Title: Effects of Commercial Feed Enzymes in Wheat-based Diets on Egg and Egg Shell Quality in Imported Strains of Laying Hen
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Summary

The aim of this project was to investigate the efficacy of adding commercial feed enzyme preparations to wheat-based diets in laying hens.

Wheat-based diets were specifically chosen for analysis due to their common occurrence in layer hens' diets in Australia and also because of the high levels of non-starch polysaccharides (NSP) which is believed to reduce efficiency of utilisation of feed ingredients.

However, as most of these findings have come from studies looking at broilers and relatively little is known about the situation in layers, this report seeks to gain further insight into the matter.

As part of the analysis, diets were formulated and manufactured using two wheat types, "normal" and "pinched". Different commercial enzyme preparations were also added.

Over three trials, these experimental diets were then fed to birds to determine a variety of effects on the bird including physiology changes and feed utilisation. In addition, the effect of the enzyme inclusion on the egg was examined to determine any changes to shell colour, shell breaking strength, shell thickness, albumen quality and yolk colour.

This project, in conjunction with earlier studies, indicates that the addition of commercial enzyme preparations has the potential to improve egg shell quality. This is particularly likely to be the case if the grain on which the diets are based is high in levels of non-starch polysaccharides. However, there are potentially negative effects of commercial feed enzymes on egg internal quality and shell colour which are relatively small and not of commercial significance but need to be monitored when feed enzymes are incorporated into layer feeds.

Because the addition of commercial feed enzymes to layer feed represents a significant cost to the producer (even if only a small cost in relation to the entire operation), it is recommended that individual producers need to conduct their own cost-benefit analysis before using feed enzymes on a regular basis.