Impact of Pre-Dispersal Seed Predation on Seedling Recruitment by Yellow Starthistle in California

M. J. Pitcairn, D. M. Woods and V. Popescu

Biological Control Program, California Department of Food and Agriculture, 3288 Meadowview Road, Sacramento, CA 95832 USA  mpitcairn@cdfa.ca.gov  dale.woods@cdfa.ca.gov

Abstract

A long-term study site provided an opportunity to examine the impact of pre-dispersal seed predation on seedling recruitment by yellow starthistle (Centaurea solstitialis L.). Fifty 20 cm by 20 cm plots were established in a grassy field infested with yellow starthistle. Seedling recruitment and seed production was observed for eight years. In years 4-6, 20 of the plots were treated with a foliar insecticide to reduce the activity of introduced seedhead insects and 30 plots were untreated. In years 7 and 8, no plots were treated with insecticides. Results showed no difference in the number of seedlings recruited between treated and untreated plots during years 1-3. However, seedling number diverged in years 4-6 with the untreated plots showed decreasing numbers while the number of seedlings in treated plots slightly increased. In years 7 and 8 when no plots received insecticide treatments, the number of seedlings in the untreated plots continued to decrease and the number of seedlings in the treated plots renewed their downward decline. The results suggest that the attack of seedheads by the exotic insects had a significant effect on yellow starthistle seedling recruitment.