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308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorijps@gmail.com

Performance of Broiler Finisher Chicks Fed Varying Levels of Maize Offal as Replacement for Whole Maize

B.U. Ekenyem and T.K.O. Obih

Department of Animal Science and Fisheries, Imo State University, P.M.B. 2000, Owerri, Nigeria

Abstract: Two hundred 4-week old Anak 1000 Strain of broililes were used in a 28-day feeding trial in a completely randomized design to evaluate the performance of finisher broiler chicken fed varying levels of maize further replicated four times. Treatments having 0, 15, 30, 45 and 60% maize offal replaced corresponding weights of whole maize in the diets. Feed and water were supplied *ad libitum*. Routine vaccination programme and medication typical of measured. Results who that birds on control (0%) and 30% maize offal with weight gains of 1.56 kg and 1.55 kg respectively did not differ significantly ($p>0.05$) but were significantly ($p>0.05$) heavier than those on 15, 45 and 60%. Cost of producing one kg of feed declined from N54.50 in the control to N44.50 at 60% inclusion level of maize offal which differed significantly ($p>0.05$). Feed cost/kg gain (N) was lowest for birds on T₃ (30% maize offal), N 145.08 which differed significantly ($p>0.05$) from the other treatments.

Key words: Whole maize, maize offal, finisher broiler

INTRODUCTION

The competition between man and monogastric livestock for available grains and other foodstuff has led to an escalating cost of conventional feedstuff which in turn has resulted in the high cost of production rate at 70-80% (Agbakoba *et al.*, 1995; Madubuike and Ekenyem, 2001) and consequent increase in the cost of poultry products (Iyayi, 2002) making them unaffordable by the average Nigeria.

This has promoted the search for cheaper and alternative feedstuff for poultry (Oladunjoye *et al.*, 2005; Onuh, 2005). There is evidence from the works of researchers that the use of sgro-industrial by-products can reduce the cost of producing poultry as they cost little to procure (Onuh, 2005). In Nigeria, one of such by-products is maize offal which is a Sievate of wet milling of maize after obtaining the flour (pap) commonly called "Akamu" among the Igbos. Akamu (Igbo) or Pap is a popular food among Nigerians which is prepared by milling and sieving maize soaked in water for 24 h. The Sievate is often discarded as waste and has low human food value. Uko *et al.* (1990) reported that industrial maize offal replaced whole maize up to 50% without any deleterious effect on laying domestic fowl.

The present study was carried out to evaluate the performance of finisher broilers fed varying levels of maize offal made from fermented maize.

MATERIALS AND METHODS

Location and duration of study: The trial conducted at the Poultry unit of Imo State University. Teaching and

Research Farm, Owerri Nigeria. The study lasted for 28 days after brooding with a standard conventional broiler starter mash (Top feed brand).

Procurement and processing of maize offal: Maize Offal was procured as a sievate of the wet milling of whole maize grain fermented for 24 h. The maize offal was sun dried to amoisture level of less than 6% before it was incorporated as fed ingredient at levels 0, 15, 30, 45 and 60% to replace whole maize weight for weight (Table 1). Proximate analysis of the dry maize offal was conducted before the trial diets were compounded. The compounded diets (Table 1) were analyzed according to AOAC (1995).

RESULTS AND DISCUSSION

This study agrees with the earlier findings of Uko *et al.* (1990), that there was no significant difference ($p>0.05$) in weight gain and feed conversion ratio for laying birds fed 50% industrial maize offal and the control. The higher feed intake of birds on 45 and 60% maize may be attributable to the lower energy levels 2438.04 Kcal/kg and 2387.44 Kcal/kg ME respectively, which earsed the birds to eat more to make up for the short fall which is below the (NRC, 1994) recommendation of 2900 Kcal/kg.

The decreasing performance of the birds as the level of maize offal increased is traceable to the appreciable increase in the fibre level with increasing levels of maize offal (3.62% in control to 9.62% in T₅). This agrees with the findings of Opera (1996) and Iyayi (2001) who stated that high crude fibre levels in diets depressed growth rate appreciably.

Table 1: Composition of experimental diets

Ingredients	Treatments				
	0%	15%	30%	45%	60%
	T ₁	T ₂	T ₃	T ₄	T ₅
Maize	60.00	45.00	30.00	15.00	0.00
Maize offal	0.00	15.00	30.00	45.00	60.00
Soya bean spent	8.00	8.00	8.00	8.00	8.00
Brewers spent					
Grain (dry)	4.30	4.30	4.30	4.30	4.30
Palm kernel Cake	6.00	6.00	6.00	6.00	6.00
Groundnut cake	12.00	12.00	12.00	12.00	12.00
Fish meal	5.00	5.00	5.00	5.00	5.00
Bone meal	4.00	4.00	4.00	4.00	4.00
Feed premix					
Vitamin premix (B/F)	0.25	0.25	0.25	0.25	0.25
Common salt	0.30	0.30	0.30	0.30	0.30
L-Lysine	0.09	0.09	0.09	0.09	0.09
DL-Meathionine	0.06	0.06	0.06	0.06	0.06
Total	100.00	100.00	100.00	100.00	100.00
Calculated nutrient composition (%)					
Crude protein	20.10	20.25	20.40	20.55	20.70
ME (Kcal/kg)	2947.84	2807.74	2667.64	2438.04	2387.44
Crude fibre	3.62	5.12	6.62	8.12	9.62
Ether extract	4.00	3.70	3.40	3.10	2.80

*B/F: Broiler Finisher

Feed cost/kilogram differed significantly ($p>0.05$) between the treatments, decreasing as the level of maize offal increased from 0% in the control diet to 60% in diet five (T₅). This is sequel to the fact that the price of maize offal is about 25% that of whole maize.

The cost of producing one kilogram of weight gain also differed significantly ($p>0.05$) between the control (0% maize offal) N155.33 and other treatments. Treatment 3, (30% maize offal) had the lowest (N145.08) cost of production while 15% maize offal had the highest (N159.75). This is understandable since cost/kg gain was calculated as FCR x feed cost/kg.

The significant differences observed in the cost of producing one kg of feed as well as feed cost/kg weight gain portray a considerable reduction in cost of generating one kg weight gain thereby achieving the major aim of this work which is directed towards producing cheap and affordable broiler chicken.

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