

into groups of three and given either no Fe injection, or injections of 100 mg Fe from iron dextran on d 10 or d 0. No differences were detected in pig growth, survival, hematocrit, serum iron, total iron binding capacity (TIBC), or percent Fe saturation due to sow gestation diet. Growth over a 20-day lactation period was suppressed in pigs given no Fe injection or an Fe injection on d 10 compared with injections on d 0 (177, 197 and 230 g/d respectively), but pig survival was not compromised (91.4, 91.0, and 92.2%). Pigs given Fe injections on d 0 had higher ($P \leq 0.05$) hematocrit and plasma Fe on d 10 and d 20 than pigs not given Fe injections, but TIBC was not different ($P \geq 0.10$). Hematocrit and plasma Fe values of pigs not given Fe injections until d 10 recovered by d 20 to equal values as those given Fe injections on d 0. In conclusion, the sources nor amounts of supplemental iron fed to sows during the last trimester of gestation altered the piglet's ability to sequester iron injections.

Pig Fe	Hematocrit, %			Plasma Fe, $\mu\text{g/dL}$			TIBC, $\mu\text{g/dL}$		
	d 0	d 10	d 20	d 0	d 10	d 20	d 0	d 10	d 20
No Fe	31.7	18.0	14.7	94.0	63.7	54.1	357	707	735
Day 10	31.6	18.9	26.1*	89.3	64.7	72.7	354	701	784
Day 0	31.7	28.9*	25.8*	95.0	107.9*	77.7	352	759	779
SD	5.6	6.5	4.8	45.9	53.1	77.5	153	162	210

* denotes difference ($P \leq 0.05$) within a column from No Fe treatment.

Key Words: Iron, Sow, Hematocrit

127 Assessment of the feeding value of South Dakota grown field peas for growing pigs. H. H. Stein*, R. A. Bohlke, V. Rayadurg, D. Peters, and R. C. Thaler, *South Dakota State University*.

Five experiments were conducted to evaluate the feeding value of South Dakota grown field peas (variety Carnival) for growing pigs. In exp. 1 and in exp. 2, 96 growing crossbred pigs (initial BW: 22.3 ± 1.48 kg and 26.7 ± 1.18 kg, respectively) were allotted to one of four treatment groups. In exp. 1, diets containing 0, 6, 12, or 18% peas were fed during the initial 6 wk of the experiment while 0, 12, 24, or 36% field peas were included in the finishing diets. In exp. 2, 0, 12, 24, or 36% peas were included in both the grower and the finisher diets. In both exp., ADG, ADFI, and GF were similar ($P > 0.1$) between the four treatment groups. At slaughter, larger ($P < 0.05$) loins were harvested from pigs fed diets containing 12% field peas in the finishing ration (exp. 1) or 12, 24, or 36% field peas (exp. 2). In both exp., the calculated lean meat percentage was similar ($P > 0.10$) between treatment groups. In exp. 3 and 4, field peas were included in phase 2 diets for nursery pigs (initial BW: 7.88 ± 0.72 kg and 7.36 ± 0.57 kg, respectively) at levels of 0, 6, 12, or 18% (exp. 3) or 0, 12, 24, or 36% (exp. 4). These diets were offered to the pigs during wk 3-5 post-weaning. In both exp., ADG, ADFI, and GF were similar ($P > 0.05$) between treatment groups. In exp. 5, the apparent (AID) and standardized (SID) ileal digestibility coefficients of crude protein and amino acids were determined for field peas and soybean meal in six growing barrows (Initial BW: 36.5 ± 2.1 kg). AID for Met, Trp, Cys, and Ser were lower ($P < 0.05$) in field peas than in soybean meal. When calculating SID, only Met was lower ($P < 0.05$) for field peas than for soybean meal. Based on the results of these exp., it is concluded that South Dakota grown field peas provide a highly digestible source of amino acids that can replace soybean meal in diets for pigs. In phase 2 diets for nursery pigs and in diets for growing and finishing pigs, at least 36% field peas can be included without adverse effects on performance or carcass quality.

Key Words: Field Peas, Growing Pigs, Amino Acid Digestibility

128 A comparison of swine performance when fed diets containing Roundup Ready® (event NK603) or conventional corn lines. G. Bressner¹, Y. Hyun*¹, E. Stanisiewski², G. Hartnell², and M. Ellis¹, ¹University of Illinois at Urbana-Champaign, ²Monsanto Company, St. Louis.

The objective of this study was to compare growth performance and carcass characteristics of growing-finishing pigs fed diets containing a Roundup Ready® corn hybrid (event NK603; line A), compared with a parental control line (line B) and two commercial lines of non-genetically modified corn (lines C and D). The study was carried out as a completely randomized design and compared four corn-line dietary treatments. A three-phase dietary program was used. Diets for the growing phase (30 to 50 kg BW) contained 1.02% total lysine; 18.5 % CP, and 3,370 kcal

ME/kg. For the early- (50 to 80 kg) and late - (80 to 120 kg) finishing phases diets were formulated to contain 0.78 and 0.67 % lysine, 15.0 and 13.5% CP, and 3,383 and 3,395 kcal ME/kg, respectively. All diets were formulated with a fixed level of corn inclusion which was 65, 74, and 77% for the growing and early- and late-finishing phases, respectively. A total of 160 commercial hybrid pigs (equal numbers of barrows and gilts) were reared from 29.9 ± 3.08 to 119.4 ± 5.96 kg BW in single-sex groups of five pigs and given ad libitum access to feed and water throughout the study. Pigs were raised in a controlled environment finishing facility having part-slatted, part-solid concrete floors and a floor space allowance of 0.89 m². At the end of the test period, pigs were slaughtered at a commercial plant and standard carcass measurements were taken. Pigs fed the four corn lines had similar ($P > 0.05$) ADFI (2.45 to 2.54 kg; SEM 0.042), ADG (943 to 986 g; SEM 14.4), and gain:feed ratio (0.37 to 0.39; SEM 0.004). In addition, carcass measures (dressing percentage, carcass length, backfat thickness, and longissimus muscle area) were not different ($P > 0.05$) among corn lines. Subjective scores for longissimus muscle color, firmness, and marbling taken at the 10th rib, were similar ($P > 0.05$) among the corn lines. Gilts compared to barrows had lower ($P < 0.01$) feed intake, growth rate, and backfat thickness but greater gain:feed ratio ($P < 0.01$). The results of this study, carried out with growing-finishing swine, suggest that the Roundup Ready® (event NK603) corn hybrid tested is essentially equivalent in terms of nutrient composition and effects on growth and carcass characteristics to conventional corn hybrids.

Key Words: Roundup Ready® Corn, Growth Performance, Carcass Quality

129 Evaluation of copper chloride and copper sulfate as growth promoters in swine finishing diets. C.W. Hastad*, S.S. Dritz, J.L. Nelssen, M.D. Tokach, and R.D. Goodband, *Kansas State University, Manhattan*.

Two trials were conducted to determine the effects of added copper from copper sulfate or copper chloride on performance of growing-finishing pigs. In Exp 1, 1,100 pigs (initially 33.7 kg) were weighed and randomly allotted to one of five dietary treatments. Diets were fed on a feed budget from d 0 to 115. Within each phase, treatment diets consisted of diets with no added copper (control), 50, 100, or 200 ppm of added copper from copper chloride or 200 ppm of added copper from copper sulfate. In Exp 2, 1,177 pigs (initially 31.2 kg) were weighed and randomly allotted to one of seven dietary treatments in a randomized complete block design with seven pens per treatment. Diets were fed in two phases from d 0 to 27 and d 27 to 56. Treatments consisted of a control diet with no added copper or 50, 100, or 200 ppm of added copper from either copper chloride or copper sulfate. In Exp 1, adding either copper source to the diet reduced ($P < 0.02$) ADFI and improved ($P < 0.05$) gain/feed (G/F) from d 0 to 31. When copper chloride was added to the diet, the greatest response in ADFI and G/F occurred with the first 50 ppm of copper. Adding copper to the diets also reduced ($P < 0.05$) ADFI and improved G/F from d 58 to 86. Overall, pigs fed either copper source had reduced ($P < 0.06$) ADFI and improved ($P < 0.003$) G/F. Pigs fed copper sulfate had improved ADG ($P < 0.003$) and pigs fed copper chloride had a trend ($P < 0.07$) for improved ADG compared to pigs fed the control diet. In Exp 2, pigs fed either copper source had greater ADG ($P < 0.01$) during the first two weeks of the experiment compared to pigs fed the control diet with no differences observed between copper levels or sources. Adding copper sulfate to the diets reduced ADFI ($P < 0.03$) and copper chloride tended ($P < 0.07$) to improve G/F for d 0 to 14. From d 14 to 27 and d 27 to 56, ADG, ADFI or G/F were not improved with copper additions to the diet. Adding low levels (50 to 100 ppm) of copper during the first four weeks of the growing-finishing phase provide increase gain and improve feed efficiency.

Key Words: Copper, Pigs

130 Evaluation of ground corn germ as an energy source in nursery pig diets. C.W. Hastad*, M.D. Tokach, J.L. Nelssen, R.D. Goodband, and S.S. Dritz, *Kansas State University, Manhattan*.

Two hundred eighty nursery pigs (initially 14.0 kg) were used in a 21 d growth assay to compare ground corn germ as an energy source relative to corn oil in nursery pig diets. Pigs were blocked by weight and allotted to one of seven treatments. There were five pigs per pen and eight pens per treatment. Treatments included a corn-soybean meal control diet