

MESOTRIONE AND ATRAZINE COMBINATIONS APPLIED PREEMERGENCE IN CORN. Scott L. Bollman and James J. Kells, Graduate Research Assistant and Professor, Department of Crop and Soil Science, Michigan State University, East Lansing, MI 48824; Thomas T. Bauman, Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907; Mark M. Loux, Associate Professor, Department of Horticulture and Crop Science, Ohio State University, Columbus, OH 43210; Charles H. Slack, Department of Agronomy, Agricultural Research Specialist, University of Kentucky, Lexington, KY 40506; Christy L. Sprague, Assistant Professor, Department of Crop Sciences, University of Illinois, Urbana, IL 61820.

The herbicide mesotrione is effective in controlling many troublesome broadleaf weeds. Previous field trials have reported greater weed control in corn when mesotrione is combined with atrazine. A field experiment was conducted in 2002 and 2003 at seven sites each year to determine the optimum rates of mesotrione and atrazine applied preemergence for control of common lambsquarters, velvetleaf, common ragweed, and giant ragweed. Mesotrione was applied at rates of 0, 53, 105, 158, and 210 g ai/ha and atrazine was applied at rates of 0, 280, 560, 1120, and 1780 g ai/ha. The study was designed as a factorial with all rate combinations of mesotrione and atrazine included. The study also included a weed free plot. Each site received s-metolachlor at the recommended rate for each soil type. Weed control was evaluated visually and weed densities were determined 30, 45, and 60 DAT. Plots were harvested for corn yield determination.

Triazine-resistant common lambsquarters was easily controlled by mesotrione and was not controlled by atrazine at any rate tested. All rates of each herbicide controlled non-triazine resistant common lambsquarters greater than 90 percent. The highest three rates of mesotrione provided 89 percent or greater control of velvetleaf, regardless of atrazine rate. Control of common ragweed was 85 percent or greater from mesotrione at 158 g/ha in combination with atrazine at 560 g/ha or higher. In addition, mesotrione at 210 g/ha combined with atrazine at 280 g/ha or higher provided 91 percent or greater control of common ragweed. The only effective treatments for giant ragweed control were mesotrione at 210 g/ha in combination with atrazine at 1120 g/ha or higher.