d; 5.6.7 kg BW) were used in two 4-wk trials (4 rep/trial) to evaluate effects of feeder placement on pig performance. Treatments were: 1) large group (100 pigs/pen) with multiple (5) feeder locations (LM); 2) large group (100) with single feeder location (LS); and 3) small group (20) with single feeder (SS). Floor space (.17 m^2) and feeder space (4 cm) per pig were equal across treatments. Pigs in both LM and LS treatments were lighter (2%,P<.01) at end of wk 4 and had lower (P<.01) overall ADG (5%) and FI (5%) than SS pigs. The G/F were similar (P>.05) across treatments. In summary, large group size and reduced floor space decreased pig performance, and providing multiple feeder locations did not increase pig FI, ADG, or G/F in large groups.

Key Words: Pig, Group Size, Pen Design

56 Examination of the interactive effects of stocking density and marketing strategies in a commercial production environment.

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A total of 1,272 pigs (initially 29 kg) was used to test the interactive effects of stocking density and marketing strategy on growth performance, carcass characteristics, and carcass value of pigs in a commercial environment. Experimental treatments were arranged in a 2×2×3 factorial with main effects of sex (barrows (B) vs. gilts (G)), stocking density (25 (.67 m^2/pig) vs. 28 (.59 m^2/pig) pigs per pen), and marketing strategy (0 (0S), 1 (1S), or 2 (2S) sorts before close out). Four pigs were marketed 21 d prior to close out for the 1S treatment and 2 pigs were marketed at 27 d and 3 pigs marketed at 14 d prior to close out for the 2S treatment with the remainder of the pigs marketed 117 d after placement. All diets were corn-soybean meal based and were formulated in five phase weight ranges for each gender with total dietary lysine levels of 1.22, 1.05, .90, .72, and .62; and 1.22, 1.10, .95, .75, and .65 for barrows and gilts for the five phases, respectively. No 2 or 3-way interactions were observed for the entire trial. Barrows had (P < .05) greater ADG and ADFI, greater percentage that reached acceptable market weight (tops), greater fat depth, less loin depth and lean percent, a lower fat-free lean index, and had a lower lean premium compared to G. Stocking density had no effect (P > .10) on growth performance, carcass characteristics, or carcass value. Average daily gain from d 90 to 117 was lowest (P < .05) for pigs from 0S pens compared to pigs from 1S pens. Pigs from 0S pens were heavier (P < .05) than pigs from 2S pens. Carcass characteristics were not influenced by marketing strategy; however, sort discount was greater (P < .05) for pigs from 0S pens compared to pigs from 1S or 2S pens (.76 vs. .49 and .48 $/cwt, respectively). In summary, pen densities did not influence growth performance or carcass characteristics in this trial. Marketing strategy influenced growth performance and weight discounts during the marketing period, but had no effect on carcass characteristics.

Key Words: Pigs, Pen density, Marketing strategy

57 Effect of group sizes of 10, 20, 40 and 80 on productivity of grower-finisher pigs.

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Research on management and productivity of grower-finisher pigs has generally been conducted with small group sizes while the swine industry has shifted towards larger group sizes. The objective of this study was to quantify effects of four group sizes (10, 20, 40 and 80 pigs) on productivity. Each of four replicates was comprised of two pens of 10 pigs, and one pen each of 20, 40 and 80 pigs. Each pen contained an equal number of males and females, with pigs born within a 2 wk period. Initial BW of pigs was 23.2 ± .2 kg. One wet/dry ad-libitum feeder was provided for every 10 pigs and spaced equidistantly along one side of the pen wall. Space per pig was constant among group sizes. Pigs were weighed every 2 wk to obtain ADG, ADFI and feed efficiency data. Injury scores were collected 48 hr post-regrouping on four body zones. Data was analyzed as a split-plot with group size as the main plot and gender as the sub-plot. Morbidity was analyzed using χ^2. The ADG from wk 0 to 12 was greater for males (890 g/d) than for females (830 g/d; P < .05). ADG for the entire 12-wk trial was not affected by group size (862, 873, 853, and 846 g/d, for pens of 10, 20, 40 and 80, respectively; P > .10). ADG was reduced in groups of 40 (554 g/d) compared to 10 (631 g/d) and 80 (605 g/d) during wk 0 to 2 (P < .05), and in groups of 40 (903 g/d) and 80 (891 g/d) compared to 10 (975 g/d) during wk 4 to 6 (P < .05). ADFI from wk 0 to 12 was similar among group sizes (2.34 ± .08, 2.42 ± .11, 2.23 ± .11 and 2.27 ± .11 kg/d, for pens of 10, 20, 40 and 80 respectively; P > .10). Injury scores were similar among group sizes (P > .10), but flank injuries were more severe for females than for males (P < .05). Morbidity for pigs did not differ among group sizes (7.5, 6.2, 5.0 and 5.6% for pens of 10, 20, 40 and 80, respectively; P > .10). In summary, productivity did not differ between group sizes of 10, 20, 40 and 80 pigs.

Key Words: Swine, Grower-finisher, Group size

58 Sow performance using electronic sow feeding versus conventional feeding systems.

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Few comparisons of electronic sow feeding (ESF) to conventional sow feeding systems have been conducted. Osborne Industries Inc. 300-sow Demonstration Farm compared ESF to conventional stalls. Sow breeding, gestation, and lactation performance were assessed from October 1994 to June 1997 over multiple parities. Treatments included ESF in gestation (EG), gestation in stalls (CG), ESF in lactation (EF), and lactation in stalls (CF). Sows were group housed in both gestation and lactation ESF treatments. Sows did change treatments from parity to parity based on the production schedule. Average lactation length over all parities was 20.9 d. Data analyses were completed by parity. Number born live and total number born were not affected by either gestation or lactation treatment over all parities. Litter birth weight (LBW, kg) was higher with EG than CG in parities 3 (19.23 vs 17.45; P<.10) and 6 (17.46 vs 15.63; P=.12). An interaction of lactation and gestation treatments was observed (P=.10) in parity 7 for LBW. Within CF, gestation treatment did not affect LBW. Within EF, EG sows had heavier LBW than CG sows (16.69 vs 14.53; P<.01). Number weaned was higher for CF over EF in parities 1 (9.07 vs 8.02; P=.12), 2 (9.43 vs 8.75; P=.14), 3 (9.35 vs 8.76; P<.10), and 5 (9.11 vs 7.31; P<.05), due to increased pre-weaning mortality with group housed sows. Return to estrus (%) after weaning was higher for sows in EG than CG in parities 2 (93.5 vs 87.2; P=.13) and 4 (98.2 vs 93.1; P<.10) Return to estrus within 7 d (%) after weaning was higher for sows in EG than CG in parities 2 (66.4 vs 56.4; P=.11) and 6 (82.1 vs 69.1; P<.05). Sows housed in gestation ESF had similar or improved performance over conventional stall housed sows. Sows housed in lactation ESF had similar performance to conventional stall housed sows with the exception of number weaned, due to increased pre-weaning mortality in group housing. Ongoing research in farrowing pen design should improve pre-weaning mortality for group housed sows.

Key Words: Electronic Sow Feeding, Lactation, Gestation

59 Effects of off-sow rearing upon *Campylobacter* colonization in neonatal pigs.

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There are increased concerns about the prevalence of *Campylobacter* in pigs and the potential public health risks for *Campylobacter* transmission to humans from pork products. We conducted a study to determine how *Campylobacter* colonization of the gastrointestinal tract is affected when piglets are removed from the sow within 24 h of birth. Twenty-nine, one-day-old piglets (from 9 different sows) were purchased from a commercial swine operation and were reared in our laboratory on wire-floored farrowing crates and fed commercial milk replacer for 21 days. Fifteen littermates (from the same 9 sows) of the above piglets were reared on their dams on the farm. Rectal swabs were collected daily for 21 days from the off-sow, laboratory-reared piglets and cultured for the presence of *Campylobacter*. Rectal swabs from the sow-reared piglets were collected on d 1, d 12, and d 20 and cultured for *Campylobacter*. Swabs were enriched in Bolton's broth, incubated for 24 h at 42 C, 10 μL of broth were streaked onto Campy-Cephex agar plates, and plates were incubated at 42 C for 48 h under microaerophilic conditions. At d 1, 8 of 29 (28%) of the off-sow, and 4 of 15 (47%) of the on-sow piglets were positive for *Campylobacter*. By d 2, 12 of 29 (41%) of the off-sow piglets were positive. However, the prevalence of *Campylobacter* decreased steadily in the off-sow piglets from d 2 until d 21 when