



Proceedings of the 74th Annual Meeting of the North Central Weed Science Society

**December 10-13, 2019
Columbus, OH**

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.

Table of Contents

Posters: Agronomic and Specialty Crops	2
Posters: Agronomic Crops I – Corn.....	11
Posters: Agronomic Crops II – Soybeans	19
Posters: Equipment and Application Methods	56
Posters: Extension.....	63
Posters: Herbicide Physiology & Molecular Biology	69
Posters: Invasive Weeds, Rangeland, Pasture, and Vegetation Management.....	73
Posters: Weed Biology, Ecology, Management	78
Papers: Equipment and Application Methods.....	108
Papers: Agronomic Crops I – Corn.....	120
Papers: Herbicide Physiology & Molecular Biology.....	134
Symposium: Using RStudio for Visualization and Analysis of Weed Science Experiments	150
Symposium: Cover Crops: An Ecological Tool for Weed Management.....	151
Papers: Agronomic Crops II – Soybeans	154 & 197
Papers: Agronomic and Specialty Crops	168
Papers: Weed Biology, Ecology, Management.....	180 & 215
Symposium: The What, How, and Why of Dicamba Tank Clean-Out.....	195
Papers: Invasive, Weeds, Rangeland, Pasture, and Vegetation Management.....	211
Symposium: Improving the Relevance of the NCWSS to Industry.....	221
Symposium: Invasive Plants	222
Author Index	224
Key Word Index.....	230
2019 NCWSS Society Information.....	233

Effect of Growth Stage on Glyphosate-Tolerant Soybean Sensitivity to Micro-Rates of 2,4-D. Ivan B. Cuvaca*, Jon Scott, Darko Jovanovic, Stevan Z. Knezevic; University of Nebraska-Lincoln, Lincoln, NE (35)

ABSTRACT

Off-target movement of 2,4-D can cause severe injury to susceptible crops including non-2,4-D-tolerant crops. A field study was conducted in 2019 near Concord, NE to investigate the effect of growth stage on glyphosate-tolerant (GT) soybean sensitivity to micro-rates of 2,4-D. The experiment used a randomized complete block design (RCBD) with eight replications and a split-plot arrangement. Main plots consisted of three 2,4-D application times [second trifoliolate (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 assessment and plant height measurements were performed at 7, 14 and 21 days after treatment (DAT). Number of days to canopy closure was also recorded. In general, increase in 2,4-D dose increased soybean injury and reduced plant height. Less than 1/10 of the label recommended dose of 2,4-D caused 5-20% injury to GT soybean regardless of application time; however, GT soybean was more sensitive to 2,4-D injury at R2 than the V2 and R1 stages. A 2,4-D dose of 44.88 g ae ha⁻¹ caused 5% injury to GT soybean at the R2 stage compared with a 1.4- and 1.2-fold higher dose required to cause the same level of injury at the V2 and R1 stage, respectively. Plant height, on the other hand, was more sensitive to 2,4-D at R1 than the V2 and R2 stages. A dose of 2,4-D of 6.93 g ae ha⁻¹ reduced plant height at R1 by 5% (3.7 cm) compared with a 1.5 (10.29 g ae ha⁻¹) to 1.6 (11.22 g ae ha⁻¹)-fold higher dose that was required to cause the same reduction in plant height at other growth stages. Because of this increase in GT soybean injury and reduction in plant height, there was a delay in canopy closure with a 2,4-D dose of 9.76, 3.53 and 3.81 g ae ha⁻¹ resulting in a 5 day delay in canopy closure at V2, R1 and R2 stage, respectively. Altogether, these results show that GT soybean is sensitive to micro-rates of 2,4-D especially at the reproductive stages.