

ENVIRONMENT

Title: Influence of corn co-products on air emissions and nutrient excretions from grow-finish swine - **NPB #05-111**

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Abstract:

Four diets were fed to growing swine in order to compare corn (C) to corn co-products and the impact on swine performance and air emissions. The corn co-product diets contained increasing levels of the co-product; from 5 to 30% over the course of six feeding phases. Co-products used included distillers dried grains with solubles (DDGs), corn germ meal (CGM), and dehulled, degermed corn (DDC).

Feeding the corn co-product diets did not alter animal performance compared to corn diets when co-products were fed at increasing amounts over the life-cycle. Ammonia emissions from animal housing were consistently increased as a result of DDGs inclusion in the diet (increasing inclusion from 5 to 30% of the diet as pigs progressed through 6 feeding phases). Although the DDGs diet contained more N in the diet, adjusting the emissions data for N intake did not impact the increased ammonia emissions as a result of this treatment suggesting the N utilization was poorer in the DDGs diets. In general, hydrogen sulfide emission rate and daily mass of hydrogen sulfide emitted from housing were increased as a result of DDGs inclusion in the diet (increasing inclusion from 5 to 30% of the diet as pigs progressed through 6 feeding phases) but adjusting data for bodyweight and sulfur intakes, accounted for the differences observed. No treatment or phase effects were observed for non-methane total hydrocarbon (NMTHC) emission variables. The DDGs treatment produced less methane than the other treatments. Corn diets were intermediate in methane production and the CGM and DDC diets resulted in the greatest methane production. In addition to evaluating dietary treatment impacts, this study provided valuable baseline data on emissions from swine facilities.

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