

MANAGEMENT OF CANADA THISTLE IN ORGANIC CROPPING SYSTEMS USING SUMMER ANNUAL COVER CROPS AND MOWING. Abram Bicksler and John Masiunas, Graduate Research Assistant and Associate Professor, Department of Natural Resources and Environmental Sciences, University of Illinois, 1201 West Gregory Drive, Urbana, IL 61801.

Canada thistle (*Cirsium arvense*) is a severe problem on Midwestern US organic farms. Cover crops may be a component for suppressing Canada thistle through competition for resources and release of allelochemicals. Canada thistle root carbohydrate reserves are lowest between late June and late August. We hypothesize that Sudangrass or buckwheat cover crops with active growth during this period would be especially suppressive of Canada thistle. Sudangrass is a C<sub>4</sub> species, rapidly closing canopy, reaching heights of 3 m, and producing an extensive root system, which captures moisture and nutrients near the soil surface. Sudangrass contains the allelochemicals sorgoleone and dhurrinase. Buckwheat grows best in early or late summer. It rapidly grows a dense stand that outcompetes Canada thistle. Buckwheat produces allelochemicals although research suggests they do not play a role in Canada thistle suppression. We evaluated buckwheat and Sudangrass alone or combined with mowing for their suppression of Canada thistle. Canada thistle plant densities decreased by 31% in the no cover crop, no mowing treatment. Mowing alone further reduced thistle density and shoot biomass. Buckwheat was very competitive with Canada thistle reducing the number of shoots by 92% and their shoot weight to 21% of the fallow. Mowing reduced the effectiveness of buckwheat in lowering the thistle density probably because buckwheat did not regrow after mowing. Sudangrass without mowing reduced number of thistle plants by 98% but adding mowing provided a further reduction in thistle shoot weights. Sudangrass provides an option for organic farmers to suppress Canada thistle but complete control of Canada thistle will require a multiyear program integrating a variety of management strategies followed by continual monitoring to prevent the establishment of new populations.