

INFLUENCE OF HERBICIDE APPLICATION TIMING ON GIANT RAGWEED CONTROL AND INSECT INFESTATION. Dawn E. Nordby and Kelly A. Cook, IPM Extension Specialists, Department of Crop Sciences, University of Illinois, Urbana, IL 61801.

Previous research has examined some potential associations between various insect and weed species. However, few studies have addressed how members of the stem-boring guild of insects may influence various aspects of weed management. A better understanding of such a relationship would increase the knowledge of the spectrum of insect and weed species that may be involved and potentially help minimize this interaction. In many parts of Illinois, lack of giant ragweed control following a postemergence herbicide application has been attributed to the presence of common stalk borer (*Papaipema nebris*) in the stem of the plant. The primary objective of this study was to determine which herbicide application strategies are effective at minimizing insect-weed-herbicide interactions in the future.

Three field experiments were conducted in glyphosate-resistant soybean during 2003 and 2004 at the Northern Illinois Agronomy Research Center at Dekalb, IL. Treatments consisted of seven herbicide application timings including early post, post, late post, preemergence followed by post, preemergence followed by late post, early post followed by late post, and a non-treated control. The preemergence treatment consisted of chloransulam-methyl at 0.036 kg/ha, while postemergence treatments consisted of glyphosate at 0.84 kg/ha. Treatments were evaluated for giant ragweed control 14 DAT. Additionally, twenty giant ragweed plants were harvested from each plot prior to the post application and 14 DAT to determine the degree of common stalk borer infestation manifested by tunneling in stem tissue. Giant ragweed stem diameter and height also were recorded at these times.

Herbicide application timing affected the number of plants with stalk borer tunneling and the number of stalk borers in the plants. An early post treatment was the most effective in reducing the occurrence of stalk borers and tunneling. Common stalk borer was present in the greatest density in giant ragweed plants collected from the preemergence only and late postemergence only herbicide treatments. The presence of common stalk borer in giant ragweed appeared to be positively correlated to giant ragweed stem diameter.