

THE EFFECT OF INTERPLANT VARIATION ON AMBROSIA TRIFIDA L. EMERGENCE PATTERNS. Brian J. Schutte, Emilie E. Regnier, and S. Kent Harrison, Graduate Research Associate, Associate Professor and Professor, Department of Horticulture and Crop Science, The Ohio State University, Columbus, OH 43210

Giant ragweed is a severe annual broadleaf weed in summer annual crop production. The severity of giant ragweed interference in Ohio crop production is partially attributed to prolonged, continuous seedling emergence. Within a population, nonsynchronous emergence can result from interplant and intraplant variation. Giant ragweed populations exhibit a high degree of variation in sizes of diaspores (dispersal units) among individual plants and diaspore size is known to affect emergence phenology of other species. Therefore, we hypothesized that within giant ragweed populations, there is interplant variation in emergence phenology, and diaspore size influences emergence phenology. Diaspores from 25 giant ragweed individuals (i.e. 25 half-sib families) were planted at a uniform depth in the autumn of 2002. In spring of 2003, emergence was monitored on a regular basis. Diaspore dimensions were determined with image analysis software and relationships between diaspore dimensions and emergence were examined. Emergence phenology differed significantly among half-sib families, and two forms of emergence phenology were identified: 1) synchronous and 2) continuous. A negative relationship between dispersal unit dimensions and days to 95% emergence was detected in one population. Definitive conclusions concerning diaspore size and emergence phenology require additional experiments. Results of this experiment show unique emergence behaviors among half-sib families, which could contribute to the overall continuous emergence pattern commonly observed in giant ragweed populations of Ohio crop fields.