PYRASULFOTOLE&BROMOXYNIL, POTENTIALLY A NEW HERBICIDE FOR WEED CONTROL IN GRAIN SORGHUM. Curtis R. Thompson, Nathan G. Lally, Brian L.S. Olson, Randal S. Currie, Alan J. Schlegel, Pat W. Geier, and Phillip W. Stahlman, Professor and Graduate Research Assistant, Agronomy Department, Kansas State University, Manhattan, KS 66506, Assistant Professor, Northwest Research Extension Center, Kansas State University, Colby, KS 67701, Associate Professor and Professor, Southwest Research Extension Center, Garden City and Tribune, KS, 67846 and 67879, Research Scientist and Professor, Kansas State University Agric. Research Station, Hays, KS 67601.

Weed control in grain sorghum continues to be a challenge because of the limited number of herbicide products available to growers and the increasing concerns with herbicide resistant weeds. Field experiments were conducted near Tribune, Manhattan, Garden City, Colby, and Hays, KS in 2009, to evaluate a prepackaged mixture of pyrasulfotole&bromoxynil (1:8 ratio) plus atrazine alone, and in combination with 2,4-D amine, 2,4-D ester, or dicamba for grain sorghum tolerance and weed control. Grain sorghum hybrids were planted and dimethenamid-P at 840 g/ha was applied to the soil surface. Pyrasulfotole&bromoxynil at 244 g/ha was tank mixed with atrazine at 560 g/ha only or in combination with 2,4-D ester at 140 g/ha, 2,4-D amine at 210 g/ha, or dicamba at 140 g/ha. Herbicide treatments were applied postemergence to 2 to 6-leaf (early) and 7 to 9-leaf (late) sorghum. Crop response and weed control were evaluated visually. Sorghum injury ratings at all locations ranged from 0 to 24% injury 5 to 9 days after application. The addition of 2,4-D amine or dicamba to pyrasulfotole&bromoxynil+atrazine reduced or tended to reduce sorghum injury 4 to 5% compare to injury from pyrasulfotole&bromoxynil+atrazine alone. In one instance, the addition of 2,4-D ester reduced crop injury slightly while in another instance, 2,4-D ester increased crop injury compared to pyrasulfotole&bromoxynil+atrazine. Crop injury ratings 3 to 4 weeks after treatment application were very near zero at all locations. At the three locations harvested, no herbicide treatment reduced sorghum yield compared to the dimethenamid-P treated check. All treatments containing pyrasulfotole&bromoxynil+atrazine controlled redroot pigweed, Palmer amaranth, common lambsquarters, velvetleaf, common sunflower, and ivyleaf morningglory regardless of the stage of application. Treatments containing pyrasulfotole&bromoxynil+atrazine applied at the early stage at Colby and early and late stages at Garden City controlled kochia 93% or more. Kochia control from treatments containing pyrasulfotole&bromoxynil+atrazine applied at the later stage at Colby were inconsistent ranging from 57 to 93% control. All treatments controlled puncturevine regardless of stage of application at Garden City and when applied early at Hays. Control of puncturevine was inconsistent among herbicide treatments at Tribune and Colby, ranging from 74 to 96% at Tribune, and 50 to 90% control at Colby. Early applications provided best control of puncturevine at Colby while late applications provided the best control in Tribune. These results indicate that grain sorghum has adequate tolerance to postemergence applied pyrasulfotole&bromoxynil+atrazine regardless of the tank mix partner evaluated in these experiments. Excellent control of several problems weeds is an indication of the enhanced value the herbicide could bring to a weed control program in grain sorghum. However at this time, pyrasulfotole&bromoxynil is not registered for use in grain sorghum.

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