

**264P Effects of xylanase in finishing pig diets varying in energy and fiber on growth performance, carcass characteristics, and nutrient digestibility.** J. A. Barnes\*, J. M. DeRouche, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan*.

A total of 576 pigs (initially 48.1 kg BW) were used in a 75-d trial to evaluate effects of xylanase (Porzyme 93010; Dansico Animal Nutrition, St. Louis, MO) in finishing pig diets varying in energy and fiber on growth, carcass traits, and nutrient digestibility. Pens of pigs were balanced by initial BW and gender, then randomly allotted to 1 of 6 treatments in a  $2 \times 3$  factorial (with or without xylanase and 3 energy levels) with 8 pigs/pen and 12 replications/treatment. The 6 treatments were corn-soybean meal-based diets with dried distillers grains with solubles (DDGS), wheat middlings (Middlings), and choice white grease (CWG) arranged to make low- (3.30 Mcal ME/kg; 30% DDGS, 12.5% Middlings, and no CWG), medium- (3.38 Mcal ME/kg; 15% DDGS, 6.25% Middlings, and 1.2% CWG), and high-energy diets (3.45 Mcal ME/kg; no DDGS or Middlings, and 2.4% CWG) with or without xylanase (0 or 4,000 units xylanase/kg). All ph 3 diets contained 0.5% chromic oxide. Fecals were collected on d 42 via rectal massage from at least 4 pigs/pen. No xylanase  $\times$  energy interactions occurred for any growth criteria. Pigs fed diets with xylanase had poorer ADG ( $P < 0.03$ ; 976 vs. 992 g/d) compared with those without. Increasing dietary energy increased (linear;  $P < 0.001$ ) ADG (959, 985 and 1,009 g/d) and G:F (0.332, 0.343 and 0.350) with no effect on ADFI. For carcass traits, increasing dietary energy increased (linear;  $P < 0.01$ ) yield, HCW, backfat depth, and reduced (linear;  $P < 0.001$ ) fat free lean index and jowl fat iodine value. Apparent digestibility of ADF improved ( $P < 0.002$ ; 67.9 vs. 63.1%) with xylanase; however, no differences were found for other nutrient digestibility criteria. Also, as dietary energy increased, apparent digestibility of DM, N, fat, GE, ADF, and NDF increased (linear;  $P < 0.02$ ). In summary, feeding diets with increasing energy levels improved pig performance. Although ADF digestibility was increased with xylanase supplementation, growth, carcass traits, and other nutrient digestibility values were not improved.

**Key Words:** energy, growth, finishing pig, xylanase

**265P Effects of dietary supplementation of herb on growth performance, nutrient digestibility, blood profiles and meat quality in finishing pigs.** J. H. Cho\*, J. H. Jung, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea*.

This experiment was conducted to determine the effect of dietary supplementation of herb on growth performance, nutrient digestibility, blood profile and meat quality in finishing pigs. A total of 144 finishing pigs (average BW = 50.09 kg) were allocated into 1 of 3 treatments with 12 replicate pens per treatment and 4 pigs per pen by a random block design. Dietary treatments were: 1) CON, basal diet; 2) A, basal diet + 0.1% turmeric and *houttuynia cordata*; 3) B, basal diet + 0.1% *Taraxaci herb* and *Pueraria lobata*. The present experiment included 2 phases, phase 1 (wk 0–5) and phase 2 (wk 5–10). In each phase, BW and feed consumption were recorded to calculate ADG, ADFI and G:F ratio. Digestibility of DM, N, and energy were measured according to the methods described by AOAC (1995). Blood samples were collected from 2 pigs per pen which were healthy. On the final day of the experiment, 6 pigs per treatment were slaughtered to determine the meat quality. During wk 0–5 and overall the experiment, ADG was higher ( $P < 0.05$ ) in A and B treatments compared with CON treat-

ment. During wk 5–10, pigs in A treatment had a higher ( $P < 0.05$ ) ADG than CON treatment. No difference was observed on ADFI and G:F ratio through all the experimental periods. Dietary treatments did not influence ( $P > 0.05$ ) digestibilities of DM, N and energy on wk 5 and wk 10. Furthermore, red blood cell (RBC) and white blood cell (WBC) counts, Lymphocyte, and IgG concentrations were not affected ( $P > 0.05$ ) by dietary treatments. Pigs fed A and B diets had a higher ( $P < 0.05$ ) LMA than pigs fed CON diet. However, no difference ( $P > 0.05$ ) was observed on CIE meat color, sensory evaluation, drip loss, cooking loss, pH and WHC. In conclusion, dietary supplementation of herb can improve growth performance and increase LMA of finishing pigs but not affect DM, N, and energy digestibilities and blood profiles.

**Key Words:** meat quality, herb extract, finishing pigs

**266P Effect of two probiotics on the performance of weaned piglets.** IJ Wellock\*, P. Toplis<sup>1</sup>, and A. Stewart<sup>2</sup>, <sup>1</sup>Primary Diets, Yorkshire, UK, <sup>2</sup>Harper Adams University College, Newport, UK.

An experiment was conducted to evaluate the effect of 2 differing probiotics on 20 d post-weaning pig performance and determine if there was a synergistic effect on their combination. The probiotics tested were *Bacillus* spp. (*Bacillus subtilis*/*Bacillus licheniformis* at 0 and 400 g/t;  $1.3 \times 10^9$  cfu/kg feed; supplied by Chr. Hansen, Hørsholm, Denmark) and live yeast (*Saccharomyces cerevisiae* at 0 v 1 kg/t;  $1.25 \times 10^{10}$  cfu/kg feed; supplied by AB Vista, Malborough, UK). A total of 180 mixed sex piglets (Large White/Landrace/Duroc  $\times$  Pietrain) weaned at 26 d of age (initial BW =  $9.1 \pm 0.21$  kg) were allocated to the 4 dietary treatments (9 pens per treatment, 5 pigs/pen) in a randomized complete block design. Pigs were fed according to 2 phases; diet 1 (1–7 d) and diet 2 (8–20 d). All diets contained 2500 mg/kg zinc and 1700 ppm copper and exceeded BSAS nutrient requirements. There was no significant effect of *Bacillus* spp. inclusion, or significant interaction between *Bacillus* spp. and live yeast on pig performance during any period of the trial. Inclusion of live yeast significantly improved average daily gain (ADG; 381 vs 411 g/d;  $P = 0.015$ ) and feed conversion ratio (FCR; 1.30 vs 1.24;  $P = 0.009$ ) over the 20 d period. This was mainly due to improved performance between d 8 and 20 (ADG = 519 vs 549;  $P = 0.022$  and FCR = 1.21 vs 1.17;  $P = 0.033$ ). Inclusion of live yeast did not affect feed intake. The use of a live yeast significantly improved growth and feed conversion, which may be due to an overall improvement in nutrient utilization by the pig although this mechanism should be further investigated. There was no further benefit on combining *Bacillus* spp. and *Saccharomyces cerevisiae*.

**Key Words:** piglet, probiotic, yeast

**267P Effect of lipid source and oxidation level on DE, ME, and apparent total-tract digestibility (ATTD) of DM, GE, EE, N, and C in young pigs.** P. Liu\*, B. J. Kerr<sup>2</sup>, T. E. Weber<sup>2</sup>, C. Chen<sup>1</sup>, L. J. Johnston<sup>1,3</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>USDA-ARS, Ames, IA, <sup>3</sup>West Central Research and Outreach Center, Morris, MN.

To evaluate the effect of lipid source and oxidation level on DE, ME, and ATTD of DM, GE, EE, N, and C of young pigs, 108 barrows (~6.66 kg BW) were assigned to dietary treatments in a  $4 \times 3$  factorial design. Main effects were lipid source [corn oil (CN), canola oil (CA), poultry fat (PF), and tallow (TL)] and oxidation level [original lipids (OL), slow oxidation (SO) of lipids heated for 72 h at 95°C, or rapid oxidation of lipids (RO) heated for 7 h at 185°C]. Pigs were provided ad libitum access to diets for 28-d, followed by an 8-d limited (4%