137 **Evaluation of dietary acidifiers on growth performance of nursery pigs.** J. E. Nemechek[1,]*, M. D. Tokach[1], J. R. Bergstrom[2], J. M. DeRouchey[1], S. S. Dritz[1], R. D. Goodband[1], *[1]Kansas State University, Manhattan, [2]DSM Nutritional Products, North America, Marshall, MO.*

Three 28-d experiments evaluated dietary acidifiers on the growth performance of nursery pigs housed under both university and field conditions. All diets were corn–soybean meal–based and fed in meal form. Each experiment consisted of a 2-phase diet series. The same 4 dietary treatments were evaluated in all 3 experiments, including a control with 1) no acidifier, 2) 0.5% Vevovitall (DSM Nutritional Products, Parsippany, NJ), 3) 0.2% Kem-Gest (Kemin Americas, Des Moines, IA), or 4) 0.05% ButiPearl (Kemin Americas). In Exp. 1, 280 weanling pigs (PIC 327 × 1050, initially 7.3 kg, 3 d postweaning) were used with 7 pigs per pen and 10 pens per treatment. From d 0 to 14, pigs fed Kem-Gest tended to have increased ($P < 0.07$) ADG (245, 236, 263, and 240 g, respectively) compared with pigs fed other treatments. From d 14 to 28 and overall (d 0 to 28), no differences were observed in ADG, ADFI, or G:F among treatments. In Exp. 2, 1728 nursery pigs (PIC 327 × 1050, initially 5.8 kg, 10 d postweaning) were used with 48 pigs per feeder (24 pigs per pen) and 9 feeders (replications) per treatment. Treatment diets were fed from d 0 to 14, and a common diet was fed from d 14 to 28. From d 0 to 14, pigs fed the control diet had decreased ($P < 0.001$) ADG (299, 367, 354, and 363 g, respectively) and G:F (0.733, 0.810, 0.813, and 0.825, respectively) compared with pigs fed diets with acidifiers. From d 14 to 28, there were no differences in performance between treatments. Overall (d 0 to 28), there were no differences in ADG, ADFI, or G:F but pigs fed diets containing acidifiers were approximately 0.95 kg heavier at the conclusion of the trial. In Exp. 3, 1800 nursery pigs (PIC 327 × 1050, initially 7.4 kg, 13 d postweaning) were used with 50 pigs per feeder (25 pigs per pen) and 9 replications per treatment. Treatment diets were fed throughout the entire trial (d 0 to 28), with no differences in ADG, ADFI, or G:F observed. In conclusion, the responses to dietary acidification were inconsistent across experiments with pigs fed acidifiers having improved growth performance in Exp. 2 but not Exp. 1 and 3. More research is needed to fully elucidate the acidifier response for weanling pigs.

**Key Words:** acidifiers, benzoic acid, pig

138 **Evaluation of feeding a *Bacillus*-based probiotic with *Rhizopus oligosporus* biomass in nursery pigs.** D. M. van Sambeek[1,]*, B. J. Kerr[2], J. van Leeuwen[1], D. C. Beitz[1], N. K. Gabler[1], *[1]Iowa State University, Ames, [2]USDA- ARS, Ames, IA.*

High grain prices, biofuels, and severe weather events are defining how we use crops used for livestock production. The need for alternative feed sources and resource conservation (water, energy, etc.,) has become more apparent. Previously, our group has shown that fungal biomass produced by growing *Rhizopus microsporus* var. *oligosporus* (RO) on thin stillage leftovers from the ethanol process can be used as an alternative feed source in nursery pigs. Digestibility was decreased at 20% inclusion and lysine availability of RO biomass was 54%. However, the limitation in nutrient digestibility may be due to the presence of chitin, a nonstarch polysaccharide. The objective of this project was to examine the use of the probiotic (Pr) *Bacillus subtilis* (chitinase producer) to increase digestibility of RO biomass in nursery pigs. Using a 2 × 2 factorial arrangement, 40 barrows (10.6 ± 1.52 kg BW) were assigned to four corn–SBM based diets containing the digestibility marker titanium dioxide ($n$ = 10/trt): 0%ROPr–, 0%ROPr+, 20%ROPr–, or 20%ROPr+. Pigs were fed ad libitum and performance was recorded weekly for 28 d and ADG, ADFI, and G:F calculated. Body composition was assessed using a serial slaughter technique. Four additional barrows of the same initial BW were euthanized to establish the initial body composition. Total tract fecal collections were taken in the final week. Thereafter, pigs were euthanized for distal ileum contents and whole body composition. Digesta and fecal samples were analyzed for DM, N, energy, and titanium dioxide. Initial and final slaughter group body composition was assessed using dual X-ray absorptiometry and tissue accretion rates calculated. Data were analyzed with a mixed model with fixed effects RO, Pr, and their interaction, with ADFI as a covariate. There was no significant RO × Pr interaction observed in any parameters assessed. However, Pr+ increased ADG (0.47 vs. 0.45 kg/d) and G:F (0.61 vs. 0.57) compared to the Pr– treatments ($P < 0.05$). Additionally, Pr+ increased AID of energy (59 vs. 53%; $P < 0.10$) and N (71 vs. 55%; $P < 0.01$). RO treatments decreased AID of N (57 vs. 69%; $P < 0.01$). Compared to 0%RO treatment, energy (86 vs. 79%), N (84 vs. 74%), and DM (88 vs. 82%) ATTD coefficients decreased due to RO inclusion ($P < 0.01$). Probiotic diets had little effect on ATTD. Together these data suggest probiotic modification of RO biomass had negligible effects on digestibility, tissue accretion, and growth performance; however, probiotic alone did improve AID.

**Key Words:** *Bacillus subtilis*, pig, *Rhizopus microsporus*

139 **Effects of high-protein canola meals fed to weanling pigs on growth performance, organ weights, bone ash, and blood parameters.** C. K. Parr*, Y. Liu, C. M. Parsons, H. H. Stein, *University of Illinois at Urbana-Champaign, Urbana.*

An experiment was conducted to evaluate the effects of 2 high protein canola meals (CM-A and CM-B, respectively) and a conventional canola meal (CM-CV) on growth performance, organ weights, bone ash, and blood parameters of weanling