CONTROL OF GREEN FOXTAIL, YELLOW FOXTAIL, AND SHATTERCANE WITH MESOTRIONE AND ALS-INHIBITING HERBICIDES IN CORN. Christopher L. Schuster, Kassim Al-Khatib, and J. Anita Dille, Graduate Research Assistant, Professor, and Associate Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66502.

Mesotrione is a registered soil- and foliar-applied herbicide for control of annual weeds in corn. Postemergence applications of mesotrione, however, do not provide adequate control of grasses and as a result, are often tank mixed with atrazine and/or acetolactate synthase (ALS)-inhibiting herbicides. Recent complaints have contended that control of shattercane and foxtail species is reduced when ALS-inhibiting herbicides are applied in combination with mesotrione. Field experiments were conducted near Manhattan and Rossville, KS in 2004 and 2005 to evaluate the efficacy of various ALS-inhibiting herbicides applied with mesotrione or mesotrione + atrazine on green foxtail, yellow foxtail, and shattercane. Plants were treated at 7.5 to 12.5 cm height with mesotrione (105 g ha^{-1}), mesotrione + atrazine (105 + 757 g ha^{-1}), nicosulfuron (35 g ha^{-1}), foramsulfuron (37 g ha^{-1}), nicosulfuron + rimsulfuron (26 + 13 g ha^{-1}), or a combination of mesotrione or mesotrione + atrazine with any one of the three ALS-inhibiting herbicides. Adjuvants were included in tank mixes as recommended on herbicide labels. Grass injury was visually assessed 7 and 21 days after treatment (DAT) based on a scale where 0% = no injury, and 100% = plant mortality. Treatments were combined over years due to a lack of interactions. Visual injury of green and yellow foxtail were greater than 80%, while shattercane injury was greater than 90%, when treated with nicosulfuron, foramsulfuron, or nicosulfuron + rimsulfuron. Injury of green foxtail and yellow foxtail was reduced 14 and 39%, respectively, when mesotrione was tank mixed with nicosulfuron. An application of mesotrione + foramsulfuron resulted in 59 and 51% visual injury of green foxtail at Manhattan and Rossville, respectively. Tank mixing mesotrione with nicosulfuron + rimsulfuron did not result in an antagonistic interaction when applied to yellow foxtail or shattercane at either location. The addition of mesotrione + atrazine to nicosulfuron + rimsulfuron at Manhattan, however, resulted in only 77, 70, and 78% visual injury of green foxtail, yellow foxtail, and shattercane, respectively. Similar antagonistic interactions were observed at Rossville. Mesotrione + atrazine plus nicosulfuron, foramsulfuron, or nicosulfuron + rimsulfuron consistently resulted in a greater antagonistic interaction when applied to grass species, as compared to the ALS-inhibiting herbicide applied in combination with mesotrione without atrazine.

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