NEW METHOD TO DETERMINE BARLEY DE IS INDICATIVE OF PERFORMANCE

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Summary

The DE content of grains is usually measured in protein-deficient diets to which pigs have restricted access. An alternative method with pigs given free access to a complete diet affected the hierarchy of barley samples for DE content. In the new method, DE intake indicated grower pig performance.

Introduction

The DE content of grains is measured with the test ingredient as 96% of a diet with a restricted level of intake. Thus, feeding level and nutrient content do not reflect practical conditions and prevent measurement of voluntary feed intake. A modified procedure using nutrient-adequate diets to which pigs have unrestricted access is proposed. The objective was to evaluate the DE content of barley using the two methods.

Experimental Procedures

Five barley samples over a range of ADF (5.8 to 8.8% as fed), NDF (15.7 to 21.3%) and CP (9.0 to 12.4%) were incorporated into 2 diets: standard (96% barley, 2950 kcal DE/kg, 0.8 g dlys/Mcal DE) and complete (75% barley, 18% soybean meal, 2% canola oil; 3165 kcal DE/kg, 2.2 g dlys/Mcal DE). The standard diet was offered at 3 x DE maintenance requirement (restricted-standard diet) while the complete diet was given ad libitum (ad lib-complete diet). Barley DE content was calculated by direct and difference methods.

Results and Discussion

In restricted-standard diet pigs, restriction of feed allowance and dietary amino acids resulted in severely reduced average daily gain (ADG) compared to ad lib-complete diet pigs. (Figure 1). Overall, ADFI of ad lib-complete diet pigs ranged from 1680 to 1780 g/day. The differences in feed intake resulted to differences in DE intake that were highly correlated to ADG (r = 0.98).

The DE content ranking of barley samples was altered by the method used (Figure 2).

Implications

Results indicate that barley DE content depended on the method used. Also, DE intake was a good indicator of performance when measured using the ad lib-complete diet method. Measurement of DE intake might be a new method to evaluate the true nutritional value of feedstuffs.

Acknowledgements

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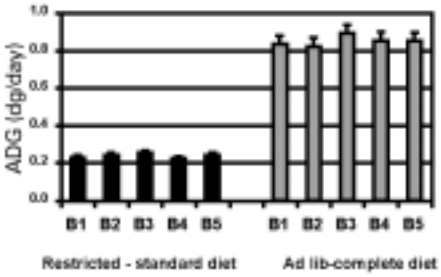

Figure 1. The ADG of pigs fed five barley samples according to two methods.

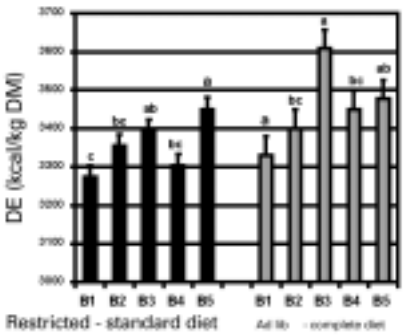

Figure 2. The DE content of five barley samples according to two methods.

Measuring digestible energy gives a better measure of nutritional value.

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