

pigs on the D30 diet tended ($P < 0.10$) to gain more than those on the D60 diet, although there was no difference for live ADG. Energy content of the D30 diet was greater ($P < 0.05$) than the D60 diet during phase 2, but was lower ($P < 0.05$) in phase 3. Neither feeder allowance nor DDGS inclusion level affected outcomes, but in the final phase indications of inadequate feeder space was observed.

Key Words: feeder space, digestibility, DDGS

O218 Effects of high-fiber diets and ractopamine HCl on finishing pig growth performance and carcass fat quality. A. B. Graham*, R. D. Goodband, J. M. DeRouchey, T. A. Houser, M. D. Tokach, S. S. Dritz, J. L. Nelssen, *Kansas State University, Manhattan.*

A total of 576 pigs (PIC 327 × 1050, initially 55.8 kg) were used to determine the effects of dried distillers grains with solubles (DDGS) and wheat middlings (mids) withdrawal 24 d before harvest in diets with or without ractopamine HCl (RAC) on growth performance and fat quality. From d 0 to 49, pigs were allotted to a corn-soybean meal-based control diet (CS) or diets with 30% DDGS and 19% wheat mids (HF). During this period, pigs fed CS diets had increased ($P < 0.01$) ADG and G:F compared with pigs fed HF diets. On d 49, pens of pigs were re-allotted to 1 of 6 dietary treatments; pigs remained on the CS diets, switched from HF to CS (withdrawal diet), or were maintained on the HF diet. These 3 regimens were fed with or without 10mg/kg RAC. There were 12 pens per treatment with 8 pigs per pen. There were no diet regimen × RAC interactions ($P > 0.10$). Overall (d 0 to 73), pigs fed the CS diet throughout had greater ($P < 0.03$) ADG and G:F and lower ($P < 0.001$) iodine values (IV) than those fed HF diets throughout. Pigs fed the withdrawal diet had greater ($P < 0.03$) ADG, similar G:F, and lower ($P < 0.001$) IV than those fed HF diets throughout. Pigs fed the CS diet throughout had greater ($P < 0.01$) carcass yield compared with pigs fed the HF diet throughout, with those fed the withdrawal diets intermediate. Pigs fed RAC had greater ($P < 0.01$) ADG, G:F, and carcass yield than pigs not fed RAC. Feeding HF diets containing DDGS and mids decreased growth performance and carcass yield and increased IV compared with those fed a CS diet. Withdrawing the HF diet and switching to a CS diet for the last 24 d before harvest partially mitigated these negative effects. Feeding RAC for the last 24 d before market, regardless of dietary regimen, improved growth performance and carcass yield.

		Diet							
Item	RAC	d 0 to 49	CS	CS	HF	HF	HF	HF	SEM
		d 49 to 73	CS	CS	CS	CS	HF	HF	
			-	+	-	+	-	+	
Overall									
ADG, g		980	1032		946	1010	922	969	52.24
G:F		0.337	0.364		0.325	0.346	0.324	0.343	0.01
Carcass yield, %		74.2	75.1		73.7	74.6	72.8	73.6	0.19
Jowl IV, g/100g		65.1	64.3		69.3	70.0	72.4	73.2	0.86

Key Words: DDGS, ractopamine HCl, wheat middlings

O219 Effects of ractopamine HCl on the efficiency of feed and nutrient utilization of finishing pigs. K. Coble^{1,*}, S. Carter¹, M. Pierdon², K. Haydon³, H. Kim¹, M. Bible¹, ¹Animal Science, *Oklahoma State University, Stillwater*, ²University of Pennsylvania *School of Veterinary Medicine, Kennet Square, PA*, ³Elanco Animal *Health, Greenfield, IN*.

Eighty crossbred pigs (40 kg BW) were utilized in a 91-d study to

determine the effects of ractopamine hydrochloride (RAC) on growth performance, nutrient excretion, and gaseous emissions. Pigs were housed in an environmentally-controlled building with 4 identical rooms (20 pigs/room). Pigs were assigned to 1 of 4 rooms, stratified by BW, sex, and ancestry, and randomly allotted to two dietary treatments. During phases 1 to 3, all pigs consumed a common diet. During phase 4 (100 kg BW), pigs received either a diet without RAC (12% CP, 0.63% SID Lys, 0.51% Ca, and 0.19% avail. P) or a diet containing 10 mg/kg RAC (16% CP, 0.89% SID Lys, 0.53% Ca, and 0.22% avail. P) on an ad libitum basis until desired market weight (125 kg). During phases 1-3, when both groups were fed a common diet, few differences ($P > 0.10$) were noted between trts. During phase 4, ADG (0.94 vs. 1.17 kg/d) and G:F (0.30 vs. 0.39) were increased ($P < 0.01$) for pigs fed RAC compared to the control. Thus, pigs fed RAC reached desired market weight 6 days sooner. Slurry pH and estimated water retention were increased ($P < 0.05$) for pigs fed RAC during phase 4. Total excretion (kg/pig) of DM (10.7 vs. 9.0), N (1.01 vs. 0.90), and P (0.20 vs. 0.18) were decreased ($P < 0.10$) for pigs fed RAC during phase 4. Total (kg/pig) CH₄ (0.17 vs. 0.12) and CO₂ equivalents (97 vs. 76) were reduced ($P < 0.02$) during phase 4 with RAC, but there were no differences ($P > 0.10$) in NH₃ or H₂S emissions. For the entire finishing phase, ADG (0.97 vs. 1.02 kg/d), G:F (0.36 vs. 0.40), and lean gain (373 vs. 407 g/d) were increased ($P < 0.10$) for pigs fed RAC. Also, the total excretion (kg/pig) of DM (30.7 vs. 29.0), N (3.0 vs. 2.9), and P (0.53 vs. 0.51) were reduced ($P < 0.10$) by 10, 9, and 2%, respectively, for pigs fed RAC. Total (phase 1-4) CH₄ emissions and CO₂ equivalents were reduced ($P < 0.10$) by 15% and 9% when pigs were fed RAC. These results suggest that RAC increases G:F while decreasing nutrient excretion of DM, N and P. Additionally, RAC decreased total CH₄ emissions and CO₂ equivalents.

Key Words: nutrient excretion, pigs, ractopamine HCl

O220 Comparison of the performance of growing pigs offered feeding programs developed using either the ME or NE system.

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The net energy (NE) system describes the useful energy for growth better than the metabolizable energy (ME) system. This NE system should reduce feed cost where a diverse set of ingredients are used but this needs to be demonstrated in practice. This study compared the growth of pigs on diet programs formulated using either the ME or NE systems. A total of 944 gilts and 1,110 castrates (BW=40.8±2.0 kg) were allotted to separate pens and assigned to one of 5 different feeding programs according to a randomized complete block design. A simple corn-soybean meal control (T1) served as the basis to establish ME (3.44 Mcal/kg) and NE (2.85 Mcal/kg) specifications for both programs. Treatments (T2) ME and (T3) NE included corn DDGS with fat varied to achieve either ME or NE targets. (T4) ME and T5 (NE) contained both DDGS and corn germ meal. Pigs were harvested at a mean BW of 130.3±4.0 kg. No differences were observed among treatments for whole-body ADG ($P = 0.18$), ADFI ($P = 0.12$) or G:F ratio ($P = 0.18$). Total carcass gain was different among treatment programs ($P < 0.03$) with the greatest difference between T1 (66.7 kg) and T4-5 (64.6 kg). Although not statistically different ($P > 0.05$), carcass gain tended to be greater for the NE vs ME program with DDGS diets (66.4 vs 65.1 kg) and for DDGS + germ programs (65.0 vs 64.3 kg). Carcass G:F ratio behaved similarly for T1-5 respectively: 0.258, 0.254, 0.257 and