenyem*et al.* 2006). and increased supply of animal protein is no longer in doubt due to the high cost of fish, beef and other source of animal protein. The animal protein intake in Nigeria is estimated as 10g/head/day as against a minimum requirement of 35g/head/day (FAO, 1997).The problem of animal protein scarcity in Nigeria and other developing nation attained a deplorable status which calls for urgent remedy to the imminent protein malnutrition (Ekenyem*et al.* 2006). This problem has been blamed on high cost of conventional ingredients for feed making which is the major cost of production of monogastric animals (Agbakoba *et al*., 1995; Madubuike and Ekenyem, 2001; Faniyi, 2002). However, sub optimal production of the pulses and cereal, giving rise to stiff competition between human and livestock for the crop products (Tegbe *et al.,* 1984; Madubuike; 1992; Akinfola and Tewe, 2002; Babatunde*et al*., 1990), appears largely responsible for the high cost of feed ingredients.

MATERIALS AND METHODS

STUDY LOCATION

The study was conducted at poultry research and teaching farm of Federal College of Horticulture Dadin-kowa, Gombe State Which is located in Dadin-kowa along Gombe-Biu Road in Yamaltu-Deba local Government area of Gombe state. Dadin- kowa lie about 35 kilometers away from Gombe and is located in the Sudan savanna Ecological zone of Nigeria on latitude of 10^0 18E Longitude 11^0 31N and on the altitude of 218 meters above sea level.

EXPERIMENTAL DIETS AND MANAGEMENT

Two hundred and twenty five day old chukun broiler chicks were purchased from whole seller in Gombe main market. The chicks were fed commercial broiler starter diet (vital feed) throughout the brooding period. After brooding the chicks were randomly assigned to five dietary treatment replicated three times each with fifteen (15) birds per replicate. The experiment lasted for four weeks after brooding.

The feed was formulated using the following ingredients as in **Table 1**.

Table.1 Percentage Composition of the Experimental Diets at Finisher Phase (3-7 Weeks)

	DIETS/TREATMENTS				
Ingredients	**T_1**	**T_2**	**T_3**	**T_4**	**T_5**
Maize	61.00	61.00	61.00	61.00	61.00
Soya bean	5.00	5.00	5.00	5.00	5.00
Groundnut cake	15.80	15.80	15.80	15.80	15.80
Wheat offal	10	-	-	-	-
Maize bran	-	10	-	-	-
Sorghum bran	-	-	10	-	-
Rice bran	-	-	-	10	-
Millet bran	-	-	-	-	10
Fish meal	4.50	4.50	4.50	4.50	4.50
Limestone	1.00	1.00	1.00	1.00	1.00
Lysine	0.10	0.10	0.10	0.10	0.10
Methionine	0.10	0.10	0.10	0.10	0.10
Bone meal	2.00	2.00	2.00	2.00	2.00
Common salt	0.30	0.30	0.30	0.30	0.30
Premix	0.20	0.20	0.20	0.20	0.20
Total	**100**	**100**	**100**	**100**	**100**

Premix: Vit A 12,000mg. Vitamin E 15,000mg, Folic acid l000mg,Panthotenic acid 15,000mg, Vitamin B12 15,000 mg, Manganese 100 mg, Vitamin D3 2500,00iu, Nicotinic acid 14,000mg, Vitamin B1 2000 mg, Biotin 60,000 mg, Vitamin C 30, 000 mg, Copper 1500 mg, Cobalt 250 mg and selenium 100 mg.

EXPERIMENTAL DESIGN

The experimental design adopted was a completely Randomized design (C.R.D) the five diets formed the treatment and each treatment was replicated four times.

STATISTICAL ANALYSIS

All data collected were subjected to analysis of variance using (Completely Randomize Design) according to the Steel and Torrie, (1986). And significant differences between treatment means were separated using the least significant difference LSD (Duncan, 1955).

DATA COLLECTION

Initial body weight of the birds was taken before transferring them into various pens as replications. Weekly body weight, daily feed intake, and final body weight were all measured.

CARCASS MEASUREMENT

At the end of experiment 6 broiler chickens from each treatment (2 birds were randomly selected from each of the replicates) for carcass analysis, making a total of 30 birds from all the treatment.

RESULT AND DISCUSSION

Result on performance is presenting in **Table 2.** Birds in all the treatments were recorded similar initial body weight. There were significant ($p<0.05$) difference among the five treatment groups in the final body weight. The broiler finisher fed treatment 1 (control), treatment 2 (Maize bran)

and treatment 5 (Millet bran) recorded the heavier ($p<0.05$) final body weight compared to those fed on treatment 3 (sorghum bran), but did not differ from treatment 4 (rice bran). Daily feed intake of broiler finisher fed with the experimental diets in all the treatments were not significantly ($P>0.05$) difference. Daily weight gain for the broiler finisher chicken fed experimental diets were not significant ($P>0.05$) difference among the five treatments groups. This agreed with the observation of Waldroup *et al*. (1979) who fed varying levels of rice bran to broiler and found no significant ($p>0.05$) difference in the daily body weight gain. The values for feed conversion ratio (FRC) were not significantly ($P>0.05$) different among the treatments. This is indication that different test material has no effect on the performance of broiler finisher chickens. However, the values obtained were better than the values (3.20 to 4.05) reported by Uchegbu and Udedibie, (1998) who fed varying levels of rice hulls to broilers finisher. There is no effective feed conversion by the birds in all the treatment.

Table.2 Performance of Broiler Chicken Fed Different Fiber Source

	Treatments/Diets					
Parameter	**T_1**	**T_2**	**T_3**	**T_4**	**T_5**	**SEM**
Initial body weight(g)	636.33	622.57	642.64	508.63	611.97	16.12
Final body weight (g)	1788.70^{a}	1815.1^{a}	1500.70^{b}	1650.60^{ab}	1746.80^{a}	70.53^{*}
Daily feed intake (g)	130.00	117.50	117.50	117.50	130.00	4.52^{ns}
Daily weight gain (g)	51.56	53.00	43.04	49.72	52.09	12.05^{ns}
Feed conversion Ratio (FCR)	3.03	2.39	3.00	2.83	2.85	0.24^{ns}
Mortality (%)	0.3	0.6	0.3	0.9	0.7	-

NS = Not significantly ($P>0.05$) different
* = Significantly ($P<0.05$) different.
^{a,b,} and ^{c} means in the same row with different superscript(s) are significantly different
SEM = standard mean of error.

CARCASS CHARACTERISTICS

The carcass characteristic of broiler finisher fed different fiber source is presented in **Table 3.** There were no significant ($P>0.05$) different among the dietary treatments for slaughter weight, plucked weight, dress weight, drumstick, thigh, breast weight, back weight, wings, head, shank, gizzard, lungs, This is an indication that different fiber source have no effect on the above mention parameters for broiler finisher chickens. However, there were significant ($P<0.05$) difference among the treatments for dressing percentage, and neck, The dressing percentage of treatment 1(control) and treatment 3 (sorghum bran) were significantly ($P<0.05$) higher than the treatment 2 (Maize bran) and but similar to treatment 4 (Rice bran). However, the lowest value for dressing percentage was recorded in treatment 5 (millet bran).The neck weight for treatment 2 (Maize bran) and treatment 4 (rice bran) were significantly ($P<0.05$) higher than treatment 5 (Millet bran), but did not differ from treatment 1 (control) and treatment 3 (Sorghum bran). However, all the values recorded were slightly in line with the values reported by Ogunwole *et al.* (2012) who revealed a non significant ($p>0.05$) difference among all the parameters.

Table 3: Carcass Characteristics of Broiler Finisher Fed Different Fibre.

	Treatments/Diets					
Parameter	**T_1**	**T_2**	**T_3**	**T_4**	**T_5**	**SEM**

Slaughter weight	1797.7	1938.0	1774.3	1944.7	1841.0	135.90^{ns}
Plucked weight	1602.7	1508.0	1548.0	1656.3	1316.3	145.40^{ns}
Dress weight	1221.0	1120.7	1183.3	1285.0	1018.3	120.99^{ns}
Dressing percent	67.200^{a}	57.640^{bc}	66.580^{a}	66.103^{ab}	55.380^{c}	2.71*
Drumstick	160.00	144.33	138.33	167.67	127.33	15.91^{ns}
Thigh	192.67	171.00	185.67	200.00	151.33	22.04^{ns}
Breast weight	301.00	244.67	272.67	296.00	224.00	38.95^{ns}
Back weight	279.67	273.67	289.67	308.67	262.33	38.76^{ns}
Wing	144.67	137.33	141.33	147.60	130.00	12.76^{ns}
Neck	74.500^{ab}	85.333^{a}	76.00^{ab}	88.00^{a}	61.667^{b}	4.95*
Head	43.00	44.00	44.667	46.667	46.667	3.43^{ns}
Shank	67.000	65.000	57.00	65.000	57.000	6.85^{ns}
Gizzard	71.667	73.667	79.00	75.000	55.333	8.84^{ns}
Lungs	14.667	8.000	7.667	11.000	9.000	2.31^{ns}

NS = Not significantly (P>0.05) different * = Significantly (P<0.05) different.
$^{A, b,}$ and ^{c} means in the same row with different superscript(s) are significantly different
SEM = standard mean of error.

CONCLUSION

The study revealed that the substitution of wheat offal with other sources of fiber has no adverse effect (P>0.05) on the performance and carcass characteristics of broiler finishers Therefore, the result indicated that test material can support growth. Efficiency of production can be increased by reducing feed cost for profit maximization through the inclusion of any available fiber source in your locality. However the use of different fiber sources gives optimum result without eliciting any deleterious effect on the organs of the birds

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