Table 1. Effect of feed grade amino acid levels in late nursery and grower diets on growth performance[1]

	Feed grade amino acids					Probability, P =[2]		
Item[3]	Low	Medium	High	Very high	SEM	Treatment	Linear	Quadratic
BW, kg								
d 0	9.7	9.7	9.7	9.7	0.144	0.976	0.904	0.791
d 43	33.2	34.3	34.0	33.6	0.504	0.112	0.534	0.032
Overall								
ADG, g	537[b]	567[a]	560[ab]	553[ab]	9.649	0.043	0.204	0.020
ADFI, g	907[b]	944[ab]	974[a]	955[a]	17.301	0.002	0.001	0.016
G:F, g/kg	592[ab]	601[a]	575[b]	580[b]	4.537	0.002	0.005	0.752

[a,b]Means within a row with different superscripts differ ($P < 0.05$).

[1]A total of 912 pigs were used in a 43-d study with 19 pigs per pen and 12 replications per treatment.

[2]Linear and quadratic was measured based on % intact vs % feed grade lysine.

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

Keywords: amino acids, crude protein, pig

PSIV-15 Influence of Particle Size of Enogen Feed Corn and Conventional Yellow Dent Corn on Lactating Sow Performance.

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A total of 107 sows (Line 241; DNA, Columbus, NE) across 4 batch farrowing groups were used to evaluate the effects of corn source and particle size on sow and litter performance. Treatments were arranged in a 2×2 factorial with main effects of corn source (Enogen® Feed corn (Syngenta Seeds, Downers Grove, IL) or conventional yellow dent corn) and ground corn particle size (600 or 900 µm). Sows were blocked by parity and BW upon arrival to the farrowing house. There were approximately 27 sows per treatment, sow was considered the experimental unit, dietary treatment was a fixed effect, and sow group and block were used as random effects. Main effects of corn source and particle size as well as their interactions were tested. From farrowing to weaning, there was a tendency for a source×particle size interaction (P=0.065) for sow BW change. Sows fed 900 µm Enogen Feed corn had decreased BW loss compared to sows fed other treatments which were similar in BW loss. There was a source×particle size interaction (P=0.048) for lactation ADFI with sows fed 900 µm conventional yellow dent corn having lower feed intake than the sows fed 600 µm conventional yellow dent corn, whereas sows fed 900 µm Enogen Feed corn had greater feed intake compared to the sows fed 600 µm Enogen Feed corn. There was a tendency for a particle size main effect (P<0.10) for litter ADG (2,849 vs 2,635 g/d) and total litter gain (45.7 vs 42.3 kg), with sows fed corn ground to 600 µm having increased litter ADG and total litter gain compared to sows fed corn ground to 900 µm. In summary, there were few differences in sow or litter characteristics among corn sources. Reducing particle

size of both corn sources tended to increase litter ADG and weaning weights.

Table 1. Effect of corn source and particle size on lactating sow performance[1]

	Conventional yellow dent, μm[2]		Enogen Feed corn, μm[3]			Probability, $P <$		
Item	600	900	600	900	SEM	Corn source × particle size	Particle size	Corn source
Number of sows, n	28	27	25	27				
Parity	1.89	1.93	1.92	1.93	---	---	---	---
Lactation length, d	18.7	18.7	18.7	18.8	0.24	0.672	0.937	0.634
Sow body weight, kg								
Change (farrow to wean)	-14.3	-16.1	-15.6	-10.7	2.17	0.065	0.395	0.261
Pigs weaned, n	12.5	12.3	12.7	12.6	0.28	0.913	0504	0.407
Lactation ADFI, kg[4]	4.97	4.35	4.70	4.94	0.21	0.048	0.390	0.460
Litter ADG, g	2,786	2,563	2,911	2,706	111.8	0.937	0.061	0.238
Total litter gain, kg	44.73	40.71	46.64	43.81	1.93	0.749	0.069	0.185

[1]A total of 107 sows (Line 241; DNA, Columbus, NE) were enrolled in a 21-d trial across 4 farrowing groups.
[2]Enogen, Syngenta Seeds, LLC, Downers Grove, IL.
[4]The experimental diets were fed to sows from farrowing to weaning. Before farrowing, all sows were fed 2.47 kg/d of a yellow dent corn-soybean meal-based gestation diet.

Keywords: corn variety, lactating sows, litter growth, particle size

PSIV-16 Evaluation of Nutritional Strategies to Reduce Growth Rate of Pigs Beyond 90-kg Body Weight.

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A total of 356 pigs (241×600; DNA; Columbus, NE; initially 89.0 kg) were used in a 44-d trial to evaluate nutritional strategies to reduce growth rate. Three diets [control, Lys-deficient, and corn (98% corn and 2% vitamins and minerals)] were arranged into 4 nutritional strategies. The three diets contained 0.70, 0.50, and 0.18% standardized ileal digestible (SID) Lys, respectively, with all nutrients other than amino acids above requirement estimates. From d 0 to 28, pens received one of two diets (control or Lys-deficient). On d 28, pens either remained on their previous treatment or were fed the corn diet from d 28 to 44. Pens were assigned to nutritional strategies in a randomized complete block design based on initial body weight (BW) with 18 pens/treatment from d 0 to 28 and 9 pens/treatment from d 28 to 44. From d 0 to 28, pigs fed the Lys-deficient diet had decreased (P< 0.001) ADG, G:F, and d 28 BW compared to pigs fed the control diet. From d 28 to 44, pigs fed the corn diet had decreased (P< 0.05) ADG and G:F compared to pigs fed the control or Lys-deficient diets. Pigs fed the Lys-deficient diet for 44 days had decreased (P< 0.05) ADG and G:F compared to pigs fed the control diet for 44 days. From d 0 to 44, pigs fed the Lys-deficient diet then corn diet had decreased (P< 0.05) ADG, final BW, and G:F compared to all other treatments. Pigs fed the Lys-deficient diet for 44-d and pigs fed the control diet then corn diet had decreased (P< 0.05) ADG, G:F, and final BW compared to pigs fed the control diet for 44-d. In summary, feeding strategies with lysine deficient diets allow producers to slow growth rate of finishing pigs; however, feed efficiency is also impaired.