Understanding Volunteer Canola

- Like other weeds found in a cultivated crop, volunteer canola will compete with a crop for nutrients, water and sunlight.

- In areas where canola is grown, volunteer canola can act as a host for diseases such as blackleg, clubroot and sclerotinia so that the pathogen remains in the field to act on future canola crops.

- As with other weeds, early control of volunteer canola is important to minimize the impact that it can have on yield of the current crop.

- Volunteer canola that emerges prior to crop emergence or up to 2.5 weeks after crop emergence can have an impact on crop yield. Weeds that emerge at later stages of the crop have less impact on crop yield but may contribute to additional seed returned to the seed bank.

Managing Volunteer Canola

- The most important step in reducing volunteer canola in a field is harvest management of canola. Up to 10% losses of canola at harvest have been documented (Gulden et al., 2003). With fewer seeds lost at harvest, there is less seed on that ground that can grow into volunteer canola.

- The majority of all volunteer canola is eliminated from the seed bank within two years of when canola was grown. Most of the seed will germinate the year following the canola crop.

Volunteer Canola in a canola crop as a result of pre-harvest shatter loss.

Ways to Manage Volunteer Canola

- Several herbicide timings are available for volunteer canola control
  - Pre-seed
  - In-crop
  - Pre-Harvest
  - Post-Harvest

- Integrated Pest Management strategies can be effective methods of weed control
  - Crop rotation
  - Seeding density / row spacing
  - Canola harvest management (reduce losses)
  - Tillage

Volunteer canola emergence over time. Gulden et al, 2003
*Year 0 is the year of planting with 2000 viable seeds/m²

- Leaving a minimum 1-2 year break between canola crops provides an excellent opportunity to control volunteers prior to seeding canola again

- There are many herbicides available for use pre-seed, in-crop, pre-harvest and post harvest that will control volunteer canola in cereals, pulses and flax crops

- Where there is a high weed population in subsequent crops, the use of a herbicide with residual soil properties may be considered

- Smaller canola plants (<4 leaf) are the easiest to control with herbicide, so targeting proper weed staging may improve herbicide performance.

- After harvesting a canola crop, it is preferred to leave harvest loses close to or on the soil surface. If the seeds germinate prior to winter they will freeze. Keeping seeds close to the soil surface also helps decrease chances for secondary dormancy in canola.

- A light tillage after harvest has been shown to stimulate canola seed germination in the fall.
Herbicide Control Options

- Optimal control of volunteer canola can be obtained using a pre-seed herbicide application as well as an in-crop herbicide application.
- Adding a tank-mix partner to your glyphosate that is able to control volunteer canola will not only add to your weed control, it will also provide an opportunity to mix herbicide modes of action and reduce the risk of herbicide resistant weed development.
- Products that may be used to control volunteer canola prior to seeding and/or prior to crop emergence include:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Pre-Seed or Pre-Emergent Herbicide Options**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Aim®, 2,4-D, Blackhawk™, Buctril M®, Cleanstart®, Express® SG, Express® PRO, Express® FX, Florsulam®, Heat®, Inferno® Duo, Ko-Act™, Korrrex™, MCPA, Pardner®</td>
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<tr>
<td>Soybean</td>
<td>Cleanstart®, Aim®, Express®, Heat®</td>
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<tr>
<td>Field Pea*</td>
<td>Cleanstart®, Aim®, Express®, Heat®</td>
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<tr>
<td>Flax</td>
<td>Cleanstart®, Aim®, Buctril M®, MCPA</td>
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<tr>
<td>Corn</td>
<td>Cleanstart®, Aim®, Heat®, Battalion® (Battalion® registered in the Red River Valley in MB ONLY)</td>
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</tbody>
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*Not all pulse crops have the same products registered.
**Always consult Label for crop safety prior to using.

Pre-Harvest Weed Control

- Under the right weather conditions, volunteer canola may emerge following in-crop herbicide applications.
- Yield is not greatly impacted by weeds at this time.
- Herbicides such as Aim®, Cleanstart®, RegionOne®, and Heat® are registered for use pre-harvest (see label for crops registered).
- Aim® and Heat® are pre-harvest tank-mix partners with glyphosate
- Efficacy of post-harvest applications can be impacted by weed size, water volume and coverage.

Why Grow Glyphosate Tolerant Canola

- No one herbicide tolerant system may fit all fields. There are several factors to consider when choosing a system.

  **Weed Control**

  - Weed control is the number one factor to consider when choosing a herbicide tolerant canola system.
  - A glyphosate tolerant herbicide system provides an opportunity to successfully control grassy weeds, difficult to control weeds such as cleavers as well as many winter annual and perennial weed species.
  - Broad-spectrum weed control found with glyphosate reduces the need for expensive tank-mix partners to improve weed control.
  - Glyphosate is able to be tank-mixed with other herbicide products pre-seed, pre-harvest or post-harvest to allow for opportunity to reduce the risk of glyphosate resistance.
  - Glyphosate can be aerially applied as necessary for weed control during times when getting the sprayer in the field is not always possible.

  **Non-Weed Factors**

  - Factors such as hybrid performance, harvestability, disease resistance and available traits are additional factors to be taken into consideration.
  - Consistently high yielding glyphosate tolerant hybrids are available across Western Canada.
  - Protector HarvestMax hybrids have good harvestability and a strong ability to hold pods and reduce shatter to allow for reduced canola seed going back into the seed bank.
  - Glyphosate tolerant hybrids have a variety of products that are able to help manage canola diseases such as clubroot, sclerotinia and blackleg.
  - Resistant weed management is an important consideration in managing weeds. Glyphosate has been shown to be applied less on fields where glyphosate tolerant canola is grown vs. glufosinate tolerant canola.
  - Through the use of proper herbicide rotations and tank-mix partners, risk for development of glyphosate resistant weeds can be reduced.
  - Using many different management practices such as diverse rotations, higher seeding rates, varied seeding dates, shallow seeding depth, tillage, direct seeding, adequate fertility, protection from disease and insects allows for the best way to decrease the impact and spread of weeds, including volunteer canola.