WEED CONTROL AND CROP RESPONSE IN TRIBENURON-TOLERANT SUNFLOWER. Amar S. Godar*, Phillip W. Stahlman, and J. Anita Dille, Graduate Research Assistant, Department of Agronomy, Kansas State University, Manhattan, KS 66506, Research Weed Scientist, Kansas State University Agricultural Research Center, Hays, KS 67601, and Associate Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66506.

Field experiments were conducted at the Kansas State University Agricultural Research Center near Hays, in 2007 and 2008 to assess the effects of single and sequential postemergent applications of tribenuron on broadleaf weed control and crop response in tribenuron-tolerant sunflower. Herbicide treatments included tribenuron at two rates (8.75 and 17.5 g ai/ha) applied 3 weeks after planting (WAP), tribenuron at the higher rate applied 4 WAP, and sequential applications of tribenuron at either of the two rates applied at both timings. Other treatments included imazamox at 35 g/ha applied 3 WAP, and weed-free and untreated controls. Tribenuron treatments were supplemented with one application of quizalofop (61 g/ha) to control grass weeds. Methylated seed oil (MSO) at 1 % v/v was added to all herbicide treatments. Weed species were Russian thistle, kochia, tumble pigweed, and puncturevine in 2007 and tumble pigweed, puncturevine, and redroot pigweed in 2008. The following results are based on visual ratings at 3 weeks after application (WAA) in 2007 and 4 WAA in 2008. Regardless of rate, tribenuron applied once at the earlier timing or applied sequentially provided >98% control of Russian thistle and >95% control of puncturevine in 2007, however, all tribenuron treatments provided >98% puncturevine control in 2008. Kochia and tumble pigweed in 2007 and redroot pigweed in 2008 required either sequential applications of tribenuron or the higher rate applied at the earlier timing to achieve >90% control, whereas none of the tribenuron treatments exceeded 85% control of tumble pigweed in 2008. Imazamox provided similar control of tumble pigweed and redroot pigweed compared to the higher tribenuron rate applied at the earlier timing or when tribenuron at either rate was applied sequentially. None of the tribenuron treatments caused significant crop injury. In comparison, imazamox caused considerable crop injury in both years and reduced seed yield substantially in 2008, but not in 2007. These results indicate that tribenuron at 17.5 g/ha applied early postemergence can provide satisfactory control of the evaluated broadleaf weed species without significant injury to tribenuron-tolerant sunflower.

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