

Wheat variability - optimising enzyme application

By DAVID CRESWELL*

Wheat is known to be a highly variable ingredient, however, from time to time, it is used extensively as an energy source in broiler diets in some Asian markets, such as the Philippines and Korea.

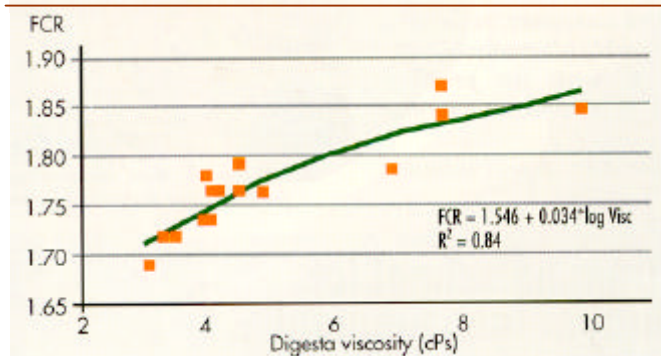
In this region, its contribution to the total energy content of a broiler's diet can be up to 60%, hence, even small

Increasing digesta viscosity due to an increase in the amount of soluble arabinoxylans in wheat will lead to lower wheat AW content and poorer.

Figure 1 demonstrates the close correlation of digesta viscosity with actual bird performance.

It is well established that the major problem in feeding wheat-based diets is the increase in viscosity of the intestinal digesta, brought about by the long chain soluble arabinoxylans present in wheat. Endo-xylanases,

Figure 1: Digesta viscosity is very closely correlated to broiler performance (eight different wheats included at 50%, diets with and without Avizyme 1300 fed from 15-28 days of age).

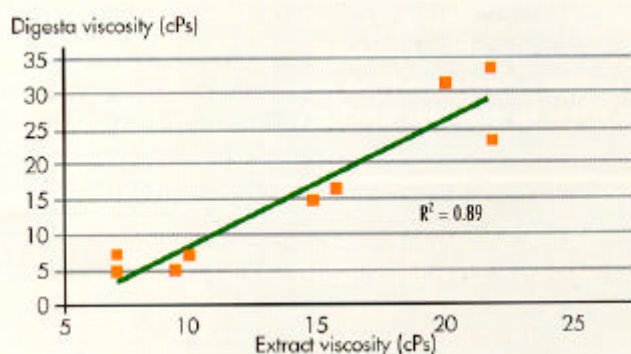


deviations from the expected wheat AME value will result in variable, and in some instances, significantly reduced bird performance. There can be other problems associated with the use of wheat such as wet droppings, which, via poor litter condition, lead to problems such as hock burns, breast blisters and subsequent carcass downgrades.

It has been shown that variations in the feeding value of different wheats for broilers closely correlate to the digesta viscosity in the chicken.

such as Avizyme 1300 provide an effective means of reducing the viscosity by partially breaking down these fibre components.

Figure 3: Correlation between digesta viscosity and Avicheck extract viscosity.



The use of xylanase enzymes in broiler diets based on wheat, has been recognised as the most effective means of controlling digesta viscosity and ensuring more consistent nutritional quality.

Figure 2: Variation in wheat AME without or with Avizyme 1300 addition (broiler chicks of 16 days of age).

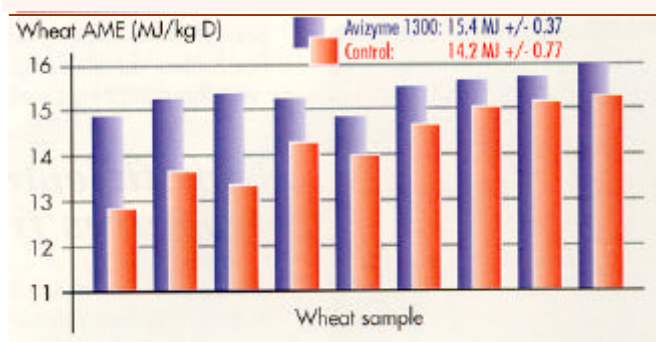


Figure 2 illustrates the ability of Avizyme 1300 to improve the AME value of a wheat sample, and to reduce the variation of AME between samples.

Historically, Avizyme has been recommended for use at a fixed rate of 1 kg per tonne of complete feed, as no method was available to determine cereal quality or predict the most economic dose rate for each situation. A fixed dose level, therefore, represented the best way to ensure maximum

cereal.

Figure 3 illustrates the relationship between the Avicheck extract viscosity assay and digesta viscosity.

This means that rather than applying an arbitrary quantity of Avizyme to a sample of wheat, Finnfeeds Avicheck service enables feed producers to evaluate an individual batch of wheat to predict its nutritional value.

The cereal quality measurement is then input into a PC-based computer model, to determine the most cost-effective dose of Avizyme specific to a feed producer's circumstances.

The bottom line is that feed producers can now exploit the full economic potential from feed enzyme technology.

Dr David Creswell, a nutrition consultant working throughout South East Asia, wrote this article on behalf of Finnfeeds International Ltd. Further details can be obtained from Finnfeeds +65 224 8600.