Growth performance and plasma oxidation indices in pigs fed peroxidized soybean oil.				
	Treatment[1]		Statistic[2]	
	SO	pSO	SEM	P-value
ADG, kg	0.713	0.366	0.020	0.01
ADFI, kg	1.242	0.826	0.033	0.01
GF	0.582	0.446	0.014	0.01
ISP, pg/mL	56	203	19	0.01
TBARS, μM/mL	2.8	2.4	0.2	0.10
ROM, UCARR	722	775	14	0.01
AXC, μM HClO/mL	343	317	17	0.28
OSi	2.2	2.5	0.1	0.04

[1] Treatment consisted of 10% SO that was either SO or pSO (135°C for 42 h) for experiment 1 and either 8% SO or pSO for 27d for experiment 2.

[2] Difference in superscript indicate significant difference ($P \leq 0.05$).

Abbreviations: ADG-average daily gain, ADFI-average daily feed intake, GF-feed efficiency, ISP-F_2-isoprostanes, MDA-malondialdehyde, ROM-reactive oxygen metabolites, AXC-antioxidant capacity, OSi-oxidative stress index, SO-soybean oil, pSO-peroxidized soybean oil (heated to 135°C for 42 h).

Keywords: oxidative stress, peroxidized oil, growth performance

199 Effect of the Pelleting Process on Diet Formulations with Varying Levels of Crystalline Amino Acids and Reducing Sugars on Digestibility in Growing Pigs.

Kara M. Dunmire[1], Diego A. Lopez[2], Chance J. Fiehler[3], Yiqin Zhang[1], Cassandra K. Jones[3], Yonghui Li[1], Jason C. Woodworth[4], Robert D. Goodband[3], Mike D. Tokach[4], Charles R. Stark[1], Hans H. Stein[2], Chad B. Paulk[1], *[1]Department of Grain Science & Industry, Kansas State University, [2]Department of Animal Sciences, University of Illinois, [3]Department of Animal Sciences & Industry, Kansas State University, [4]Department of Animal sciences & Industry, College of Agriculture, Kansas State University*

The objective of this study was to determine effects of pelleting on the standardized ileal digestibility (SID) of amino acids (AA) in diets with or without increased concentrations of free AA and reducing sugars (RS). Eight individually housed, ileal cannulated barrows (initially 69.2 kg) were allotted to a replicated 8×8 Latin square with 8 diets and eight 7-d periods with ileal digesta collected on d 6 and 7. Treatments were arranged in a 2×2×2 factorial with main effects of diet form (mash vs. pellet), crystalline AA (low vs. high), or reducing sugars (low vs. high) provided by dried distillers grains with solubles and bakery meal. Diets were pelleted to achieve a hot pellet temperature of 85 to 88°C. Data were analyzed as a completely randomized Latin square using the GLIMMIX procedure of SAS. A feed form×RS interaction ($P < 0.026$) for SID of tryptophan was observed. Feeding pelleted low RS diets improved SID of tryptophan compared with mash high and low RS diets, and pelleted high RS diets. For main effects of feed form, the SID of total AA, CP, and indispensable AA increased ($P < 0.042$) in pigs fed pelleted diets compared with mash diets. For main effects of crystalline AA, pigs fed high crystalline AA had increased ($P = 0.007$) SID of tryptophan and decreased ($P = 0.050$) SID of histidine compared with those fed low crystalline AA diets. For main effects of RS diets, pigs fed high RS diets had decreased ($P < 0.05$) SID of total AA, CP and indispensable AA. In conclusion, pelleting diets with increased crystalline AA or RS did not affect the improvement in AA digestibility from pelleting. Pelleting diets improved AA digestibility. Diets formulated with high crystalline AA had increased SID of tryptophan. Formulating diets with high RS resulted in decreased AA digestibility compared with corn-soybean meal-based diets.

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Table 1. Standardized ileal digestibility (SID) of crude protein (CP) and amino acids (AA) main effects of feed form, crystalline AA, and reducing sugar (RS)[1,2]

	Form		Crystalline AA		RS		
SID, %	Mash	Pellet	Low	High	Low	High	SEM
Total AA	80.78[b]	84.60[a]	83.04	82.33	85.15[e]	80.22[f]	0.737
Crude protein	76.88[b]	82.20[a]	80.18	78.89	81.98[e]	77.09[f]	1.078
Indispensable AA							
Arginine	91.60[b]	96.08[a]	94.52	93.15	96.14[e]	91.54[f]	0.544
Histidine	80.74[b]	83.66[a]	83.10[c]	81.30[d]	85.96[e]	78.44[f]	0.639
Isoleucine	79.63[b]	84.34[a]	83.02	80.95	85.13[e]	78.84[f]	0.762
Leucine	80.64[b]	85.31[a]	83.27	82.67	85.78[e]	80.78[f]	0.739
Lysine	85.76[b]	87.79[a]	85.90	87.65	89.82[e]	83.72[f]	0.686
Methionine	86.41[b]	90.87[a]	88.85	88.43	92.13[e]	85.16[f]	0.759
Phenylalanine	80.55[b]	85.12[a]	83.41	82.26	84.75[e]	80.75[f]	0.733
Threonine	75.66[b]	78.74[a]	76.20	78.21	80.40[e]	74.01[f]	0.888
Tryptophan	87.66[b]	89.98[a]	87.26[d]	90.38[c]	89.95[e]	87.69[f]	0.789
Valine	75.87[b]	80.62[a]	79.04	77.44	81.80[e]	74.68[f]	0.875

[1] A total of eight individually housed growing barrows (initially 69.2 ± 6.8 kg) that had a T-cannula installed in the distal ileum were allotted to a replicated 8 × 8 Latin square design with the 8 diets and eight 7-d periods.
[2] Dietary treatments were arranged in a 2×2×2 factorial with main effects of crystalline AA (low vs. high), reducing sugar (low vs. high), and diet form (mash vs. pellet).
[a,b] Means within row for the main effect of form (mash vs. pellet) differ (P<0.05).
[c,d] Means within row for the main effect of crystalline AA (low vs. high) differ (P<0.05).
[e,f] Means within row for the main effect of RS (low vs. high) differ (P<0.05).

Keywords: amino acids, reducing sugars, pelleting

200 Effect of Long-term Feeding of Deoxynivalenol (DON) Contaminated Diets on Performance of Grower-finisher Pigs.

Michael A. Bosompem[1], Michael O. Wellington[1], Daniel A. Columbus[2], *[1]University of Saskatchewan, [2]Prairie Swine Centre, Inc.*

Previous studies examining the effects of deoxynivalenol (DON) intake in pigs have largely focused on young animals or have been over a short period of time. The objective of the present study was to determine the effects of long-term feeding of DON contaminated diets on growth performance of grower-finisher pigs. A total of 240 mixed-sex pigs (35.9 ± 1.1 kg) were group housed in 6 pigs/pen (n = 10/treatment) and were randomly assigned to 1 of 4 dietary treatments for 77 d. Diets consisted of a control diet (CON) containing no DON or a diet containing 1, 3, or 5 ppm DON (DON1, DON3, or DON5) achieved by adding DON-contaminated wheat and wheat screenings at the expense of clean wheat. In the grower period, DON5-fed pigs had reduced average daily gain (ADG) compared to CON, with DON1 and DON3-fed pigs being intermediate P < 0.05). There was no effect of dietary treatment on ADG in the finisher period (P > 0.05). Overall the entire study, DON3 and DON5-fed pigs had similar and reduced ADG (P < 0.05) compared to CON and DON1, which did not differ (P > 0.05). Feed intake was reduced in DON-fed pigs in the finisher period (3.12, 2.97, 2.96, and 2.88 ± 0.05; P< 0.05) and in DON3 and DON5-fed pigs overall (2.62, 2.55, 2.47, 2.47 ± 0.03; P < 0.05) compared to CON, with no overall effect observed in the grower period. There was no effect on feed efficiency in any period (P > 0.05). The decrease in performance resulted in reduced final body weight in DON3 and DON5-fed pigs, compared to CON, with DON1-fed pigs being intermediate (P > 0.05). Overall, the effects of DON-intake on performance were variable and generally occurred rapidly after initial exposure and appear to be largely due to the reduction in feed intake.

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