



# Feeding Level Affects Barley DE Measurements in Grower Pigs

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## Summary

Feeding level and nutrient content of diets used in DE content measurement for grains do not reflect practical conditions and prevent measurement of voluntary feed intake. The DE content of three barley samples was analyzed using four combinations of measurements. The

and complete (71% barley, 22% soybean meal, 2% canola oil; 3200 kcal DE/kg, 2.4 g dlys/Mcal DE). Each diet was offered at three times DE maintenance requirement (restricted access) or without restriction (free access). Barley DE content was calculated directly for standard diet and by difference for complete diet, assuming additive DE content in ingredients in a complete diet.

**Free access to feed offers a better model to determine nutritional value.**

measured DE content was 2.5% lower using pigs with free access to feed than pigs with restricted access to feed, while diet composition did not affect barley DE content. Furthermore, voluntary feed intake was indicative of performance and tended to vary among barley samples.

## Introduction

Previously, barley DE content and ranking of barley samples depended on method of measurement used (*2000 Annual Research Report*), but separate effects of diet composition and feeding level were not studied. The objectives were to evaluate effect of diet type and feeding level on DE content of three barley samples differing in fibre content, and to determine if voluntary feed intake differences exist among barley samples.

## Experimental Procedures

Three barley samples spanning a range of ADF (5.2 to 9.2%), NDF (15.5 to 21.8%) and CP (10.7 to 14.6%) on DM basis were incorporated into 2 diets: standard (96% barley, 2970 kcal DE/kg, 0.8 g dlys/Mcal DE)

## Results and Discussion

Barley DE content was 2.5% lower using pigs with free access to feed compared to pigs with restricted access to feed (Figure 1). Measured barley DE content did not differ between pigs fed standard or complete diets. However, the measured DE content of the low-fibre barley sample in a complete diet was higher than in a standard diet. This suggests that ingredients or nutrients may interact, for example dietary fibre and fat. Voluntary feed intake varied up to 90 g/day among barley samples (Figure 2) and was in pigs with free access to a complete diet a better predictor of performance ( $r = 0.82$ ) than DE content ( $r = 0.28$ ).

## Implications

A complete prediction of nutritional value of ingredient samples should perhaps include free access to a complete diet as a model, to reflect practical conditions. Such a method measures voluntary feed intake and provides insight to performance and is therefore key to determine the true nutritional value of feedstuffs.

## Acknowledgments

Strategic funding provided by Sask Pork, Alberta Pork, Manitoba Pork and Saskatchewan Agriculture and Food Development Fund.

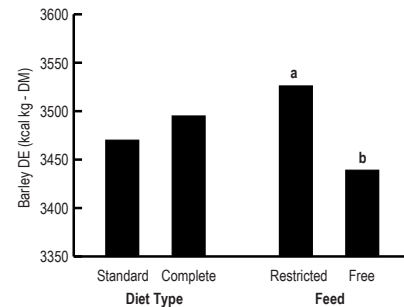


Figure 1 The effect of diet type and feeding level on DE content of barley.

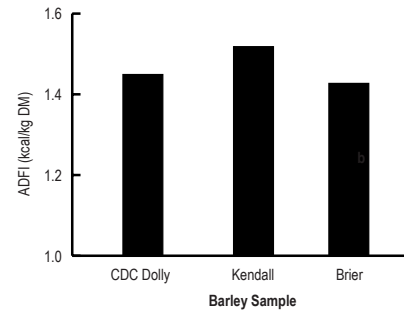


Figure 2 The voluntary feed intake (ADFI) of pigs fed 3 barley samples differing in fibre content. The ADF content (DM) was 5.2% for CDC Dolly, 7.8% for Kendall, and 9.2% for Brier.