

Effect of Enzyme Supplementation on Wheat or Barley Based Diets on Layer Performance

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Metabolizable energy is a major nutrient requirement of poultry. This is most cheaply provided by carbohydrates in cereals such as wheat or barley. However non-starch polysaccharides (NSP) in wheat (pentosans, 6.1%) and barley (beta-glucans, 7.6%) (Choct and Annison, 1992) increase gastrointestinal (GI) viscosity. Increased viscosity in the intestine prevents the action of digestive enzymes on substrate molecules, increases the food transit time in the intestine, and reduces digestibility and absorption rate. The net effect is poor flock performance (Morgan and Bedford, 1995).

Enzyme supplementation of barley based diets in USA has shown a positive response for energy bio-availability (ME), egg production and feed conversion ratio of layers (Wyatt and Goodman, 1993).

The present study was undertaken to find the effect of enzyme supplementation of wheat or barley based diets on layer performance.

A total of 48 layers, 34 weeks old, were kept in single bird metabolism cages in an open-sided sawtooth shed. Six birds were allotted randomly to each treatment. Experimental diets consisted of 70%

wheat or barley mixed with different commercial enzyme mixes (at the recommended levels) and fed *ad libitum* to individual birds for thirteen weeks.

Overall production (88.5%) from all the groups was good. Each enzyme supplement improved all egg production parameters but these were not significant. The results indicated that, provided a larger number of replications is used, further investigation of the effect of enzymes in wheat and barley.

References

- Choct, M & Annison, G. (1992). The inhibitions of nutrient digestions by wheat pentosans. *British Journal of Nutrition* **67**:123-128.
- Morgan, A.J. & Bedford, M.R. (1995). Advances in the development and application of feed enzymes. *Proceedings of Australian Poultry Science Symposium* 7,109-1 15
- Wyatt, C.C. & Goodman, T. (1993). Utilisation of feed enzymes in laying hen rations. *Journal of Applied Poultry Research* **2**: 1,68-74.