PSVII-9 Effects of a multi-species direct-fed microbial on growth performance and carcass characteristics of grow-finish pigs. Mariana Boscato Menegat, Joel M. DeRouchey, Jason C. Woodworth, Mike D. Tokach, Steve S. Dritz, Robert D. Goodband, *Kansas State University*

This study was conducted to determine the effects of a multi-species direct-fed microbial (DFM) product based on lactic acid bacteria and Bacillus subtilis on growth performance and carcass characteristics of grow-finish pigs. A total of 1,188 pigs (PIC 359 × 1050; initially 25.8 kg BW) were used in a 121-d growth trial with 27 pigs/pen and 22 pens/treatment. Pigs were allotted to treatments based on initial BW in a randomized complete block design. Treatments included a control diet and the control diet with added DFM (BiOWiSH Technologies Inc., Cincinnati, OH) included at 0.055% of the diet at the expense of corn. Diets were based on corn, distillers dried grains with solubles, and soybean meal and fed in four dietary phases. Data were analyzed using a linear mixed model (PROC GLIMMIX, SAS®) with treatment as fixed effect, block as random effect, and pen as experimental unit. Overall (d 0 to 121), pigs fed the control diet had greater ADG ($P < 0.05$) and final BW ($P < 0.001$) compared to pigs fed the DFM diet (Table 1). There was no evidence for differences ($P > 0.05$) in ADFI or G:F between treatments. The difference in final BW resulted in heavier ($P < 0.05$) HCW in control pigs compared to DFM pigs, but no evidence for differences ($P > 0.05$) was observed in carcass yield, backfat, loin depth, and percentage lean between treatments. In conclusion, the inclusion of this multi-species DFM in growing-finishing diets reduced ADG in this commercial study. This response could be related to inclusion rate, feeding duration, or other factors not identified in this study, warranting further research to characterize the effects on pig performance.

Table 1. Effects of a multi-species DFM on growth performance and carcass characteristics of grow-finish pigs

Item	Control	DFM[1]	SEM	*P*-value
ADG, kg	0.822	0.813	0.003	0.024
ADFI, kg	2.13	2.12	0.010	0.124
G:F	0.386	0.384	0.002	0.225
Final BW, kg	124.0	122.4	0.532	<0.001
HCW, kg	91.8	90.9	0.377	0.026
Yield, %	74.0	74.2	0.149	0.163
Backfat, mm	14.8	15.0	0.143	0.180
Loin depth, mm	66.2	66.2	0.462	0.982
Lean, %	57.7	57.6	0.095	0.099

[1]DFM (BiOWiSH Technologies Inc., Cincinnati, OH) was included in diets at 0.055% at the expense of corn.

Key words: Bacillus subtilis, finisher, probiotic

PSVII-10 Xylanase improved the nutrient and energy digestibility of diets high in insoluble corn fiber fed to swine following a 36-d dietary adaptation period. Amy L. Petry[1], Nichole F. Huntley[1], Mike R. Bedford[2], John F. Patience[1], [1]*Iowa State University,* [2]*AB Vista*

The efficacy of xylanase in practical swine diets is inconsistent and poorly understood. The experimental objective was to investigate the efficacy of xylanase in growing pigs fed a diet high in insoluble corn fiber and afforded a longer adaptation period than typically reported in the literature. Sixty gilts (25.43 ± 0.88 kg BW; L337 X Camborough, PIC, Hendersonville, TN; n = 15 per treatment), were blocked by weight, housed individually, and randomly assigned to one of four dietary treatments: a low-fiber control (LF; 8.45% NDF), a 30% corn bran high-fiber control (HF; 24.5% NDF), HF + 100 mg/kg of xylanase (HF+XY; Econase XT 25P; AB Vista, Marlborough, UK), and HF + 50 mg/kg of arabinoxylan-oligosaccharide (HF+AX; 3-7 degrees of polymerization). Diets contained 0.5% chromium (III) oxide. Gilts were fed ad libitum for 36 d, followed by a 7-d period of adaptation to limit feeding (80% of average ad libitum intake) and housing in metabolism crates, followed by 3 d of urine and fecal collection. Data were analyzed using PROC MIXED (SAS; 9.4) as a randomized complete block design with pig as the experimental unit, block and replicate as random effects, and treatment as a fixed effect. Compared to the LF diet, the HF diet reduced the apparent total tract digestibility (ATTD) of DM (88.7 vs. 75.6%), GE (89.0 vs. 77.4%), CP (87.2 vs. 81.8%), NDF (63.3 vs. 44.4%), ADF, and hemicellulose ($P = 0.01$). Xylanase supplementation, but not arabinoxylan-oligosaccharide, when compared to the HF control diet, improved the ATTD of DM by 3.3% (78.2 vs. 75.6%), GE by 2.2% (79.1 vs. 77.4%), CP by 2.9% (84.2 vs. 81.8%), NDF by 17.5% (53.9 vs. 44.4%), ADF by 16.3% (52.1 vs. 42.9%), and hemicellulose by 16.4% ($P < 0.05$). These data indicate insoluble fiber reduced nutrient and energy digestibility, but xylanase was effective in partially mitigating that effect.

Key words: xylanase, corn bran, pig