EVALUATION OF ISOXADIFEN-ETHYL FOR ENHANCING CORN TOLERANCE TO FORAMUSULFURON AND VARIOUS TANK MIXTURES. Jeffrey A. Bunting, Christy L. Sprague, and Dean E. Riechers, Graduate Research Assistant and Assistant Professors, Department of Crop Sciences, University of Illinois, Urbana, IL 61801.

A study was conducted in 2001 at the University of Illinois Crop Sciences Research and Education Center in Urbana to examine what effect the safener, isoxadifen-ethyl plus the herbicide foramsulfuron had on corn tolerance when tank-mixed with several postemergence corn herbicides. The herbicides tank-mixed with foramsulfuron plus isoxadifen-ethyl were dicamba plus diflufenzopyr, mesotrione, and dicamba. The use of a methylated seed oil (MSO) is not recommended with these herbicides, due to the potential for corn injury. We wanted to determine if isoxadifen-ethyl applications would safen corn from injury caused by these herbicides when used with a MSO. A corn hybrid sensitive to plant growth regulator herbicides was used in this study for maximum corn injury and plots were kept weed-free to eliminate any competition from weeds. Herbicide applications of dicamba plus diflufenzopyr with and without foramsulfuron plus isoxadifen-ethyl with MSO were applied to corn at the V1 growth stage. These combinations and all other herbicide combinations were applied at the V5 corn stage. Herbicides were applied as either 1 or 2X the labeled field use rates. Applications of the 2X rate of dicamba plus diflufenzopyr at the V1 growth stage injured corn 72%. The addition of the 2X rate of foramsulfuron plus isoxadifen-ethyl decreased injury to 37%. Yield reductions were 67 and 51% from these treatments, respectively. Applications of the 1 and 2X rates of dicamba plus diflufenzopyr plus MSO to V5 corn caused significant corn injury. The addition of foramsulfuron plus isoxadifen-ethyl resulted in significant decreases in corn injury. Yields from the 1 and 2X rates of dicamba plus diflufenzopyr were statistically different from the non-treated control. However, when foramsulfuron plus isoxadifen-ethyl was added yield was not different from the control. Similar trends were observed with the 1X rate of dicamba. The addition of foramsulfuron plus isoxadifen-ethyl to mesotrione applied with MSO did not reduce corn injury or increase yield. The addition of foramsulfuron plus isoxadifen-ethyl increased the safety of dicamba based products when applied with MSO.