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118 **Effects of reducing the particle size of corn on growth performance and carcass characteristics of growing–finishing pigs.** O. J. Rojas\*, H. H. Stein, *University of Illinois at Urbana-Champaign, Urbana.*

In a previous experiment it was shown that the ME of corn increases linearly as the particle size of corn is decreased from 865 to 339  $\mu\text{m}$  and it was hypothesized that addition of dietary lipids can be reduced if corn particle size is reduced without affecting growth performance and carcass characteristics of growing–finishing pigs. Seventy-two individually housed pigs, 36 gilts and 36 barrows (initial BW:  $32.00 \pm 1.58$  kg), were allotted to 4 dietary treatments in a  $2 \times 4$  factorial design with sex (gilts and barrows) and corn particle size (i.e., 339, 485, 677, and 865  $\mu\text{m}$ ) as factors. There were 18 pigs per treatment. Pigs were fed a 3 phase program with phase 1 diets being offered from 32 to 62 kg, phase 2 diets from 62 to 94 kg, and phase 3 diets from 94 to 130 kg. Within each phase, 4 corn–soybean meal based diets were formulated, and the only difference among diets was that the corn that was used was ground to the 4 specified particle sizes and soybean oil was added to the diets in increasing amounts to compensate for the reduction of ME in corn with greater particle size. Within each phase, all diets were formulated to contain equal quantities of ME per kilogram. Results indicated that initial BW, final BW, ADFI, and ADG were not different among treatments. For barrows, no differences in G:F were observed, but for gilts, the G:F increased (linear,  $P < 0.05$ ) as the particle size increased (sex  $\times$  particle size interaction:  $P < 0.05$ ). Hot carcass weight, back fat, loin eye area, and lean percentage were not different among treatments, but dressing percentage decreased (linear,  $P < 0.01$ ) as particle size increased. The pH in contents of the cecum and the colon decreased (linear,  $P < 0.01$ ) but concentration of short chain fatty acids in colon contents increased (linear,  $P < 0.01$ ) as corn particle size increased. In conclusion, by using corn ground to a smaller particle size, the amount of added fat can be reduced in the diets without affected ADFI, ADG, or G:F for barrows, but dressing percentage will increase if diets containing corn ground to a smaller particle size are used.

**Key Words:** corn, particle size, pigs

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