



THE IMPORTANCE OF CANOLA SYSTEM ROTATIONS

FARM KNOWLEDGE

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Overview

Importance of canola rotations.

- Benefits of canola system rotations
- Impact of volunteer canola on yield
- Production contracts
- Strategies for crop planning and diversity

Did you know?

You can help maximize your canola's yield and profitability simply by rotating your canola systems.





Why it matters.

Rotating canola systems has a number of benefits, including:

- Better weed control
- Management of resistance in weeds and diseases
- In-crop herbicides with different modes of action
- Increased yield potential
- Opportunity for production contracts

Source: <http://www.farms.com/ag-industry-news/canola-system-rotation-now-more-important-than-ever-548.aspx>

Volunteer canola – hosts for disease.

Volunteer canola can host diseases and even pests (e.g. flea beetle).

- As seeds of canola volunteers are not treated, they can contribute to seed and seedling diseases in the soil
- Growth is clustered around last season's windrowed areas, leading to lodging and increased disease pressure
- Can host diseases in non-canola cropping years (e.g. sclerotinia, clubroot, blackleg)
- Can spread diseases to other susceptible canola volunteers

Blackleg in canola



Source: AgSolutions® Performance Trials, Western Canada, 2010

Reduced yield potential.

Volunteer canola does not contribute to a canola crop's yield potential.

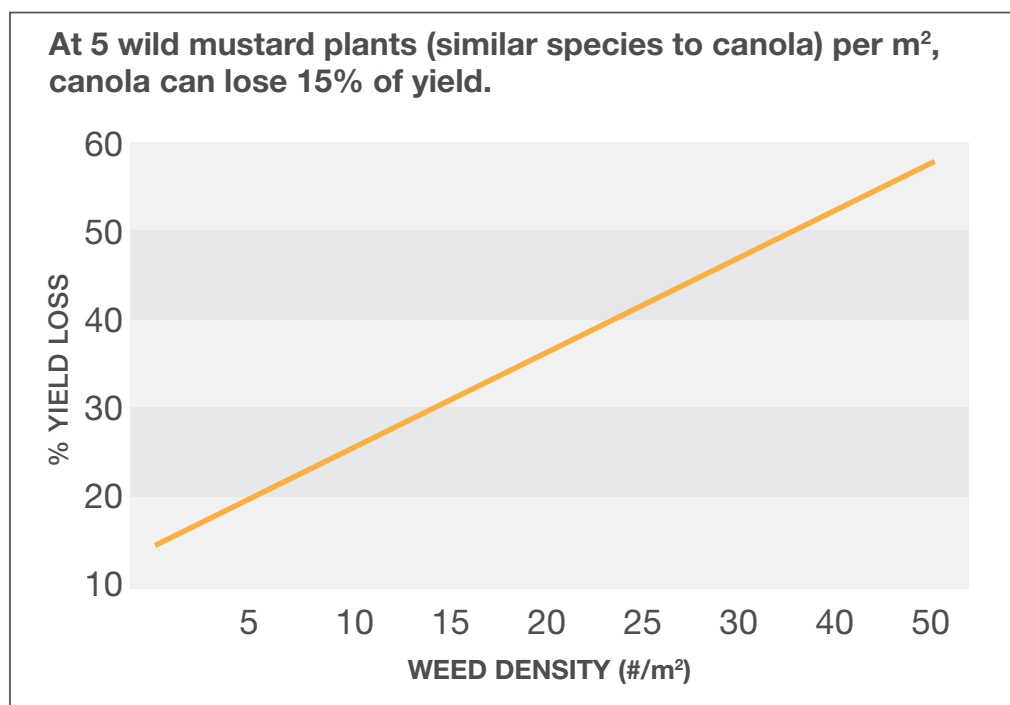
- They compete with the crop for nutrients, light and water
- Difficult to time disease control and harvest due to different stages of growth
- Second generation (F2) seed yield around 13% less than the original hybrids

Sources: 1. <http://www.canolawatch.org/2010/05/17/rotate-herbicide-systems-in-tight-rotations/>
2. www.canolacouncil.org/canola-encyclopedia/weeds/weed-management/#volunteer-canola.



Wild mustard example.

Due to its similarity, wild mustard provides an example of yield loss as a result of volunteer canola. See how its weed density and pressure affects yield to generate an estimate of yield loss for a canola crop.



Source: Canola Council of Canada, Canola Growers Manual, 2011.

Production contracts.

With consumers moving towards healthier oil choices, many grain-marketing companies now offer production contracts specifically for growing certain **Clearfield**® canola varieties.

Rotating into different canola systems:

- Provides opportunities for production contracts
- Reduces contamination by volunteer canola that can otherwise impact premiums from production contracts

Current Grain Contractors

- ADM
- Bunge
- Cargill
- Louis Dreyfus
- Viterra



Managing volunteers.

To control volunteer canola, consider and plan for the use of alternative canola systems:

- Keep records of herbicide-tolerant traits grown on each field to determine the herbicide tolerance of volunteer canola
- Rotate canola systems to use different herbicidal modes of action
 - E.g. Roundup Ready® canola followed by **Clearfield** canola
- Choose a canola system with a herbicide that will control emerged canola volunteers, allowing for post-emergent control even if the opportunity for a pre-seed burndown was missed

Canola crop planning and diversity.

“Rotations for weed management

For many canola growers, their most challenging weed has become volunteer canola, especially with tighter canola rotations. Growers may need to consider a rotation of herbicide-tolerance systems as a method to help manage the volunteer canola seed bank...”

Source: <http://www.canolawatch.org/2011/12/08/rotations-for-weed-management/>



Clearfield canola.

Including **Clearfield** canola in your rotation can help maximize your crop's yield and profitability.

When applied with Ares® herbicide, the Clearfield canola system:

- Provides an alternative mode of action for controlling volunteer canola in tight canola rotations
- Is the only one-pass canola system that delivers reliable post-emergent control of grasses and broadleaf weeds, including subsequent flushes
- Has a wide window of application on both crop and weeds – 2 to 7 leaf canola
- Provides an opportunity for substantial returns from production contracts specific to **Clearfield** canola

Ares herbicide.

When applied in-crop on Clearfield canola, Ares herbicide provides excellent control of:

- Volunteer non-**Clearfield** canola, including Roundup Ready varieties
- Wild oats
- Wild buckwheat
- Stinkweed
- Cleavers

Ares on volunteer Roundup Ready® canola, 14 days after application



Source: BASF Research Trials

Ares technical information.

ACTIVE INGREDIENTS	ONE CASE CONTAINS	CROPS
Imazamox (Group 2), Imazapyr (Group 2)	9.8 L jug of Ares 8.1 L jug of Merge® adjuvant One case treats 40 acres.	Clearfield Canola (2 to 7 leaf stage) See label for complete list of crops.
WEEDS CONTROLLED		
<p>Selected broadleaf weeds (cotyledon to 4 leaf stage) Volunteer canola,^{1,2} chickweed,¹ cleavers (1 to 4 whorls),¹ lamb's quarters (cotyledon to 6 leaf), redroot pigweed,¹ round-leaved mallow, Russian thistle, shepherd's-purse,¹ stinkweed,¹ wild buckwheat (cotyledon to 6 leaf), wild mustard¹</p> <p>Selected grasses (1 to 6 leaf stage) Green foxtail,¹ spring germinating Japanese brome grass (1 to 4 leaf), volunteer barley, volunteer durum wheat, volunteer spring wheat,³ volunteer tame oats, wild oats, yellow foxtail</p> <p>See label for complete list of weeds controlled.</p> <p><small>¹ Multiple flushing weeds. ² Non-Clearfield canola varieties. ³ Non-imazamox-tolerant varieties only.</small></p>		

Peace River region.

Ares is only registered for use in the Prairie provinces.

- Not registered for use in the Peace River region of Alberta or British Columbia

Solo® ADV herbicide

- Can be used as an alternative treatment in this region
- Reliable control of tough weeds
- Excellent re-cropping flexibility

Weed resistance management.

Integrate multiple practices for optimal resistance management:

- Rotate both the crop and the herbicide Group used in a field
- Select vigorous and competitive crop varieties
- Seed at an optimal rate, decrease row spacing and seed early, to outcompete weeds
- Apply herbicides that contain multiple modes of effective action

Multiple modes of effective action.

- Can be employed through tank mixes or herbicides that contain more than one mode of action
- The most effective means of reducing resistance development

Facet™ L

- Superior control of cleavers, including resistant biotypes
- Widest window of crop application, from pre-seed to 6 leaf
- Versatile rate range
- Flexible tank-mix partner for enhanced weed control

Facet L technical information.

ACTIVE INGREDIENTS	ONE CASE CONTAINS
<p>Quinclorac (Group 4 and 26)</p>	<p>2 x 9.07 L jugs of Facet L One case treats 65 to 160 acres, depending on rate used.</p>
CROPS	
<p>Canola (pre-seed/pre-emergence to 6 leaf) Wheat (spring and durum) (1 to 5 leaf) Barley (spring) (1 to 4 leaf) Canary seed (3 to 5 leaf) See label for complete list of crops.</p>	
WEEDS CONTROLLED	
<p>Selected broadleaf weeds Cleavers (1 to 3 whorls),¹ sow thistle (annual and perennial) (2 to 6 leaf)²</p> <p>Selected grasses Barnyard grass (1 to 5 leaf), green foxtail (up to 2 tillers),³ volunteer flax (1 to 8 cm)</p> <p><small>¹ Suppression only. ² For control of secondary flushes, use higher application rate of 279 ml/ac (690 ml/ha). ³ For suppression of secondary flushes, use higher application rate of 227 ml/ac (560 ml/ha).</small></p>	



Summary.

Rotating canola systems can maximize returns by providing:

- Another mode of action to manage herbicide resistance in weeds
- Control of volunteer canola, which can host diseases and pests as well as compete for water, nutrition and sunlight
- Opportunities to earn substantial returns through production contracts

When teamed up, **Clearfield** canola and Ares system herbicide provide control of volunteer canola from other leading systems.

THANK YOU FOR PARTICIPATING
FARM KNOWLEDGE