

FLAMING WEEDS IN INTEGRATED CROPPING SYSTEMS. Erin C. Taylor-Hill, Karen A. Renner, Christy L. Sprague, and Dale R. Mutch, Research Assistant, Professor, Associate Professor, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824-1325 and Extension Specialist, Kellogg Biological Station, Hickory Corners, MI 49060.

Three experiments in propane flaming for weed control were conducted in Michigan. We evaluated the influence of tractor speed, the effect of time of day of flaming, and compared flaming versus rotary hoeing for weed control in organic corn and soybeans. Treatments in the flaming versus rotary hoeing study included flaming + cultivation (F), rotary hoeing + cultivation (RH), and flaming + rotary hoeing + cultivation (FRH). The FRH treatment provided the most stable level of weed control and lowest cost in soybean (i.e. average of \$45 A<sup>-1</sup>, including fuel and hand weeding labor) in both years. In the tractor speed study, there was no significant difference in weed density across tractor speeds ranging from 3.5 to 5.5 mph. The 4 mph treatment had the lowest average weed density of 4.25 weeds m<sup>-2</sup>. For the time of day study, we flamed corn at four different times during the day at two sites. Relative humidity levels were higher and air temperatures were lower at 8 a.m. and 8 p.m. compared with noon and 4 p.m. At site 1, there was no difference in weed control due to the time of flaming. Weed densities were reduced by 46% in the noon treatment. At site 2, the noon and 4 p.m. treatments reduced weed densities by 49%, while flaming at 8 p.m. reduced weed densities by only 32%. These studies support the use of a propane flamer for weed control in organic systems.