

## ANIMAL SCIENCE

**Title:** Improving feed efficiency of growing to finishing pigs fed high DDGS containing diet with different branched-chain amino acids to lysine ratio (NPB #21-103)

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**Scientific Abstract:** A study was conducted to identify the effect of standardized ileal digestible (SID) branched-chain amino acids (BCAA) to lysine (Lys) ratios on the growth performance, blood amino acid profile, carcass traits, and economic analysis in growing-finishing pigs fed diets with high corn distillers dried grains with solubles (cDDGS) inclusions. A total of 1,140 pigs (initial body weight [BW] = 28.7±0.7 kg) were housed in 45 pens of 25 or 26 pigs and fed 1 of 5 experimental treatments in a randomized complete block design. Experimental treatment diets were fed in 4 phases (2 grower and 2 finisher) based on BW. There were a total of 5 dietary treatments: 1) a corn-SBM based diet (PC); 2) a corn-SBM based diet with 30% cDDGS for growing phase and 20% DDGS for finishing phase (NC) with no adjustments for BCAA:Lys and the NC diet with SID BCAA:Lys targeted for our previously determined recommendations for the 3) growing phase (Grow); 4) finishing phase (Finish); 5) growing and finishing phases (Grow-Finish). One pig from each pen was bled at the end of the growing and finishing phases. After the 11-week-feeding trial, pigs were sent to a commercial abattoir to investigate carcass traits. Pigs fed the Finish treatment had a greater overall average daily gain ( $P < 0.05$ ) compared to pigs fed the other cDDGS treatments. Dietary treatments did not affect the hot carcass weight or carcass yield. However, feeding the Finish treatment caused the greatest ( $P < 0.05$ ) iodine value of the pork belly. The plasma urea nitrogen concentration at the end of growing phase and the plasma concentrations of Leu and Val were greater ( $P < 0.05$ ) in pigs fed the Finish dietary treatment. Feeding the Finish treatment had a higher net income over feed and facility costs than PC and net income was greater than other cDDGS treatments. Therefore, feeding the cDDGS diet with SID BCAA:Lys ratio adjusted by the SBM inclusion for the finishing phase recommendation would have the greatest benefit for swine producers in terms of the improved growth performance and economic benefits.

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