

Title: Critical evaluation of commercially available enzymes, and processing on nutrient digestibility of swine diets containing DDGS - **NPB #08-111**

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Scientific Abstract

Ten commercially available feed additives were selected based on their potential to affect energy and fiber digestion, or their ability to modulate gastrointestinal bacterial ecology. A total of 192 nursery pigs (11.9 kg initial BW) and 96 finishing pigs 48 pigs (98.4 kg initial BW) were allotted to individual pens and fed their respective diet for 5-wk. Diets contained corn, soybean meal, and 30% dried distillers grains with solubles (DDGS), were adequate in all nutrients (NRC, 1998) and were offered ad libitum in meal form. Additives were added at the recommended rates and were assumed to contain the active ingredients and activity level listed on the product label. Titanium dioxide was added as an indigestible marker to determine apparent total tract DM, C, N, S, P, EE, ADF, and NDF digestibility at the end of wk 1, 3, and 5. Data were analyzed using ANOVA with group, room, gender, week, and diet included in the model. In nursery pigs, digestibility of most nutrients were unaffected by additives. Roxazyme tended to improve N and S digestibility ($P \leq 0.1$) and Rovabio and BactoCell tended to improve ($P \leq 0.06$) S digestibility. Porzyme and Hemicell tended to decrease ($P \leq 0.09$) NDF digestibility and XVC yeast tended to reduce P digestibility ($P \leq 0.1$). Econase, Allzyme, and Rele-e-zyme decreased digestibility of various nutrients. For finisher pigs, all additives had minimal effects on digestibility of most nutrients. Roxazyme tended to improve ($P \leq 0.08$) EE, Hemicel tended to decrease NDF and ADF digestibility ($P \leq 0.08$), Allzyme tended to increase NDF, ADF and P digestibility ($P \leq 0.08$), Bactocel tended to decrease N digestibility ($P \leq 0.05$), XVC yeast reduced N and C digestibility ($P \leq 0.1$), and Bioplus2B tended to improve ADF digestibility ($P \leq 0.1$), but decrease P and EE digestibility ($P \leq 0.04$). Addition of Porzyme and Rel-e-enzyme caused negative effects on digestibility of various nutrients. Additives had no effect ($P > 0.1$) on starter or finishing pig performance. In conclusion, addition of these commercial additives to corn-soybean meal-30% DDGS diets appear to have minimal effects on nutrient digestibility in nursery and finishing pigs, and do not improve growth performance.

These research results were submitted in fulfillment of the Nutritional Efficiency Consortium research projects.

Contributing organizations for 2008 include: Arizona Pork Council, DPI Global, Eli Lilly/Elanco, Iowa Corn Growers Association, Iowa Pork Producers Association, Illinois Corn Marketing Board, Illinois Pork Producers Association, Kansas Corn Commission, Kansas Pork Association, Lucta USA, Minnesota Pork Board, Missouri Pork Producers Association, Monsanto, Mississippi Pork Producers Association, Montana Pork Producers Council, National Corn Growers Association, North Carolina Pork Council, Inc., National Pork Board, Nebraska Corn Board, Nebraska Pork Producers Association, Inc., Ohio Pork Producers Council, Pioneer Hi-Bred International, Inc., Utah Pork Producers Association and the Wisconsin Pork Association.

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