validity for the evaluation of by-products is often questioned. The aim of this study was to compare the total fecal collection method and the use of an indigestible marker to measure the nutrient digestibilities and digestible energy (DE) content of different canola meals (CM). A total of 60 growing pigs (30 ± 4 kg BW; 6/diet) were fed with two basal diets and eight CM-based diets (2/3 basal diet, 1/3 CM). The diets were supplemented with Celite as a source of acid-insoluble ash (AIA; 0.72 to 1.65 g AIA/kg diet). The pigs were kept in metabolic cages for 18 d (8 d adaptation period, 10 d total fecal collection). The results of digestibility (DM, N and energy) and the DE contents were tested for the ′method′ effect. No difference was observed between the total amount of AIA ingested and excreted on average (92.1 vs 86.1 g; P = 0.1). The digestibility values were systematically lower with the AIA method, compared to the total fecal collection, for DM (80.1 vs 81.7%; P < 0.003), N (82.7 vs 83.9%; P < 0.003) and energy (79.8 vs 81.4%; P < 0.01). On the contrary, the overall results obtained for the different CM types were similar for both methods (78.0 vs 78.3% for DM, 83.2 vs 84.0% for N; 78.1 vs 78.5% for energy and 3.9 vs 3.9 Mcal/kg for the DE content, for the total fecal collection and marker methods, respectively). However, differences between methods were observed for some individual CM samples and were either higher (+ 13% for the DE content) or lower (-14%) with the marker. These differences and the variability had major effects on the estimation of the digestibilities and DE content of CM alone, calculated by difference. We conclude that, in the conditions of our study, AIA is not suitable for the estimation of the digestibility of CM in growing pigs.

Key Words: pig, digestibility, canola meal

215 Amino acid and energy digestibility of high-protein corn distillers dried grains in pigs. J. J. Jacela*, H. L. Frobose, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan*.

Dry defractionation is a process that optimizes the use of corn by separating the kernel into its bran, germ, and endosperm components before fermentation for ethanol fuel production. This yields a distillers grains product that is higher in CP but with lower fat content. A study was conducted to determine the digestibility of amino acids (AA) and energy content of a specialized high-protein corn distillers dried grains (HP-DDG) co-product. Six growing barrows (BW = 22.7 kg) were surgically fitted with T-cannulas at the terminal ileum and randomly allotted to 2 treatments in a crossover design with 2 periods. The first diet contained 67% HP-DDG as the sole protein source; the second was a N-free diet for determining basal endogenous AA loss. Chromic oxide was added to both diets as an inert marker. Digesta and fecal samples were collected and analyzed for AA and energy concentrations. After chemical analysis, standardized and apparent ileal digestible (SID and AID, respectively) AA as well as GE, DE, ME, and NE values for HP-DDG were calculated. The chemical composition of the HP-DDG on a DM basis was 40.8% CP, 5.4% EE, 22.9% ADF, 36.6% NDF, 0.04% Ca and 0.42% P. The GE, DE, ME, and NE values were 5,293; 3,703; 3,426; and 2,131 kcal/kg DM, respectively. The DM content was 89.5%. The HP-DDG had greater AA digestibility than previously reported traditional DDGS. Therefore, this HP-DDG appears to be well-suited for use in swine diets.

Table 1. Amino acid composition and digestibility, DM basis

Amino acid	%	SID,%	AID,%
Arginine	1.84	85.3	83.8
Cysteine	0.85	76.8	75.5
Histidine	1.16	80.0	79.0
Isoleucine	1.69	81.4	80.2
Leucine	5.45	88.9	88.3
Lysine	1.36	67.8	65.9
Methionine	0.88	87.5	87.0
Phenylalanine	2.14	86.1	85.2
Threonine	1.45	75.0	72.8
Tryptophan	0.26	78.6	76.2
Valine	2.21	79.7	78.1

Key Words: swine, distillers dried grains, amino acids

216 Effect of dam parity on growth performance and immune response of weaned pigs. E. E. Carney*, H. Tran, J. W. Bundy, R. Moreno, D. E. Reese, P. S. Miller, and T. E. Burkey, *University of Nebraska, Lincoln*.

The progeny of first parity (P1) dams may have reduced growth performance compared to progeny from mature dams (≥ P2). The objective of this experiment was to evaluate the effect of dam parity on growth performance and immune response in progeny derived from different parities. Weaned pigs (n = 96) derived from P1 or P4 dams were allotted to 2 dietary treatments: control (CTL) or antibiotic (Mecadox; AB), creating 4 treatments: 1) P1, CTL; 2) P1, AB; 3) P4, CTL; and 4) P4, AB. There were 4 pens per treatment and 6 pigs per pen and growth performance was monitored over 3 phases: Phase I (d 0 to 7); Phase II (d 8 to 21); and Phase III (d 22 to 42). Initial BW (6.3 vs. 5.7 ± 0.1 kg for P4 and P1 progeny, respectively) was used as a covariate and orthogonal contrasts were used to evaluate effect of parity, dietary treatment, and their interaction. To evaluate immune response, pigs (n = 4 per pen) were vaccinated against *M. hyopneumoniae* (Mh). Antibody titers to Mh were quantified via Tween 20 ELISA. No parity × dietary treatment interactions were observed in this experiment. Across both dietary treatments, P4 progeny had greater ($P < 0.01$) BW than P1 progeny at d 0, 7 (7.0 vs. 6.5 ± 0.1 kg), 21 (12.3 vs. 11.3 ± 0.2 kg), and 42 (26.3 vs. 24.3 ± 0.5 kg). On d 42, CTL pigs tended ($P = 0.054$) to have greater BW compared to AB pigs when averaged across parity. Across both dietary treatments, G:F in Phase I tended ($P < 0.10$) to be greater for P1 compared to P4 progeny; and ADFI, in both Phase II and III, was greater ($P < 0.02$) for P4 compared to P1 progeny (0.54 vs. 0.45 and 1.09 vs. 1.01 ± 0.02 kg respectively, for Phase II and III). During Phase III, AB pigs had decreased ($P < 0.05$) G:F compared to CTL pigs (0.60 vs. 0.63 ± 0.01). Overall (d 0 to 42), P4 progeny tended ($P < 0.10$) to have greater ADG and ADFI compared to P1 progeny and G:F tended ($P < 0.10$) to be decreased in P4 compared to P1 progeny. In addition, overall ADG and G:F for AB pigs tended ($P < 0.10$) to be decreased compared to CTL pigs. There were no effects of parity, dietary treatment, or their interaction on Mh titers. These results suggest that growth performance may be affected by dam parity.

Key Words: dam parity, growth, pigs