

THE RESPONSE OF A NORTH DAKOTA COMMON RAGWEED POPULATION TO GLYPHOSATE IN THE FIELD. Jeff M. Stachler and John L. Luecke, Assistant Professor and Research Specialist, Department of Plant Sciences, North Dakota State University and University of Minnesota, Fargo, ND 58108-6050.

A common ragweed population was inadequately controlled with multiple glyphosate applications in a glyphosate-resistant soybean field in Traill County, ND in 2007. In 2008, small-plot field research was conducted to confirm the presence of a glyphosate-resistant common ragweed biotype in the population and the impact upon the population of single and multiple glyphosate applications. No crop was planted at the study location. Glyphosate was applied once at 0.8, 1.3, 1.7, and 3.4 lb ae/ha to ≤ 2.5 , ≤ 5 , and <12.7 cm common ragweed on June 4, 13, and 26, 2008, respectively. Glyphosate was also applied at 0.8, 1.3, and 0.8 kg/ha to ≤ 2.5 and ≤ 5 cm common ragweed and then followed about 16 days later with glyphosate at 0.8, 0.8, and 1.3 kg/ha, respectively. Plots of three additional treatments per timing were treated in the same fashion initially and followed about 16 days later with glyphosate at 0.8 kg/ha across each treatment for a total of three glyphosate applications. This same sequence of treatments were repeated and followed about 16 days later with a fourth application of glyphosate at 0.8 kg/ha. Glyphosate was applied at 0.6 kg/ha on August 7th to the entire plot of three replications and to 80% of the final replication of treatments where glyphosate was applied once to ≤ 2.5 and ≤ 5 cm common ragweed. The glyphosate was applied to control other weed species germinating after the initial application. Fifteen common ragweed plants were flagged per plot prior to the initial glyphosate applications.

This field research suggests the presence of a glyphosate-resistant common ragweed biotype in Traill County, ND. Increasing glyphosate rates improved control and individual plant mortality at harvest with all application timings. The greatest mortality of flagged plants was achieved when glyphosate was initially applied to ≤ 2.5 cm common ragweed compared to the later initial timings. Increasing the number of glyphosate applications increased control and individual plant mortality and decreased seed production. Late-season glyphosate applications appeared to reduce common ragweed seed production compared to early-season applications.