

Reduced diet DE content lowered feed costs, improved carcass quality and had no impact on growth rate in growing-finishing pigs

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Information on the pig's use of dietary energy lags well behind that of amino acids. Yet, energy is the single most expensive nutrient in the diet, and errors in selecting the correct dietary DE content can not only impair growth and carcass quality, it can also significantly impact net income. Therefore, this experiment was designed to develop an energy response curve for growing and finishing pigs from 30 kg to market. Barley and soybean meal-based diets were formulated with increasing wheat and canola oil to contain 3.09, 3.24, 3.34, 3.42, or 3.57 Mcal DE/kg. Separate diets were formulated with appropriate dLys:DE ratios for barrows and gilts within 3 phases of growth (25 to 50, 51 to 80 and 81 to 115 kg BW). Offspring (average weight=31.2 kg; n=300) of C22 females and 337 boars (PIC Canada, Airdrie, AB) were blocked according to gender and assigned to dietary treatment. ADG averaged 0.97, 1.07 and 1.07 kg/d in phases 1, 2 and 3, respectively, and was unaffected by diet DE concentration ($P>0.05$). Lighter pigs grew 50 g/d slower than heavier pigs ($P<0.001$). Overall feed intake increased from 2.49 to 2.76 kg/d (linear, $P<0.001$) and feed:gain ratio declined from 0.42 to 0.36 (linear, $P<0.001$) as DE decreased from 3.57 to 3.09 Mcal DE/kg. DE concentration did not affect loin thickness (average=61.3 mm) or average daily gain (average 1.02 kg/d; $P>0.05$). Backfat decreased from 19.4 to 16.8 mm when DE decreased (linear, $P<0.05$). While diet DE had little effect on carcass value, it greatly affected feed cost per pig. In conclusion, reducing diet digestible energy concentration reduced feed costs, reduced backfat thickness and reduced feed efficiency. It had no effect on rate of growth.

Implications:

Feeding lower energy diets may be one way of improving net income, with no effect on rate of growth. The difference in return over feed cost in this experiment was greater than \$10 per pig sold. However, this study must be repeated to see if these results can be repeated under different housing and environmental conditions. Certainly, energy concentrations in grow-finish diets need to be reviewed.