

THE BIOLOGY AND FECUNDITY OF SELECTED COMMON LAMBSQUARTERS BIOTYPES.  
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A number of common lambsquarters biotypes with reduced sensitivity to glyphosate have previously been identified in Ohio and Indiana through field observations and greenhouse studies. A field study was conducted in West Lafayette, Indiana, in 2006 to determine the growth rate, seed production, and response to glyphosate of eight such biotypes, in comparison to two glyphosate-sensitive biotypes. The same study was conducted in Columbus, Ohio, but was only designed to determine the response of glyphosate. Lambsquarters seed was germinated in the greenhouse and plants were transplanted in rows spaced 76 cm apart into the field in early June. When the majority of lambsquarters plants reached 10 to 20 cm in height, glyphosate rates of 0.8 and 2.5 kg ae/ha were applied, and plots and individual plants were visually evaluated at 14 and 21 DAT.

All sensitive biotype plants were controlled with both rates of glyphosate. A few plants of the less sensitive biotypes survived an application of 0.8 kg/ha of glyphosate, but all plants were killed at 2.5 kg/ha. Leaf area and biomass of each biotype were measured in nontreated areas 2, 6, and 10 weeks after transplanting (WAT). Biomass and leaf area increased between 2 and 6 WAT, but the leaf area of some biotypes decreased slightly between 6 and 10 WAT. The Indiana sensitive biotype showed the lowest amount of leaf area and younger growth stage at 2 WAT compared to the less sensitive biotypes and had the most leaf area at 10 WAT. Plants of the less sensitive biotypes initiated floral primordium between 6 and 8 WAT, while the sensitive biotypes did not initiate floral primordium until approximately 12 WAT.