

Nonruminant Nutrition: Feed Ingredients

507 Withdrawal patterns of DDGS on performance, belly firmness, and fatty acids in pigs—A cooperative study. G. L. Cromwell,* M. J. Azain, O. Adeola, S. K. Baidoo, S. D. Carter, T. D. Crenshaw, G. M. Hill, P. S. Miller, J. F. Patience, M. C. Shannon, and H. H. Stein, *NCCC-42 Committee on Swine Nutrition, University of Kentucky, Lexington.*

An experiment involving 580 pigs (20 reps of 4 to 8 pigs/pen) was conducted at 10 stations to assess the effect of various DDGS withdrawal patterns to pigs from 29 to 123 kg BW. Corn-soybean meal diets with 0 to 33.5% DDGS were fed in 3 phases. A single source of DDGS containing 8.8% fat, 26.4% CP, and 1.07% Lys was used at each station. Diets were formulated to contain 0.91, 0.73, and 0.58% SID Lys during the 3 phases with changes at 58 and 91 kg BW. Levels of DDGS in the 3 phases were Trt 1, 0–0–0%; Trt 2, 33.5–33.5–33.5%; Trt 3, 33.5–33.5–0%; Trt 4, 33.5–20–11%; and Trt 5, 20–20–20%. Levels of DDGS in Trt 3, 4, and 5 were such that total DDGS consumed during the experiment was nearly identical (55.3, 55.2, and 55.1 kg/pig, respectively). At each station, 2 pigs from each pen in 2 reps were killed and a backfat sample was obtained for fatty acid (FA) analysis and iodine value (IV). In most cases, there were differences among stations ($P < 0.05$), but station x treatment interactions were few. The ADG and ADFI of the 5 groups did not differ (957, 925, 922, 938, 927 g/d; 2.67, 2.73, 2.79, 2.76, 2.68 kg/d), but pigs fed the control diet with 0% DDGS were more efficient (0.360, 0.341, 0.331, 0.341, 0.348 G:F; $P < 0.05$). Hot carcass yield tended to be less (76.1, 75.4, 75.8, 75.9, 75.5%; $P = 0.06$), and calculated fat-free lean was greater for Trt 2 (52.4, 53.7, 52.5, 52.3, 52.9%; $P < 0.05$). Bellies were softer ($P < 0.01$) in pigs fed DDGS based on lateral (16.0, 11.6, 14.4, 14.9, 14.9 cm) and vertical flex scores (22.6, 27.2, 24.9, 24.4, 24.0 cm). Feeding the high level of DDGS throughout resulted in less saturated and monounsaturated FA in the backfat (39.3, 34.9, 37.9, 38.6, 37.2%, and 46.6, 41.6, 43.7, 43.8, 43.3% of total FA; $P < 0.001$).

and more polyunsaturated FA (13.5, 22.8, 17.8, 17.1, 19.0%; $P < 0.001$). The IV for outer fat layers were 67.9, 79.4, 73.2, 72.0, 74.3, and for inner fat layers were 60.4, 72.8, 65.0, 63.8, 67.2 ($P < 0.001$). Gilts had higher IV than barrows in outer (74.8 vs. 72.2) and inner (67.5 vs. 64.6) fat ($P < 0.001$). Withdrawal of DDGS in phase 3 or feeding less DDGS produced FA and IV levels that reverted toward those of control pigs.

Key Words: pigs, DDGS, fatty acids