DOWNLOAD THE 2021 CORTEVA AGRISCIENCE FIELD GUIDE APP

The Corteva Agriscience 2021 Field Guide app showcases our expanded portfolio of Canadian crop protection products and is designed to help you get the most out of every acre. It’s a quick access, easy and user-friendly tool that assists in choosing the right high performing products as well as the right order to tank-mix them.

AT THE CLICK OF A BUTTON HAVE ACCESS TO:

- Crop protection options
- Herbicide product quick facts
- Key product use information
- Insects and disease control solutions
- Tank mix order tool
- V/V% Calculator
- Information about our Corteva Flex+ Rewards program
- Links to online guides and info on our digital tools

Our new 2021 App is available March 2021, scan the code with your mobile device camera to find out more and easily download.
Focus on productivity, not spreadsheets. With Granular Business, you can run every aspect of your operation and keep your focus where it needs to be — on building efficiencies on your farm instead of tracking down scale tickets. Organize and more deeply analyze critical data and records from both field and office, in one place. Partner with your dedicated Granular Customer Success Manager (CSM) to review specific business goals, and to ensure you realize the most value from your investment.

Is it right for your farm?

☐ Frustrated by the number of spreadsheets and updates required to run your farm?
☐ Want useful, workable financial information at a detailed crop and field level?
☐ Are you looking at the future, including succession planning?
☐ Seeking easy reporting options for better landlord and lender negotiations?
☐ Require simpler personnel tracking and task management?
Granular Business

What to Expect from Granular Business

Simplify Recordkeeping
Use one system to consolidate and reconcile field and office data and records.

Save Money on Inputs
Use planning tools to budget inputs more accurately and take advantage of favourable pricing.

Track Inventory
Manage grain and chemical inventories at all times, wherever you are.

Identify Efficiencies & Cost-Savings
Use simple planning and forecasting tools to see profit and loss.

Improve Teamwork
Streamline team communication. Assign and monitor work orders from anywhere, on any device.

Minimize Data Entry
Add on Professional Services to ensure efficient and accurate input of your data.
**Eligible program period:** September 01, 2020 - August 31, 2021

**EARLY BOOK**
Book by **March 15, 2021**
(Early book starting Sept 1, 2020)

**EARLY TAKE**
Pick up by **April 30, 2021**
(Early take starting Sept 1, 2020)

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### PROGRAM TIERS

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<th>2 Categories</th>
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<th>4 or More Categories</th>
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<td>Plus Max</td>
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**CORE**
$5,000 - $24,999 MSRP

**CORE PLUS**
$25,000 - $99,999 MSRP or 300 acres of seed

**PLUS MAX**
> $100,000 MSRP or 800 acres of seed

---

**SEED BOOSTER BONUS**
(Min. 300 acres)

1%

When you purchase Pioneer® brand seed and/or Brevant™ seeds, you save on your CP purchases and will receive an additional eligible category.

---

**LUMIVIA™ CPL BONUS**
**SAVE 30% ($459/jug)**
on Lumivia™ CPL matching acres with grass and broadleaf tank mixes and/or cross spectrum products. See next page for eligible brands. (min. 300 acres).
2021 Flex+ Rewards Grower Program

Program Savings

- 5%
- 12%
- 1%
- Max Savings: 18%
**ELIGIBLE CATEGORIES**
Up to 18% rebate paid on these products. (Min 300 ac/category)

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<tr>
<th>PRE-SEED</th>
<th>GRASS</th>
<th>BROADLEAF</th>
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<td>Liquid Achieve™ SC</td>
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**CROSS SPECTRUM™**
(Counts as 2 categories)

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*Cross Spectrum counts as 2 categories, but maximum 3 categories when purchasing cross spectrum, grass and broadleaf.

**Bonus Seed Category is a category and tier builder, but is not eligible for a rebate in this program.

Foundation does not count as a category.

Products in Foundation and the Bonus Seed category do not qualify for the Early Book and Early Take bonus.

†This product is currently being assessed for registration under the Pest Control Products Act. It cannot be manufactured, imported, distributed, or used in Canada at this time, unless explicit authorization has been obtained from Health Canada to use this product for the purpose of conducting research under the Pest Control Products Regulations.
### 2021 Flex+ Rewards Grower Program

<table>
<thead>
<tr>
<th>FUNGICIDE</th>
<th>CANOLA &amp; CORN HERBICIDES</th>
<th>BONUS SEED CATEGORY**</th>
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<tr>
<td>Acapela™</td>
<td>Accent™</td>
<td>Brevant™ seeds</td>
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<td>Cerefit™</td>
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### FOUNDATION (TIER BUILDER)

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# Herbicides by Crop

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## Canola

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## Soybeans

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## Corn

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### Oats

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### Range & Pasture

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<td>Reclaim™ II</td>
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<td>Restore™ II</td>
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</table>
Korrex™ II herbicide delivers superior pre-seed control of kochia, including Group 2 and 9 resistant biotypes, as well as 21 other tough broadleaf weeds.

**WHY USE KORREX II HERBICIDE?**
- Kochia control. Superior pre-seed control of kochia, including Group 2 and Group 9 resistant biotypes.
- Flexible mixing options. Easy-mixing tank additive for any glyphosate.
- Broad-spectrum broadleaf weed control, including dandelion, narrow-leaved hawk’s beard, wild buckwheat, fixweed and stinkweed.
- Extended control of volunteer canola flushes.
- Effective solution for herbicide resistance management.
- Excellent solution for Canada thistle control with a fall application.

**Korrex II + glyphosate**
Korrex II tank mixed with glyphosate such as VP480, at 0.5 REL/ac, provides effective pre-seed control of the following weeds:

**BROADLEAF WEEDS CONTROLLED**
- Annual sowthistle
- Canada fleabane
- Chickweed
- Cleavers
- Common ragweed
- Cow cockle
- Fixweed
- Hemp-nettle
- Kochia
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Russian thistle
- Scentless chamomile
- Shepherd’s purse
- Smartweed
- Stinkweed
- Volunteer canola
- Volunteer flax
- Wild buckwheat
- Wild mustard
- Wild oats

**PERENNIAL WEEDS CONTROLLED**
- Dandelion (seedling, overwintered rosettes, mature plants up to 30 cm diameter)
- Perennial sow thistle

**ANNUAL GRASSES CONTROLLED**
- Downy brome
- Giant foxtail
- Green foxtail
- Persian darnel
- Volunteer barley
- Volunteer wheat

Spring and fall extended control:
- Canada fleabane
- Canola (except Clearfield)
- Chickweed
- Cleavers
- Common ragweed
- Dandelion seedling
- Fixweed
- Hemp-nettle
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Scentless chamomile
- Shepherd’s purse
- Smartweed
- Stinkweed
- Wild buckwheat
- Wild mustard

Korrex II tank mixed with glyphosate at 1-2.8 REL/ac also provides effective control of the following weeds:
- Annual saw thistle
- Canada thistle (rosette stage)
- Quackgrass

*Weed controlled through multi-mode of action
1 Including all herbicide-tolerant canola varieties
2 Suppressed only
3 Less than 8 cm in height
4 Applications made at advanced stages will reduce effectiveness
5 Will not provide extended control of Group 2 resistant biotypes
KORREX II APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
• Spring Rate:
  – KORREX II A: 5.7 g/ac
  – KORREX II B: 97 ml/ac
• Fall Rate:
  – KORREX II A: 8.1 g/ac
  – KORREX II B: 139 ml/ac
• Acres treated:
  – Spring: 80 ac/case
  – Fall: 56 ac/case
  • Water volume
    – Ground 20–40 L/ac (5-10 gal/ac)

PACKAGING
– KORREX II A: 1 x 0.45 kg jug
– KORREX II B: 1 x 7.76 L jug

WHEN TO APPLY
• Spring application: prior to seeding
  (no later than 48 hours after seeding)
• Fall application: from after harvest to freeze up

RAINFAST
• 30 minutes

HERBICIDE TANK MIXES
• VP480
• Compatible with all forms of glyphosate

CROPS
Prior to cereal crops (spring or fall application):
Barley
Durum wheat
Oats
Spring wheat
Winter wheat

Mixing instructions
1. Fill sprayer tank ½ full of water
2. Start sprayer tank agitation
3. Add the required amount of KORREX II A Herbicide, continue agitation
4. Add the required amount of KORREX II B Herbicide, continue agitation
5. Add the required amount of glyphosate, continue agitation
6. Fill the sprayer tank with sufficient water to spray 20–40 L/ac (5-10 US gal/ac)

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
The year following a spring KORREX II application, fields can be seeded to:
• Barley
• Canola
• Chickpeas
• Corn
• Field beans
• Flax
• Lentils
• Mustard
• Peas
• Potatoes (except seed potatoes)
• Soybeans
• Summerfallow
• Sunflower
• Wheat

Application timing and seeding
• KORREX II can be applied in the spring prior to seeding wheat, barley or oats
  and as an initial treatment in summerfallow.
• KORREX II applied after August 1 can be seeded to winter wheat that fall
  or spring wheat, durum, barley and oats the following spring.

Grazing and harvest
• Livestock may be grazed on treated crops 7 days following application
• Do not harvest treated crop within 60 days after application.
Paradigm™ PRE
Arylex™ active HERBICIDE

WHY USE PARADIGM PRE HERBICIDE?

- Performance. Controls your toughest weeds, including Group 2 resistant cleavers and hemp-nettle.
- Just GO. Controls small or large weeds in cool spring or fall conditions.
- Flexibility. Tank mix with Vp480 herbicide or any glyphosate herbicide of choice for your pre-seed burndown.
- Convenient packaging. Paradigm PRE’s innovative GoDRI™ formulation makes it easy to mix and handle.
- Provides extended control of volunteer canola flushes.

Weeds controlled at spring rate
Paradigm™ PRE tank mixed with glyphosate at 0.5 REL/ac provides effective pre-seed control of the following weeds:

ANNUAL BROADLEAF WEEDS CONTROLLED

- Canada fleabane*
- Cleavers* (up to 9 whorls)
- Common chickweed* (up to 8 leaves)
- Common ragweed**
- Flxweed*
- Hemp-nettle*
- Lamb’s-quarters* (up to 8 leaves)
- Narrow-leaved hawk’s beard
- Russian thistle
- Shepherd’s purse*
- Smartweed* (up to 8 leaves)
- Stinkweed*
- Volunteer canola
- Volunteer flax (up to 15 cm)
- Wild buckwheat* (1-2 leaves)
- Wild mustard*

ANNUAL GRASSES CONTROLLED

- Barnyard grass
- Downy brome
- Giant foxtail

PERENNIAL WEEDS CONTROLLED

- Dandelion* (spring rosettes up to 15 cm in diameter)

WEEDS SUPPRESSED

- Kochia
- Green foxtail
- Persian darnel
- Volunteer barley
- Volunteer wheat
- Wild oats

Spring and fall active extended control:

- Canada fleabane
- Canola (except Clearfield*)
- Chickweed*
- Cleavers*
- Common ragweed
- Dandelion seedling
- Flxweed
- Hemp-nettle*
- Lambs’-quarters
- Hawk’s beard
- Redroot pigweed
- Scentless chamomile
- Shepherd’s purse
- Smartweed
- Stinkweed
- Wild buckwheat
- Wild mustard

*Weed controlled through multi-mode of action
**Including all herbicide tolerant canola varieties
***Less than 8 cm in height and including Group 2 tolerant biotypes
*Will not provide extended control of Group 2 resistant biotypes
CROPS
Prior to cereal crops (spring or fall application):
- Barley
- Durum wheat
- Oats
- Spring wheat
- Winter wheat

PARADIGM PRE APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- **Spring rate**: 7.5 g/ac
- **Fall rate**: 10 g/ac

Acres treated:
- **Spring**: 80 ac/jug (320 ac/case)
- **Fall**: 60 ac/jug (240 ac/case)
- **Water volume**
  - Ground 20–40 L/ac (5–10 US gal/ac)

PACKAGING
- 4 x 0.6 kg jugs

WHEN TO APPLY
- **Spring application**: prior to seeding
  (no later than 48 hours after seeding)
- **Fall application**: from after harvest to freeze up

RAINFAST
- 1 hour

HERBICIDE TANK MIXES
- VP480
- Compatible with all forms of glyphosate

Mixing instructions
1. Fill sprayer tank ½ full of water
2. Start sprayer tank agitation
3. Add the required amount of Paradigm PRE, continue agitation
4. Add the required amount of glyphosate product and continue agitation
5. Fill the sprayer tank with sufficient water to spray 50–100 L of spray mixture per hectare

CROP ROTATION
10 months: all major crops, except lentils or chickpeas
22 months: all major crops, including lentils or chickpeas

Application timing and seeding
- Paradigm PRE can be applied in the spring prior to seeding wheat, barley or oats.
- Paradigm PRE applied **after August 1** can be seeded to winter wheat that fall or spring wheat, durum, oats and barley the following spring.

Grazing and harvest
- Livestock may be grazed on treated crops 7 days following application.
- Do not harvest the treated crop within 60 days after application.
- Do not cut the treated crop for hay or silage within 21 days after application.
PrePass™ FLEX

HERBICIDE

WHY USE PREPASS FLEX HERBICIDE?

• Flexibility to mix with any glyphosate formulation, at the rate of glyphosate you choose.
• Advanced dry formulation that disperses quickly and completely for easy mixing.
• Convenient packaging – 640-acre case. No heated storage required.
• SoilActive™ technology for extended broadleaf weed control.
• Time management. Get the work done earlier – spring or fall.

PrePass FLEX + glyphosate

PrePass FLEX tank mixed with glyphosate at 0.5 REL/ac provides effective pre-seed control of the following weeds:

BROADLEAF WEEDS
CONTROLLED

• Annual sow thistle¹
• Canada fleabane
• Chickweed
• Cleavers
• Common ragweed
• Cow cockle
• Flxweed
• Hemp-nettle
• Kochia
• Lamb’s-quarters
• Narrow-leaved hawk’s beard
• Redroot pigweed
• Russian thistle
• Scentless chamomile
• Shepherd’s purse
• Smartweed
• Stinkweed
• Volunteer canola³
• Volunteer flax
• Wild buckwheat
• Wild mustard

GRASS WEEDS
CONTROLLED

• Dandellion
• Foxtail barley
• Giant foxtail
• Green foxtail
• Persian darnel
• Volunteer barley
• Volunteer wheat
• Wild oats

PERENNIAL WEEDS
CONTROLLED

• Canada thistle¹
• Dandellion¹
• Perennial sow thistle¹
• Quackgrass¹

Spring and fall soil active extended control:

• Canada fleabane
• Canola (except Clearfield*)
• Chickweed¹
• Cleavers¹
• Common ragweed
• Dandellion seedling
• Flxweed
• Hemp-nettle¹
• Lady’s-thumb
• Lamb’s-quarters
• Narrow-leaved hawk’s beard
• Redroot pigweed
• Scentless chamomile
• Shepherd’s purse
• Smartweed
• Stinkweed
• Wild buckwheat
• Wild mustard

¹ Requires elevated rate of glyphosate, refer to glyphosate label
² Seedling, overwintered rosettes, mature plants up to 30 cm in diameter
³ All herbicide-tolerant varieties
⁴ Will not provide extended control of Group 2 resistant biotypes
PREPASS FLEX APPLICATION GUIDELINES

**CROPS**
Prior to cereal crops (spring or fall application):
- Barley
- Durum wheat
- Oats
- Spring wheat
- Winter wheat

**RATES AND ACRES TREATED**
- **Rate:**
  - **Spring and fall rate:** 8.1 g/ac
- **Acres Treated:**
  - 80 ac/jug (640 ac/case)
  - Water volume
    - Ground 20–40 L/ac (5–10 US gal/ac)

**PACKAGING**
- Case: 8 x 0.648 kg jugs

**WHEN TO APPLY**
- **Spring application:** prior to seeding (no later than 48 hours after seeding)
- **Chemfallow:** when weeds are actively growing, 1 to 4-leaf stage
- **Fall application:** from after harvest to freeze up

**RAINFAST**
- 30 minutes

**HERBICIDE TANK MIXES**
- VP480
- Compatible with all forms of glyphosate

**Mixing instructions**
1. Fill sprayer tank ½ full of water
2. Start sprayer tank agitation
3. Add the required amount of PrePass FLEX herbicide, continue agitation
4. Add the required amount of glyphosate, continue agitation
5. Fill the sprayer tank with sufficient water to spray 20–40 L/ac (5–10 US gal/ac)

**Crop rotation**
The year following a spring PrePass FLEX application, fields can be seeded to:
- Alfalfa
- Barley
- Canola
- Chickpeas
- Corn
- Fababean
- Field beans
- Flax
- Lentils
- Mustard
- Oats
- Peas
- Potatoes (except seed potatoes)
- Soybeans
- Summerfallow
- Sunflower
- Wheat

**Application timing and seeding**
- PrePass FLEX can be applied in the spring prior to planting wheat, barley or oats.
- PrePass FLEX applied **after August 1** can be seeded to winter wheat that fall or spring wheat, durum, barley and oats the following spring.

**Grazing and harvest**
- Livestock may be grazed on treated crops 7 days following application.
- Do not harvest the treated crop within 60 days after application.
**PrePass™ XC**

**HERBICIDE**

Nothing hits harder. Or lasts longer.

**WHY USE PREPASS XC HERBICIDE?**
- Confidence in performance in all conditions.
- SoilActive™ technology for extended control of key broadleaf weeds.
- Time management. Get the work done earlier – spring or fall.
- Serviced and supported through one company.
- Convenience. Glyphosate herbicide included for ease of use and compatibility.

### WEEDS CONTROLLED

- Annual blue grass
- Annual sow thistle
- Canada fleabane
- Canada thistle
- Chickweed
- Cleavers
- Cow cockle
- Crabgrass
- Dandelion
- Downy brome
- Flixweed
- Foxtail barley
- Giant foxtail
- Green foxtail
- Hemp-nettle
- Kochia
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Narrow-leaved vetch
- Persian darnel
- Prickly lettuce
- Quackgrass
- Ragweed
- Redroot pigweed
- Russian thistle
- Scentless chamomile
- Shepherd’s purse
- Smartweed
- Stinkweed
- Toadflax
- Volunteer canola
- Volunteer barley
- Volunteer flax
- Volunteer wheat
- Wild buckwheat
- Wild mustard
- Wild oats

**SPRING AND FALL SOILACTIVE EXTENDED CONTROL**
- Canada fleabane
- Volunteer canola (except Clearfield™)
- Chickweed
- Cleavers
- Common ragweed
- Dandelion seeding
- Flixweed
- Hemp-nettle
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Scentless chamomile seedlings
- Shepherd’s purse
- Smartweed
- Stinkweed
- Wild buckwheat

**WEEDS SUPPRESSED**
- Annual sow thistle
- Perennial sow thistle

---

*Weed controlled through multi-mode of action

1 Seedling, over-wintered rosettes, mature plants up to 30 cm in diameter

2 PrePass XC will not provide extended control of Group 2 resistant biotypes

3 With the addition of glyphosate, refer to the label for rates
## PREPASS XC APPLICATION GUIDELINES

### RATES AND ACRES TREATED

**Rates:**
- **Spring and Fall Rates:**
  - PrePass XC A: 40 ml/ac
  - PrePass XC B: 375 ml/ac

**Acres Treated:**
- 40 ac/case
- 1,200 ac/tote
- Water volume
  - Ground 20–40 L/ac
  - (5–10 US gal/ac)

### PACKAGING

- **PrePass XC case**
  - PrePass XC A: 1 x 1.6 L jug
  - PrePass XC B: 2 x 7.5 L jugs
- **PrePass XC Tote**
  - PrePass XC A: 4 x 12 L jugs
  - PrePass XC B: 450 L tote

### WHEN TO APPLY

- **Spring application:** prior to seeding (no later than 48 hours after seeding)
- **Chamfallow:** when weeds are actively growing, in 1 to 4-leaf stage
- **Fall application:** from after harvest to freeze up

### RAINFAST

- 30 minutes

### HERBICIDE TANK MIXES

- VP480 (PrePass XC B)

### Mixing instructions

1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add the required amount of PrePass XC A
4. Add the required amount of PrePass XC B
5. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

### Crop rotation

The year following a spring PrePass XC application, fields can be seeded to:

- Alfalfa
- Barley
- Canola
- Chickpeas
- Corn
- Fababeanes
- Field beans
- Flax
- Lentils
- Mustard
- Oats
- Sunflower
- Peas
- Potatoes (except seed potatoes)
- Soybeans
- Wheat
- Summerfallow

### Application timing and seeding

- PrePass XC can be applied in the spring prior to seeding wheat, barley or oats
- PrePass XC applied to fields after August 1 but prior to freeze up can be seeded in the fall to winter wheat and to wheat, barley, oats or summerfallow the following spring.
Prospect™
Arylex™ active
HERBICIDE

Give your canola the best start possible with the true pre-seed weed control power of Prospect herbicide.

WHY USE PROSPECT HERBICIDE?
- Controls a wide range of broadleaf weeds, including cleavers (overwintered and group 2 resistant biotypes), hemp-nettle, flixweed, narrow-leaved hawk’s beard and many more.
- More consistent and complete control than glyphosate alone.
- Flexibility to spray at 5 gal/ac: low spray water volume without giving up weed control performance.
- Tank mixed with glyphosate, Prospect provides 3 modes of action for multi-mode of action control of key broadleaf weeds.

Prospect + glyphosate at 0.5 REL/ac:

ANNUAL BROADLEAF WEEDS CONTROLLED
- Canada fleabane*
- Chickweed
- Cleavers*
- Common ragweed*
- Eastern black nightshade
- Flixweed
- Hemp-nettle*
- Horsetail
- Kochia
- Lamb’s-quarters
- Morning glory
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Round-leaved mallow
- Russian thistle
- Shepherd’s purse
- Smartweed
- Stinkweed
- Stork’s bill
- Velvetleaf
- Volunteer canola (all herbicide tolerant varieties)
- Volunteer flax
- Waterhemp
- Wild buckwheat
- Wild mustard

ANNUAL GRASS WEEDS CONTROLLED
- Barnyard grass
- Downy brome
- Giant foxtail
- Green foxtail
- Persian darnel
- Volunteer barley
- Volunteer wheat
- Wild oats

PERENNIAL WEEDS
Dandelion
Volunteer Alfalfa

WEEDS SUPPRESSED
Annual sow thistle

*Including group 2 resistant biotypes
PROSPECT APPLICATION GUIDELINES

CROPS
(Prior to seeding)

Canola

RATES AND ACRES TREATED
Rate: – 135 ml/ac
Acres treated:
• 80 ac/jug (160 ac/case)
• Water volume
  – Ground 20–40 L/ac (5–10 gal/ac)

PACKAGING
Case: – 2 x 10.8 L jugs

RAINFAST
• 1 hour
WHEN TO APPLY
• Prior to seeding canola

HERBICIDE TANK MIXES
• VP480
• Compatible with all forms of glyphosate

Mixing instructions
1. Fill sprayer tank 1/2 full of water
2. Start sprayer tank agitation
3. Add the required amount of Prospect herbicide, continue agitation
4. Add the required amount of glyphosate, continue agitation
5. Fill the sprayer tank with sufficient water to spray 20–40 L/ac (5–10 US gal/ac)

Crop Rotation
10 months: all major crops, except lentils or chickpeas
22 months: all major crops, including lentils or chickpeas

Grazing and harvest
• Livestock may be grazed on treated crops 7 days following application.
• Do not harvest the treated crop within 60 days after application.

Application timing
• Prospect is registered for spring application only and cannot be applied in the fall.
Amity™ WDG

HERBICIDE

The herbicide option for Clearfield® canola.

WHY USE AMITY WDG HERBICIDE?

- Provides rotational flexibility.
- Broad-spectrum control for Clearfield® canola.
- Reliable control of tough grasses and targeted broadleaf weeds.

GRASS WEEDS CONTROLLED

- Barnyard grass
- Japanese brome*
- Yellow foxtail
- Green foxtail
- Persian darnel
- Wild oats
- Volunteer canary seed
- Volunteer barley
- Volunteer tame oats
- Volunteer spring wheat
  *(excluding Clearfield® varieties)*
- Volunteer durum wheat

BROADLEAF WEEDS CONTROLLED

- Cleavers*
- Cow cockle
- Kochia
- Lamb’s-quarters
- Redroot pigweed
- Round-leaved mallow*
- Russian thistle
- Shepherd’s purse
- Smartweed
- Stinkweed
- Wild buckwheat*
- Wild mustard
- Volunteer canola
  *(excluding Clearfield® varieties)*

* Suppression only

Surjet™ Adjuvant is a blend of surfactant and petroleum hydrocarbons designed for use with Ares SN or Amity WDG herbicides. Rate: 0.5% v/v

Water volume is 100L/ha or (10 US gal/ac)

Surjet Adjuvant sold separately from Amity WDG.
**AMITY WDG APPLICATION GUIDELINES**

<table>
<thead>
<tr>
<th>RATES AND ACRES TREATED</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 10 ac/pouch</td>
<td>Case:</td>
</tr>
<tr>
<td>- 40 ac/carton</td>
<td>- 4 x cartons with</td>
</tr>
<tr>
<td>- 160 ac/case</td>
<td>4 x pouches of</td>
</tr>
<tr>
<td>- Ground 40 L/ac</td>
<td>117.5g wettable</td>
</tr>
<tr>
<td>(10 US gal/ac)</td>
<td>dry granule</td>
</tr>
<tr>
<td>- Add Surjet at 0.5% v/v</td>
<td></td>
</tr>
<tr>
<td>- Aerial NOT registered</td>
<td></td>
</tr>
</tbody>
</table>

**WHEN TO APPLY**
- **Crop stage:** 2 to 6-leaf stage
- **Weed stage:** 1 to 4-leaf stage for grassy weeds and cotyledon to 4-leaf stage for broadleaf weeds

**RAINFAST**
- 3 hours

**HERBICIDE TANK MIXES**
- Lontrel XC

**Mixing instructions**
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add required amount of Amity WDG
4. Add any tank mix partners
5. Add the required amount of Surjet adjuvant at 0.5% v/v
6. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

**Crop rotation**
- Winter wheat can be planted 3 months after treatment as a rotational crop.
- Initial crop injury to non-Clearfield® canola may be observed.
  Avoid spray overlap as yield reduction may result.

**The following crops may be grown safely the year following an application:**
- Canary seed
- Chickpeas
- Clearfield® Canola
  (canola varieties with the Clearfield® trait)
- Clearfield® Sunflowers
  (sunflower varieties with the Clearfield® trait)
- Durum wheat
- Field corn
- Field peas
- Flax
- Lentils
- Non-Clearfield® canola
- Spring barley
- Spring wheat
- Sunflower
- Tame oats

*If drought conditions exist in the first season after application, do not grow non-Clearfield® canola, oats, durum, flax or sunflowers.*

**The following crop may be grown safely two years following an application:**
- Mustard (concinment type only)
  *For further information, please consult the Amity WDG label.*

**Grazing and harvest**
- Do not harvest treated crop within 60 days after application.
Ares™ SN

HERBICIDE

The performance standard in weed control for Clearfield® canola.

WHY USE ARES SN HERBICIDE?
• Consistent and reliable post-emergent weed control, including subsequent flushes.
• Wide window of application on both crop and weeds.
• Superior control of lamb’s quarters, wild buckwheat, cleavers and volunteer canola.

GRASS WEEDS CONTROLLED
• Barnyard grass
• Japanese bristlegrass
• Yellow foxtail
• Green foxtail
• Persian darnel
• Wild oats
• Volunteer canary seed
• Volunteer barley
• Volunteer tame oats
• Volunteer spring wheat (excluding Clearfield® varieties)
• Volunteer durum wheat

BROADLEAF WEEDS CONTROLLED
• Chickweed
• Cleavers
• Cow cockle
• Smartweed
• Hemp-nettle
• Lamb’s-quarters
• Redroot pigweed
• Round-leaved mallow
• Russian thistle
• Shepherd’s purse
• Stinkweed
• Stork’s bill
• Wild buckwheat
• Wild mustard
• Volunteer tame mustard
• Volunteer canola (excluding Clearfield® varieties)

*For spring germinating Japanese bristlegrass control apply at 1 to 4-leaf stage

Surjet™ ADJUVANT

Surjet™ Adjuvant is a blend of surfactant and petroleum hydrocarbons designed for use with Ares SN or Amity WDG herbicides.
Rate: 0.5% v/v
Water volume is 100L/ha or (10 US gal/ac)

Surjet Adjuvant is sold in a co-pack with Ares SN.
CROPS
Clearfield® Canola

ARES SN APPLICATION GUIDELINES

RATES AND ACRES TREATED
- 40 ac/case
- Water volume
  - Ground 40 ac/case
    (10 US gal/ac)
  - Aerial NOT registered

PACKAGING
Case:
- Ares SN: 1 x 9.8 L jug
- Surjet Adjuvant: 1 x 8.1 L jug

WHEN TO APPLY
- Crop stage: 2 to 7-leaf stage
- Weed stage: 1 to 6-leaf stage for grassy weeds and cotyledon to 4-leaf stage for broadleaf weeds

RAINFAST
- 2 hours

HERBICIDE TANK MIXES
- Lontrel XC

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add required amount of Ares SN
4. Add any tank mix partners
5. Add the required amount of Surjet adjuvant
6. Complete filling the sprayer tank with water
Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
Sensitivity of injury can vary depending on the crop. If rainfall in your area was less than 125 mm during the growing season between June 1 to August 31, it is recommended that you grow field peas, Clearfield® lentils or wheat on Clearfield® canola stubble.

Grazing and harvest
- Do not harvest treated crop within 60 days after application.
**Attain™ XC**

Extra-concentrated excellence on 40 of today’s toughest broadleaf weeds in all soil zones in Western Canada.

**WHY USE ATTAIN XC HERBICIDE?**
- Weed control. Gets tough weeds like kochia, stork’s-bill, round-leaved mallow and more.
- Choice. Choose the rate option that suits your weed pressure – 40 or 53 ac/case.

### 40 ac/case rate

**WEEDS CONTROLLED**
- Blue lettuce¹
- Bluebur
- Burdock
- Cleavers¹
- Cocklebur
- Dandelion²
- Docks
- Dog mustard
- Field bindweed¹
- Field horsetail¹
- Field peppergrass
- Foxweed
- Goat’s-beard
- Gumweed
- Hairy galinsoga
- Hedge bindweed
- Hoary cress¹
- Kochia¹
- Lamb’s-quarters
- Leafy spurge¹
- Oak-leaved goosefoot
- Plantain
- Prickly lettuce
- Ragweed
- Redroot pigweed
- Round-leaved mallow
- Russian thistle
- Shepherd’s purse
- Smartweed
- Stinkweed
- Stork’s-bill
- Sweet clover
- Tansy mustard
- Tartary buckwheat
- Vetch
- Volunteer canola (all herbicide tolerant varieties)
- Volunteer flax
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild radish

**WEEDS SUPPRESSED**
- Annual sow thistle
- Canada thistle¹
- Chickweed¹
- Hemp-nettle
- Perennial sow thistle¹

### 53 ac/case rate

**WEEDS CONTROLLED**
- Annual sunflower
- Bluebur
- Burdock
- Cleavers¹
- Cocklebur
- Field horsetail¹
- Foxweed
- Goat’s-beard
- Hoary cress¹
- Lamb’s-quarters
- Kochia¹
- Plantain
- Prickly lettuce
- Ragweed
- Shepherd’s purse
- Stinkweed
- Sweet clover
- Vetch
- Volunteer canola (all herbicide tolerant varieties)
- Wild buckwheat
- Wild mustard
- Wild radish

¹Top growth control only
²Spring rosettes
³Including Group 2 resistant biotypes

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# ATTAIN XC APPLICATION GUIDELINES

## Rates and Acres Treated

**Rates:**
- **Low rate:**
  - Attain XC A: 96 ml/ac
  - Attain XC B: 260 ml/ac
- **High rate:**
  - Attain XC A: 130 ml/ac
  - Attain XC B: 340 ml/ac

**Acres treated:**
- **Low rate:** 53 ac/case
- **High rate:** 40 ac/case

**Water volume:**
- Ground: 20-40 L/ac (5-10 US gal/ac)
- Aerial: 12-20 L/ac (3-5 US gal/ac)

## Packaging
- Attain XC A: 1 x 5 L
- Attain XC B: 2 x 6.8 L

## When to Apply
- **Crop stage:** 4-leaf to just prior to flag leaf emergence
- **Weed stage:** 1 to 6-leaf or as indicated on the product label

## Rainfast
- 1 hour

## Herbicide Tank Mixes
- Simplicity® GoDR!®
- Liquid Achieve™ SC
- Everest®
- Horizon®
- Assert®
- Puma®

## Mixing Instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add any tank mix partners that are a dry formulation
5. Add the required amount of grassy weed tank mix partner
6. Add the required amount of Attain XC A
7. Add the required amount of Attain XC B
8. Add any required adjuvant or surfactants
9. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

## Crop Rotation
All major crops the following spring.

## Grazing and Harvest
- Allow 7 days after application before grazing lactating animals.
- Livestock may graze treated areas 3 days after application.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
- Allow 30 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.
Avenza™ HERBICIDE

Powerful broadleaf weed control combined with trusted Group 1 grass chemistry.

WHY USE AVENZA HERBICIDE IN WHEAT AND BARLEY?
- Control a wide range of annual broadleaf weeds including kochia (Group 2 and Group 9 resistant), narrow-leaved hawk’s beard, wild buckwheat and many more.
- Control Canada thistle, perennial sow thistle and dandelion with rotational freedom to lentils or chickpeas the following year.
- Crop-safe, flexible, Group 1 control of wild oats, green foxtail, barnyard grass and more.
- Tank mixed with MCPA Ester 600, Avenza provides expanded multi-mode of action control of many key broadleaf weeds.
- 20 acre case and bulk pack options.
- A replacement for Liquid Achieve™ SC herbicide and Tundra® herbicide in barley.

Avenza + 5 oz./ac (235 ml/ac) MCPA Ester 600

ANNUAL BROADLEAF
- Annual sow thistle
- Annual sunflower**
- Ball mustard
- Burdock
- Cleavers
- Cocklebur
- Common chickweed**
- Cow cockle
- Daisy fleabane
- False flax
- Flixweed
- Goat’s-beard
- Hemp-nettle**
- Kochia
- Lamb’s-quarters
- Narrow-leaved
- hawk’s beard
- Plantain
- Prickly lettuce
- Ragweed
- Redroot pigweed**
- Round-leaved mallow**
- Russian pigweed
- Russian thistle
- Shepherd’s purse**
- Smartweed**
- Stinging nettle
- Stinkweed**
- Stork’s-bill
- Sweet clover
- Vetch
- Volunteer canola**
  (all herbicide resistant biotypes)
- Volunteer flax**
- Wild buckwheat**
- Wild mustard**
- Wild radish

GRASS WEEDS
- Barnyard grass
- Green foxtail
- Proso millet
- Volunteer oats
- Volunteer canary seed
- Wild oats
- Yellow foxtail

PERENNIAL BROADLEAF
- Canada thistle
- Dandelion
- Perennial sow thistle

* Suppression only when tank mixed with MCPA Ester.
** Weed controlled by multi-mode of action when tank mixed with MCPA Ester at 5 oz per acre.
CROPS
- Barley
- Spring wheat
- Winter wheat

AVENZA APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Avenza A: 405 ml/ac
- Avenza B: 500 ml/ac

Acres treated:
- 20 ac/case
- 320 ac/pallet

(160 acre increments)

- Water Volume:
  - Ground: 20–40 L/ac
  - (5–10 US gal/ac)

PACKAGING:
Case:
- Avenza A: 1 x 8.1 L jug
- Avenza B: 1 x 10 L jug

Pallet:
- Avenza A: 2 x 64.8 L drums
- Avenza B: 2 x 80 L drums

160 acre pallet increment:
- Avenza A: 1 x 64.8 L drum
- Avenza B: 1 x 80 L drum

WHEN TO APPLY
- Crop stage: 3-leaf to just prior to flag leaf emergence

RAINFAST
- 1 hour

HERBICIDE TANK MIXES
- MCPA Ester 600

Mixing instructions
1. Fill sprayer tank ½ full of water
2. Start sprayer tank agitation
3. Add the required amount of Avenza A Herbicide and any other dry formulations
4. If adding MCPA Ester 600, add the required amount and continue to agitate
5. Add the required amount of Avenza B Herbicide and any other tank mix partner and continue to agitate
6. Fill the sprayer tank with the remaining amount of water required

Crop rotation
All major crops the following spring.

Grazing and harvest
1. Do not cut the treated crop for hay or graze treated crop within 7 days after application.
2. Do not harvest the treated crop within 60 days after application.
**Cirpreme™ XC**

*Arylex™ active*

**HERBICIDE**

**WHY USE CIRPREME XC HERBICIDE?**

- Performance. Count on exceptional annual and perennial broadleaf weed control in your cereals.
- Just GO. Small or large weeds, in early or late crop staging and even in cool or dry conditions.
- Flexibility. Use alone, with MCPA Ester 600, or 2,4-D Ester.
- Tank mix with Simplicity™ GoDR™ herbicide for grass control in wheat.

---

**Cirpreme XC + 5 oz./ac (235 ml/ac) MCPA Ester 600**

**GRASS WEEDS CONTROLLED**

- Barnyard Grass

**WEEDS CONTROLLED**

- Annual saw thistle*
- Annual sunflower*
- Ball mustard*
- Burdock
- Canada fleabane*
- Chickweed**
- Cleavers**
- Cocklebur*
- Common ragweed*
- Cow cockle*
- Field horsetail (top growth)**
- Flixweed*
- Hemp-nettle**
- Lamb’s-quarters*
- Narrow-leaved hawk’s beard*
- Plantain (top growth)**
- Prickly lettuce*
- Redroot pigweed*
- Round-leaved mallow*
- Russian pigweed*
- Shepherd’s purse*
- Smartweed*
- Stinkweed**
- Stork’s-bill*
- Velvetleaf
- Vetch
- Volunteer canola (all herbicide tolerant biotypes)
- Volunteer flax
- Volunteer sunflower**
- Wild buckwheat*
- Wild mustard**
- Wild radish

**PERENNIAL BROADLEAF WEEDS CONTROLLED**

- American dragonhead
- Canada thistle
- Dandelion*
- Henbit
- Perennial sow thistle**
- Scentless chamomile
- Volunteer alfalfa

**WEEDS SUPPRESSED**

- Kochia*
- Night-flowering catchfly
- White cockle

*For a complete weed list and specific weed staging, please refer to the Cirpreme XC label*

*Weed controlled through multi-mode of action*

**1** Including Group 2 resistant biotypes

**2** Light to moderate infestations (up to 150 plants/m²; up to 15 cm in height), including Group 2 resistant biotypes

**3** Cirpreme XC + 6 oz./ac of MCPA Ester 600
CIRPREME XC APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Paradigm: 10 g/ac
- Lontrel XC: 51 ml/ac
Acres Treated:
- 80 ac/case

PACKAGING
- Paradigm: 1 x 0.8 kg jug
- Lontrel XC: 1 x 4.1 L jug

WHEN TO APPLY
- Crop stage: 3-leaf to just prior to flag leaf emergence

RAINFAST
- 4 hours

HERBICIDE TANK MIXES
- MCPA Ester 600
- 2,4-D Ester 700
- Simplicity® GoDRI™
- Everest®
- Axial®
- Axial Extreme + MCPA Ester 600

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add the required amount of Paradigm™ herbicide
5. Add the required amount of grassy weed tank mix partner
6. Add the required amount of Lontrel® XC herbicide
7. Add any required adjuvant or surfactants
8. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

Crop rotation
The year following application, fields can be seeded to:
- Barley
- Canola
- Flax
- Forage grasses
- Oats
- Mustard
- Peas
- Rye (not underseeded with legumes, clover or alfalfa)
- Summerfallow
- Wheat

Grazing and harvest
- Livestock may be grazed on treated crops 7 days following application.
- Do not harvest the treated crop within 60 days after application.

For pea or soybean rotation, rainfall from June 1 to August 31 in the year of application must be greater than 140 mm (5.5 inches) and annual rainfall must be greater than 175 mm (6.9 inches).
Eclipse™ XC

HERBICIDE

Broad-spectrum weed control in glyphosate-tolerant corn & canola for superior control of wild buckwheat and Canada thistle.

WHY USE ECLIPSE XC HERBICIDE?

• Convenient all-in-one herbicide solution that offers superior control of a broad spectrum of weeds.
• Two modes of action for resistance management.
• Protects canola without negatively impacting yield or maturity, unlike elevated rates of glyphosate.
• Convenient, simple XC package – 1 case contains all you need for 40 acres.

WEEDS CONTROLLED

• Canada thistle¹
• Canola (except glyphosate resistant biotypes)
• Chickweed
• Cleavers
• Corn spurry
• Cow cockle
• Dandelion¹ (<15 cm diameter)
• Green foxtail
• Hemp-nettle
• Kochia
• Lamb’s-quarters
• Night-flowering catchfly
• Perennial sow thistle¹
• Quackgrass¹
• Redroot pigweed
• Russian thistle
• Shepherd’s purse
• Smartweed
• Stinkweed
• Volunteer cereals
• Wild buckwheat*¹
• Wild mustard
• Wild oats
• Wild tomato

WEEDS SUPPRESSED

• Dandelion (>15 cm diameter)

Wild buckwheat control
Control up to the 6-leaf stage. Glyphosate alone does not provide consistent control of wild buckwheat past the 2 to 3-leaf stage.

Canada thistle control
Season-long control with the combination of Group 4 and 9 active ingredients. Experience the same control on perennial saw thistle.

*¹Weed controlled through multi-mode of action
¹Season-long control
ECLIPSE XC APPLICATION GUIDELINES

RATES AND ACRES TREATED
- 40 ac/case
- Water volume
  - Ground 40 L/ac (10 US gal/ac)
  - Aerial not registered

PACKAGING
- Eclipse XC A: 1 x 2.67 L
- Eclipse XC B: 2 x 7.5 L

WHEN TO APPLY
- Canola crop stage: 2 to 6-leaf
- Corn crop stage: VE-V6 (8-leaf stage)

RAINFAST
- 4 hours

HERBICIDE TANK MIXES
- None registered

CROPS
Glyphosate tolerant canola
Glyphosate tolerant corn

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add the required amount of Eclipse XC A
4. Add the required amount of Eclipse XC B
5. Add any required adjuvant or surfactants
6. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
The year following application, fields can be seeded to:

- Barley
- Canola
- Flax
- Forage grasses
- Mustard
- Oats
- Peas
- Rye (not under-seeded with legumes, clover or alfalfa)
- Summerfallow
- Wheat

For field pea or soybean rotation, rainfall from June 1 to August 31 in the year of application must be greater than 140 mm (5.5 inches) and annual rainfall must be greater than 175 mm (6.9 inches).

Grazing and harvest
- Allow 3 to 5 days after application before grazing treated areas.
- For field corn, allow 40 days before grazing treated areas or feeding cattle with corn silage from treated areas.
- For canola, allow 3 to 5 days before grazing treated areas.
Enlist™ with COLEX-D™ technology

The Enlist™ weed control system will change how you think about weed management in soybeans.

WHY USE ENLIST™ 1 HERBICIDE FOR YOUR ENLIST™ E3 SOYBEANS?
• Stand-alone 2,4-D choline for exceptional broadleaf control in Enlist™ crops.
• Flexibility to customize use rates and ratios of tank-mix partners.
• Compatibility to tank-mix with glyphosate (group 9), glufosinate (group 10), or other approved products.
• Spray post-emergence with confidence up to the R2 stage of Enlist™ E3 soybeans.

New Enlist 1 herbicide provides tank-mix flexibility for superior broadleaf weed control including resistant and hard-to-control species.

Enlist 1 should always be tank-mixed with either glyphosate or glufosinate for full spectrum grass and broadleaf weed control.
• Tank-mix with glufosinate up to R1 (beginning of flower)
• Can recommend Liberty 200 at 1 L per acre in Enlist E3 soybeans
• Liberty 150 formulation is not registered for Enlist E3 soybeans so it is not recommended.

See label for complete list of weeds controlled.

<table>
<thead>
<tr>
<th>COLEX-D™ technology</th>
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</thead>
<tbody>
<tr>
<td>WHAT GOES INTO IT</td>
</tr>
<tr>
<td>2,4-D choline</td>
</tr>
<tr>
<td>with Collex-D</td>
</tr>
<tr>
<td>Technology</td>
</tr>
<tr>
<td>Latest formulation</td>
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<td>science</td>
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<tr>
<td>Proprietary</td>
</tr>
<tr>
<td>manufacturing</td>
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<tr>
<td>process</td>
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| WHAT IT DELIVERS   |
| Near zero          |
| volatility         |
| Minimized          |
| potential          |
| for physical       |
| drift              |
| Low                 |
| odour               |
| Improved           |
| handling           |
| characteristics     |
Convenient formulation
Enlist 1 is a new 2,4-D choline formulation which offers a low-drift and near-zero volatility solution for weed control. Use as part of the Enlist weed control system in crops with the Enlist trait.

Flexibility to deliver superior control
2,4-D choline is a unique formulation offering the ability to tank-mix with either glyphosate or glufosinate to control specific weed problems you have in your fields.

Flexible tank mix options
Tank mix options with select products are available for burndown or pre-plant use. For more information on tank-mix options, please consult the Enlist Product Use Guide available at https://www.corteva.ca/en/trait-stewardship.html#ProductUseGuidesBestManagementPractices_2

Application information
Enlist 1 has a wide application window.

Enlist E3® soybeans: Pre-emergent burndown up to no later than R2 or full flowering stage. Make 1 to 2 applications with a minimum of 12 days between applications.

Rainfast: Enlist 1 should not be applied when rainfall is expected within 2 hours of completion of the application.

Application method

Field sprayer application: Do not apply during periods of dead calm and avoid application when winds are gusty. Boom height must be 60 cm or less above the crop or ground. Apply 5 to 20 gal/ac (50 to 200 L/ha) of spray solution depending on the type of application equipment. Use sufficient water for even distribution. Spray at low pressures (200 to 275 kPa) when the weeds are actively growing.

Droplet size: Apply as a coarse to extremely coarse spray (ASAE S-572 Standard). Use drift-reducing nozzle tips in accordance with manufacturer directions that produce a droplet classification of coarse to extremely coarse to greatly reduce drift potential. Consult the Enlist Product Use Guide for more details on droplet size and nozzle types.

Enlist®
with COLEX-D™ technology
HERBICIDE

Stand-alone 2,4-D choline with tank-mix flexibility.

New Enlist 1 is a stand-alone Colex-D formulation that controls over 40 broadleaf weeds. It gives you the flexibility to tank-mix with and adjust rates of glyphosate or glufosinate to control a wide range of hard to control and resistant weeds.

*For Stewardship reasons, following burndown, the only 2,4-D-containing herbicide product that may be used with Enlist crops are products that feature Colex-D Technology and are expressly labeled for use on Enlist crops. Enlist Duo features Colex-D technology and is labeled for use on Enlist soybeans and Enlist Corn in Canada.
Enlist Duo™ herbicide with Colex-D™ technology delivers broad-spectrum knockdown of hard-to-control and resistant weeds.

**WHY USE ENLIST DUO HERBICIDE?**

- Enlist™ Duo herbicide with Colex-D™ technology is a new co-formulation of glyphosate and 2,4-D choline for broad-spectrum weed control in Enlist corn, Enlist E3™ soybeans or as a burndown ahead of corn crops.
- Enlist Duo is suitable for emerged annual and perennial weed control in Enlist field corn, Enlist soybeans, summerfallow, and prior to seeding or after seeding (but before crop emergence).
- The combination of Group 9 and Group 4 active ingredients in Enlist Duo provides broad spectrum control of grass and broadleaf weeds, and helps proactively manage herbicide resistance.

New Enlist Duo herbicide combines two modes of action for superior control of emerged annual and perennial weeds.

**WEEDS CONTROLLED (OR SUPPRESSED)**

- Foxtail, Giant
- Goat’s-beard
- Hemp-nettle
- Horsetail, Field/Common
- Kochia*
- Lamb’s-quarters
- Millet, Wild-proso/Proso Millet, Volunteer
- Narrow-leaved hawk’s beard
- Nightshade, Eastern Black
- Oat, Wild
- Panicum, Fall
- Pepperweed/Peppergrass
- Pigweed, Redroot
- Quackgrass
- Radish, Wild
- Ragweed, Common*
- Ragweed, Giant*
- Smartweed
- Sowthistle
- Spurry, Corn
- Thistle, Canada
- Thistle, Russian
- Velvetleaf
- Vetch
- Volunteer canola
- Volunteer cereals
- Waterhemp
- Wheat, Volunteer

*Includes biotypes resistant to glyphosate and acetolactate synthase (ALS) modes of action (Groups 2 and 9)
Convenient formulation
Enlist Duo is a new proprietary blend of 2,4-D choline and glyphosate. This new technology offers convenience, low-drift and near-zero volatility. Use as part of the Enlist weed control system in Enlist corn, Enlist E3™ soybeans or as a burndown in field corn.

Dual modes of action deliver superior control
The combination of Group 4 and Group 9 modes of action deliver unmatched control of more than 70 grass and broadleaf weeds in a variety of weather conditions and application timings. Enlist Duo will control weeds that glyphosate alone may miss.

Flexible tank mix options
Tank mix options with select products are available for burndown or pre-plant use. For more information on tank-mix options, please consult the Enlist Product Use Guide available at https://www.corteva.ca/en/trait-stewardship.html#ProductUseGuidesBestManagementPractices_2

Application information
Enlist™ Duo has a wide application window.

Enlist corn: Pre-emergence up to the V8 growth stage or 120 cm (48") height. Apply 50 to 200 L/ha (5 to 20 gal/ac) of spray solution, use sufficient water for even distribution. Make 1 to 2 applications with a minimum of 12 days between applications.

Enlist E3™ soybeans: Pre-emergent burndown up to no later than R2 or full flowering stage. Make 1 to 2 applications with a minimum of 12 days between applications.

Ahead of field corn:
Prior to seeding, or after seeding but before crop emergence.

Rainfast: Enlist Duo should not be applied when rainfall is expected within 2 hours of completion of the application.

Application method
Field sprayer application: Do not apply during periods of dead calm and avoid application when winds are gusty. Boom height must be 60 cm or less above the crop or ground. Apply 5 to 20 gal/ac (50 to 200 L/ha) of spray solution depending on the type of application equipment. Use sufficient water for even distribution. Spray at low pressures (200 to 275 kPa) when the weeds are actively growing.

Droplet size: Apply as a coarse to extremely coarse spray (ASAE S-572 Standard). Use drift-reducing nozzle tips in accordance with manufacturer directions that produce a droplet classification of coarse to extremely coarse to greatly reduce drift potential.

*For Stewardship reasons, following burndown, the only 2,4-D-containing herbicide product that may be used with Enlist crops are products that feature Colex-D Technology and are expressly labeled for use on Enlist crops. Enlist Duo features Colex-D technology and is labeled for use on Enlist soybeans and Enlist Corn in Canada.
Exhilarate™
Arylex™ active
HERBICIDE

More good spray days. Combined with value and ease of use. Just GO.

WHY USE EXHILARATE HERBICIDE?
- Exceptional control of cleavers and hemp-nettle, including Group 2 resistant biotypes.
- Controls 25 tough-to-kill broadleaf weeds, including lamb’s quarters, narrow-leaved hawk’s beard and volunteer canola.
- Tank mix with Simplicity™ or Simplicity™ GoDRI™ for Group 2 grass control of wild oats and Japanese brome in wheat.
- MCPA Ester 600 included in the product offering for convenience and expanded multi-mode of action control.

Exhilarate A + 4 oz./ac (189 ml/ac) Plus M (MCPA Ester 600):

**BROADLEAF WEEDS CONTROLLED**
- American dragonhead
- Annual saw thistle
- Canada fleabane**
- Chickweed**
- Cleavers**
- Common ragweed
- Cow cockle**
- Dandelion
- Flixweed
- Henbit
- Hemp-nettle
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Round-leaved mallow**
- Shepherd’s purse
- Smartweed
- Stinkweed
- Stork’s-bill
- Velvetleaf
- Volunteer alfalfa
- Volunteer canola
- Volunteer wild mustard**

**GRASS WEEDS CONTROLLED**
- Barnyard grass

**WEEDS SUPPRESSED**
- Canada thistle
- Kochia
- Night-flowering catchfly
- Perennial sow thistle
- Scentless chamomile
- White cockle

**Weed controlled through multi-mode of action

1 Including Group 2 and Group 9 resistant biotypes

2 Including Group 9 resistant biotypes**
CROPS
Barley
Durum wheat
Spring wheat
Winter wheat

EXHILARATE APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rate:
- Exhilarate A: 10 g/ac
- Plus M: 189 ml/ac
Acres Treated:
- 80 ac/case
  • Water volume
  - Ground 20–40 L/ac (5–10 US gal/ac)
  - Aerial not registered

PACKAGING
Case:
- 1 x 0.8 kg
  • Exhilarate A jug
- 2 x 7.56 L Plus M jugs
  • MCPA Ester 600

WHEN TO APPLY
• Crop stage: 3-leaf to just prior to flag leaf emergence
• Weed stage: 1 to 8-leaf (or larger, see label)

RAINFAST
• 1 hour

HERBICIDE TANK MIXES
• Exhilarate + Simplicity™ GoDRI™
• Exhilarate + Axial™
• Exhilarate + Everest®

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add required amount of Exhilarate A
5. Add the required amount of grassy weed tank mix partner
6. Add required amount of Plus M (MCPA Ester 600) and continue agitation
7. Add any required adjuvant or surfactants
8. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
All major crops the following spring, except lentils or chickpeas.

Grazing and pre-harvest interval
• Livestock may be grazed on treated crops 7 days following application.
• Do not harvest the treated crop within 60 days after application.
FeXapan™

Plus VaporGrip® Technology

HERBICIDE

A new tool for weed control in Roundup Ready 2 Xtend® soybeans.

WHY USE FEXAPAN HERBICIDE?
- A new, low-volatile dicamba formulation featuring VaporGrip technology.
- Early pre-seed or pre-emergent applications provide short term residual activity at the high rate (0.69 L/ha) on broadleaf weeds such as wild buckwheat, lamb’s-quarters and redroot pigweed.
- A new herbicide group for soybean growers to manage against weed resistance, including glyphosate resistant biotypes.

WEEDS CONTROLLED WITH FEXAPAN PLUS ADDITION OF 1.67 L/HA OF Glyphosate HERBICIDE
- Canada fleabane
- Canada thistle
- Chickweed
- Cleavers
- Common lamb’s-quarters
- Common redroot pigweed
- Corn spurry
- Cow cockle
- Field bindweed
- Giant ragweed
- Green smartweed
- Kochia
- Perennial sow thistle
- Redroot pigweed
- Russian thistle
- Shepherd’s Purse
- Smartweed
- Tartary buckwheat
- Volunteer canola, including glyphosate resistant biotypes
- Wild mustard
- Wild buckwheat

Application Timing

FeXapan™ application window

Pre-plant/Pre-emergence

Up to R1 (Early Flower)

Optimum FeXapan™ application window

Pre-plant/Pre-emergence

Applying during the optimum FeXapan application window provides extended control of wild buckwheat, RR pigweed and lamb’s-quarters at the 0.69 L/acre rate.

1 Control of emerged plants only
2 Apply FeXapan herbicide Plus VaporGrip Technology annually for three years at the flowering stage of bindweed and the budding stage of thistles
3 For a more complete listing of weeds controlled see the FeXapan label
FEXAPAN APPLICATION GUIDELINES

CROPS
Roundup Ready 2 Xtend® soybean varieties

RATES AND ACRES TREATED
Rates:
• Low Rate:
  – 0.33 L/acre
  (60 acre/case rate)
• High Rate:
  – 0.69 L/acre (30 acre/case rate)
    for short term residual activity
• Water volume
  – Minimum 100 L/ha = 10.7 US gal/ac

PACKAGING
Case:
– 2 x 10 L jugs

WHEN TO APPLY
• Pre-plant, pre-emergence or post-emergence
  up to early flower stage (R1)
• Best time to apply FeXapan is between the
  pre-plant or pre-emergence timing to V3 stage
  of soybeans (3rd trifoliate stage)

RAINFAST
• 4 hours

HERBICIDE TANK MIXES
• For a broader spectrum of weeds controlled,
  FeXapan™ may be tank mixed with a high load
  540 g/L glyphosate at 0.67 to 1.89 L/ac.

Mixing instructions
Refer to the FeXapan™ label for complete use instructions.

Crop rotation
A season total application of 1.36 L/ac in Roundup Ready 2 Xtend®
soybeans allows for re-cropping to cereals, canola, soybeans, field/sweet
corn and white beans 120 days after the final application. Do not count
days when the ground is frozen. Moisture is essential for the degradation
of this herbicide in the soil. If dry weather persists after application, crop
injury may occur the following spring.
**Liquid Achieve™ SC**

HERBICIDE

**WHY USE LIQUID ACHIEVE SC HERBICIDE?**
- Effective control of wild oats, persian darnel, barnyard grass and green/yellow foxtail in wheat and barley.
- Wide window of application.
- Trusted crop safety.
- Multiple pack sizes: 80 acre cases or 480 acre drums.

**WEEDS CONTROLLED**
- Wild oats
- Persian darnel
- Green foxtail
- Volunteer oats
- Barnyard grass
- Yellow foxtail

**Carrier® adjuvant required at 0.5% v/v:**
Carrier adjuvant technology now available for use with Liquid Achieve™ SC.

<table>
<thead>
<tr>
<th></th>
<th>4,542 Litre Tank (1,200 US Gallon Tank)</th>
<th>3,785 Litre Tank (1,000 US Gallon Tank)</th>
<th>3,028 Litre Tank (800 US Gallon Tank)</th>
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</thead>
<tbody>
<tr>
<td>0.5% v/v</td>
<td>22.71 L of Carrier required (0.005 x 4,542 L)</td>
<td>18.93 L of Carrier required (0.005 x 3,785 L)</td>
<td>15.14 L of Carrier required (0.005 x 3,028 L)</td>
</tr>
<tr>
<td></td>
<td>3 jugs</td>
<td>2.5 jugs</td>
<td>2 jugs</td>
</tr>
</tbody>
</table>

**Liquid Achieve SC and Carrier rate charts:**

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<thead>
<tr>
<th>Lightning Achieve SC Rate</th>
<th>Carrier Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 ac/jug</td>
<td>0.5% v/v</td>
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<tr>
<td>480 ac/drum</td>
<td>8 L jug</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>5 US gal/ac Water volume</th>
<th>240 acres</th>
<th>6 jugs</th>
<th>0.50 drum</th>
<th>3 jugs</th>
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</thead>
<tbody>
<tr>
<td>10 US gal/ac Water volume</td>
<td>120 acres</td>
<td>3 jugs</td>
<td>0.25 drum</td>
<td>3 jugs</td>
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<table>
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<tr>
<th></th>
<th>5 US gal/ac Water volume</th>
<th>200 acres</th>
<th>5 jugs</th>
<th>0.42 drum</th>
<th>2.5 jugs</th>
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<tbody>
<tr>
<td>10 US gal/ac Water volume</td>
<td>100 acres</td>
<td>2.5 jugs</td>
<td>0.21 drum</td>
<td>2.5 jugs</td>
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<table>
<thead>
<tr>
<th></th>
<th>5 US gal/ac Water volume</th>
<th>160 acres</th>
<th>4 jugs</th>
<th>0.33 drum</th>
<th>2 jugs</th>
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<tbody>
<tr>
<td>10 US gal/ac Water volume</td>
<td>80 acres</td>
<td>2 jugs</td>
<td>0.17 drum</td>
<td>2 jugs</td>
<td></td>
</tr>
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</table>

*Intake® Adjuvant can be used at 0.66% v/v if Carrier Adjuvant is not available.

Liquid Achieve SC requires the addition of ammonia (Finish) with all EC broadleaf tank-mixes at 0.25% v/v + Carrier adjuvant at 0.5% v/v. If bicarbonates > 400 ppm, add AMS to the tank first at 1% v/v.
LIQUID ACHIEVE SC APPLICATION GUIDELINES

CROPS
Barley
Durum wheat
Fall rye
Spring rye
Spring wheat
Triticale
Winter wheat

Cereal crops underseeded to legume forages:
Alfalfa
Bird’s foot trefoil
Clover
Sainfoin

RATES AND ACRES TREATED
Rate:
- 200 ml/ac
Acres treated:
- 80 ac/case (40 ac/jug)
- 2,400 ac/pallet (5 x 480 ac drums)
  • Water Volume
    - Ground: 20-40 L/ac (5-10 US gal/ac)
    - Aerial: 12-18 L/ac (3-5 gal/ac)

PACKAGING
Case:
- 2 x 8 L jugs
Pallet:
- 5 x 96 L drums

WHEN TO APPLY
• Crop stage: 2-leaf to just prior to flag leaf emergence
• Weed stage: Wild oats 1 to 6-leaf; other grasses 1 to 4-leaf

RAINFAST
• 1 hour

HERBICIDE TANK MIXES
• Pixxaro® • Prominex® • OctTain™ XL • Prestige™ XL
• Attain™ XC • Lontrel® • 2,4-D Ester 700 • Curtail® M
• Mextril® • Trophy® • Buctril® M • MCPA Ester 600
• Pardner™ • Thumper®

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. If water bicarbonate levels are greater than 400 ppm (regardless of tank mix partner), Add AMS at 1% v/v to the tank
4. If tank mixing with any EC broadleaf herbicide tank mix partner, add ammonia (Finish or Flush at 0.25% v/v)
5. Add tank mix partners that are a dry formulation
6. Add the required amount of Liquid Achieve SC
7. Add the required amount of broadleaf tank mix partner
8. Add required amount of Carrier adjuvant
9. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler.

Hard water: Always add ammonium sulfate first at 0.75-1.5 kg/100 L of water or 1.0% v/v when water analysis indicates bicarbonate ion levels are 400 ppm or greater

Crop rotation
Seed to all major crops the year following application.

Grazing and harvest
• Allow 16 days after application before cutting hay or harvesting forage.
• Mature crops may be harvested 60 days after application.
Lontrel™ XC
HERBICIDE

The most effective in-season thistle control available – right down to the roots. Now registered in corn!

WHY USE LONTREL XC HERBICIDE?

- Lontrel XC translocates throughout plants for effective control of Canada thistle and sow thistle.
- Flexibility. Choose a rate that matches the size of your thistle problem.
- Stronger XC formulation. A convenient, higher concentrated solution.
- Second year benefit. Up to a 73% thistle stand reduction the year after application.

WEEDS CONTROLLED

- Alsike clover
- Canada thistle
- Common groundsel
- Perennial sow thistle (top growth)
- Ragweed
- Red clover
- Scentless chamomile
- Tufted vetch
- Vetch
- Volunteer alfalfa
- White clover
- Wild buckwheat

WEEDS SUPPRESSED

- Ox-eyed daisy
- Sheep sorrel

Grazing and harvest

- Areas treated with Lontrel XC may be grazed immediately following treatment.
- For field corn, allow 40 days before grazing treated areas or feeding cattle with corn silage from treated areas.
- For canola, allow 3 to 5 days before grazing treated areas.
- For all other crops, no label restrictions on the grazing of crops or forages treated with Lontrel XC Herbicide.

1The performance of Lontrel XC is rate dependent; control is achieved at the rate of 227 mL/ac (0.56 L/ha) or higher.
# LONTREL XC APPLICATION GUIDELINES

## Rates and Acres Treated
- **Rate:**
  - 26-40 ac/jug
  - Under cool or dry conditions, control may be seriously reduced
- **Water volume**
  - Ground 40-80 L/ac (10-21 US gal/ac)
  - Aerial not registered

## Packaging
- **Case:** 4 x 2.67 L

## When to Apply
- **Canola stage:** 2 to 6-leaf
- **Cereal stage:** 3 to flag leaf
- **Corn stage:** emergence VE-V6 (8-leaf stage)
- **Weed stage:** Canada thistle rosette to pre-bud

## Rainfast
- 4 hours

## Herbicide Tank Mixes
Can be tank mixed with most commonly used grass weed herbicides, including:
- VP480
- Select®
- Ares™ SN
- Odyssey®
- Poast™ Ultra
- Amity™ WDG
- Compatible with all forms of glyphosate

## Mixing Instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add any tank mix partners that are a dry formulation
5. Add the required amount of grassy weed tank mix partner
6. Add the required amount of Lontrel XC
7. Add any required adjuvant or surfactants
8. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

## Crop Rotation
The year following application, fields can be seeded to barley, canola, flax, forage grasses, mustard, oats, rye, wheat or can be summerfallowed.

*For field pea rotation, rainfall from June 1 to August 31 in the year of application must be greater than 140 mm (5.5 inches) and annual rainfall must be greater than 175 mm (6.9 inches).*

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**Crops**
- Cereals
- Corn – NEW
- Grasses
- Oilseeds
- Other (refer to product label)
OcTTain™ XL HERBICIDE

High performance broadleaf weed control that’s easy to use and widely trusted.

WHY USE OC TTAIN XL HERBICIDE?
• Performance and value. The standard for kochia (including Group 2 and 9 resistant), plus wild buckwheat and 25 other key broadleaf weeds.
• Ease of use. Available in 40-acre cases, 240-acre drums and 1,280-acre totes.
• Crop-safe and flexible. Excellent crop safety in barley, wheat and durum. Tank mix with Simplicity™ GoDRI™ (wheat), Liquid Achieve™ (barley) and other grass weed control products.

WEEDS CONTROLLED
• Annual sunflower
• Blue lettuce
• Bluebur
• Burdock
• Cleavers
• Cocklebur
• Dandelion
• Docks
• Dog mustard
• Field bindweed
• Field horsetail
• Field peppergrass
• Flixweed
• Goat’s-beard
• Gumweed
• Hairy galinsoga
• Hedge bindweed
• Hemp-nettle
• Hoary cress
• Kochia
• Lamb’s-quarters
• Leafy spurge
• Mustards (except green and grey tansy)
• Oak-leaved goosefoot
• Plantain
• Prickly lettuce
• Ragweed
• Redroot pigweed
• Round-leaved mallow
• Russian thistle
• Shepherd’s purse
• Smartweed
• Stinkweed
• Stork’s-bill
• Sweet clover
• Tansy mustard
• Tartary buckwheat
• Vetch
• Volunteer canola
• Volunteer flax
• Wild buckwheat
• Wild radish

WEEDS SUPPRESSED
• Annual sow thistle
• Canada thistle
• Chickweed
• Perennial sow thistle
• Redroot pigweed

1Top growth control only
2Spring rosettes
3Including Group 2 resistant biotypes
4Requires the addition of 140 g/ha (2 oz/ac) of 2,4-D Ester
5All herbicide-tolerant varieties
OCTTAI\N XL APPLICATION GUIDELINES

CROPS
Barley
Durum wheat
Spring wheat
Winter wheat

RATES AND ACRES TREATED
Rate:
- 450 ml/ac

Acres treated:
- 40 ac/case (20 ac/jug)
- 1,200 ac/pallet (5 x 240 ac/drum)
- 1,280 ac/tote

- Water volume
  - Ground 20–40 L/ac (5–10 US gal/ac)
  - Aerial 12–20 L/ac (3–5 US gal/ac)

PACKAGING
Case:
- 2 x 9 L jugs

Pallet:
- 5 x 108 L drums

Tote:
- 576 L

WATER VOLUME
- Ground 20–40 L/ac (5–10 US gal/ac)
- Aerial 12–20 L/ac (3–5 US gal/ac)

WHEN TO APPLY
- Crop stage: 4-leaf to just prior to flag leaf emergence
- Weed stage: 1 to 6-leaf

RAINFAST
- 1 hour

HERBICIDE TANK MIXES
- Liquid Achieve™ SC
- Simplicity™ GoDRI™
- Traxos®
- Everest®
- Horizon®
- Assert®
- Puma® Super
- Simplicity™

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add any tank mix partners that are a dry formulation
5. Add the required amount of grassy weed tank mix partner
6. Add the required amount of OcTTain XL
7. Add any required adjuvant or surfactants
8. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
All major crops the following spring.

Grazing and harvest
- Allow 7 days after application before grazing lactating animals.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
- Allow 30 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.
WHY USE PIXXARO HERBICIDE?
- Just GO. 95% or greater control of most labelled weeds.
- Whether they are small or large weeds, in early or late crop staging and even in cool or dry conditions.
- Elite performance. Control your toughest broadleaf weeds, including kochia (Group 2 and 9 resistant) and cleavers.
- Convenience. Flexible packaging including bulk pallet-packs.
- Tank mixing. Excellent tank mix partner with Simplicity™ GoDRI™ herbicide in wheat and Liquid Achieve™ SC in barley, as well as ALL other grass control herbicides.

GRASS WEEDS CONTROLLED
- Barnyard grass

BROADLEAF WEEDS CONTROLLED
- American dragonhead
- Annual sow thistle
- Annual sunflower
- Ball mustard
- Burdock
- Canada fleabane
- Chickweed¹
- Cleavers¹ ²
- Cockscomb
- Common ragweed
- Flixweed
- Hemp-nettle¹
- Henbit
- Kochia¹
- Lamb’s-quarters
- Night shade species (Eastern black, hairy and cutleaf)
- Plantain
- Prickly lettuce
- Ragweed (false and giant)
- Redroot pigweed
- Round-leaved mallow
- Shepherd’s purse
- Stinkweed
- Stork’s-bill
- Velvleaf
- Vetch
- Volunteer alfalfa
- Volunteer canola (all herbicide tolerant biotypes)
- Volunteer flax
- Wild buckwheat
- Wild mustard²
- Wild radish

WEEDS SUPPRESSED
- Canada thistle
- Dandelion
- Field horsetail
- Perennial sow thistle
- Smartweed

For a complete weed list and specific weed staging, please refer to the Pixxaro label.
¹ Including Group 2 resistant biotypes
² Including Group 2 and Group 9 resistant biotypes
PIXXARO APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Pixxaro A: 125 ml/ac
- Plus M Ester 600: 235 ml/ac

Acres treated:
- 40 ac/pallet
- 1,280 ac/pallet (320 ac increments)
- Ground 20-40 L/ac (5-10 US gal/ac)

PACKAGING
Case:
- Pixxaro A:
  - 1 x 4.9 L jug
- Plus M Ester 600:
  - 1 x 9.45 L jug

Pallet:
- Pixxaro A:
  - 16 x 9.8 L jug
- Plus M Ester 600:
  - 4 x 75.1 L drums

320 acre pallet increment:
- Pixxaro A:
  - 4 x 9.8 L jug
- Plus M Ester 600:
  - 1 x 75.1 L drum

WHEN TO APPLY
- Crop stage: 3-leaf to just prior to flag leaf emergence
- Weed stage: 1 to 8-leaf (or larger; see label)

RAINFAST
- 1 hour

HERBICIDE TANK MIXES
- All grass herbicides

Mixing instructions
When mixing you will use step 5 or step 8 but not both.
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. If water conditioner is required, add now
4. Add any tank mix partners that are a dry formulation
5. If using an oil dispersible grassy weed tank mix partner (such as Simplicity herbicide) add now
6. Add the required amount of Pixxaro™ A
7. Add the required amount of Plus M (MCPA Ester 600)
8. Add the required amount of grassy weed tank mix partner if not using an oil dispersible or dry formulation
9. Add any required adjuvant or surfactants
10. Complete filling the spray tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
All major crops the following spring, except lentils or chickpeas.

Grazing and pre-harvest interval
- Livestock may be grazed on treated crops 21 days following application.
- Do not harvest the treated crop within 60 days after application.
Prestige™ XL

HERBICIDE

Maximize potential. Every acre, clean.

WHY USE PRESTIGE XL HERBICIDE?
- Excellent control of thistles, cleavers, kochia and more.
- Your cleanest cereal crops, year after year.
- Multiple pack sizes: cases and drums.

120 ac/drum (high rate)

WEEDS CONTROLLED
- Annual sow thistle
- Annual sunflower
- Burdock
- Canada thistle
- Chickweed
- Cleavers
- Cocklebur
- Common groundsel
- Dandelion
- Field horsetail
- Flixweed
- Hemp-nettle
- Kochia
- Lamb’s-quarters
- Perennial sow thistle
- Plantain
- Prickly lettuce
- Ragweed
- Redroot pigweed
- Round-leaved mallow
- Russian pigweed
- Scentless chamomile
- Shepherd’s purse
- Smartweed
- Stinkweed
- Stork’s-bill
- Tartary buckwheat
- Vetch
- Volunteer canola
- Volunteer flax
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild radish

160 ac/drum (low rate)

WEEDS CONTROLLED
- Annual sunflower
- Burdock
- Canada thistle (low infestations)
- Cleavers
- Cocklebur
- Field horsetail
- Flixweed
- Kocchia
- Lamb’s-quarters
- Plantain
- Prickly lettuce
- Ragweed
- Shepherd’s purse
- Stinkweed
- Stork’s-bill
- Vetch
- Volunteer flax
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild radish

WEEDS SUPPRESSED
- Volunteer canola

1 Season-long control, with some regrowth in the fall (top growth control)
2 Spring rosettes only
3 Including Group 2 resistant that inhibit the ALS enzyme
4 Controls or suppresses the population that is present at time of spraying but not subsequent flushes
5 Top growth only
6 All herbicide-tolerant canola varieties

This Prestige XL formulation requires the addition of 0.25% v/v ammonia to be mixed with Simplicity® GoDR™. If bicarbonates are >400 ppm, add AMS to the tank first at 2% v/v

Go to PrestigeSimplicitySupport.Corteva.ca or call 1-800-667-3852 for further details.
PRESTIGE XL APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- **Low rate:** 710 ml/ac
- **High rate:** 950 ml/ac
Acres treated:
- **Low rate:**
  - 13.5 ac/jug (27 ac/case)
  - 160 ac/drum
- **High rate:**
  - 10 ac/jug (20 ac/case)
  - 120 ac/drum
- Water volume
  - Ground 20–40 L/ac (5–10 US gal/ac)
  - Aerial 12–20 L/ac (3–5 US gal/ac)

PACKAGING
Case:
- 2 x 9.5 L jugs
Drum:
- 5 x 113.6 L drums

WHEN TO APPLY
- **Crop stage:** 3-leaf to just prior to flag leaf emergence
- **Weed stage:** 1 to 6-leaf or 2 to 4-leaf stage

RAINFAST
- 4 hours

HERBICIDE TANK MIXES
- Simplicity™ GoDRI™, Liquid Achieve™ SC, Horizon®, Everest®, Axial®, Puma®, Assert®, Simplicity™

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any required water conditioners
4. Add any tank mix partners that are a dry formulation
5. Add the required amount of grassy weed tank mix partner
6. Add the required amount of Prestige XL
7. Add any required adjuvant or surfactants
8. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

Crop rotation
- Barley
- Flax
- Oats
- Rye
- Summerfallow
- Canola
- Mustard
- Peas
- Sugar beets
- Wheat

Grazing and harvest
- Livestock may graze treated areas 7 days after application.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
- Allow 7 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.

For pea or soybean rotation, rainfall from June 1 to August 31 in the year of application must be greater than 140 mm (5.5 inches) and annual rainfall must be greater than 175 mm (6.9 inches).
**Prism™ SG**

Outstanding post-emergent control of quackgrass, pigweed and annual grasses.

**WHY USE PRISM SG HERBICIDE?**
- Can be used on all types of potatoes, including seed and early maturing varieties.
- Flexible re-cropping options.

**WEEDS CONTROLLED**
- Barnyard grass
- Fall panicum
- Green foxtail
- Hairy nightshade
- Lamb’s-quarters*
- Quackgrass
- Redroot pigweed
- Triazine resistant hairy nightshade
- Triazine resistant lamb’s-quarters
- Witchgrass
- Yellow foxtail

* Suppression only

**Crop rotation**

**Ten (10) months after application:**
- Barley
- Canola
- Chickpeas
- Corn (sweet or seed)
- Dry beans
- Faba beans
- Field peas
- Flax
- Lentils
- Oats
- Potatoes
- Red clover
- Sorghum
- Soybeans
- Spring wheat (including durum)

**Four (4) months:**
- Sunflowers
- White beans

**Any time:**
- Field corn
PRISM SG APPLICATION GUIDELINES

CROPS

Potatoes

RATES AND ACRES TREATED

RATES:

- Potato: 24 g/ac
- One 480 g bottle treats 20 ac

PACKAGING:

- 480g bottle

WHEN TO APPLY

- Prism SG Herbicide must be applied with a recommended non-ionic surfactant, either Citowett Plus, Agral 90 or Ag-Surf at 2 L per 1000 L spray solution (0.2% v/v).
- Application to control annual grasses and quackgrass must be made before the crop canopy can interfere with spray coverage of the target weeds. Cultivation is NOT recommended within 7-10 days prior to or after application of Prism SG.
- Apply 24 g/ac of Prism SG as a broadcast spray, with a recommended surfactant, to potatoes prior to initiation of flowering.

RAINFAST

- 4 hours

HERBICIDE TANK MIXES

- Tricor 75DF

Mixing instructions

1. Fill clean tank about ½ full of clean water
2. With the agitator running, add the required amount of Prism SG herbicide. Continue to agitate for a minimum of 5 minutes to ensure that Prism SG is completely dissolved.
3. Make sure there are no un-dissolved granules, and then add the required amount of the tank mix partner.
4. After Prism SG has been well mixed and is in suspension, add a recommended non-ionic surfactant such as Citowett Plus, Agral 90, or Ag-Surf at 2 L per 1000 L spray solution (0.2% v/v).
5. Fill the remainder of the spray tank with water.

Application timing

Weeds which emerge after application of Prism SG Herbicide will not be controlled. Application should be made when the majority of weeds have emerged. Annual grass and broadleaf weeds are most sensitive when small and actively growing. Early crop establishment and a good crop stand are important in providing competition for weeds and effective postemergence control of quackgrass and annual weeds when using Prism SG Herbicide.

Pre-harvest interval

30 days
Prominex™ delivers exceptional control of annual AND perennial broadleaf weeds with the convenience of an all-in-one formulation.

**WHY USE PROMINEX™ HERBICIDE IN WHEAT AND BARLEY?**

- **Unmatched Weed Control.** Prominex provides control of both annual AND perennial broadleaf weeds.
- **Just GO.** Thanks to Arylex active, you can Just GO on small or large broadleaf weeds, in early or late crop staging, and even in cool or dry conditions.
- **Tank Mix Flexibility.** Choose whether to tank mix with a Group 1 grass herbicide in your wheat or barley and a Group 2 grass herbicide in your wheat.
- **Convenient Formulation.** All-in-one ME formulation allows for ultimate convenience and easy loading.
- **Expanded Group 4 Mode of Action Control.** Tank mix with MCPA Ester 600 or 2, 4-D Ester for expanded Group 4 broadleaf weed control.

**Prominex + 235 ml/ac (5 oz./ac) MCPA Ester 600**

**GRASS WEEDS CONTROLLED**
- Barnyard grass

**ANNUAL WEEDS CONTROLLED**
- American dragonhead
- Annual sow thistle
- Ball mustard
- Burdock
- Canada fleabane**
- Canada thistle
- Chickweed**
- Cleavers**
- Cocklebur
- Common ragweed**
- Cow cockle
- False ragweed
- Flixweed*
- Giant ragweed**
- Hemp–nettles*
- Henbit
- Kochia**
- Lamb’s-quarters
- Nightshade species (Eastern black, hairy and cutleaf)
- Plantain
- Prickly lettuce
- Redroot pigweed
- Round-leaved mallow
- Shepherd’s purse*

**WEEDS SUPPRESSED**
- Dandelion
- Field horsetail
- Perennial sow-thistle
- Smartweed*
- Dandelion
- Field horsetail
- Perennial sow-thistle
- Smartweed*
- Stinkweed
- Stork’s-bill
- Velvetleaf
- Vetch
- Volunteer alfalfa
- Volunteer canola (all herbicide tolerant varieties)
- Volunteer flax
- Wild buckwheat
- Wild mustard
- Wild radish
PROMINEX APPLICATION GUIDELINES

RATES AND ACRES TREATED

RATES:
- 414 ml/ac

ACRES TREATED:
- 40 ac/case (20 ac/jug)

PACKAGING:
- Case: 2 x 8.3 L jugs

WHEN TO APPLY
- 3-leaf to just prior to flag leaf emergence

RAINFAST
- 4 hours

HERBICIDE TANK MIXES
- MCPA Ester 600
- 2, 4-D Ester 700
- Simplicity®
- Simplicity® GaDRI®
- Axial®
- Axial Extreme® + MCPA Ester 600
- Liquid Achieve™ SC
- Trondus®
- Horizon®
- Puma® Advance
- Traxos®

CROPS

Barley
Durum wheat
Spring wheat
Winter wheat

2020 Research Authorizations
Prominex was showcased in 53 x 80 acre research authorization sites applied by farmers throughout Alberta, Saskatchewan and Manitoba.

Prominex + Simplicity GODRI (10 DAA)

Crop rotation

- Barley
- Canola
- Corn
- Flax
- Forage grasses
- Oats
- Mustard
- Peas
- Fall rye (not underseeded with legumes, clover or alfalfa)
- Soybeans
- Summerfallow
- Wheat
- Lentils
- Chickpeas

22 months:

For pea or soybean rotation, rainfall from June 1 to August 31 in the year of application must be greater than 140 mm (5.5 inches) and annual rainfall must be greater than 175 mm (6.9 inches).

*Including Group 2 resistant biotypes
**Including Groups 2 & 9 resistant biotypes
For a complete weed list and specific weed staging, please refer to the Prominex label.
**Rexade™ active**

**HERBICIDE**

The complete wheat herbicide, Rexade delivers pure grass and broadleaf weed control performance in the convenience of one box.

**WHY USE REXADE IN WHEAT?**
- No compromise. Unmatched cross-spectrum grass and broadleaf weed control in one product.
- New class of Group 4 broadleaf herbicide combined with a premium Group 2 grass herbicide.
- Convenience. Complete, all-in-one box solution.
- GoDRI Rapid Dispersion Technology for easy storage, transport and mixing.
- Multiple Mode of Action control of key weeds for effective resistance management.

### GRASS WEEDS CONTROLLED
- Wild oats
- Barnyard grass
- Japanese brome
- Yellow foxtail

### BROADLEAF WEEDS CONTROLLED
- American dragonhead
- Annual sunflower
- Bluebur
- Burdock
- Canada fleabane
- Chickweed**
- Cleavers’
- Cocklebur
- Common ragweed*
- Corn spurry
- Cow cockle**
- Flixweed**
- Hemp-nettle**
- Henbit’
- Kochia’
- Lamb’s-quarters**
- Mustard** (except dog and green tansy)
- Plantain
- Prickly lettuce
- Redroot pigweed**
- Round-leaved mallow**
- Russian thistle*
- Shepherd’s purse**
- Smartweed
- Stinkweed**
- Stork’s-bill
- Sweet clover
- Velvetleaf
- Volunteer alfalfa
- Volunteer canola
- Volunteer flax
- White cockle
- Wild buckwheat**
- Wild radish*

### WEEDS SUPPRESSED
- Annual sow thistle
- Canada thistle
- Dandelion
- Downy brome
- Green foxtail
- Night-flowering catchfly

*For a complete weed list and specific weed staging, please refer to the Rexade label.*

**Weed controlled through multi-mode of action**

| Including Group 2 resistant biotypes |
| Including Group 2 and Group 9 resistant biotypes |
| Up to 10 cm in height; up to 50 plants/m² |
REXADE APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Rexade A: 40.5 g/ac
- Rexade B: 215 ml/ac
Acres treated:
- 40 ac/case

PACKAGING
- Rexade A: 1 x 1.62 kg jug
- Rexade B: 1 x 8.58 L jug

WHEN TO APPLY
- Crop stage: 2-leaf to just prior to flag leaf emergence

RAINFAST
- 2 hours

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add the required amount of Rexade A
4. Add the required amount of Rexade B
5. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler
No tank mix purchase necessary, everything included in the box

Crop rotation
All major crops the following spring, except lentils or chickpeas.

Grazing and harvest
- Allow 7 days after application before grazing lactating animals.
- Livestock may graze treated areas 3 days after application.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
- Allow 30 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.
Rezuvant™ Arlex™ active HERBICIDE

Rezuvant herbicide combines leading Group 1 grass weed control with outstanding broadleaf technology in wheat and barley.

WHY USE REZUVANT IN WHEAT AND BARLEY?
- Crop-safe, flexible and leading Group 1 performance on wild oats, green foxtail, barnyard grass and more.
- Unparalleled control of cleavers, hemp-nettle, wild buckwheat, kochia and many other tough broadleaf weeds.
- Tank mix with MCPA Ester 600 for expanded Group 4 mode of action control.
- Convenient pack sizes including 40 acre co-packs and 160 acre bulk unit.
- An excellent replacement for Liquid Achieve SC™ herbicide and Tundra® herbicide in barley.

Rezuvant + 5 oz./ac (235 ml/ac) MCPA Ester 600

ANNUAL BROADLEAF WEEDS CONTROLLED
- American dragonhead
- Annual sow thistle
- Ball mustard
- Burdock
- Canada fleabane
- Chickweed**
- Cleavers**
- Cocklebur
- Common ragweed
- Cow cockle
- Cutleaf nightshade
- Eastern black nightshade
- Flixweed
- Hairy nightshade
- Hemp-nettle**
- Henbit
- Kochia
- Lamb’s-quarters**
- Plantain
- Prickly lettuce
- Ragweed (common, false and giant)
- Redroot pigweed
- Round-leaved mallow**
- Shepherd’s purse**
- Stinkweed**
- Stork’s-bill**
- Velvetleaf
- Vetch
- Volunteer alfalfa
- Volunteer canola
- (all herbicide tolerant biotypes)
- Volunteer flax**
- Wild buckwheat
- Wild mustard
- Wild radish

GRASS WEEDS CONTROLLED
- Barnyard grass
- Green foxtail
- Prasso millet
- Volunteer oats
- Volunteer canary seed
- Wild oats
- Yellow foxtail

BROADLEAF WEEDS SUPPRESSED
- Canada thistle
- Dandelion
- Field horsetail
- Perennial sow thistle
- Smartweed

** Overlapping group 4 control of this weed when tank mixed with MCPA Ester at 5 oz per acre.
CROPS
Barley
Spring wheat
Winter wheat

REZUVANT APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Rezuvant A: 123 ml/ac
- Rezuvant B: 500 ml/ac

Acres treated:
- 40 ac/case
- 640 ac/pallet
  (160 ac increments)
- Water volume
  - Ground 20–40 L/ac
  (5–10 US gal/ac)

WHEN TO APPLY
• Crop stage:
  - 3-leaf to just prior to flag leaf emergence
• Weed stage:
  - Grass: Apply from 1 to 6-leaves, prior to emergence the 4th tiller
  - Broadleaf: Apply from 1 to 8-leaves, unless otherwise specified (refer to product label)

RAINFAST
• 1 hour

HERBICIDE TANK MIXES
• MCPA Ester 600

PACKAGING
Case:
- Rezuvant A:
  - 1 x 4.9 L jug
- Rezuvant B:
  - 2 x 10 L jugs

Pallet:
- Rezuvant A:
  - 8 x 9.8 L jugs
- Rezuvant B:
  - 4 x 80 L drums

160 acre pallet increment:
- Rezuvant A:
  - 2 x 9.8 L jugs
- Rezuvant B:
  - 1 x 80 L drum

Mixing instructions:
1. Begin to fill sprayer tank with clean water, and engage agitator. Agitation must be continued throughout the entire mixing and spraying procedure.
2. When the sprayer is half full of water, add Rezuvant A and agitate for 2-3 minutes.
3. If including MCPA Ester add it next. Agitate for 2-3 minutes.
4. Add the required amount of Rezuvant B.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. After any break in spraying operations, agitate thoroughly before spraying again.
7. Use the spray suspension as soon as it is prepared.

Crop rotation
All major crops, except chickpeas or lentils.

Grazing and Harvest
Livestock may be grazed on treated crops 21 days following application. Do not harvest the treated crop within 60 days after application.
Rezuvant™ XL
Arylex® active

HERBICIDE

Rezuvant XL herbicide combines leading Group 1 grass weed control with outstanding broadleaf technology in wheat and barley.

WHY USE REZUVANT XL IN WHEAT AND BARLEY?
• Crop-safe, flexible and leading Group 1 performance on wild oats, green foxtail, barnyard grass and more.
• Unparalleled control of cleavers, hemp-nettle, wild buckwheat, kochia and many other tough broadleaf weeds.
• Tank mix with MCPA Ester 600 for expanded Group 4 mode of action control.
• Convenient all-in-one formulation is easy to use and available in cases and drums.
• An excellent replacement for Liquid Achieve SC™ herbicide and Tundra® herbicide in barley.

Rezuvant XL + 5 oz./ac (235 ml/ac) MCPA Ester 600

ANNUAL BROADLEAF WEEDS CONTROLLED
• American dragonhead
• Annual sow thistle
• Annual sunflower
• Ball mustard
• Burdock
• Canada fleabane
• Chickweed**
• Cleavers**
• Cocklebur
• Common ragweed
• Cow cockle
• Cutleaf nightshade
• Eastern black nightshade
• Flixweed
• Hairy nightshade
• Hemp-nettle**
• Henbit
• Kochia
• Lamb's-quarters**
• Plantain
• Prickly lettuce
• Ragweed (common, false and giant)
• Redroot pigweed
• Round-leaved mallow**
• Shepherd's purse**
• Stinkweed**
• Stark's-bill**
• Velvetleaf
• Vetch
• Volunteer alfalfa
• Volunteer canola (all herbicide tolerant biotypes)
• Volunteer flax**
• Wild buckwheat
• Wild mustard
• Wild radish

GRASS WEEDS CONTROLLED
• Barnyard grass
• Green foxtail
• Proso millet
• Volunteer oats
• Volunteer canary seed
• Wild oats
• Yellow foxtail

BROADLEAF WEEDS SUPPRESSED
• Canada thistle
• Dandelion
• Field horsetail
• Perennial sow thistle
• Russian thistle
• Smartweed

1 This product is currently being assessed for registration under the Pest Control Products Act. It cannot be manufactured, imported, distributed, or used in Canada at this time, unless explicit authorization has been obtained from Health Canada to use this product for the purpose of conducting research under the Pest Control Products Regulations.

** Overlapping group 4 control of this weed when tank mixed with MCPA Ester at 5 oz per acre.
REZUVANT XL APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- 486 ml/ac
Acres treated:
- 40 ac/case (20 ac/jug)
- 1200 ac/pallet (5 x 240 ac/drums)
- Water volume
  - Ground 20–40 L/ac
  - (5-10 US gal/ac)

PACKAGING
Case:
- 2 x 9.7 L jugs
Pallet:
- 5 x 116.4 L drums

WHEN TO APPLY
- Crop stage:
  - 3-leaf to just prior to
    flag leaf emergence
- Weed stage:
  - Grass: Apply from 1 to
    6-leaves, prior to
    emergence the 4th tiller
  - Broadleaf: Apply from 1 to
    8-leaves, unless otherwise
    specified (refer to product label)

RAINFAST
- 1 hour

HERBICIDE TANK MIXES
- MCPA Ester 600

Crop rotation
All major crops, except chickpeas or lentils.

Grazing and Harvest
Livestock may be grazed on treated crops
21 days following application. Do not harvest
the treated crop within 60 days after application.
Simplicity™

HERBICIDE

Superior performance, including elite Group 2 wild oat and bonus broadleaf weed control with no re-cropping restrictions in a convenient.

WHY USE SIMPLICITY™ HERBICIDE?

- Superior performance. Elite grass and broadleaf weed control.
- Wide window of application. This is the only Group 2 wild oat product that can be applied up to just prior to flag leaf emergence.
- Resistance management. Controls Group 1 resistant wild oats.
- Tank mix flexibility.
- Rotational freedom to all major crops the following year.

---

GRASS WEEDS CONTROLLED

- Wild oats
- Barnyard grass
- Downy brome
  (fall application)
- Japanese brome
- Yellow foxtail

BROADLEAF WEEDS CONTROLLED

- Chickweed
- Cleavers
- Corn spurry
- Cow cockle
- Flixweed
- Hemp-nettle
- Redroot pigweed
- Round-leaved mallow
- Shepherd’s purse
- Smartweed
- Stinkweed
- Volunteer canola
  (excluding Clearfield*)

WEEDS SUPPRESSED

- Canada thistle
- Dandelion
- Downy brome
  (spring application)
- Green foxtail¹
- Persian darnel
- Russian thistle
- White cockle
- Wild buckwheat

---

*Not including group 2 resistant
¹Corteva Agriscience research trials indicate that application to small stage, actively growing plants provides an increased level of control
CROPS
Durum wheat
Spring wheat
Winter wheat

SIMPLICITY APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
• Simplicity
  - 200 ml/ac
• Water conditioner
  - 37.5 ml/ac
Acres treated:
• 40 ac/jug (80 ac/case)
• Water volume
  - Ground 12-40 L/ac (3-10 US gal/ac)
  - Aerial minimum 12 L/ac (3 US gal/ac)

PACKAGING
Case:
• Simplicity
  - 2 x 8 L jugs
• Water Conditioner
  - 2 x 1.5 L jugs

WHEN TO APPLY
• Crop stage: 3-leaf to just prior to flag leaf emergence
• Weed stage:
  - 1 to 6-leaf stage of wild oats
  - 1 to 5-leaf stage of broadleaf weeds

RAINFAST
• 2 hours

HERBICIDE TANK MIXES
• Attain™ XC • Buctril® M • Cipreme™ XC • Curtail® M
• MCPA Ester 600 • OctTain™ XL • Exilarate™
• Pixxaro™ • Prestige™ XL • Prominex™ • Refine Extra™
• Stellar™ XL • Tilt® fungicide • Thumper®

Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add required water conditioner
4. Add any broadleaf tank mix partners that are a dry formulation
5. Add the required amount of Simplicity
6. Add the required amount of broadleaf tank mix partner
7. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation
Seed to all major crops the year following application.

Grazing and harvest
• Livestock may graze treated areas 7 days after application.
• Mature crops may be harvested 60 days after application.
Simplicity™ Herbicide

Simplicity™ Wild Oat Rate herbicide. Simply better value.

WHY USE SIMPLICITY WILD OAT RATE?

- Cost effective control of wild oats and Japanese brome.
- Wide window of application from 3-leaf to just prior to flag leaf emergence.
- Rotational freedom. Ability to seed all major crops the year following application.
- Resistance management. Controls Group 1 resistant wild oats.

For early season applications in low to moderate wild oat populations that are typical in the brown soil zones of Southern Alberta and Southern Saskatchewan.

WILD OAT RATE

WEEDS CONTROLLED

- Wild oats
- Japanese brome
- Barnyard grass

WILD OAT PERFORMANCE

Wild Oat Control Rating

<table>
<thead>
<tr>
<th>%</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplicity® GoDRI™</td>
<td>Very good (90 – 95%)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Source: Corteva Agriscience Field Research Data (2006 to 2019).

Wild Oat Control Rating

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<thead>
<tr>
<th>%</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varro®/Velocity® m3</td>
<td>Good (85 – 89%)</td>
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<td></td>
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</tr>
</tbody>
</table>

Source: Corteva Agriscience Field Research Data (2009 to 2019).

1 Based on Corteva Agriscience research trials
## SIMPLICITY WILD OAT RATE APPLICATION GUIDELINES

### CROPS
- Durum wheat
- Spring wheat
- Winter wheat

### RATES AND ACRES TREATED
**Rates:**
- Simplicity
  - 150 ml/ac
- Water conditioner
  - 28.3 ml/ac
**Acres treated:**
- 53 ac/jug (106 ac/ case)
- Water volume
  - Ground 12–40 L/ac (3–10 US gal/ac)
  - Aerial minimum 12 L/ac (3 US gal/ac)

### PACKAGING
- Simplicity
  - 2 x 8 L jugs
- Water Conditioner
  - 2 x 1.5 L jugs

### WHEN TO APPLY
- **Crop stage:** 3–leaf to just prior to flag leaf emergence
- **Weed stage:** 1 to 4–leaf

### RAINFAST
- 2 hours

### HERBICIDE TANK MIXES
- Attain™ XC
- Buctril™ M
- OcTain™ XL
- Prestige™ XL
- Prominex™
- Stellar™ XL
- Tilt® fungicide
- Thumper®

### Mixing instructions
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add required water conditioner
4. Add any broadleaf tank mix partners that are a dry formulation
5. Add the required amount of Simplicity
6. Add the required amount of broadleaf tank mix partner
7. Complete filling the sprayer tank with water

*Note: Do not mix undiluted herbicides in the chem-handler*

### Crop rotation
Seed to all major crops the year following application.

### Grazing and harvest
- Livestock may graze treated areas 7 days after application.
- Mature crops may be harvested 60 days after application.
Simplicity™ GoDRI™

HERBICIDE

Superior performance, including elite Group 2 wild oat and bonus broadleaf weed control with no re-cropping restrictions in a convenient, easy-to-use GoDRI formulation.

WHY USE SIMPLICITY GODRI HERBICIDE?
- Superior performance. Elite grass and broadleaf weed control.
- Wide window of application. This is the only Group 2 wild oat product that can be applied up to just prior to flag leaf emergence.
- Resistance management. Controls Group 1 resistant wild oats.
- Broadleaf herbicide tank mix partner flexibility.
- Rotational freedom to all major crops the following year.
- Convenient GoDRI formulation for fast, easy mixing and handling.

GRASS WEEDS CONTROLLED
- Wild oats
- Barnyard grass
- Downy brome (fall application)
- Japanese brome
- Yellow foxtail

BROADLEAF WEEDS CONTROLLED
- Chickweed
- Cleavers*
- Corn spurry
- Cow cockle
- Flixweed
- Hemp-nettle
- Redroot pigweed
- Round-leaved mallow
- Shepherd’s purse
- Smartweed*
- Stinkweed
- Volunteer canola (excluding Clearfield*)

WEEDS SUPPRESSED
- Canada thistle
- Dandelion
- Downy brome (spring application)
- Green foxtail
- Persian darnel
- Russian thistle
- White cockle
- Wild buckwheat

When spraying Simplicity™ GoDRI™ alone, the addition of a non-ionic surfactant is ALWAYS required. The following non-ionic surfactants can be used:
- Agral 90 at 0.25% v/v, Sentry at 0.25% v/v, Ag-Surf® Original at 0.25% v/v

When tank mixing Simplicity GoDRI with a broadleaf herbicide that does not require a surfactant, Bindem Utility Modifier must be used. Bindem is sold separately. Each 2.4 L jug of Bindem treats 80 acres.

*Not including group 2 resistant
1 Corteva Agriscience research trials indicate that application to small stage, actively growing plants provides an increased level of control.
SIMPLICITY GODRI
APPLICATION GUIDELINES

CROPS
- Durum wheat
- Spring wheat
- Winter wheat
- Triticale

RATES AND ACRES TREATED
Rates:
- 28 g/ac

Acres treated:
- 80 ac/jug (320 ac/case)
  - Water volume
    - Ground 12-40 L/ac
    - Aerial minimum 12 L/ac
    - (3 US gal/ac)

PACKAGING
Case:
- 4 x 2.24 kg jugs

WHEN TO APPLY
- Crop stage: 3-leaf to just prior to flag leaf emergence
- Weed stage:
  - 1 to 6-leaf stage of wild oats
  - 1 to 5-leaf stage of broadleaf weeds

RAINFAST
- 2 hours

HERBICIDE TANK MIXES
- Attain™ XC
- Buctril™ M
- Cirpreme™ XC
- Curtail™ M
- MCPA Ester 600
- OctTtain™ XL
- Exhilarate™
- Pixxaro™
- Prestige™ XL
- Prominex™
- Refine Extra™
- Stellar™ XL
- Tilt® fungicide
- Thumper™

Mixing instructions
1. Fill the spray tank with 1/2 to 3/4 of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any broadleaf tank mix partners that are a dry formulation
4. Add the required amount of Simplicity GoDRI
5. Add the required amount of liquid broadleaf tank mix partner
6. Add Agral 90, Ag-Surf Original or Sentry at 0.25% v/v. Bindem can be used as a substitute for those non-ionic surfactants and has the same v/v rate regardless of volume (80 acres/jug).
7. Complete filling the sprayer tank with water

Note. Do not mix undiluted herbicides in the chem-handler

Crop rotation
Seed to all major crops the year following application.

Grazing and harvest
- Livestock may graze treated areas 7 days after application.
- Mature crops may be harvested 60 days after application.
Simplicity™ GoDRI™

HERBICIDE

Simplicity™ GoDRI™ Wild Oat Rate herbicide. Simply better value.

WHY USE SIMPLICITY GODRI WILD OAT RATE?
- Cost effective control of wild oats and Japanese brome.
- Wide window of application from 3-leaf to just prior to flag leaf emergence.
- Rotational freedom. Ability to seed all major crops the year following application.
- Resistance management. Controls Group 1 resistant wild oats.
- Available in a convenient GoDRI formulation for fast, easy mixing and handling.

For early season applications in low to moderate wild oat populations that are typical in the brown soil zones of Southern Alberta and Southern Saskatchewan.

WILD OAT RATE

WEEDS CONTROLLED
- Wild oats
- Japanese brome
- Barnyard grass

WILD OAT PERFORMANCE

Wild Oat Control Rating

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<thead>
<tr>
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<tr>
<td>Simplicity™ GoDRI™</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Very good (90 – 95%)</td>
</tr>
</tbody>
</table>

Source: Corteva Agriscience Field Research Data (2004 to 2019).

When spraying Simplicity™ GoDRI™ alone, the addition of a non-ionic surfactant is ALWAYS required. The following non-ionic surfactants can be used:
- Agral 90 at 0.25% v/v, Sentry at 0.25% v/v,
- Ag-Surf® Original at 0.25% v/v

When tank mixing Simplicity GoDRI with a broadleaf herbicide that does not require a surfactant, Bindem Utility Modifier must be used. Bindem is sold separately. Each 2.4 L jug of Bindem treats 80 acres.

1 Based on Corteva Agriscience research trials
SIMPlicity GODRI WILD OAT RATE APPLICATION GUIDELINES

Rates and Acres Treated
- 21 g/ac
- Acres treated: 106 ac/jug (424 ac/case)
- Water volume:
  - Ground: 12-40 L/ac (3-10 US gal/ac)
  - Aerial: minimum 12 L/ac (3 US gal/ac)

Packaging
- Case: 4 x 2.24 kg jugs

Crops
- Durum wheat
- Spring wheat
- Winter wheat
- Triticale

When to Apply
- Crop stage: 3-leaf to just prior to flag leaf emergence
- Weed stage: 1 to 4-leaf

RAINfast
- 2 hours

Herbicide Tank Mixes
- Attain™ XC
- Buctril™ M
- OctTain™ XL
- Prestige™ XL
- Prominex™
- Stellar™ XL
- Tilt® fungicide
- Thumper®

Mixing Instructions
1. Fill the spray tank with 1/2 to 3/4 of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any broadleaf tank mix partners that are a dry formulation
4. Add the required amount of Simplicity GoDRI
5. Add the required amount of liquid broadleaf tank mix partner
6. Add Agral 90, Ag-Surf Original or Sentry at 0.25% v/v. Binderm can be used as a substitute for those non-ionic surfactants and has the same v/v rate regardless of volume (80 acres/jug).
7. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop Rotation
Seed to all major crops the year following application.

Grazing and Harvest
- Livestock may graze treated areas 7 days after application.
- Mature crops may be harvested 60 days after application.
Sortan™ IS
HERBICIDE

WHY USE SORTAN IS HERBICIDE?

- Provides Moisture – Activated Extended Control throughout the Critical Weed Free Period (CWFP).
  - CWFP in corn is from emergence (VE) to the V4 stage
- Removes Early-Season Weed Competition
  - Excellent control of Volunteer glyphosate tolerant canola and wild buckwheat
  - Recommend the high rate (40 ac/jug) + glyphosate herbicide (at 1 REL) at pre-emergent to early post (V3) timing
- Resistance Management Tool
  - Additional mode of action to glyphosate providing a great tool for resistance management

WEEDS CONTROLLED

Post-emergent application
15 g/acre rate
- Redroot pigweed (including triazine-resistant biotypes)
- Volunteer canola* (including glyphosate tolerant)
- Annual sow thistle and wild buckwheat (when tank mixed with glyphosate)

30 g/acre rate
- Barnyard grass
- Green foxtail
- Fall panicum
- Lamb’s-quarters (suppression)
- Old witchgrass
- Quackgrass (suppression)
- Redroot pigweed
- Shepherd’s purse
- Wild buckwheat
- Volunteer canola* (including glyphosate tolerant)
- Yellow foxtail (suppression)

Pre-emergent application
- Annual sow thistle (suppression)
- Barnyard grass
- Green foxtail
- Lady’s thumb (suppression)
- Shepherd’s purse
- Volunteer canola (excluding Clearfield*)
- Yellow foxtail (suppression)

For optimum performance, Sortan IS should be tank mixed with 1 litre equivalent of glyphosate herbicide.

For optimum extended control, Sortan IS requires a rainfall within 3–5 days after application for activation. Activation of Sortan IS occurs when the top 5–10 cm of the soil profile is thoroughly moistened following a rainfall event making the herbicide readily available to control germinating annual weeds.

*Tank mix with glyphosate required for volunteer Clearfield* canola control.
Refer to product label for complete details prior to use.
SORTAN IS APPLICATION GUIDELINES

CROPS
- Silage Corn
- Grazing Corn
- Grain Corn

RATES AND ACRES TREATED
- **Pre-emergent rate:** 30 g/ac, 40 ac/jug
- **Post-emergent rate:** 15-30 g/ac, 40-80 ac/jug
(Refer to product label for more details on the post-emergent application)
- Water volume
- Minimum 40 L/ac (9 US gal/ac)

PACKAGING
- Case: 4 x 1.2 kg jugs

WHEN TO APPLY
- **Pre-emergent application:** before emergence of weeds
- **Pre-emergent application:** VE-V3 – before emergence of weeds

RAINFAST
- 2 - 4 hours

HERBICIDE TANK MIXES
- Tank mix with 1 litre equivalent of glyphosate

Mixing instructions
1. Fill clean tank about ½ full with fresh water
2. Turn on full agitation
3. With the agitator running, add the required amount of Sortan™ IS herbicide.
   Continue to agitate for a minimum of 5 minutes to ensure that Sortan IS herbicide is completely dissolved
4. Once granules are dissolved continue to fill the tank to ½ to ¾ full,
   then add the required amount of the tank mix partner
5. After Sortan IS herbicide has been well mixed and is in suspension,
   add a recommended non-ionic surfactant at 2 L per 1,000 L spray solution
   (0.2 % v/v). Surfactant not required if tank mixed with VP480 or equivalent glyphosate
6. Fill the remainder of the spray tank
7. For repeat tank loads, reduce the material remaining in the tank to 10% of
   the original volume or less before proceeding with step 1, because remaining
   chemicals may prevent Sortan IS herbicide granules from completely
dissolving. If this is not possible, pre-slurry Sortan IS herbicide in a small
   amount (5-10 L) of water before adding to the tank

Crop rotation
The following crops may be seeded 10 months after application: Spring wheat
(including durum), oats, barley, canola, soybeans, dry beans, chickpeas,
potatoes, sunflowers, field corn, field peas, lentils, flax, faba beans and corn
(sweet or seed). Winter wheat may be planted 4 months after application.

Grazing and harvest
- Must not be applied within 30 days of harvest.
- Do not graze or silage for a minimum of 30 days.
Stellar™ XL

Stellar XL performance. Made easy.

**HERBICIDE**

**WHY USE STELLAR XL?**
- High performance. Superior control of a wide range of annual broadleaf weeds including kochia, wild buckwheat, cleavers, hemp-nettle, chickweed and more.
- Flexibility and early application. Wide application window and no re-cropping restrictions.
- #1 broadleaf herbicide in oats. The best broadleaf weed control option in oats. Easy on oats, hard on weeds.
- Convenience. All in one XL formulation. Available in 40-acre cases, 240-acre drums and 1,280-acre totes.

<table>
<thead>
<tr>
<th>WEEDS CONTROLLED</th>
<th>WEEDS SUPPRESSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Kochia</td>
<td>• Vetch</td>
</tr>
<tr>
<td>• Lamb’s–quarters</td>
<td>• Volunteer canola*</td>
</tr>
<tr>
<td>• Plantain</td>
<td>• Volunteer flax</td>
</tr>
<tr>
<td>• Prickly lettuce</td>
<td>• Wild buckwheat</td>
</tr>
<tr>
<td>• Redroot pigweed</td>
<td>• Wild mustard*</td>
</tr>
<tr>
<td>• Russian pigweed</td>
<td>• Wild radish</td>
</tr>
<tr>
<td>• Shepherd’s purse*</td>
<td></td>
</tr>
<tr>
<td>• Smartweed</td>
<td>• Stork’s–bill</td>
</tr>
<tr>
<td>• Stinkweed*</td>
<td></td>
</tr>
</tbody>
</table>

When Stellar™ XL is tank mixed with Simplicity™ GoDRI™ (full rate) these additional weeds are controlled or suppressed:

<table>
<thead>
<tr>
<th>GRASS</th>
<th>BROADLEAF</th>
<th>WEEDS SUPPRESSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Barnyard grass</td>
<td>• Canada thistle</td>
<td>• Narrow-leaved hawk’s beard</td>
</tr>
<tr>
<td>• Japanese brome</td>
<td>• Corn spurry</td>
<td>• White cockle</td>
</tr>
<tr>
<td>• Wild oats</td>
<td>• Cow cockle</td>
<td></td>
</tr>
<tr>
<td>• Yellow foxtail</td>
<td>• Dandelion</td>
<td></td>
</tr>
<tr>
<td>• Narrow-leaved hawk’s beard</td>
<td>• Round-leaved mallow*</td>
<td></td>
</tr>
<tr>
<td>• Russian thistle</td>
<td>• Russian thistle</td>
<td></td>
</tr>
</tbody>
</table>

* Weed controlled through multi-mode of action
* Including Group 2 resistant biotypes
* All herbicide-tolerant canola varieties
### STELLAR XL APPLICATION GUIDELINES

<table>
<thead>
<tr>
<th>RATES AND ACRES TREATED</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate:</td>
<td></td>
</tr>
<tr>
<td>– 405 ml/ac</td>
<td>Case:</td>
</tr>
<tr>
<td>Acres treated:</td>
<td>– 2 x 8.1 L jugs</td>
</tr>
<tr>
<td>– 40 ac/case (20 ac/jug)</td>
<td>Pallet:</td>
</tr>
<tr>
<td>– 240 ac/drum (1,200 ac/pallet)</td>
<td>– 5 x 97 L drums</td>
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<tr>
<td>– 1,280 ac/tote</td>
<td>Tote:</td>
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<tr>
<td>· Water volume</td>
<td>– 518 L</td>
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<tr>
<td>· Ground 20–60 L/ac</td>
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<tr>
<td>(5–10 US gal/ac)</td>
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<tr>
<td>· Aerial not registered</td>
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</table>

<table>
<thead>
<tr>
<th>WHEN TO APPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Crop stage: 3-leaf to just prior to flag leaf emergence</td>
</tr>
<tr>
<td>· Weed stage: 1 to 4-leaf</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RAINFAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>· 2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HERBICIDE TANK MIXES</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Simplicity™ GaDRI™</td>
</tr>
<tr>
<td>· Axial™ * · Assert*</td>
</tr>
<tr>
<td>· Everest* · Sierra™ * · Simplicity™ *</td>
</tr>
</tbody>
</table>

### Mixing instructions

When mixing, you will use step 5 or step 7 but not both

1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. If water conditioner is required, add now
4. Add any tank mix partners that are a dry formulation
5. If using an oil dispersible grassy weed tank mix partner, add now
   (such as Simplicity OD) add now
6. Add the required amount of Stellar XL
7. Add the required amount of grassy weed tank mix partner, if not using an oil dispersible or dry formulation
8. Add any required adjuvant or surfactants
9. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

### Crop rotation

Seed to all major crops the year following application.

### Grazing and harvest

- Allow 7 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.

### CROPS

- Barley
- Oats
- Spring wheat
- Durum wheat
Tandem™

HERBICIDE

Control problem grass and broadleaf weeds in wheat – with the tougher, easier, total-acre solution.

WHY USE TANDEM HERBICIDE?
• Tougher. Control of wild oats, Japanese brome, chickweed, cleavers, hemp-nettle, kochia, wild buckwheat and many more.
• Easy to use. Control all problem weeds using one solution.
• Flexible. Wide window of application, excellent crop safety, flexible rate and rotational freedom.
• Multi-Mode of Action. Two unique modes of action provide overlapping activity on hard-to-kill weeds for superior resistance management.

WEEDS CONTROLLED
Grass
• Barnyard grass
• Japanese brome
• Wild oats
• Yellow foxtail

Broadleaf
• Chickweed
• Cleavers
• Corn spurry
• Cow cockle

• Flixweed
• Hemp-nettle
• Kochia
• Redroot pigweed
• Round-leaved mallow
• Russian thistle
• Shepherd’s purse
• Smartweed
• Stinkweed
• Volunteer canola
• Volunteer flax

• Wild buckwheat

WEEDS SUPPRESSED
Grass
• Downy brome
• Green foxtail

Broadleaf
• Canada thistle
• Dandelion
• Stark’s-bill
• Lamb’s-quarters

Additional broadleaf weeds controlled when tank mixed with 2,4-D Ester (5 oz/ac)
• Bluebur
• Burdock
• Cocklebur
• Flixweed
• Goat’s-beard
• Lamb’s-quarters

• Plantain
• Prickly lettuce
• Ragweed
• Redroot pigweed
• Smartweed
• Stinkweed

• Sweet clover
• Volunteer sunflower
• Wild buckwheat
• Wild mustard
• Wild radish

Additional broadleaf weeds controlled when tank mixed with MCPA Ester (5 oz/ac)
• Burdock
• Cocklebur
• Lamb’s-quarters
• Prickly lettuce
• Ragweed

• Shepherd’s purge
• Smartweed
• Stinkweed
• Vetch
• Volunteer sunflower

• Wild buckwheat
• Wild mustard
• Wild radish

*Weed controlled through multi-mode of action
**Clearfield volunteer canola is controlled with the addition of MCPA or 2,4-D
1Including Group 1 resistant biotypes
2Including Group 2 resistant biotypes
3Corteva Agriscience, agriculture division of DuPont. Research trials indicate that application to small stage, actively growing plants provides an increased level of control
4Spring rosettes
5Top growth only

79
CROPS

Durum wheat
Spring wheat
Winter wheat

TANDEM APPLICATION GUIDELINES

RATES AND ACRES TREATED

Rates:
- Tandem A: 200 ml/ac
- Tandem B: 121 ml/ac
- Water Conditioner: 37.5 ml/ac

Acres treated: 40 ac/case

PACKAGING

Case:
- Tandem A: 1 x 8 L jug
- Tandem B: 1 x 4.84 L jug
- Water Conditioner: 1 x 1.5 L jug

WHEN TO APPLY

- Crop stage: 3-leaf to just prior to flag leaf emergence
- Weed stage: 1 to 6-leaf stage for wild oats and 1 to 5-leaf stage for broadleaf weeds

RAINFAST

- 2 hours

HERBICIDE TANK MIXES

- MCPA Ester 600
- 2,4-D Ester 700
- Curtail® M

Mixing instructions

1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add required water conditioner
4. Add any tank mix partners that are a dry formulation
5. Add the required amount of Tandem A
6. Add the required amount of Tandem B
7. Add the required amount of broadleaf tank mix partner
8. Add any required adjuvant or surfactants
9. Complete filling the sprayer tank with water

Note: Do not mix undiluted herbicides in the chem-handler

Crop rotation

Seed to all major crops the year following application.

Grazing and harvest

- Livestock may graze treated areas 7 days after application.
- Allow 7 days after application before grazing lactating animals.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
- Allow 30 days after application before cutting hay or harvesting forage.
- Mature crops may be harvested 60 days after application.

Additional broadleaf weeds controlled when tank mixed with Curtail M herbicide (10 ac/jug)

- Annual saw thistle
- Burdock
- Canada thistle
- Cocklebur
- Common groundsel
- Dandelion
- Field horsetail
- Lamb’s-quarters
- Perennial sow thistle
- Plantain
- Prickly lettuce
- Ragweed
- Russian pigweed
- Scentless chamomile
- Sunflower (annual and volunteer)
- Tarter buckwheat
- Vetch
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild radish
Tridem™

HERBICIDE

Engineered for the brown soil zones to handle the toughest broadleaf and grass weeds.

WHY USE TRIDEM HERBICIDE IN WHEAT?

- Control and wide range of annual broadleaf weeds, including kochia (Group 2 and Group 9 resistant), narrow-leaved hawk’s beard, wild buckwheat and many more.
- Control Canada thistle, perennial sow thistle and dandelion with rotational freedom to lentils or chickpeas the following year.
- Exceptional Group 2 control of wild oats and Japanese brome.
- Tank mix with 2,4-D Ester 700 for expanded Group 4 mode of action control of many key broadleaf weeds.
- Flexible pack sizes: 40-acre co-packs and 240-acre bulk units.
- A better option than Luxxur® herbicide or Tandem™ herbicide in wheat.

Tridem + 5–6 oz./ac (215–250 ml/ac) 2,4-D Ester 700

ANNUAL BROADLEAF WEEDS
- Annual sow thistle
- Burdock
- Bluebur
- Cleavers**
- Cocklebur
- Common chickweed**
- Cow cockle
- Daisy fleabane
- False flax
- Fixweed
- Goat’s-beard
- Kochia
- Lamb’s-quarters
- Narrow-leaved hawk’s beard
- Plantain
- Prickly lettuce
- Ragweed
- Redroot pigweed**
- Round-leaved mallow**
- Russian pigweed
- Russian thistle
- Shepherd’s purse**
- Smartweed**
- Stinging nettle
- Stinkweed**
- Stork’s-bill
- Sweet clover
- Thyme-leaved spurge
- Volunteer canola**
  (all herbicide tolerant biotypes)
- Volunteer flax**
- Wild buckwheat**
- Wild mustard**
- Wild radish
- Wild sunflower**

PERENNIAL BROADLEAF WEEDS
- Canada thistle
- Dandelion
- Perennial sow thistle

GRASS WEEDS
- Japanese brome
- Wild oats

WEEDS SUPPRESSED
- Hemp-nettle
- Round-leaved mallow

**Weed controlled by multi-mode of action when tank mixed with 2,4-D Ester at 5 oz per acre
CROPS
Durum wheat
Spring wheat
Winter wheat

TRIDEM APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Tridem A:
  21 g/ac
- Tridem B:
  405 ml/ac
- Bindem:
  60 ml/ac
Acres treated:
- 40 ac/case
- 960 ac/pallet
  (240 acre increments)

WHEN TO APPLY
- Crop stage: 4-leaf to just prior to flag leaf emergence
- Weed stage: Apply early post-emergence to the main flush of actively growing weeds

RAINFAST
- 2 hours

PACKAGING
Case:
- Tridem A:
  1 x 0.84 kg jug
- Tridem B:
  2 x 8.1 L jugs
- Bindem:
  1 x 2.4 L jug
Pallet:
- Tridem A:
  4 x 5.04 kg jugs
- Tridem B:
  4 x 97.2 L drums
- Bindem:
  8 x 7.1 L jugs
240 acre pallet increment:
- Tridem A:
  1 x 5.04 kg jug
- Tridem B:
  1 x 97.2 L drum
- Bindem:
  2 x 7.1 L jugs

HERBICIDE TANK MIXES
- 2,4-D Ester 700
- MCPA Ester 600

Mixing Instructions
1. Fill sprayer tank ½ full of water
2. Start sprayer tank agitation
3. Add the required amount of Tridem A Herbicide and any other dry formulations
4. Add the required amount of Tridem B Herbicide and continue to agitate
5. Add 2,4-D Ester 700 next and continue agitation
6. Add required amount of Bindem utility modifier
7. Fill the sprayer tank with the remaining amount of water required

Crop rotation
All major crops the following spring.

Grazing and harvest
- The PHI of Tridem™ herbicide is 60 days after application.
VP480

HERBICIDE

Maximum glyphosate performance.

WHY USE VP480 HERBICIDE?

- Maximum weed control. Patented DMA technology provides fast and effective weed control under all use conditions.
- Flexibility. A competitive alternative to other premium glyphosate options that can be applied pre-seed, in-crop, chemfallow, pre-harvest and post-harvest.
- Foam-free formulation. Easier to mix and spray.

WEEDS CONTROLLED

- Annual broadleaf weeds
- Annual grass weeds
- Perennial broadleaf weeds
- Perennial grasses/sedges
- Volunteer crops (Barley, Corn, Wheat, Canola, Flax)*
- Winter annual weeds

* Except glyphosate tolerant varieties
**VP480 APPLICATION GUIDELINES**

**CROPS**
Apply before seeding all crops.

Apply pre-harvest in:
- Cereal
- Glyphosate tolerant:
  - Corn
  - Canola
  - Soybeans

**RATES AND ACRES TREATED**
- Refer to the label
- Apply with ground equipment only

**PACKAGING**
- 2 x 10 L jugs
- 115 L drums
- 450 L totes
- 960 L totes

**WHEN TO APPLY**
- Refer to the label
- Ensure adequate leaf surface to receive the spray
- Un-emerged plants will not be controlled
- For best control of perennial weeds, treat near maturity

**RAINFAST**
- 30 minutes

**HERBICIDE TANK MIXES**
- Some tank mixes are registered for glyphosate-tolerant canola or chemfollow
- Tank mixes with Paradigm™ PRE, PrePass™ FLEX and Korrex™ II for excellent pre-seed and post-harvest control ahead of cereal and with Prospect™ ahead of canola

**Mixing instructions**
1. Fill the spray tank with ½ to ¾ of the required amount of water
2. Start and continue agitation throughout the mixing and spraying procedure
3. If tank mix partner is desired, add now*
4. Add the required amount of VP480
5. Complete filling the sprayer tank with water

* Unless otherwise specified in tank mixing order, important to follow tank mix order depending on tank mix partner formulation.

**Note:** Do not mix undiluted herbicides in the chem-handler

**Crop rotation**
Seed to all major crops the year following application.

**Grazing and harvest**
- All portions of the treated crops may be fed to livestock.
- Do not apply to any crops grown for seed.
- Consult malt buyers before using pre-harvest on malt barley.
- Allow 3-5 days after application before grazing or harvesting treated areas.
**Grazon™ XC HERBICIDE**

Proven and effective extended control of a variety of broadleaf weeds and trees.

**WHY USE GRAZON XC HERBICIDE?**

- Proven and effective extended control of a variety of broadleaf weeds and trees:
  - Controls aspen, birch, dandelion and leafy spurge, as well as many other invasive broadleaf weeds and brush
- Minimal disruption of grazing post application
  - There are no grazing restrictions for livestock
  - Seven day restriction for lactating dairy animals

**WEEDSCONTROLLED**

- Burdock
- Canada thistle
- Common ragweed
- Common yarrow
- Dandelion
- Dock
- Fleabane
- Goldenrod
- Leafy spurge
- Plantain
- Prickly lettuce
- Red clover
- Sweet clover
- Toadflax
- Vetch
- Wild carrot
- Wild rose

**TREESCONTROLLED**

- Aspen
- Birch
- Wild prairie rose
- Willow

**TREESSUPPRESSED**

- Balsam poplar
- Western snowberry

**Precautions**

- Do not apply within 1.5 times the height of desirable trees in pastures.
- Do not spray if injury to existing forage legumes cannot be tolerated.
- Take appropriate measures to prevent application or drift onto plants and trees that are not intended for control.

**Grazing**

- No grazing restrictions for beef livestock.
- Allow 7 days after application before grazing lactating dairy animals.
- Withdraw meat animals from treated areas at least 3 days before slaughter.

**Gateway™ ADJUVANT**

Gateway™ Adjuvant is a non-ionic surfactant designed for use with Grazon XC and Reclaim II herbicides.
Rate: 0.25% v/v for ground application and 1% v/v for aerial application is recommended with Grazon XC to achieve optimal control of tree species as well as leafy spurge and toadflax.
**GRAZON XC APPLICATION GUIDELINES**

### Rates and Acres Treated

<table>
<thead>
<tr>
<th>Rates</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadleaf weed control</td>
<td>Case:</td>
</tr>
<tr>
<td>1.9 L/ac</td>
<td>2 x 10 L jugs</td>
</tr>
</tbody>
</table>

### Tree Control
- 2.5 L/ac + Gateway™ adjuvant* (height restrictions apply, please contact Corteva Agriscience for more information)

### When to Apply
- Target timing to the most problematic plants. For example, if your primary target is dandelion, timing will likely be earlier (May 15 to June 15). If the primary target is Canada thistle, wait long enough for the majority of thistles to emerge (July 1 to 30).
- Apply when the primary target plant is actively growing, after emergence and prior to flowering.
- Environmental stresses such as severe drought or extended periods of heat may decrease efficacy.
- Grazon XC controls weeds and root systems that are present at time of application; weeds that have not emerged will not have the same level of control.

### Rainfast
- 4 hours

### Herbicide Tank Mixes
For control of low growing brush such as western snowberry and wild rose, as well as tree species such as willow and poplar growing in the same area, Grazon XC can be tank mixed with Reclaim™ II herbicide. Please contact a Corteva Agriscience representative for rate recommendations and timing.

### Usages
- Permanent Pastures
- Rangeland
Reclaim™ II delivers the most trusted, extended control of broadleaf weeds and brush.

**WHY USE RECLAIM II?**
- Extended control
  - The only solution providing up to 24 months control of buckbrush, wild rose, Canada thistle and other broadleaf species
- Broad spectrum
  - Reclaim II’s broad spectrum of control allows you to manage both invasive weeds and low growing brush in one application

**Research trials indicate activity on the following broadleaf weeds and shrubs in the season of application.**

- Field horsetail
- Field peppergrass
- Field scabious
- Fireweed
- Flixweed
- Goat’s-beard
- Green smartweed
- Gumweed
- Hairy galinsoga
- Hedge bindweed
- Hemp-nettle
- Hoary cress
- Horse nettle
- Lady’s-thumb
- Lamb’s-quarters
- Musk thistle
- Narrow-leaved hawk’s beard
- Oak-leaved goosefoot
- Ox-eyed daisy
- Pasture sage
- Perennial pepperweed
- Perennial sow thistle
- Plantain
- Plumeless thistle
- Prairie sage
- Prickly lettuce
- Prostrate pigweed
- Pussytoes
- Ragweed
- Redroot pigweed
- Russian knapweed
- Russian thistle
- Scentless chamomile
- Shepherd’s purse
- Shrubby cinquefoil
- Spotted knapweed
- Stinkweed
- Stork’s-bill
- Sweet clover
- Tall buttercup
- Tawny buckwheat
- Tumbleweed
- Vetch
- Volunteer alfalfa
- Volunteer canola (all varieties)
- Volunteer sunflower
- Western ragweed
- Wild buckwheat
- Wild mustard
- Wild radish
- Wild rose
- Wild strawberry
- Wolf willow
- Yarrow
- Yellow star thistle

**Gateway™ Adjuvant** is a non-ionic surfactant designed for use with Grazon® XC and Reclaim II herbicides. 
Rate: 0.25% v/v for ground application and 1% v/v for aerial application is required with Reclaim II herbicide.
RECLAIM II APPLICATION GUIDELINES

RATES AND ACRES TREATED
Rates:
- Reclaim II A: 93 g/ac
- Reclaim II B: 0.8 L/ac
- Reclaim II requires the addition of a non-ionic surfactant such as Gateway™ adjuvant.
  • Apply a minimum 20 gal/ac total spray solution (ground applications)
  • Apply a minimum 5 gal/ac total spray solution (aerial applications)

PACKAGING
Case:
- 20 ac/case

WHEN TO APPLY
• Target timing to the most problematic plants. For example, if your primary target is buckbrush, timing will likely be earlier (June 1 to 30). If the primary target is Canada thistle, wait long enough for the majority of thistles to emerge (July 1 to 30).
• Apply when the primary target plant is actively growing, after emergence and prior to flowering.
• Environmental stresses such as severe drought or extended periods of heat may decrease efficacy.
• Reclaim II controls weeds and root systems that are present at time of application, weeds that have not emerged will not have the same level of control.

RAINFAST
• 4 hours

HERBICIDE TANK MIXES
• For control of low growing brush such as western snowberry and wild rose, as well as tree species such as willow and poplar growing in the same area, Reclaim II can be tank mixed with Grazon™ XC herbicide. Please contact a Corteva Agriscience representative for rate recommendations and timing.

Optimizing performance
• Do not spray if injury to existing forage legumes cannot be tolerated.
• Do not apply within the drip line of desirable trees.
• Take appropriate measures to prevent application or drift on plants and trees not intended for control.

Grazing
• No grazing restrictions for beef livestock.
• Allow 7 days after application before grazing lactating dairy animals.
• Withdraw meat animals from treated areas at least 3 days before slaughter.
**Restore™ II**

An easy-to-use, broad spectrum product for the control of invasive broadleaf weeds.

**WHY USE RESTORE II?**
- An easy-to-use solution for extended control of invasive broadleaf weeds.
  - Land owners large or small looking to control invasive weeds can easily measure and mix Restore II
- Minimal disruption of grazing post application
  - There are no grazing restrictions for livestock
  - Seven day restriction for lactating dairy animals

<table>
<thead>
<tr>
<th>WEEDS CONTROLLED</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Absinthe wormwood</td>
<td>Fuller’s teasel</td>
</tr>
<tr>
<td>Annual sow thistle</td>
<td>Goat’s-beard</td>
</tr>
<tr>
<td>Biennial wormwood</td>
<td>Groundsel</td>
</tr>
<tr>
<td>Bitter sneezeweed</td>
<td>Gumweed</td>
</tr>
<tr>
<td>Blue lettuce</td>
<td>Hairy buttercup</td>
</tr>
<tr>
<td>Bluebur</td>
<td>Hairy fleabane</td>
</tr>
<tr>
<td>Bull thistle</td>
<td>Hawkweed</td>
</tr>
<tr>
<td>Burdock</td>
<td>Heal-all</td>
</tr>
<tr>
<td>Buttercup (hairy, tall)</td>
<td>Hedge bindweed</td>
</tr>
<tr>
<td>Canada fleabane</td>
<td>Hoary cress</td>
</tr>
<tr>
<td>Canada goldenrod</td>
<td>Horsenettle</td>
</tr>
<tr>
<td>Canada thistle</td>
<td>Knotweed</td>
</tr>
<tr>
<td>Canola (all varieties)</td>
<td>Lamb’s-quarters</td>
</tr>
<tr>
<td>Cocklebur</td>
<td>Mouse-eared chickweed</td>
</tr>
<tr>
<td>Common broomweed</td>
<td>Musk or nodding thistle</td>
</tr>
<tr>
<td>Common chickweed</td>
<td>Mustards</td>
</tr>
<tr>
<td>Common plantain</td>
<td>Narrow-leaved hawk’s beard</td>
</tr>
<tr>
<td>Common purslane</td>
<td>Oak-leaved goosefoot</td>
</tr>
<tr>
<td>Common ragweed</td>
<td>Ox-eyed daisy</td>
</tr>
<tr>
<td>Cudweed</td>
<td>Peppergrass</td>
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<tr>
<td>Curly dock</td>
<td>Perennial sow thistle</td>
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<tr>
<td>Daisy fleabane</td>
<td>Pineapple weed</td>
</tr>
<tr>
<td>Dandelion</td>
<td>Plumeless thistle</td>
</tr>
<tr>
<td>False fox</td>
<td>Prickly lettuce</td>
</tr>
<tr>
<td>Field bindweed</td>
<td>Prostrate pigweed</td>
</tr>
<tr>
<td>Flixweed</td>
<td>Ragweed</td>
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<tr>
<td></td>
<td>(common, western)</td>
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<tr>
<td></td>
<td>Redroot pigweed</td>
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<tr>
<td></td>
<td>Russian pigweed</td>
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<tr>
<td></td>
<td>Russian thistle</td>
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<tr>
<td></td>
<td>Scentless chamomile</td>
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<tr>
<td></td>
<td>Sheep sorrel</td>
</tr>
<tr>
<td></td>
<td>Shepherd’s purse</td>
</tr>
<tr>
<td></td>
<td>Smartweed (green, Pennsylvania)</td>
</tr>
<tr>
<td></td>
<td>Spotted knapweed</td>
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<tr>
<td></td>
<td>Stinging nettle</td>
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<tr>
<td></td>
<td>Stinkweed</td>
</tr>
<tr>
<td></td>
<td>Sulphur cinquefoil</td>
</tr>
<tr>
<td></td>
<td>Sweet clover</td>
</tr>
<tr>
<td></td>
<td>Tall buttercup</td>
</tr>
<tr>
<td></td>
<td>Tall ironweed</td>
</tr>
<tr>
<td></td>
<td>Tansy ragwort</td>
</tr>
<tr>
<td></td>
<td>Tartary buckwheat</td>
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<tr>
<td></td>
<td>Tropic croton</td>
</tr>
<tr>
<td></td>
<td>Tropical soda apple</td>
</tr>
<tr>
<td></td>
<td>Velvetleaf</td>
</tr>
<tr>
<td></td>
<td>Western ragweed</td>
</tr>
<tr>
<td></td>
<td>Wild radish</td>
</tr>
<tr>
<td></td>
<td>Wild sunflower</td>
</tr>
<tr>
<td></td>
<td>Yellow rocket</td>
</tr>
<tr>
<td></td>
<td>Yellow star thistle</td>
</tr>
</tbody>
</table>
**RESTORE II APPLICATION GUIDELINES**

<table>
<thead>
<tr>
<th>RATES AND ACRES TREATED</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate:</td>
<td>Case:</td>
</tr>
<tr>
<td>- 1 L/ac</td>
<td>- 2 x 9.71 L jugs</td>
</tr>
</tbody>
</table>

- Apply a minimum 20 gal/acre total spray solution (ground applications)
- Apply a minimum 5 gal/acre total spray solution (aerial applications)
- Backpack applications to small areas: create a 0.24% solution with 10 L of water. Thoroughly and uniformly wet the foliage of all target plants, but not to the point of runoff.

**WHEN TO APPLY**

- Application timing to control a broad range of weeds may be challenging, since emergence and growth stages occur at different times throughout the season.
- Target timing to the most problematic weed. For example, if your primary target is tall buttercup, timing will likely be earlier (May 15 to June 30). If the primary target is Canada thistle, wait long enough for the majority of thistles to emerge (July 1 to 30).
- Apply when the primary target weed is actively growing, after emergence and prior to flowering.
- Environmental stresses, such as severe drought or extended periods of heat, may decrease efficacy.
- Restore II controls weeds and root systems that are present at time of application; weeds that have not emerged will not have the same level of control.

**RAINFAST**

- 4 hours

**Optimizing performance**

- Do not spray if injury to existing forage legumes cannot be tolerated.
- Do not apply within the drip line of desirable trees.
- Take appropriate measures to prevent application or drift onto plants and trees not intended for control.

**Grazing**

- No grazing restrictions for beef livestock.
- Allow 7 days after application before grazing lactating dairy animals.
- Withdraw meat animals from treated areas at least 3 days before slaughter.
STEWARDSHIP & BEST PRACTICES

Corteva Agriscience™ range and pasture products are effective tools in managing weeds and brush in permanent pasture and grazed rangeland. Understanding precautions, restrictions and how to steward range and pasture products properly is important to ensure satisfactory results and to protect desirable species and the environment.

Hay, soil and manure management

- Soil from treated areas should never be moved to areas where sensitive plants may be planted within five years.
- Manure from livestock consuming treated grass should never be used for compost or around susceptible plants.
- Clippings from grass which have been treated with Corteva Agriscience range and pasture herbicides should never be used for composting or mulching.

Buffers

- Reclaim™ II and Restore™ II should NOT be used over the top of desirable trees. They should only be used up to the drip line (outermost edge of the tree canopy) of desirable trees. Use additional caution around lateral root systems, shallow rooting species and those that propagate vegetatively through layering.

- Grazon™ XC should NOT be used over the top of desirable trees. Applications should remain a distance of 1.5x the height of desirable trees at all times.
- Do not apply Grazon XC to coarse texture soils (>40% sand) with a high water table (within 1.8 metres or 6 feet of the soil surface).
- Do not apply Grazon XC within 30 metres (approximately 100 feet) of an open water body (does not include dugouts) or as per provincial regulations.
Grazing and cutting restrictions

- No grazing restrictions for livestock. Seven day grazing restriction for lactating dairy animals for Restore™ II, Reclaim™ II or Grazon™ XC.
- Withdraw all animals three days prior to slaughter.
- If forage must be removed from an area treated with Restore II, Reclaim II, Grazon XC, do not cut the forage within 30 days of application.
- If livestock is being moved from a pasture treated with Corteva Agriscience range and pasture herbicides to a legume-based pasture it is recommended that animals be grazed on an untreated, non legume-based pasture for three days when treating with Restore II or Reclaim II and seven days when treating with Grazon XC.

Range and pasture products are designed for permanent pasture and rangeland where grazing is the method of harvest. The manure or compost from an animal fed treated forage should only be used on appropriate use sites where the loss of broadleaf plants, including legumes, can be tolerated.

Re-seeding and grass tolerance

- Newly seeded rass should not be sprayed until secondary root development and a minimum of four leaf surfaces have established - well past the seedling stage.
- Safe to established grasses.
- Grasses may be seeded 10 months following an application.
- Legume re-establishment may be affected for up to five years.
- Soil organic matter, rainfall and temperature all affect the rate of degradation.
- Avoid applications under stress conditions when grass is not actively growing (hot or cold weather, excessive moisture, or drought) as grass injury, including leaf discoloration and stunting of growth, in the season of application may result.
Acapela™

FUNGICIDE

Speed, agility and exceptional coverage.

WHY USE ACAPELA FUNGICIDE?

• Acapela is rapidly absorbed, moving quickly into and within each plant allowing you to spray even when conditions are challenging.

• Acapela is a one-of-a-kind fungicide that quickly and efficiently surrounds, penetrates, and protects the leaf and stem.

• Acapela is the only group 11 fungicide that controls Sclerotinia.

• In addition to outstanding disease control, Acapela supports positive plant performance, even in stressful conditions by increasing chlorophyll content and plant productivity.

• Better coverage means more consistent protection, providing outstanding disease control for greener, healthier crops and higher yield potential.

DISEASES CONTROLLED

Canola
• Sclerotinia rot – white mould

Cereals
• Crown rust
• Leaf rust
• Net blotch
• Powdery mildew
• Scald
• Septoria leaf blotch
• Stripe rust
• Tan spot

Corn
• Northern corn leaf blight

Flax
• PAsmo (Septoria linicola)

Pulse crops (peas, lentils, chickpeas, dry beans)
• Anthracnose (lentils and dry beans)
• Ascochyta blight (in lentils and dry beans)
• Asian soybean rust
• Mycosphaerella* blight (field peas)
• Sclerotinia rot – white mould*

Soybeans
• Asian soybean rust
• Frogeye leafspot
• Sclerotinia rot – white mould*
• Septoria brown spot

Potatoes
• Early blight
• White mould (Sclerotinia sclerotiorum)
• Late blight

Important Precautions
1. Do not apply to cereals after flowering (Feekes 10.5.1 or Zadoks 60).
2. Maximum seasonal use rate is 2.64 L/ha.

*Suppression only
ACAPELA APPLICATION GUIDELINES

RATES AND PACKAGING
Available in 9.6 L jug or 115 L drum
- Canola: 0.32 L/ac (30 ac/jug or 360 ac/drum)
- Cereals: 0.19 L/ac (50 ac/jug or 600 ac/drum)
- Corn: 0.21 to 0.32 L/ac (30 to 45 ac/jug)
- Flax: Pasma (Septoria linicola) 0.32 L/ac (30 ac/jug or 360 ac/drum)
- Pulse crops:
  Peas, lentils, chickpeas, dry beans:
  - 0.24 L/ac (40 ac/jug or 480 ac/drum)
  - Sclerotinia rot – white mould:
    - 0.35 L/ac (27 ac/jug or 325 ac/drum)
- Soybeans:
  Sclerotinia rot – white mould:
  - 0.35 L/ac (27 ac/jug)
  Asian soybean rust, frogeye leafspot,
  septoria brown spot:
  - 0.24 to 0.35 L/ac (27 to 40 ac/jug)
- Water volume
  - Ground minimum of 110 L/ha (10 US gal/ac)
  - Aerial minimum of 50 L/ha (4.5 US gal/ac)
- Potatoes:
  Early blight and white mold:
  - 0.24 - 0.40 L/ac.
  Late blight: 0.18 - 0.40 L/ac

WHEN TO APPLY
- Refer to the Acapela label for complete use instructions.

RAINFAST
- 30 minutes

Mixing instructions
1. Shake well before use.
2. Fill clean spray tank ½ to ¾ full of water
3. While agitating, add the required amount of Acapela fungicide, continuing agitation until the product is completely dispersed.
4. Continue filling the tank with agitation. Mix thoroughly to fully disperse the fungicide; once dispersed continued agitation is required. Use mechanical or hydraulic means; do not use air agitation.

Crop rotation
Any crop the following year.

Grazing and harvest
- In canola, the minimum time between application and harvest is 28 days.
- In dry legumes, the minimum time between application and harvest of seed is 14 days, vines and hay is 0 days.
- In cereal grains, the minimum time (PHI) between application and harvest of grain is 45 days, and for forage is 7 days and for hay is 14 days.
- In corn, the minimum time between application and grain or ear harvest is 7 days.
- In soybeans, the minimum time between application and harvest is 14 days.
- In flax, the minimum time between application and harvest is 28 days.
Cerefit™ is a new dual mode of action fungicide developed to be applied at flag leaf timing to protect your high yielding barley and oat crops from yield-limiting leaf diseases.

**WHY USE CEREFIT™ FUNGICIDE?**
- Helps to achieve the highest yields in barley and oats.
- Leaf diseases can reduce potential yield up to 20%; this percentage can increase when the environment is warm and humid.
- Cerefit, when used in conjunction with Corteva Agriscience pre-seed and post-emergent herbicides ensures a healthy and clean environment for barley and oat crops.
- Cerefit is a dual mode of action fungicide that provides both preventative and curative activity on the same diseases which provides enhanced control and resistance management.

**DISEASES CONTROLLED**
- Net Blotch
- Leaf and Stem Rust
- Stripe Rust
- Crown Rust
- Tan Spot
- Powdery Mildew
- Septoria Complex
- Septoria Glume Blotch
- Septoria Leaf Spot
- Scald
- Spot Blotch

Apply Cerefit™ at Flag Leaf Timing to protect your high yielding crops from yield-limiting leaf diseases.

- To maximize yields in cereals, it is important to protect the flag leaf from foliar diseases.
- For optimizing yield and flag leaf disease control, apply Cerefit at Feekes 9, ‘flag leaf out’.

---

**Crop Stage**

- Tillering
- Stem Extension
- Heading
- Ripening

---

99
CEREFIT™ APPLICATION GUIDELINES

RATES AND ACRES TREATED
Acres treated: Treats 40 acres

PACKAGING
Case: 1 case (5.3L + 3.5L)

WATER VOLUME
- Ground application is 10-20 US gal/ac

RAINFAST
• 1 hour

TANK MIXES
Pixxaro

Mixing instructions
1. Shake well before use
2. Fill clean spray tank ½ to ⅔ full of water
3. While agitating, add Cerefit A and then add Cerefit B, continuing agitation until the product is completely dispersed.
4. Continue filling the tank with agitation. Mix thoroughly to fully disperse the fungicide; once dispersed continued agitation is required. Use mechanical or hydraulic means; do not use air agitation

Crop Stage:
• To maximize yields in cereals, it is important to protect the flag leaf from foliar diseases. For optimizing yield and flag leaf disease control, apply Cerefit at Feeke’s 9, ‘flag leaf out’.

Crop Rotation:
• There are no restrictions to crops that can be planted following the use of Cerefit

FOR STRONG & HEALTHY BARLEY AND OATS.
Maximize your yields with Cerefit™, a new dual mode of action fungicide
**Dithane™**

Fungicide

Forty years and counting as the world’s most trusted fungicide.

**WHY USE DITHANE RAINSHIELD?**
- Yield. Protect yields by managing damaging diseases in a variety of crops.
- Economics. Rapid control of numerous diseases at an economical price.
- Resistance management. Unique multi-site activity explains why no fungal resistance has developed in over 40 years of use.
- Rotation option. Contact control provides a rotation option from systemic fungicides in wheat, lentils and potatoes.

**DISEASES CONTROLLED**

**Wheat**
- Leaf rust
- Septoria leaf blotch
- Tan spot

**Lentils**
- Anthracnose
- Ascochyta blight

**Potatoes**
- Early blight
- Late blight

**Alfalfa**
- Leaf spot
- Stem spot
### CROPS
- **Alfalfa** (seed production only)
- Lentils
- Potatoes
- Wheat

### DITHANE APPLICATION GUIDELINES

<table>
<thead>
<tr>
<th>RATES</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Alfalfa: 0.59 kg/ac</td>
<td>• Case:</td>
</tr>
<tr>
<td>• Lentils: 0.9 kg/ac</td>
<td>– 20 kg bag</td>
</tr>
<tr>
<td>• Potatoes: 0.45–0.9 kg/ac</td>
<td></td>
</tr>
<tr>
<td>(start with low rate, increase</td>
<td></td>
</tr>
<tr>
<td>to maximum rate as foliage</td>
<td></td>
</tr>
<tr>
<td>develops)</td>
<td></td>
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<tr>
<td>• Wheat: 0.45 kg/ac (early spray),</td>
<td></td>
</tr>
<tr>
<td>0.9 kg/ac (late spray)</td>
<td></td>
</tr>
<tr>
<td>• Water volume: 18 L/ac (aerial), 45–80 L/ac</td>
<td></td>
</tr>
<tr>
<td>(ground), and 324 L/ac (sugar beets)</td>
<td></td>
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<tr>
<td>• Pressure: 345 kPa</td>
<td></td>
</tr>
<tr>
<td>• Nozzles: Hollow cones or flat fan recommended</td>
<td></td>
</tr>
</tbody>
</table>

### WHEN TO APPLY
- **Alfalfa grown for seed**: Apply prior to 50% bloom
- **Lentils**: First application before flower when bud formation is evident. Second application 10 to 12 days after first application, but before rows close in to and form a dense canopy. If conditions for disease persist, a third application may be applied 10 to 14 days later.
- **Potatoes**: When plants are 10 to 15 cm tall; repeat at 7 to 10 day intervals.
- **Wheat**: 2 to 3-leaf (early application), 2 tillers to fully headed (late application).

### TANK MIXES
- Compatible with most common pesticides
- Check mix partner labels for registered crops and additional restrictions

### Mixing instructions — ground application
1. Pour Dithane Rainshield slowly into filled spray tank while the agitator is running
2. Completely fill tank with water
3. After Dithane Rainshield has been mixed into a suspension, add other co-applied pesticides, growth regulators, micronutrients or spray adjuvants

### Mixing instructions — aerial application
1. Premix Dithane Rainshield thoroughly in a nurse tank
2. Fill spray hopper to the desired final water volume
3. Add slurry from Step 1 to spray hopper
4. Top off hopper to desired final water volume

### Crop rotation
No restrictions

### Grazing and harvest
Do not graze treated crops or cut for hay

### Pre-harvest interval
- 40 days for wheat
- 1 day for potatoes
Closer™
Isoclast™ active

Exceptional speed and control of aphids and scale in vegetable, fruit and field crops.

WHY USE CLOSER INSECTICIDE?
- Fast-acting with residual control. Apply Closer™ for quick targeted control of sap feeding insects such as aphids, scales and leaf hoppers when outbreaks occur.
- Moves throughout the plant. Excellent systemic and translaminar activity.
- Valuable rotational partner. A unique sub-class of insecticides, Isoclast™ active is effective against both resistant and non-resistant pests.
- Closer’s rapid results decrease the chance of virus transmission in seed potato production.
- Selective and can be used safely around beneficial populations when used according to the product label.

INSECTS CONTROLLED
- Aphids
- Leafhoppers
- Tarnished plant bug

Nothing works faster
When an aphid outbreak occurs, it’s critical to knock them down fast – before they can transmit viruses that will damage both quality and yield.

In lab studies evaluating the cessation of honeydew production, within two hours of treatment, the Closer™ insecticide treatments resulted in 97 percent less honeydew compared to a non-treated check. Within four hours, there was 99 percent less honeydew production. By 24 hours all honeydew production had ceased. This means that aphids stop feeding quickly, minimizing virus transmission and maximizing yield and quality.
CROPS
Potatoes

CLOSER APPLICATION GUIDELINES

RATES AND ACRES TREATED
- Potatoes
  - Aphids: 20 to 61 ml/ac
  - Leafhoppers: 121 ml/ac
  - Tarnished plant bug: 121 ml/ac
- Corn
  - Aphids: 30 to 61 ml/ac

PACKAGING
- 12 x 1 L jug

RAINFAST
- 2 hours

INSECTICIDE TANK MIXES
- No registered tank mixes.
- Closer can be mixed with fungicides and micro-nutrients. Consult your Corteva Agriscience representative if you are tank mixing Closer.

Optimizing performance
- Boom height must be 60 cm or less above the crop or ground
- Apply sufficient spray solution to ensure thorough coverage of plant foliage
- Use a minimum of 40 L of water per acre for field sprayer applications
- Closer is registered for aerial applications – see label for specific recommendations

Precaution
- Maximum of 2 applications per year
- Minimum treatment interval of 7 days
- Do not apply this product during crop flowering period or when flowering weeds are present in the treatment area

Pre-harvest interval
- 7 days for sweet corn, forage and potatoes
- 14 days for grain corn and stover harvest
Delegate™

INSECTICIDE

High performance control that’s fast acting, long lasting and broad spectrum.

WHY USE DELEGATE INSECTICIDE?
- Performance. Delegate™ provides quick and effective control of foliage feeding insects including Colorado potato beetle and European corn borer.
- Resistance management. Delegate contains a unique Group 5 active ingredient, making it an excellent tool for potato growers managing Colorado potato beetle resistance.
- Ease of use. Low use rates delivered through a convenient dry formulation.
- Flexibility. Market access approvals allow freedom to use Delegate across all production acres.

INSECTS CONTROLLED

CORN
- European corn borer
- Western bean cutworm

POTATOES
- Colorado potato beetle
- European corn borer

WHEAT
- Armyworm

SOYBEANS
- Armyworm

Delegate is now registered for aerial application on potatoes!

Speed of knockdown of Colorado potato beetle 2 days after application

<table>
<thead>
<tr>
<th>Product</th>
<th>% Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delegate 250 g/ha</td>
<td>100</td>
</tr>
<tr>
<td>Admire 200 mL/ha</td>
<td>80</td>
</tr>
<tr>
<td>Coragen 375 mL/ha</td>
<td>40</td>
</tr>
</tbody>
</table>

Manitoba research trial
DELEGATE APPLICATION GUIDELINES

<table>
<thead>
<tr>
<th>CROPS</th>
<th>RATES AND ACRES TREATED</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>• Corn:</td>
<td>6 x 840 g bottles</td>
</tr>
<tr>
<td></td>
<td>- Western bean cutworm: 50 to 85 g/ac</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- European corn borer: 50 to 85 g/ac</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Armyworm: 40 to 80 g/ac</td>
<td></td>
</tr>
<tr>
<td>Soybeans</td>
<td>• Potatoes:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Colorado potato beetle: 65 to 97 g/ac</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>

WHEN TO APPLY
• Target early larval stage before insect damage.
• Depending on pest severity, a repeat application may be required 7 to 14 days later.
• Heavy infestations, larger larvae and rapid plant growth will require the use of the higher rate. The higher rate will provide faster insect knockdown.

RAINFAST
• 2 hours

INSECTICIDE TANK MIXES
• No registered tank mixes
• Delegate can be mixed with fungicides and micro-nutrients. Consult your Corteva Agriscience representative if you are tank mixing Delegate.

Optimizing performance
• Spray solution pH can affect the performance of Delegate
  – A spray pH between 5 and 9 is preferred for best results
  – If required, adjust spray solution pH prior to the addition of Delegate
• Aerial application: Apply only by fixed-wing or rotary aircraft equipment. Use a minimum spray volume of 12 L/ac.

Precautions
• Maximum of 3 applications per year
• Minimum treatment interval of 7 days
Do not apply this product to flowering crops or weeds if bees are visiting the treatment area.
Do not make more than two consecutive applications of Group 5 insecticides.

Crop rotation
• No restrictions

Pre-harvest interval
• 1 day for sweet and seed corn
• 7 days for forage, stover harvest and potatoes
• 21 days for wheat
• 28 days for soybeans, field corn and popcorn
Performance and peace of mind. With Intrepid™ insecticide, there’s no need to choose.

WHY USE INTREPID INSECTICIDE?
- Intrepid initiates a lethal premature molt in specific lepidopterous pests (caterpillars) while not adversely affecting beneficial insect populations such as bees, making it ideal for integrated pest management programs. This product can be used safely around humans, animals and the environment, when used according to the label.
- Intrepid has both ovicidal and larvicidal activity. Ingestion is the main source of activity on pests, causing the larvae to stop feeding within 24 hours and providing long residual control for 10 to 14 days after application.

INSECTS CONTROLLED
- European corn borer
- Western bean cutworm
INTREPID APPLICATION GUIDELINES

RATES AND ACRES TREATED
- European corn borer: 0.12-0.24 L/ac
- Western bean cutworm: 0.12 L/ac

PACKAGING
- 4 x 4 L jugs

WHEN TO APPLY
- Apply at the first signs of feeding damage. Monitoring of insect populations is key to controlling this pest.
- Direct application at the whorl for early season (first generation) infestations. Repeat applications after 5-10 days if required based on population monitoring.
- Use the higher rate for heavy infestations, or larger crop canopies.

RAINFAST
- 6 hours

APPLICATION METHOD
- Ground application: Make applications of Intrepid by conventional ground application equipment. Not registered for aerial application.

TANK MIXES
- No registered tank mixes

Pre-harvest interval
Do not apply within 3 days of harvest for sweet corn and 21 days of harvest for field corn and popcorn.

Refer to product label for complete use instructions.
Lannate™ INSECTICIDE

Use Lannate™ broad-spectrum insecticide for fast-acting control of aphids, corn earworm and European corn borer.

WHY USE LANNATE INSECTICIDE?

• Lannate insecticide provides rapid knockdown and control at all life stages of many pest species, including aphids, corn earworm and European corn borer.

• Lannate, a Group 1A (carbamate) insecticide, provides excellent control of adults, nymphs, larvae and eggs of multiple pests that threaten crops.

INSECTS CONTROLLED

• Aphids
• Corn earworm
• European corn borer
# LANNATE APPLICATION GUIDELINES

## RATES AND ACRES TREATED
- Aphids: 174-251 g/ac
- Corn earworm: 174-253 g/ac
- European corn borer: 253 g/ac

## PACKAGING
- 225 g bags

## APPLICATION INFORMATION
- Aphids: Apply during hot weather and threshold is reached.
- Corn earworm: Application to begin when 25% of the ears show silk. Direct sprays to the silks.
- European corn borer: Application to begin when egg masses begin to hatch, but no later than when the first feeding damage is seen on leaves. Sprays should be directed into the whorl of the plant. After tassels appear, direct spray at the ear zone.

## APPLICATION METHOD
- Ground application: Make applications of Lannate by conventional ground application equipment. Not registered for aerial application.

## TANK MIXES
- No registered tank mixes

---

**CROPS**
- Sweet Corn

**Pre-harvest interval**
Do not apply within 3 days of harvest for sweet corn.

Refer to product label for complete use instructions.
Lorsban™ NT

INSECTICIDE

Three unique modes of action for the best possible insect control.

WHY USE LORSBAN NT INSECTICIDE?
- Yield. Protect crop yield by controlling damaging insects in a wide range of crops.
- Multiple control methods. Works on contact, and through ingestion and vapour inhalation.

INSECTS CONTROLLED
- Alfalfa looper
- Army cutworm
- Bertha armyworm
- Black cutworm
- Colorado potato beetle (larvae)
- Common armyworm
- Darksided cutworm
- Diamondback moth (larvae)
- Grasshopper
- Lygus bug
- Pale western cutworm
- Potato flea beetle
- Redbacked cutworm
- Russian wheat aphid
- Sunflower seed weevil
- Tarnished plant bug
- Variegated cutworm
- Wheat midge

Lorsban NT insecticide uses innovative technology to produce a low-odour, water-based formulation of Lorsban 4E insecticide. Like its predecessor, Lorsban NT offers superb versatility in controlling a wide variety of pests across numerous crops.

Lorsban NT offers the same great efficacy, quick knockdown and residual control that growers have come to expect from the Lorsban brand for over 30 years. Lorsban NT offers a unique three-way mode of action to control insects by CONTACT, INGESTION and INHALATION.

Corteva is no longer producing Lorsban NT. Consult with your retail for remaining quantities.
<table>
<thead>
<tr>
<th>Crop</th>
<th>Pests</th>
<th>Rate</th>
<th>Acres/ 10 L Jug</th>
<th>Acres/ 208 L Drum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat, barley, oats</td>
<td>Orange wheat blossom midge (wheat only)</td>
<td>405 mL/ac</td>
<td>25 ac</td>
<td>514 ac</td>
</tr>
<tr>
<td></td>
<td>Grasshoppers</td>
<td>355 mL/ac</td>
<td>28 ac</td>
<td>586 ac</td>
</tr>
<tr>
<td></td>
<td>Amyworm (incl. Bertha armyworm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amy cutworm</td>
<td>485 mL/ac</td>
<td>20 ac</td>
<td>429 ac</td>
</tr>
<tr>
<td></td>
<td>Darksided cutworm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Pale western cutworm</td>
<td></td>
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<td></td>
<td>Redbacked cutworm</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Brown wheat mite</td>
<td>253 mL/ac</td>
<td>40 ac</td>
<td>822 ac</td>
</tr>
<tr>
<td></td>
<td>Russian wheat aphid</td>
<td>203 mL/ac</td>
<td>50 ac</td>
<td>1025 ac</td>
</tr>
<tr>
<td>Canola</td>
<td>Lygus bug</td>
<td>405 mL/ac</td>
<td>25 ac</td>
<td>514 ac</td>
</tr>
<tr>
<td></td>
<td>Bertha armyworm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alfalfa looper</td>
<td>405 mL/ac</td>
<td>25 ac</td>
<td>514 ac</td>
</tr>
<tr>
<td></td>
<td>Armyworm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diamondback moth (larvae)</td>
<td>608 mL/ac</td>
<td>16 ac</td>
<td>342 ac</td>
</tr>
<tr>
<td></td>
<td>Grasshoppers</td>
<td>355 mL/ac</td>
<td>28 ac</td>
<td>587 ac</td>
</tr>
<tr>
<td></td>
<td>Army cutworm</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Darksided cutworm</td>
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<td></td>
<td>Pale western cutworm</td>
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<tr>
<td></td>
<td>Redbacked cutworm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variegated cutworm</td>
<td>485 mL/ac</td>
<td>20 ac</td>
<td>429 ac</td>
</tr>
</tbody>
</table>

**ORANGE WHEAT BLOSSOM MIDGE**

The adult midge is a very small, fragile orange fly about 2 to 3 mm long. Two jet black eyes cover much of its brown head.

**Economic thresholds**

- 1 midge per 4 to 5 heads
- 1 midge per every 4 to 5 heads will reduce yields by 10% to 15% and may contribute to grade loss if allowable damage limits are exceeded.

**BERTHA ARMYWORM**

Young Bertha armyworm larvae are small, 3 mm long, pale green with a pale yellowish stripe along each side. As they grow, they change from green to pale brown to the familiar large velvety black to brown. The caterpillars are 4 to 5 cm long, with a light brown head and broad orange stripe along each side.
Lorsban™ NT

INSECTICIDE

Economic thresholds

Generally, the economic threshold is 15 larvae per square meter; however, the threshold changes with crop value and spraying costs, as shown here:

<table>
<thead>
<tr>
<th>Spray cost $ per acre</th>
<th>Expected seed value – $/bushel</th>
<th># of larvae/metre²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>10</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>11</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>12</td>
<td>34</td>
<td>30</td>
</tr>
</tbody>
</table>

LYGUS BUG

Lygus adults are about 3 mm wide and 6 mm long, pale green to reddish brown to mottled black. They have a distinctive, light-coloured triangle or "V" shaped marking in the upper centre of their backs.

Economic thresholds

• Lygus are determined near the end of bloom using a sweep net.
  • Thresholds are the number of bugs per 10 180-degree sweeps of a standard 37 cm diameter insect net.
  • 15 to 20 per 10 sweeps.

DIAMONDBACK MOTH (Larvae)

The larvae are pale yellowish-green and are covered with fine, scattered, erect hairs. At maturity, the larvae are spindle shaped and about 12 mm in length. When they are disturbed, they wiggle backwards violently and may drop from the plant suspended by a silken thread.

Economic thresholds

• Early flower: 1 to 2 per plant
• Mid to late flower: 2 to 3 per plant

Corteva is no longer producing Lorsban NT. Consult with your retail for remaining quantities.
LORSBAN NT APPLICATION GUIDELINES

CROPs
Barley
Canola
Field corn
Flax
Lentils
Oats
Potatoes
Sunflowers
Sugar beets
Sweet corn (seeding or pre-plant)
Wheat

Rates and Packaging
- Lorsban™ NT can be applied by ground and air. Refer to product label use directions within each crop.

Corteva is no longer producing Lorsban NT. Consult with your retailer for remaining quantities.

Resistance management
Lorsban NT contains a Group 1B (organophosphate) insecticide. Any insect population may contain individuals naturally resistant to Lorsban NT and other Group 1B insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Other resistance mechanisms that are not linked to the site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

Optimizing performance
- Uniform crop coverage is essential.
- Use a boom configuration that provides optimum coverage.
- Use higher rates where infestations are heavy or foliage is dense.

Precautions
- Do not apply this product to flowering crops or weeds if bees are visiting the treatment area.
- Do not apply to any body of water.
Lumiderm™

INSECTICIDE SEED TREATMENT

WHY USE LUMIDERM INSECTICIDE SEED TREATMENT?
- Enhanced protection against crucifer and striped flea beetles.
- Excellent control of early season cutworms.
- Excellent early season seedling stand establishment, vigour and biomass.
- Up to 35 days of protection through the critical stages of seedling growth.

INSECTS CONTROLLED

Cutworms and Flea Beetles (crucifer and striped)

It’s time to fight back against cutworms, flea beetles, changing environmental conditions and the challenges of time management during the early stages of crop development. Choose Lumiderm™ to provide excellent plant protection right from the start, allowing you to protect your seed investment. Lumiderm will improve your crop stand and give your crop a healthier early season start, allowing for optimal yield potential.

See the Lumiderm difference in cutworm control

Growers know cutworms are a real problem in canola production and very difficult to detect since they typically live underground during the day and feed at night. This makes it very challenging to control them with a foliar insecticide application. That’s why Lumiderm is such an important leap forward in seed treatment.

During the first 35 days of seedling growth, Lumiderm protects your canola from cutworm feeding which helps enhance early season stand establishment.

Standard Treatment | Lumiderm Treatment
See the Lumiderm difference in protection against flea beetles

Growers know there are few threats more significant to Canada’s multi-billion dollar canola industry than flea beetles. Growers are faced with increasing flea beetle populations and are looking for a better way to control them. Lumiderm provides enhanced protection against both crucifer and striped flea beetles, which ultimately protects your seed investment and gets your crop off to a strong start.

See the Lumiderm difference in seedling vigour, biomass and yield

Growers know strong, healthy canola seedlings at the start of the season can significantly impact yield and quality at harvest. When you plant Lumiderm treated seed, you have early season cutworm control and protection against crucifer and striped flea beetles. This enhanced protection allows your crop to thrive. So it’s no surprise that treating canola with Lumiderm offers a substantial increase in plant vigour, biomass and yield.
Lumiderm™

INSECTICIDE SEED TREATMENT

WHY USE LUMIDERM™ INSECTICIDE SEED TREATMENT?
- Broad spectrum protection from early season insect pests including bean leaf beetle and soybean aphid
- Excellent seedling protection delivers uniform, healthy stand to maximize yield potential
- A new mode of action with a favourable environmental profile
- Simplifies your seed treatment decisions

INSECTS CONTROLLED  Bean leaf beetle and soybean aphid
Lumiderm contains a unique Group 28 insecticide and provides soybean seedlings with extended protection against bean leaf beetle and soybean aphids. Lumiderm simplifies seed treatment decision-making considerably by reducing administrative paperwork.

Excellent seedling protection - uniform and healthy stands
Lumiderm delivers the latest technology for insect protection for soybean production. With Lumiderm, soybean growers can be confident that their vulnerable seedlings will be safe from bean leaf beetle and soybean aphid.

To maximize yield potential, insect and disease protection go hand in hand. Take a look at the powerful protection of Lumiderm and Lumisenan™ working together.

Lumiderm™ and Lumisenan™ Strip Trial
Kelburn Farm, MB

Standard IST + FST  Lumiderm + Lumisenan™ + FST

IST – Insecticide Seed Treatment
FST – Fungicide Seed Treatment
CROPS Soybeans

Lumiderm complements a fungicide seed treatment and results in healthier more abundant soybean stands.

Lumiderm™ Target Pest Bean Leaf Beetle: Soybean Plot Site

These pictures illustrate that Lumiderm is an improvement in bean leaf beetle control, compared to competitive products.

Favourable environmental profile

- Minimal impact on the environment
- Minimal impact on beneficial insects and pollinators when used in accordance with the label

Lumiderm Research Authorization Results

The issue of resistance is a growing concern. The registration of Lumiderm™ insecticide on soybeans will allow growers to protect their crops with industry-leading bean leaf beetle control and excellent protection against soybean aphids. With its unique Group 28 mode of action, it’s also ideal for resistance management. Research is currently being conducted to add more soybean pests to the label.

Lumiderm™ Soybean Seed Treatment Replicated Trial – Ridgetown College

Fungicide Only

Lumiderm + FST
Lumisena™

SERIOUS SEED PROTECTION

FUNGICIDE SEED TREATMENT

WHY USE LUMISENA FUNGICIDE SEED TREATMENT?

• Most advanced seed-applied technology to protect against phytophthora.
• Enhances emergence and vigour to maximize yield potential.
• Improves soybean plant stands.
• New class of chemistry for improved above and below ground disease control.

DISEASES CONTROLLED  Phytophthora
Phytophthora is the #1 disease in soybeans and can significantly reduce yields. Lumisena™ fungicide seed treatment provides the best protection against phytophthora for healthier, more vigorous soybean stands and higher yield potential.

Look at the results
The first six weeks are important for a soybean crop’s yield potential. Observe the difference in performance between two soybean plants, 40 days after planting, treated with the high rate of metalaxyl versus Lumisena when phytophthora is present.

Lumisena is the best choice for protection against phytophthora. It is the only seed-applied technology that delivers residual protection across multiple stages of the phytophthora pathogen’s life cycle:
• preventative
• curative
• eradicative
• antisporeulant

Metalaxyl  Lumisena fungicide seed Treatment

Days after planting 40
Growth reduction 25%
Reduced taproot development
Reduced disease

Days after planting 40
Healthy soil, root, plant
Reduced disease
Reduced infection

Commercial variety
No Genetic Tolerance
Below Average Field Tolerance to Phytophthora

Compare the variety
No Genetic Tolerance
Below Average Field Tolerance to Phytophthora
CROPS
Soybeans

Improves soybean yield potential and plant stands
Phytophthora is prevalent in North America and is shown to be wide spread in Manitoba. Growers with phytophthora pressure have suffered significant yield losses because of the limitations of existing seed treatments in soybeans. In areas with phytophthora pressure, Lumisena improves plant stands, crop vigour and yield results.

<table>
<thead>
<tr>
<th>Soybean Research Authorization Trial Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2017 Lumisena ST Yield Data</td>
</tr>
<tr>
<td>- Canola, Moderate to High Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield (bu/ac)</th>
<th>FST Only</th>
<th>Lumisena + FST</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.5</td>
<td>47.5</td>
<td></td>
</tr>
</tbody>
</table>

# Trial locations: 2 reps per location

<table>
<thead>
<tr>
<th>Efficacy – Plant Stand Count Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean Plant Stand counts when Phytophthora is present</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crop Stand (K)</th>
<th>UTC</th>
<th>Lumisena</th>
<th>Metalaxyl</th>
<th>Metalaxyl High rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42.99</td>
<td>69.38</td>
<td>64.04</td>
<td>67.97</td>
</tr>
</tbody>
</table>

Seed Applied Technology Research Trials Data from 2017-2018, Average of 15 Trials

FST – Insecticide Seed Treatment
FST – Fungicide Seed Treatment

New class of chemistry for improved above and below ground
Lumisena offers a new mode of action that controls phytophthora far better than previous industry-standard seed treatments. When you use Lumisena fungicide seed treatment you significantly improve your soybean plant stand, enhancing early-season plant growth and increasing yield potential. Our seed treatment research has demonstrated that Lumisena will provide greater protection against phytophthora than existing seed treatments.
**Lumivia™ CPL**

**INSECTICIDE SEED TREATMENT**

**KEY BENEFITS:**
- Outstanding early season insect protection for cereals, peas and lentils to maximize stand and yield potential.
- Reduces the build-up of pest populations.
- Unique mode of action, with a favourable environmental profile.
- Easy to apply for on-farm or retail treating.

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Chlorantraniliprole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 28</td>
<td>Anthranilic diamides</td>
</tr>
</tbody>
</table>

**Unique Mode of Action**
- Fast-acting protection through muscle impairment

**Formulation**
- Flowable Solution 625 g/L

**Rate Chart**

<table>
<thead>
<tr>
<th>CROP</th>
<th>BUSHELS TREATED / 3.5 L JUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>320</td>
</tr>
<tr>
<td>Lentils</td>
<td>320</td>
</tr>
<tr>
<td>Peas</td>
<td>200</td>
</tr>
<tr>
<td>Barley</td>
<td>400</td>
</tr>
<tr>
<td>Oats</td>
<td>600</td>
</tr>
</tbody>
</table>

Vegetation Index Satellite image, side by side plot, in SW Saskatchewan. 80 acres treated with Lumivia™ CPL, compared to standard insecticide seed treatment. The Lumivia™ CPL treated lentils showed an 18% increased NDVI rating, over the standard.

*Lumivia™ CPL must be applied with seed calibrant or other treatment product with calibrant included.*

**Lumivia™ CPL Efficacy on Key Pests**

**Lumivia™ CPL Comparison Chart**

**Lumivia™ CPL Efficacy on Wireworms (N=3)**

- [Standard Insecticide Seed Treatment](#)
- [Lumivia™ CPL Insecticide Seed Treatment](#)

<table>
<thead>
<tr>
<th>Wireworm Stand % of Standard</th>
<th>Unrevised Check</th>
<th>Lumivia™ CPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Stand % of Standard</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

**No. of Plants/m of row (28 Days after emergence)**

<table>
<thead>
<tr>
<th>Standard Insecticide Seed Treatment</th>
<th>Lumivia™ CPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrevised Check</td>
<td>37</td>
</tr>
<tr>
<td>Lumivia™ CPL</td>
<td>55</td>
</tr>
</tbody>
</table>

**Protection Against Key Early Season Insect Pests**

- **Wireworm**
- **Cutworm**
- **Armyworm**
- **Pea Leaf Weevil**

Lumivia™ CPL is a new mode of action insecticide seed treatment for early season protection from wireworm, cutworm, armyworm, and pea leaf weevil in cereals, peas and lentils.
**Lumivia™ CPL Efficacy on Wireworms on Wheat**

Fungicide seed treatment (FST)  
Lumivia™ CPL insecticide seed treatment plus FST, 10.9 ml/bu

Cartevo Agriscience™ in-field trial

**Lumivia™ CPL Efficacy on Cutworms on Wheat**

Untreated check  
Standard insecticide seed treatment  
Lumivia™ CPL 10.9 ml/bu

Greenhouse trial conducted on lentils at Stine-Haskell Research Center, USA

**Cutworm damage to lentil seedlings**

Untreated Check – fungicide seed treatment only  
Lumivia™ CPL

Greenhouse trial conducted on lentils at Stine-Haskell Research Center, USA

**Cutworm damage to pea seedlings**

Untreated Check – fungicide seed treatment only  
Lumivia™ CPL insecticide seed treatment

Greenhouse trial conducted on lentils at Stine-Haskell Research Center, USA
Better genetics. Better yields. Better for your community. Introducing Enlist E3™ soybeans, a more advanced seed with high yield potential and robust herbicide tolerance. Spray it with Enlist Duo®, part of the Enlist™ weed control system, for a better low drift, near-zero volatility solution.

Talk to your local seed supplier.

Simply Better Soybeans. | Learn more at enlistcanada.ca
Advancing Modern Farming
The Enlist™ weed control system will change how you think about weed management in soybeans. Farmers are able to purchase Enlist E3™ varieties and take control of resistant and hard-to-control weeds.

INTRODUCING THE ENLIST™ WEED CONTROL SYSTEM
The Enlist weed control system will help growers meet the challenge of farming today, and in the future.

Key Benefits of the Enlist weed control system:
- Provides robust crop tolerance to Enlist Duo™, a new herbicide featuring glyphosate and new 2,4-D choline, containing Colex-D™ Technology
- Enables the use of a multi-mode of action herbicide approach against hard-to-control and resistant weeds
- Includes a stewardship initiative to promote responsible use and sustain long-term performance

ENLIST E3 SOYBEANS
Enlist E3 soybeans provide elite, high yielding soybean genetics and industry leading multi-mode of action herbicide tolerance.
- Enlist E3 soybeans provide robust herbicide tolerance to 2, 4-D, glyphosate and glufosinate
- Enlist Duo herbicide can be used in Enlist E3 soybeans with confidence as a pre-emergent or post-emergent herbicide
- Enlist E3 soybeans provide an alternate glyphosate tolerance trait source
- A multi-mode of action program approach is recommended to minimize the potential for the development of resistant weeds. This includes the use of residuals and complementary effective modes of action for pre-emergent and in-crop weed control
- Enlist E3 soybeans are not tolerant to dicamba

ENLIST DUO™ HERBICIDE
Enlist Duo herbicide, a proprietary blend of glyphosate and 2,4-D choline, contains Colex-D™ Technology. Enlist Duo has two modes of action to provide exceptional weed control and herbicide resistance management.

<table>
<thead>
<tr>
<th>COLEX-D™ technology</th>
<th>WHAT GOES INTO IT</th>
<th>WHAT IT DELIVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D choline with Colex-D™ Technology</td>
<td>Latest formulation science</td>
<td>Proprietary manufacturing process</td>
</tr>
<tr>
<td>Near zero volatility</td>
<td>Minimized potential for physical drift</td>
<td>Low odour</td>
</tr>
</tbody>
</table>

KEY WEEDS CONTROLLED BY ENLIST DUO
Enlist Duo controls more than 70 weeds, including the toughest to control. Here's a snapshot of some of the most important.

WEEDS CONTROLLED
Grass Weed Species
- Barnyard grass
- Crabgrass
- Fall panicum
- Green foxtail
- Quack grass
- Volunteer barley
- Volunteer wheat
- Wild oats
- Wild proso millet
- Yellow foxtail
- And many more...

Broadleaf Weed Species
- Bluebur
- Buckwheat, hairy, and tall
- Canada fleabane
- Canada thistle
- Chickweed
- Cocklebur
- Common rag-weed*
- Corn spurry
- Dandelion
- Eastern black nightshade
- Field horsetail
- Fleaweed
- Giant ragweed*
- Hemi-nettle
- Kaschia*
- Lady's-thumb
- Lambs-quarters
- Morning glory
- Palmer Amaranth
- Real root pigweed
- Smartweed
- Saw thistle
- Velvetleaf
- Vetch
- Volunteer canola*
- Waterhemp
- And many more...

*Including biotypes resistant to glyphosate and ALS modes of action
Nitrogen fertilizer is critical to achieving healthy, high-yielding crops. Protect your fertilizer investment with N-Serve™ and eNtrench NXTGEN™ nitrogen stabilizers.

**WHY USE N-SERVE AND ENTRENCH NXTGEN?**

- **Optimize opportunity for yield and profit**
  - Corteva Agriscience research trials demonstrate an average yield increase of 8% in canola, 6% in wheat and 7% in corn.
  - Keep 28% more positive nitrogen available in the root zone.
- **Expand your application options**
  - Apply up to two weeks earlier in fall before typical anhydrous applications.
  - Take advantage of reduced cost of fertilizer in the fall.
- **Manage time and efficiency**
  - Fall application saves time for seeding operations in the spring.
- **Reduce environmental impacts**
  - Reduces nitrogen greenhouse gas emissions by 51% on average
  - Reduces leaching of nitrates by 16% on average.

**BENEFITS OF USING NITROGEN STABILIZERS**

<table>
<thead>
<tr>
<th>Increased</th>
<th>Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola Yield™</td>
<td>8%</td>
</tr>
<tr>
<td>Corn Yield™</td>
<td>7%</td>
</tr>
<tr>
<td>Wheat Yield™</td>
<td>6%</td>
</tr>
<tr>
<td>Nitrogen Retention™</td>
<td>28%</td>
</tr>
<tr>
<td>Nitrogen Greenhouse Gas Emissions*</td>
<td>51%</td>
</tr>
<tr>
<td>Nitrogen Leaching*</td>
<td>16%</td>
</tr>
</tbody>
</table>

* Welt, J.D. 2004. A meta-analysis of nitrapyrin agronomic and environmental effectiveness with emphasis on corn production in the midwestern USA.

**Based on Corteva Agriscience Canada research trials.
Nitrogen stabilizers slow the conversion of ammonium to nitrates, reducing leaching and denitrification. They maximize yield potential by ensuring more of your applied nitrogen stays in the root zone in a stable, useable form until your canola, corn and wheat crops need it.

** APPLICATION GUIDELINES **

** N-Serve™ Optityte® technology **

** NITROGEN STABILIZER **

** CROPS **
- Canola
- Corn
- Wheat

** RATE AND PACKAGING **
- 0.95 L/ac
- Available in 1,000 ac totes | 950 L tote

** WHEN TO APPLY **
- Spring: Simultaneously with your anhydrous application
- Fall: Simultaneously with your anhydrous, up to two weeks earlier than you would typically apply

** APPLICATION METHOD **
- Designed for use with anhydrous ammonia

** APPLICATION GUIDELINES **

** eNtrench NXTGEN™ Optityte® technology **

** NITROGEN STABILIZER **

** CROPS **
- Canola
- Corn
- Wheat

** RATE AND PACKAGING **
- 0.71 L/ac
- Available in 2 x 994 L case | 454.4 L Tote

** WHEN TO APPLY **
- Spring: Tank mixed with your UAN or liquid manure
- Fall: Tank mixed with your UAN or liquid manure, up to two weeks earlier than you would typically apply

** APPLICATION METHOD **
- Designed for use with liquid fertilizers, including UAN and liquid manure
- Impregnated on urea
Bindem™ is a utility modifier used to improve physical tank mix compatibility in herbicide tank mixes.

WHY USE BINDEM UTILITY MODIFIER?

- Bindem is a utility modifier that improves the physical compatibility of certain grass and broadleaf herbicide tank mixes.
- Bindem must be used with Simplicity GoDRI and broadleaf herbicide tank mixes.
- 1 x 4.8 L jug of Bindem treats 80 acres, regardless of water volume used.
- Bindem was launched as a component of the Tricem 40 acre case and the Tricem 240 acre bulk pallet in 2019.
- New for 2021, Bindem is now also offered as a stand alone product (4 x 4.8 L case).
- When using Simplicity GoDRI at the full rate, a 4.8 L jug of Bindem treats the same acres as a 2.24 kg jug of Simplicity GoDRI.
**PRODUCTS**

Simplicity™ GoDRI™

Tridem™ (Bindem included in co-pack)

---

**BINDEM APPLICATION GUIDELINES**

**RATES AND ACRES TREATED**

**Rates:**
- 60 ml/acre

**Acres treated:**
- Each 4.8 L jug treats 80 acres
- Each 2.4 L jug treats 40 acres
- Each 7.1 L jug treats 120 acres

**PACKAGING**
- Bindem: 4 x 4.8 L case
- Tridem 40 acre case: 1 x 2.4 L jug
- Tridem 240 bulk unit: 2 x 7.1 L jugs

---

**Simplicity GoDRI + Bindem mixing instructions**

1. Fill the spray tank with 1/2 to 3/4 of the required amount of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add any broadleaf tank mix partners that are a dry formulation
4. Add the required amount of Simplicity GoDRI
5. Add the required amount of liquid broadleaf tank mix partner
6. Add the required amount of Bindem utility modifier
7. Complete filling the sprayer tank with water

---

**Tridem + Bindem mixing instructions**

1. Fill sprayer tank 1/2 to 3/4 full of water
2. Continue agitation throughout the mixing and spraying procedure
3. Add the required amount of Tridem A Herbicide
4. Add the required amount of Tridem B Herbicide and continue to agitate
5. Add 2,4-D Ester 700 next and continue agitation
6. Add the required amount of Bindem utility modifier
7. Complete filling the sprayer tank with water
### GROUP 1 MODE OF ACTION – ACCASE INHIBITORS

<table>
<thead>
<tr>
<th>Chemical family</th>
<th>Active ingredients</th>
<th>Found in*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aryloxyphenoxypropionate (FOP)</td>
<td>clodinafop propargyl</td>
<td>Horizon SG, Harmony brands, Traxos, TraxosTwo</td>
</tr>
<tr>
<td></td>
<td>fenoxaprop-p-ethyl</td>
<td>Puma Advance, Tundra</td>
</tr>
<tr>
<td></td>
<td>quizalofop-p-ethyl</td>
<td>Assure II</td>
</tr>
<tr>
<td>Cyclohexanediones (DIM)</td>
<td>tralkoxydim</td>
<td>Liquid Achieve SC</td>
</tr>
<tr>
<td></td>
<td>sethoxydim</td>
<td>Poast Ultra, Odyssey brands</td>
</tr>
<tr>
<td></td>
<td>teproxydim</td>
<td>Equinox</td>
</tr>
<tr>
<td></td>
<td>clethodim</td>
<td>Centurion</td>
</tr>
<tr>
<td>Phenylpyrazolin (DEN)</td>
<td>pinoxaden</td>
<td>Avenza, Axial, Axial iPok, Axial Xtreme, Epic, Rezvulant, Rezvulant XL, Traxos, TraxosTwo</td>
</tr>
</tbody>
</table>

### GROUP 2 MODE OF ACTION – ALS/AHAs INHIBITORS

<table>
<thead>
<tr>
<th>Chemical family</th>
<th>Active ingredients</th>
<th>Found in*</th>
<th>Half life</th>
<th>Primary factors affecting degradation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazolinones – IMs</td>
<td>imazamethabenz</td>
<td>Assert 300</td>
<td>25-36 days</td>
<td>• Soil pH (lower pH = ↑residual)</td>
</tr>
<tr>
<td></td>
<td>imazamox</td>
<td>Solo, Viper, Ares SN</td>
<td>20-30 days</td>
<td>• Organic matter</td>
</tr>
<tr>
<td></td>
<td>imazethapyr</td>
<td>Pursuit, Ares SN</td>
<td>60-90 days</td>
<td>• Soil moisture</td>
</tr>
<tr>
<td></td>
<td>imazamox + imazethapyr</td>
<td>Odyssey DLX</td>
<td>30-60 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>imazamox + imazapyr</td>
<td>Ares SN</td>
<td>30 days</td>
<td></td>
</tr>
<tr>
<td>Sulfonyleureas – SUs</td>
<td>metsulfuron-methyl</td>
<td>Ally, Express Pro</td>
<td>14-180 days</td>
<td>• Soil pH (higher pH = ↑residual)</td>
</tr>
<tr>
<td></td>
<td>thifensulfuron-methyl</td>
<td>Express SG, Barricade II, Predicade, Travallas</td>
<td>10 days</td>
<td>• Organic matter</td>
</tr>
<tr>
<td></td>
<td>thifensulfuron-methyl + trebunuron-methyl</td>
<td>Refine SG, Barricade II, Predicade</td>
<td>10-12 days</td>
<td>• Soil moisture</td>
</tr>
<tr>
<td>Triazolopyrimidines</td>
<td>florasulam</td>
<td>Avenza, Cirpreme XC, Exhilarate, Korrex II, Paradin, PRE, PrePass, Stellar XL, Tridem</td>
<td>3-5 days @ soil temp of 20°C</td>
<td>• Soil temperature (low soil temps = ↑residual)</td>
</tr>
<tr>
<td></td>
<td>pyroxasulam</td>
<td>Simplicity, Simplicity GoDRI, Rexade, Tandem, Tridem</td>
<td>3 days</td>
<td></td>
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<tr>
<td>Sulfonlamino-carbonyl triazolinones</td>
<td>flucarbazone sodium</td>
<td>Everest 3.0, Sierra 3.0</td>
<td>50-67 days</td>
<td>• Soil Moisture (low soil pH = ↑residual)</td>
</tr>
<tr>
<td>Triazolones</td>
<td>thencarbazone-methyl</td>
<td>Velocity All-in-one, Varro</td>
<td>17 days</td>
<td>• Soil pH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Organic Matter</td>
</tr>
</tbody>
</table>
# GROUP 4 MODE OF ACTION – SYNTHETIC AUXINS

<table>
<thead>
<tr>
<th>Chemical family</th>
<th>Active ingredients</th>
<th>Found in*</th>
</tr>
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<tbody>
<tr>
<td>Phenoxyalkanoic – phenoxy</td>
<td>2,4-D Ester</td>
<td>Attain XC, OctTain XL</td>
</tr>
<tr>
<td></td>
<td>MCPA Ester</td>
<td>Exhilarate, Pixxaro, Prestige XL, Stellar XL</td>
</tr>
<tr>
<td>Benzoic acids</td>
<td>Dicamba</td>
<td>DyVel, Pulsar, Distinct, Korrex II, Target</td>
</tr>
<tr>
<td>Quinoline-Carboxylic acids</td>
<td>Quinclorac</td>
<td>Triton C</td>
</tr>
<tr>
<td>Pyridine-Carboxylic acids</td>
<td>Fluroxypyr</td>
<td>Attain XC, OctTain XL, Stellar XL, Prestige XL, Tandem, Pixxaro, Avenza, Tridem and Rezuvant and Rezuvant XL</td>
</tr>
<tr>
<td></td>
<td>Clopyralid</td>
<td>Curtail M, Cirpreme XC, Eclipse XC, Lontrel XC, Prestige XL, Prominex</td>
</tr>
<tr>
<td></td>
<td>Aminopyralid</td>
<td>Reclaim II, Restore II</td>
</tr>
<tr>
<td></td>
<td>Picloram</td>
<td>Grazon XC, Tordon 22K</td>
</tr>
<tr>
<td>Arylpicolinate</td>
<td>Arylex</td>
<td>Cirpreme XC, Exhilarate, Pixxaro, Paradigm PRE, Prominex, Prospect, Rexade, Rezuvant, Rezuvant XL</td>
</tr>
</tbody>
</table>

*A herbicide may appear in more than one group if it contains more than one active ingredient.

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Best practices for sprayer clean-out

Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water. If you cannot clean the sprayer immediately, at least do a freshwater rinse. Do not let herbicide solutions dry onto tank walls or inside plumbing.

**First rinse**
- Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
- Agitate and circulate for 15 minutes, and flush through booms and hoses.
- Check for any sections of supply line that dip below the level of the spray boom, as material could be difficult to flush out of the bottom of the loop. Disconnect the section and flush thoroughly.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.

**Second rinse**
- Fill the tank with clean water, Add All Clear* Spray Tank Decontaminator plus 1 L of Finish* or Flush* 7% ammonia or similar per 100 L of water as per manufacturer’s recommendations while filling the tank with clean water. Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation.
- For any sections of supply line that dip below the level of the spray boom, disconnect the section and flush thoroughly.

To avoid injury to desirable plants, thoroughly clean spray equipment before applying other products.

- Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end & the nozzles.
- After flushing the boom and hoses, drain tank completely.
- Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 ml in 10 L water). Using a suitable brush, clean away any deposits remaining on the main tank filters and secondary boom filters.
- In some situations, some Group 2 herbicide products can get trapped to tank walls by petroleum based formulations or adjuvants resulting in tank residues. Add detergent at 0.25L/100 L to the ammonia rinse to help prevent this situation.
- **Cautionary Rinse**: If switching to spray crops sensitive to the herbicide used; for the highest level of safety, it is recommended to repeat the second rinse procedure.

**Final rinse**
- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
- For any sections of supply line that dip below the level of the spray boom, disconnect the section and flush thoroughly.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.
2,4-D HERBICIDE AND MCPA HERBICIDE – RATES AND CONVERSIONS

Conversion chart for 2,4-D and MCPA

<table>
<thead>
<tr>
<th>Active ingredient (oz/ac)</th>
<th>Herbicide</th>
<th>Concentration (g/a)</th>
<th>Rate applied (ml/ac)</th>
<th>Acres per 10 L Jug</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>MCPA Na salt</td>
<td>300</td>
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<tr>
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<tr>
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<td>MCPA ester</td>
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<td>47</td>
<td>234</td>
</tr>
<tr>
<td></td>
<td>2,4-D LV ester</td>
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<td>249</td>
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<tr>
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<td>140</td>
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<td>36</td>
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<td>MCPA ester</td>
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<td>187</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>2,4-D LV ester</td>
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<td>140</td>
<td>62</td>
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<tr>
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<td>MCPA ester</td>
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<td></td>
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<td></td>
<td>MCPA ester</td>
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<td>374</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>2,4-D LV ester</td>
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<td>321</td>
<td>31</td>
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<td>24</td>
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<td>2,4-D LV ester</td>
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<td>361</td>
<td>28</td>
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<td>MCPA ester</td>
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<td>21</td>
</tr>
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<td>2,4-D LV ester</td>
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<td>2,4-D LV ester</td>
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<td>723</td>
<td>14</td>
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2,4-D/MCPA herbicide equivalencies

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Formulation (ml/ac)</th>
<th>Coverage (acres/10 L Jug)</th>
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<tbody>
<tr>
<td>oz/ac</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
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<td>56</td>
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<td>340</td>
<td>283</td>
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<tr>
<td>7</td>
<td>397</td>
<td>331</td>
</tr>
<tr>
<td>8</td>
<td>453</td>
<td>378</td>
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</table>

*Calculation rounding may have occurred.*
Weed guide

Need help identifying specific weeds? Take a look through our weed guide. We’ve included the grassy and broadleaf weeds that have been named as the top concerns for Western Canadian growers. For help solving any specific weed problems, call the Solutions Center at 1-800-667-3852 or visit Corteva.ca
AMERICAN DRAGONHEAD
Growth habit: Annual, biennial.
Competitive ability: A serious competitor in cultivated field crops. Plants produce up to 500 seeds.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Stems are erect, branched and square. Flowers are blue to purple. Juveniles are often confused with henbit and hemp-nettle.

ANNUAL SOW THISTLE
Growth habit: Annual, winter annual.
Competitive ability: Very strong.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Annual sow thistle is easily mistaken for perennial sow thistle.

BARNYARD GRASS
Growth habit: Annual grass, spread by seed.
Competitive ability: Less competitive than wild oats; more competitive in cereals than wild millet. Less competitive if it emerges into a vigorous crop.¹
Typical crop losses: No data available.
Resistance issues: Resistance to atrazine reported.
Additional information: Prefers warm, moist soils. Seeds float and are easily spread by water. Resembles green foxtail at early growth stages.
BLACK MEDIC
Growth habit: Annual.
Competitive ability: Low; thrives on bare ground; grows rapidly and varies greatly in size.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: This plant will flush through the season, so re-infestation from plants germinating after herbicide application may be high.

CANADA FLEABANE (Horseweed)
Growth habit: Annual, winter annual.
Competitive ability: The seed has a pappus (parachute) so it can be carried by wind for long distances. More competitive under reduced tillage situations.
Typical crop losses: No data available.
Resistance issues: Resistance to Group 22 (paraquat) reported in Ontario. Resistance to Group 9 (glyphosate) is reported in Ontario and numerous states in the U.S.
Additional information: Many seedlings emerge in the fall forming rosettes that overwinter. Can range in height from 7.5 to 180 cm tall. Number of seeds produced is proportional to the plant’s height.

CANADA THISTLE
Growth habit: Perennial.
Competitive ability: Very strong.
Typical crop losses: A light infestation of six thistles per square metre can cause 18% yield loss in wheat.
Resistance issues: None reported.
Additional information: An extensive root system allows Canada thistle to survive in spite of aggressive top growth control. Apply herbicide at the rosette to pre-bud stage to maximize herbicide translocation to the roots.
CHICKWEED

Growth habit: Annual, winter annual.
Competitive ability: Moderate to strong. Seedling crops can be smothered when chickweed forms a mat and covers them.¹
Typical crop losses: If weather is cool and wet, chickweed will grow on swaths, delay drying time and make crop pick-up difficult.¹
Resistance issues: Reported resistance to sulfonylurea herbicides.
Additional information: Due to the nature of chickweed growth, additional flushes may grow and be present at harvest.

CLEAVERS

Growth habit: Annual, winter annual.
Competitive ability: Moderate (cereals) to strong (canola, pulses).
Typical crop losses: No data is available in cereals. In canola, there is a 20% yield loss at 100 plants per square metre.¹
Resistance issues: Reported resistance to Group 2 herbicides.
Additional information: Cleavers seed is difficult to separate from canola seed; even a few seeds may severely downgrade canola. Rotate cereals with canola to manage cleavers during the cereal rotation.¹

COCKLEBUR

Growth habit: Annual, reproducing by large seed.
Competitive ability: Very competitive in broadleaf crops.
Typical crop losses: Infestations in bean crops can cause severe (60% to 70%) losses due to reduced yield, increased moisture content of beans at harvest, and the presence of foreign material.¹
Resistance issues: None reported.
Additional information: Mature cocklebur can grow to 1 m high. Triangular shaped leaves; produces rough burs 1.5 to 2 cm long.
CORN SPURRY

Growth habit: Annual.
Competitive ability: None reported, assumed to be low.
Typical crop losses: No data available.
Resistance issues: Naturally tolerant to 2,4-D and MCPA.
Additional information: Needle-like leaves grow in whorls. Young corn spurry plants may be confused with field horsetail. Field horsetail stems are jointed with black-tipped bracts surrounding the nodes.

COW COCKLE

Growth habit: Annual.
Competitive ability: No data available.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Narrow, elongated smooth cotyledons on a short stock. First true leaves appear in a pair showing a crease down the centre. Stems and leaves feel thick and leather like. Flowers are pink in color. Looks similar to night-flowering catchfly and white cockle.

CURLED DOCK

Growth habit: Perennial.
Competitive ability: High level of salt tolerance, may out-compete crops in saline areas.
Typical crop losses: May contaminate cereal seed.
Resistance issues: None reported.
Additional information: Reproduces mainly by seeds, but can also reproduce by taproot fragments. Most often found in higher-moisture soils, e.g. near slough edges.
**DANDELION**

**Growth habit:** Perennial.

**Competitive ability:** Strong to very strong (especially on bare ground); becoming a major concern in reduced tillage.

**Typical crop losses:** No data available.

**Resistance issues:** None reported.

**Additional information:** Focus on control measures to destroy the long taproot. In-crop control is critical. The seedling can be confused with narrow-leaved hawk’s beard.

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**DOWNY BROME**

**Growth habit:** Annual, winter annual.

**Competitive ability:** Strong. A prolific seed producer, seeds can remain dormant for many years.

**Typical crop losses:** May reduce wheat yields up to 92%.

**Resistance issues:** Resistance reported to herbicide Groups 1 and 2 in the U.S.

**Additional information:** An aggressive species that invades cropland, pastures and rangeland. Seed spread is primarily through contaminated grain, hay, straw, manure and farm machinery.

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**FIELD BINDWEED**

**Growth habit:** Twining perennial; reproduces by both roots and seed.

**Competitive ability:** High.

**Typical crop losses:** No data available.

**Resistance issues:** None reported.

**Additional information:** May be confused with wild buckwheat. Has an arrow-shaped leaf with blunt tips, while wild buckwheat has an arrow-shaped leaf with a pointy tip.
FIELD DOCK

Growth habit: Perennial.
Competitive ability: Has a deep taproot. Overwinters as a rosette, producing new buds in the spring. Mature plant produces an abundance of seed.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Field dock is more abundant on the Prairies than curled dock, similar in appearance to western dock, a non-weedy species.

FIELD HORSETAIL

Growth habit: Perennial, reproducing by spores.
Competitive ability: Can be a strong competitor in poorly drained areas.
Typical crop losses: No data available.
Resistance issues: A survivor from prehistoric times, its unusual biology makes it difficult to control with any method.
Additional information: Can be toxic to livestock. Similar to corn spurry when mature, it has an extensive tuber-bearing creeping root system.

FLIXWEEP

Growth habit: Annual, winter annual.
Competitive ability: Overwintered rosettes are strong competitors that grow rapidly in spring and use valuable moisture. Spring-emerged seedlings are not good competitors.2,5
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: A member of the mustard family, often confused with tansy mustard. Tansy mustard seed pods are shorter and fatter than flixweed’s long, slender pods.
FOXTAIL BARLEY
**Growth habit:** Perennial, reproducing by seeds.
**Competitive ability:** Very competitive with crops in saline areas.
**Typical crop losses:** Can harbour wheat rust and blackstem rust, which can infect and damage crops.
**Resistance issues:** None reported.
**Additional information:** Spreads quickly because seed heads are well suited to wind dispersal and seedlings develop quickly. Due to narrow leaf structure, there are benefits from higher herbicide rates. Apply to actively growing plants.

GOAT’S-BEARD
**Growth habit:** Biennial to short-lived perennial with a long taproot.
**Competitive ability:** Airborne seeds can colonize bare ground or stressed crops/pastures, then canopy over desirable vegetation.
**Typical crop losses:** No data available.
**Resistance issues:** None reported.
**Additional information:** Milky juice, grass-like leaves, dandelion-type flower heads (but larger and with flat tops). Reproduces by seeds that travel long distances on milkweed-like parachutes.

GREEN FOXTAIL (*Wild millet*)
**Growth habit:** Annual grass.
**Competitive ability:** Poor competitor unless it grows in dense patches.¹
**Typical crop losses:** Can reduce yields by 10% to 15% when wheat is planted late.¹
**Resistance issues:** Confirmed resistance to Group 1 and Group 3 herbicides.
**Additional information:** Resembles barnyard grass at early growth stages.
HAIRY NIGHTSHADE
Growth habit: Annual
Competitive ability: Can be extremely competitive with pulse crops. Competes through high seed production (2,500 to 5,000 per plant).
Typical crop losses: Berries increase dockage. Plant produces a sticky substance that can clog equipment.
Resistance issues: No data available.
Additional information: Star-shaped white flowers similar to potato or tomato. Plant contains alkaloids that can poison humans and livestock. May be confused with black nightshade or black henbane.

HEMP-NETTLE
Growth habit: Annual
Competitive ability: Strong.
Typical crop losses: High densities of hemp-nettle can result in wheat yield losses of 39%.
Resistance issues: Resistance to Group 2 has been reported.
Additional information: The stem is square and covered with downward pointing, bristly hairs. Hemp-nettle cotyledons have distinct notches at the top.

HENBIT
Growth habit: Annual, winter annual
Competitive ability: Poor. The plant reproduces by seed; each plant produces up to 200. Germinates at shallow depths; roots are shallow and fibrous.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Henbit is not common in cultivated crops; it is more common in row crops, gardens and waste areas. Poisonous to livestock. Square stems are branched from the base.
JAPANESE BROME
Growth habit: Annual, winter annual.
Competitive ability: Aggressive. Reproduces by seed which may germinate in the fall under moist conditions. In dry conditions, it will adapt and grow as a spring annual.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Often confused with downy brome or foxtail barley.

KOCHIA
Growth habit: Annual.
Competitive ability: Strong, especially in dry and/or saline soils. Shallow germination. Can establish in low soil moisture conditions.
Typical crop losses: In severe infestations, kochia has been known to create up to 100% yield loss.7
Resistance issues: Reported to have widespread resistance to Group 2 and localized resistance to Group 9.
Additional information: Stays green into fall, which can lead to harvesting difficulties. Its erect, much-branched stem is often purple-striped.

LAMB’S-QUARTERS
Growth habit: Annual. Extremely variable growth structure.
Competitive ability: Moderate to strong.
Typical crop losses: High density populations can reduce barley yields 20% to 23%.7
Resistance issues: None reported.
Additional information: Often confused with redroot pigweed. Seedlings can be distinguished by a covering of silver particles, conspicuous on the underside of leaves.8
NARROW-LEAVED HAWK’S BEARD

Growth habit: Annual, winter annual.
Competitive ability: The annual form competes with special crops, cereals and oilseeds.
Typical crop losses: The most serious infestations of this weed occur in weak crop stands.²
Resistance issues: None reported.
Additional information: The seedling can be confused with dandelion, but dandelion leaves are broader, with deeper lobes, and are darker green in colour.

NIGHT-FLOWERING CATCHFLY

Growth habit: Annual, winter annual, reproducing by seeds.
Competitive ability: No data available in field crops, assumed to be low.
Competes well in pastures because it is unpalatable to livestock.
Typical crop losses: Impurity in clover and forage seed.
Resistance issues: None reported.
Additional information: Stems and leaves are covered with hairs, making herbicide uptake more difficult. Often mistaken for cow cockle and white cockle, but leaves are hairy and the plant is sticky when squeezed.

PERENNIAL SOW THISTLE

Growth habit: Perennial.
Competitive ability: Very strong.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Perennial sow thistle has a branching root system and larger flowers. It is often confused with annual sow thistle, which is tap-rooted and has much smaller flowers, or spiny annual sow thistle, which has sharp, spiny leaves and smaller flowers.¹
PRICKLY LETTUCE

Growth habit: Annual, winter annual, biennial.
Competitive ability: Reproduces by seed which is dispersed by wind.
Typical crop losses: This is a serious weed in cropland that can reduce crop yields drastically.
Resistance issues: Resistance to Group 2 (ALS inhibitors) has been reported in three U.S. states.¹
Additional information: Oblong leaves are sharp-toothed to prickly and often point east and west. The plant has a deep taproot, stems are hollow and grow up to 1.8 m high. Cattle that consume large amounts can develop the respiratory condition pulmonary emphysema.

QUACKGRASS

Growth habit: Perennial grass spread mainly by rhizomes on the extensive root system.
Competitive ability: Very strong. Rhizomes secrete a toxic substance that suppresses growth of surrounding plants. Quackgrass thrives under cool, moist conditions.
Typical crop losses: 1 shoot per square metre can reduce wheat yield by 10%.¹
Resistance issues: None reported.
Additional information: Usually occurs in dense patches, but can spread rapidly via underground rhizomes. Scout for patches encroaching from field borders or headlands. Apply herbicide to plants with active growth.

REDROOT PIGWEED

Growth habit: Annual.
Competitive ability: Strong competitor for nitrogen and moisture.
Typical crop losses: No data available.
Resistance issues: Group 2 resistance has been reported in Eastern Canada.
Additional information: Often confused with lamb’s-quarters. Seedlings are bright green, with bright red undersides of cotyledons and base of stem. Lamb’s-quarters seedlings are silvery-green.
ROUND-LEAVED MALLOW
Growth habit: Annual, winter annual, biennial, perennial.
Competitive ability: Moderate to strong, especially in manured fields.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: This weed tends to dominate in soils with lush organic matter, whether from peat or added manure.

RUSSIAN THISTLE
Growth habit: Annual
Competitive ability: Moderately strong.
Typical crop losses: 4 to 52 plants per square metre can reduce spring wheat yields by 20% to 48%. When Russian thistle emerges after the crop, yield losses are less significant.
Resistance issues: Reported resistance to Group 2 herbicides.
Additional information: Young leaves are needle-like with soft pointed tips. Mature plants break off at the stem and tumble in the wind to spread seed.

SCENTLESS CHAMOMILE
Growth habit: Annual, winter annual, short-lived perennial
Competitive ability: Moderate to strong. Competes most in cool, moist environments.
Typical crop losses: In spring wheat, moderate densities can reduce yield 35% in cool, wet years.
Resistance issues: None reported.
Additional information: Overwintered winter-annual plants can become large, bushy and extremely competitive.
SHEPHERD’S PURSE
Growth habit: Annual, winter annual.
Competitive ability: Weak to moderate.
Typical crop losses: No data available.
Resistance issues: None reported.
Additional information: Relatively easy to control in cereal crops.

SMARTWEED (Lady’s-thumb)
Growth habit: Annual.
Competitive ability: Moderate to very strong.
Typical crop losses: In spring wheat, moderate to high population densities can cause yield losses of 28% to 58%.¹
Resistance issues: None reported.
Additional information: Naturally tolerant to 2,4-D and MCPA. Under an advanced wheat canopy, its competitive nature is substantially reduced.²

STINKWEED
Growth habit: Annual, winter annual.
Competitive ability: Very strong.³
Typical crop losses: No definitive data available, but usually low.²
Resistance issues: None reported.
Additional information: Control fall rosettes so seed is not formed early the following spring. Plants release an unpleasant odour when leaves are rubbed.
STORK’S-BILL
Growth habit: Annual, winter annual, biennial.
Competitive ability: Strong.
Typical crop losses: Drought-tolerant once established, so it can take over knolls, significantly reducing yield.2
Resistance issues: None reported.
Additional information: A flexible life cycle allows it to adapt to reduced tillage production systems. Problems are currently isolated, but serious where established.3

TOADFLAX
Growth habit: Perennial, spread by seeds and a creeping root system.
Competitive ability: Strong, due to extensive creeping root system. Seeds germinate from shallow depths. Seedlings emerge throughout the season.
Typical crop losses: In wheat, 7 toadflax stems per square foot can reduce yields by 20%.7
Resistance issues: None reported.
Additional information: Most in-crop herbicides will only suppress this weed. Toadflax leaves are stalkless and linear, similar to domestic flax.

WHITE COCKLE
Growth habit: Annual, winter annual, short-lived perennial, reproducing by seeds.
Competitive ability: Low to medium.
Typical crop losses: A common impurity in clover and forage seed.
Resistance issues: None reported.
Additional information: Stems and leaves are covered in hairs, making herbicide uptake more difficult. Often mistaken for night-flowering catchfly and cow cockle. Night-flowering catchfly has glandular hairs and is sticky when squeezed.
WILD BUCKWHEAT
Growth habit: Annual.
Competitive ability: Moderate to strong.
Typical crop losses: In wheat, moderate population densities can cause yield loss of 10% to 12%.
Resistance issues: None reported.
Additional information: Competes aggressively in canola, so take advantage of control options during cereal rotations. Creates significant harvest problems if stems twine around equipment. May be confused with field bindweed.

WILD MUSTARD
Growth habit: Annual.
Competitive ability: Very strong.
Typical crop losses: At 50 plants per square metre, yield losses can be 16% in wheat and 74% in canola.
Resistance issues: Resistance to Group 2 herbicides has been reported.
Additional information: Very similar to canola. Short, stiff hairs on main stem are an identifying feature.

WILD OATS
Growth habit: Annual grass.
Competitive ability: Intermediate competitiveness with wheat, less competitive with good stands of barley and canola.
Typical crop losses: 10 plants per square metre can reduce wheat, barley and canola yields by 10%.
Resistance issues: Resistance to Group 1 herbicides is serious and widespread. Resistance has also been confirmed to Groups 2 and 8.
Additional information: Check low spots carefully, as wild oats prefer moist soil. New flushes of growth occur throughout the year after rainfall.
YELLOW FOXTAIL

Growth habit: Annual grass.
Competitive ability: Reproduces by seed only.
Typical crop losses: In wheat, moderate population densities can cause yield loss of 16%.
Resistance issues: Resistance reported to Group 5 herbicides.
Additional information: Distinguished from other foxtails by prominent silky, kinky hairs on the upper surface of the leaf blade near the stem.

YELLOW WHITLOW-GRASS

Growth habit: Annual, winter annual.
Competitive ability: Commonly found on dry, sandy soils; each plant produces up to 2,500 seeds.5
Typical crop losses: Data not available.
Resistance issues: None reported.
Additional information: Commonly found in fields under reduced tillage, but also appears in forage crops, hay fields and on rangeland. Early spring growth competes with crop seedlings for moisture and nutrients. Its yellow flowers appear early in spring.

Data References:
1 Manitoba Agriculture, Food and Rural Initiatives
2 Alberta Agriculture and Rural Development
3 Saskatchewan Agriculture and Food
4 B.C. Ministry of Agriculture and Lands
5 Saskatchewan Soil Conservation Association

Photo sources:
- Bruce Ackley, The Ohio State University, Bugwood.org
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- Green Thumb Photography
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- Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org
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