

PETERS, THOMAS J.* and ADAM D. ABERLE, North Dakota State University and the University of Minnesota, NDSU, Dept. 7670, PO Box 6050, Fargo, ND 58108-6050.

Reevaluating common ragweed control in sugarbeet in Minnesota and North Dakota.

Glyphosate resistant (GR) weeds dominate sugarbeet production in Minnesota and North Dakota. Sugarbeet growers attending the 2024 grower seminars categorized GR waterhemp [*Amaranthus tuberculatus* (Moq.) J. D. Sauer] as their most important weed control challenge on 61% of the sugarbeet hectares in Minnesota and North Dakota. GR common ragweed (*Ambrosia artemisiifolia* L.) was identified on 7% of sugarbeet hectares but was recognized as their most important weed control challenge on 29% of hectares in Traill and Grand Forks counties in North Dakota and Polk, Norman, and Marshall Counties in Minnesota. In 2024, ragweed may have escaped clopyralid application since below normal soil temperatures extended ragweed germination and emergence into June and early July. Two times clopyralid at 66-79 g ha⁻¹ in combination with glyphosate on common ragweed less than 5 cm (2 lf sugarbeet) and 14 days later is the most frequent control program. Clopyralid must be applied before sugarbeets reach the 8 lf stage or approximately end of May in Minnesota and North Dakota. Common ragweed emerges in late April and May. Common ragweed must undergo a dormant period from late fall through winter before germinating the following year. Increasing air temperatures promote germination, but soil temperatures above 30C will halt germination and send the seeds back to dormancy until repeating the cold requirement the following winter. There are other accounts for ragweed escapes including biotypes more clopyralid tolerant. The objectives of our research were to improve common ragweed control from clopyralid and to extend control further into the season. Experiments were conducted with sugarbeet grower cooperators in Norman Counties in 2023 and 2024. Herbicides were applied POST with a bicycle wheel plot sprayer with a shielded boom to reduce particle drift and calibrated to deliver 159 L ha⁻¹ through 8002XR nozzles (XR TeeJet® Flat Fan Spray Tips, TeeJet® Technologies, Glendale Heights, IL) spaced 51 cm apart and pressurized with CO₂ at 207 kPa. Evaluations were a visible assessment of control by comparing the treated area in the plot to the bordering non-treated area. Mixing phenmedipham with clopyralid improved common ragweed control 11%, 21 days after application B (DAAB, 2-lf sugarbeet and 5-cm common ragweed) but provided similar control as clopyralid alone, 34 DAAB. Glufosinate mixed with clopyralid or glufosinate following clopyralid improved common ragweed control 22%, 28 DAAB (2-4 lf sugarbeet, 8 cm common ragweed) and extended common ragweed control 18% (40 DAAB) as compared to 2-times clopyralid application with glyphosate and Truvera™ sugarbeet. Clopyralid provides extremely effective common ragweed control in sugarbeet, however, its use has been confounded with signs of increasing common ragweed tolerance and extended emergence. Phenmedipham and glufosinate are herbicides potentially improving common ragweed control in sugarbeet.