

SEASON-LONG WEED CONTROL IN SOLANEOUS CROPS. Eric J. Ott and Bernard H. Zandstra, Research Assistant and Professor, Department of Horticulture, Michigan State University, East Lansing, MI 48824.

Fresh market eggplant production has increased by 76% since 1992, fresh market bell pepper, production has nearly tripled since 1980, processing pepper production has nearly tripled since 1992, and the demand for tomatillo has increased steadily over the last several years. Eggplant (*Solanum melongena* L.), bell and banana pepper (*Capsicum annuum* L.), and tomatillo (*Physalis ixocarpa* Brot.) growers have limited herbicide choices for weed management strategies. Field experiments were conducted in 2006 to evaluate new herbicide options for weed control in eggplant, tomatillo, bell and banana pepper production.

Both experiments utilized three replications in a randomized complete block design. Plot dimensions were 6 feet wide by 35 feet long. Crop varieties utilized in these experiments included Ichiban (eggplant), Tomatillo (tomatillo), Camelot (bell pepper), and Inferno (banana pepper). All plants were started by seed in the greenhouse March 31, and then were transplanted May 25 (eggplant and tomatillo), and June 1 (banana and bell pepper). Treatments were applied for the eggplant and tomatillo experiment May 25 [PPI and pretransplant (PRT)], May 26 [posttransplant (POT)], and June 19 (POST). Treatments in the banana and bell pepper experiment were applied June 1 (PPI, PRT, POT), and June 19 (POST). The eggplant and tomatillo experiment was rated on June 19 and June 27, and the banana and bell pepper experiment was rated on June 19, and June 30. Eggplants were harvested five times, tomatillos four times, banana peppers three times, and bell peppers four times for yield. Yields were combined across harvests.

In eggplant and tomatillo, s-metolachlor at 1.3 lbs/acre at all application timings (PPI, PRT, and POT) and sulfentrazone at 0.14 lb/acre applied at the PRT timing, provided 80-100% grass control without crop injury early in the growing season. Flumioxazin, applied PRT at a rate of 0.064 lb/acre, provided 70-80% control of grasses and broadleaves, but injured both eggplant and tomatillo by 50-60% shortly after treatment. S-metolochlor PRT at 1.3 lb/acre followed by a POST application of halosulfuron 0.023 lb/acre plus sethoxydim at 0.19 lb/acre resulted in greater eggplant yield than 1.3 lb/acre s-metolachlor alone. Tomatillo yields were highest in treatments that received 1.3 lb/acre s-metolachlor POT followed by a POST application of halosulfuron at 0.023 lb/acre plus sethoxydim at 0.19 lb/acre, or a PRT treatment of 0.5 lb/acre of clomazone.

In banana and bell peppers, all PPI, PRT, and POT treatments controlled both grasses and broadleaves 70-100% without noticeable crop injury early in the growing season. A PRT application of sulfentrazone at 0.14 lb/acre significantly reduced banana pepper yield compared to treatments that included clomazone at 0.5 lb/acre or clomazone plus ethalfluralin at 0.25 lb/acre and 0.8 lb/acre respectively. Treatments that included clomazone or 1 lb/acre trifluralin protected yield more than treatments that solely relied on 1.3 lb/acre of s-metolachlor. Bell peppers on average had higher yields in treatments that included clomazone than treatments that did not.