GROWING KNOWLEDGE®

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RESEARCH RESULTS

Roundup Ready® Soybeans & Volunteer Roundup Ready Canola

SPRING 2007

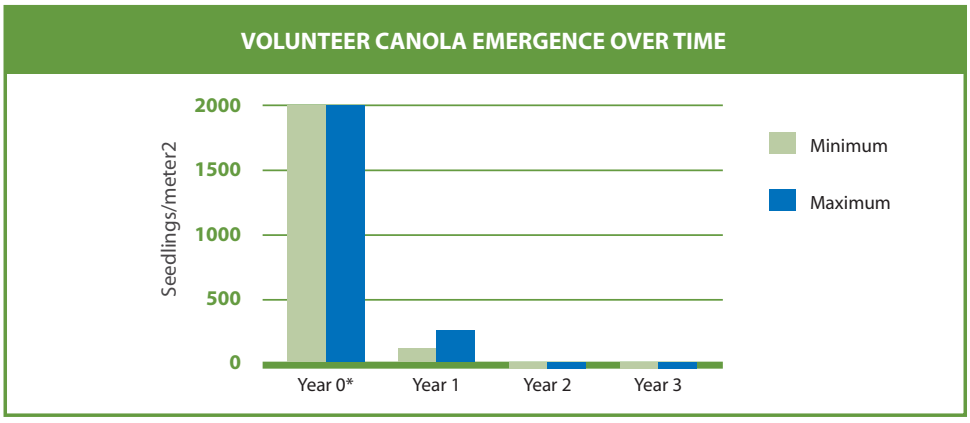
The following information provided is a summary of research results only and the included treatments are not registered for use or recommended for use by Monsanto Canada Inc. at this time.

Roundup Ready soybeans and Roundup Ready canola have been rapidly adopted in Canada because of the convenience, flexibility, efficiency and input savings they offer. Where these crops are grown in rotation, attention needs to be paid to the management of volunteer Roundup Ready canola since it will not be controlled by glyphosate. This bulletin summarizes research undertaken to develop control solutions for volunteer Roundup Ready canola in rotations that include Roundup Ready soybeans.

FACTORS AFFECTING VOLUNTEER CANOLA

- Canola seed can survive in the soil for as many as 4 years.
- Studies in Western Canada (Gulden et al, 2003; Harker et al, 2006) found that the majority of volunteer canola seedlings emerge the year after a canola crop (Figure 1).
- Volunteers can be managed through effective crop and herbicide rotation.
- The number of volunteers that occur can be affected by weather, time of harvest, level of previous volunteer canola control and other factors.
- Previous poor control of volunteer canola can add to the seed bank and can cause volunteers in future years.
- Following canola with a cereal crop can be an effective way to control volunteer canola. This maximizes herbicide options available pre-seed and in-crop.

FIGURE 1.



Year 0* is the starting seedbank with 2000 viable seeds/m2. University of Saskatchewan-Gulden et al, 2003.

Always read and follow pesticide label directions. Roundup Ready crops contain a gene that confers tolerance to glyphosate, the active ingredient in Roundup agricultural herbicides. Roundup Agricultural herbicides will kill crops that are not tolerant to glyphosate.

NEW PRE-SEED RESEARCH – CONTROL OF VOLUNTEER ROUNDUP READY CANOLA PRIOR TO SEEDING ROUNDUP READY SOYBEANS

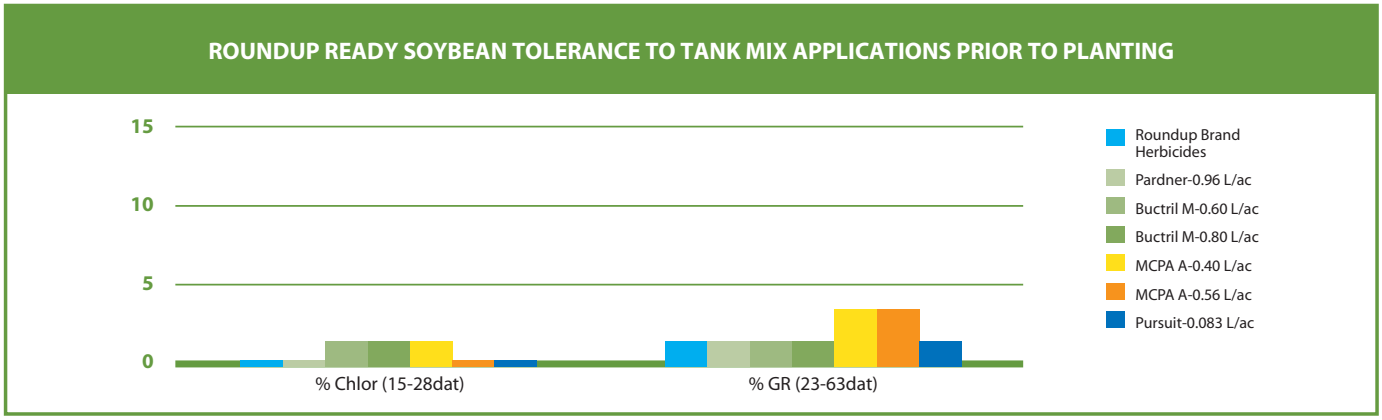
Pre-seed applications of Roundup agricultural herbicides are very popular for annual weed control. Volunteer canola, including volunteer Roundup Ready canola can be controlled prior to seeding a range of crops when using a tank mix of Roundup agricultural herbicides and the herbicides listed below.** For more information, refer to: Technical Bulletin–Volunteer Roundup Ready Canola Management.

Tank mixes with Roundup agricultural herbicides applied pre-seed to Roundup Ready soybeans were tested and had acceptable crop safety at twice the anticipated use rates (Figures 2 and 3).

	LITRES/ACRE	CANOLA STAGE
MCPA Amine	0.20-0.40	1-4 leaf
Buctril M	0.20-0.40	1-4 leaf
Pardner®	0.50	1-4 leaf

**Refer to Roundup brand product label for registered tank mixes and crops

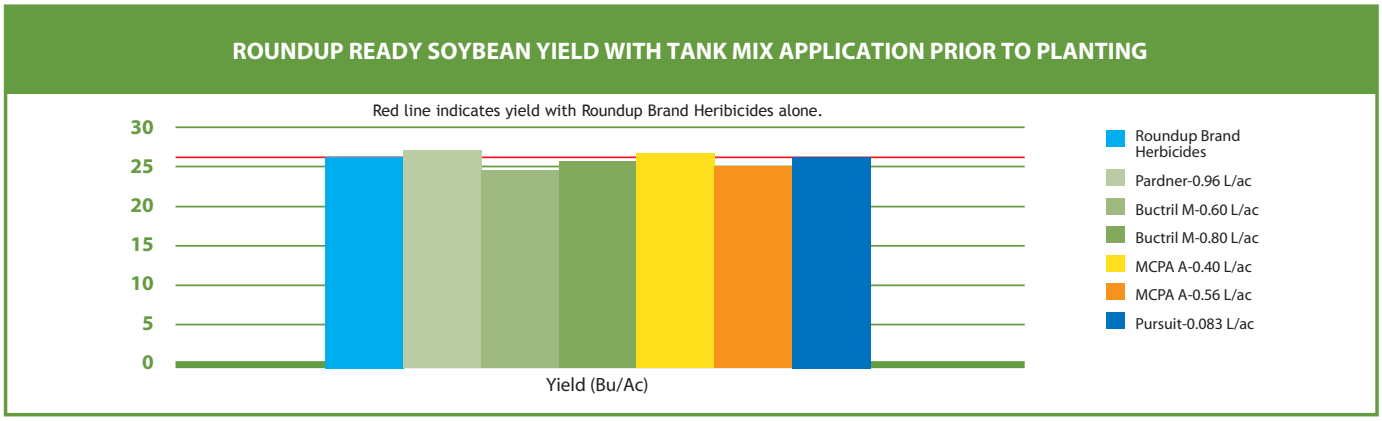
FIGURE 2



Note: % chor = % chlorosis (yellowing); % GR = % Growth Reduction, dat = days after treatment.

Source: Monsanto Research 2002-2005.

FIGURE 3



Tank mixtures: The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Monsanto has not tested all tank mix product formulations for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance.

Source: Monsanto Research 2002-2005.

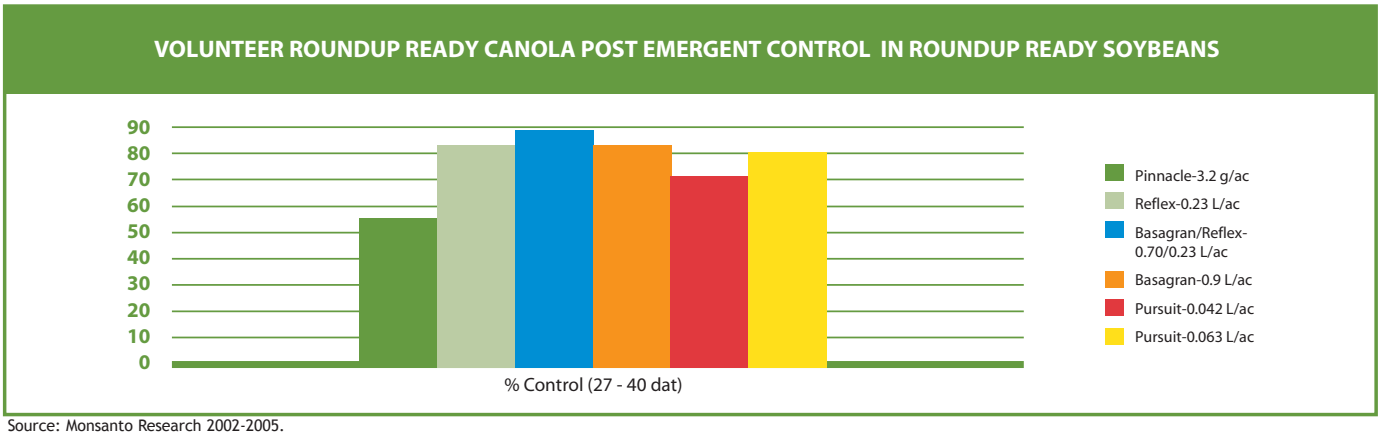
NEW IN CROP RESEARCH - CONTROL OF VOLUNTEER ROUNDUP READY CANOLA IN ROUNDUP READY SOYBEANS

Field trials were initiated in Manitoba using herbicides registered for use in soybeans in Canada. These products were tank mixed with Roundup agricultural herbicides, at label rates and applied at recommended leaf stages by the partner label (partial list of partners follows).

Research found that some tank mixes control volunteer Roundup Ready canola (Figure 4) and have acceptable crop safety (Figure 5).

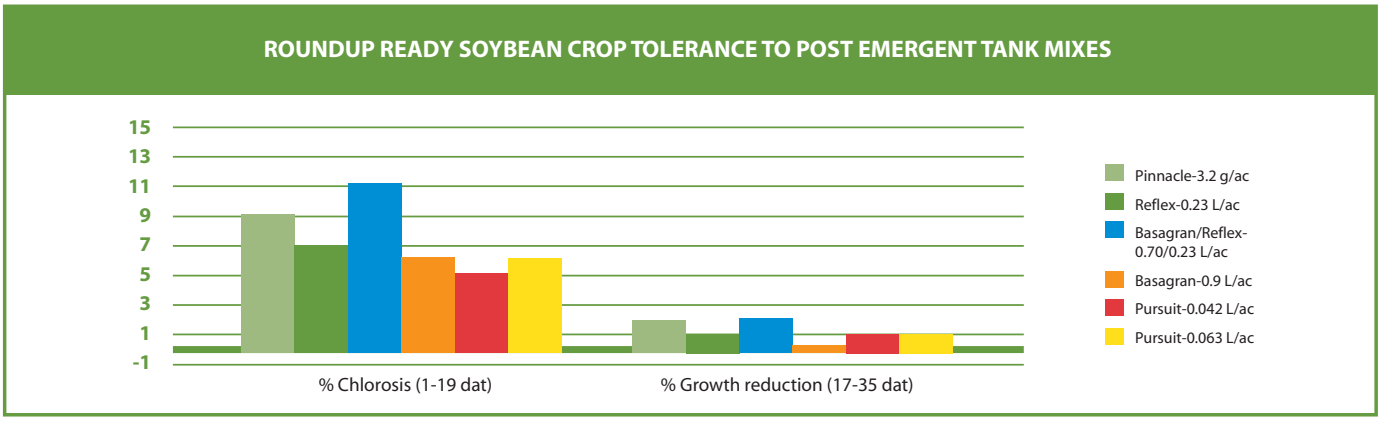
	LITRES/ACRE	CANOLA STAGE
Basagran	0.9	1-4 leaf
Basagran + Reflex®	0.7 + 0.23	1-4 leaf
Reflex	0.23	1-4 leaf
Pursuit®	0.042 - 0.063	1-4 leaf

FIGURE 4



Source: Monsanto Research 2002-2005.

FIGURE 5



Source: Monsanto Research 2002-2005.

SUMMARY

- The majority of volunteer canola seedlings emerge the year after a canola crop and these volunteers can be managed through effective crop and herbicide rotation. Following canola with a cereal crop can be an effective way to control volunteer canola. This maximizes herbicide options available pre-seed and in-crop
- Volunteer Roundup Ready canola can be controlled with tank mix products before and in soybeans. Volunteer canola, like many other plants, gets tougher to control as they get larger so anytime canola needs to be controlled, timing applications to early canola stages (i.e. < 4 leaf) would be desirable.

Roundup Ready soybean and Roundup Ready canola both offer benefits that make these crops attractive to grow and can be grown in a planned rotation successfully.

NOTES

REFERENCES

1. **Gulden, R.H., S.J. Shirtliffe, and A.G. Thomas**. 2003. Secondary seed dormancy prolongs persistence of volunteer canola in Western Canada. Weed Sci. 51:904-913.
2. **Harker, K.N., G.W. Clayton, R.E. Blackshaw, J.T. O'Donovan, E. N. Johnson, Y. Gan, F.A. Holm, K.L. Sapsford, R. B. Irvine and R.C. Van Acker**. 2006. Persistence of glyphosate-resistant canola in Western Canadian cropping systems. Agron. J. 98:107-119.

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