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CANOLA ADVANTAGE

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Timing is critical to profitable weed control in canola

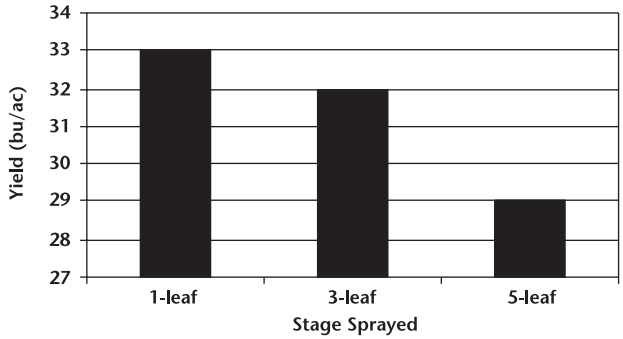
Determining proper timing of weed control is a critical question to answer correctly in order to produce a profitable canola crop. In earlier leaf stages, there can be a high cost associated with inadequate weed control. Young canola plants are very non-competitive and weeds will win the competition for nutrients and soil moisture. But once canola grows beyond the 4 to 6 leaf stage it is more competitive. Eventually it will allow less than 9 percent of full sunlight down to the soil surface, keeping late-emerging weeds in near darkness. Knowing when and how many times to remove weeds is important for profitability.

Controlling early weeds

The benefits of early weed removal are supported by numerous research studies across western Canada. Trials conducted at several locations over two years by the University of Manitoba, show weeds that emerged after the 4-6 leaf stage seldom impacted canola yields to a 10 percent yield loss level. Few weeds emerged after the 4-leaf stage and the few that did were spindly and weak.

Research in Alberta found the same trend: early spraying means higher yields (Figure 1). Results showed a 3 bu/ac yield increase by spraying at the 1-leaf versus the 5-leaf stage. Concentrate on early emerging weeds and worry less about the weeds that come up after the crop hits the 4-6 leaf stage.

Figure 1: Effect of Time of Weed Removal and Yield of Canola in Alberta Fields (average of all trials)



Reducing herbicide costs

Herbicide costs are becoming a larger part of crop production inputs each year. For example, it is common now for canola producers to apply a pre-emergent herbicide followed by one, to as many as three, post-emergent herbicide applications.

Eliminating an unnecessary herbicide application can significantly reduce input costs. For example, in a situation where grassy weeds in a canola crop are not heavy enough to significantly reduce crop yield, an application of a post-emergent herbicide to remove the grasses may not be necessary. By not spraying, the producer could save as much as $16 per acre, or more than $2500 on a quarter section[1].

Research conducted by AAFC scientists (John O'Donovan, Neil Harker, George Clayton and Robert Blackshaw[2]) looked at comparing glyphosate-resistant canola system with traditional herbicide regimes. The researchers found that there was no or little advantage to applying glyphosate twice compared with once in-crop (Table 1).

Table 1: Effect of in-crop glyphosphate treatments on weed and canola variables.

Herbicide	Weed Biomass kg/ha	Dockage %	Canola Yield kg/ha	Net Returns Canadian$/ha
Glyphosphate x2	136	7	1688	321
Glyphosphate x1	296	8	1722	354

Glyphosate x2 was applied twice at the two- to four- and five- to six-leaf of canola.
Glyphosphate x1 was applied once at the two- to four-leaf stage of canola.

Deciding to spray

A second application of glyphosate may be necessary in these situations:

- **to treat specific weeds found in patches (Canada thistle) or in low spots (wild oats).** Although field wide spraying may not be warranted, spot spraying may be necessary.
- **to control new invading weeds and patches of herbicide resistant weeds.** These should be controlled, regardless of their number, to prevent them from spreading.
- **to control flushing weeds and weeds that were not present at the first application of herbicide.** This will be more important for weeds that can successfully compete with canola.
- **to reduce dockage and downgrading.** The lost income from downgrading must be considered in the decision to spray because it may significantly lower the threshold that makes spraying worthwhile.
- **to limit weed seed return the following year.** It is impossible to predict weed densities in a field based on the number of weeds that set seed the previous year, but you can assume that there will be more weeds each year if control action has not been taken. If applied properly, herbicides can effectively control all but the most serious of weed densities, provided suitable herbicides are available for the subsequent crops in the rotation.

Spraying canola early will help give the crop a competitive edge. Today, with narrow margins and high input costs, consider taking an extra look at your field to determine weed densities and associated yield losses. Perhaps the second application of herbicide may not be warranted.

References

1. Spraying When It Pays: Applying Economic Thresholds to Weed Control. July 2003 **http://www.gov.mb.ca/agriculture/crops/weeds/fba05s00.html**

2. Harker, K.N., Clayton, G.W., O'Donovan, J.T., Blackshaw, R.E. (2005). Comparison of a Glyphosate-Resistant Canola (Brassica napus L.) System with Traditional Herbicide Regimes. Weed Technol. (In Press)

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