

OPTIMIZING FORAMSULFURON ACTIVITY AND ABSORPTION IN GIANT FOXTAIL AND WOOLLY CUPGRASS WITH VARIOUS ADJUVANTS. 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, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824, Department of Crop Sciences, University of Illinois, Urbana, IL 61801.

Greenhouse and laboratory studies were conducted to examine foramsulfuron activity and foliar absorption in giant foxtail and woolly cupgrass with various adjuvants. Adjuvant selection was important for giant foxtail control. Foramsulfuron provided 90% or greater giant foxtail control with the addition of methylated seed oil (MSO) or MSO plus 28% urea ammonium nitrate (UAN). When a crop oil concentrate (COC) or non-ionic surfactant (NIS) was added to foramsulfuron, giant foxtail control was only 20%. However when 28% UAN was added with these adjuvants control was increased to 90 and 85%, respectively. Foramsulfuron absorption in giant foxtail was closely related to giant foxtail control. Foliar absorption of  $^{14}\text{C}$ -foramsulfuron in giant foxtail ranged between 35 and 90%, 24 hours after treatment (HAT), depending on adjuvant selection. The rate of absorption was greatest when MSO plus 28% UAN was added to foramsulfuron and absorption was maximized 4 HAT. Foramsulfuron absorption in woolly cupgrass reached its maximum absorption levels 2 HAT with all adjuvant combinations. Even though the rate of foramsulfuron absorption was quicker in woolly cupgrass, absorption trends by adjuvants were similar to giant foxtail. However, woolly cupgrass control was less than 20% for all adjuvant combinations. Additional greenhouse studies were conducted to examine foramsulfuron control of woolly cupgrass and giant foxtail at three different herbicide rates at three different growth stages. There was no rate or growth combination that resulted in satisfactory levels of woolly cupgrass control. However, control of giant foxtail was greater than 90% for all three rates of foramsulfuron at the 5 cm growth stage. Foramsulfuron applied at  $74 \text{ g ha}^{-1}$  (twice the field use rate) provided 58% control of 5 cm woolly cupgrass.