

RESPONSE OF GLYPHOSATE-TOLERANT COMMON LAMBSQUARTERS BIOTYPES TO GLYPHOSATE. Melissa M. Kruger, Andrew M. Westhoven, and William G. Johnson, Research Associate, Graduate Research Assistant, and Associate Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907.

Common lambsquarters is found throughout Indiana and several biotypes with tolerance to glyphosate were identified in 2005 through greenhouse screens. Glyphosate dose response studies on common lambsquarters have not been extensively reported. The objective of this greenhouse study was to quantify the level of glyphosate tolerance among one susceptible and four tolerant biotypes. The susceptible biotype was subjected to rates of 0, 0.008, 0.084, 0.21, 0.42, 0.84, 2.1, 4.2, and 8.4 kg ae ha⁻¹ of glyphosate. Tolerant biotypes were subjected to rates of 0, 0.084, 0.42, 0.84, 2.1, 4.2, 8.4, 12.6, and 21 kg ae ha⁻¹ of glyphosate. Dry weight data was collected 21 DAT and converted to a percentage of the untreated control. Nonlinear regression parameters were estimated using a logistic model in RTM. The dry weight GR₅₀ values for the tolerant biotypes ranged from 1.48 to 3.22 kg ae ha⁻¹ compared to 0.57 kg ae ha⁻¹ for the susceptible biotype. R/S ratios determined from GR₅₀'s ranged from 2.6 to 5.6. GR₉₀ R/S ratios ranged from 3.7 to 7.8. All GR₅₀ and GR₉₀ values for each tolerant biotype were significantly different than the susceptible biotype.