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The program and abstracts of posters and papers presented at the annual meeting of the North Central Weed Science Society are included in this proceedings document. Titles are listed in the program by subject matter with the abstract number listed in parenthesis. Abstracts are listed in numerical order followed by the author and keyword listing.

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Glyphosate-Tolerant Soybean Yield Loss and Yield Response to Micro-Rates of 2,4-D as Influenced by Growth Stage. Ivan B. Cuvaca*, Stevan Z. Knezevic, Darko Jovanovic, Jon Scott; University of Nebraska-Lincoln, Lincoln, NE (37)

ABSTRACT

With the introduction of 2,4-D-tolerant crops, the use of 2,4-D and the risk of drift in non-2,4-D tolerant crops including soybean are likely to increase. To understand the impact of 2,4-D drift on glyphosate-tolerant (GT) soybean, a study using a randomized complete block design with four replications and a split-plot arrangement of treatments was conducted in 2019 near Concord, NE. Main plots consisted of three 2,4-D application times [second trifoliate (V2); beginning of flowering (V7/R1); and full flowering (R2)] and subplots consisted of six micro rates of 2,4-D (1/5; 1/10; 1/50; 1/100; 1/500; and 1/1000 of the label recommended dose of 1,120 g ae ha^{-1}) and a check with no herbicide applied. Soybean injury was visually assessed at 7, 14 and 21 days after treatment (DAT). Grain yield was also collected using a small-plot combine. In general, there was an increase in soybean injury and reduction in grain yield with increase in 2,4-D dose. GT soybean was more sensitive to 2,4-D injury at R2 than V2 and R1 stages. Less than 1/10 of the label recommended dose of 2,4-D caused 5-20% injury to GT soybean. Based on estimates of the effective dose of 2,4-D required to cause 5% injury, GT soybean was 1.4- and 1.2-fold more sensitive to 2,4-D at R2 (44.88 g ae ha^{-1}) than V2 (61.78 g ae ha^{-1}) and R1 (53.12 g ae ha^{-1}) stage, respectively. This increase in GT soybean sensitivity to 2,4-D injury has ultimately resulted in a significant reduction in grain yield especially at the R2 stage. Preliminary data analysis showed that 2,4-D dose of 0.33 g ae ha^{-1} reduced GT soybean yield at R2 by 5% (0.22 Mg ha^{-1}) compared with 54.58 and 1.77 g ae ha^{-1} at the V2 and R1 stage, respectively. These results show that 2,4-D drift poses a risk to GT soybean and can result in significant yield losses; therefore, it is crucial that 2,4-D drift is prevented especially at the R2 stage.