RESEARCHABSTRACT

ANIMAL SCIENCE — Nutritional Efficiency Consortium

Title: Ileal and total tract apparent and true digestibility of fat in distillers dried grains with solubles and other corn oil products fed to growing pigs. National Pork Board Project Identification – **NPB #08-115.**

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SCIENTIFIC ABSTRACT

An experiment was conducted to measure the true ileal digestibility (TID) and the true total tract digestibility (TTTD) of acid-hydrolyzed ether extract (AEE) in extracted corn oil, high-oil corn, distillers dried grains with solubles (DDGS), corn germ, high-protein distillers dried grains (HP DDG), and full-fat soybeans. Nineteen barrows with an initial BW of 52.2 kg (SD = 3.81) were fitted with a T-cannula in the distal ileum and allotted to a 19 × 11 Youden square design with 19 diets and 11 periods. A basal diet based on cornstarch, casein, sucrose, and corn bran was formulated. Eighteen additional diets were formulated by adding 3 levels of extracted corn oil, high-oil corn, DDGS, corn germ, HP DDG, or full-fat soybeans to the basal diet. The apparent ileal and the apparent total tract digestibility of AEE were calculated for each diet. The endogenous flow of AEE associated with each ingredient and values for TID and TTTD were calculated using the regression procedure. Result showed that digested AEE in ileal digesta and feces linearly increased as AEE intake increased regardless of ingredient ($P < 0.001$) and the regression of ileal and fecal AEE output against AEE intake was significant ($P < 0.001$; $r^2 > 0.77$) for all ingredients. However, the ileal and fecal endogenous losses of AEE were different ($P < 0.05$) from zero only for extracted corn oil, HP DDG, and full-fat soybeans. The TID of AEE was greater ($P < 0.05$) for extracted corn oil (95.4%) than for the other oil sources. The TID of AEE in HP DDG was greater ($P < 0.05$) than in high-oil corn and corn germ (76.5 vs. 53.0 and 50.1%). The TID of AEE in DDGS (62.1%) was not different from that in high-oil corn, corn germ, or HP DDG. Full-fat soybeans had greater AEE TID (85.2%) than high-oil corn, DDGS, and corn germ. The TTTD of AEE was greater ($P < 0.05$) for extracted corn oil (94.3%) than for the other ingredients. The TTTD of AEE in HP DDG was greater ($P < 0.05$) than in high-oil corn, DDGS, and corn germ (70.2 vs. 41.4, 51.9, and 43.9%). The TTTD of AEE in DDGS was not different from that in high-oil corn or corn germ. Full-fat soybeans had greater TTTD of AEE (79.7%) than high-oil corn, DDGS, and corn germ. In conclusion, the AEE in HP DDG is more digestible than in high-oil corn, DDGS, or corn germ, but less digestible than that in extracted corn oil.

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