O079 **The effects of soybean hulls on nursery pig growth performance.** D. Goehring*, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, *Kansas State University, Manhattan.*

Two experiments were conducted to evaluate the effects of soybean hulls on growth performance of nursery pigs. In both experiments, pens of pigs were balanced by initial BW and randomly allotted to 1 of 5 dietary treatments (7 pigs per pen and 6 replicates per treatment). In Exp. 1, 210 nursery pigs (6.6 kg and 28 d of age) were used in a 34-d study. Corn-soybean meal diets (meal form) contained increasing amounts of soybean hulls (0, 5, 10, 15, and 20%) and were not balanced for energy. Increasing soybean hulls decreased (linear, $P<0.01$) ADG and G:F, with no change in ADFI ($P>0.23$). In Exp. 2, 210 nursery pigs (13.6 kg and 41 d of age) were used in a 20-d study. Treatments were arranged in a 2×2+1 factorial, including a corn-soybean meal control diet without soybean hulls and corn-soybean meal diets containing 10 or 20% soybean hulls either balanced on a NE basis or not. Diets balanced for NE contained 3.6 and 7.15% added soybean oil in the 10 and 20% soybean hull diets to achieve the same NE as the control diet. Increasing soybean hulls decreased ADG (linear, $P<0.01$) regardless of formulation method; however, pigs fed increasing soybean hulls without added fat had similar ADFI but decreased (linear, $P<0.01$) G:F. Pigs fed diets containing soybean hulls balanced for NE had decreased ($P<0.01$) ADFI, but improved ($P<0.001$) G:F compared with pigs fed soybean hulls with no added fat, resulting in G:F similar to the control pigs. In conclusion, soybean hulls can be included in nursery pig diets up to 5% with no negative effects on ADG, ADFI, and G:F. Higher amounts, up to 20% soybean hulls, can be included in nursery pig diets with G:F similar to pigs fed corn-soybean diets if diets are formulated on a NE basis, but there are reductions in ADFI and ADG.

Exp. 1	Soybean Hulls, %					
Item	0	5	10	15	20	SEM
ADG, g	441	440	429	415	382	10.9
ADFI, g	680	673	698	685	638	18.4
G:F	0.651	0.656	0.616	0.609	0.601	0.01
Exp. 2	Soybean Hulls, %:					
	0	10	20	10	20	
NE, Mcal/kg:	2.37	2.21	2.05	2.37	2.37	SEM
ADG, g	680	663	625	671	636	9.6
ADFI, g	1070	1109	1094	1046	1006	17.4
G:F	0.637	0.597	0.570	0.641	0.631	0.008

Key Words: net energy, nursery pig, soybean hulls

O080 **Nutritional value of lentil and micronized full-fat soybean fed to growing pigs.** T. A. Woyengo[1,*], R. Jha[1, 2], E. Beltranena[1, 3], A. Pharazyn [4], R. T. Zijlstra [1], *[1]University of Alberta, Edmonton, Canada, [2]University of Hawaii at Manoa, Honolulu, [3]Alberta Agriculture and Rural Development, Edmonton, [4]Nutreco Canada Inc, Guelph, Canada.*

A study was conducted to determine the standardized ileal digestibility (SID) of AA and calculate NE for micronized regular full-fat soybean (R-FFSB) and low stachyose and raffinosefull-fat soybean (LSR-FFSB), and lentil for growing pigs. Six ileal-cannulated barrows (31.4 kg BW) were fed 6 diets in a 6 × 6 Latin square. The 6 diets were cornstarch-based with soybean meal (SBM), LSR-FFSB, LSR-FFSB, or lentil as the sole source of protein; N-free diet (NFD); and enzymatically hydrolyzed casein diet (EHC). Energy digestibility in SBM, R-FFSB and LSR-FFSB was determined by difference from the NFD, whereas energy digestibility in lentil was determined by direct method. The SID of AA for SBM and test ingredients was calculated using NFD or EHC. The SID of AA for feedstuffs was similar between 2 methods (NFD vs. EHC). The SID of Lys for SBM (93%) was higher ($P < 0.05$) than that for R-FFSB or LSR-FFSB, which were similar in SID of Lys (76 vs. 79%). The SID of other indispensable AA for SBM was also higher ($P < 0.05$) than that for R-FFSB or LSR-FFSB, which were similar in SID of the same AA. The SID of Lys for lentil (81%) was lower ($P < 0.05$) than that for SBM with a similar trend for SID of other indispensable AA in SBM and lentil except for Met and Thr whose SID values were similar between SBM and lentil. Lentil and SBM were similar in NE content (2.61 vs. 2.62 Mcal/kg of DM). However, SBM had lower ($P < 0.05$) NE content than R-FFSB or LSR-FFSB, which were similar in NE content (2.96 vs. 3.07 Mcal/kg of DM). In conclusion, variety of FFSB (regular vs. LSR) may not affect the NE and SID of AA for micronized FFSB fed to pigs. Micronized FFSB (regardless of their variety) is better source of dietary energy but not AA for pigs than SBM. Combined with our previous growth experiments, lentil can serve as another local pulse feedstuff for pigs.

Key Words: full-fat soybean, lentil, pig

O081 **Concentration of metabolizable energy and digestibility of amino acids in chicken meal, poultry by-product meal, Ultrapro, AV-E Digest, and conventional soybean meal fed to pigs.** O. J. Rojas Martinez*, H. H. Stein, *Animal Sciences, University of Illinois, Urbana.*

Two experiments were conducted to determine the ME and the standardized ileal digestibility (SID) of AA in chicken meal (CM), poultry by-product meal (PBM), Ultrapro, AV-E Digest, and soybean meal (SBM) fed to growing pigs. In Exp. 1, 48 barrows (BW: 14.6 ± 2.2 kg) were place in metabolism cages and allotted to a randomized complete block design with 6 diets and 8 pigs per diet. The basal diet contained 98.1% corn and 5 diets contained corn and each of the experimental ingredients. The ME was 3,957, 3,816, 4,586, 4,298, 4,255, and 4,091 kcal/kg DM for corn, CM, PBM, Ultrapro, AV-E Digest, and SBM, respectively. The ME in PBM was greater ($P < 0.01$) than in corn, CM, AV-E Digest, and SBM, and the ME in Ultrapro and AV-E Digest was greater ($P < 0.01$) than in corn and CM, but there was no difference ($P > 0.05$) among Ultrapro, AV-E Digest, and SBM. In Exp. 2, 12 barrows (BW: 12.2 ± 1.5 kg) were equipped with a T-cannula in the distal ileum and randomly allotted to a replicated 6 × 6 Latin square design with 6 diets and 6 periods in each square. A cornstarch-SBM based diet and 4 diets that contained SBM and CM, PBM, Ultrapro, or AV-E Digest as the only sources of AA in each diet were formulated. A N-free diet was used to determine endogenous losses of CP and AA. The SID of CP and all AA except Trp and Pro was greater ($P < 0.01$) in SBM than in all other ingredients. The SID of CP and all indispensable AA in AV-E Digest was also greater ($P < 0.01$) than in CM and Ultrapro, and with the exception of CP, Arg, and Val, SID values of all indispensable AA in AV-E Digest were also greater than in PBM. With the exception of Val and Lys, there were, however, no differences between CM and PBM in the SID of CP and AA. In conclusion, the ME in Ultrapro and AV-E Digest is greater than in CM, but not different from the ME of SBM, but PBM contains more ME than SBM, CM, and AV-E Digest. The SID of most indispensable AA is greater in AV-E Digest than in CM, PBM, and Ultrapro, but less than in SBM.

Key Words: animal proteins, pig, poultry meal