

140 Influence of Enogen Feed Corn and Conventional Yellow Dent Corn in Pelleted or Meal-based Diets on Finishing Pig Performance and Carcass Characteristics.

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Previous research has indicated that starch gelatinization during the pelleting process is greater for Enogen® Feed corn compared to conventional yellow dent corn. Increasing starch gelatinization in the pellet increases the starch digestibility in the pig, which potentially leads to increased growth rate. Therefore, the objective of this study was to determine the effects of feeding Enogen Feed corn in meal or pellet form on finishing pig growth performance and carcass characteristics. A total of 288 pigs (53.0 ± 0.5 kg) were used with 8 pigs/pen and 9 pens/treatment in a 72-d study. Treatments were arranged in a 2×2 factorial with main effects of corn source (Enogen Feed corn or conventional yellow dent corn) and diet form (meal or pellet). Main effects of corn source and diet form as well as their interactions were tested. Pelleting parameters were established with a target conditioner temperature of 82.2°C and corn moisture of 13 to 14%. When pelleting the diets, the conditioning temperature for conventional yellow dent corn averaged 68.4°C and Enogen Feed corn averaged 67.7°C. The hot pellet temperature for conventional yellow dent corn averaged 75.1°C and 75.8°C for Enogen feed corn. For overall performance (d 0 to 72), no interactions between corn source and diet form were observed (P > 0.05). There was a tendency (P < 0.10) for slightly improved average daily gain (ADG) and gain:feed ratio (G:F) for pigs fed conventional yellow dent corn compared to those fed Enogen Feed corn. Pigs fed pelleted diets had increased (P < 0.001) ADG, G:F, and hot carcass weight compared to pigs fed meal diets. In summary, feeding pelleted diets to finishing pigs increased ADG and G:F compared to those fed meal-based diets. There were no major differences observed between corn sources or interactions between corn source and diet form on growth performance.

Table 1. Interactive effects of diet form and corn source on finishing pig performance¹

Item ²	Conventional yellow dent		Enogen Feed corn ²		Probability, P =			
	Meal	Pellet	Meal	Pellet	Source × diet form	Source		
ADG, g	1,123	1,189	1,099	1,172	12.9	0.769	0.077	<0.001
ADFI, g	2,996	3,052	2,994	3,075	41.1	0.766	0.786	0.103
G:F, g/kg	375	389	368	382	4.4	0.973	0.100	0.001

¹A total of 288 pigs (Line 241 × 600, DNA, Columbus, NE, initially 53.0 ± 0.5 kg) were used in a 72-d trial. There were 9 pens per treatment with 8 pigs per pen.

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³BW = body weight; ADG = average daily gain; ADFI = average daily feed intake; G:F = gain to feed ratio

Keywords: carcass, Enogen Feed corn, finishing pigs, growth, meal, pellet

142 Evaluation of Proso Millet as a Partial or Complete Replacement for Corn in Growing-finishing Diets for Pigs.

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An experiment was conducted to evaluate the effects of increasing the inclusion of proso millet on the growth performance of growing and finishing pigs. Using a randomized complete block design, 36 crossbred barrows, with an average initial weight of 22.2 kg, were randomly assigned to 1 of 4 dietary treatments (9 pens/treatment; 1 pig/pen). Diet 1 was corn-soybean meal-based (control) and Diets 2, 3, and 4 had proso millet replacing 33%, 67%, and 100%, respectively, of corn in the control diet. The diets were formulated according to 4 growth phases (P1, 25 to 50 kg BW; P2, 50 to 75 kg BW; P3, 75 to 100 kg BW; and P4, 100 to 135 kg BW) with nutrient contents formulated according to NRC (2012) recommendations. Data were analyzed using the GLIMMIX procedure of SAS, using pig as the experimental unit. In P1 and P2, no differences in average daily gain (ADG) or average daily feed intake (ADFI) were observed among treatments (P > 0.3). In P3, pigs consuming the proso millet diets had greater ADFI than pigs consuming the basal diet, especially pigs fed Diet 4 compared to pigs fed Diet 1 (3.66 vs. 3.29 kg; P < 0.01). The ADG:ADFI ratio was not affected (P > 0.1) by treatments during this period. In P4, although there was a difference in ADFI between pigs fed Diet 3 and Diet 1 (3.8 vs. 3.47 kg; P = 0.04), no decreases in ADG:ADFI ratio were observed among the four dietary treatments (P > 0.5). Average daily gain was not affected (P > 0.3) by treatments during the growing-finishing period, suggesting that the level of corn replacement up to 100% by proso millet did not affect pig growth. In conclusion, proso millet was shown to effectively replace corn in corn-soybean meal-based diet for growing-finishing pigs without compromising growth performance.

Keywords: proso millet, pigs, growth performance