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.

[3] 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

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## 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.

**Table 1.** Effect of nutritional strategies to reduce growth rate of pigs beyond 90-kg body weight[1]

| d 0 to 28 | Control[2] | | Lys-deficient | | |
|---|---|---|---|---|---|
| d 28 to 44 | Control | Corn | Lys-deficient | Corn | SEM |
| d 0 to 28 | | | | | |
| ADG, kg | 0.84$^{a}$ | | 0.71$^{b}$ | | 0.013 |
| ADFI, kg | 2.77 | | 2.78 | | 0.028 |
| G:F | 0.301$^{a}$ | | 0.254$^{b}$ | | 0.0083 |
| d 28 to 44 | | | | | |
| ADG, kg | 0.86$^{a}$ | 0.48$^{c}$ | 0.71$^{b}$ | 0.44$^{c}$ | 0.032 |
| ADFI, kg | 2.60$^{a}$ | 2.42$^{ab}$ | 2.46$^{ab}$ | 2.26$^{b}$ | 0.058 |
| G:F | 0.331$^{a}$ | 0.197$^{b}$ | 0.289$^{a}$ | 0.195$^{b}$ | ≤ 0.0150[3] |
| d 0 to 44 (overall) | | | | | |
| ADG, kg | 0.86$^{a}$ | 0.71$^{b}$ | 0.72$^{b}$ | 0.61$^{c}$ | 0.018 |
| ADFI, kg | 2.72 | 2.66 | 2.69 | 2.61 | 0.039 |
| G:F | 0.315$^{a}$ | 0.268$^{b}$ | 0.267$^{b}$ | 0.235$^{c}$ | 0.0042 |

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

[1] BW = body weight. ADG = average daily gain. ADFI = average daily feed intake. G:F = feed efficiency.

[2] SID lysine (%) was 0.70 for the control diet, 0.50 for the Lys-deficient diet, and 0.18 for the corn diet.

[3] Heterogenous residual variance.

**Keywords:** growth rate, late-finishing pigs, lysine

### PSIV-9 A Multistate Evaluation of an Additional Iron Injection Administered to Piglets Before Weaning.

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A cooperative study utilizing 514 weanling pigs from 7 experiment stations was conducted to determine the effects of an additional iron injection administered to piglets before weaning on growth performance and hematological measures. All pigs received an initial iron injection at the time of processing postfarrowing. At each station, pigs were assigned to either the control or an added-injection treatment by pairing two same-sex pigs with a BW difference ≤ 0.453 kg within a litter. One pig within each pair received the additional iron injection (same dose received at processing) 3 to 5 days preweaning. Once weaned, both the control and added-injection group received common station-specific nursery diets. Body weight was recorded weekly by all stations. Blood samples were also collected at second injection, weaning, 14 and 28 days postweaning by 3 of the 7 stations. All data were subjected to ANOVA with the model containing the terms treatment, station, and treatment by station interaction. Average daily gain (Table 1) was greater for the added-injection group during d 0 to 14 (212.5 vs. 202.6 g, P = 0.03) which resulted in an increase in d 14 BW (P = 0.05). Although there was no treatment effect for overall ADG (d -4 to d 28), the tendency for a treatment by station interaction (P = 0.09) illustrated both responsive and nonresponsive stations, indicating that iron status was not the most limiting factor for growth at all stations. Hemoglobin concentration was greater (P < 0.0001) for the added-injection group at weaning and d 14 postweaning. In conclusion, an additional iron injection administered before weaning may lead to early success in the nursery resulting in a heavier BW in subsequent periods; however, the beneficial effects of an additional iron injection are likely dependent on herd status and characteristics.