

INFLUENCE OF NITROGEN FERTILIZER ON GIANT RAGWEED INTERFERENCE IN CORN.
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Environmental concerns regarding the use of nitrogen fertilizer and soil-applied herbicides such as atrazine, and the adoption of glyphosate-resistance corn hybrids will likely cause changes in the dynamics of weed interference in corn. Giant ragweed (GRW) is a highly competitive weed that commonly infests crop production fields in the Midwest. GRW has the ability to emerge throughout the early growing season making it difficult to control with just a single herbicide application. Previous research evaluating the influence of N application timings and giant ragweed removal timings in corn has not been published. A field experiment was conducted at the Purdue University Agronomy Center for Research and Education. Treatments were established in a split plot design with four replications. Three nitrogen treatments (180 lbs/ac before planting (BPLT), 180 lbs/ac side dressed (SIDE), and 90 lbs/ac BPLT + 90 lbs/ac SIDE (SPLIT), assigned to the main plots and three GRW removal timings (weed free, 40-cm, and season long) were assigned to the subplots. GRW plants were allowed to emerge with the corn, and GRW density was established at 0.5 plants/10 ft² 14 days after GRW emergence maintained until the appropriate removal timing. Weed free plots were maintained throughout the growing season by hand weeding at biweekly intervals. Corn was then harvested for grain and yields were then converted to 15.5% grain moisture.

Post emergent N fertilizer did enhance corn and GRW growth in the early part of the growing season, and GRW accumulated more nitrogen on a per plant basis than did corn. When GRW was allowed to interfere with corn for the entire growing season, it was able to accumulate 72-to 135-lbs N/ac. Higher corn yields were observed in the SIDE and SPLIT N fertility regimes than in the BPLT when GRW interference periods were pooled together. GRW at a density of 0.5 plants/10 ft² can be controlled up to 16 inches tall without yield loss.