

Evaluation of in-crop, pre-harvest, and post-harvest applications, or combinations of these for Canada thistle control (2000)

In 1998, we initiated a study to determine the influence of in-crop and pre/post-harvest herbicide applications on long-term Canada thistle control. In-crop treatments included 2,4-D ester, Express + 2,4-D, Banvel + 2,4-D, Bronate, Curtail, and two experimental products. The number of Canada plants present in each plot was determined before the herbicides were applied. Roundup was then applied either pre-harvest or post-harvest following selected treatments. In 1999, Canada thistle plants in each plot were counted before any spring tillage operation. We can then compare the densities in 1999 to those prior to herbicide application in 1998 ([Figure 1](#)).

In spring 1999, we imposed similar herbicide treatments to the same plots described above. We marked the corners of the study to enable us to apply herbicide treatments to the same plot area as the previous year. As an example, we applied 2,4-D at the 5-leaf wheat stage (in-crop) followed by Roundup pre-harvest (PRE-H) to the same plots in 1998 and 1999. Some in-crop treatments differed slightly between 1998 and 1999, but the pre-harvest and post-harvest applications generally stayed the same. In spring 2000, we again counted the Canada thistle in order to make comparisons with initial densities in 1998 ([Figure 2](#)).

The pre-harvest and post-harvest Roundup applications were very effective in 1998. Both application timings generally reduced Canada thistle densities, whereas, densities increased with in-crop treatments of 2,4-D, Banvel + 2,4-D, Express + 2,4-D, or Bronate (i.e., were not followed with fall application). Canada thistle densities did not increase where Curtail was applied ([Figure 1](#)).

The pre-harvest Roundup application was also effective in 1999. However, there was insufficient Canada thistle regrowth in fall 1999 for an effective post-harvest Roundup application. Therefore, [Figure 1](#) shows that the 1998 post-harvest applications (POST-H 1, POST-H 2, and POST-H 3) were effective in reducing Canada thistle densities. On the other hand, [Figure 2](#) shows that the densities increased in these same treatments the next year. These plots had received an in-crop herbicide application, but the post-harvest application was ineffective due to the lack of Canada thistle regrowth following the 1999 harvest.

It appears that we will get more consistent Canada thistle control from pre-harvest applications compared to post-harvest simply because we cannot rely every year on having enough Canada thistle regrowth before a hard frost. However, if we get the crop off early and/or have a late fall, a post-harvest application can be very effective.

Fall applications can still be effective even after a light frost if the Canada thistle plants remain green (no chlorosis or necrosis) and daytime temperatures are at least in the 50s. After temperatures drop into the low 20s we should wait a couple days to see that the plants recover and are not severely damaged.

Table 1. Treatments applied in 1998 and 1999 for long term Canada thistle control.

	1998			1999		
Treatment ^a	In-Crop	Pre-H	Post-H	In-Crop	Pre-H	Post-H
Pre-H 1	2,4-D amine	Roundup		2,4-D amine	Roundup	
Pre-H 2	Clarity +	Roundup		Clarity +	Roundup	

	2,4-D ester			2,4-D ester		
Pre-H 3	Express + 2,4-D ester	Roundup		Express + 2,4-D ester	Roundup	
Pre-H 4	Bronate	Roundup		Bronate	Roundup	
Pre-H 5	Clarity + 2,4-D ester	Distinct (2 oz/A)		Clarity + 2,4-D ester	Distinct (6 oz/A)	
Post-H 1	Clarity + 2,4-D ester		Roundup	Clarity + 2,4-D ester		Roundup
Post-H 2	Express + 2,4-D ester		Roundup	Express + 2,4-D ester		Roundup
Post-H 3	Curtail		Roundup	Curtail		Roundup
Rosette 1	Fallow		Roundup (Sept.)	Express + 2,4-D ester		Roundup
Rosette 2	Fallow		Distinct (Sept.)	Express + 2,4-D ester		Roundup
In-Crop 1	Express + 2,4-D ester			Express + 2,4-D ester		
In-Crop 2	Curtail			Curtail		
In-Crop 3	Distinct			Express + 2,4-D ester + Starane		
In-Crop 4	Distinct + Paramount			Express + 2,4-D ester + Starane		Roundup
Untreated						

^aTreatments correspond to [Figures 1](#) and [2](#).

Figure 1. Canada thistle population in 1999 compared to 1998.

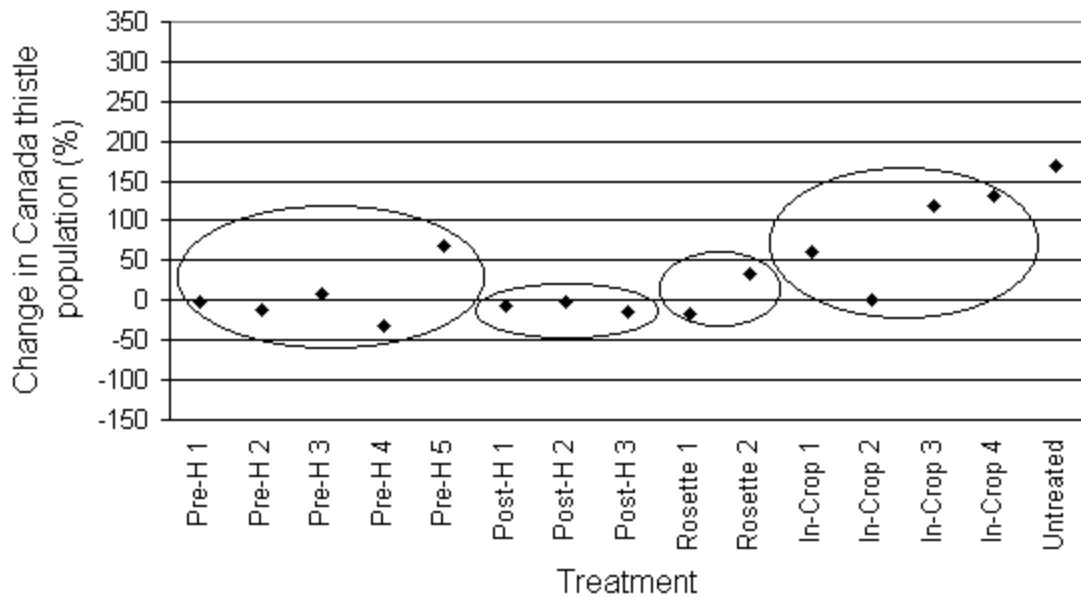


Figure 2. Canada thistle population in 2000 compared to 1998.

