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Effect of Multi enzyme and Probiotic in diet containing different levels of wheat screening wastes on performance, carcass traits, nutrient digestibility and intestinal morphology in broiler chickens

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Abstract

The purpose of this experiment was to investigate the effects of using different feed additives in basal diets in which part of the corn was replaced with wheat screening wastes. For this purpose, 432 Ross 308 male broilers were used in 9 treatments with 4 replications with 12 broiler chickens in completely randomized design from 1 to 42 days of age. Treatments included 1) corn and soybean meal (without additive) 2) corn and soybean meal in which 15% corn was replaced with wheat screening wastes (without additive) 3) corn and soybean meal in which 30% corn was substituted by wheat screening wastes (without additive) 4) diet 2 + multi enzyme 500 g /tone of diet 5) diet 3 + multi enzyme diet 500 g / tone of diet 6) diet 2 + probiotic 150 g / ton of diet 7) diet 3 + probiotic 150 g / tone of diet 8) diet 2+ 75 g probiotic + 250g multi enzyme /ton of diet 9) diet 3+ 75 g probiotic + 250g multi enzyme /ton of diet. The results showed that the best feed conversion ratio was seen in the control and diet containing 15% wheat screening wastes with and without multi-enzyme, probiotic and multi-enzyme + probiotic treatments compared to the diet containing 30% wheat screening wastes treatments with and without multi-enzyme supplement ($P < 0.05$). In terms of production efficiency index, the highest levels was observed in control and in the diet containing 15% wheat screening wastes with and without supplementation of multi-enzyme, probiotic and multi-enzyme + probiotic ($P < 0.05$). Best energy efficiency and protein efficiency index were seen in control, receiving 15% wheat screening wastes with and without probiotic, multi-enzyme and multi-enzyme + probiotic treatments ($P < 0.05$). Economically, the cost per kilogram of live weight was the lowest in the receiving 15% wheat screening wastes plus multi-enzyme, probiotic and multi-enzyme + probiotic treatments ($P < 0.05$). The lowest dietary crude protein digestibility was observed in the diet containing 30% wheat screening wastes with and without additives and the highest in the diet containing 15% wheat screening wastes supplemented with multi-enzyme, probiotic and multi-enzyme + probiotic ($P < 0.05$). The lowest digestibility of crude energy was observed in treatments containing 15 and 30% wheat screening wastes without additive compared to control treatments, containing 15% wheat

screening wastes with multi-enzyme, probiotic and multi-enzyme + probiotic ($P < 0.05$). The highest villi length was observed in the treatments receiving 15% wheat screening wastes + multi-enzyme + probiotic supplement compared to the 30% wheat screening wastes treatments with and without additive supplement ($P < 0.05$). Viscosity of digesta was significantly lower in control and treatments containing 15% wheat screening wastes in both conditions with and without supplementation than treatments containing 30% wheat screening wastes with and without supplementation ($P < 0.05$). In conclusion, the results of this experiment showed that corn of diet replaced by 15% of wheat screening wastes plus 250 g of multi enzyme + 75 g probiotic per ton of diet can be used in broiler diets without any adverse effects on performance, production index, nutrient digestibility and bone properties.

Key Words: Broiler chicken- Probiotic- Multi enzyme- Nutrient digestibility-Performance- Wheat screening wastes