

## **Availability of phosphorus in distiller's dried grains with solubles for growing swine.**

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A total of 42 growing barrows ( $20.1 \pm 1.3$  kg initial BW) were used in a slope-ratio assay to determine the availability of P in distiller's dried grains with solubles (DDGS) produced from ethanol plants in the MN-SD region. Barrows were randomly allotted by weight and ancestry to one of seven dietary treatments. Pigs were housed in individual metabolism cages and fed either a corn starch-soybean meal control diet (.29% total P) or one of six diets containing increasing levels of total P from either dicalcium phosphate (DCP) or DDGS (.34, .39, and .44% total P). Pigs were fed at a level equivalent to 2% of their initial body wt twice daily, and were allowed a 7 d adjustment period prior to a 5 day collection period. Total feces and urine were collected for each pig and analyzed for total P. Phosphorus retention was calculated as the difference between P intake and excretion. Actual P intake ranged from 2.33 g/d (control diet) to 3.91 g/d (DDGS diet with .44% total P). Urinary and fecal P excreted and total P retained increased linearly ( $P < .01$ ) with increasing P intake, regardless of P source. However, P retention (% of intake) was not different between dietary treatments ( $P > .10$ ). A linear regression analysis was conducted for P excreted and P retained relative to P intake for each dietary treatment separately. The slope ratios of the regression lines from each P source were used to determine P availability. Availability of P in DCP was assumed to be 100%. Slopes for P excreted and retained were .354 and .646 (DCP,  $R^2 = .42$  and  $.72$ ) and .405 and .595 (DDGS,  $R^2 = .55$  and  $.73$ ), respectively. Availability of P was 87.5 % and 92.2 %, based on P excretion and P retention, respectively. These results suggest that DDGS from the MN-SD region is an excellent source of available P for growing swine, and that P availability is higher than listed in NRC (1998).

**Key Words:** Pigs, Distiller's Dried Grains with Solubles, Available Phosphorus