HERBICIDE OPTIONS FOR CANADA THISTLE CONTROL IN PASTURES. Ryan P. Tichich and Jerry D. Doll, Graduate Research Assistant and Professor, Department of Agronomy, University of Wisconsin, Madison, WI 53706.

Canada thistle remains one of Wisconsin's most serious weeds in pastures and it seems particularly adapted to management intensive grazing systems. We have done three field trials in 2000 and 2001 to evaluate the performance and economics of Canada thistle control in pastures at agricultural research stations near Lancaster and Arlington, WI. Two of the three studies were short-term (one-year treatments) and the other is a long-term study. The long-term trial is designed to treat as often as needed with either the same herbicide used in 2000 or by switching to two alternative treatments. In this trial our primary interest is in the economics of each system of control and it will be conducted for four or more years.

Herbicides were applied when Canada thistle plants were in the bud to early flower growth stage in 190 L water/ha in all trials. Appropriate additives, if any, were used as recommended. Thistle stem densities were determined in all plots in the long-term trial before herbicides were applied in June of each year. The one-treatment trial was grazed until 2 days before applying herbicides in 2000 and the site was mowed 30 days before treating in 2001.

Visual ratings in the one-year trials found that thistle control in 2000 was less than anticipated, probably as a result of the grazing that preceded application. Clopyralid and the premix of dicamba plus diflufenzopyr gave the best control as single products. Adding diflufenzopyr to clopyralid, dicamba, metsulfuron or quinclorac increased herbicide efficacy by 36% (60% control without diflufenzopyr versus 96% with it).

The long-term study site was also intensively grazed for several days before we treated thistles in 2000, and this seems to have reduced control. Ratings indicated poor to acceptable kill of treated vegetation, but plant population counts in 2001 found little long-term impact except for the treatments that included clopyralid. Based on thistle densities, all plots needed retreatment in 2001. Clopyralid (213 g ae/ha) averaged 92% visual control and reduced the thistle population 17% compared to the original density. Metsulfuron (13 g ai/ha) averaged 82% control but thistle populations increased 28%. Dicamba (1140 g ae/ha) averaged 51% control with no effect on thistle density. Tank mixing half rates of clopyralid and dicamba gave 81% control and slightly reduced the population.

While the most economical treatment for two years of application is metsulfuron at $40/ha, this treatment had the least impact on the thistle population. The most costly treatment was two applications of clopyralid at $202/ha. Making an initial application of clopyralid and then changing to more economical treatments as needed seems to be a promising Canada thistle management strategy. If the synergistic response from diflufenzopyr is consistent and this becomes a labeled treatment, additional cost effective systems will be possible.