RESEARCH ABSTRACT

ANIMAL SCIENCE

Title: Evaluation of Choice White Grease and Beef Tallow to Improve Pork Quality when Pigs are Fed Distillers Dried Grains **- NPB #07-167**

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Scientific Abstract

Crossbred pigs (N=112; initial BW = 29.0 kg) were blocked by initial BW and sex and assigned to 1 of 7 dietary treatments to assess the impact of removing dried distillers grains w/ solubles (DDGS) and adding fat to the late finish diet on growth and carcass traits. Dietary treatments were: 1) Corn-soybean meal (CS) control d 0-103; 2) 20% DDGS d 0-103; 3, 4, and 5) 20% DDGS d 0-77 and CS or CS+5% Beef tallow (BT) or 5% Choice white grease (CWG) from d 77-103, respectively; 6 and 7) 20% DDGS+5% CWG d 0-77 and CS+5% BT or 5% CWG d 77-103, respectively. All diets were formulated on an equal dig. Lys to calorie ratio and met the minimum digestible amino acid ratios for all diets. Pigs were fed 2 grower diets (G1 d 0-28; G2 d 28-56) and 2 finisher diets (F1 d 56-77; F2 d 77-103). Pigs fed treatment 3 vs pigs fed treatments 4 and 5 tended to have lower F2 ADG (0.898 vs 1.057 and 1.005 kg/d, respectively; P = 0.081) and GF (0.26 vs 0.30 and 0.29, respectively; P = 0.055). No other differences (P > 0.05) were observed for ADG, ADFI, and GF during F2. No differences (P > 0.05) were observed for overall ADG and ADFI across treatments. Overall GF was greater (0.356 vs 0.335, P = 0.031) for treatments 6 and 7 than treatments 4 and 5. No differences were observed for final BW, carcass percent lean, visual 10th rib loin color, marbling, firmness, loin and ham pH, driploss, and Minolta color L* and color a. Pigs fed treatment 2 compared to treatment 1 had smaller 10th rib LM area (P = 0.081), decreased last rib BF (P = 0.036) and decreased carcass yield (P = 0.034). Pigs fed added fat for the entire grow finish period (treatments 6 and 7) tended to have greater last rib back fat than pigs fed added fat during F2 (treatments 4 and 5) (29.9 mm vs 31.4; P = 0.065). Pigs fed treatment 1 were firmer than pigs fed treatment 2 (8.4 vs 5.8 cm avg. lateral flex scores; P = 0.001). Treatments 6 & 7 experienced higher cook scores than treatments 4 & 5 (P = 0.095). The level of linoleic acid changed the most with treatments 1 & 2 in all adipose tissues (P = 0.001) resulting in greater IV, increased omega 6 to omega 3 ratios, and decreasing saturated to unsaturared ratios (P= 0.037) in all adipose tissues. Withdrawing 20% DDGS and adding CWG or BT for the last 26 d recovered carcass weights and yields in grow finish pigs prior to slaughter. CWG and BT may also partially recover some of the adverse fat quality effects caused by the increase in linoleic acid in the diet.

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