Canola Pest Control

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University of Idaho
College of Agricultural and Life Sciences
WSU Oilseed Cropping Systems Workshop
Thursday Feb 2, 2017
8:00 am - 5:00 pm
Registration begins at 7:30 a.m.
Quality Inn and Suites
700 Port Drive, Clarkston, WA
$20 registration included lunch

http://css.wsu.edu/biofuels/
http://www.cals.uidaho.edu/brassica/
Online Information

University of Idaho Brassica Breeding
WSU Biofuels Website
PNW Pest Management Handbooks
Pacific Coast Canola Website
U.S. Canola Association Website
Canadian Canola Council Website
Canola Encyclopedia Website
Before seeding...
Weed Control

Limited selection of herbicides

Good agronomic practices
  Preplant glyphosate
  Good plant establishment
    firm seed bed, packers on drill
    appropriate planting dates

Competitive stand
  moderate seeding rate
  good insect control
Herbicide-Resistant Canola

Roundup Ready Canola
- High yielding spring varieties
- Broad spectrum weed control

Liberty Link
- High yielding varieties
- Alternate mode of action
- Possibly weak on some grasses
- Tank mix with grass herbicide
Herbicide-Resistant Canola

Clearfield Canola

- fewer plant back restrictions
- tolerant to imidazolinone herbicides
- often cross-tolerant to sulfonyleurea herbicides
- non-GMO
- very common mode of action (Group 2)
- overuse increases chance of resistant weeds
Traditional Weed Control

Preplant, Incorporated
Sonolan 10G or HFP \((\text{ethalfluralin})\)
Treflan TR-10, Triflurex HFP \((\text{trifluralin})\)

Postemergence Grassy Weeds
Select 2EC \((\text{clethodim})\)
Assure II, Targa \((\text{quizalofop P-ethyl})\)
Poast \((\text{sethoxydim})\)

Postemergence Canada Thistle
Stinger, Clopyr Ag \((\text{clopyralid})\)
Flea Beetle

Crucifer Flea Beetle
Striped Flea Beetle
Hop Flea Beetle
Seed Treatments

- Helix Xtra/Cruiser 5FS
- Prosper 400
- Helix Vibrance
- Prosper Evergol
Winter Canola, fall
Grasshoppers

Can be a problem in new winter canola stands in the late summer.

Scout your fields regularly...
Foliar Insecticides

$\text{lambda-cyhalothrin}$ (Warrior...)
$\text{bifenthrin}$ (Capture 2EC...)
$\text{zeta-cypermethrin}$ (Mustang Maxx...)
$\text{chlorantraniliprole,l-cyhalothrin}$ (Besiege)
$\text{deltamethrin}$ (Battalion 0.2 EC...)
$\text{gamma-cyhalothrin}$ (Declare...)
$\text{flonicamid}$ (Beleaf 50 SG aphidicide)
$\text{sulfoxaflor}$ (Transform WG aphidicide)
## Fall-applied Insecticide Efficacy - 2011

<table>
<thead>
<tr>
<th>Insecticide Treatment</th>
<th>None</th>
<th>Seed Treatment</th>
<th>Foliar</th>
<th>Seed &amp; Foliar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>1.21(^c)</td>
<td>5.31(^b)</td>
<td>5.69(^b)</td>
<td>7.68(^a)</td>
</tr>
<tr>
<td>Yield</td>
<td>3,425</td>
<td>3,424</td>
<td>3,451</td>
<td>3,348</td>
</tr>
</tbody>
</table>

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*1 to 9*  

*lbs. per acre*
## Fall-applied Insecticide Effect on Yield

<table>
<thead>
<tr>
<th>Year</th>
<th>Insecticide Treatment</th>
<th>None</th>
<th>Seed Treatment</th>
<th>Foliar</th>
<th>Seed &amp; Foliar</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4,276</td>
<td>4,499</td>
<td>4,143</td>
<td>3,925</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1,503</td>
<td>1,592</td>
<td>1,648</td>
<td>1,652</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>1,251&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1,474&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1,666&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1,676&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>
Rhizoctonia Stem and Root Rot

Caused by *Rhizoctonia solani* AG 2-1
(different that the wheat race)

-Damping-off
(seedlings do not emerge)

-Wirestem
(stem girdling in young seedlings)

-Root rot
**Rhizoctonia**

Control

Worst in fallow-planted winter canola?

Crop rotation?

- Canola race harbored by other crops.

New seed treatments (with insecticides)

- Prosper
- Evergol
- Helix Vibrance
Blackleg

Caused by a seed borne fungus. *Leptosphaeria maculans* aka *Phoma lingam*

Once it is established, can spread by splash or airborne spores.

Survives in crop residue, volunteers and weeds for years.
Blackleg Life Cycle

- Infected seeds give rise to infected seedlings
- Infected cotyledons
- Infected stubble produces air-borne spores for several seasons capable of travelling long distances
- Spores from leaf spots and stem cankers infect pods
- Stem canker weakens tissues
- Internal spread of fungus in vascular tissue from cotyledons and rosette leaves to stem base
- Spores from leaf spots spread infection short distances by rain splash
Blackleg Symptoms
Blackleg Management

**Prevention** - Required by Idaho Law.

Start with disease-free, certified seed.  
*(Phyto-sanitary certificate required for seed imported to Idaho.)*

Use fungicidal seed treatments.
Blackleg Management

Tillage - bury residue

Crop rotation - 3 years between canola or any mustard family crop.

Includes cover crops - turnips, radish, mustards, etc.
Blackleg Management

- Use resistant cultivars.

- Foliar fungicides can reduce in-crop spread when present.

*Tilt (3), Quadris (11), Quilt (3+11), Headline (11), Priaxor Xemium (7+11), Approach (11), Proline 480 (3)*
Blackleg Life Cycle

Stem canker weakens tissues.

Spores from leaf spots and stem cankers.

Infected pods.

Infected seeds give rise to infected seedlings.

Infected stubble produces air-borne spores for several seasons capable of travelling long distances.

Infected cotyledons.

Spores from leaf spots spread by rain splash.

Internal spread of fungus in vascular tissue from cotyledons and rosette leaves to stem base.
Blackleg Management

- Foliar fungicides can reduce in-crop spread.
- Protection from new infection only.
- Yield loss?

Tilt (3), Quadris (11), Quilt (3+11), Headline (11), Priaxor Xemium (7+11), Approach (11), Proline 480 (3)
Cabbage Seedpod Weevil
Cabbage Seedpod Weevil

Primarily a winter canola pest.
Threshold is 3 to 4 weevils per 180° sweep.
Sclerotinia White Mold or Stem Rot

Infects from sclerotia in field and by spores that are ejected and land on flower petals.

Needs wet and warm conditions.

Winter Canola
Irrigated Canola
Sclerotinia Management

Control:

Use disease-free seed

4-year crop rotation from broadleaf plants

Fungicides

Apply during flowering

Only if infection rate is expected to be $>20\%$

or score is greater than 40

Labeled fungicides

Endura, Quadris Flowable

Headline is NOT labeled
### Sclerotinia Stem Rot Checklist

*For each risk factor, circle the risk points that apply to your field.*

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Possible Answers</th>
<th>Risk Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Years Since Last Canola Crop</strong></td>
<td>More than six years</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Three to six years</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>One to two years</td>
<td>10</td>
</tr>
<tr>
<td><strong>Disease Incidence in Last Host Crop</strong></td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Low (1 to 10%)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Moderate (11 to 30%)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>High (31 to 100%)</td>
<td>15</td>
</tr>
<tr>
<td><strong>Crop Density</strong></td>
<td>Low</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>10</td>
</tr>
<tr>
<td><strong>Rain in the Last Two Weeks</strong></td>
<td>Less than 10 mm (0.4&quot;)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>10 to 30 mm (0.4 to 1.2&quot;)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>More than 30 mm (1.2&quot;)</td>
<td>10</td>
</tr>
<tr>
<td><strong>Weather Forecast</strong></td>
<td>High pressure</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Variable</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Low pressure</td>
<td>15</td>
</tr>
<tr>
<td><strong>Regional Risk for Apothecia Development</strong></td>
<td>None found</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Low numbers</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>High numbers</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Risk Points for All Risk Factors**
Spring Canola
Seed Treatments

Helix Xtra/Cruiser 5FS
Prosper 400
Helix Vibrance
Prosper Evergol
Flea Beetle
Rescue foliar applications

Scout during wet springs even with seed trts.
Scout every 2 to 3 days in warm weather.
Spray at 20% - 25% defoliation.
Youtube “Flea beetle management.”
Cutworms

Potentially devastating to seedlings.
Cutworms are nocturnal.

Scout regularly at crop emergence.

Foliar insecticides available.  
Spray late evening, at night,  
or early morning before sunrise.
Diamondback Moth

Diamondback Moth Larvae
10-15 per sq ft, or 10 per plant
Blackleg Life Cycle

1. Infected seeds give rise to infected seedlings.
2. Infected cotyledons.
3. Infected stubble produces air-borne spores for several seasons capable of travelling long distances.
4. Spores from leaf spots spread infection short distances by rain splash.
5. Spores from leaf spots infect pods.
7. Internal spread of fungus in vascular tissue from cotyledons and rosette leaves to stem base.
8. Infected pods.
Cabbage Seedpod Weevil
Cabbage Seedpod Weevil

Don’t spray for new adults in July.
Cabbage Aphid
Cabbage Aphid

Threshold
- 1 in 5 flower stalks infested.
- Look among unopened flower buds.
Cabbage Aphid
Online Information

U.S. Canola Growers Manual
www.uscanola.com/site/epage/102387_956.htm

PNW Pest Management Handbooks
https://pnwhandbooks.org/

Canola Encyclopedia
www.canolacouncil.org/canola-encyclopedia/
Online Information

Canola Council of Canada Canola Growers Manual
www.canolacouncil.org/crop-production/canola-grower's-manual-contents/

Canola Council of Canada Fact Sheets
http://www.canolacouncil.org/publication-resources/print-resources/crop-production-resources/

Canola Watch
http://www.canolawatch.org/
Questions?

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http://www.cals.uidaho.edu/brassica/
Herbicide Residue Injury (Normal Plants)
Pursuit Residue Injury
Sulfonylurea Residue Injury
Sulfur Deficiency
Frost Injury
Herbicide Drift
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