HERBICIDE SYSTEMS FOR IMPROVED WEED MANAGEMENT IN CUCUMBERS. Mathieu Ngouajio, Bernard H. Zandstra, William R. Chase, Mike Particka, Jeremy Ernest, and Joseph G. Masabni, Assistant Professor, Professor, and Research Assistants, Department of Horticulture, Michigan State University, East Lansing, MI 48824; Assistant Professor, Research and Education Center, University of Kentucky, Princeton, KY 42445.

Until now, weed control in cucumbers has relied on very few herbicides. New herbicides, including halosulfuron (Sandea) and the package-mix ethalfluralin plus clomazone (Strategy), have recently been approved for use in cucumbers. Evaluating the performance of these new herbicides as well as products registered on other crops would help improve weed management strategies in cucumbers.

Field experiments were conducted at Michigan State University, Horticulture Teaching and Research Center during summer of 2002 to evaluate herbicide systems for weed control in cucumber. Herbicides used included ethalfluralin, clomazone, naptalam, halosulfuron, sethoxydim, sulfentrazone, and s-metolachlor. Ethalfluralin and clomazone were mixed on the farm or purchased as the package-mix Strategy.

Halosulfuron and all combinations of ethalfluralin plus clomazone were very safe on cucumber. Less than 20% cucumber injury was observed after application, and the symptoms disappeared completely prior to crop harvest. S-metolachlor and sulfentrazone used alone or in combination with other herbicides caused over 50% cucumber injury and are therefore not acceptable for cucumber production. All herbicide treatments provided acceptable levels of weed control. However, weed control in plots treated with ethalfluralin or halosulfuron was significantly improved with the addition of clomazone or Strategy, respectively. Halosulfuron has little activity on grasses and on common lambsquarters and therefore cannot be used alone when those weed are important in the field. Our experimental plot had heavy infestations of common lambsquarters and grasses, which explain the relatively low level of weed control with halosulfuron. Sulfentrazone and s-metolachlor not only caused severe cucumber injury but also significantly reduced yields. Almost no fruit was harvested in plots treated with s-metolachlor or sulfentrazone applied postemergence. Yields in all other herbicide treatments were significantly greater than the untreated control. The combination of Strategy (ethalfluralin plus clomazone) and Sandea (halosulfuron) provided the most cucumber yield.