

Management of Ragweed Parthenium and Kreen Kyllinga with Pre- and Post-Emergence Herbicides

Nathan S. Boyd and Moriah Williams

Summary

Experiments were conducted to evaluate pre- and post-emergence herbicides for control of ragweed parthenium and green kyllinga. Preemergence applications of flumioxazin at label rates controlled ragweed parthenium. Post-emergence applications of glufosinate above 8 oz/acre controlled flowering and non-flowering ragweed parthenium. Glufosinate efficacy on ragweed parthenium was variable across a range of rates with efficacy dependant on growing conditions. Work is on-going but preliminary data confirms the utility of glufosinate for strawberry growers and registration will be pursued via the IR-4 program.

Methods

Materials and Methods

Evaluation of Pre-emergence Herbicides: Replicated experiments were conducted in a greenhouse at GCREC to examine multiple rates of flumioxazin (Chateau) and lactofen (Cobra) for preemergence control. Weed seeds were added to field soil in pots and the herbicides applied to the surface. The number of weeds that emerged were counted weekly.

Evaluation of Post-Emergence Herbicides: Replicated experiments were conducted in a greenhouse at GCREC to examine the effects of glufosinate applications at different plant growth stages and application rates on ragweed parthenium and green kyllinga control. Plant growth stages for green kyllinga included flowering and non-flowering stages. Growth stages for ragweed parthenium included the rosette and flowering stage. A range of rates (0, 0.25X, 0.5X, 1X, 2X, 4X and 8X) where 1X is the label rate for vegetables were examined.

Weed damage ratings (0-100) where 0 is no damage and 100 is complete death were taken 2, 4, and 8 weeks after application. Weed biomass, height, leaf number, flower number, and seed number were all measured at the end of the trial.

Data Analysis

Data were analyzed using the Proc Mixed procedure in SAS (version 9.4; SAS Institute, Cary, NC). Block was considered a random variable. Measurement taken over time were analyzed using the repeated statement.

Results

Ragweed Parthenium Control

Preemergence applications of flumioxazin controlled ragweed parthenium (data not shown). Efficacy of post-emergence glufosinate varied with rate (Figure 1). Rates between 0 and 8 oz/acre had highly variable control at both growth stages. Rates above 8 oz/acre adequately controlled plants at both growth stages. It is important to note that glufosinate is a contact herbicide and therefore coverage is important as only tissue that comes in contact with the herbicide will be dessicated. Herbicide application at the rosette stage are recommended as adequate coverage of larger plants is difficult to achieve (Figure 3) and plant recovery following applications at the flowering stage is more likely to occur.

Green Kyllinga Control

Evaluation of pre-emergence herbicides is not yet complete. Post-emergence applications of glufosinate suppressed green kyllinga (Figure 4) but adequate control was not achieved (Figure 2). Glufosinate was

more effective on plants grown in the greenhouse than those grown in the shade house for unknown reasons but even when grown in the greenhouse rates of 44 oz/acre, which exceeds label rates, were needed to achieve control. We anticipate sequential applications will achieve adequate control.



Figure 3. Effects of glufosinate on flowering ragweed parthenium.

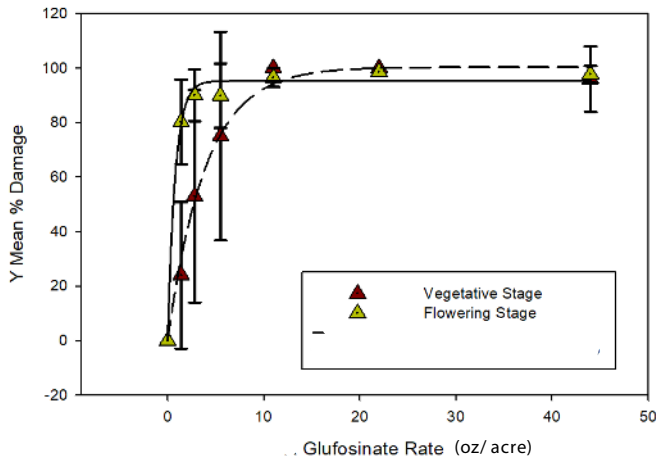


Figure 1. Control of ragweed parthenium at the rosette and flowering stage at with multiple rates of glufosinate.

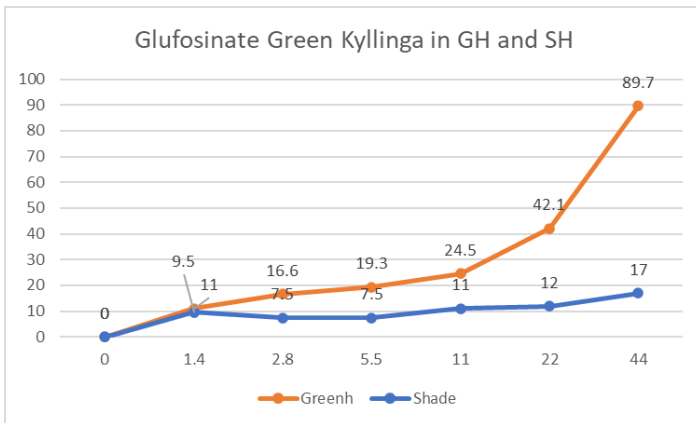


Figure 2. Control of green kyllinga growing in a greenhouse (GH) and a shade house (SH) with multiple rates of glufosinate.



Figure 4. Effects of glufosinate on green kyllinga. The pot on the left is the nontreated control and the plant on the right has been treated with glufosinate.

Contact

Dr. Nathan S. Boyd
 UF/IFAS Gulf Coast Research and Education Center
 P: 813-419-6613
 E: nsboyd@ufl.edu