

20% DDGS +10% Gly. Diets were formulated to be equal in ME and dig. Lys. Growth performance was evaluated on a four phase feeding program. Pigs were fed two grower diets (G1 d0-d28; G2 d28-d56) and two finisher diets (F1 d56-d84; F2 d84-d105). A crude glycerol (84% Gly, <100 ppm methanol) was fed for Phases G1-F1 and a food grade glycerol (99.7% Gly) was fed during F2. As glycerol increased in the diet from 0 to 15%, overall ADG (851, 876, 880, 851 g/d, respectively; $P < 0.05$) responded quadratically while linearly increasing ADFI (2.47, 2.54, 2.57, 2.67 kg/d, respectively; $P < .01$) and linearly decreasing G:F ($P < 0.001$). Adding DDGS (0 or 10% Gly) decreased ADG (836 and 831g/d, respectively; $P < 0.02$) and G:F ($P < 0.04$). Increasing Gly to 10% increased final BW 3.0 kg ($P < 0.07$) while DDGS decreased final BW 1.9 kg ($P < 0.03$). Increasing Gly linearly increased tenth rib backfat (21.9, 23.5, 26.8, 25.3 mm, respectively, $P < 0.02$) and linearly decreased percent fat free lean (FFL) (52.1, 51.8, 49.8, 50.4%, respectively, $P < 0.02$). Feeding 20% DDGS increased FFL (53.1%) while feeding DDGS+10% Gly decreased FFL (50.8%; $P < 0.05$). Adding Gly to diets tended to linearly increase liver weights ($P < 0.06$). Adding DDGS tended to increase kidney weights ($P < 0.10$). Visual loin marbling decreased linearly with increasing Gly ($P < 0.01$). Loin Minolta color L* linearly increased with increasing Gly ($P < 0.09$). Feeding Gly up to 10% of grow finish diets can improve ADG and ADFI; however, carcass quality may be impacted by increasing backfat and reducing percent FFL and loin quality characteristics.

Key Words: Swine, Glycerol, Pork Quality

786 Effects of increasing dietary glycerol and dried distillers grains with solubles on growth performance of finishing pigs. A. W. Duttlinger^{*1}, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouche¹, J. L. Nelssen¹, R. D. Goodband¹, and K. J. Prusa², ¹Kansas State University, Manhattan, ²Iowa State University, Ames.

A study was conducted to determine the effects of dietary glycerol and dried distillers grains with solubles (DDGS) on grow-finish pig performance and carcass characteristics. The experiment was conducted at a commercial swine research facility in southwest Minnesota. A total of 1,160 barrows (initially 31.0 kg, PIC) were used in a 97-d study. Pigs were blocked by initial weight and randomly allotted to one of six dietary treatments with seven replications per treatment. Pigs were fed corn-soybean meal-based diets with 3% added fat arranged in a 2 × 3 factorial with main effects of glycerol (0, 2.5, or 5%) and DDGS (0 or 20%). There were no glycerol × DDGS interactions ($P > 0.13$). Increasing glycerol did not affect ($P > 0.33$) ADG or G:F. Adding 20% DDGS to the diet did not affect ADG. Pigs fed diets with added DDGS had greater ($P < 0.02$) ADFI than pigs fed diets with no DDGS (2.47 vs. 2.41 kg/d) resulting in decreased ($P < 0.01$) G:F (0.40 vs. 0.39) for pigs fed DDGS. Increasing glycerol tended to increase (linear, $P < 0.11$) yield (74.8, 75.7, and 75.7%). In conclusion, adding up to 5% glycerol to finishing diets did not affect growth performance, but tended to improve carcass yield. Adding 20% DDGS decreased G:F, but did not influence growth rate. Funded by National Pork Board in cooperation with the Minnesota Pork Board.

Item	DDGS, %							SE
	0	0	0	20	20	20		
	Glycerol, %							
	0	2.5	5	0	2.5	5		
ADG, kg	0.97	0.96	0.96	0.97	0.96	0.96	0.01	
ADFI, kg	2.43	2.39	2.40	2.45	2.46	2.51	0.03	
G:F	0.40	0.40	0.40	0.40	0.39	0.38	0.01	
Carcass wt, kg	93.1	92.9	92.1	91.4	91.9	92.7	1.08	
Carcass wt CV, %	9.0	9.4	9.2	8.8	8.1	8.9	0.67	
Yield, %	75.1	75.5	75.7	74.5	75.9	75.7	0.47	
Backfat, mm	19.9	19.7	19.8	19.3	19.0	19.6	0.48	
Loin depth, mm	62.9	62.8	60.7	60.9	61.2	62.0	0.79	
FFLI, %	49.2	49.1	49.1	49.3	49.4	49.3	0.24	
Lean, %	54.3	54.3	54.2	54.4	54.6	54.4	0.33	

Key Words: Dried Distiller Grains with Solubles, Glycerol, Finishing Pig

787 Effect of feeding an alternative carbohydrate source on nursery pig growth performance. B. E. Bass^{*}, C. L. Bradley, C. V. Maxwell, Z. B. Johnson, and J. W. Frank, *University of Arkansas, Fayetteville.*

Lactose is a key ingredient in nursery pig diets due to its digestibility and improvement on performance. The purpose of this study was to examine the impact of replacing whey permeate (WP; 80% lactose) with a carbohydrate blend (CB; 40% lactose, 30% sucrose, 10% dextrose) on growth performance of nursery pigs. In the study, 240 pigs were weaned at 21.1±0.1 d of age (BW = 7.36±0.1 kg) and penned in groups of 6-7 pigs/pen in an offsite nursery facility. Pigs were randomly assigned to one of five experimental diets during phase 1 (10 d) and phase 2 (10 d). The phase 1 and 2 diets were corn-soy based and contained spray-dried plasma, fish meal, and soy protein concentrate. Phase 1 and 2 treatments were: control (CON, 0 and 0%), Low WP (7.5 and 5% WP), High WP (15 and 10% WP), Low CB (7.5 and 5% CB), and High CB (15 and 10% CB), respectively. All pigs were fed a common corn-soy phase 3 (14 d) diet. During phase 1, ADG (110^b, 133^{ab}, 178^a, 153^{ab}, 178^a g/d; $P = 0.06$) and ADFI (232^b, 238^b, 318^a, 254^b, 303^a g/d; $P < 0.01$) were different in CON, Low WP, High WP, Low CB, and High CB fed pigs, respectively. Phase 2 G/F for CON, Low WP, High WP, Low CB, and High CB were different (0.770^{ab}, 0.802^a, 0.797^a, 0.819^a, 0.717^b, respectively; $P < 0.01$). For phase 1 and 2 combined, ADG (323, 347, 385, 378, 355 g/d; $P = 0.12$) and ADFI (466, 470, 531, 495, 526 g/d; $P = 0.07$) were not different for CON, Low WP, High WP, Low CB, and High CP, respectively. Overall (phase 1 through 3), there was no effect of dietary treatment on growth performance. Final BW for CON, Low WP, High WP, Low CB, and High CB (23.90, 23.67, 24.87, 24.28, and 24.66 kg, respectively) were not different ($P = 0.48$). This experiment demonstrates that incorporating lactose into nursery diets improves growth performance. In addition, lactose can be at least partially replaced with simple sugars such as sucrose and dextrose without reducing growth performance.

Key Words: Pigs, Lactose, Sucrose