

Effects of dietary energy concentration on the performance and economics of growing-finishing pigs housed in a commercial facility

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Energy intake has been hypothesized to limit the growth of growing-finishing swine. Accordingly, increasing the dietary energy concentration should improve growth. In a previous experiment, no difference in performance was observed among pigs receiving diets with increased digestible energy (DE). The present experiment re-examines this question, but using pigs housed under commercial conditions to determine if environment and/or feed intake affected our previous results.

A total of 720 pigs (36.85 ± 0.98 kg, mean \pm SE), blocked by gender and initial weight, were assigned to receive diets formulated to contain 3.20, 3.35 or 3.50 Mcal DE/kg. Dietary energy was increased by wheat and tallow (maximum 4%) replacing barley. A constant dlys:DE ratio was maintained across treatments and decreased as the pigs grew. Actual DE concentration was determined and averaged 3.12, 3.30 and 3.43 Mcal/kg. From 37 to 80 kg BW, ADG (0.93, 0.98, 1.03 ± 0.05 kg/d) and feed efficiency (0.40, 0.41, 0.43 ± 0.01 ; 3.12, 3.30, 3.43 Mcal/kg respectively) improved with increasing DE ($P < 0.05$). Feed intake was unchanged ($P > 0.10$); thus DE intake increased with increasing DE concentration ($P < 0.05$). Conversely, from 80 to 120 kg BW, ADFI decreased as DE concentration increased ($P = 0.02$), however ADG and feed efficiency were similar among treatments ($P > 0.05$). Treatment did not affect carcass backfat thickness, lean yield, index, or value ($P > 0.10$). Loin thickness tended to increase with DE concentration ($P = 0.08$). Treatment did not affect variability of BW measured at first pull ($P > 0.05$). An economic analysis indicated an advantage for the lower energy diets. Increased DE concentration improved the growth of commercially housed pigs, but only up to 80 kg BW. Overall (37 to 120 kg) performance was not affected by dietary energy concentration.

Implications: It may be possible to improve the growth of pigs by increasing DE in the diet, but only up to 80 kg BW. Current market conditions do not favour increasing dietary DE with added oils or fat.