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PERFORMANCE OF BROILER FED DIFFERENT LEVELS OF PREMIX AND GROUND NUT CAKE

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ABSTRACT

The poor FCR observed for treatment T_1, T_2 and T_3 as compared to the control group may reveal the fact that the low feed consumption has resulted in low weight gain with ultimately poor feed conversion ratio. The higher mortality observed for T_1 (8 %) and T_2 (12 %) may be due to some low level of toxins present in GNC, Which is more prone to rancidity as compared to other vegetable protein source. The economics of the broilers production reveled that profit making combination of control group (25 % soybean meal + 15 % premix + 60 % maize). The higher level of inclusion of costly premix with decreasing levels of GNC has resulted in increasing the loss per bird and cost : loss ratio. It may also be concluded that the premix may be used only at 10 to 15 % level with any vegetable protein source.

Key words : *Performance, premix, ground nut cake, broiler*

India is a vast tropical country with 84 corers population. The demand for poultry meat and egg are increasing day by day. Efforts are being made to meet this demand by providing high density diets of increasing population. Broilers have shorter life cycle and are much profitable than larger livestock as they are efficient converter of feed in to high quality protein and energy for human consumption. 70–80 per cent of production cost mainly depends on the cost of feed (1). To minimize the feed cost it is essential to reconstitute the ingredients in minimum market value. There fore thus, an attempt will be made to study the "Performance of broilers on maize with different levels of groundnut cake based di*et al*ong with different levels of Premix".

MATERIALS AND METHODS

Present study was carried out on 400 day old adult chicks of Vencob strain were purchased from Venkateshwara Hatcheries Pvt. Ltd., Pune (M.S.). The experiment was carried out for 42 days (6 weeks) on 400 adult chicks from 24th April to 5th June 2004. The birds were housed under deep litter system with rice husk as litter material. The standard managemental practices like uniform feeding, watering, vaccination and medication and floor space was provided to all group through out the experimental period were followed for all the groups. The chicks were weighed and randomly distributed in control, T_1, T_2 and T_3 treatment groups having four replications, each replication with 25 chicks. Observations like Feed Conversion Ratio (FCR); Mortality and Economics of broilers from different level of premix, groundnut cake and maize on the performance of Broiler were recorded. The differences among treatments within experiments were determined analyzing the data generated by using Equal Completely Randomized Design. The treatment means were compared by critical differences (CD) by suing statistical method and analysis of variance.

RESULTS AND DISCUSSION

Weekly feed conversion ratio (FCR) showed non-significant differences among control and treatment groups except at 21st days of age where it showed significant ($P < 0.05$) differences (Table-5). The poor FCR observed for treatment T_1, T_2 and T_3 as compared to control groups. This may be revealing the fact that low feed consumption has resulted in low weight gain with ultimately poor FCR (2). These findings showed that the control group showed better weekly feed conversion ratio which contain soybean as major protein source when compared to groundnut cake in treatment groups showed poor weekly feed conversion ratio which may be due to anti-nutritional

Table-1: Experimental design used for housing of broilers

Sr. No.	Treatment	No. of birds/ pen/ replication	No. of replication	Total number of birds/ pen
1.	Control group (60 % maize + 25 % deoiled soybean meal + 15 % premix)	25	4	100
2.	T_1 group (60% maize + 30% GNC (deoiled) + 10% premix)	25	4	100
3.	T_2 group (60% maize + 20 % GNC (deoiled) + 20% premix)	25	4	100
4.	T_3 group (60% maize + 15% GNC (deoiled) + 25% premix)	25	4	100
	Total number of birds			400

Table-2: Nutrient composition of the feed ingredients used to prepare iso-caloric and iso-proteinous broiler ration

Sr. No.	Particulars	Ingredients			
		Maize	GNC	Soya	Premix
1.	Crude protein	9.2	45	45	30.75
2.	Energy (ME) Kcal/kg	3350	2400	2240	3000
3.	Ether extract	2.1	7.81	22.2	5.76
4.	Ash	2.9	7.44	4.8	22.17

Table-3: Nutrient composition of various rations used for the present research.

Sr. No.	Treatment	Experimental ration			
		Control	T_1	T_2	T_3
1.	Crude protein (%)	20.66	21.97	20.55	19.83
2.	Energy ME (Kcal/kg)	2950	2960	2930	2920
3.	Crude fibre	5.049	5.46	5.48	5.050
4.	Moisture	10.614	10.540	10.48	10.33

Table-4: Body weight (gm) per bird/weak of broilers at different ages with different levels of premix, groundnut cake (GNC) and maize on performance of broilers

Treatment	No. of birds	Age (days)					
		7	14	21	28	35	42
Control	100	95.55	206.55	461.90	838.88	1268.2	1562.3
T_1	100	91.85	159.80	275.35	424.00	664.15	886.85
T_2	100	95.10	176.0	238.35	315.65	476.15	678.55
T_3	100	95.53	149.64	248.58	346.53	546.76	734.00

Table-5: Weekly feed conversion ratio per bird/week of broilers at different age with different levels of premix, groundnut cake (GNC) and maize on performance of broilers

Treatment	Age (days)					
	7	14	21	28	35	42
Control	1.87	1.94	1.83	1.80	2.06	2.71
T_1	2.01	2.62	2.53	2.69	1.88	2.66
T_2	1.7	1.83	3.38	3.23	2.54	2.47
T_3	1.67	2.99	2.02	3.30	1.90	2.97
SE +	4.56	4.082	4.08	5.400	4.08	4.08
CD	1.404	1.256	1.256	1.66	1.25	1.25
Grand Mean	1.813	2.345	2.44	2.75	2.09	2.70

factors and some unknown feed ingredients which reduced the feed consumption. These findings of present study are in agreement with the findings (3).

From Table 6 it can be concluded that weekly cumulative FCR for control, T_1, T_2 and T_3 treatments at 7, 14 and 28 days are found non-significant while significant differences were observed that 21, 35 and 42 days ($P < 0.05$). The weekly cumulative feed conversion ratio in control group showed better performance up to 42nd days of age which showed good protein utilization of soybean as compared to that of deoiled groundnut cake. This trait was having similar trend to that of weekly FCR.

Table-6: Weekly cumulative feed conversion ratio per bird/week of broilers at different age with different levels of premix groundnut cake (GNC) and maize on performance of broilers.

Treatment	Age (days)					
	7	14	21	28	35	42
Control	1.87	1.91	1.58	1.67	1.78	1.98
T_1	2.01	2.36	2.43	2.52	2.26	2.37
T_2	1.70	1.75	2.24	2.74	2.63	2.55
T_3	1.68	2.21	2.12	2.49	2.25	2.39
SE +	4.56	4.08	4.08	3.53	3.53	3.53
CD	1.404	1.25	1.25	1.087	1.087	1.087
Grand Mean	1.813	2.05	2.09	2.35	2.23	2.32

Table-7: Economics of broilers from different levels of premix groundnut cake (GNC) and maize on performance of broilers

S. No.	Particulars	Control	T_1	T_2	T_3
1	Cost of day old chicks (Rs)	13	13	13	13
2	Rate of feed (Rs/kg)	9.96	8.91	9.76	10.18
3	Average total feed consumed/bird (kg)	3.00	1.98	1.61	1.64
4.	Cost of feed consumed/bird (Rs)	29.88	17.64	15.71	16.69
5.	Average body weight (g)	1562.3	886.85	678.55	734.00
6.	Feed consumed/kg live weight (g)	2000	2250	2370	2234
7	Cost of medicine,vaccine, litter, etc. /bird (Rs)	5	5	5	5
8	Total cost of production (1+4+7)	47.18	35.64	33.71	34.69
9	Average price realised/bird @ Rs. 34	53.04	30.12	23.05	24.95
10	Net profit/bird (Rs)(9-8)	5.16	-5.52	-10.66	-9.74
11	Cost:benefit/loss ratio	1:0.01	1:-0.15	1:-0.31	1:-0.28

From table-7 it can be concluded that the average feed consumed per bird for control, T_1, T_2 and T_3 treatments were 3.00, 1.98, 1.61 and 1.64 kg, respectively. The average body weight for control T_1, T_2 and T_3 treatments were 1562.3, 886.85, 678.55 and 734.00 g, respectively. The total cost of production per bird for control, T_1, T_2 and T_3 treatments were 47.88, 35.64, 33.71 and 34.69. The net profit/loss per bird were Rs. 5.16, -5.52, -10.66 and –9.74, respectively for control, T_1, T_2 and T_3 treatments, while the net profit per bird was recorded only in the control group (Rs. 5.16).

The average feed consumption per bird was the lowest for T_2 (1.61 kg) and the highest for control (3.0 kg). The average body weight was highest for control (1562.3 g) and the lowest for T_2 (678.55 g) which showed that diet containing soybean improves the body weight of birds compared to that of diet containing GNC as a major protein source.

The total cost of production per bird was highest for control (Rs. 47.88) and lowest for T_2 (Rs. 33.71). Thus, the economic group is control (premix 15 % + 25 % soybean + 60 % maize) and the losses were observed in T_2 (premix 20 % + GNC 20 % + 60 % maize), T_3 (premix 2.5% + GNC 15 % + 60 % maize) and T_1 (premix 10 % + 30 % GNC + 60 % maize) treatment groups (Table-7).

It may be concluded that the different levels of GNC + premix + maize had non significant effect over the economic returns of the different treatment groups. Further, it may be concluded that 15 % premix + 25 % soybean meal + 60 % maize containing ration proved most economic for broilers with high return per bird. These findings are in agreement with the findings[1 and 6].

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