THE INFLUENCE OF NITROGEN FERTILIZER CARRIER ON SULFOSULFURON, PROPOXYCARBAZONE, FLUCARBAZONE, AND MESOSULFURON EFFICACY. Dallas E. Peterson and Greg W. Hudec, Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66506 and Technical Service Representative, Bayer CropScience, Manhattan, KS 66502.

Postemergence wheat herbicides are sometimes applied in combination with liquid nitrogen fertilizer as the spray carrier. Applying an herbicide and topdress fertilizer together saves a trip across the field and reduces production costs. However, using liquid nitrogen fertilizer as a spray carrier also can influence crop tolerance and efficacy of the herbicide. A field experiment was conducted near Manhattan, KS to evaluate weed control and winter wheat response to several postemergence herbicides applied with 0, 50, or 100% liquid nitrogen fertilizer as the spray carrier. The experiment had a randomized complete block design in a split plot arrangement with herbicide and application stage as the main plot and spray carrier as the subplot. Sulfosulfuron at 35 g/ha, propoxycarbazone at 45 g/ha, propoxycarbazone at 15 g/ha plus mesosulfuron at 10 g/ha, and flucarbazone at 30 g/ha plus chlorsulfuron at 13 g/ha plus metsulfuron at 2.5 g/ha were each applied as fall and spring treatments. All herbicide treatments included nonionic surfactant. Spray carriers consisted of water, 28% UAN fertilizer, or an equal blend of water and 28% UAN fertilizer applied at a total spray volume of 112 l/ha. Weed control and wheat injury were evaluated throughout the growing season and wheat was harvested for grain yield. Weed control generally was higher when the herbicides were applied with fertilizer carrier compared to water carrier, although the differences tended to be less with propoxycarbazone compared to the other herbicides. Initial foliar burn to wheat increased as the percent fertilizer carrier increased, regardless of herbicide treatment. However, by the end of the season, there was a carrier by treatment interaction on wheat injury. Late season wheat injury included height reduction and general stunting. Late season wheat injury generally was greater for spring applications than fall applications of the same herbicide treatment. Late season wheat injury from propoxycarbazone was not influenced by fertilizer carrier, but injury was greater with fertilizer carrier than water carrier for the other herbicides, especially for propoxycarbazone plus mesosulfuron. Wheat yields were high due to favorable growing conditions and were generally higher with herbicide treatment than from the untreated check. However, wheat yields were less where herbicides were applied in 100% UAN carrier compared to water only carrier, despite receiving more nitrogen. The lowest wheat yield occurred with the spring application of propoxycarbazone plus mesosulfuron in 100% fertilizer carrier, which corresponded to the highest late season crop injury. Application of sulfosulfuron, propoxycarbazone, or flucarbazone in 50% nitrogen fertilizer carrier solution can improve weed control with minimal risk to wheat. Application of propoxycarbazone plus mesosulfuron in nitrogen fertilizer carrier may result in excessive wheat injury.

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