

**794 Effect of a 3-strain *Bacillus*-based direct-fed microbial on growth performance and volatile fatty acid production in nursery pigs fed low or high fiber diets.** Neil W. Jaworski\*<sup>1</sup>, Augustine Owusu-Asiedu<sup>2</sup>, Ajay Awati<sup>2</sup>, Alastair Thomas<sup>2</sup>, and Hans H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, Urbana, IL, <sup>2</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK.

The effect of a 3-strain *Bacillus*-based direct-fed microbial (DFM) on growth performance and VFA production in weanling pigs fed low or high fiber diets was evaluated. Two hundred pigs (initial BW: 6.31 ± 0.73 kg) were allotted to 1 of 4 dietary treatments with 5 pigs/pen. Treatments were arranged in a 2 × 2 factorial design with 2 diet types [low fiber (LF) or high fiber (HF)] and 2 levels of DFM [0 or 60 g DFM (2.4 × 10<sup>12</sup> cfu/kg)/t of feed]. Phase 1 diets were fed for 2 weeks post-weaning and phase 2 diets for the following 29 d. The LF diets contained corn and soybean meal as main ingredients and HF diets contained corn, soybean meal, corn distillers dried grains with solubles (7.5 and 15.0% in phase 1 and 2, respectively) and wheat middlings (10.0%). The NE in phase 1 LF and HF diets was 2,525 and 2,463 kcal/kg, respectively. The NE in phase 2 LF and HF diets was 2,483 and 2,414 kcal/kg, respectively. No diets contained antibiotic growth promoters. Pigs and feed were weighed at the start and at the end of each phase, and ADG, ADFI, and G:F were calculated. At the conclusion of phase 2, 1 pig/pen was killed. Cecum and rectum contents were collected and analyzed for VFA. Data were analyzed as a 2 × 2 factorial with DFM, diet type, and the interaction of DFM and diet type as fixed effects and rep as a random effect using the Mixed procedure of SAS. During phase 1, a reduction ( $P < 0.05$ ) in ADFI of pigs fed HF diets and a tendency for pigs fed diets supplemented with DFM to have an improved ( $P = 0.10$ ) G:F were observed. Pigs fed LF diets had a greater ( $P = 0.05$ ) BW (27.06 kg) at the end of phase 2 compared with pigs fed HF diets (26.31 kg). The concentration of acetate, propionate, and isovalerate in rectum contents were greater ( $P < 0.05$ ) in pigs fed LF diets, and there was a tendency for addition of this DFM to increase ( $P = 0.10$ ) isovalerate concentration in cecum content. For the entire experimental period, HF diets decreased ( $P = 0.05$ ) ADFI and ADG of pigs by 32.5 and 17.5 g / d, respectively, and the addition of this DFM improved ( $P < 0.05$ ) G:F. In conclusion, the 3 strain *Bacillus*-based DFM improved overall G:F by 0.8 and 7.3% in LF and HF diets, respectively.

**Key Words:** direct-fed microbial, fiber, pig