

KIH-485, FLUFENACET, AND ACETOCHLOR EFFICACY AND CROP RESPONSE IN GRAIN SORGHUM. Patrick W. Geier, Phillip W. Stahlman, and David L. Regehr, Assistant Scientist and Professor, Kansas State University Agricultural Research Center, Hays, KS 67601, and Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66506.

Field trials near Hays and Manhattan, KS in 2005 determined the effects of KIH-485, flufenacet, acetochlor, and *S*-metolachlor on weed control and crop response in grain sorghum. Each herbicide was applied preemergence at the 1X and 2X rates based on soil type and included atrazine at 1.1 kg/ha as a tankmix partner. Atrazine at 1.1 kg/ha was included as a standard comparison, as was a weed-free check. Precipitation differences between the two locations greatly influenced herbicide activation and results during these experiments. The Hays location received 6.3 cm of rainfall within 14 days of herbicide application; at Manhattan, only 0.9 cm of precipitation fell during the same time interval. Consequently, better herbicide performance occurred at Hays, whereas dry weather throughout the season affected results at Manhattan.

At Hays, puncturevine control did not differ regardless of rate with *S*-metolachlor, KIH-485, or acetochlor (73 to 83%) at 80 days after treatment (DAT); flufenacet at 0.63 or 1.27 kg/ha provided only 48 to 55% puncturevine control. Most herbicides controlled devil's-claw and green foxtail 95% or more at 80 DAT, with the exception of atrazine at 1.1 kg/ha (85%). KIH-485 at 0.17 or 0.33 kg/ha and flufenacet at 0.63 or 1.27 kg/ha controlled prairie cupgrass 93 to 100%. *S*-metolachlor at 1.4 or 2.8 kg/ha or acetochlor at 2.2 or 4.5 kg/ha provided 76 to 85% prairie cupgrass control. Regardless of herbicide or species, increasing herbicide rate to 2X did not improve weed control compared to the 1X rate. At Manhattan, large crabgrass control ranged from 48 to 87% but did not differ between treatments. Dry conditions resulted in less than 20% shattercane control, regardless of herbicide.

At Hays, flufenacet at 1X and 2X rates reduced sorghum plant density 41 and 69% respectively, compared to atrazine alone. No other herbicide affected sorghum density. Sorghum was stunted 25 to 53% by flufenacet at the 1X and 2X rates when evaluated 26 DAT. KIH-485 at the 2X rate and acetochlor at either rate caused 11 to 24% sorghum stunting on the same date. By 80 DAT, sorghum stunting was only visible with either rate of flufenacet (10 to 24%). Sorghum was not visibly injured at Manhattan, and yields were not determined because of drought. Sorghum yields at Hays ranged from 4770 to 5890 kg/ha but did not differ between any herbicide treatment or the weed-free check.