

Enzymes improve profitability of laying hens fed wheat or barley diets

A. Kumar¹, J. Dingle¹ and D. Creswell²

¹Department of Animal Production, The University of Queensland, Gatton College, Lawes QLD 4343

²Creswell Livestock Consultants, Mosman NSW 2088

Several factors influence the profitability of a layer farm. Feed quality is a major factor and the quality of many feedstuffs can be improved by **enzyme** supplementation. Improved profitability by using feed enzymes in broiler production is well documented. The success of supplementation of broiler diets created an interest in the use of enzymes for increasing egg production (Creswell *et al.*, 1996). Recent research in feed enzyme technology has identified substrate specific and bird specific (broiler/layer) enzymes for increasing the performance of meat and egg birds. The economic advantages of using these enzymes in layer feeds is not well documented, however. The present study was undertaken to determine the economic feasibility of enzyme supplementation of wheat or barley based diets in layers over the period of 23-63 weeks of age.

A total of 576 old ISA brown pullets (twenty-three weeks) were randomly allocated-three to a cage in an open sided sawtooth shed. There were four experimental diets and each diet was offered to 144 pullets. Each diet had 48 replications for egg production, egg weight and egg mass, and eight replications for feed intake, feed conversion, mortality and economics data. Experimental diets consisted of approximately 60% barley or wheat.

Diets were offered either without or with a commercial enzyme of beta-glucanase or **xylanase** at 1kg/t in the barley or wheat diets, respectively. With enzymes, the diets were formulated assuming an increase of 10% ME for barley and 6% ME for wheat. Results for birds fed either the non-supplemented or enzyme supplemented diets are shown below. Wheat and barley results were similar and have been combined.

Enzymes improved **henhouse** egg production by 5.6%, egg mass by 4.9%, weight gains by 5.1% and net returns by 8.3%. Feed consumption was 4% higher in the enzyme supplemented groups. Enzyme supplementation did not influence egg weight, feed conversion or mortality. The enzymes improved net returns (egg income minus feed cost) by \$1.92 per bird over the 41 weeks of the trial.

References

- Creswell, D., Kumar, A., Dingle, J. and Graham, H. (1996) Use of supplemental enzymes for laying hens fed wheat and barley diets. *Proceedings of the New Zealand Poultry Industry Conference*. p. 166-173.

Treatments	Hen House Egg Production	Egg Weight (g)	Egg Mass (g/d)	Feed Intake (g)	Weight Gain (g)	Net returns /hen ¹ (\$)
Control	79.9	63.1	50.4	115.9	178	23.36
Enzyme	84.4	62.6	52.9	120.5	270	25.28
P value	0.04	0.22	0.09	0.01	0.02	0.06

¹ egg income minus feed cost (including cost of enzyme).