

75.0, and 73.9%, respectively. The ATTD of GE was greater ($P < 0.01$) in corn than in all other ingredients. The ATTD of GE in DDGS-Ce was greater ($P < 0.01$) than in DDGS-Ca and DDGS-CV, but the ATTD of GE was not different among DDGS-EX, DDGS-Na, DDGS-Ce, and DDGS-NZ. The ATTD of NDF was less ($P < 0.01$) in DDGS-Ca than in corn, DDGS-Na, DDGS-Ce, and DDGS-NZ. The ATTD of ADF was less ($P < 0.01$) in corn and DDGS-EX than all the other diets, but the ATTD of ADF was greater ($P < 0.01$) in DDGS-EX than in corn. The ME was less ($P < 0.01$) in DDGS-EX (3,501 kcal/kg DM), DDGS-Na (3,458 kcal/kg DM), DDGS-Ca (3,318 kcal/kg DM), DDGS-NZ (3,545 kcal/kg DM), and DDGS-CV (3,442 kcal/kg DM) than in corn (3,738 kcal/kg DM) and DDGS-CE (3,701 kcal/kg DM). In conclusion, in this experiment, no significant improvement in ME or ATTD of GE, OM, NDF, or ADF was observed if DDGS was extruded or treated with sodium hydroxide, calcium oxide, or an enzyme mixture of hemicellulases and xylanases. However, treatment of DDGS with cellulases and xylanases resulted in an increase in ATTD of GE and OM and in ME compared with untreated DDGS.

Key Words: DDGS, enzymes, pig

304 Effects of chemical, physical, or enzymatic treatments on concentration of digestible and metabolizable energy and on apparent total tract digestibility of energy, organic matter, and detergent fiber in distillers dried grains with solubles fed to growing pigs. O. J. Rojas*, H. H. Stein, University of Illinois, Urbana

An experiment was conducted to determine the effects of chemical, physical, or enzymatic treatments on concentration of DE and ME and the digestibility of energy, OM, and detergent fiber in distillers dried grains with solubles (DDGS). Sixty-three barrows (initial BW: 76.1 ± 6.1 kg) were placed individually in metabolism cages and allotted to a randomized complete block design with 7 diets and 9 replicate pigs per diet. A corn-based diet was formulated consisting of 97.0% corn, and 6 additional diets were formulated by mixing corn with 50.0% DDGS that was untreated (DDGS-CV) or extruded (DDGS-EX), treated with sodium hydroxide (DDGS-Na), treated with calcium oxide (DDGS-Ca), treated with a mixture of cellulases and xylanases (DDGS-Ce), or with a mixture of hemicellulases and xylanases (DDGS-NZ). After a 5 d adaptation period to the diet, feces and urine samples were collated for 5 d. The apparent total tract digestibility (ATT) of GE, OM, ADF, and NDF and the DE and ME were calculated for each diet using the direct procedure and for each source of DDGS using the difference procedure. The ATTD of GE in corn, DDGS-CV, DDGS-EX, DDGS-Na, DDGS-Ca, DDGS-Ce, and DDGS-NZ was 86.6, 71.7, 72.8, 73.3, 70.4,