POSTEMERGENCE SHIELDED FLAMING FOR WEED CONTROL IN VEGETABLE CROPS. Chad M. Herrmann and Bernard H. Zandstra, Graduate Research Assistant and Professor, Michigan State University, East Lansing, MI 48824.

Propane flaming is widely used in organic cropping systems as a method of preemergence weed control. However, due to the susceptibility of many vegetable crops to heat stress, postemergence weed control is a major obstacle in organic production. We have developed a computer-guided, shielded flamer for use in vegetable row crops. Four 1.5m long shields effectively trap and direct heat into inter-row spaces while the computer vision guidance system steers the implement in close proximity to the vegetable crop.

Field trails were conducted in 2008 to assess the potential for postemergence flaming in snap beans. Each plot was 15.2m long and contained three rows of snap bean spaced at 0.41m. Experimental design was a 3 X 3 factorial assessing propane pressures of 0.07, 0.14, and 0.28 MPa and tractor speeds of 1.61, 3.22, and 6.44 KPH. Crop injury occurred in all treatments for which the tractor speed was 1.61 KPH. When compared with the untreated control, total weed biomass was significantly reduced in all treatments except the 0.07 MPa-6.44 KPH treatment. At high pressures and low speeds, there was a trend toward decreased weed biomass. Further investigation on additional vegetable crops will help to assess the feasibility of implementing postemergence flaming in organic vegetable production.

2008 North Central Weed Science Society Proc. 63:56.