EFFECT OF SUPPLEMENTATION OF PROBIOTICS AND MULTIENZYMES IN LOW ENERGY DIET ON THE PERFORMANCE OF JAPANESE QUAILS

Department of Animal Nutrition, Nagpur Veterinary College, Nagpur.

A.N. Panchbuddhe, A.A. Zanzad, B. N. Ramteke, R. D. Lanjewar, R. B. Patankar

ABSTRACT:

An experiment was conducted to study the effect of supplementation of probiotics and multienzymes in low energy diet in Japanese quails from day old to forty-two days. The dietary treatment consisted of four groups viz., Control (T0) fed on standard quail diet . Group T1 fed low energy diet , group T2 fed low energy diet along with multienzymes @ 500mg/kg and Group T3 fed with low energy diet along with probiotics (Lactobacillus sporogenes) @ 500mg/kg. All the groups were on isonitrogenous diets and were reared under standard managemental conditions. Metabolic trial was conducted for nitrogen balance. It was observed that there was significant (P<0.01) increase in average final body weight in T2 and T3 than T1 and numerically higher weight than control (T0). The feed consumption was significantly higher (P<0.01) in T1 than T2, T 3 and control T0 . The average weekly feed conversion ratio was found significantly (P<0.01) improved in supplemented groups T2 and T3. The nitrogen retention of T3 group was maximum followed by T2, T0 and T1.

KEY WORDS: quail, low energy diet, probiotics, multienzymes.

INTRODUCTION:

Ever increasing prices of conventional feed ingredients are compelling to adopt an efficient feeding programme with low cost feed ingredient and maximum utilization of nutrients of available feed ingredients. Various growth promoters are being used viz., probiotics, multienzymes, organic acids, yeast and casein which may improve growth rate and feed utilization efficiency of birds (Saha, 2002). Supplementation of feed additives play a significant role in improving quail production and performance (Kamble, 2007). The multi enzymes convert the non starch poly saccharides of the crude fibre into simple sugars and also increase the absorption and utilization of the later. The probiotics improve the gut health of birds and thereby improve feed conversion, weight gain and better feed efficiency (Dev Sharma, 1988). Thus the present experiment was conducted to study the effect of probiotics and multi enzymes supplementation in low energy diet in Japanese quails.

MATERIALS AND METHODS:

One hundred sixty day old quail chicks were weighed individually and uniformly distributed into four groups of forty birds each. Control (T0) fed on standard quail diet (starter diet 2800 Kcal ME/kg and finisher diet 2600 Kcal ME/kg), Group T1 fed low energy diet (starter diet 2600 Kcal ME/kg and finisher diet 2400 Kcal ME/kg), Group T2 fed low energy diet along with multienzymes @ 500mg/kg and Group T3 fed with low energy diet along with probiotics (Lactobacillus sporogenes) @ 500mg/kg. All the chicks were reared under standard managemental conditions. During the experimental period, overall performance of broilers was studied by recording data on body weight and feed intake at weekly interval. The metabolic trial was conducted for nitrogen balance study at the end of the experiment. All the data were analyzed by applying the completely randomized design as described by Snedecor and Cochran (1995).

RESULTS AND DISCUSSION:

The effect of probiotics and mutienzymes in low energy diet of Japanese quails on the performance is presented in Table. The supplementation of probiotics @ 500mg/kg and multi enzymes @ 500mg/kg with low energy diet resulted in significantly (P<0.01) higher live body weight gain than the low energy diet group without supplementation. The results were in agreement with the findings of Kamble (2007). The weight gain of T3 group was significantly (P<0.01) higher than control and T1. Similar findings were observed by Chitra et al. (2004) who reported significant increase in weight gain in Japanese quail with the supplementation of probiotics.

The feed consumption was significantly (P<0.01) higher in T1 than other treatment groups. The results are in agreement with Wilson et al. (1977) who observed the higher feed consumption of quails receiving low energy diet and decreased feed consumption with increased energy content of diet. It was observed that, quails from T3 group receiving probiotics supplementation were significantly (P<0.01) more efficient in feed utilization followed by group T2, T0 and T1. The present findings were in agreement with Saha (2002).

The nitrogen retention of T3 group was maximum followed by T2, T0 and T1. These results are in agreement with Taksande et al. (2008) who reported the highest nitrogen retention in treatment group fed with L. sporogens.

Thus, it can be concluded that supplementation of probiotics or multienzymes @ 500mg/kg in low energy diet of quails enhance the production performance.

Moreover, addition of probiotics found to be more efficient in low energy diet of Japanese quails in improving the performance.

Table-. Effect of supplementation of probiotics and multienzymes in low energy diet of Japanese quails on growth performance

Parameter	T_0	T_1	T_2	T_3	Pooled S.E.
Initial body weight (g)	7.25	7.06	7.08	7.12	
Final live body weight (g)**	137.62 [a]	135.75 [b]	144.8 [a]	151.63 [a]	3.62
Avg Gain in weight (g)*	130.37 [a]	128.69 [a]	137.72 [b]	144.51 [c]	3.63
Avg.Feed consumption (g)**	524.01 [a]	544.71 [b]	528.17 [a]	528.49 [a]	4.57
FCR**	4.02 [b]	4.23 [b]	3.84 [a]	3.66 [a]	0.14
% N_2 retention	55.93	51.72	58.60	60.34	----

[abc] values bearing of different superscript in a row differ significantly.
* P<0.05 ** P<0.01

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