

# DIETARY ENZYME IMPROVES NUTRIENT DIGESTIBILITY OF CANOLA MEAL-DIETS

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## Summary

A trial was conducted with cannulated weaned pigs to study effects of a dietary enzyme on nutrient digestibility. Supplemental enzymes that degrade some of the NSP were useful in improving ileal digestibility of energy and amino acids, but not total tract digestibility of energy.

## Introduction

The nutritional value of canola meal and cereal grains is limited by fiber, also named non-starch polysaccharides (NSP). The objective was to evaluate effects of supplementation of a wheat or barley-canola meal diet with NSP-degrading enzymes ( $\beta$ -glucanase and xylanase) on digestibility of energy and amino acids.

## Experimental Procedures

Cannulated weaned pigs were fed 25% canola meal diets with either barley or wheat as the main cereal, with or without a dietary enzyme mix. Diets were formulated to 3150 kcal DE and 10.6 g digestible lysine, and were thus limiting in energy but not amino acids.

## Results and Discussion

Dietary enzyme improved ileal digestibility of energy from 63 to 70% in the barley- and from 68 to 73% in the wheat-canola meal diet ( $P < 0.05$ ), resulting in a marked improvement in the amount of DE digested by the end of the small intestine (Figure 1). An enzyme effect could not be detected on total tract energy digestibility ( $P > 0.10$ ), and the resulting dietary DE content was similar among diets (Figure 2). Although the diets were formulated to 3150 kcal DE/kg diet, the measured DE content at 90% DM was 2870 for the barley- and 2920 for the wheat-canola meal diet. Dietary enzyme did not affect amino acid digestibility for the barley diet (81%), but improved apparent lysine digestibility from 81 to 84 % for the wheat-canola meal diet ( $P < 0.05$ ).

## Implications

Together these results indicate that using supplemental enzymes with a barley- or wheat-canola meal diet can increase the amount of energy available to support protein deposition. One strategy to maximize the benefits of supplemental enzymes can be to formulate diets to be limiting in energy (thus reducing cost) and estimate the improvement in available energy to reach a target for energy required to support protein deposition.

## Acknowledgements

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Figure 1. Ileal digestible energy of canola meal diets.

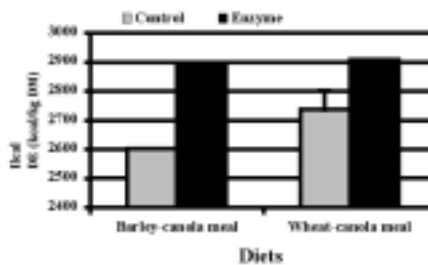
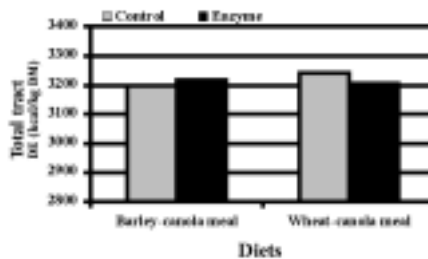


Figure 2. Total tract digestible energy of canola meal diets.



*Enzymes  
can allow  
lower cost  
feeds to  
deliver  
acceptable  
gains.*

<sup>1</sup> Finnfeeds International Ltd., Marlborough, UK