133 Influence of Particle Size of Enogen Feed Corn and Conventional Yellow Dent Corn on Nursery and Finishing Pig Performance, Carcass Characteristics and Stomach Morphology.

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Two studies evaluated the effect of particle size of Enogen® Feed corn (Syngenta Seeds, LLC, Downers Grove, IL) and conventional yellow dent corn on nursery and finishing pig performance, carcass characteristics and stomach morphology. In Exp. 1, 360 nursery pigs (DNA 200×400, Columbus, NE; initially 6.6±0.1 kg BW) were used with 5 pigs per pen and 12 pens per treatment. Treatments were arranged in a 2×3 factorial with main effects of corn source (Enogen Feed corn or conventional yellow dent corn) and ground corn particle size (300, 600, or 900 µm). Overall, there was a corn source×particle size interaction (linear, P = 0.027) for G:F ratio. There was no difference due to particle size when pigs were fed conventional yellow dent corn, but in pigs fed Enogen Feed corn, G:F increased with decreasing particle size. Neither corn source nor particle size affected (P > 0.05) ADG or ADFI. In Exp. 2, 323 finishing pigs (241´600; DNA, Columbus, NE; initially 50.0±1.3 kg) were used with 8 or 9 pigs per pen and 6 pens per treatment. Treatments were arranged identical to Exp. 1. Overall, corn source did not elicit differences in ADG, ADFI or G:F (P > 0.05). For corn particle size, ADG and G:F increased (linear, P ≤ 0.014) and ADFI decreased (P = 0.043) as particle size decreased. For carcass characteristics, there was a tendency (linear, P = 0.093) for increased HCW and increased (linear, P = 0.023) carcass yield as corn particle size decreased. For stomach morphology, there was a tendency for a corn source×particle size interaction (P = 0.055) for keratinization score with keratinization increasing linearly (P = 0.001) as particle size decreased for yellow dent corn with no change in keratinization score as particle size decreased for Enogen Feed corn. In summary, reducing corn particle size improved G:F with no major differences observed between corn sources for overall pig performance.

Table 1. Effects of corn source and particle size on growth performance of weanling pigs, Exp. 1[1]

Corn source:	Conventional yellow dent corn			Enogen Feed corn[2]				Probability, *P* =
Particle size, µm:	300	600	900	300	600	900	SEM	Source × particle size, linear
d 0 to 35								
ADG, g	489	490	477	494	503	478	9.8	0.801
ADFI, g	722	712	711	713	757	734	15.3	0.203
G:F, g/kg	677	689	672	693	666	652	0.01	0.027
d 35 BW, kg	23.9	23.8	23.5	23.9	24.2	23.3	0.33	0.749

[1]A total 360 pigs (Line 200 × 400, DNA, Columbus, NE initially 6.6 kg) with 12 pens per treatment and 5 pigs per pen were used in a 35-d study.
[2]Enogen Feed corn, Syngenta Seeds, LLC, Downers Grove, IL.

Table 2. Main effects of particle size on growth performance of finishing pigs, Exp. 2[1]

	Particle size, µm				Probability, *P* =	
Item	300	600	900	SEM	Linear	Quadratic
ADG, g	1,005	1,001	975	8.3	0.014	0.289
ADFI, g	2,701	2,756	2,779	39.4	0.043	0.691
G:F g/kg	372	363	350	3.9	0.001	0.419
d 83 BW, kg	135.4	132.8	132.6	1.32	0.057	0.328

[1]A total of 323 mixed gender pigs (Line 241 × 600, DNA, Columbus, NE, initially 50.0 ± 0.3 kg) with 9 pigs per pen and 6 pens per treatment were used in a 83-d study.

Keywords: corn variety, finishing pigs, nursery pigs, particle size