

Feeding wheat- or barley-based high- and low-nutrient density diets on nutrient digestibility and growth performance in weaned pigs

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Barley is normally used in western Canada as the major energy feedstuff for grower-finisher pigs. However, its nutritional value for weaned pigs is poorly characterized. Formulating low energy dense diets may reduce feed cost. Four diets based on either 64.4% wheat or 67.6% barley with either 2.39 or 2.30 Mcal net energy (NE)/ kg were fed to 208 weaned pigs (9.0 kg) as a 2 × 2 factorial arrangement with 13 replicate pens per diet. Diets were formulated to have 4.47 g standardised ileal digestible lysine/Mcal NE and were fed for 21 days. Per pen, average daily feed intake (ADFI), average daily gain (ADG) and feed efficiency (G:F) were measured weekly. Faeces were collected to measure diet apparent total tract digestibility (ATTD) of nutrients. Compared with wheat-based diets, barley-based diets had 3.0 and 4.4% lower (P<0.001) ATTD of gross energy (GE), and crude protein (CP), respectively. Comparing with high-nutrient density diets, feeding low- nutrient density diets had 1.8 and 2.3% lower (P<0.001) ATTD of GE and CP, respectively. Feeding barley-based diets increased (P<0.001) ADG by 41 g/d and G:F by 0.04 g:g comparing with feeding wheat-based diets, but not affect ADFI (P>0.05). Dietary energy value did not affect (P>0.05) ADFI, ADG, or G:F.

Implications: Feed cost of nursery pigs can be reduced by feeding diets with a lower energy value. Such diets can be fed starting one week after weaning to a high energy feed. Feeding barley as energy source feedstuff may increase growth performance if diets are formulated based on NE and SID amino acid content.