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136 **Use of feed technology to improve the nutritional value of feed ingredients feed to pigs.** O. J. Rojas\*, H. H. Stein, *University of Illinois, Urbana.*

Seven experiments were conducted to investigate the effects of using feed technologies to improve the nutritional value of diets fed to pigs. Results of 2 digestibility experiments indicated that the concentration of DE and ME linearly increased ( $P < 0.05$ ) as the particle size of corn was reduced from 865 to 677, 485, or 339  $\mu\text{m}$ . Results of a subsequent experiment indicated that by using corn ground to a smaller particle size, the amount of added fat may be reduced in diets fed to growing-finishing pigs without affecting animal growth performance or carcass composition, except that dressing percentage is increased ( $P < 0.05$ ). Results of 2 additional experiments indicated that G:F of weanling pigs is improved ( $P < 0.05$ ) if diets contain corn ground to a particle size of 339  $\mu\text{m}$  rather than a greater particle size, which confirmed that the ME of finely ground corn is greater than the ME of coarsely ground corn. Thus, less expensive diets may be formulated if corn is ground to a smaller particle size. Results of a subsequent experiment indicated that extrusion of distillers dried grains with solubles (DDGS) or treatment with sodium hydroxide, calcium oxide, or an enzyme mixture of hemicellulase and xylanase did not improve ME or increase digestibility of GE, OM, NDF, or ADF. However, treatment of DDGS with a mixture of cellulase and xylanase resulted in an increase ( $P < 0.05$ ) in digestibility of GE and OM and increased ( $P < 0.05$ ) ME compared with untreated DDGS. The last experiment was conducted to test the hypothesis that pelleting and extrusion of diets, either alone or in combination, will improve nutrient and energy digestibility. Results indicated that energy utilization may be improved ( $P < 0.05$ ) by pelleting or extrusion or by the combination of the 2 technologies. The response to extrusion seems to be greater in high-fiber diets than in corn-soybean meal diets, but regardless of the level of fiber in the diet, the combination of extrusion and pelleting always increased ( $P < 0.05$ ) the utilization of energy in the diet. In conclusion, use of fine grinding, enzyme addition, or extrusion and pelleting positively influence energy and nutrient digestibility in diets fed to pigs.

**Key Words:** particle size, pig, processing