

and more polyunsaturated FA (13.5, 22.8, 17.8, 17.1, 19.0%;  $P < 0.001$ ). The IV for outer fat layers were 67.9, 79.4, 73.2, 72.0, 74.3, and for inner fat layers were 60.4, 72.8, 65.0, 63.8, 67.2 ( $P < 0.001$ ). Gilts had higher IV than barrows in outer (74.8 vs. 72.2) and inner (67.5 vs. 64.6) fat ( $P < 0.001$ ). Withdrawal of DDGS in phase 3 or feeding less DDGS produced FA and IV levels that reverted toward those of control pigs.

**Key Words:** pigs, DDGS, fatty acids

**508 Wheat-DDGS pig finishing diet reduces feed cost but does not improve net profit of production.** G. A. Mastromano,\* M. R. Ashby, R. C. Roberson, J. M. Scheffler, and J. Escobar, *Virginia Tech University, Blacksburg.*

Corn prices are increasing due, in part, to ethanol production, resulting in increased feed costs for swine producers. The objective of this experiment was to determine if a wheat-dried distiller's grains with solubles (DDGS) based diet (WD) would reduce cost efficiency of gain compared with a corn-SBM (CS) based diet. Fifty pigs (24 gilts and 26 barrows) were segregated by sex and housed 2–3 pigs/pen with free access to feed and water over a 53-d study. One-half of pigs were fed CS diet (85.92% corn, 12.50%SBM, 1.58% others) and the remainder were fed WD diet (50.50% wheat, 40% corn DDGS, 7.00% SBM, 2.5% others). Feed disappearance was monitored daily and pigs were weighed every 14 d. At the end of the study, pigs were transported about 6 h to a commercial slaughter facility. Initial BW was not different ( $P = 0.83$ ) between CS (68.5 ± 1.7 kg) and WD (68.0 ± 1.7 kg) treatments. Overall ADG, ADFI, and G:F was not different ( $P = 0.48$  to 0.67) between CS (1.17 ± 0.03 kg/d, 3.80 ± 0.09 kg/d, 0.32 ± 0.01, respectively) and WD (1.14 ± 0.03 kg/d, 3.85 ± 0.08 kg/d, 0.31 ± 0.01, respectively). Final BW was not different ( $P = 0.23$ ) between CS (131.3 ± 1.8 kg) and WD (128.2 ± 1.7 kg) treatments, but hot carcass weight (HCW) was reduced ( $P = 0.009$ ) 5.6% in WD compared with CS pigs. Dietary treatment had no effect on ham weight ( $P = 0.41$ ); however, pigs eating WD had lower picnic ( $P = 0.008$ ), boneless loin ( $P = 0.03$ ), belly ( $P = 0.06$ ), and butt ( $P = 0.10$ ) weights compared with controls. Ultrasound measurements of last rib backfat (BF) and longissimus dorsi eye area (LEA) were recorded before transportation. BF was reduced ( $P < 0.001$ ) in WD (1.30 ± 0.03 cm) compared with CS (1.52 ± 0.03 cm) pigs; however, treatment had no effect on LEA (42.1 ± 0.4 cm for CS vs. 41.5 ± 0.4 cm for WD). Feed cost (¢ per kg) was 9.45% lower ( $P < 0.001$ ) in WD (37.97 ± 0.33) compared with CS (41.94 ± 0.33). Even though feed cost was reduced using the WD treatment, there was no difference in profit due to lower HCW in WD pigs. Further investigation in lengthening the trial period may be necessary to increase profit when feeding the WD diet.

**Key Words:** DDGS, swine growth, wheat

**509 The effects of corn- or sorghum-based diets with or without sorghum dried distillers grains and solubles on lactating sow and litter performance.** K. M. Sotak,\* R. D. Goodband, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan.*

A total of 140 sows (PIC 1050) and their litters were used to determine the effects of corn- or sorghum-based diets with or without 20% sorghum dried distiller's grains with solubles (DDGS; 31.1% CP and 9.2% crude fat) on lactating sow and litter performance. Sows were allotted to 1 of 4 dietary treatments 3 d before farrowing in a RCBD. There were 2 and 1 sows removed from the study for the sorghum and sorghum-DDGS treatments because of initial feed refusal with all others removed due to illness. Weaning age was 21 d. Treatments were arranged in a 2 × 2 factorial with main effects of grain source (corn vs. sorghum) and sorghum

DDGS (0 vs. 20%). All diets were formulated to 0.97% standardized ileal digestible Lys but were not balanced for energy. Overall (d 0 to 21), ADFI increased in corn-based diets when DDGS were added, but decreased in sorghum-based diets resulting in a tendency ( $P < 0.08$ ) for a DDGS × grain source interaction. Sows fed the sorghum-based diets had decreased ( $P < 0.04$ ) lactation weight loss compared with those fed corn-based diets. Pig weights at weaning were lower ( $P < 0.06$ ) for sows fed the diets containing DDGS compared with those fed the diets without DDGS. Overall, feeding sows corn- vs. sorghum-based (without DDGS) diets in lactation did not affect litter performance; however, the 4% decrease in litter weaning weight of sows fed sorghum with 20% sorghum DDGS needs to be taken into account in ingredient selection for lactating sows.

**Table 1.** Effects of corn- or sorghum-based diets with or without 20% sorghum dried distillers grains with solubles (DDGS)

Item	Corn DDGS		Sorghum DDGS		SED	Probability, P <		
	0%	20%	0%	20%		DDGS × Control Grain source	vs. DDGS <sup>1</sup>	vs. Corn sorghum
Sows, n	35	35	32	32				
ADFI, kg	5.76	5.93	6.30	5.88	0.24	0.08	0.46	0.15
Lact. wt change, kg	-14.3	-13.9	-11.0	-9.7	2.65	0.86	0.65	0.04
Lact. BF change, mm	-1.4	-1.3	-1.7	-2.2	0.62	0.39	0.65	0.15
Foster litter size	12.6	13.0	12.6	12.7	0.24	0.69	0.28	0.75
Wean litter size	11.8	12.1	11.8	11.8	0.29	0.38	0.48	0.58
Wean pig wt, kg	13.8	13.3	13.8	13.1	0.43	0.74	0.06	0.72
Wean litter wt, kg	73.6	73.0	73.4	70.2	2.90	0.53	0.34	0.46

<sup>1</sup>Basal diets vs. diets with 20% sorghum DDGS.

**Key Words:** sorghum, sorghum DDGS, sows

**510 Amino acid digestibility in blood products fed to weanling pigs.** F. N. Almeida\*<sup>1</sup>, J. K. Htoo<sup>2</sup>, J. Thomson<sup>3</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>Evonik Industries AG, Hanau, Germany, <sup>3</sup>Evonik Degussa Corp., Kennesaw, GA.

Blood products are commonly used in diets for nursery pigs, but different processing techniques may result in differences in AA digestibility among these ingredients. Thus, the objective of this experiment was to compare values for the standardized ileal digestibility (SID) of AA in spray-dried animal blood (SDAB; 89.4% CP), spray-dried blood cells (SDBC; 92.6% CP), spray-dried plasma protein (SDPP; 77.7% CP), roller dried avian blood meal (ABM, 88.4% CP), and roller dried porcine blood meal (PBM, 94.6% CP), when fed to weanling pigs. Seven weanling barrows (initial BW: 11.5 ± 1.1 kg) were equipped with a T-cannula in the distal ileum and allotted to a 7 × 7 Latin square design with 7 diets and 7 periods in each square. One of the diets was based on casein, and 5 diets were based on a mixture of casein and each source of blood product. A N-free diet that was used to measure basal endogenous losses of AA and protein was also formulated. The SID of AA in each blood product was calculated by the difference procedure. The Mixed procedure of SAS was used to analyze the data. The model included diet as the main effect whereas pig and period were random effects. Results indicate that the SID of AA in SDAB, SDBC, and in SDPP is close to 100% and not different from casein. The SID of AA in ABM and PBM is less ( $P < 0.05$ ) than those calculated for the 3 spray dried blood products, which indicates that the drying procedure used to prepare these products may have reduced the SID of AA.