RESEARCH ABSTRACT

ANIMAL SCIENCE

Title: Effects of rapid introduction and removal of high and low digestibility corn distillers dried grains from the diet, and dietary inclusion rates on growth performance and carcass characteristics of growing-finishing pigs – **NPB#09-044**

Investigators: Gerald Shurson, Adrienne Hilbrands, Lee Johnston, Sam Baidoo, Luiz Souza

Institution: University of Minnesota

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Scientific Abstract:

Dried distillers grains with solubles (DDGS) is a low cost feed ingredient that can often be added to swine diets in order to decrease overall feed expense. Little is known about the effects of feeding DDGS at high levels (at or above 40% inclusion) throughout the grow-finish phase in addition to whether predicted amino acid digestibility levels of DDGS sources affect pig growth performance and carcass characteristics. Three hundred twenty-four crossbred pigs (initial BW = 73.4 ± 6.62 lb) were used to determine the effects of feeding a 40% DDGS based diet continuously throughout the grow-finish phase, as well as the effect of DDGS AA digestibility when fed continuously or intermittently throughout the grow-finish phase, on growth performance and carcass traits. Pigs were blocked by initial BW, and pens within block were randomly assigned to 1 of 6 dietary treatments in a 4-phase feeding program (36 pens; 9pigs/pen). Dietary treatments consisted of: 1) a corn-soybean meal control (CON); 2) a corn-soybean meal diet containing 40% low AA digestibility DDGS (Lo); 3) a corn-soybean meal diet containing 40% high AA digestibility DDGS (Hi); 4) Lo and CON diets alternated throughout the trial (Lo-CON); 5) Hi and CON diets alternated throughout the trial (Hi-CON); and 6) a diet alternating between Hi and Lo (Hi-Lo). Final BW was lower ($P < 0.05$, Table 3) for Lo and Hi-Lo pigs when compared to CON pigs, while Hi pigs only tended to have lower ($P < 0.10$) final BW than CON pigs. Considering the differences in final BW, it is not surprising that gain followed the same trend. Average daily gains were reduced ($P < 0.05$) for Lo and Hi-Lo pigs when compared to the CON pigs while Hi pigs only tended to gain less ($P < 0.10$) than the CON pigs. Pigs continuously fed the Lo diet exhibited decreased ADFI in comparison to the CON pigs ($P < 0.10$). Feed efficiency was not affected by treatments. Loin muscle area was smaller for the Lo and Hi-Lo pigs in comparison to the CON pigs ($P < 0.05$, Table 4). Hot carcass weights were also reduced ($P < 0.05$) for Lo and Hi-Lo pigs, while there was only a tendency for lighter ($P < 0.10$) HCW in Hi pigs when compared to CON pigs. Percentage carcass lean was not affected by dietary treatment where as dressing percentage was lower for the Lo and Hi-Lo pigs when compared to the CON pigs ($P < 0.05$). Results from this study suggest that pigs continuously fed a 40% DDGS based diet, regardless of the predicted digestible AA of the DDGS source, experience lower ADG, reduced ADFI, lighter HCW and smaller LMA than those pigs continuously or intermittently consuming a corn-soybean based diet. However, the periodic inclusion and removal of 40% DDGS from the diets of finishing pigs did not adversely affect growth performance or carcass characteristics.

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For more information contact:
National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org