GROWTH ANALYSIS OF GIANT CHICKWEED IN ALFALFA AND BARE GROUND. Michael P. Crotser, University of Wisconsin-River Falls, Assistant Professor of Agronomy, Plant and Earth Science Department, River Falls, WI, 54022.

Weedy giant chickweed has been confirmed by county agents in pastures, forages, and turfgrass areas in several Wisconsin counties. Due to the morphological similarities between the chickweed complex, presence and distribution of giant chickweed has likely been underestimated. Currently, no literature exists to characterize giant chickweed as weed. The objective of this study was to characterize giant chickweed growth in isolation and as influenced by interspecific interference with alfalfa. The study was conducted at the University of Wisconsin-River Falls Mann Valley Farm to model giant chickweed biomass, leaf area, leaf area ratio, net assimilation rate and relative growth rate development. The experiment was a split-plot design with four replications. Sub-plot treatments were weeks of giant chickweed growth and whole-plot treatments were giant chickweed grown on bare ground or in established alfalfa. Growth analysis parameters were analyzed using the ANOVA procedure of SAS and means, if statistically different, were separated using Fisher's protected LSD test.

Biomass accumulation, leaf area, leaf area ratio, net assimilation rate and relative growth rate of giant chickweed were similar over years and data were combined for analysis. For both the bare ground and alfalfa environments giant chickweed biomass increased over time with the greatest mass observed at 12 weeks after planting. Similar increases were observed for leaf area over time, however leaf area did not increase after weeks seven and eight for the bare ground and alfalfa environments, respectively. In general, net assimilation rate of giant chickweed was positive for the first six weeks of growth. However, many of the recorded net assimilation rate values late in the season were negative, suggesting carbon loss from the plant. For the latter harvest dates the lower leaves on giant chickweed would often senesce and abscise from the plants. However, leaf area ratio values suggest the loss of lower leaves over time did not have an overall impact on giant chickweed leafiness. For giant chickweed, relative growth rate values were not apparently influenced by the growth stage of giant chickweed nor changes in average weekly temperature. Based on net assimilation rate values, carbon loss may be better described by increased rates of respiration, rather than reductions in plant leafiness (i.e. leaf area ratios). No statistical differences were observed in chickweed growth parameters for plants grown on bare ground when compared plants grown in alfalfa. This suggests that alfalfa competition itself does not negatively affect giant chickweed growth and developments.

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