DIETRY EFFECT OF SUBSTITUTING MIXED SAW DUST FOR WHEAT OFFAL ON GROWTH PERFORMANCE OF BROILER STARTER

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Abstract

The experiment was conducted using 99 broilers to determine the dietary effect of substituting mixed sawdust for wheat offal on growth performance of broiler starter. Three dietary treatments were formulated with mixed sawdust substituting for wheat offal at 0%, 35%, and 70% respectively in a completely randomized design experiment. The experiment lasted for 4weeks. Results of performance characteristics of broiler starter fed experimental diet showed that the average initial weight and mortality were not influenced by dietary treatment (p>0.05) while the average final weight, average weight gain, average feed intake and feed conversion ratio were all influenced by dietary treatment (p<0.05). The highest final live weight (1618.00g) was recorded for broiler fed diet 2 while the lowest final live weight (1536.00g) was noticed in broiler fed diet 3. Birds on diet 2 had the highest average weight (1132.00g) while the lowest of weight gain (1065.00g) was obtained in broiler fed diet 3. Birds fed diet 3 had the lowest feed intake value of (1912.12kg) while the highest feed intake (1991.21kg) was recorded for broiler fed diet 2. The best feed conversation ratio (1.76) was obtained in broilers fed (0% and 35% substitution level of mixed saw dust for wheat offal) respectively. It could be concluded that (35%) substitution level of mixed saw dust could effectively be substituted for wheat offal without adverse effect on the health status of broilers fed experimental diet.

Key words: Broiler, Mixed sawdust, Wheat offal, Performance

Introduction

A serious competition exists between the feed industry and other in the food chain (especially man) over conventional feed ingredients such as maize and soya bean. This has resulted in the high cost and scarcity of these conventional feedstuffs. Poultry feed producers are thus faced with the task of finding alternative feedstuffs that will not compromise quality. The search for such alternatives has exercised Animal Nutritionists in Nigeria for over a decade. Feeding has been recognized as an important aspect as it accounts for 70-75 percent of the total cost of poultry production, which is possible only by using locally available feed ingredients and agro industrial by-products.Also lack of good quality feeds throughout the year, which is attributed to the seasonal fluctuation in the supply of conventional ingredients, is a major problem preventing optimum performance of chicken in the tropics. Attention is, therefore, been focused on the cheap but suitable alternative feedstuffs, especially crop residues and industrial by-product, to sustain livestock industry (Alhassan, 1985). The evaluation of unconventional feed resources alongside other strategies would reduce pressure on the demand for conventional feed ingredients and accelerate the attainment of feed security for poultry. A large number of alternative feedstuffs with promise as poultry as poultry feed ingredients abound in Nigeria an example is the sawdust, a lignocellulose that is burnt away annually in industrial sites resulting in pollution thereby aggravating the existing environmental problems. Millions of tons of these lignocellulose materials, which are wasted every year, are found around industrial sites such as sugar mills saw mills (Pidgen and bender, 1975). However, scarce information exists on the ultilization of this by-product by chickens. This study, therefore focused on performance and economy of production of broiler fed mixed saw dust as a substituted for wheat offal.

Materials and methods

Experimental site: The experiment was carried out at the Teaching and Research Farm. Oyo state college of Agriculture and Technology, Igboora, Oyo State

Experimental ingredient: The saw dust used in the experiment was obtained from the local saw mill at Igboora, oyo.

Experimental bird and management: A total of 99 day old broiler chicks were obtained from zartech farm Nigeria Limited. The bird were weighed individually and allocated into 9brooding units.

Each unit housed 11 birds and was offered one of the three dietary treatments such that there were three replicate assigned to each dietary treatment. The birds were fed ad-libitum throughout the experimental period

Experimental diet: Three experimental diets were formulated for the starter phase 0-4 weeks. Experimental diet were introduced 0-4 weeks and fed for the duration of the experiment. Three substitution level of mixed saw dust substituting wheat offal at 0%, 35% and 70% levels respectively.

Parameters measured for performance of broilers fed experimental diet include: Initial weight, final live weight, average weight gain, feed intake, and feed conversion ratio.

Table 1: Gross composition of Experiment Diet (Starter phase)

Percentage	T1(0%)	T2(35%)	T3 (70%)
Ingredients			
Maize	56.00	56.00	56.00
Soya bean meal	34.00	34.00	34.00
Wheat offal	5.00	3.25	1.50
Saw dust	0.00	1.75	3.50
Lime stone	2.00	2.00	2.00
Bone meal	2.00	2.00	2.00
Salt	0.25	0.25	0.25
DL. Methionine	0.25	0.25	0.25
L.Lysine	0.25	0.25	0.25
Broiler premix	0.25	0.25	0.25
TOTAL	100.00	100.00	100.00
Metabolizable Energy (kcal kg)	2934.50	2957.55	2980.55
Crude protein (%)	21.75	21.63	21.53

A kg premix contains vitamin A; 110,000,000i, vitamin D; 2,500,000i, vitamin E; 20,000mg, vitamin k3; 3000mg, vitamin B3; 3.00mg, vitamin B2; 7000mg, vitamin B6; 500mg, vitaminb12; 25mg, pantothenic acid; 10,00mg, folic acid; 800mg, cobalt; 250mg, manganes; 80,000, Iron; 40,000mg, Zinc; 60,000mg, copper;800mg, Cobalt; 250mg, Iodine; 1,000mg, selenium(1%);150mg, chlorine; 200,000mg and anti oxidant;100,000mg.

Statistical analysis: Data obtained in the study were subjected to statistical analysis of variance and where mean exist were separated using Duncan multiple range test

Results and discussion

Results of performance characteristics of broiler starter fed experimental diet in presented in table 2. Result showed that the average initial weight and mortality were not influenced by dietary treatment

(p>0.05) while the average final weight, average weight gain, average feed intake and feed conversion ratio were all influenced by dietary treatment (p<0.05). The highest final live weight (1618.00g) was recorded for broiler fed diet 2 while the lowest final live weight (1536.00g) was noticed in broiler fed diet 3. The average weight gain also show significant (p<0.05) difference across the dietary treatments with the highest value (1132.00g) recorded for broiler fed diet 2 while the lowest weight gain (1065.00g) was obtained in broiler fed diet 3. The average feed intake was significantly (p<0.05) different across the dietary treatments, with the lowest value (21912.12kg) noticed in broiler fed diet 3 (70% substitution level of mixed saw dust for wheat offal). While the highest feed intake (1991.21kg) was recorded for broiler fed diet 2 (35% substitution level of mixed saw dust for wheat offal). The best feed conversation ratio (1.76) was obtained in broilers fed (0% and 35% substitution level of mixed saw dust for wheat offal) respectively.

Table 2: Performance characteristic of broiler starter fed experimental diet

Parameters	T1 (0%)	T2 (35%)	T3 (70%)	SEM
Average initial weight	506.00	486.00	471.00	10.13
Average final weight	1615.00^{ab}	1618.00^{a}	1536.00^{c}	21.92
Average weight gain	1109.00^{ab}	1132.00^{a}	1065.00^{c}	16.05
Average feed intake	1951.21^{b}	1991.21^{a}	1912.12^{c}	18.64
Feed conversion ratio	1.76^{a}	1.76^{a}	1.86^{c}	0.01
Mortality	0.00	0.00	0.00	0.00

a,b,c,d; Means on the same rows with different superscript differ significantly (P<0.05)

Discussion

The highest final live weight (1618.00) and lowest final weight (1536.00) was obtained for broiler fed diet 2 and broiler fed diet 3 respectively. The highest average weight gain (1132.00) was obtained for broiler fed (35%) substitution level of mixed saw dust for wheat offal. This result negate the finding of Ogungbenro *et al. (*2019) who reported the highest live weight and weight gain (1321.50 and 725.20) in cockerel fed diet 1 (0% substitution level of mixed saw dust for wheat offal). The result of this study reviewed that the lowest average weight gain was obtained in broiler fed 70% substitution level of mixed saw dust for wheat offal. This result confirmed the finding of Ogungbenro *et al*. (2019) who reported the lowest weight gain (668.20) was noticed in cockerel fed diet 3(40% substitution level of mixed saw dust for wheat offal. Dietary fiber is known to aids a healthier digestive process and supports the muscles and nerves. The feed intake obtained in this study showed significant (p<0.05) differences across the dietary treatments. The result of this study confirmed the findings of McLeod (1982) who reported that the proportion of dietary energy obtained from fats versus carbohydrates exert an effect on appetite through a physiological "appetite Control Centre" responsible to the blood levels of certain nutrients such as glucose and amino acids. The numerical higher feed intake observed for broiler fed diet 2 could be due to an improved palatability while high energy density of diet 3 could have slightly depressed appetite.

Conclusion and recommendation

Conclusion

It could be concluded that (35%) substitution level of mixed saw dust could effectively be substituted for wheat offal without adverse effect on the health status of broilers fed experimental diet.

Recommendation

Based on the result of this research, it could be recommended that mixed saw dust could be substituted for wheat offal in the broiler finishers ration up to (35%) substitution level. Since mixed saw dust could effectively be substituted for wheat offal in diet for broiler. The need for adoption of mixed sawdust and improvement is now glaring as the economy affects the production rate of many farmers.

Refrences

Alhassan,W.S., 1985. The potential of agro-industrial by product and crop residences for sheep and goat production in Nigeri.Proceedings of small ruminant production in Nigeria. 1:165-175

Ogungbenro, S. D., Amusa, H. O,., Oseni, T.A., Bako, B.A and Ogungbenro B. O. 2019. Economics of production of growing cockerels fed mixed saw dust as a substitute for wheat offal. Proc., 44th Annual conference of the Nigeria society for Animal Production, 17th- 21st- 2019, UNIABUJA, ABUJA. Pp. 435-438.

Pidgen, W.J. and F. Bender, 1975. Ultilization of lignocelluloses by livestock. Livestock nutrition; Selected articles from World Animal Review. FAO, Rome,pp: 30-32

Fajimi, A.O., Babatunde, G.M., Ogunlana F.F and A. Oyedeji, 1993.Comparative ultilization of rubber seed oil and palm oil by broilers in a humid tropical environment. *Anim. Feed Sci. technol*., 43: 177-188.