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Summary of feedlot performance and digestibilities of steers fed 13 hybrid sorghum and 2 hybrid corn grains

Abstract

Two years and 270 head of steers were used to determine the feeding value of 13 hybrid sorghum grains and 2 hybrid corn grains fed in dry-rolled high-concentrate rations fed to finishing steers. The 15 corn and sorghum hybrids represented 7 endosperm types: hetero-yellow, white, all-waxy (amylopectin-type starch), part-waxy, and bird-resistant endosperm sorghum grains, regular yellow dent corn and high-oil corn. The grains (9 hybrids in each of 2 years and 3 hybrids replicated between years) were produced in the same field, and conditions were similar for each year and each hybrid. Each year, 15 head of steers were fed 126 days on each hybrid. Digestibilities were determined with 5 head of steers fed per hybrid in sheltered concrete lots, using chronic oxide.

Keywords

Cattlemen's Day, 1973; Report of progress (Kansas State University. Agricultural Experiment Station); 568; Beef; Feedlot performance; Steers; Hybrid sorghum; Hybrid corn

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Summary of Feedlot Performance and
Digestibilities of Steers Fed 13 Hybrid
Sorghum and 2 Hybrid Corn Grains

R. L. McCollough

Two years and 270 head of steers were used to determine the feeding value of 13 hybrid sorghum grains and 2 hybrid corn grains fed in dry-rolled high-concentrate rations fed to finishing steers. The 15 corn and sorghum hybrids represented 7 endosperm types: hetero-yellow, white, all-waxy (amylopectin-type starch), part-waxy, and bird-resistant endosperm sorghum grains, regular yellow dent corn and high-oil corn. The grains (9 hybrids in each of 2 years and 3 hybrids replicated between years) were produced in the same field, and conditions were similar for each year and each hybrid. Each year, 15 head of steers were fed 126 days on each hybrid. Digestibilities were determined with 5 head of steers fed per hybrid in sheltered concrete lots, using chromic oxide.

Steers fed hetero-yellow endosperm hybrid sorghum gained faster ($P < .05$) by 6.7% and had a 9.2% better feed conversion ($P < .05$) than steers fed white endosperm hybrid sorghum grains. Pericarp color did not influence the nutritive value of sorghum grains. Steers fed all-waxy (amylopectin) sorghum grain had the highest average daily gain and the same feed conversion as steers fed regular corn, and 2% better feed conversion than steers fed hetero-yellow endosperm hybrids. Steers fed regular corn gained 2.8% more efficiently than steers fed hetero-yellow hybrids, and 12.3% more efficiently than steers fed white endosperm hybrids. Steers fed bird-resistant sorghum grain had the poorest feed conversion; 30.4% poorer than steers fed yellow corn.

Apparent digestibilities show the differences in feed conversion was primarily due to differences in grain digestibility. Apparent crude protein digestibility was lower ($P < .05$) for bird-resistant (24.3%) and white endosperm hybrids (49.9%) than hetero-yellow (53.2%), all-waxy (59%), high-oil corn (60.9%) and regular corn (64.7%). Apparent gross energy digestion follows same trend as crude protein.

Details of experiments summarized here can be found in Bulletins 546 (1971) and 557 (1972).