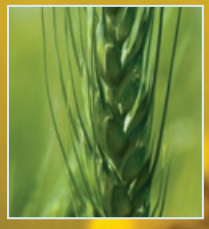
WESTERN CANADA AGRICULTURAL SOLUTIONS GUIDE 2025




BASF
We create chemistry

Count on innovation. And us.

Farming is filled with countless challenges every day, whether it's managing pests, disease or weeds in the field, facing unpredictable weather or fixing machinery. The more the agricultural industry advances, the more challenging the job becomes as farmers work harder to find experienced labour, adopt new technology, improve management practices and build a sustainable future.

At BASF, our goal is to provide steady support in an ever-changing industry. That's why we're committed to investing in research and developing new innovations to keep moving Canadian agriculture forward.

To simplify our product offerings, we've designed the 2025 Agricultural Solutions Guide to make it as easy as possible to find solutions that address your specific challenges. We back these offerings with trusted agronomic advice and knowledgeable support to ensure you can rest easy knowing you have a team of people behind you.

Utilize this guide to make the best of the 2025 growing season, grow healthy crops and continue building success in your business.

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Move forward with helpful resources beside you.

From seeding to harvest, the BASF portfolio provides you with the knowledge, resources and confidence you need to make this season as successful as possible. Equipped with our innovative solutions, you have the proper tools to start the season with clean fields, manage pests throughout it and complete harvest with a healthy, high-yielding crop.

A future filled with potential.

Take advantage of early InVigor® canola hybrids and clubroot protection.

The BASF lineup of canola solutions is constantly evolving to meet the unique demands of each field and improve their potential—and this year is no exception. **InVigor L330PC** and **InVigor L333PC** hybrids offer two new early-maturing options that fit early to mid growing zones and can help you harvest earlier in long growing zones. We also have a new early-maturing second-generation clubroot-resistant hybrid, **InVigor L341PC**, for areas that need that extra layer of clubroot protection.

the new InVigor® earlies

Control grassy weeds with less hassle.

Designed for your convenience, **Centurion® ADV** herbicide provides the same effective grassy weed control you've come to expect in your InVigor hybrid canola. But now there's a built-in adjuvant for an easy-to-use formulation. There's also convenient packaging, available in 80-acre cases and 640-acre drums. To provide even more confidence, the herbicide is backed by our Performance Support Guarantee[1] if the product doesn't meet labelled expectations.

Available in an 80-acre case and 640-acre drum

Centurion® ADV
Herbicide

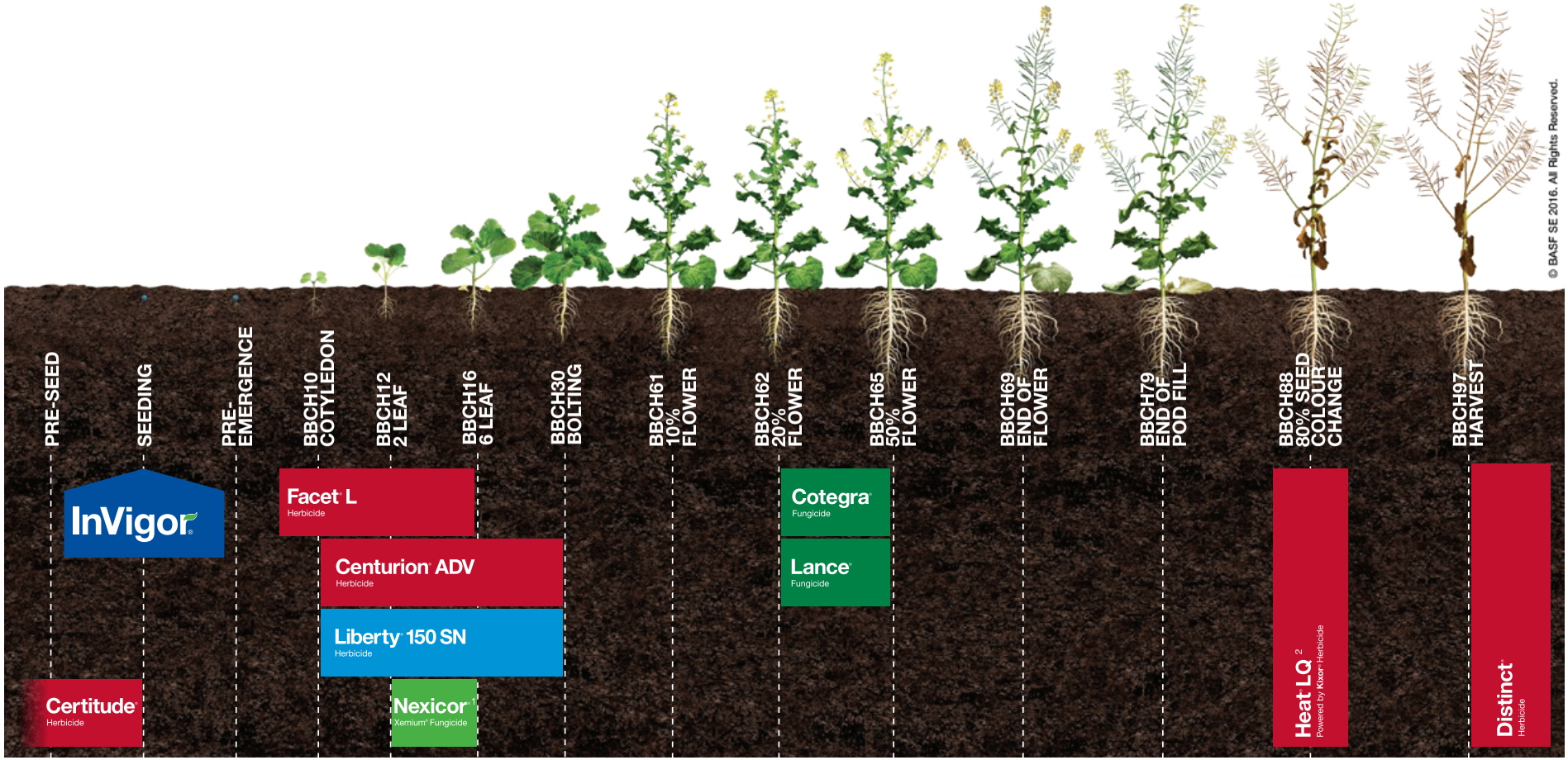
Use this interactive, searchable guide to learn more about these solutions, as well the entire BASF product offering.

[1] When adhering to specified rates outlined in the product label.

BASF Crop Solutions

- Canola
- Lentils
- Peas
- Soybeans
- Wheat
- Barley
- Oats
- Corn
- Potatoes
- Crop protection storage guidelines

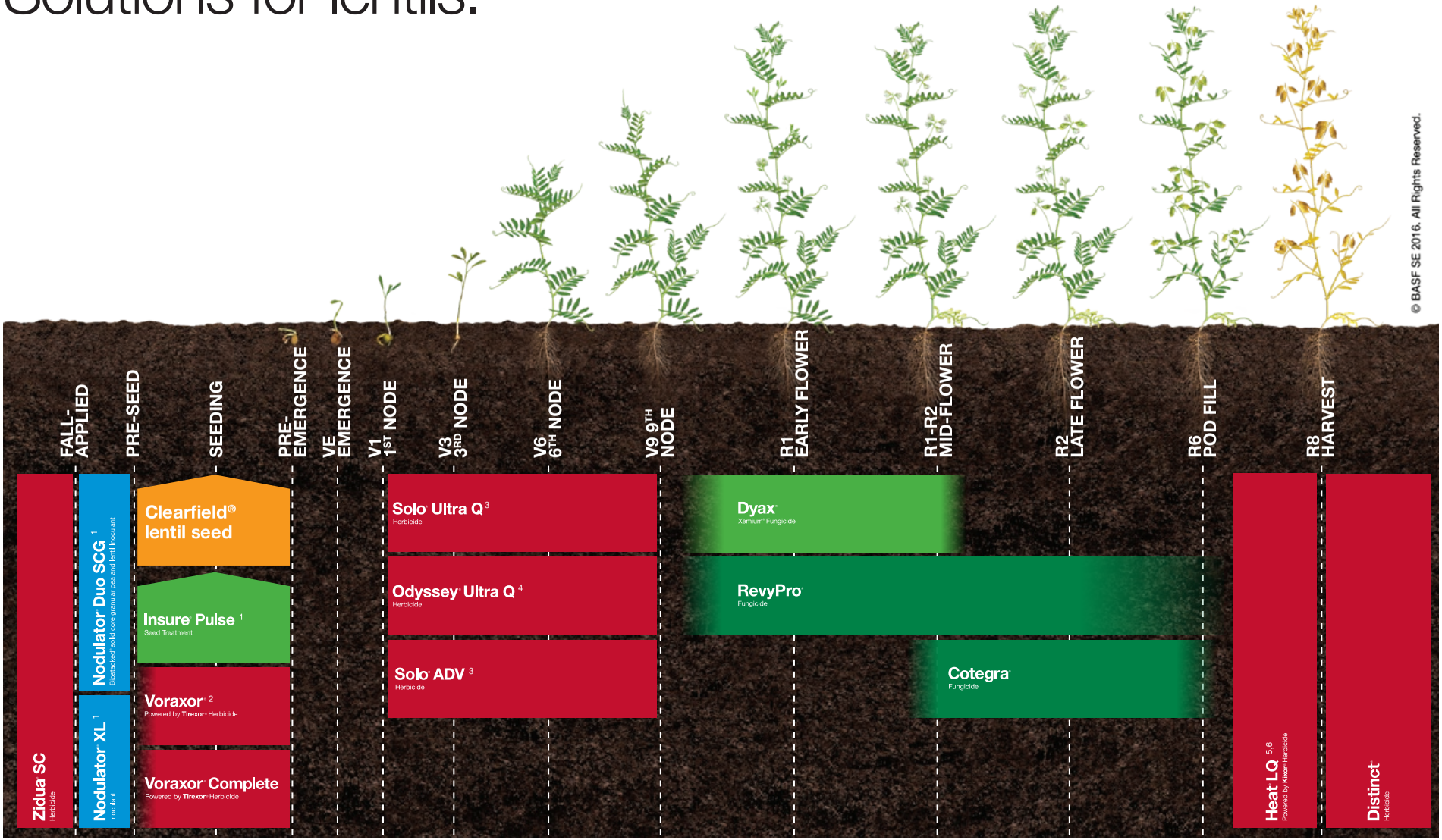
Solutions for canola.



Staging graphics depicted here are for quick reference only.
Refer to individual product pages and product labels on **agsolutions.ca** or call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) for detailed staging information.

[1] For blackleg control, Nexicor® fungicide may be tank mixed with herbicide application.
[2] Apply when the crop has reached 80% seed colour change.

Solutions for lentils.



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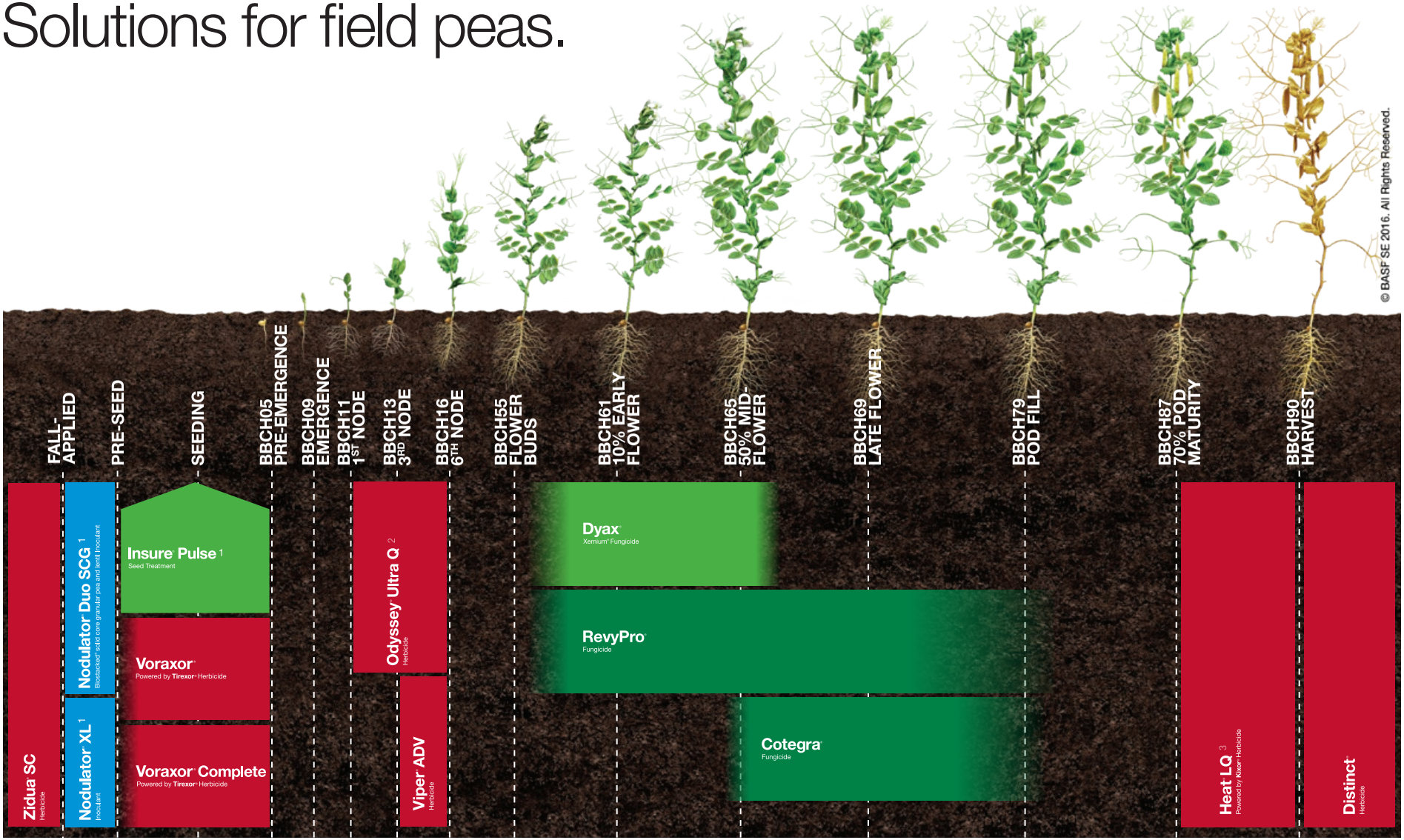
Refer to individual product pages and product labels on **agsolutions.ca** or call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) for detailed staging information.

[1] For details on compatibility between seed treatments and inoculants, see the Lentil Seed Applied Pesticide Compatibility Information document available on **agsolutions.ca**, call **AgSolutions** Customer Care at 1-877-371-BASF (2273) or contact your BASF **AgSolutions** Grower or Retail Representative. [2] Rate restrictions apply. Do not use rate higher than 19.5 ml/ac (48 ml/ha) or crop injury could result. [3] Registered for use on **Clearfield** lentils in the Prairie Provinces and Peace River Region and Interior of British Columbia. [4] Registered for use on **Clearfield** lentils and only in the Prairie Provinces. [5] Apply when bottom 15% of pods are mature and brown with ripened seeds. [6] BASF supports the use of Heat® LQ herbicide for pre-harvest use on red lentil varieties only. DO NOT apply Heat LQ pre-harvest to green lentils. Please check with your grain buyer prior to the pre-harvest application of Heat LQ in red lentils.

Solutions for field peas.



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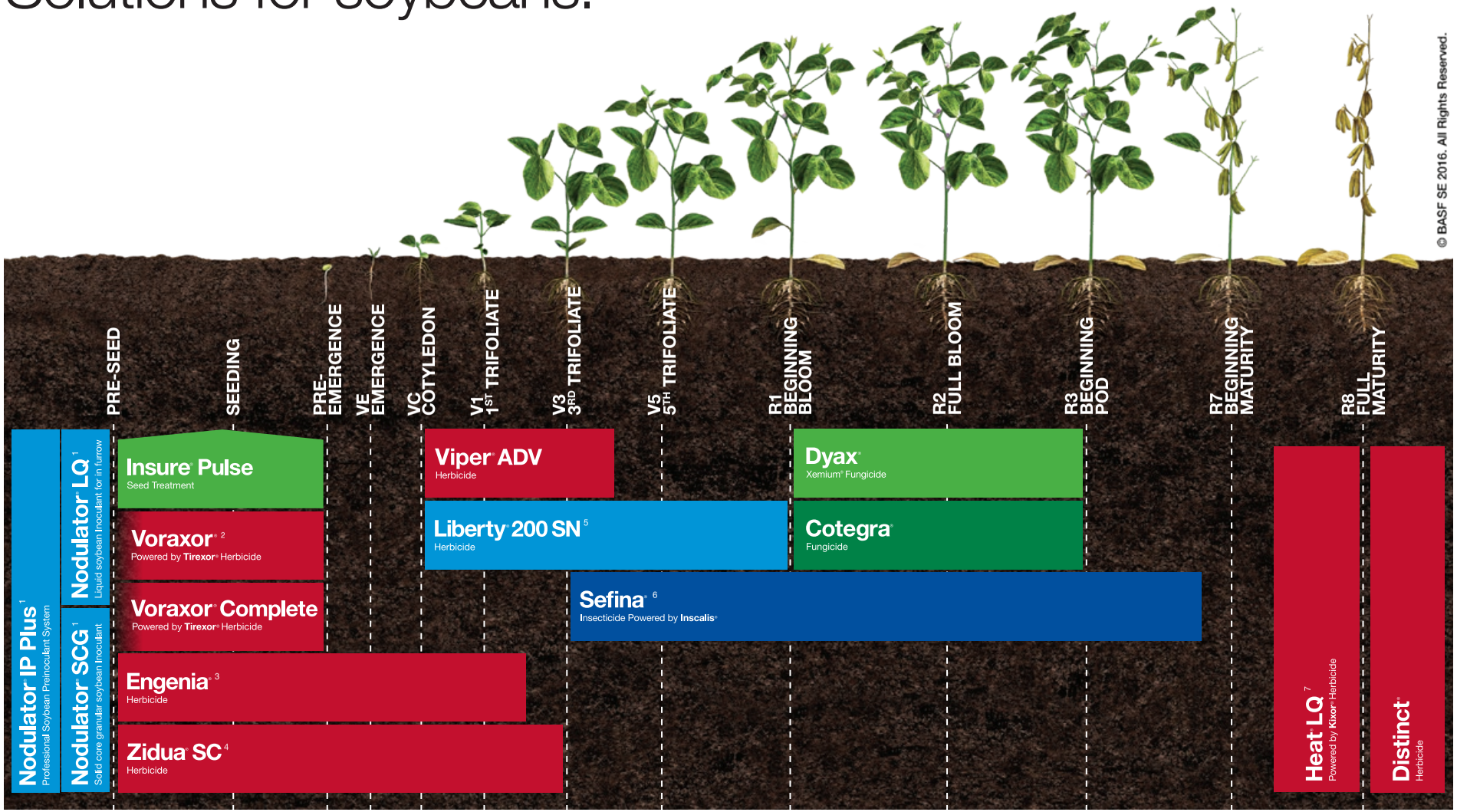
[1] For details on compatibility between seed treatments and inoculants, see the Pea Seed Applied Pesticide Compatibility Information document available on **agsolutions.ca**, call **AgSolutions** Customer Care at 1-877-371-BASF (2273) or contact your BASF **AgSolutions** Grower Representative.
[2] Registered for use only in the Prairie Provinces.
[3] Apply when majority of pods are brown (70 to 80%).

Solutions for soybeans.



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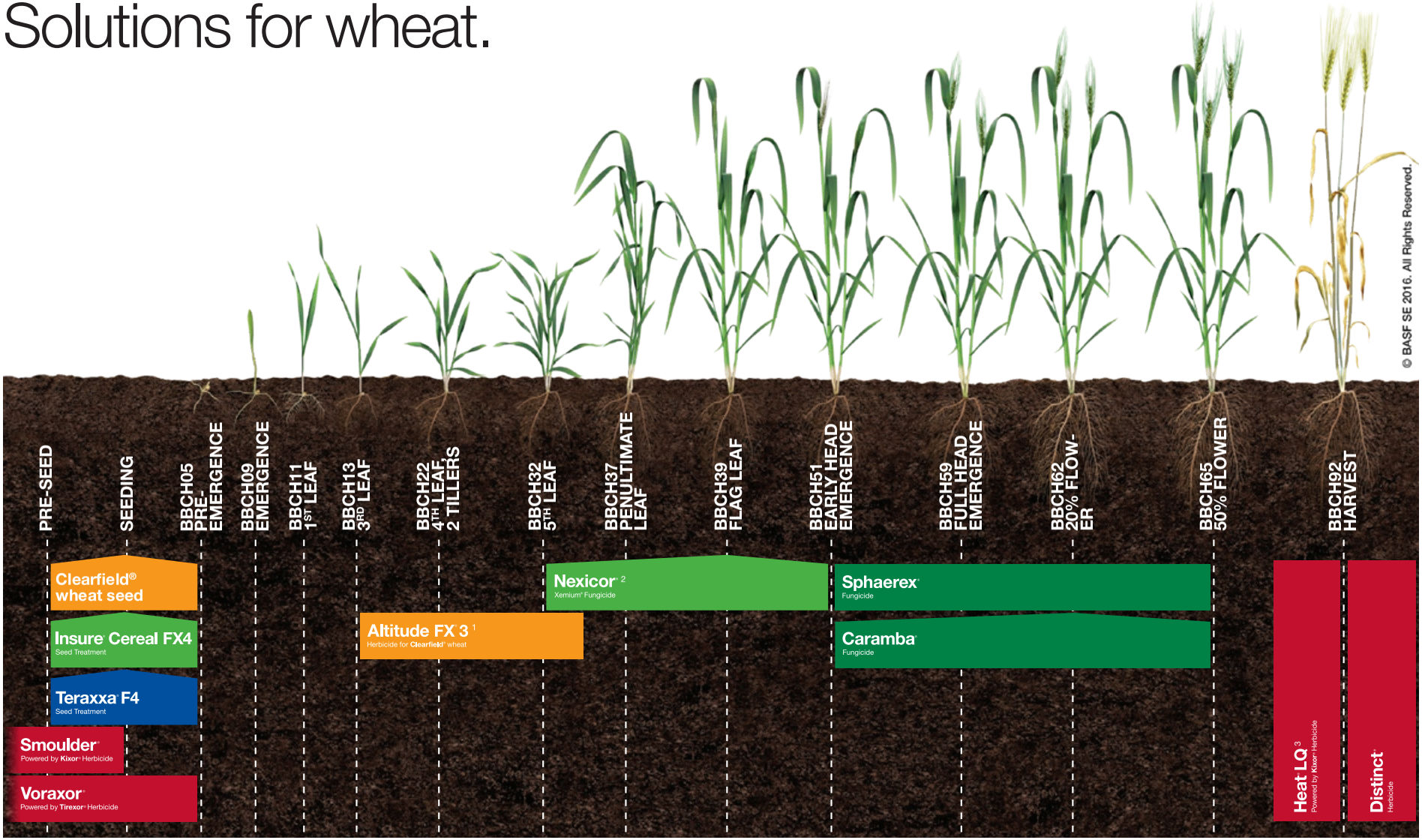
[1] For details on compatibility between seed treatments and inoculants, see the Soybean Seed Applied Pesticide Compatibility Information document available on **agsolutions.ca**, call **AgSolutions** Customer Care at 1-877-371-BASF (2273) or contact your BASF **AgSolutions** Grower Representative. [2] Rate restrictions apply. Do not use higher than 40.5 ml/ac (100 ml/ha) or crop injury could result. [3] Apply by ground ONLY to dicamba-tolerant soybeans. Soybean varieties that are not designated as dicamba-tolerant will be damaged or destroyed by this treatment. [4] Talk to your grain buyer before applying to conventional or IP soybeans. [5] Apply to glufosinate ammonium tolerant soybean only. [6] Application during the crop blooming period may be made only in the evening when most bees are not foraging. [7] Apply when stems are green to brown, pods are mature (yellow, brown) and 80 to 90% of leaves have dropped.

Solutions for wheat.



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Refer to individual product pages and product labels on **agsolutions.ca** or call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) for detailed staging information.

[1] Registered for use on **Clearfield** wheat and **Clearfield** Plus wheat varieties only.

[2] **Plant Health Benefits** are obtained with Nexicor® fungicide application at flag-leaf. While Nexicor can be applied between stem elongation and early head emergence (GS 31-55), research suggests that applying at flag-leaf (GS 37-39) helps maximize yield potential in cereals.

[3] Apply at the hard dough stage with less than 30% moisture. A thumbnail impression should remain on seed.

Solutions for barley.

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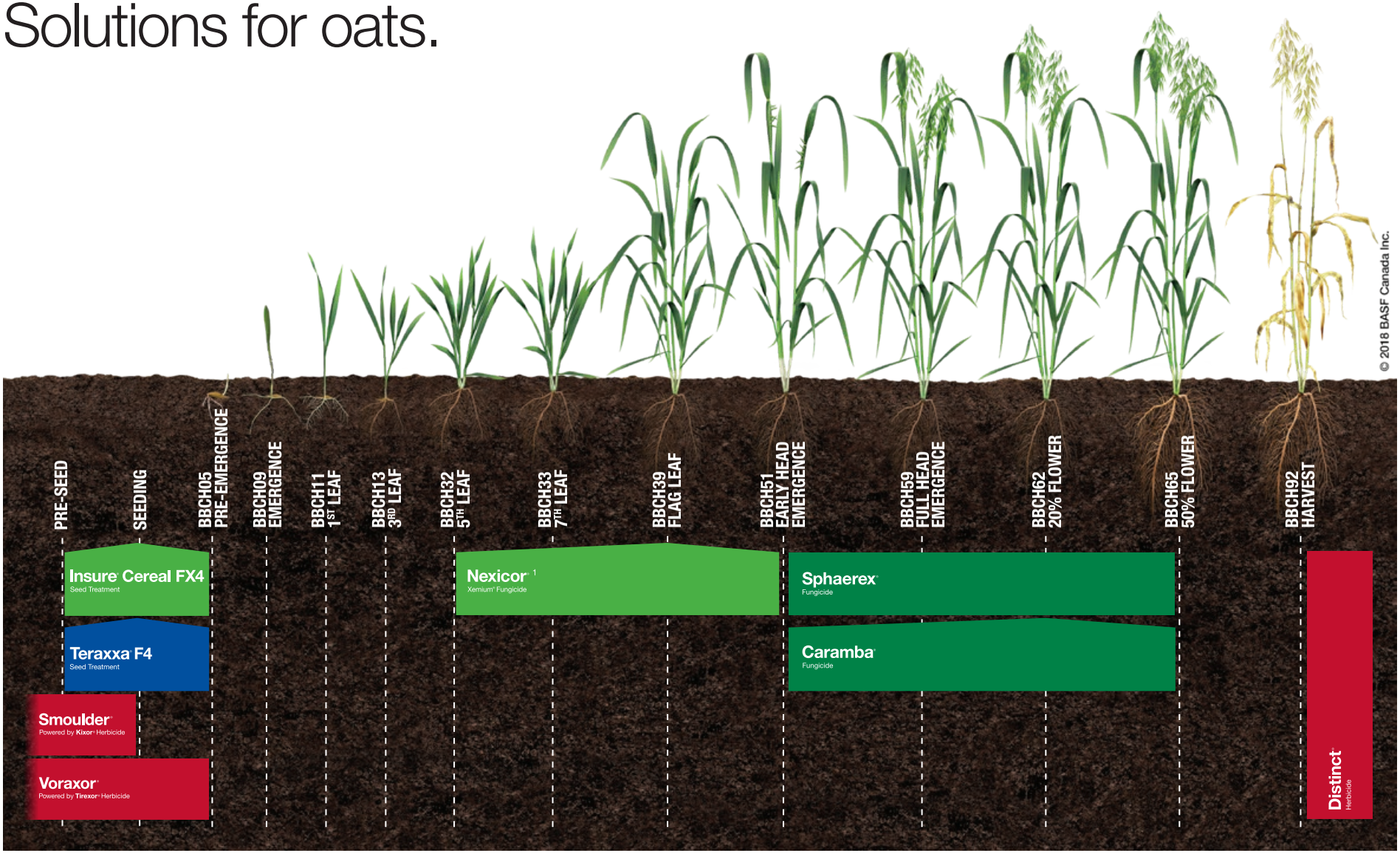
1 **Plant Health Benefits** are obtained with Nexicor® fungicide application at flag-leaf. While Nexicor can be applied between stem elongation and early head emergence (GS 31-55), research suggests that applying at flag-leaf (GS 37-39) helps maximize yield potential in cereals.

2 Apply at the hard dough stage with less than 30% moisture. A thumbnail impression should remain on seed.

3 At this time, BASF supports the use of Heat® LQ herbicide for pre-harvest on feed barley only.

Solutions for oats.



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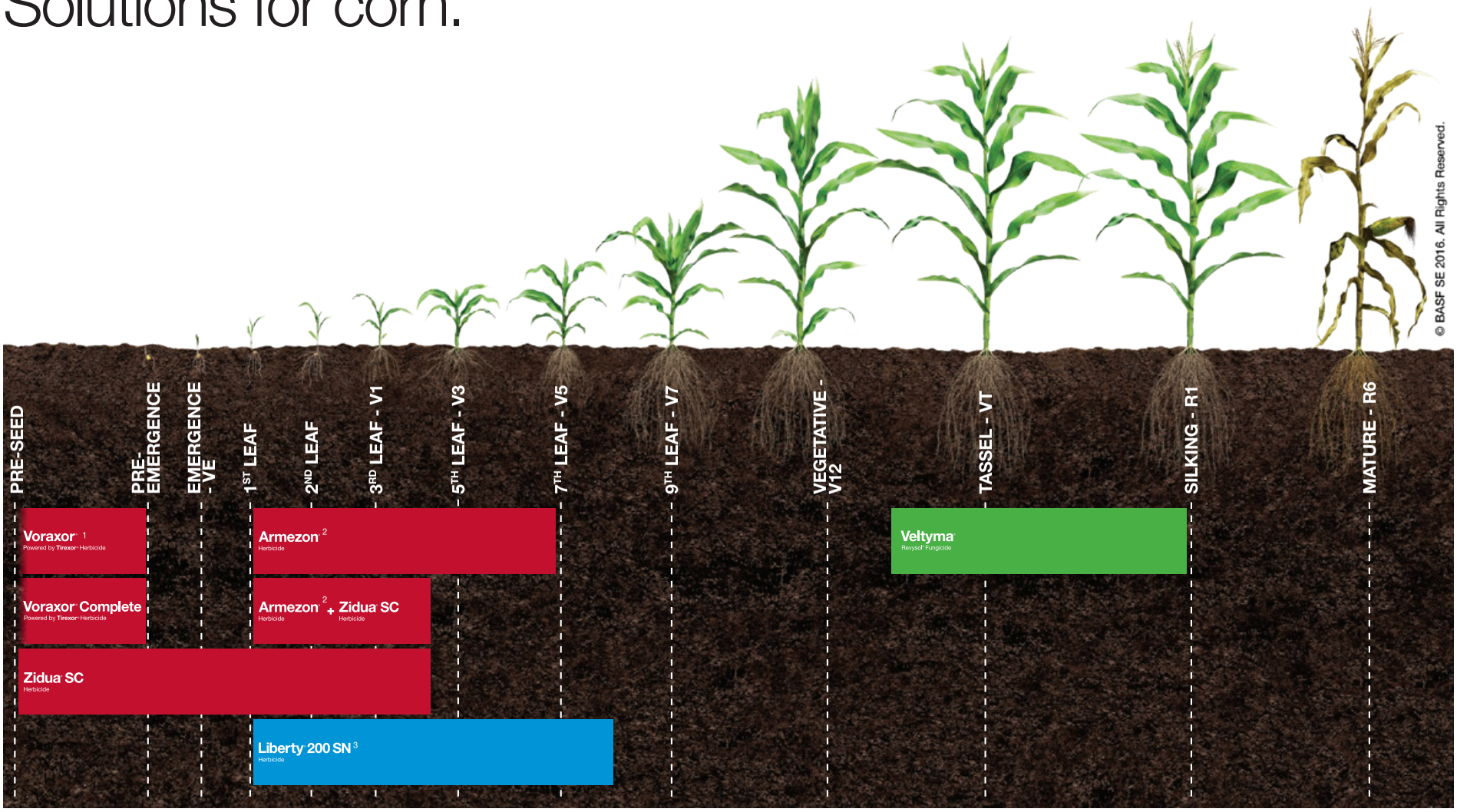
[1] **Plant Health Benefits** are obtained with Nexicor® fungicide application at flag-leaf. While Nexicor can be applied between stem elongation and early head emergence (GS 31-55), research suggests that applying at flag-leaf (GS 37-39) helps maximize yield potential in cereals.

Solutions for corn.



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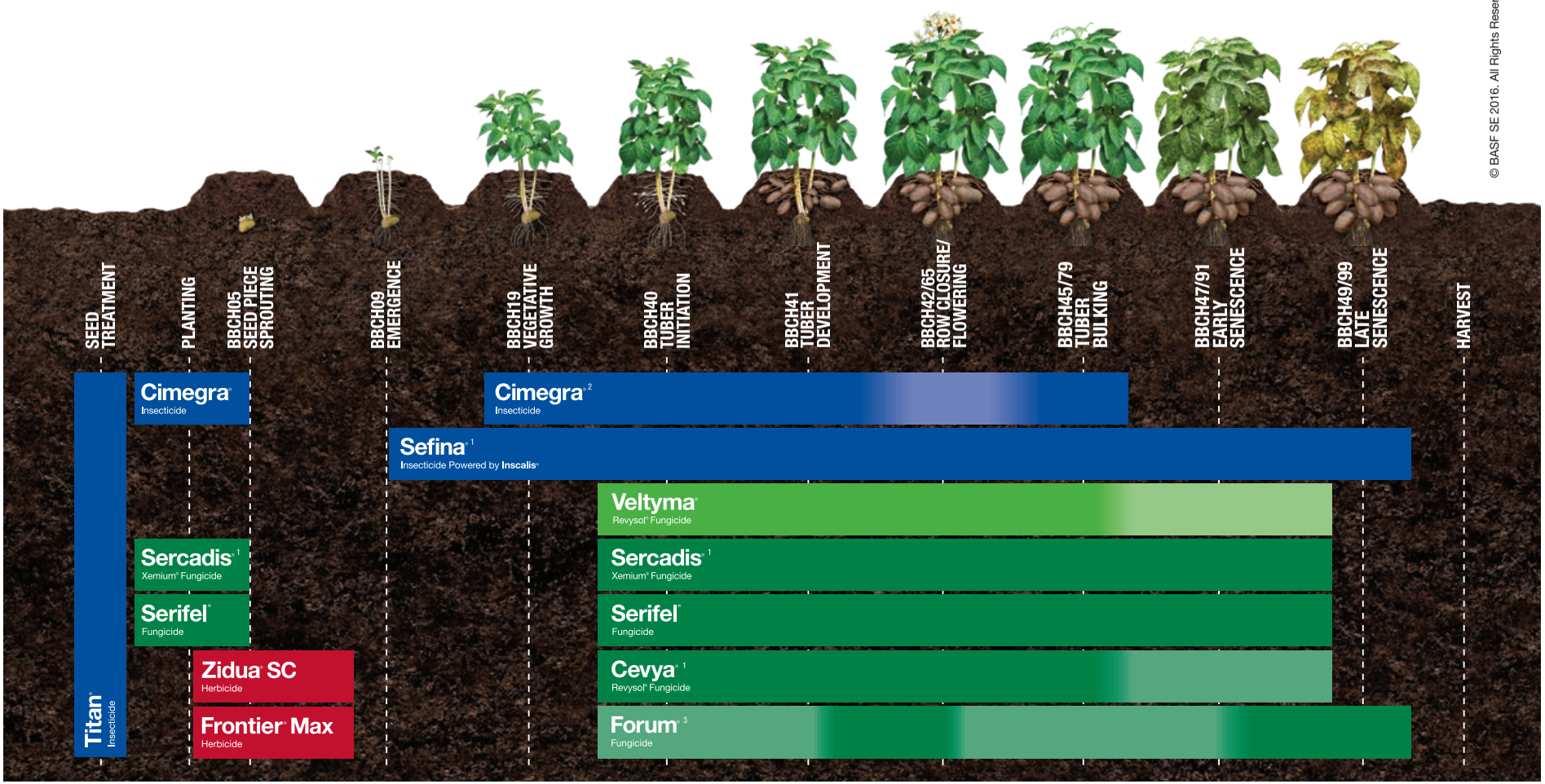
Refer to individual product pages and product labels on **agsolutions.ca** or call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) for detailed staging information.

[1] Rate restrictions apply. Do not use higher than 40.5 ml/ac (100 ml/ha) or crop injury could result.
[2] In tank mix with glyphosate. See Armezon® herbicide label for other tank-mix partners and application timings.
[3] Apply to glufosinate ammonium tolerant corn only.

Solutions for potatoes.



Staging graphics depicted here are for quick reference only.
Refer to individual product pages and product labels on **agsolutions.ca** or call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) for detailed staging information.

Darker areas reflect recommended application period for Cimegra® insecticide .

Darker areas reflect recommended application periods for Veltyma® Revysol® fungicide.

Darker areas reflect recommended application period for Cevya® and Forum® fungicides.

[1] Do not exceed the total number of sequential applications or total number of applications per season as stated by specific product labels. Application during the crop blooming period may be made only in the evening when most bees are not foraging. [2] Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period. [3] To reduce the risk of the development of fungicide resistance, tank mix Forum fungicide with other fungicides. Do not apply more than three (3) applications per season.

BASF crop protection product storage guidelines.

Requires Heated Storage

Herbicides
Altitude FX® 3
Altitude FX 2
Armezon®
Basagran® Forte
Certitude®
Heat® Complete
Heat LQ
Liberty®
Odyssey® NXT
Odyssey Ultra Q
Pursuit®
Smoulder®
Solo® ADV
Solo Ultra Q
Viper® ADV
Voraxor®
Voraxor Complete
Zidua® SC

Fungicides
Caramba®
Cevya®
Cotegra®
Dyax®
Forum®
Headline®
Nexicor®
Priaxor®
RevyPro®
Sercadis®
Sphaerex®
Twinline®
Veltyma®
Zampro®

Seed Treatments
Teraxxa® F4
Insure® Cereal FX4
Insure Pulse

Insecticides
Cimegra®
Nealta®
Titan®

Adjuvant
Merge®

Liquid Fertilizer
BASF 28% UAN

The products listed above need to be protected from freezing. Heated storage and handling requires storing the product in a cool, dry, ventilated area. They should be separated from feed or foodstuffs, and **temperature should be maintained generally between 5ºC to 20ºC**. For individual products, please call your BASF representative or **AgSolutions®** Customer Care for more specific storage requirements.

Does NOT Require Heated Storage

Herbicides
Basagran
Centurion®
Centurion ADV
Distinct®
Engenia®
Facet® L
Frontier® Max
Poast® Ultra

Insecticide
Sefina®

Fungicides
Cantus®
Lance®

Adjuvant
Assist®

Liquid products don't always work as intended if they freeze. For some liquid products, it will be required to thaw them out entirely and thoroughly mix or shake them. This does not, however, guarantee proper functionality, performance or efficacy of the product, even if they do not indicate heated storage on the MSDS or Product Label. If you have access to heated storage, it is best to avoid freezing all remaining inventory of liquid crop protection products when possible.

BASF Seed

- InVigor® hybrid canola

  Overview

  2025 InVigor lineup
- Clubroot won't quit. Neither will we
- Identifying blackleg and verticillium stripe
- Don't give blackleg a leg to stand on
- Setting up for success
- InVigor resources you can trust
- Liberty® & Trait Agreement

InVigor®

Fields you can be proud of.

Thank you for your continued support of InVigor® hybrid canola. We are dedicated to the advancement and continued success of your farm and the Canadian canola industry. Together we can achieve big things.

We're evolving with your needs, providing high-performing hybrids with patented Pod Shatter Reduction technology, robust clubroot-resistant genetics and continued agronomic and sales support.

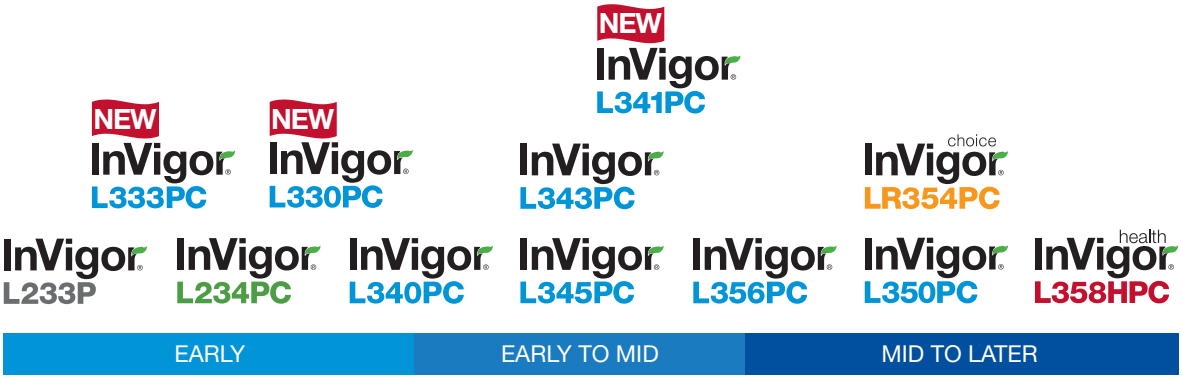
This year, the InVigor hybrid canola lineup sees the arrival of three new early-maturing hybrids, giving you even more top-performing options to better suit your unique needs and help you achieve your goals.

Thank you for trusting us with your fields. Have a great season.

The choice is yours.

Choose from a lineup of top-performing hybrids to suit your needs and help you make the most of every acre.

MATURITY



STANDABILITY

Please note: Information displayed on this chart is based on performance ratings and data compiled from several InVigor internal trials over multiple years. Results may vary on your farm due to environmental factors and preferred management practices.

Additional seed treatment options for 2025.

Find the InVigor seed treatment option that suits your needs to stay ahead of early-season pests. You can choose how you top up your base Helix® Vibrance® seed treatment with a number of different options:

BUTEO® start OR Lumiderm™ INSECTICIDE SEED TREATMENT OR BUTEO® start + Lumiposa™ INSECTICIDE SEED TREATMENT

Seed treatments will vary by hybrid. Talk to your retailer early about your seed treatment needs to secure solutions for your farm.

InVigor®

Clubroot won't quit. Neither will we.

Since InVigor® hybrid canola began introducing its clubroot-resistant hybrids, they've been seeded on more than 51 million acres across Canada. For 2025, growers can choose from 11 InVigor clubroot-resistant hybrids—three of which contain second-generation clubroot resistance.

When growing clubroot-resistant hybrids, we recommend using first-generation clubroot-resistant hybrids in clubroot affected areas until no longer effective or until clubroot symptoms appear, whichever comes first, then consider switching to second-generation clubroot-resistant hybrids. All clubroot-resistant InVigor hybrids have been developed to be resistant to the most predominant clubroot pathotypes found in Canada at the time of their registration.

Leading the fight against clubroot.

Our robust clubroot-resistant[1] genetics can help give you exceptional yield potential. In challenging situations where second-generation hybrids are required, you can be confident in choosing clubroot-resistant hybrids for your fields.

		Predominant clubroot pathotype resistance test results													
InVigor clubroot resistance	InVigor hybrid(s)	2F	3H	5I	6M	8N	3A	3D	5X	2B	8E	8P	5G	11A	Number of "R" patho-types
None	InVigor L233P	S	S	S	S	S	S	S	S	S	S	S	S	N/T	0
First generation	InVigor L330PC InVigor L333PC InVigor L340PC InVigor L345PC InVigor L350PC InVigor L356PC InVigor Health L358HPC InVigor Choice LR354PC	R	R	R	R	R	S	S	S	S	S	S	S	N/T	5
Second generation*	InVigor L341PC InVigor L343PC	R	R	R	R	R	R	R	R	R	R	R	R	N/T	12
	InVigor L234PC	R	R	R	R	R	R	R	R	R	R	R	R	N/T	12

S Susceptible R Resistant N/T Not tested

* The genetic mechanism of resistance can differ between 2nd generation hybrids.

[1] All clubroot-resistant InVigor hybrids have been developed to be resistant to the most predominant clubroot pathotypes found in Canada at the time of their registration.

Sustainability of the Canadian canola industry is as important to us as it is to you. Together, we can work to minimize the impact of clubroot with an integrated pest management (IPM) strategy that includes:

- Extend canola **rotation** to a minimum of once every three years when possible
- Using **sanitation** and **patch management** to limit the movement of infected soil
- Control volunteer canola and other **brassica weeds** that can act as hosts for the disease
- **Scouting** to identify the presence of the disease
- Utilize clubroot-resistant **genetics** as part of an IPM strategy

First-generation clubroot-resistant hybrids:

NEW InVigor L330PC

InVigor L356PC

InVigor L345PC

InVigor L350PC

InVigor health L358HPC

NEW InVigor L333PC

InVigor L340PC

InVigor choice LR354PC

Second-generation clubroot-resistant hybrids:

NEW InVigor L341PC

InVigor L343PC

InVigor L234PC

For more information on clubroot, visit our frequently asked questions (FAQ) page at **agsolutions.ca/clubroot**.

Identifying blackleg and verticillium stripe.

Many canola diseases can be misdiagnosed as blackleg due to visual similarities. To be certain of a correct diagnosis, a sample should be submitted for analytical testing (plate/PCR). These tests can include a disease or pathogen panel, or a blackleg race ID screen, if needed.

Blackleg vs. verticillium stripe

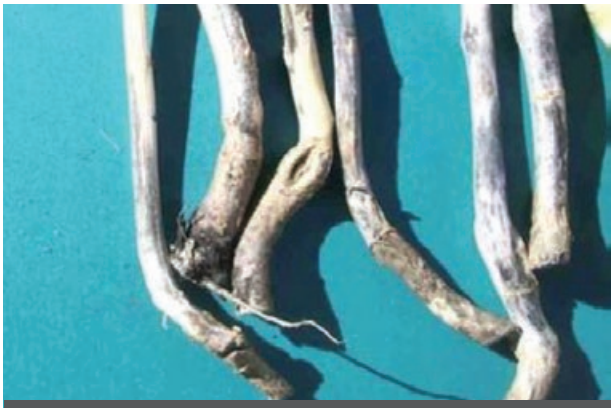
BLACKLEG

VERTICILLIUM STRIPE

Source: BASF internal trials

Blackleg vs. grey stem

BLACKLEG



GREY STEM

Source: Canola Council of Canada

Verticillium stripe – a growing concern in canola.

Verticillium stripe is a soil-borne fungal disease that has started to become more prevalent in certain canola growing regions of Western Canada. It can present with varying symptoms, including:

- Discolouration across the stem cross section
- A brown stripe on the half stem
- Pre-maturing ripening
- As the plant matures the stem turns from brown to grey and the outer layer peels back to reveal microsclerotia, which appear as little black spots

There are currently no industry-wide management recommendations to control the disease. BASF recommends following good agronomic practices to minimize the impact.

If you suspect verticillium stripe in your canola crop, submit a sample to an accredited laboratory for analytical verification.

Don’t give blackleg a leg to stand on.

With the rise in canola demand and shortened rotations, there is a risk of blackleg shifting towards increasingly virulent pathotypes. It can be most effectively managed with a coordinated and comprehensive integrated pest management (IPM) plan that includes the following strategies:

- Utilizing newest ‘R’ rated hybrids
- Scouting fields, properly identifying and monitoring the infection
- Managing susceptible weeds and volunteer canola to reduce inoculum sources
- Using a registered fungicide at the proper timing

BASF understands that farming is a balance of agronomy and business. That being said, BASF recommends following a minimum of a 1-in-3-year canola rotation.

All InVigor hybrids are rated “R” for resistant to blackleg.

All InVigor hybrids are rated “R” for resistance to blackleg and may employ both minor and major gene resistance.

- **Minor gene resistance** is effective across multiple races and helps protect the longevity of major gene resistance
- **Major gene resistance** is effective against blackleg when matched against the corresponding race

Visually differentiating blackleg from certain other diseases is difficult. To be certain, submit samples for analytical testing at an accredited laboratory.

Setting up for success.

1 Manage volunteer canola

a. Volunteers make it more difficult to achieve the desired plant population, lower crop yield and increase incidence of disease

b. Control volunteer canola and other weeds prior to seeding with Certitude® herbicide

Certitude®
Herbicide

2 Target an optimal plant population of 5 to 7 plants/ft² using InVigor RATE

a. Optimize yield with a target plant population of 5 to 7 plants/ft²

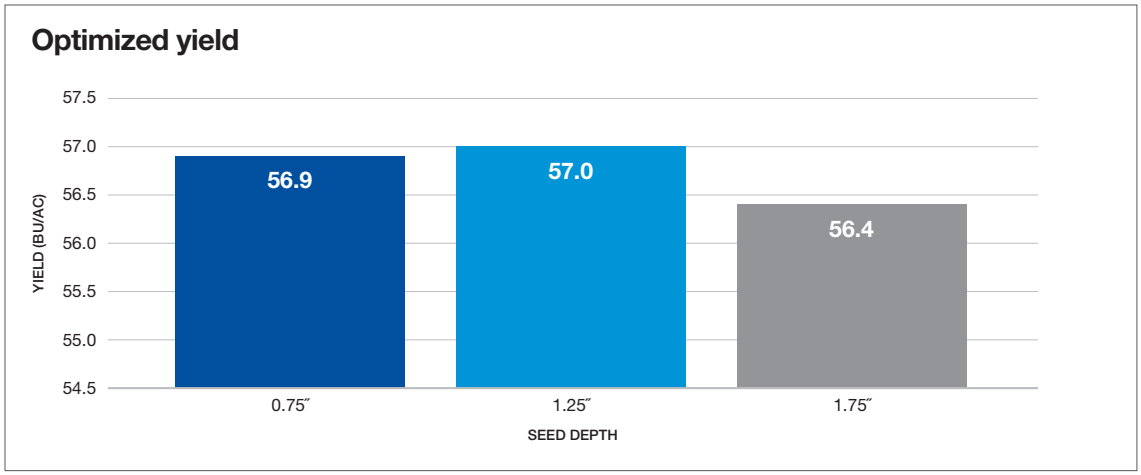
b. InVigor® hybrids perform at the same level across all bag ranges

c. Each bag contains a similar number of seeds with seeding rate recommendations clearly labelled

3 Target a seeding depth of 0.75" to 1.25"

a. Ensures seedlings have adequate moisture to establish under moderate conditions

b. Improves establishment consistency, plant density and yield



Source: Agronomic Excellence Trial data, 2015-2021, n=62
Results may vary on your farm due to environmental factors and preferred management practices.

4 Grow multiple InVigor canola hybrids to get the full benefits of our robust genetics

a. Growing hybrids with different maturity ratings helps to spread out harvest

   i. Choosing early-maturing hybrids can help you beat the heat and get combines rolling

b. Increased flexibility to help manage environmental risks

c. Rotating InVigor hybrids helps reduce risk of disease pressure

the new InVigor® earlies

5 Protect your investment to maximize yield potential

a. Grow hybrids with the disease resistance packages that suit your needs (1st or 2nd generation clubroot*)

b. Scout fields to better understand disease presence and pressures

c. Protect high potential InVigor canola fields from sclerotinia with Cotegra® fungicide

Cotegra®
Fungicide

Farming is a balance of agronomy and business. **BASF recommends following a minimum of a 1-in-3-year canola rotation**, but if you are shortening your rotation, the steps above become even more important.

*To predominant clubroot pathotypes found in Canada at the time of their registration.

InVigor resources you can trust.

BASF has an extensive lineup of solutions and resources to help enhance, protect and support the performance of your InVigor hybrid canola in the field. **InVigorResults.ca** features an interactive map that gives you replicated trial data that includes information on environmental conditions, products applied, hybrid performance and more, so that you can be confident you're making informed decisions for your fields. You can also visit **agsolutions.ca/InVigorResources** or scan the QR code below to get access to more of these useful tools that can help you be successful across the season.

InVigor Resources

Liberty & Trait Agreement.

The Liberty & Trait Agreement (LTA) is an evergreen contract between BASF and the grower, granting a limited license to possess and use certain innovative traits and technologies including LibertyLink® certified canola seed, LibertyLink certified soybean seed, Liberty® herbicide and InVigor® Choice canola hybrids.[1]

Stay on the leading edge.

The LTA is a cornerstone of BASF innovation that drives research and development forward by supporting our investment in breeding and trait research. In addition, it is the foundation for BASF to steward its seed and trait technology in the marketplace. This ultimately benefits both BASF and its growers through innovative, new, high-performing seed products, promoting the long-term durability of traits and ensuring continued market access.

LTA facts:

- All growers must sign the LTA prior to their first purchase
- Growers who sign the LTA agree to use these products according to the terms and conditions. Here are some examples:
  - Certified seed purchased from an authorized retailer can only be used to plant one commercial crop in Canada (planting or growing a crop from harvested grain, volunteer seeds, or plants is not permitted)
  - Seed, crop or grain cannot be used for breeding or research purposes; seed may only be used for variety comparison or research purposes with BASF written permission
  - Liberty can only be used on authorized crops
  - The harvested crop can only be sold into the commercial grain system
  - Growers allow BASF to collect their transactional information to be used for administration and enforcement of the LTA; this includes monitoring and safeguarding the intellectual property of BASF

How can you help?

- Ensure you have a signed LTA in place
  - Contact your local InVigor or Liberty retailer
  - Talk to your BASF **AgSolutions®** Grower Representative
  - Call **AgSolutions** Customer Care at 1-877-371-BASF (2273)
- Follow the LTA terms and conditions

[1] Growers who purchase InVigor Choice must have a valid LTA and a valid Technology Stewardship Agreement.

BASF Seed Treatments

- Treat your seed right.
  Reap the benefits of protected seed
- Face wireworms with an integrated strategy
- Ready, set, treat.
  Seed treatment application best practices
- Teraxxa® F4
- Insure® Cereal FX4
- Insure Pulse

Treat your seed right.
Reap the benefits of protected seed.

The conditions that are most conducive for seed germination and crop establishment are also optimal for disease development. A young crop may experience less environmental stressors in a warm, dry spring, but disease development pressure may increase.

It's important to utilize seed testing to better understand the pathogens present in your seed. If your seed has tested positive for a seed-borne disease, or the field you are seeding into has a history of soil-borne diseases, the use of a fungicide seed treatment is highly recommended.

THE RISKS OF USING INFECTED/UNTREATED SEED.

- ✘ Potential to reduce seed germination
- ✘ Introduces new pathogens to the soil
- ✘ Increases the number of initial infection sites on the plant that can act as entry points for other pathogens
- ✘ Increases the potential for widespread disease distribution throughout the crop

THE BENEFITS OF USING A SEED TREATMENT TO CONTROL DISEASES AND INSECTS.

- ✔ Helps to limit the introduction of pathogens into the field
- ✔ Manages diseases present on the seed and within the soil
- ✔ Enhances seedling vigour to help establish a proper plant stand
- ✔ Helps achieve the target plant population

Face wireworms with an integrated strategy.

In addition to the range of cereal diseases growers face, one of the biggest potential threats today is wireworms. Causing losses of up to 50%[1], they can live in the soil for up to 11 years.[2] It takes more than one strategy to manage wireworm infestations and reduce crop damage – it takes an integrated pest management (IPM) approach.

Scouting – Keep field maps and be aware of areas in your field that yield less than others. Perform root digs early in the season to assess root masses for wireworm larvae feeding or look for yellowing leaves above ground that can indicate wireworm damage below. In the early season look for feeding damage and at mid-season look for patches in the field, bare spots, plants starting to die, etc.

Trapping – Use trapping methods such as bait balls or pit fall traps to determine the presence of wireworms.

Seeding rates – Increase your seeding rate to make up for predicted lost plant stand from wireworm feeding.

Rotation – Rotate to non-host crops such as canola.

Weed control – Manage grassy weeds in your field and field edges, as wireworms will also feed on them.

Chemical solutions – Use an insecticide seed treatment such as Teraxxa® F4. Teraxxa F4 is the proven cereal seed treatment on the market that provides true wireworm control by breaking the lifecycle.

Scan this code to learn more about managing wireworms.

Wireworm
larvae of click beetle

Click beetle
Selatosomus cruciatus

Root clipping/root mass destruction

Yellowing leaves from feeding on or around seed/roots

Patches and plant height reduction from wireworm feeding

Source: Grower Applied Strip Trials, 2019

[1] Agri-Facts, Alberta Government, 2014.

[2] Source: Catton H, van Herk W, Saguez J and Svendsen E, (2021). Guide to pest wireworms in Canadian Prairie field crop production. Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.

Ready, set, treat.
Seed treatment application best practices.

CLEAN THE SEED YOU PLAN TO TREAT.

Have your seed analyzed for germination, vigour and pathogens, and ensure it didn't suffer too much mechanical damage during handling. Have your grain cleaned prior to treating. Dirty, cracked seed can gum up your seed treating equipment – and your seeder.

SET UP PROPERLY FOR SEED TREATING.

Have a strong power source to the pump. Avoid extension cords longer than 50 feet and any that have breaks or tears. Ensure the pumping system is airtight. Planning to tank mix? Be sure to agitate and set up your pumping system accordingly. If you're applying seed treatment products sequentially, apply the more viscous product through the first pump.

AGITATE THE PRODUCT WELL BEFORE APPLYING.

Make sure you're mixing the product well, regardless of the packaging type to ensure a uniform, consistent product prior to application. Aim for at least a few minutes of agitation – longer if the product is more than a year old or does not look uniform after the initial agitation.

AVOID TREATING COLD OR FROZEN SEED.

When cold or frozen seed is treated, it causes the seed treatment to "freeze dry" on the seed, rather than properly treat and dry. As that seed warms up, condensation will form and cause the seed to remain tacky, leading to headaches while handling the seed. Keep in mind that cold or frozen seed is often a reality in early spring. If you can, try turning the grain in the bin to warm it up, avoiding mechanical damage where possible. Be sure to auger your treated seed into a truck rather than directly into a drill.

TO DILUTE OR NOT TO DILUTE?

BASF seed treatments are ready to use and do not require the addition of water. However, there are certain situations where you may want to add water, such as when it's recommended by the equipment manufacturer, if you're having trouble getting good coverage or if your seed is very dry and prone to cracking.
If choosing to add water, BASF recommends a dilution rate of 10-25% under normal circumstances.

TREAT WHEN THE WEATHER IS RIGHT.

Ideally, you should be treating seed outdoors when temperatures are above 0°C. Your seed should also be a similar temperature to the ambient temperature. Keep the seed treatment you're not using stored in a heated, ventilated storage area, both prior to treating and throughout the seed treating process.

RUN THE TREATER BELOW 100% CAPACITY.

Treated grain doesn't flow as easily through an auger as untreated grain, so running at full capacity can cause plugging. Take the time to adjust and find the best flow rate to optimize seed coverage.

CALIBRATE AND CALIBRATE AGAIN.

Ideally, your seed treating equipment has a chemical flow control system that's easy to calibrate, which will remove guesswork and improve accuracy. Be sure to recalibrate throughout the seed treating process to account for temperature changes during treating or when you switch bins or crops. Recalibrating throughout the seed treating process will reduce the potential of overtreating, which can be costly and cause handling concerns, and undertreating, which can reduce efficacy against key seed- and soil-borne diseases. Contact your seed treatment equipment manufacturer or talk to your BASF **AgSolutions®** Grower or Retail Representative for calibration recommendations.

CONSIDER FACTORS THAT WILL AFFECT DRYING TIME.

Air temperature, wind speed and humidity can all affect how long it takes for the seed treatment to dry. The type of seed, its moisture levels and temperature can also alter drying time. Adding water to the slurry can increase drying time as well. Make sure you take into account factors that can impact drying time and allow sufficient time for the treatment to properly dry and adhere to the seed.

Teraxxa® F4

Seed Treatment

The proven solution for wireworm control in cereals.

In addition to providing exceptional protection against key diseases, Teraxxa® F4 is a trusted and proven cereal seed treatment that provides true wireworm control by breaking the lifecycle.

- Novel insecticide mode of action that is the proven standard for wireworm control in cereals
- Rapidly eliminates wireworms upon contact and reduces resident populations in season for true control
- Includes four fungicide active ingredients for effective broad-spectrum protection against key seed- and soil-borne diseases, including fusarium
- Optimized formulation for reduced viscosity and improved usability

Insecticide active ingredient

Broflanilide – Group 30

Fungicide active ingredients

Pyraclostrobin – Group 11
Fluxapyroxad – Group 7
Triticonazole – Group 3
Metalaxyl – Group 4

Formulation

Water-based suspension

One case contains

2 x 9.8 L jugs
Also available in 120 L drum or 450 L tote

Storage

Requires heated storage.

Improved crop establishment with Teraxxa F4

Raxil® PRO + Lumivia® CPL | Teraxxa F4

Source: Grower Applied Strip Trials, Taber, AB, 2020

Crops

Wheat (all types), barley, oats, triticale, rye, canary seed

Treatment

standard slurry, gravity flow or mist-type seed treatment

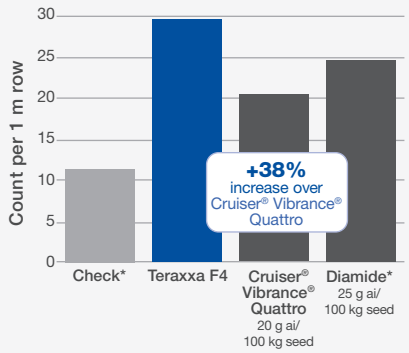
Pests and diseases controlled

Pest/Disease		
Wireworm	• Eliminates wireworms • Reduces populations • Powerful knockdown	

		Wheat	Barley	Oats
***Fusarium* spp.**	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
	Crown rot	S	S	S
	Foot rot	S	S	S
Cochliobolus sativus	Seed rot	C	C	C
	Damping-off (pre-emergent)	C	C	C
	Seedling blight	S	S	S
	Root rot	S	S	S
Rhizoctonia solani	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
***Pythium* spp.**	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
Smuts/bunts	Loose smut (*U. avenae* and *U. tritici*)	C		C
	Common bunt	C		
	True loose smut		C	
	Covered smut (*U. hordei* and *U. kolleri*)		C	C
	False loose smut		C	

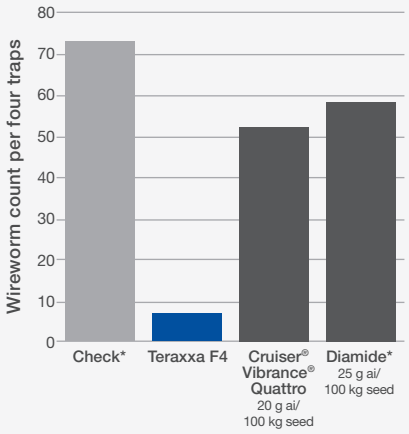
S - Suppression C - Control

Improvement in stand counts



Source: BASF Small Plot Trials, Lethbridge, AB, 2017, n=1
*Mixed with Insure® Cereal FX4 seed treatment at 300 ml/ 100 kg rate

Reduced wireworm populations



Source: Third-Party Research Trials, Agassiz, BC, 2019, n=1
*Mixed with Insure Cereal FX4 at 300 ml/100 kg rate

Application rates

The application rate for Teraxxa F4 seed treatment is 300 ml per 100 kg of seed.

Crop	Bushels (bu) per case	Bushels (bu) per 120 L drum	Bushels (bu) per 450 L tote
Barley	300 bu	1,837 bu	6,888 bu
Canary seed	288 bu	1,764 bu	6,614 bu
Oats	422 bu	2,584 bu	9,689 bu
Rye, triticale	256 bu	1,567 bu	5,878 bu
Wheat	240 bu	1,470 bu	5,510 bu

Directions for use and application tips

Apply using standard slurry, gravity flow or mist-type seed treatment application equipment. Consult **agsolutions.ca** for calibration information.

MIX/AGITATE
Mix/agitate the product well before applying.

BE CAUTIOUS
Be cautious of weather and temperature of seed and seed treatment while treating. Keep seed treatment in a warm storage area and avoid treating seed that is colder than 0°C.

FLOW RATE
Find the right flow rate to avoid plugging. Don't start treating with the seed treater running at 100% capacity.

BLOCKAGE
If seed is dry, it can cause issues such as cracked hulls building up and plugging the metering roller/auger.

DO NOT LEAVE UNATTENDED
Do not leave your seed treater alone when it's running, as many things can quickly affect seed treating quality.

BE ATTENTIVE
Be attentive to factors that can cause changes to nozzle pressure, including the power source to the pump, an object blocking the filter or the hose not reaching deep enough into the product.

FACTORS THAT AFFECT DRYING TIMES
Be cautious of drying times and factors that can lengthen them, such as weather (air temperature, wind speed, relative humidity), seed temperature, seed moisture levels, seed type and water being added during treating.

Dilution with water is not required unless recommended by the manufacturer of the seed treatment application equipment. If desired, increase the use rate proportionally to the dilution rate:

Ex: 100 ml water + 300 ml Teraxxa F4 = 400 ml/100 kg seed

BASF supports the addition of water to Teraxxa F4 to a maximum volume of 600 ml (300 ml additional water per 100 kg).

Do not use treated seed for food, feed or oil production.

In adherence with the "*Seeds Act*", Teraxxa F4 contains sufficient pigment to conspicuously colour and coat treated seed.

Teraxxa® F4
Seed Treatment

Insure® Cereal FX4

Seed Treatment

Strong broad-spectrum protection with Plant Health Benefits.[1]

- Four modes of action to deliver broad-spectrum defense against key seed- and soil-borne diseases to protect your return on investment
- **Plant Health Benefits**[1] provide more uniform emergence, enhanced seedling vigour and better management of minor stress[2] to help you achieve your target plant population
- Formulated for reduced viscosity and optimized usability for enhanced ease-of-use during treating

Active ingredients

Triticonazole – Group 3
Metalaxyl – Group 4
Fluxapyroxad – Group 7
Pyraclostrobin – Group 11

Formulation

Water-based suspension

One case contains

2 x 9.8 L jugs
Also available in 120 L drum
or 450 L tote

Storage

Requires heated storage.

Increased seedling vigour with Insure Cereal FX4

Raxil® PRO seed treatment | Insure Cereal FX4

Source: Grower Applied Strip Trials, Cut Knife, SK, 2021

Crops

Wheat (all types), barley, oats, triticale, rye, canary seed[3]

Treatment

standard slurry, gravity flow or mist-type seed treatment

Diseases controlled and suppressed by Insure® Cereal FX4 seed treatment

		Wheat	Barley	Oats
***Fusarium* spp.**	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
	Crown rot	S	S	S
	Foot rot	S	S	S
Cochliobolus sativus	Seed rot	C	C	C
	Damping-off (pre-emergent)	C	C	C
	Seedling blight	S	S	S
	Root rot	S	S	S
Rhizoctonia solani	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
***Pythium* spp.**	Seed rot	C	C	C
	Damping-off (pre- and post-emergent)	C	C	C
	Seedling blight	C	C	C
	Root rot	C	C	C
Smuts/bunts	Loose smut (*U. avenae* and *U. tritici*)	C		C
	Common bunt	C		
	True loose smut		C	
	Covered smut (*U. hordei* and *U. kolleri*)		C	C
	False loose smut		C	

S - Suppression C - Control

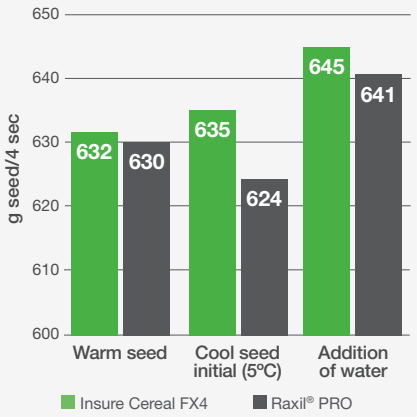
[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.
[2] All comparisons are to untreated, unless otherwise stated.
[3] Including food use.

Performance of Insure Cereal FX4 under drought conditions

Untreated | Insure Cereal FX4

Source: BASF Greenhouse Trials, 2022

Improved flowability for enhanced ease-of-use



Source: BASF Application Trials, Seed Treatment Technology Center, Raleigh, NC, 2023

Application rates

The application rate for Insure Cereal FX4 seed treatment is 300 ml per 100 kg of seed.

Crop	Bushels (bu) per case	Bushels (bu) per 120 L drum	Bushels (bu) per 450 L tote
Barley	300 bu	1,837 bu	6,888 bu
Canary seed	288 bu	1,764 bu	6,614 bu
Oats	422 bu	2,584 bu	9,689 bu
Rye, triticale	256 bu	1,567 bu	5,878 bu
Wheat	240 bu	1,470 bu	5,510 bu

Directions for use and application tips

Apply using standard slurry, gravity flow or mist-type seed treatment application equipment. Consult **agsolutions.ca** for calibration information.

MIX/AGITATE
Mix/agitate the product well before applying.

BE CAUTIOUS
Be cautious of weather and temperature of seed and seed treatment while treating. Keep seed treatment in a warm storage area and avoid treating seed that is colder than 0°C.

FLOW RATE
Find the right flow rate to avoid plugging. Don't start treating with the seed treater running at 100% capacity.

BLOCKAGE
If seed is dry, it can cause issues such as cracked hulls building up and plugging the metering roller/auger.

DO NOT LEAVE UNATTENDED
Do not leave your seed treater alone when it's running, as many things can quickly affect seed treating quality.

BE ATTENTIVE
Be attentive to factors that can cause changes to nozzle pressure, including the power source to the pump, an object blocking the filter or the hose not reaching deep enough into the product.

FACTORS THAT AFFECT DRYING TIMES
Be cautious of drying times and factors that can lengthen them, such as weather (air temperature, wind speed, relative humidity), seed temperature, seed moisture levels, seed type and water being added during treating.

Dilution with water is not required unless recommended by the manufacturer of the seed treatment application equipment. If desired, increase the use rate proportionally to the dilution rate:

Ex: 100 ml water + 300 ml Insure Cereal FX4 = 400 ml/100 kg seed

BASF supports the addition of water to Insure Cereal FX4 to a maximum volume of 600 ml (300 ml additional water per 100 kg).

Do not use treated seed for food, feed or oil production.

In adherence with the "*Seeds Act*", Insure Cereal FX4 contains sufficient pigment to conspicuously colour and coat treated seed.

Insure® Cereal FX4
Seed Treatment

Insure® Pulse

Seed Treatment

Effective broad-spectrum protection to help maximize pea and lentil production.

- Three modes of effective action deliver broad-spectrum protection against key seed- and soil-borne diseases, including ascochyta
- **Plant Health Benefits**[1] provide more uniform emergence, enhanced seedling vigour and better management of minor stress[2] to help you achieve your target plant population

Active ingredients

Metalaxyl – Group 4
Fluxapyroxad – Group 7
Pyraclostrobin – Group 11

Formulation

Water-based suspension

One case contains

2 x 9.8 L jugs
Also available in 120 L drum

Storage

Requires heated storage.

Increased seedling vigour with Insure Pulse vs competitor on lentils

Plants infected with anthracnose at second-node stage.
Source: BASF Greenhouse Trials, 2017

Crops

Field peas, lentils (all classes), soybeans, chickpeas, dry beans, faba beans, flax (*Linum usitatissimum*), mustard (*Brassica hirta*)

Treatment

standard slurry or mist-type application equipment

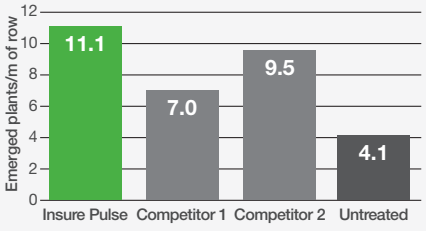
Diseases controlled and suppressed by Insure® Pulse seed treatment

		Lentils	Field peas
All *Fusarium* spp.	Seed rot	C	C
	Seedling blight	C	C
	Root rot	S	S
Rhizoctonia solani	Seed rot	C	C
	Root rot	C	C
	Seedling blight	C	C
All *Pythium* spp.	Seed rot	C	C
	Seedling blight	C	C
Botrytis cinerea	Seed rot	S	S
	Seedling blight	S	S
All *Ascochyta* spp.	Seedling blight	C	C
Anthracnose (*Colletotrichum lindemuthianum*)	Seedling blight	S	S

S - Suppression C - Control

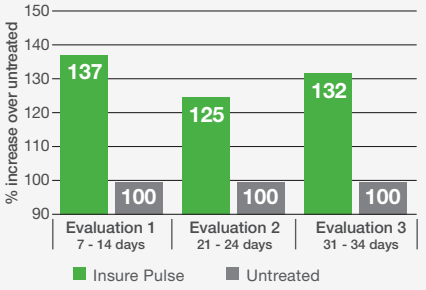
[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.
[2] All comparisons are to untreated, unless otherwise stated.

Lentils – More plants emerged under fusarium disease pressure



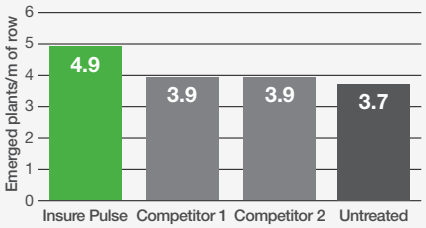
Source: Third-Party Research Trials, 2013

Flax – Increased emergence[5]



Source: Grower Applied Strip Trials, 2015

Field peas – Number of plants emerged under botrytis disease pressure



Source: Third-Party Research Trials, 2013

[3] For flax (*Linum usitatissimum*), use a higher rate of 600 ml/100 kg seed if: a) there is a history of high disease pressures in the field or b) where field conditions favour seed- and soil-borne pathogens. If using the 600 ml/100 kg rate, it is highly recommended that the seed be treated into a bin or truck box to allow the treated seed to dry prior to placing into the seeder hopper. This will prevent clumping and bridging in the seeder.

[4] Includes field peas, lentils (all classes), chickpeas, dry beans and faba beans.

[5] Each evaluation was completed on the same row at 3 different dates for each treatment.

Application rates

The application rate for Insure Pulse seed treatment is 300 ml per 100 kg of seed for pulses and soybeans, 300 to 600 ml per 100 kg of seed for flax[3] and 600 ml per 100 kg of seed for mustard.

Crop	Bushels (bu) treated per jug	Bushels (bu) treated per 120 L drum	Bushels (bu) treated per 450 L tote
Pulses[4]	120	1,469	5,510
Soybeans	120	1,469	5,510
Flax[3]	64 to 128	784 to 1,567	2,939 to 5,878
Mustard	72	882	3,306

Directions for use and application tips

Apply using standard slurry or mist-type seed treatment application equipment. Consult **agsolutions.ca** for calibration information.

MIX/AGITATE
Mix/agitate the product well before applying.

BE CAUTIOUS
Be cautious of weather and temperature of seed and seed treatment while treating. Keep seed treatment in a warm storage area and avoid treating seed that is colder than 0°C.

FLOW RATE
Find the right flow rate to avoid plugging. Don't start treating with the seed treater running at 100% capacity.

BLOCKAGE
If seed is dry, it can cause issues such as cracked hulls building up and plugging the metering roller/auger.

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BE ATTENTIVE
Be attentive to factors that can cause changes to nozzle pressure, including the power source to the pump, an object blocking the filter or the hose not reaching deep enough into the product.

FACTORS THAT AFFECT DRYING TIMES
Be cautious of drying times and factors that can lengthen them, such as weather (air temperature, wind speed, relative humidity), seed temperature, seed moisture levels, seed type and water being added during treating.

Dilution with water is not required unless recommended by the manufacturer of the seed treatment application equipment. If desired, increase the use rate proportionally to the dilution rate:

Ex: 100 ml water + 300 ml Insure Pulse = 400 ml/100 kg seed

BASF supports the addition of water to Insure Pulse to a maximum volume of 600 ml (300 ml additional water per 100 kg).

Do not use treated seed for food, feed or oil production.

In adherence with the "*Seeds Act*", Insure Pulse contains sufficient pigment to conspicuously colour and coat treated seed.

Insure® Pulse
Seed Treatment

BASF Inoculants

- Inoculant formulation options

Pulse crop inoculants

- Nodulator® Duo SCG
- Nodulator XL Peat and Nodulator XL LQ

Chickpea crop inoculants

- Nodulator CP SCG

Soybean crop inoculants

- Soybean formulation options
- Effective nodulation with double inoculation
- Nodulator IP Plus
- Nodulator SCG
- Nodulator LQ

Best management practices

- Handling, storing and application
- Granular application success

Inoculant options for peas, lentils, soybeans and chickpeas. Understand the different formulations.

Nodulator® inoculant comes in a variety of formulations, including solid core granular, self-adhering peat and liquid. Understanding the different characterics of each can help you choose the one that is best suited to your program.

	Peas & Lentils			Chickpeas	Soybeans		
	Granular Nodulator Duo SCG	**Wettable Powder Nodulator XL Peat**	**Liquid Nodulator XL LQ**	**Granular Nodulator CP SCG**	**Liquid Nodulator IP Plus**	**Granular Nodulator SCG**	**Liquid Nodulator LQ**
Robust structure for improved survivability, negligible loss to dusting off & in-furrow application	●			●		●	
Biostacked® with multiple biologicals to improve stress tolerance, root architecture, early-season vigour & yield potential	●				●		
Crop-specific Canadian rhizobia for increased nodulation	●	●	●	●	●	●	●
Disease suppression by biological with PMRA registered label claim					●		
Patented breathable bladder to maximize rhizobia survivability					●		
Bulk SKU packaging	●				●	●	
On Seed Survivability	N/A*	24 hours	6 hours	N/A*	100 days	N/A*	10 days
BASF Grower Programming	Ag Rewards	Ag Rewards	Ag Rewards	Ag Rewards	Ag Rewards	Ag Rewards	Ag Rewards

* Solid core granular (SCG) products are applied in furrow and not on the seed. Use product by the expiry date.

Nodulator® Duo SCG

Biostacked® solid core granular pea and lentil Inoculant

Solid core granular inoculant featuring root-strengthening biofilm to help maximize yield potential.

- Top-performing strain of rhizobium (strain 1435) specifically selected for peas and lentils
- Root-strengthening biofilm bacterium (strain BU1814) helps protect the roots from the stresses encountered in the soil to reserve more energy for growth
- Technologically advanced multi-layered granular carrier for rhizobia that prevents dust and, ultimately, rhizobia loss

Bioactive ingredient

Rhizobium leguminosarum biovar *viceae* (strain 1435)
Bacillus subtilis (strain BU1814)

Formulation

Solid core granules

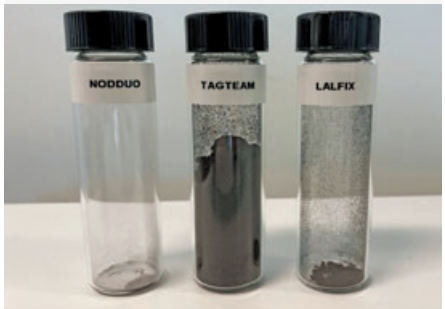
One case contains

1 x 22.68 kg bag
1 x 364 kg mini-bulk Q-Pak

Storage

Store in a cool (10°C to 15°C), dry place, away from pesticides and bulk fertilizers.

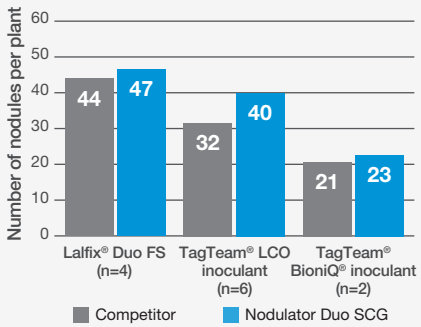
Nodulator Duo SCG inoculant reduces rhizobia loss to dust



Nodulator Duo SCG	TagTeam® inoculant	Lalfix® Duo FS inoculant

Source: BASF Biological Inoculant Manufacturing Plant, Saskatoon, Saskatchewan

Increased nodule production with Nodulator Duo SCG inoculant



Source: Grower Applied Strip Trials, 2021, 42-56 Days After Planting

Crops

Peas or lentils

Treatment

applied directly in furrow

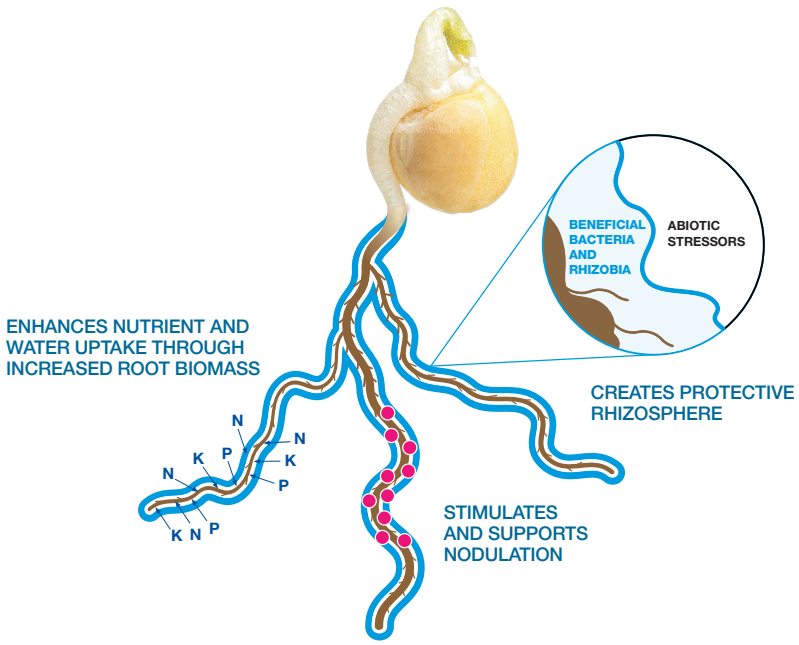
Inoculant activity

The product provides a reliable inoculant with the following benefits:

- Guaranteed minimum of 8 x 10^7 viable cells of *Rhizobium leguminosarum* biovar *viceae* per gram
- Guaranteed minimum of 2 x 10^8 viable cells of *Bacillus subtilis* per gram
- Biofilm-forming bacterium in Biostacked® Nodulator® Duo SCG inoculant provides these benefits:
  - Increased efficiency and activity in nodulation due to crop specificity
  - Increased nitrogen fixation with maximized yield potential[1]

[1] Source: Grower Applied Strip Trials, 2017-2021; N value varied depending on competitor.

Build better biofilm with BU1814



Application rates

One bag will treat 10.6 acres (7” rows) to 18.5 acres (12” rows).
One Q-Pak will treat 170 acres (7” rows) to 296 acres (12” rows).

Apply granular inoculant at a rate of 28.5 g/1,000 linear row feet.

Row spacing		Application rate		Area treated per bag	
cm	in	kg/ha	lb/ac	ha	ac
15.2	6	6.2	5.6	3.7	8.9
17.8	7	5.3	4.7	4.3	10.6
20.3	8	4.6	4.1	4.9	12.2
22.9	9	4.0	3.6	5.7	13.9
25.4	10	3.7	3.3	6.1	15.2
27.9	11	3.4	3.0	6.7	16.7
30.5	12	3.0	2.7	7.6	18.5

Directions for use

Prior to filling tank

Check tank seals on each compartment along with all metering components for signs of cracks and wear. Replace cracked or worn parts.

Ensure that inoculant bags and tank walls are dry prior to filling.

Run fans at the beginning of each day as a precaution to dry any condensation that may have accumulated overnight. Granular inoculants require a dedicated tank to ensure proper rate application.

Before filling, ensure that the screen at the top of the tank is in place.

Filling the tank

Use loading auger to fill tank and screens provided by equipment manufacturers.

To optimize flow (especially under humid conditions), it is suggested to only fill compartments to no more than 50% capacity.

Do not mix granular inoculant with granular pesticides or fertilizers during planting.

Application tips

Apply granular inoculant directly in furrow at the specified rate. The product must not be applied at a depth that is less than the planting depth of the seed.

Remove any unused granules from the hopper box at the end of each day’s planting.

Do not allow granules to sit in hopper overnight.

Environmental conditions may affect flowability of the product. Feeding mechanism should be cleaned often to ensure good flow.

Follow crops

No follow-crop restrictions.

Seed treatment compatibility

Nodulator Duo SCG is compatible with all seed-placed products, as it is applied directly to the furrow and does not come in contact with the seed. Call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) or visit **agsolutions.ca**.

Nodulator® XL Peat

Peat pea and lentil Inoculant

Nodulator® XL LQ

Liquid pea and lentil Inoculant

High-performance inoculant for value and yield potential boosts of 3% to 8% in peas and lentils.[1]

- Proven performance with identical rhizobia strain as found in BASF crop-specific Nodulator® Duo SCG inoculant
- Self-adhering peat (SAP) formulation eliminates the need for commercial sticking agents
- Easy-to-use liquid (LQ) formulation that can be applied up to 6 hours before seeding or applied in furrow during seeding

Bioactive ingredient

Rhizobium leguminosarum biovar *viceae,* strain 1435

Formulations

Self-adhering sterile peat
Liquid (on seed or in furrow)

One case contains

Peat: 5 x 1.2 kg packages
Liquid: 3 x 7.5 L bladders

Storage

Do not freeze.
Peat: Store below 20°C.
Liquid: Store between 4-9°C.

Uninoculated peas | Nodulator XL peas

Source: Grower Applied Strip Trials, Southern AB, 2012

Uninoculated lentils | Nodulator XL lentils

Source: BASF Small Plot Trials, Lethbridge, AB, 2013

Crops[2]

Peas
Lentils

Treatment

dry, slurry or damp inoculation on seed

Inoculant activity

The self-adhering peat (SAP) formulation provides a reliable inoculant with the following benefits:

- Nodulator XL inoculant contains a pea-and-lentil-specific rhizobium (*Rhizobium leguminosarum* biovar *viceae*)
- The rhizobia provide these benefits:
  - Increased efficiency and activity in nodulation due to crop specificity
  - Increased nitrogen fixation with maximized yield potential
- SAP: Guaranteed minimum of 1 x 10^9 rhizobia per gram
- LQ: Guaranteed minimum of 7.5 x 10^8 rhizobia per gram
- Nodulator XL outyielded competitive products more than 80% of the time with yield increases of 3% to 8% across Western Canada (n=72)[1]

[1] Refer to "Increased yield potential: Nodulator XL vs competitor vs uninoculated control" chart.
[2] Approved and supported for organic production.

Application rates

Nodulator XL Peat: One case will treat 110 bushels of seed. The standard rate of application is 1.2 kg per 600 kg of seed.

Nodulator XL LQ: One case will treat 300 bushels of seed.

Flow valve setting	Inoculant flow rate		Seed/auger flow rate	
	ml/min	fl. oz/min	kg/min	lbs (bu)/min
1	360	12	131	289 (5)
2	860	29	313	690 (11)
3	1,340	45	487	1,074 (18)
4	1,660	56	604	1,332 (22)
5	1,780	60	647	1,426 (24)
6	2,030	68	738	1,627 (30)

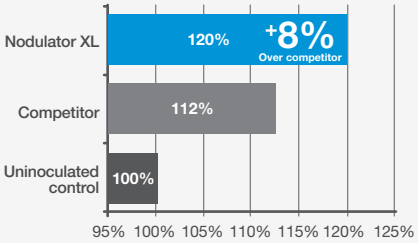
Maintaining diversity

The organism formulated into this product is classified as *Rhizobium leguminosarum* biovar *viceae*. All of the organisms used by BASF inoculants are common to Canadian soils. No BASF inoculant products sold in Canada contain genetically modified organisms.

Performance

Research shows that Nodulator XL formulations, in peas and lentils, boost yields up to 8% over the competitor.

Increased yield potential: Nodulator XL vs competitor vs uninoculated control



Source: Third-Party Research Trials, 87 station years (peas) and 84 station years (lentils) - n sites x n years

Directions for use

Nodulator XL Peat	Nodulator XL LQ
After opening the pack, work gently between fingers to disperse contents. Addition of water at the time of application will optimize the activity of the integral sticker, resulting in even seed coverage with the inoculant. **Application methods:** **Slurry application** – Add complete pack contents to approximately 2 L of clean, dechlorinated water and stir well in a clean container to form a lump-free slurry. Do not allow slurry to settle out. Pour onto the seed and mix thoroughly to ensure the seeds are evenly coated. Allow seed to dry before further handling. **Damp inoculation** – Apply just enough water to slightly dampen seed (2 ml/kg). Mix the damp seed thoroughly with the inoculant so that they are evenly coated. **Dry inoculation** – Pour the correct amount of inoculant onto thin layers of seed in the drill hopper and mix thoroughly to evenly coat seed. For bulk seed handling systems, the inoculant can be metered directly onto augured seed.	**For on-seed use** 1. Shake 7.5 L bladder for a minimum of 30 seconds before using. 2. Replace bladder lid with hose kit. 3. Invert bladder above treatment area so the end of the hose is just above the seed (for accurate application rates, ensure hose is straight when dispensing inoculant). 4. Adjust flow valve to regulate the recommended application rate (see table here). 5. To ensure adequate mixing of seed and inoculant, do not run auger at greater than HALF capacity. 6. Assess the application rate several times during inoculation to ensure correct target flow rate. Note: Product formulated to be applied directly to seed. See label for in-furrow use directions.

Application tips

Nodulator XL Peat: When applied as directed, the product has a 24-hour on-seed survivability. It is recommended to sow seeds within 4 to 6 hours of inoculation. If not sown within 24 hours, seed must be re-inoculated. If seed is of low moisture content, use either slurry or damp application methods.

Nodulator XL LQ: Inoculated seed should be planted within 6 hours after application. Increased volume of inoculant per bushel of seed may be advantageous. Under adverse or stressful planting conditions (hot, dry field conditions), an increased application rate is suggested.

Follow crops

No follow-crop restrictions.

Seed treatment compatibility

For details on seed treatment compatibility, see the Pea Seed Applied Pesticide Compatibility Information and Lentil Seed Applied Pesticide Compatibility Information documents available on **agsolutions.ca**, contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273).

Nodulator® XL Peat
Peat pea and lentil Inoculant

Nodulator® XL LQ
Liquid pea and lentil Inoculant

Nodulator® CP SCG

Solid core granular chickpea Inoculant

Granular formulation for improved flowability in a high-performance inoculant that delivers increased yield potential in chickpeas.

- An easy-flowing granular inoculant formulation for convenient application in the furrow at seeding
- Effective performance under stressful planting conditions
- Technologically advanced granular carrier for rhizobia in a low dust formulation that is resistant to crumbling

Bioactive ingredient

Mesorhizobium ciceri

Formulation

Solid core granules

One case contains

1 x 22.68 kg bag

Storage

Store in a cool (10°C to 15°C), dry place, away from pesticides and bulk fertilizers.

Crops

Chickpeas

Treatment

applied directly in furrow

Inoculant activity

Nodulator® CP SCG inoculant is a chickpea-specific rhizobium common to Canadian soils (*Mesorhizobium ciceri*) with these benefits:

- Increased efficiency and activity in nodulation due to crop specificity
- Increased nitrogen fixation with maximized yield potential
- Guaranteed minimum of 8 x 10^7 rhizobia per gram

Application rates

One bag will treat up to 10 acres.

Apply granular inoculant at a rate of 5.0 lb/ac (5.6 kg/ha).

Row spacing		Application g per 100 m	Application g per 100 yards
cm	in		
18	7	9.9	9.0
20	8	11.2	10.2
23	9	12.9	11.8
25	10	14.0	12.8
28	11	15.6	14.3
30	12	16.8	15.4
36	14	20.1	18.4
41	16	22.9	20.9

Directions for use

Prior to filling tank

Check tank seals on each compartment along with all metering components for signs of cracks and wear. Replace cracked or worn parts.

Ensure that inoculant bags and tank walls are dry prior to starting filling.

Run fans at the beginning of each day as a precaution to dry any condensation that may have accumulated overnight. Granular inoculants require a dedicated tank to ensure proper rate application.

Before filling, ensure that the screen at the top of the tank is in place.

Wear respiratory protection if ventilation is inadequate or if dust generation is anticipated.

Filling the tank

Use loading auger to fill tank and screens provided by equipment manufacturer.

To optimize flow (especially under humid conditions), it is suggested to only fill compartments to no more than 50% capacity.

Do not mix granular inoculant with granular pesticides or fertilizers during planting.

Application tips

Apply granular inoculant directly in furrow at the specified rate. The product must not be applied at a depth that is less than the planting depth of the seed.

Remove any unused granules from the hopper box at the end of each day's planting.

Do not allow granules to sit in hopper overnight.

Environmental conditions may affect flowability of the product. Regularly check metering system to ensure proper flow.

Follow crops

No follow-crop restrictions.

Seed treatment compatibility

Nodulator CP SCG inoculant is compatible with all seed-placed products, as it is applied directly to the furrow and does not come in contact with the seed. Contact your local BASF **AgSolutions®** Grower or Retail Representative, call **AgSolutions** Customer Care at 1-877-371-BASF (2273) or visit **agsolutions.ca**.

Inoculant options for soybeans. The choice is yours.

Maximize nitrogen fixation and nodulation in your soybean fields by selecting an inoculant that best suits your operation. Research shows that inoculants promote these benefits:

- Greater plant vigour
- Greater root biomass
- More nitrogen-fixing nodules
- Higher yield potential

	Product	One case contains	Application rates[1]
On-seed	**Nodulator® IP Plus** Professional Soybean Preinoculant System	**200 seed unit case:** 1 x 3 L IP Plus inoculant 1 x 3 L IP Plus conditioner 1 x 0.2 L Velondis® Plus biofungicide (packaged separately) **400 seed unit case:** 1 x 6 L IP Plus inoculant 1 x 6 L IP Plus conditioner 1 x 0.4 L Velondis Plus biofungicide (packaged separately)	200 seed unit case: 4,536 kg of seed 400 seed unit case: 9,072 kg of seed Rate: 130 ml (inoculant + conditioner) + 4.4 ml Velondis Plus per 100 kg soybean seed
In-furrow	**Nodulator® SCG** Solid core granular soybean Inoculant	1 x 22.68 kg bag or 1 x 364 kg mini-bulk Q-Pak	1 bag: 10 ac (7" rows) 1 Q-Pak: 160 ac (7" rows) Rate: 2.3 kg/ac (7" rows)
	Nodulator® LQ[2] Liquid soybean Inoculant for in furrow	1 x 12.4 L bladder	1 case: 4.8 to 11.3 ha (12 to 28 ac) Rate: 29 ml non-diluted product per 304 linear row m (1 fl oz/1,000 linear row ft)

Note: Some seed treatments are harmful to liquid inoculants and the application method can affect the days-on-seed compatibility. Please see respective product labels or call **AgSolutions®** Customer Care for further information.

[1] For specific application rates, refer to the label.
[2] Approved and supported for organic production.

Click here to view inoculant storage and handling best practices.

Effective nodulation with double inoculation.

Double inoculation and its benefits.

- Use an on-seed pre-inoculant paired with an in-furrow inoculant at seeding time
- Robust, low dust, clay granular formulation from BASF provides excellent backup to on-seed application during stressful environmental conditions
- Provides the most consistent population of viable rhizobia through the crop establishment period
- Decreases risk of yield loss by helping the crop to reach optimal nodulation and yield potential

Improvement in nodulation and root biomass with Nodulator® IP Plus inoculant

No inoculant | Nodulator IP Plus

Source: Grower Applied Strip Trials, 2018

	No inoculation *No inoculant applied to seed or in-furrow*	**Single inoculation** *Pre-inoculant or in-furrow*	**Double inoculation** *Seed-applied pre-inoculant followed by in-furrow*
Risk	**High**	**Moderate**	**Low**
Fields of best fit	Growers rely solely on the rhizobia population present **Not a recommended practice**	• Strong history of soybeans • Short rotation (1-3 years) • Soils with neutral pH (5.8-7) • Well-drained, low flood risk • Stable soils conducive to rhizobia survivability & nodulation	• Virgin soil (little soybean history) • Longer rotation (4-8 years) • Soils within extreme pH ranges • Poorly drained, flood prone • Sandier soils with <3% OM, which can cause poor rhizobia survivability
Impact of practice	Poor nodulation and ultimately limiting crop yield potential and performance	Provides one source of viable rhizobia to impact nitrogen fixation Risk exists if there are adverse weather conditions or crop stresses that impact viability and survivability of the rhizobia population	Provides the most ample and consistent population of viable rhizobia through the critical crop establishment period Provides highest potential of optimizing yield due to increased nodulation

Nodulator® IP Plus

Professional Soybean Preinoculant System

Biostacked® preinoculant system for soybean nodulation and root development.

- Activity by proven *Bradyrhizobium japonicum* used alongside a dual strain biofungicide
- Exclusive to BASF patented bladder technology improves stability and vitality of biologicals
- Decreased pathogen pressure can lead to healthier, more vigorous roots promoting above and below ground plant vigour and health

Nodulator IP Plus Bioactive ingredient

Bradyrhizobium japonicum (strain 532C)

Formulation

Liquid

Velondis Plus biofungicide Bioactive ingredients

Bacillus amyloliquefaciens (strain MBI 600)
Bacillus subtilis (strain BU1814)

Formulation

Liquid

Package options

200 SU
3.0 L inoculant bladder
3.0 L conditioner bladder
0.2 L Velondis Plus bottle[1]

400 SU
6.0 L inoculant bladder
6.0 L conditioner bladder
0.4 L Velondis Plus bottle[1]

Storage

Protect cased product from temperatures below 2°C and above 10°C. Do not allow this product to freeze.

More nodule biomass means increased above ground plant growth and vigour

Base fungicide only | Base fungicide + Nodulator IP Plus

Source: Grower Applied Strip Trials, Frankfort, IN, 2020

Crops

Soybeans

Treatment

applied on-seed exclusively by bulk seed treaters

Benefits

Nodulator® IP Plus preinoculant provides these benefits:

- Guaranteed minimum of 1 x 10^{10} viable cells of rhizobium CFU per gram
- Velondis® Plus biofungicide has a PMRA registered label claim for suppression of seedling diseases caused by *Fusarium* spp., *Rhizoctonia solani* and *Pythium ultimum*
- Applying Nodulator IP Plus[2] may result in 16% more nodule production compared to base treatment alone[3]

Application rates

One 200 SU case will treat 4,536 kg (10,000 lbs) of seed.
One 400 SU case will treat 9,072 kg (20,000 lbs) of seed.

	Nodulator IP Plus (inoculant + conditioner)	Velondis Plus
Rate per 100 kg seed	130 ml[4]	4.4 ml

[1] Packaged separately.
[2] Nodulator IP Plus is an on-seed application of Nodulator IP Plus professional preinoculant system and Velondis Plus biofungicide seed treatment. Velondis Plus has a PMRA registered label claim to suppress fungal pests, and was evaluated for safety and efficacy.
[3] Grower Applied Strip Trials, 2018.
[4] Please refer to the product label for application rates without pesticides, as 134.4 ml/100 kg is not sufficient for even seed coverage and requires additional liquid volume (water and/or pesticide).

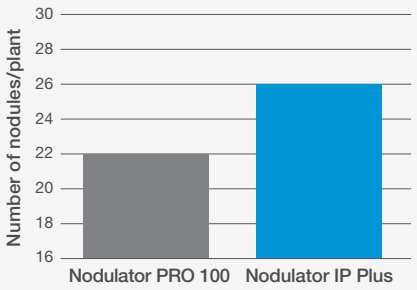
Maintaining diversity

The beneficial bioactive organisms *Bradyrhizobium japonicum*, *Bacillus amyloliquefaciens* and *Bacillus subtilis* are common to Canadian soils. No BASF inoculant products sold in Canada contain genetically modified material.

Biostacked advantage

Achieves confident performance with multiple bioactive ingredients providing nodulation, nitrogen fixation and suppression of key seedling diseases to help with the vital crop establishment stage.

Improved nodule formation



Source: Grower Applied Strip Trials, MB, 2018, n=6

Directions for use

When applying as a standalone treatment (no seed treatment)

With slurry tank agitator (or re-circulation pump) turned on, thoroughly mix the appropriate volumes of Nodulator IP Plus liquid inoculant with the Nodulator IP Plus conditioner, then add the separately packaged Velondis Plus biofungicide and non-chlorinated[5] water. Continuous and gentle agitation throughout the mixing and application process will enhance application and survival characteristics.

Calibrate pumps and metering system to apply a total of 326 ml/100 kg to seed.

[5] Municipal water sources do contain chlorine; however, it can be used in combination with biologicals if allowed to sit exposed to the environment (e.g. in open tank) for a minimum of 24 hours to allow for chlorine to gas off.

When applied with additional seed treatment(s)

Nodulator IP Plus preinoculant and Velondis Plus for soybean may be applied at a rate of 134.4 ml/100 kg (2.0 fl oz per 100 lbs) of seed with no additional water as long as the total liquid volume being applied (Nodulator IP Plus, plus all other seed treatment actives/polymers/colourants) is at least 326 ml/100 kg (5.0 fl oz per 100 lbs) of seed.

Both a wet sequential (also known as simultaneous), using a separate application tank for the active chemicals/polymers/colourants (preferred), or a tank mix can be used as application methods for this product.

If a tank-mix application method is used, do not slurry the mixture for greater than 4 hours prior to application to the seed.

For extended days on seed, **we only recommend** a wet sequential (also known as simultaneous) application and keeping the inoculant in a separate application tank. In this tank, the inoculant must be applied within 24 hours.

Application tips

The non-pesticide containing slurry should ideally be used during the same day of mixing, within a maximum of 24 hours. The temperature of the slurry should not exceed 20°C.

Clean seed is essential to reduce bridging.

For maximum survival of biological components, store treated seed in a cool (can be below freezing), dry, covered and unheated storage area close to floor level.

On-seed compatibility of Nodulator IP Plus preinoculant plus Velondis Plus biofungicide is dependent on application method and temperature at which seed is packaged and stored.

Follow crops

No follow-crop restrictions.

Seed treatment compatibility

Some seed treatments are harmful to liquid inoculants and the application method can affect the days-on-seed compatibility.

Please visit **agsolutions.ca**, see respective product labels or call **AgSolutions®** Customer Care for further information.

Nodulator® IP Plus
Professional Soybean Preinoculant System

Nodulator® SCG

Solid core granular soybean Inoculant

Granular formulation for soybeans, designed to maximize yield potential.

- Formulation designed with multi-layered protection technologies for greater rhizobia survivability and provides effective backup to on-seed applications
- Engineered to deliver more viable rhizobia directly where needed most
- Durable, uniformly sized, dust-free formulation for ease of use

Bioactive ingredient

Bradyrhizobium japonicum

Formulation

Solid core granules

Package options

1 x 22.68 kg bag
1 x 364 kg mini-bulk Q-Pak

Storage

Store in a cool (10°C to 15°C), dry place, away from pesticides and bulk fertilizers.

Crops

Soybeans

Treatment

applied directly in furrow

Inoculant activity

Nodulator® SCG inoculant provides a soybean-specific rhizobium (*Bradyrhizobium japonicum*) for these results:

- Increased efficiency and activity in nodulation due to crop specificity
- Increased nitrogen fixation with maximized yield potential
- Guaranteed minimum of 8 x 10^7 rhizobium per gram

Nodulator solid core granules

Typical competitor peat granules

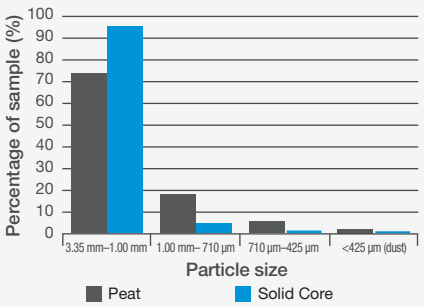
Maintaining diversity

The organism formulated into this product is classified as *Bradyrhizobium japonicum*. All of the organisms used by BASF inoculants are common to Canadian soils. No BASF inoculant products sold in Canada contain genetically modified organisms.

Performance

The uniform size of Nodulator solid core granules allows them to flow better through equipment. In a sieve analysis compared to peat granules, solid core granules were 95% uniform with no dust particles.

Particle size comparison: Peat granules vs Nodulator solid core granules



Source: BASF sieve analysis, 2020

Application rates

One bag will treat 10 acres (7" rows).
One Q-Pak will treat 160 acres (7" rows).

Apply granular inoculant at a rate of 5.0 lb/ac (5.6 kg/ha).

Directions for use

Apply granular inoculant directly in the furrow at a specified rate.

Do not mix granular inoculant with granular pesticides or fertilizers during planting.

Product must not be applied at a depth that is less than the planting depth of the seed.

For calibration purposes, this product has a bulk density of 0.90 grams per cubic centimeter (56 pounds per cubic foot).

Application tips

Recommended for air seeders with application directly in furrow at time of seeding.

Do not mix inoculant with granular pesticides or fertilizers during planting.

Remove any unused granules from the hopper box at the end of each day's planting.

Do not allow granules to sit in a hopper overnight.

Environmental conditions may affect flowability of the product. Regularly check metering system to ensure proper flow.

To optimize flow (especially under humid conditions), it is suggested to only fill compartments to no more than 50% capacity.

Seed treatment compatibility

Nodulator SCG is compatible with all seed-placed products, as it is applied directly to the furrow and does not come in contact with the seed. Call **AgSolutions**® Customer Care at 1-877-371-BASF (2273) or visit **agsolutions.ca**.

Nodulator® SCG

Solid core granular soybean Inoculant

Nodulator® LQ

Liquid soybean Inoculant for in furrow

An effective bioactive inoculant for increased yield potential in soybeans.

- Liquid formulation containing nitrogen-fixing *Bradyrhizobium japonicum*
- Increased root biomass with more nitrogen-fixing nodules on every plant
- Convenient, easy-to-use product can be applied on seed or in furrow

Bioactive ingredient

Bradyrhizobium japonicum

Formulation

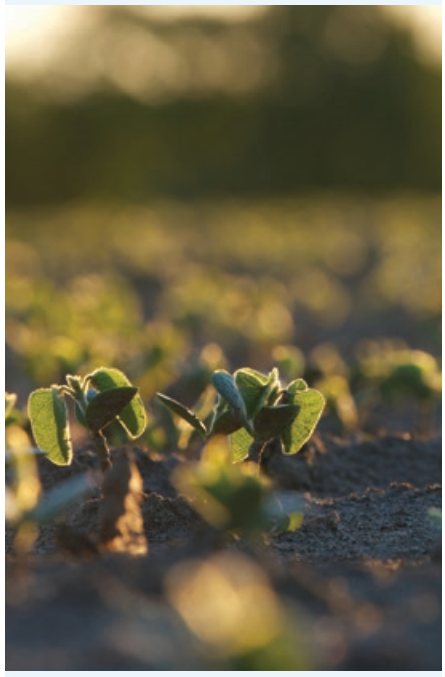
Liquid

One case contains

1 x 12.4 L bladder

Storage

Store below 20°C. Do not allow product to freeze. Ensure inoculant is stored correctly in the field prior to use.



Crops

Soybeans[1]

Treatment

apply on seed within 10 days of seeding or apply in furrow at time of seeding

[1] Approved and supported for organic production.

Inoculant activity

Nodulator® LQ inoculant provides a soybean-specific rhizobium (*Bradyrhizobium japonicum*) for these results:

- Increased efficiency and activity in nodulation due to crop specificity
- Increased nitrogen fixation with maximized yield potential
- Guaranteed minimum of 3 x 10^9 viable cells of rhizobium per gram

Storage and application tips

Store product below 20ºC. Do not freeze.
Only use product that has been stored correctly.
Once opened, use inoculant within 24 hours.
Protect inoculated seed from high temperatures, sunlight or drying winds.
Avoid contact with caustic fertilizers.

If seed is not planted within 10 days from inoculation, the seed must be re-inoculated.

Application rates

Liquid formulation: One case will treat 165.2 bushels, 4,500 kg (9,840 lb) of seed, using 75 ml of inoculant per 27.2 kg (1 bushel) of seed.

Grain auger output depends on the speed and diameter of auger used. Estimate your auger flow then use this chart to determine the flow valve setting that matches your auger output:

Auger output (kg seed/min)	Auger output (bu seed/min)	Flow valve setting
0	0	0
131	5	1
313	11	2
487	18	3
604	22	4
647	24	5
738	27	6

In-furrow application: The liquid inoculant should be applied at the rate of 29 ml non-diluted product per 304 linear row meters (1 fl oz/1,000 linear row feet).

Refer to table below for application details:

Row width	Recommended rate	One case treats
30 cm (12 in)	3130 ml/ha (1266 ml/ac)	4.0 ha (9.8 ac)
38 cm (15 in)	2500 ml/ha (1011 ml/ac)	5.0 ha (12.3 ac)
51 cm (20 in)	1870 ml/ha (757 ml/ac)	6.6 ha (16.4 ac)
76 cm (30 in)	1250 ml/ha (506 ml/ac)	9.9 ha (27.2 ac)
91 cm (36 in)	1040 ml/ha (421 ml/ac)	11.9 ha (29.5 ac)

Directions for use

See product label for detailed information regarding in-furrow and on-seed directions for use.

Seed treatment compatibility

This inoculant is compatible with most seed treatments. Please see respective product labels or call **AgSolutions**® Customer Care for further information.

Pancakes are for stacking. Not inoculant bags.

How to handle, store and apply inoculants.

STORAGE

Inoculants are living organisms. Handle and store with care.

DO

- Store inoculants in cool, stable temperatures above freezing[1]
- Ensure airflow during storage to reduce moisture accumulation
- Pre-inoculated seed must be stored as cool as possible
- Use before expiration date

DON'T

- Double stack granular inoculants
- Store in direct sunlight
- Store next to pesticides or bulk fertilizers

EQUIPMENT

Equipment maintenance? Check.

- Consult equipment manufacturer for drill-specific metering system recommended to apply low-rate granular products
- Regularly inspect hoses, fittings and rollers for wear and broken parts

Monitor during seeding.

- Calibrate regularly to monitor for accurate placement
- Inspect and clean meter rollers often, preventively reducing any build up

APPLICATION

- Consult product label of liquid and peat formulations for on-seed survivability and seed treatment compatibility
- Run tank fans to dry tank prior to each fill of granular inoculant
- Fill granular tank no more than ½ full to avoid compaction
- Do not leave granular inoculant in the tank overnight to avoid condensation
- All Nodulator® solid core granular inoculant products must not be applied at a depth that is less than the planting depth of the seed

Get the best results.

Unlike other products, inoculants are alive and require special care and handling. For best results, follow these guidelines.

[1] Consult product-specific label for temperature storage range by product. Find individual product labels at **agsolutions.ca**.

It's all in the delivery.

Each drill manufacturer has their own metering system, unique in design and precision for application of both seed and granular products in furrow. Ensuring your equipment is set up with the recommended requirements by the drill manufacturer for in-furrow application of low flow, clay-based granulars is the first key step to setting your spring application up for success.

	Bourgault®	John Deere®	Väderstad®
Metering system requirements for small granular/seed products (e.g. inoculant or canola seed)	Low output auger Options: UHMW (plastic), steel Recommendation: UHMW	Yellow roller/cartridge Recommendation: use roller spacers	18 CC low displacement roller
Necessary component	1 auger/tank	1 cartridge/tank	1 roller/10 ft of drill
	Seed Master®	**Morris**	**Case New Holland**
Metering system requirements for small granular/seed products (e.g. inoculant or canola seed)	UltraPro™ canola roller (1/4 inch)	Fine seed plates and spiral fluted metering wheel	Does not currently recommend the use of clay-based granular products in their seeding systems
Necessary component	1 roller/10 ft of drill	1 seed plate/metering wheel	1 roller/10 ft of drill

Setting up for application success.

- Perform regular equipment maintenance and monitoring for wear and tear on critical metering and application components
- Check if you're using the appropriate recommended metering system requirements for your drill type; consult your drill manufacturer to discuss any new innovations for application

*If you have any questions specific to the application of Nodulator® inoculants, speak to your BASF **AgSolutions**® Crop Establishment Specialist, Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273).*

BASF Insecticides

- Cimegra®
- Sefina®
- Titan®

Cimegra®

Insecticide

Powered by the unique IRAC Group 30 mode of action, Cimegra® insecticide is an innovative solution in potatoes that provides true control of wireworms in-furrow and foliar control of Colorado potato beetles.

- Unique mode of action that works through contact and ingestion
- Delivers fast knockdown and control growers can count on
- Effective resistance management tool when used in rotation with other insecticide Groups

Active ingredient

Broflanilide – Group 30

Formulation

Suspension concentrate

One case contains

2 x 3 L jugs

Storage

Requires heated storage.

Crops

Potatoes	in-furrow at planting foliar[1]
Corn (field, pop, seed and sweet)	in-furrow at planting T-band at planting

Pests controlled

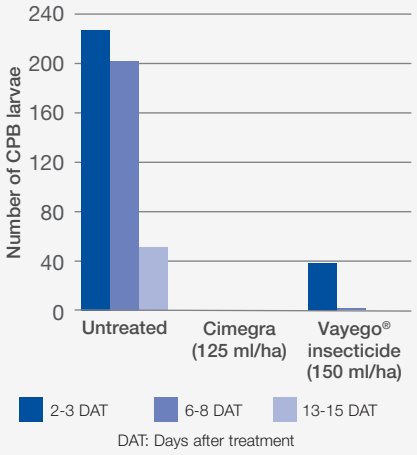
In potatoes.

Colorado potato beetle (*Leptinotarsa decemlineata*)
Wireworm[2]

In corn.

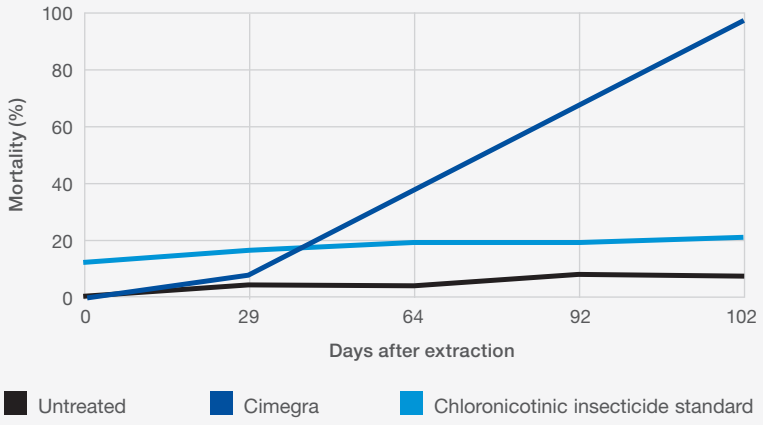
Corn rootworm (*Diabrotica virgifera virgifera* and *Diabrotica barberi*)
Wireworm[2]

Colorado potato beetle (CPB) foliar control



Source: BASF Third-Party Small Plot Trials, MB & ON, 2021-2022, n=2

Laboratory study examining mortality vs. intoxication of wireworms



Source: W. van Herk, R. Vernon, British Columbia, 2019, n=1

Colorado potato beetle

Source: BASF

[1] Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.

[2] Including *Agriotes obscurus, Agriotes sputator, Conderus* sp., *Hypnoides bicolor, Limonius californicus, Limonius infuscatus, Melanotus cribulosus, Melatonus* sp. and *Selatosomus destructor.*

Application rate

One case of Cimegra insecticide will treat 60 acres (24 hectares) in-furrow and 79 to 118 acres (32 to 47.8 hectares) with foliar application.

Potatoes - Foliar application[3]	
For control of Colorado potato beetle	50 to 75 ml/ac (125 to 187.5 ml/ha)
Potatoes - In-furrow application	
For wireworm control[4]	100 ml/ac (250 ml/ha)
For 90 cm (36”) row spacing[5]	2.3 ml per 100 metres of row
Apply the in-furrow spray to uniformly cover the seed pieces and surrounding soil. Do not apply Cimegra to the soil surface of a closed furrow.	

Corn	
For wireworm and corn rootworm control[4]	100 ml/ac (250 ml/ha)
For 76 cm (30”) row spacing[5]	1.9 ml per 100 metres of row
Apply at planting as an in-furrow or T-band spray by directing spray pattern to uniformly cover seed and surrounding soil.	

Water volume

For in-furrow use, dilute Cimegra insecticide product in a minimum of 50 L of water per hectare (20 L of water per acre). Use sufficient water to ensure thorough coverage of the seed or seed piece and surrounding seed furrow.
For foliar use, ensure thorough coverage of the entire plant.

[3] DO NOT apply more than 2 foliar applications per year. Allow a minimum of 7 days between applications. DO NOT apply more than 50 g ai/ha per year. This includes all application types (seed treatment, soil and foliar).
[4] Do not exceed 100 ml/ac (250 ml/ha).
[5] For different row spacing, see label for calculation.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Shake/agitate container well before use.
4. Add the required amount of Cimegra insecticide to the mix tank.
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank according to label precautions.

Application tips

For foliar application, do not apply during periods of dead calm or when winds are gusty. Observe spray buffer zones specified on the product label. A vegetative filter strip is required between the field edge and adjacent, downhill aquatic habitats. Refer to product label for more information.

Resistance management

Insecticide use should be based on an IPM program that includes scouting and record keeping, and considers cultural, biological and other chemical control practices. Cimegra is not compatible with IPM programs using beneficial arthropods. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance management and/or IPM recommendations for the specific site and pest problems in your area.

Follow crops

Immediate plant-back is permitted for all labelled crops. A plant-back interval of 30 days is required for all crops not on the label.

Tank mixes

Cimegra is not compatible with in-furrow fertilizers.

Contact **AgSolutions®** Customer Care or your BASF **AgSolutions** Grower or Retail Representative for more information on supported tank mixes.

Cimegra®
Insecticide

Sefina®

Insecticide Powered by **Inscalis®**

A lasting barrier that protects against labelled piercing and sucking insects.

- Quickly halts feeding, which reduces production losses and virus transmission
- Powered by Inscalis®, a unique mode of action that controls labelled insect pests, including those that have developed resistance to other modes of action
- Extended control of labelled pests
- Effective tool in an integrated pest management strategy with low impact on beneficial insects, including predatory and parasitic insects when used according to the label

Active ingredient
Afidopyropen – Group 9D

Formulation
Dispersion concentrate

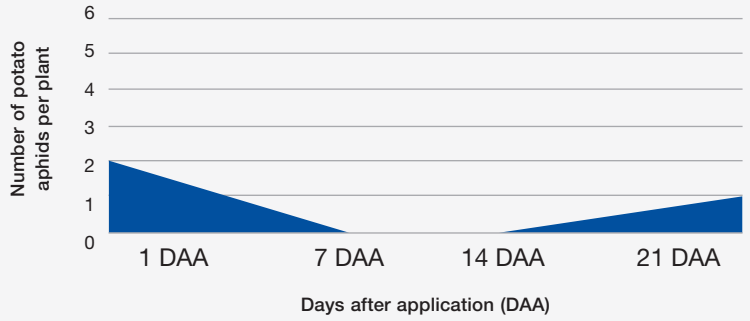
One case contains
2 x 3.24 L jugs

Storage
Does not require heated storage.

Crops	Staging
Alfalfa	emergence to harvest
Grasses, non-grass forages and hay	emergence to harvest
Potatoes	emergence to harvest
Soybeans	emergence to full maturity

Pests controlled	Staging
In potatoes.	all life stages
Green peach aphid (*Myzus persicae*)	
Potato aphid (*Macrosiphum euphoribae*)	
Sweet potato whitefly (*Bemisia tabaci*)	
Silverleaf whitefly (*Bemisia argentifolii*)	
In soybeans.	all life stages
Soybean aphid (*Aphis glycines*)	
In forage, fodder, straw and hay.	all life stages
Pea aphid (*Acyrthosiphon pisum*)	
Blue alfalfa aphid (*Acyrthosiphon kondoi*)[1]	
Spotted alfalfa aphid (*Therioaphis trifolii*)[1]	
Potato leaf hopper (*Empoasca fabae*)[1]	

Efficacy of Sefina® insecticide on potato aphids



Source: Grower Applied Strip Trials, NB, 2019, n=3

[1] Suppression.

Application rates[2]

One case of Sefina will treat up to 80 acres.

In potatoes.[3,4]

For green peach aphid and potato aphid control	81 ml/ac (0.2 L/ha)
For sweet potato whitefly and silverleaf whitefly	283 to 405 ml/ac (0.7 to 1.0 L/ha)

In soybeans.[5]

For soybean aphid control	81 ml/ac (0.2 L/ha)

In forage, fodder, straw and hay.[6,7]

For pea aphid control	81 ml/ac (0.2 L/ha)
For suppression of blue alfalfa aphid and spotted alfalfa aphid	81 ml/ac (0.2 L/ha)
For suppression of potato leaf hopper	81 to 162 ml/ac (0.2 to 0.4 L/ha)

Water volume

In potatoes and soybeans.

Ground application	40 to 80 L/ac (10 to 20 gal/ac)
Aerial application	20 L/ac (5 gal/ac) minimum

[2] Allow a minimum of 7 days between applications.
[3] Do not make more than two sequential applications of Sefina before using an effective insecticide with a different mode of action.
[4] Do not apply more than 1 L/ac (2.5 L/ha) per year.
[5] Do not apply more than 162 ml/ac (0.4 L/ha) per year.
[6] Refer to label for specific crops.
[7] Do not apply more than 1.2 L/ha per year. Maximum of 4 applications per year.

Mixing order

1. Fill clean spray tank 1/2 full of clean water and start agitation.
2. Add the correct amount of Sefina and continue to agitate until mixed.
3. If tank mix is being applied, add the correct amount while continuing agitation.
4. Clean the spray tank after use.

Application tips

Use high water volumes for thorough and uniform coverage.

Pre-harvest interval

0 days after application for forage, fodder, straw and hay.

7 days after application for potatoes and soybeans.

Follow crops

A plant-back interval of 30 days is required for all crops not on the label.

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for more information on supported tank mixes.

Sefina®
Insecticide Powered by **Inscalis®**

Titan®

Insecticide

Titan® is a broad-spectrum seed piece insecticide.

- Controls major above-ground pests, including aphids, Colorado potato beetle, flea beetle and leafhopper
- Reduces tuber damage caused by wireworms
- Early insect control helps plants grow without damage, maximizing yield potential, quality and reducing the risk of secondary disease

Active ingredient
Clothianidin – Group 4

Formulation
Suspension

One case contains
2 x 3 L jugs

Storage
Requires heated storage.

Source: BASF

Crops
Potatoes

Staging
seed-piece treatment

Pests controlled	Application method	Application rate
Aphid (including potato, green peach, foxglove and buckthorn aphids)	Seed-piece treatment	10.4 to 20.8 ml per 100 kg potato seed pieces
Colorado potato beetle		
Potato leafhopper		
Potato flea beetle		
Wireworm[1] (*Agriotes obscurus, A. lineatus, Limonius agonus, Melanotus* spp., *M. communis*)		20.8 ml per 100 kg potato seed pieces

For extended residual control of pests other than wireworm, apply the higher rate.

[1] Damage suppression only.

Water volume

Do not dilute with any more than 6 parts water to 1 part Titan insecticide.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of Titan to the tank.
4. Add the required amount of tank-mix partner, if applicable.
5. Add the recommended amount of colourant, if applicable.
6. Continue agitation while filling the remainder of the spray tank.
7. After use, clean the spray tank according to label precautions.

Application tips

Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust.

For optimal insect control, good coverage of the seed pieces is required.

Plant seed pieces as soon as practical after cutting and treating.

Resistance management – Do not apply any subsequent applications of a Group 4 insecticide following a Titan seed-piece treatment (i.e., in-furrow or foliar application).

Restricted entry interval – 12 hours

Tank mixes

Seed treatments: Emesto® Silver

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for more information on supported tank mixes.

BASF Herbicides

- Advanced Weed Control
- Altitude FX® 3
- Armezon®
- Armezon and Zidua® SC
- Basagran® Forte
- Centurion® ADV
- Certitude®
- Distinct®
- Engenia® (dicamba-tolerant soybeans)
- Engenia
- Weed control is your goal. Stewardship is your priority
- Facet® L
- Frontier® Max
- Heat® LQ pre-harvest
- Liberty® 150 SN
- Two spray or not two spray
- Liberty 200 SN
- Odyssey® NXT
- Odyssey Ultra Q
- Smoulder®
- Solo® ADV
- Solo Ultra Q
- Viper® ADV
- Voraxor®
- Voraxor Complete
- Zidua SC
- Zidua SC (fall-applied in lentils)
- Merge® surfactant
- BASF 28% UAN
- **Clearfield®** Production System for lentils
- **Clearfield** Production System for wheat
- WAMLEGS - Mixing order for tank mixes

ADVANCED WEED CONTROL

We're not done until your weeds are.

The Advanced Weed Control (AWC) Program is a complete weed management strategy, developed to tackle your specific weed challenges.[1] AWC combines a resistance management approach with effective herbicides. Backed by the Performance Support Guarantee, our team will go the extra mile to earn your trust and help you achieve weed-free fields.

The benefits of the program include the following:

Cleaner fields – Dependable herbicides combined with a weed management strategy provides improved control of labelled weeds, including resistant biotypes. And customized solutions provide flexibility to manage specific challenges of any given field.

Resistance management – Providing numerous herbicide options with multiple modes of action contributes to the long-term success of growers' operations.

Performance Support Guarantee – You can enjoy the peace of mind that comes with hassle-free support in the unlikely event of weed escapes.[2] That even includes resistant biotypes, wild oats, kochia, cleavers and flushing weeds.[1] Eligible Growers can receive up to 100% of the BASF respray purchase value[3] to correct the specific weed problem in each field.

[1] When adhering to specified rates outlined in the product label for the weeds outlined in the program.
[2] When recommended products are used up to labelled rates.
[3] Calculated at the Suggested Retail Price (SRP).

Customized solutions for any weed challenge.

1. Identify your weed challenges.
2. Customize your herbicide solution.

COMMON CHALLENGING WEEDS[1]

Grassy weeds

Foxtail barley[2]
Green and yellow foxtail
Quackgrass
Volunteer cereals
Wild oats

Broadleaf weeds

Chickweed
Dandelion
Flixweed
Hemp-nettle
Lamb's quarters
Redroot pigweed
Round-leaved mallow
Shepherd's-purse
Stinkweed
Volunteer flax
Wild buckwheat
Wild mustard

[1] Refer to Centurion® ADV and Liberty® 150 herbicide labels for full list of covered weeds and specific application timing.
[2] 40 acres/case rate of Centurion ADV is recommended for improved control of foxtail barley.

RECOMMENDED SOLUTION

In-Crop

Liberty® 150 SN Herbicide
1.35 L/acre or higher[3]

+

Centurion® ADV Herbicide
80 acres/case

OTHER WEED ISSUES

Kochia
(inc. resistant biotypes)

Volunteer canola

RECOMMENDED SOLUTION

Pre-Seed

Certitude® Herbicide
40 acres/case

FOLLOWED BY

In-Crop

Liberty® 150 SN Herbicide
1.35 L/acre or higher[3]

Cleavers

RECOMMENDED SOLUTION

In-Crop

Liberty® 150 SN Herbicide
1.35 L/acre or higher[3]

+

Facet® L Herbicide
160 acres/case

If you have cleavers as well as a range of other challenging weeds, you can use a tank mix of Liberty 150 + Centurion ADV + Facet® L herbicides.

[3] Do not exceed maximum label rates for Liberty 150 herbicide per season.

PEAS

KEY WEEDS CONTROLLED

(inc. resistant biotypes)


Cleavers


Volunteer canola


Kochia


Wild oats

Option 1:

Cleavers
Kochia
Lamb's quarters
Redroot pigweed
Stinkweed
Volunteer canola
Wild buckwheat
Wild mustard

Option 2 – the left column plus:

Foxtail (green, yellow)
Waterhemp
Wild oats

RECOMMENDED SOLUTION

OPTION 1

Spring Pre-Seed
Voraxor®
Powered by **Tirexor®** Herbicide
(40 ac/case)

FOLLOWED BY

In-Crop
Viper® ADV
Herbicide

OPTION 2

Fall Application
Zidua® SC
Herbicide
(fall-applied residual; 83-110 ac/case)

+

Spring Pre-Seed
Voraxor®
Powered by **Tirexor®** Herbicide
(60 ac/case)

OR

Spring Pre-Seed
Voraxor® Complete
Powered by **Tirexor®** Herbicide
(60 ac/case)

FOLLOWED BY

In-Crop
Viper® ADV
Herbicide

CLEARFIELD® LENTILS

KEY WEEDS CONTROLLED

(inc. resistant biotypes)


Lamb's quarters


Volunteer canola


Wild buckwheat


Wild oats

Foxtail (green, yellow)
Lamb's quarters
Redroot pigweed
Volunteer canola
Wild buckwheat
Wild oats

RECOMMENDED SOLUTION

Fall Application
Zidua® SC
Herbicide
(fall-applied residual; 83-110 ac/case)

+

Spring Pre-Seed
Voraxor® [1]
Powered by **Tirexor®** Herbicide
(80 ac/case)

OR

Spring Pre-Seed
Voraxor® Complete
Powered by **Tirexor®** Herbicide
(80 ac/case)

FOLLOWED BY

In-Crop
Solo® Ultra Q
Herbicide
(for re-cropping flexibility)

OR

Odyssey® Ultra Q
Herbicide
(for flushing weed control)

[1] Rate restrictions apply. Do not use rates higher than 48 ml/ha or injury could result.

SOYBEANS

KEY WEEDS CONTROLLED

(inc. resistant biotypes)

Voraxor® herbicide:

Cleavers
Kochia
Lamb's quarters
Redroot pigweed
Stinkweed
Volunteer canola
Wild buckwheat
Wild mustard

Using Voraxor Complete – the left column plus:

Foxtail (green, yellow)
Waterhemp
Wild oats

RECOMMENDED SOLUTION

GLYPHOSATE-TOLERANT

Pre-Seed

Voraxor®[1] Powered by Tirexor® Herbicide (40 ac/case)

OR

Voraxor® Complete Powered by Tirexor® Herbicide (60 ac/case)

FOLLOWED BY

In-Crop

Viper® ADV Herbicide

Cleavers
Kochia
Lamb's quarters
Redroot pigweed
Stinkweed
Volunteer canola
Wild buckwheat
Wild mustard

DICAMBA-TOLERANT

Pre-Seed

Voraxor®[1] Powered by Tirexor® Herbicide

FOLLOWED BY

In-Crop

Engenia® Herbicide

GLYPHOSATE-TOLERANT CORN

KEY WEEDS CONTROLLED

(inc. resistant biotypes)

Voraxor herbicide:

Cleavers
Kochia
Lamb's quarters
Redroot pigweed
Stinkweed
Volunteer canola
Wild buckwheat
Wild mustard

Using Voraxor Complete – the left column plus:

Foxtail (green, yellow)
Waterhemp
Wild oats

Option 2 tank mix – burndown control:

Common ragweed

Option 2 tank mix – residual control:

Barnyard grass
Foxtail (giant, green, yellow)
Redroot pigweed
Waterhemp
Wild oats

RECOMMENDED SOLUTION

OPTION 1

Pre-Seed

Voraxor®[1] Powered by Tirexor® Herbicide (40 ac/case)

OR

Voraxor® Complete Powered by Tirexor® Herbicide (60 ac/case)

FOLLOWED BY

In-Crop

Armezon® Herbicide **+ GLYPHOSATE**

OPTION 2

In-Crop

Zidua® SC Herbicide **+** Armezon® Herbicide **+ GLYPHOSATE**

(80 ac/case)

[1] Rate restrictions apply. Do not use higher than 40.5 ml/ac (100 ml/ha) or crop injury could result.

Clearfield® Production System for Wheat

Clearfield® Plus Production System for Wheat

BASF We create chemistry

Altitude FX® 3

Herbicide for **Clearfield®** wheat

The trusted herbicide for the Clearfield® and Clearfield Plus Production System for wheat, with added flexibility.

- High-level control of grasses including volunteer barley and wild oats resistant to Group 1
- Choice of tank-mix partners for broadleaf control flexibility

Active ingredients

(a) Imazamox – Group 2
(b) Fluroxypyr – Group 4

Formulation

(a) Solution
(b) Emulsifiable concentrate

One case contains

(a) 2.68 L jug
(b) 5 L jug of Starane® II herbicide

Storage

Requires heated storage.

Crops	Staging
Clearfield wheat varieties	3 to 6 leaf[1]

Weeds controlled	Staging
Broadleafs	up to 4 leaf (except where indicated)
Cleavers	(1 to 8 whorls)
Cow cockle	
Green smartweed	(2 to 6 leaf)
Kochia[2]	
Lamb's quarters[3]	
Redroot pigweed	
Round-leaved mallow[3]	
Russian thistle[3]	
Shepherd's-purse	
Stinkweed	
Stork's-bill[3]	(1 to 8 leaf)
Volunteer canola[4]	
Volunteer flax	(1 to 12 cm)
Wild buckwheat[3]	
Wild mustard	

Broadleaf weeds controlled with specific, specialty tank-mix partners[5]

MCPA Ester (northern broadleafs): Chickweed, cow cockle, hemp-nettle, wild buckwheat	(apply at 3 leaf)
2,4-D Ester (southern broadleafs): Russian thistle, round-leaved mallow	(apply at 4 leaf)
Curtail® herbicide (thistles and perennials): Canada thistle, sow thistle, dandelion	(apply at 3 leaf)

Grasses	up to 4 leaf
Barnyard grass	
Foxtail (green, yellow)	
Japanese brome grass[3]	
Persian darnel	
Volunteer cereals[6]	
Wild oats	

[1] Crop staging can change depending on tank-mix partner. See label for details.
[2] Control of biotypes resistant to Group 2.
[3] Suppression only. Refer to product label for control with specific tank-mix partner.
[4] Non-**Clearfield** canola varieties only.
[5] See application rate section for individual tank-mix rates.
[6] Barley, canary seed, oats, durum, non-**Clearfield** wheat.

Application rates

One case will treat 40 acres.

Two separate tank-mix components are included.

Imazamox (a)	67 ml/ac (167 ml/ha)
Fluroxypyr (b)	126 ml/ac (310 ml/ha)

One of the following broadleaf specialty tank-mix partners[7] must be chosen.

MCPA Ester 600[7]	Northern broadleafs	375 ml/ac (927 ml/ha)
2,4-D Ethylhexyl Ester 700[7]	Southern broadleafs	320 ml/ac (791 ml/ha)
Curtail® M[7]	Thistles and perennials	610 to 810 ml/ac (1.5 to 2 L/ha)

Adjuvant Options

Wheat Variety	Non-Ionic Surfactant[7]	MSO Concentrate with Leci-Tech[7]	Merge Adjuvant[7]
Clearfield	0.25% v/v (e.g. 250 ml per 100 L solution)	-	-
Clearfield Plus	0.25% v/v	1% v/v	0.5% v/v

Water volume

Ground application only	20 to 40 L/ac (5 to 10 gal/ac)

[7] Adjuvant option and optional broadleaf partners are not included in the case.

Mixing order

1. Add 3/4 of clean water needed. Use 50 mesh or a coarser filter screen.
2. Start and continue agitation throughout mixing and spraying.
3. Add imazamox solution (a) first and mix thoroughly.
4. Add all remaining tank-mix partners and mix thoroughly.
5. Continue agitation and add required amount of adjuvant.
6. A silicone anti-foaming agent may be added if needed.
7. Complete filling the tank to the desired level with water.

Application tips

Rainfastness – 3 hours.
Avoid application immediately after a frost or during cold weather.
Avoid sprayer overlap to prevent crop injury.
Apply to actively growing weeds.

Pre-harvest interval

79 days after application for wheat grain and straw.

Follow crops

3 months after application

Winter wheat[8]

1 year after application

Canary seed[8]	Chickpeas	Field peas	Spring barley	Tame oats[8]
Clearfield canola	Durum wheat[8]	Flax[8]	Spring wheat	
Non-**Clearfield** canola[8]	Field corn	Lentils	Sunflowers	

2 years after application

Mustard (condiment-type only)[8]

Refer to tank-mix partner's label for any additional follow-crop restrictions.

[8] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of winter wheat, durum wheat, canary seed, tame oats, flax and canola (non-**Clearfield**) by an additional year. If drought is received between June 1 and September 1 in the year of application OR between June 1 and September 1 in the year following application, delay planting of mustard by an additional year.

Tank mixes[9]

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

[9] Individual tank-mix partners listed here are required for Altitude FX® 3 herbicide to provide specific broadleaf specialty control. Altitude FX 3 is a tank mix of AC 299, 263 120 AS (imazamox) and Starane® II (fluroxypyr).

Altitude FX® 3
Herbicide for **Clearfield®** wheat

Armezon®

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Your ideal tank-mix partner for post-emergent weed control in glyphosate-tolerant corn.

- Wide application window from 1 to 7 leaf stage
- Innovative Group 27 chemistry for control of weeds resistant to Group 2, glyphosate and triazine

Active ingredient

Topramezone – Group 27

Formulation

Liquid suspension

One case contains

4 x 600 ml jugs

Storage

Requires heated storage.

Weed control with Armezon® herbicide

Armezon + glyphosate

Source: BASF Small Plot Trials, Winkler, MB, 2019

Crops	Staging
Field, seed, sweet and glyphosate-tolerant corn	1 to 7 leaf
Flax	5 to 10 cm

Weeds controlled[1]	Staging
Broadleafs	1 to 8 leaf (except where indicated)
Chickweed[2]	
Common ragweed	
Kochia[3]	(less than 10 cm height)
Lamb's quarters[2]	
Redroot pigweed	
Volunteer canola (all types)[4]	(1 to 6 leaf)
Wild mustard	
Grasses	1 to 4 leaf
Barnyard grass[2]	
Foxtail (green, yellow)[2]	

[1] For use in corn, Armezon must be applied as a tank mixture. See Armezon label for tank-mix partners.
[2] Suppression.
[3] All types, including glyphosate-resistant biotypes. Apply when kochia is less than 10 cm.
[4] Including glyphosate-tolerant biotypes.

Application rates

One case of of Armezon will treat 160 acres.

Glyphosate-tolerant corn	Armezon[5] Glyphosate[6,7]	15 ml/ac (37 ml/ha)
Seed, sweet corn	Armezon Atrazine[6] Assist® adjuvant[6] 28% UAN[6]	15 ml/ac (37 ml/ha) 420 ml/ac (500 g ai/ha) 1.25% v/v (12.5 L per 1000 L spray solution) 1.25% v/v (12.5 L per 1000 L spray solution)
Field corn	Armezon Atrazine[6] Merge® adjuvant[6]	15 ml/ac (37 ml/ha) 420 ml/ac (500 g ai/ha) 0.5% v/v (5 L per 1000 L spray solution)
Flax	Armezon[7,8] Merge[6,9]	15 ml/ac (37 ml/ha) 0.5% v/v (5 L per 1000 L spray solution)

Water volume

Ground application only	40 to 80 L/ac (10 to 20 gal/ac)

[5] For control of secondary flushes of volunteer canola, a second application of Armezon at 15 ml/ac (37 ml/ha) may be applied, for a total of 30 ml/ac (74 ml/ha) on glyphosate-tolerant corn before the 7 leaf stage.
[6] Atrazine, glyphosate, Assist, 28% UAN and Merge are sold separately.
[7] Refer to Armezon label for rates and weeds controlled.
[8] DO NOT apply Armezon to flax in combination with any other pesticide or injury may result.
[9] In place of Merge, Assist plus UAN can be added together as tank-mix partners, each at a rate of 1.25% v/v (12.5 L per 1000 L spray solution).

Mixing order

1. Fill sprayer 1/2 full with clean water and agitate.
2. Add dry tank-mix partners into the spray tank and agitate.
3. Add Armezon and thoroughly mix.
4. After the Armezon has visibly dispersed, add any liquid herbicide tank-mix partners.
5. Add either Merge to the spray tank or Assist followed by liquid fertilizer (28% UAN) if required.
6. While agitating, fill the remainder of the tank with water up to the proper level.

Application tips

Rainfastness – Limited by glyphosate formulation.
Follow the glyphosate manufacturer's recommendation for rainfast guidelines.
Denser weed infestation requires the use of higher water volumes.

Pre-harvest interval

45 days after application for corn harvest (silage, fodder or grain).

45 days after application for flax harvest.

Follow crops[10, 11]

4 months after application

Winter wheat

1 year after application

Alfalfa	Lentils (incl. **Clearfield** lentils)	Potatoes
Canola (incl. **Clearfield®** canola)	Navy beans	Soybeans
Field corn	Peas	Spring wheat

[10] Armezon is used in a tank mix; refer to tank-mix partner's label for additional follow-crop restrictions.
[11] If the higher rate of 74 ml/ha is used, fields can only be seeded to winter wheat 4 months after application and spring wheat, field corn and canola the following year.

Tank mixes[1]

Herbicides: Atrazine, glyphosate

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Armezon®
Herbicide

Armezon® Herbicide

Zidua® SC Herbicide

For early post-emergent weed control.

For early post-emergent weed control that provides rapid burndown and enhanced residual control for flushing weeds, BASF recommends tank mixing Armezon®[1] and Zidua® SC herbicides.

- Flexibility to apply on Roundup Ready® corn between 1 to 4 leaf stage with glyphosate
- Broad-spectrum weed control, including volunteer canola, kochia and grassy weeds
- Incorporates multiple modes of effective action for resistance management
- Fast control of emerged weeds and residual weed control for secondary flushes

	Armezon[1]	Zidua SC
Acres treated	160 ac/case	80 ac/case
Active ingredient(s)	Topramezone	Pyroxasulfone
WSSA Group(s)	27	15
Grassy weeds:		
Barnyard grass	S	**C**
Crabgrass (large)	–	**C**
Green foxtail	S	S
Yellow foxtail	S	S
Ryegrass (Italian)	–	**C**
Wild oats	–	S
Broadleaf weeds:		
Chickweed	S	S
Common ragweed	**C**	–
Kochia	**C**[2]	S
Lamb's quarters	S	S
Redroot pigweed	–	**C**
Volunteer canola	**C**[3]	–
Waterhemp	–	**C**
Application timing	1 to 7 leaf[4]	Pre-seed to 4 leaf
Residual weed control	NA	4 to 6 weeks
Moisture to activate	NA	½ to ¾"

S = suppression C = control

[1] In tank mix with glyphosate.
[2] All types, including glyphosate-resistant biotypes. Apply when kochia is less than 10 cm.
[3] Includes glyphosate-tolerant biotypes. Apply at 1 to 6 leaf for volunteer canola.
[4] 1 to 8 leaf for broadleaf weeds. 1 to 4 leaf for grasses.

Where's the fit?

- Corn growers who use tillage as part of their weed management strategy
- Time management for busy spring – integrate residual with post-emerge

Effective control of emerged weeds with Armezon + Zidua SC + glyphosate. Showing residual activity of Zidua SC 28 days after treatment

Untreated

Armezon + Zidua SC + glyphosate

Source: BASF Small Plot Trials, Maryhill, ON, 2018

Basagran® Forte

Herbicide

Post-emergent control of the toughest weeds in dry beans and soybeans.

- Efficient control of key broadleaf weeds
- Group 6 chemistry to provide alternative mode of action for control of resistant broadleaf weeds
- Flexible tank-mix options for targeted weed control in dry beans

Active ingredient

Bentazon – Group 6

Formulation

Liquid

One case contains

2 x 10 L jugs
Also available in 130 L bulk

Storage

Requires heated storage.

Crops	Staging
Corn (grain, silage, sweet, seed)	any stage
Dry beans (incl. coloured, white, kidney)	after 1st trifoliate
Faba beans	after 2 leaf
Flax[1]	after 5 cm height
Peas (field and processing)	after 3 leaf pairs/nodes form
Soybeans	any stage

Weeds controlled	Staging	
Broadleafs	(at 900 ml/ac)	(at 700 ml/ac)
Buttercup	6 leaf	–
Canada thistle[2]	–	20 cm height
Cleavers	1 to 3 whorls	–
Cocklebur	10 leaf	6 leaf
Common chickweed	1 to 3 weeks post-emergence	
Common groundsel[3]	10 cm height	–
Common ragweed[3]	6 leaf	–
Corn spurry	10 cm height	–
Field bindweed[2,4,5]	–	6 cm height
Flower-of-an-hour	10 leaf	6 leaf
Giant ragweed	4 leaf	–
Hairy galinsoga	6 leaf	–
Hairy nightshade	6 leaf	–
Jimsonweed	10 leaf	–
Lady's thumb	10 leaf	6 leaf
Lamb's quarters[3]	8 leaf	–
Low cudweed	6 leaf	–
Purslane	6 leaf	–
Redroot pigweed[3,4]	4 leaf	–
Russian thistle[4]	4 leaf	–
Shepherd's-purse	6 leaf	6 leaf
Stinkweed	6 leaf	6 leaf
Velvetleaf[6]	6 leaf	–
Volunteer canola[7]	8 leaf	8 leaf
Wild mustard	10 leaf	6 leaf
Wild radish	6 leaf	–
Sedge		
Yellow nutsedge[2]	–	20 cm height

[1] Excluding low linolenic acid varieties.
[2] For perennial weeds, repeat application 7 to 15 days after first, if needed.
[3] Includes triazine-resistant biotypes.
[4] Suppression.
[5] Treat before it is dark green and has begun to trail.
[6] Will defoliate 4 leaf and larger but regrowth may occur.
[7] Only provides control in field peas up to 4 leaf at 404 ml/ac (1 L/ha) in Alberta.

Application rates

One case of Basagran® Forte herbicide will treat 22 to 29 acres, depending on rate.

Basagran Forte	700 to 900 ml/ac (1.75 to 2.25 L/ha)

Water volume[8]

Ground application only	40 to 120 L/ac (10 to 32 gal/ac)

[8] Use larger water volumes for weeds at the upper limit of their recommended stage for treatment.

Mixing order

1. Fill the tank 1/2 full with clean water. Start agitation or by-pass system.
2. When using a tank mix for dry beans (Viper® ADV herbicide), add selected tank-mix partner.[9]
3. Add correct amount of Basagran Forte and agitate 2 to 3 minutes.
4. When required, add correct amount of nitrogen source.
5. Add remainder of water, agitate and spray.

[9] See respective labels for complete rate and mixing details.

Application tips

Rainfastness – 6 to 8 hours.

Use a minimum of 80 L/ac (20 gal/ac) of water if crop canopy or heavy weed population interferes with thorough spray coverage, or under cool temperature.

Basagran Forte works best when applied between 15°C and 28°C.

When tank mixing, always check the tank-mix partner recommendations for additional staging restrictions.

Follow crops

No follow-crop restrictions.

Tank mixes

Herbicides for dry beans: Viper ADV at 404 ml/ac (1 L/ha) and Basagran Forte at 146 ml/ac (360 ml/ha) and 28% UAN at 809 ml/ac (2 L/ha)

Herbicides for field peas: Basagran Forte at 506 ml/ac (1.25 L/ha) and 28% UAN at 809 ml/ac (2 L/ha)

None on label for all other crops.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Centurion® ADV

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Tough on grassy weeds. Easy on growers.

- Effective control of the toughest grassy weeds
- Built-in adjuvant improves handling and usability
- Centurion® ADV herbicide comes backed by our Performance Support Guarantee[1]

Active ingredient

Clethodim – Group 1

Formulation

Emulsifiable concentrate

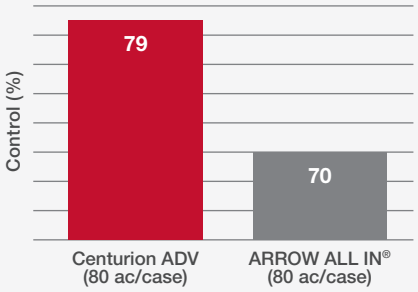
One case contains

2 x 6.1 L jugs
97.6 L drum

Storage

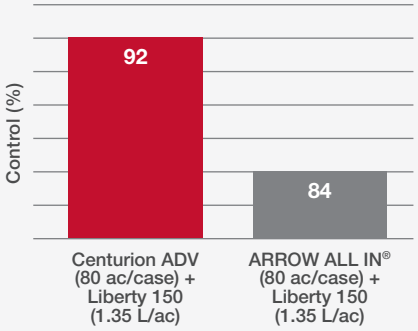
Does not require heated storage.

Standalone grassy weed control 28 to 35 days after treatment (DAT)



Source: BASF Small Plot Trials, Western Canada, 2022, n=5 wild oat, n=5 volunteer barley

Grassy weed control when tank mixed with Liberty® 150 herbicide 28 to 35 DAT



Source: BASF Small Plot Trials, Western Canada, 2022, n=5 wild oat, n=5 volunteer barley

Crops

Brown mustard
Canola
Chickpeas
Dry beans
Field peas
Flax
Lentils
Potatoes
Seedling alfalfa
Soybeans
Sunflowers
Yellow mustard

Staging[2]

post-emergence

Weeds controlled

Grasses	Staging
	2 to 6 leaf (except where indicated)
Barnyard grass	
Downy brome grass[3]	(before tillering)
Japanese brome grass[3]	(before tillering)
Fall panicum	
Foxtail barley[3]	(1 to 4 leaf)
Green foxtail	
Large crabgrass	
Persian darnel	
Proso millet	
Quackgrass[4,5]	
Smooth crabgrass	
Volunteer barley	
Volunteer canary seed	
Volunteer corn	
Volunteer oats	
Volunteer wheat	
Wild oats	
Witchgrass	
Yellow foxtail	

[1] When adhering to specified rates outlined in the product label.
[2] See label for specific crop applications.
[3] When tank mixed with Liberty 150 herbicide.
[4] Apply at 306 ml/ac (20 ac/jug; 320 ac/drum) for season-long control.
[5] Suppressed at 153 ml/ac (40 ac/jug; 640 ac/drum). Follow up with a fall application of glyphosate for clean fields next season.

Application rates

For best results to control major grassy weeds, it is recommended to use Centurion ADV at the application rate of 80 ac/case or 640 ac/drum (153 ml/ac). If applied in a tank mix with another product, consult the label for specific rates.

Water volume[6]

Ground application	37 L/ac (10 gal/ac) recommended
Aerial application	11.3 L/ac (3 gal/ac) minimum

Centurion ADV can be antagonized by high levels of bicarbonates in water (300 mg/L is of concern and 500 mg/L or higher will cause issues). The simple remedy is to mix AMS 1.00% v/v prior to mixing.

[6] For tank mixing, follow recommendations of tank-mix partners.

Mixing order

Centurion ADV + Liberty 150	Centurion ADV + Liberty 150 & Facet® L herbicide	Centurion ADV + Facet L
1. Liberty 150 2. Centurion ADV	1. Liberty 150 2. Facet L 3. Centurion ADV	1. Facet L 2. Centurion ADV

Tank mixes[7]

Herbicide tank mix for LibertyLink® canola: Facet L, Liberty 150

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[7] See label for other crops.

Application tips

Rainfastness – 1 hour.[8]

[8] Rainfastness is limited by its tank-mix partners. For example, if tank mixed with Liberty 150 or Facet L, this time becomes 4 or 6 hours, respectively.

Pre-harvest interval[9]

60 days after application for brown mustard, canola, chickpeas, dry beans, flax, lentils, potatoes and yellow mustard.

75 days after application for field peas and soybeans.

[9] For seedling alfalfa and sunflowers, see label for details.

Certitude®

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Delivers exceptional pre-seed weed control of herbicide-resistant kochia and volunteer canola and helps improve sustainability by being the first Group 27 herbicide for canola production.

- The first Group 27 herbicide developed for pre-seed use for canola production
- Consistent control with both contact and systemic activity

Active ingredients

Bromoxynil – Group 6
Topramezone – Group 27

Formulation

Certitude® herbicide A – Suspension concentrate

Certitude herbicide B – Emulsifiable concentrate

One case contains

291 ml jug of Certitude A

9.71 L jug of Certitude B

8.1 L jug of Merge® adjuvant

Storage

Requires heated storage.

Volunteer canola control with Certitude vs. competition

Conquer® II herbicide

Certitude

Source: BASF Small Plot Trials, 2019, 14 DAT

Crops	Staging
Canola	pre-seed

Weeds controlled[1]	Staging
Broadleafs	up to 4 leaf (except where indicated)
Chickweed	
Cleavers	
Cow cockle[2]	
Flixweed	
Hemp-nettle	
Kochia[3]	(up to 10 cm in height)
Lady's thumb	
Lamb's quarters	(up to 15 cm in height)
Narrow-leaved hawk's beard	
Redroot pigweed	
Russian thistle	
Stinkweed[4]	
Volunteer canola	(cotyledon to 6 leaf)
Volunteer flax	
Wild buckwheat	
Wild mustard[2]	
Grasses	
Barnyard grass	
Downy brome	
Green foxtail	
Volunteer barley	
Volunteer wheat	
Wild oats	

[1] When applied with glyphosate (1 Roundup® Equivalent Litre of glyphosate recommended).
[2] Under normal conditions will be controlled up to the 4 leaf stage. Plants beyond this stage are unlikely to be controlled.
[3] Including glyphosate-resistant biotypes.
[4] Including triazine-resistant biotypes.

Application rates

One case of Certitude will treat 40 acres.

Canola	Certitude A	7 ml/ac (18 ml/ha)
	Certitude B	243 ml/ac (0.6 L/ha)
	Merge	202 ml/ac (0.5 L/ha)

Water volume

Ground application	20 to 40 L/ac (5 to 10 gal/ac)

Mixing order

1. Always start with a clean sprayer. Refer to previously applied product labels for specific cleaning instructions.
2. Fill the clean spray tank 1/2 full of clean water and start agitation.
3. Add Certitude A and continue to agitate until visibly dispersed.
4. Add Certitude B and continue to agitate until mixed.
5. Add glyphosate.
6. Add Merge.
7. Continue agitating while adding the remaining amount of water.

Application tips

Restricted entry interval – 24 hours.

Avoid application when heavy rain is forecast.

Should the product freeze, agitate or mix contents well before use.

Increase water volume with moderate to high weed infestation for better coverage. When targeting weeds resistant to Group 9, such as kochia, increase water volume to 10 gallons per acre.

Pre-harvest interval

There is no required pre-harvest interval between a pre-seed application of Certitude and the harvest of canola.

Follow crops

4 months after application

Winter wheat

1 year after application[5]

Alfalfa, barley, canola, field corn, field peas, lentils, navy (white) beans, peas, potatoes, soybeans, spring wheat

[5] For additional BASF supported crops, contact your local BASF **AgSolutions®** Grower or Retail Representative.

Tank mixes

Glyphosate only.

Contact your local BASF **AgSolutions** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Certitude®
Herbicide

Distinct®

Herbicide

Selective post-emergent weed control for field corn. Complements glyphosate for superior chemfallow and post-harvest control.

- Controls annual broadleaf weeds in post-emergent corn
- Multiple modes of action with glyphosate to control resistant biotypes in chemfallow and post-harvest
- Help keep fields cleaner to set them up for success the next season
- Excellent follow-crop flexibility that includes pulses and canola

Active ingredients

Dicamba – Group 4
Diflufenzopyr – Group 19

Formulation

Water dispersible granular

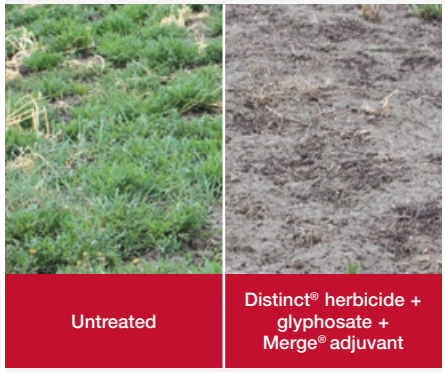
One case contains

2 x 2.3 kg jugs

Storage

Does not require heated storage.

Weed control in spring, following previous September application



Untreated | Distinct® herbicide + glyphosate + Merge® adjuvant

Source: BASF Small Plot Trials, 2013

Glyphosate-resistant kochia 61 days after herbicide application

Glyphosate only | Distinct + glyphosate + Merge

Source: BASF Small Plot Trials, 2013

[1] Top growth.
[2] Suppression only.
[3] Includes glyphosate-resistant biotypes at 115 g/ac (285 g/ha) application rate.

Application or crop

Field corn
Chemfallow
Post-harvest

Staging

2 to 6 leaf
July to August
prior to first significant frost

Weeds controlled and staging

In field corn.
Apply to actively growing weeds (except where indicated)

- Biennial wormwood (2 to 8 leaf)
- Canada thistle[1]
- Common cocklebur (cotyledon to 6 leaf)
- Common ragweed
- Giant ragweed[2] (2 to 8 leaf)
- Kochia (up to 15 cm height)
- Lady's thumb
- Lamb's quarters
- Perennial sow thistle[2] (2 to 10 leaf)
- Redroot pigweed
- Tall waterhemp
- Velvetleaf
- Volunteer adzuki beans (1 to 3 trifoliate)
- Volunteer canola (cotyledon to 4 leaf)
- Wild buckwheat

In chemfallow and post-harvest.
Apply to actively growing weeds (except where indicated)

Distinct at 58 g/ac tank mixed with glyphosate will control:

- Dandelion[1]
- Kochia
- Lamb's quarters
- Narrow-leaved hawk's beard
- Redroot pigweed
- Round-leaved mallow
- Spiny annual sow thistle
- Wild buckwheat

Distinct at 115 g/ac tank mixed with glyphosate will control:

- Biennial wormwood (2 to 8 leaf)
- Canada thistle[1]
- Common cocklebur (cotyledon to 6 leaf)
- Common ragweed
- Dandelion[1]
- Kochia[3] (up to 15 cm height)
- Lady's thumb
- Lamb's quarters
- Perennial sow thistle[2] (2 to 10 leaf)
- Redroot pigweed
- Tall waterhemp
- Velvetleaf
- Volunteer canola (cotyledon to 4 leaf)
- Wild buckwheat

Application rates

One case of Distinct will treat 40 to 80 acres, depending on rate.

Field corn	Distinct	115 g/ac (285 g/ha)
	Non-ionic surfactant[4]	0.25% v/v
	28% UAN[4]	1.25% v/v
Chemfallow, post-harvest	Distinct	58 to 115 g/ac (143 to 285 g/ha)
	Glyphosate[4] (360 g ae/L)	0.51 to 1 L/ac (1.25 to 2.5 L/ha)
	Merge[4]	200 ml/ac (500 ml/ha)

Water volume

Ground application only	20 to 40 L/ac (5 to 10 gal/ac)

[4] Non-ionic surfactant, 28% UAN, glyphosate and Merge are not included in the case.

Mixing order

1. Fill clean spray tank 1/2 full of clean water and start agitation.
2. Add the correct amount of Distinct and continue to agitate until product is completely dissolved and fully dispersed.
3. For chemfallow or post-harvest, add the correct amount of glyphosate while continuing agitation.
4. For chemfallow or post-harvest, add the recommended amount of Merge or a 0.25% v/v of non-ionic surfactant, followed by 1.25% v/v 28% UAN. For field corn, add 0.25% v/v of non-ionic surfactant, followed by 1.25% v/v 28% UAN.
5. Continue agitation while adding the remaining amount of water.

Application tips

Rainfastness – 4 hours.

For denser weeds and thick canopies, use the higher water volume.

Grazing

Do not cut or graze corn for 75 days after application. See label for additional restrictions.

Follow crops

If Distinct is applied prior to September 1

Wheat, barley, oats, canary seed, corn, canola, lentils, soybeans, chickpeas, flax, field peas and sunflowers.

If Distinct is applied[5] prior to October 1

Wheat, barley, oats, canary seed, corn, canola, lentils, field peas and soybeans.

If Distinct is applied[5] prior to October 15

Wheat, barley, oats, canary seed and corn.

[5] Distinct applied at 58 g/ac (143 g/ha). If higher rate is used, rotate to cereal or corn crops only.

Tank mixes

Herbicide for chemfallow and post-harvest application: Glyphosate

None on label for field corn.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Distinct®
Herbicide

Engenia®
Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

dicamba-tolerant soybeans

An advanced dicamba formulation with lower volatility properties for improved broadleaf control in Roundup Ready 2 Xtend® and XtendFlex® soybeans.

- Highly concentrated liquid formulation for easier handling and a lower use rate
- Effective resistance management tool for biotypes resistant to Group 2, triazine and glyphosate

Active ingredient
Dicamba – Group 4

Formulation
Solution

One case contains
2 x 8.09 L jugs
Also available in 121.2 L shuttle

Storage
Does not require heated storage.

Weed control in Roundup Ready 2 Xtend® soybeans with glyphosate alone versus Engenia® herbicide plus glyphosate

Glyphosate | Engenia + glyphosate

On glyphosate-resistant Canada fleabane.
Source: University of Guelph research trial, Ridgetown, ON, 2015

Weed control in Roundup Ready 2 Xtend® soybeans with glyphosate alone versus Engenia plus Integrity® herbicide plus glyphosate plus Merge® adjuvant

Glyphosate | Engenia + Integrity + glyphosate + Merge

On glyphosate-resistant Canada fleabane.
Source: University of Guelph research trial, Ridgetown, ON, 2015

Crops
Roundup Ready 2 Xtend® and XtendFlex® soybeans[1]

Staging
pre-plant, pre-emergence, early post-emergence

See the label for a complete list of other crops and applications.

Weeds controlled[2,3]
Buckwheat (tartary, wild)
Canada fleabane[4]
Canada thistle[5]
Cleavers
Common chickweed[6,7]
Corn spurry
Cow cockle
Eastern black nightshade[7]
Field bindweed[5]
Green smartweed
Hairy nightshade[6,8]
Kochia[9]
Lady's thumb
Lamb's quarters
Mustards (including wild)[10]
Narrow-leaved hawk's beard[6,7]
Perennial sow thistle[5]
Ragweed (common, false, giant)
Redroot pigweed
Russian pigweed
Velvetleaf
Volunteer canola[6,11]

[1] Apply by ground ONLY to Roundup Ready 2 Xtend® and XtendFlex® soybeans. Soybean varieties that are not designated as dicamba-tolerant will be damaged or destroyed by this treatment.
[2] For a complete list of proper weed staging, please refer to the product label.
[3] Controlled by Engenia alone at 194 to 400 ml/ac (0.48 to 1 L/ha).
[4] Post-emergence only.
[5] Apply Engenia annually for three years at the flowering stage of bindweed and the budding stage of thistles.
[6] Suppression only.
[7] Including biotypes resistant to Group 2.
[8] When Engenia is applied at 283 to 400 ml/ac (0.7 to 1 L/ha).
[9] Including biotypes resistant to Group 2 and 9.
[10] Refer to label for mustard species controlled.
[11] Including conventional, Roundup Ready® and LibertyLink® cultivars, when Engenia is applied at 400 ml/ac (1 L/ha).

Dicamba stewardship

There are several factors to consider when using a dicamba herbicide:

Nozzles – use nozzles that deliver extremely coarse to ultra-coarse droplets

Wind speed – spray when wind speeds are between 3 to 15 km/h

Ground speed – maintain sprayer speed under 25 km/h (no aerial application)

Boom height – keep spray boom height no higher than 50 cm above the crop canopy

Sensitive crop awareness – identify neighbouring crop species

Application volume – use a minimum spray volume of 10 GPA

Additives/adjuvants – only use as required or recommended on product label

Sprayer cleanout – triple rinse, use a detergent-based cleaner

Visit **agsolutions.ca/Engenia** to learn more and access the Engenia Stewardship learning module.

Application rates

One case will treat 40 to 80 acres of Roundup Ready 2 Xtend® and XtendFlex® soybeans, depending on rate. One shuttle will treat 303 to 624 acres, depending on rate.

Pre-plant, pre-emergence and early post-emergence[12,13]

Roundup Ready 2 Xtend® and XtendFlex® soybeans[14,15,16,17]	194 ml/ac to 400 ml/ac (480 ml/ha to 1000 ml/ha)

Water volume

Ground application	40 L/ac (10 gal/ac) minimum

Use higher water volumes to ensure adequate coverage.[13]

Mixing order

1. Use a 50-mesh filter screen.
2. Fill clean tank with 1/2 of the required amount of clean water and agitate during the entire mixing procedure.
3. Add the required amount of Engenia.
4. If tank mixing, add the appropriate liquid tank-mix partner.
5. Add the rest of the water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.

Application tips

Rainfastness – 4 hours.

Pre-harvest interval

For application to Roundup Ready 2 Xtend® and XtendFlex® soybeans: 7 to 10 days for soybean forage and 13 to 15 days for soybean hay.

Follow crops

For Roundup Ready 2 Xtend® and XtendFlex® soybeans, a plant-back interval of 120 days is required for all crops not on the Engenia label.

Tank mixes

Herbicide for Roundup Ready 2 Xtend® and XtendFlex® soybeans: Glyphosate[18]

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[12] See label for a complete list of additional available tank mixes and their rates. Tank-mix options are not included in the case.
[13] See label for water rate application.
[14] Engenia can be used alone or in tank mix with glyphosate for additional broadleaf and grassy weed control. See label for important details.
[15] For application to Roundup Ready 2 Xtend® and XtendFlex® soybeans, apply Engenia using nozzles that deliver extremely coarse to ultra-coarse spray droplets.
[16] The 400 ml/ac rate of Engenia is to be used only once a season and should be used pre-plant, pre-emergence or in-crop early post-emergence.
[17] 793 ml/ac of Engenia is the maximum total to be applied in a single growing season.
[18] Only use glyphosate products registered for use in soybeans. Do not tank mix Engenia with glyphosate products where glyphosate is present as an ammonium salt.

Engenia®
Herbicide

Engenia®

Herbicide

An advanced dicamba formulation with lower-volatility properties.

- Highly concentrated liquid formulation for easier handling and a lower use rate
- Effective resistance management tool for biotypes resistant to Group 2, triazine and glyphosate

Active ingredient

Dicamba – Group 4

Formulation

Solution

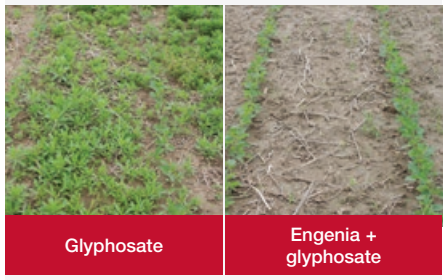
One case contains

2 x 8.09 L jugs

Storage

Does not require heated storage.

Weed control in Roundup Ready 2 Xtend® soybeans with glyphosate alone versus Engenia® herbicide plus glyphosate



Glyphosate	Engenia + glyphosate

On glyphosate-resistant Canada fleabane.
Source: University of Guelph research trial, Ridgetown, ON, 2015

Crops

Canary seed
Roundup Ready 2 Xtend® and XtendFlex® soybeans[1]
Field corn
Pasture grasses
Red fescue (new seedling)
Red fescue (established)
Seedling grasses[3]

Staging

3 to 5 leaf
pre-plant, pre-emergence, early post-emergence
up to 50 cm tall[2]
established, actively growing
5 cm tall
shot-blade
2 to 4 leaf

In chemfallow and post-harvest.[4]
Apply to actively growing weeds.

Weeds controlled[4]

In-crop application in canary seed and seedling forage grasses.

Buckwheat (tartary, wild)
Canada thistle[5]
Cleavers[6]
Corn spurry
Cow cockle
Green smartweed
Lady's thumb
Perennial sow thistle[5]

Post-emergence in field corn and Roundup Ready 2 Xtend® and XtendFlex® soybeans.[7]

Buckwheat (tartary, wild)
Canada fleabane[8]
Canada thistle[9]
Cleavers
Common chickweed[10,11]
Corn spurry
Cow cockle
Eastern black nightshade[11]
Field bindweed[9]
Green smartweed
Hairy nightshade[10,12]
Kochia[13]
Lady's thumb
Lamb's quarters[14]
Mustards[15]
Narrow-leaved hawk's beard[10,11]
Perennial sow thistle[9]
Ragweed (common[14], false, giant)
Redroot pigweed[14]
Russian pigweed
Velvetleaf
Volunteer canola[10,16]

Pasture, rangeland and non-crop areas.

Canada thistle
Curled dock[5]
English daisy
Field bindweed
Goat's beard[6]
Goldenrod
Ground cherry[6]
Knapweed (diffuse)[6]
Pasture sage[6]
Perennial sow thistle
Poverty weed[6]
Ragwort (tansy)
Sheep sorrel[6]
Thyme-leaved spurge[6]

[1] Apply by ground ONLY to Roundup Ready 2 Xtend® and XtendFlex® soybeans. Soybean varieties that are not designated as dicamba-tolerant will be damaged or destroyed by this treatment.
[2] Corn height refers to the crop as it stands, not leaf-extended. Broadcast spray up to 20 cm; larger corn plants require drop nozzles. When using drop pipes (drop nozzles), direct the spray beneath the lower leaves of the corn and onto the weeds and soil. Do not apply to corn over 50 cm in height.
[3] For seed and forage production. See label for specific seedling grasses.
[4] For a complete list of proper weed staging, please refer to the product label.
[5] Top growth only.
[6] Controlled with higher rate of Engenia. See label for details.
[7] Controlled by Engenia alone at 200 ml/ac to 400 ml/ac (0.5 to 1 L/ha).
[8] Post-emergence only.
[9] Apply Engenia annually for three years at the flowering stage of bindweed and the budding stage of thistles.
[10] Suppression only.
[11] Including biotypes resistant to Group 2.
[12] When Engenia is applied at 283 to 400 ml/ac (0.7 to 1 L/ha).
[13] Including biotypes resistant to Group 2 and 9.
[14] Including atrazine-resistant species in corn.
[15] Refer to label for mustard species controlled.
[16] Including conventional, Roundup Ready® and LibertyLink® cultivars, when Engenia is applied at 400 ml/ac (1 L/ha).

Application rates

One case will treat 40 to 80 acres of Roundup Ready 2 Xtend® soybeans, depending on rate.

In-crop application.[17,18]

Canary seed	95 ml/ac (0.23 L/ha)
Field corn, Roundup Ready 2 Xtend® and XtendFlex® soybeans[19,20,21,22]	200 to 400 ml/ac (0.5 to 1 L/ha)
Red fescue	190 ml/ac (0.48 L/ha)

Pasture, rangeland and non-crop areas.[17,18]

For brush weed control[23]	0.68 to 1.18 L/ac (1.68 to 2.92 L/ha)
For broadleaf weed control	0.68 to 1.49 L/ac (1.68 to 3.68 L/ha)
Chemfallow, post-harvest	400 to 800 ml/ac (1 to 2 L/ha)

[17] See label for a complete list of additional available tank mixes and their rates. Tank-mix options are not included in the case.
[18] See label for water rate for application.
[19] Engenia can be used alone or in tank mix with glyphosate for additional broadleaf and grassy weed control. See label for important details.
[20] For application to Roundup Ready 2 Xtend® and XtendFlex® soybeans, apply Engenia using nozzles that deliver extremely coarse to ultra-coarse spray droplets.
[21] The 400 ml/ac rate of Engenia is to be used only once a season and should be used pre-plant, pre-emergence or in-crop early post-emergence.
[22] 793 ml/ac of Engenia is the maximum total to be applied in a single growing season.
[23] Must be applied in tank mix; see label for tank-mix partners.

Mixing order

1. Use a 50 mesh filter screen.
2. Fill clean tank with 1/2 of the required amount of clean water and agitate during the entire mixing procedure.
3. Add the required amount of Engenia.
4. If tank mixing, add the appropriate liquid tank-mix partner then add the rest of the water to the spray tank.
5. Maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.

Application tips

Rainfastness – 4 hours.

Water volume – Use higher water volumes to ensure adequate coverage.[18]

Do not apply Engenia if the crop is under seeded to legumes.

Pre-harvest interval

For application to Roundup Ready 2 Xtend® and XtendFlex® soybeans: 7 to 10 days for soybean forage and 13 to 15 days for soybean hay.

Grazing

See label for grazing restrictions.

Follow crops

For Roundup Ready 2 Xtend® soybeans, a plant-back interval of 120 days is required for all crops not on the Engenia label. For chemfallow and post-harvest, see label for follow crops.

Tank mixes

Herbicides for corn: Accent®[24], Option®[25]

Herbicide for Roundup Ready 2 Xtend® and XtendFlex® soybeans: Glyphosate[26]

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[24] Prairie provinces only.
[25] Only in the province of Manitoba.
[26] Only use glyphosate products registered for use in soybeans. Do not tank mix Engenia with glyphosate products where glyphosate is present as an ammonium salt.

Engenia®
Herbicide

Weed control is your goal. Stewardship is your priority.

Proper Engenia® herbicide stewardship is essential to the effectiveness of your weed management program. There are several factors to consider when using a dicamba herbicide. They include:

Nozzles – use nozzles that deliver extremely coarse to ultra-coarse droplets

Wind speed – spray when wind speeds are between 3 to 15 km/h

Ground speed – maintain your sprayer under 25 km/h (no aerial application)

Boom height – keep spray boom height no higher than 50 cm above crop canopy

Sensitive crop awareness – identify neighbouring crop species

Application volume – use a minimum spray volume of 10 GPA

Additives/adjuvants – only use as required or recommended on product label

Sprayer cleanout – triple rinse, and use a detergent-based cleaner

TECH TIP:

Do not apply Engenia when there is a temperature inversion. The three common indicators of a temperature inversion include the following:

1) Clear sky

2) No wind

3) Dew present

Applications are only permitted beginning one hour after sunrise until one hour before sunset.

Facet® L

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Enhanced control of cleavers in a unique liquid formulation.

- Complements Liberty® 150 herbicide for enhanced control of cleavers
- Easy-to-use liquid formulation
- Consistent control with both contact and systemic activity[1]

Active ingredient

Quinclorac – Group 4

Formulation

Soluble liquid

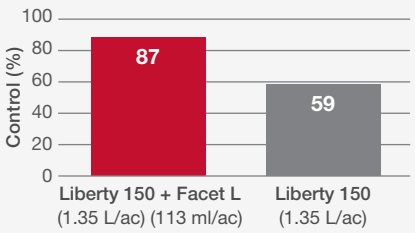
One case contains

2 x 9.07 L jugs

Storage

Does not require heated storage.

Enhanced cleavers control when tank mixed with Liberty 150



Source: BASF Small Plot Trials, 2018, n=10

Facet L applied in-crop

Liberty 150 (1.35 L/ac) + Facet L (113 ml/ac) | Liberty 150 (1.35 L/ac)

53 days after application
Source: Grower Applied Strip Trials, 2018

Crops	Staging
Canola	pre-seed/pre-emergence to 6 leaf

Weeds controlled	Staging
Broadleafs	
Annual sow thistle[2]	2 to 6 leaf
Cleavers[3]	1 to 6 whorls[1]
Perennial sow thistle[2]	2 to 6 leaf
Volunteer flax	1 to 8 cm
Grasses	
Barnyard grass	1 to 5 leaf
Green foxtail[4]	up to 2 tillers

Application rates

Tank mixed with Liberty 150, one case of Facet® L herbicide will treat 160 acres at the recommended in-crop rate of 113 ml/ac.

Canola	
Pre-seed/pre-emergence	227 to 279 ml/ac (560 to 690 ml/ha)
In-crop tank mix with Liberty 150	113 to 227 ml/ac (279 to 560 ml/ha)
Merge® adjuvant[5] (see product label)	0.5% v/v (e.g. 500 ml per 100 L spray solution)

Water volume

Ground application only	40 L/ac (10 gal/ac)

[1] When tank mixed with Liberty 150.
[2] Suppression only.
[3] For control of secondary flushes, apply pre-seed at a higher application rate of 279 ml/ac (690 ml/ha).
[4] For suppression of secondary flushes, apply pre-seed at a higher application rate of 279 ml/ac (690 ml/ha).
[5] Merge may be required and is not included in the case. For additional information and tank mixes, see product label.

Mixing order

Pre-seed/ pre-emergence	LibertyLink® system		
Facet L + glyphosate[6]	**Facet L + Liberty 150[6]**	**Facet L + Liberty 150 + Centurion® herbicide (co-pack)[6]**	**Facet L + Liberty 150 + Centurion ADV**
1. pH adjuster (optional) 2. Facet L 3. Glyphosate 4. Merge	1. Liberty 150 2. Facet L 3. Merge	1. Amigo® adjuvant 2. Liberty 150 3. Facet L 4. Centurion	1. Liberty 150 2. Facet L 3. Centurion ADV

[6] Follow labels for ingredient volumes and agitate 2 to 3 minutes between steps.

Application tips

Rainfastness – 6 hours.

Restricted entry interval – 12 hours.

Should the product freeze, warm to 5°C prior to use.

Pre-harvest interval

60 days after application for canola.

Follow crops

0 months (same season)

Barley (spring)
Canola
Wheat (spring, durum)

10 months after application

Field peas
Sunflowers
Oats

22 months after application

Flax
Lentils

Tank mixes

Herbicides for LibertyLink canola:

Liberty 150, Centurion[7] with Amigo[8] or Merge, Centurion ADV

[7] Case includes the adjuvant.
[8] Amigo rates vary according to the rate of Centurion. Consult the label for details.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Facet® L
Herbicide

Frontier® Max

Herbicide

Protect potato yields through the critical weed-free period.

- Pre-emergent control of annual grasses and key broadleaf weeds, including biotypes resistant to triazine and Group 2 herbicides
- Consistent performance in challenging weather conditions
- Residual activity for reduced weed pressure throughout crop development

Active ingredient

Dimethenamid-P – Group 15

Formulation

Emulsifiable concentrate

One case contains

2 x 9 L jugs

Storage

Does not require heated storage.

Consistent performance with Frontier® Max herbicide

Untreated

Frontier Max

Source: Grower Applied Strip Trials, PEI, 2012

Crop

Potatoes

Timing

Pre-emergence to crop and weeds. Apply after planting and before potatoes emerge from the final hilling of the season.

Weeds controlled

Broadleafs

Redroot pigweed[1,2]
Nightshade (eastern black)[1,2]

Grasses

Barnyard grass
Crabgrass (smooth, large)
Fall panicum
Foxtail (giant, green, yellow)
Old witchgrass

Sedge

Yellow nutsedge[3]

[1] Includes biotypes resistant to Group 2 and triazine.
[2] Controlled at 390 ml/ac (963 ml/ha). Lower rates provide suppression only.
[3] Suppression only.

Application rates

One case of Frontier Max will treat 46 to 59 acres (18.6 to 23.9 ha). One jug will treat 23 to 29.4 acres (9.3 to 11.9 ha).

	Application rates based on % organic matter		
Soil type	**Less than 3% organic**	**3% to 6% organic**	**7% to 10% organic**
Coarse textured soils	305 ml/ac (756 ml/ha)	305 ml/ac (756 ml/ha)	348 ml/ac (860 ml/ha)
Medium textured soils	305 ml/ac (756 ml/ha)	348 ml/ac (860 ml/ha)	390 ml/ac (963 ml/ha)
Fine textured soils	305 ml/ac (756 ml/ha)	348 ml/ac (860 ml/ha)	390 ml/ac (963 ml/ha)

Apply Frontier Max at the higher rates in the table on fine textured or high organic soils and for heavier weed problems.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the tank 1/2 full of water and start agitation.
3. Add the required amount of Frontier Max to the tank.
4. Continue agitation while filling the remainder of the spray tank.
5. After use, clean the spray tank according to label precautions.

Application tips

Apply Frontier Max only in a single application in potatoes. Do not exceed the specified rate by soil type in a single application.

Restricted entry interval – 24 hours.

Resistance management – Rotate the use of Frontier Max or other Group 15 herbicides within a growing season (sequence) or among growing seasons, with different herbicide groups that control the same weeds in a field. Tank mix with herbicides from a different group.

Pre-harvest interval

40 days after application for potatoes.

Tank mixes

Herbicides: Lorox® (Linuron)

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Heat® LQ

Powered by **Kixor®** Herbicide

pre-harvest

Cut straight to an easier harvest.

- Consistent crop and weed dry down
- Easier crop cutting, more bushels per hour and increased fuel efficiency with less dockage
- Cleaner fields the following spring

Active ingredient

Saflufenacil – Group 14

Formulation

Water-based suspension concentrate

One case contains

1.73 L jug of Heat® LQ herbicide
2 x 8.1 L jugs of Merge® adjuvant

Also available as a tote (4 x 10.79 L Heat LQ and 400 L Merge)

Storage

Requires heated storage.

Complete canola dry down

Glyphosate | Heat LQ + glyphosate + Merge

19 days after treatment
Source: Grower Applied Strip Trials, Western Canada, 2020

Crops	Staging[1]
Harvest aid	
Canola	Apply when the crop has reached 80% seed colour change.
Chickpeas[2]	Apply when majority of plants are mature with only the upper part remaining green. Seed moisture is 30% or less. Majority of Desi type seeds are yellow/brown, and Kabuli type seeds are tan/white.
Dry common beans[2,3], soybeans[2]	Apply when stems are green to brown, pods are mature (yellow, brown) and 80 to 90% of leaves have dropped.
Field peas[2]	Apply when about 75% of pods have dried down (changed colour).
Flax[4]	Apply when 75 to 80% of bolls are brown and when seed moisture is less than 30%.
Red lentils[5]	Apply when bottom 15% of pods are mature and brown with ripened seeds. The bottom pods should rattle when shaken.
Sunflowers[6]	Apply when the backs of the heads and bracts are turning yellow, and seed moisture is 20 to 30%.
Pre-harvest weed management	
Barley[7], triticale, wheat (spring, durum, winter)	Hard dough stage with less than 30% moisture. A thumbnail impression remains on seed.

Refer to the Heat LQ pre-harvest crop staging guide for recommendations on each registered crop when you visit **agsolutions.ca/HeatLQStaging**.

Maximum Residue Limits

Please note: At this time (2025), BASF has not fully established import tolerances (maximum residue limits (MRLs)) for mustard for all markets around the world. Because this crop is heavily exported, and some exports are made to markets where these MRLs have not been established, **BASF does not recommend the use of Heat LQ as a harvest aid on mustard for the 2025 season.**

[1] Heat LQ must be applied after physiological maturity (less than 30% seed moisture).
[2] Consult with grain buyer prior to application as the Keep It Clean 2023 Product Advisory indicates caution for glyphosate applications on all pulse crops except red lentils.
[3] When tank mixed with glyphosate, consult glyphosate label or your BASF Sales Representative for information regarding use on specific varieties of dry common beans.
[4] Glyphosate is not supported for pre-harvest use on flax. Use Heat LQ as a standalone product only.
[5] Heat LQ is supported for pre-harvest use on red lentil varieties only. DO NOT apply Heat LQ pre-harvest to green lentils. Please check with your grain buyer prior to the pre-harvest application of Heat LQ in red lentils.
[6] Glyphosate is not registered for pre-harvest use in sunflowers. Use Heat LQ as a standalone product only.
[7] BASF supports the use of Heat LQ for pre-harvest on feed barley only.

Application rates

One case of Heat LQ tank mixed with glyphosate will treat 40 acres. One tote treats 1,000 acres.

Heat LQ tank mixed with glyphosate rate	43 ml/ac (106 ml/ha)
Glyphosate[8] (360 g ae/L)	1.0 L/ac (2.5 L/ha)
Merge[9]	200 to 400 ml/ac (0.5 to 1 L/ha)

(Heat LQ should always be tank mixed with glyphosate.)[10]

(Use all Merge included in the case or tote of Heat LQ.)

Water volume

Ground application	40 L/ac (10 gal/ac) minimum

(BASF recommends using higher water volumes for best results, specifically on canola.)

Aerial application[11]	20 L/ac (5 gal/ac)

[8] Glyphosate is not included in the case.
[9] Merge is required and is included with Heat LQ. Use all Merge included in the case.
[10] Glyphosate is not recommended for use on flax or sunflowers.
[11] Heat LQ is registered for aerial applications.

Mixing order

1. Fill clean spray tank 1/2 full of clean water and start agitation.
2. Add the correct amount of Heat LQ and continue to agitate until mixed.
3. Add the correct amount of glyphosate while continuing agitation.
4. Add the correct amount of Merge to the tank last.
5. Continue agitation while adding the remaining amount of water.
6. Continue agitation or run the by-pass system.

Application tips

Rainfastness – Heat LQ is extremely rainfast and is only limited by glyphosate.

Follow the glyphosate manufacturer's recommendation for rainfast guidelines.

Pre-harvest interval

2 days after application for chickpeas and dry common beans.
3 days after application for barley, canola, field peas, flax, red lentils, soybeans, triticale and wheat.
7 days after application for sunflowers.

Follow crops

In the spring following fall application.

Barley (spring, malt, winter)
Canary seed
Canola (all types incl. **Clearfield**® canola)
Chickpeas
Corn (field, sweet)
Field peas
Flax
Lentils
Oats
Soybeans
Wheat (spring incl. **Clearfield** wheat, winter, durum)

Tank mixes

Herbicide: Glyphosate

Note: Consult glyphosate label for more information including pre-harvest interval and staging.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Heat® LQ
Powered by **Kixor**® Herbicide

Liberty® 150 SN

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Exceptional, consistent performance.

- **Exceptional performance:** Consistent, industry-leading control of broadleaf and grassy weeds
- **Trusted formulation:** Over 25 years in development, designed for optimal performance and usability
- **Performance support guarantee:** Liberty® 150 herbicide will meet labelled expectations or we will support

Active ingredient

Glufosinate ammonium – Group 10

Concentration

150 g/L

Formulation

Solution

One case contains

2 x 13.5 L jugs
Also available in 108 L shuttle, 432 L tote and 864 L tote

Storage

Requires heated storage.

Crops

Canola (LibertyLink® varieties only)

Staging

cotyledon until prior to bolting

Weeds controlled	Staging
Broadleafs	1 to 6 leaf (except where indicated)
Canada thistle[1]	up to 10 cm height
Cleavers[2]	1 to 2 whorls
Common chickweed	1 to 4 leaf pairs
Cow cockle	1 to 4 leaf
Dandelion	1 to 15 cm rosette
Flixweed	up to 10 cm height
Hemp-nettle	1 to 3 leaf pairs
Jimsonweed	
Kochia	up to 8 cm height
Lady's thumb	
Lamb's quarters	
Perennial sow thistle	1 to 8 leaf
Redroot pigweed	1 to 4 leaf
Round-leaved mallow	1 to 4 leaf
Russian thistle	up to 8 cm height
Scentless chamomile	up to 10 cm height
Shepherd's-purse	
Smartweed	
Stinkweed	1 to 8 leaf
Stork's bill	1 to 3 leaf
Volunteer flax	up to 6 cm height
Wild buckwheat	1 to 3 leaf
Wild mustard	1 to 5 leaf
Grasses	1 to 4 leaf (except where indicated)
Barnyard grass	
Brome grass (downy, Japanese)[3]	1 to 6 leaf
Foxtail barley[4]	
Green foxtail	1 to 6 leaf
Quackgrass[5]	
Volunteer barley[6]	
Volunteer wheat	
Wild oats	

[1] Top growth suppression only.
[2] Tank mix with Facet® L herbicide for enhanced cleavers control.
[3] Spring-germinated brome only; best results are obtained after a pre-seed or burndown application with a glyphosate herbicide.
[4] When tank mixed with Centurion® herbicide at 77 ml/ac.
[5] When tank mixed with Centurion at 154 ml/ac.
[6] Suppression only. Tank mix with Centurion for control.

Application rates

One case will treat 17 to 20 acres, one shuttle will treat 67 to 80 acres, one 432 L tote will treat 267 to 320 acres and one 864 L tote will treat 533 to 640 acres.

Canola	1.35 to 1.62 L/ac (3.33 to 4 L/ha)[7,8]

Water volume

Ground application	45 L/ac (10 gal/ac)
Aerial application	22 L/ac (6 gal/ac)

[7] Early timing of first pass at 1.35 to 1.62 L/ac is critical. A second pass of 1.35 to 1.62 L/ac may be applied 10 to 14 days after the first application for flushing weeds.
[8] No more than 4.86 L/ac of Liberty 150 can be applied in a single season.

Mixing order

Liberty 150 + Centurion (co-pack)	Liberty 150 + Centurion ADV	Liberty 150 + Facet L	Liberty 150 + Facet L + Centurion (co-pack)	Liberty 150 + Facet L + Centurion ADV
1. Amigo® adjuvant[9] 2. Liberty 150 3. Centurion	1. Liberty 150 2. Centurion ADV	1. Liberty 150 2. Facet L 3. Merge® adjuvant	1. Amigo[9] 2. Liberty 150 3. Facet L 4. Centurion	1. Liberty 150 2. Facet L 3. Centurion ADV

[9] Merge adjuvant can be used in place of Amigo. The two adjuvants cannot be mixed together.

Application tips

Rainfastness – 4 hours.

Spray in the middle of the day in warm (over 10°C) and sunny conditions, and when weeds are small and actively growing.

Liberty 150 SN is a contact herbicide; therefore, avoid applying when there is dew. Use a higher water volume (10 gal/ac) and use nozzles designed to achieve a medium to coarse droplet size (250 to 350 microns) for good contact and optimal coverage.

Pre-harvest interval

60 days after application for canola.

Follow crops

Refer to label.

Liberty and Trait Agreement (LTA)

Ensure you have a signed LTA in place. Contact your local InVigor® hybrid canola or Liberty retailer. Talk to your BASF **AgSolutions®** Grower Representative. Call **AgSolutions** Customer Care at 1-877-371-BASF (2273). Follow the LTA terms and conditions.

Tank mixes[10]

Herbicides for LibertyLink canola: Centurion, Centurion ADV, Facet L

Contact your local BASF **AgSolutions** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[10] See label for tank-mix application rates targeting specific weeds.

Liberty® 150 SN
Herbicide

Two spray or not two spray.

Take action against weeds and other pests in your canola crop by choosing the products that best fit the needs of your operation. Start by identifying whether you need to do one or two passes of Liberty® 150 herbicide. In situations where you have a high pressure of troublesome weeds, it is recommended you apply Liberty 150 at 1.62 L/ac for optimal control.

1 PASS

- 1.35 L/ac or 1.62 L/ac
- Low weed pressure
- Excellent spraying conditions
- Small weeds

1 or 2 passes of Liberty 150?

TANK-MIX PARTNERS

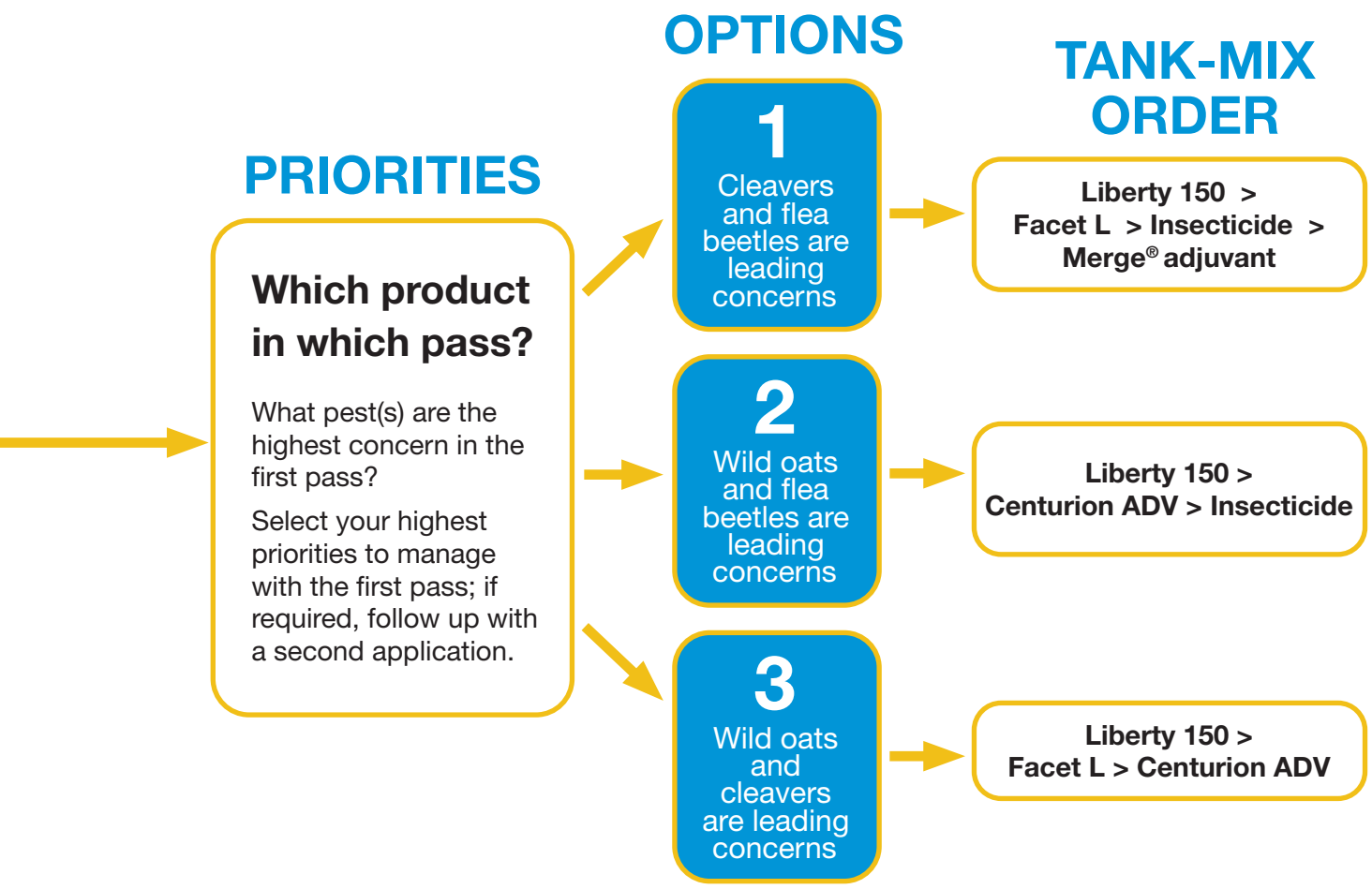
Facet® L herbicide (cleavers)
Centurion® ADV herbicide (grasses)
Insecticide
Nexicor® fungicide (blackleg)

- 1.35 L/ac or 1.62 L/ac
- Medium to high weed pressure
- Marginal spraying conditions
- Multiple flushes

2 PASS

There can be a total of 3 products in the spray tank at one time. Split apply if more than 3 are needed.

Once you've determined if you need one or two passes of Liberty 150, identify what pest(s) are your highest concerns to determine which products should be tank mixed and applied to your canola.



Nexicor can be tank mixed with Liberty 150, Facet L, Centurion ADV and an insecticide; however, it is recommended that you only tank mix three of these products at one time to avoid potential crop tolerance issues and residue in your spray tank.

Liberty® 200 SN

Herbicide

Enlist E3™ and XtendFlex® soybeans

Liberty-tolerant corn and soybeans

An excellent management tool for rotating chemistries to help keep resistance out of your fields.

- Group 10 chemistry provides broad-spectrum control of broadleaf and grassy weeds, including glyphosate-resistant biotypes
- Flexible with respect to application timing, rates and tank mixes
- Quick, complete burndown of weeds

Active ingredient

Glufosinate ammonium – Group 10

Concentration

200 g/L

Formulation

Solution

One case contains

2 x 10 L jugs
Also available in 400 L tote

Storage

Requires heated storage.

Crops	Staging
Corn (LibertyLink® varieties only)	1 to 8 leaf[1,2]
Soybeans (Enlist E3™ and XtendFlex®)	cotyledon to first flower[1]

Weeds controlled	Staging
Broadleaf weeds	1 to 6 leaf (except where indicated)
Canada fleabane[3,4]	Up to 10 cm
Canada thistle[5]	
Chickweed	1 to 8 leaf
Cleavers[4,6]	Up to the 4 whorl stage
Cocklebur	1 to 4 leaf
Common ragweed[3]	1 to 7 leaf
Eastern black nightshade	1 to 5 leaf
Field bindweed[5]	
Giant ragweed[3,6]	1 to 8 leaf
Green pigweed	
Jimsonweed[7]	
Kochia[3,4,8]	Up to 10 cm
Lady's thumb	
Lamb's quarters	
Perennial sow thistle	1 to 4 leaf
Redroot pigweed	
Shepherd's-purse	
Stinkweed	1 to 8 leaf
Velvetleaf[7]	1 to 4 leaf
Volunteer canola[9]	
Waterhemp[3,10]	1 to 8 leaf
Wild buckwheat	1 to 4 leaf
Wild mustard	1 to 4 leaf
Wormseed mustard	
Grasses	1 to 4 leaf (except where indicated)
Barnyard grass	1 to 5 leaf
Bristly foxtail	
Fall panicum	
Giant foxtail	1 to 5 leaf
Green foxtail	1 to 5 leaf
Large crabgrass	1 to 5 leaf
Old witchgrass	
Proso millet	1 to 5 leaf
Quackgrass[5,7]	
Wild oats	
Yellow foxtail	

[1] Apply when weeds are actively growing.
[2] 5 to 6 visible collars (the leaf is counted once the next leaf is visible in the whorl).
[3] Including glyphosate-resistant varieties.
[4] Including biotypes resistant to Group 2.
[5] Season-long suppression.
[6] Suppression only.
[7] Add ammonium sulphate to the tank at a rate of 6 L/ha (49% solution) or 3 kg/ha (99%).
[8] Including biotypes resistant to Group 4.
[9] Including conventional, Roundup Ready® and **Clearfield®** biotypes.
[10] In corn and soybeans only. For control of later emerging flushes of waterhemp. To control early flushes, an application of a registered pre-emergent herbicide, such as Zidua® SC herbicide, is recommended.

Application rates[11]

One case of Liberty® 200 SN herbicide treats 20 acres. One tote treats 400 acres.

Liberty 200 SN	1.0 L/ac (2.5 L/ha)
Ammonium sulfate	Up to 2.4 L/ac (6 L/ha)
Water volume	
Ground application	Minimum 45 L/ac (10 gal/ac)

Mixing order

1. Thoroughly clean sprayer with water containing detergent.
2. Fill clean spray tank 3/4 full of water. Start agitation system.
3. Add ammonium sulfate (if required).
4. Add the correct amount of Liberty 200 SN and continue to agitate until mixed.
5. Continue agitation while adding the remaining amount of water.[12]

[11] See label for use rates on specific weeds and weed stages.
[12] Agitate moderately, as over-agitation may cause foaming.

Application tips

Rainfastness – 4 hours.

Spray in the middle of the day in warm (over 10°C) and sunny conditions, and when weeds are small and actively growing.

Liberty 200 SN is a contact herbicide; therefore, avoid applying when there is dew. Use a higher water volume (10 gal/ac) and use nozzles designed to achieve a medium to coarse droplet size (250 to 350 microns) for good contact and optimal coverage.

Pre-harvest interval

70 days after application for soybeans.

86 days after application for corn.

Grazing

Treated corn and soybean fields can be grazed 20 days after application.

Follow crops

Anytime after application (LibertyLink varieties only): Canola, field corn, soybeans

70 days after application: Barley, buckwheat, millet, oats, rye, sorghum, triticale, wheat

120 days after application: All other crops

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Odyssey® NXT

Herbicide

Reliable 1-pass weed control in multiple crops including Clearfield® lentils, soybeans and field peas.

- Controls flushing weeds, including volunteer canola
- Proven control of a wide spectrum of key weeds in a single pass
- Lasting activity to control multiple flushes of shallow-germinating weeds
- Wide window of application
- Provides the same performance as Odyssey® herbicide in new packaging which includes Merge® adjuvant

Active ingredients

Imazamox – Group 2
Imazethapyr – Group 2

Formulation

Water dispersible granular

One case contains

2 x 692 g jugs of Odyssey NXT
2 x 8.1 L jugs of Merge adjuvant

Storage

Requires heated storage.

Crops[1]	Staging
Alfalfa (for seed production)	1 to 4 leaf
Birdsfoot trefoil (for seed production)	1 to 4 leaf
Clearfield lentils	1 to 9 node
Faba beans	1 to 6 leaf
Fenugreek	1 to 4 true leaf
Field peas	1 to 6 true leaf
Seedling clover (for seed production)	1 to 4 leaf
Soybeans	1 to 3 true leaf

Weeds controlled	Staging
Broadleafs	cotyledon to 4 leaf (except where indicated)
Chickweed	
Cleavers	(4 whorls)
Flixweed	
Green smartweed	
Hemp-nettle[2]	
Lamb's quarters[3]	
Redroot pigweed	
Russian thistle[2]	
Shepherd's-purse	
Stinkweed	
Stork's-bill	
Volunteer canola	
Volunteer tame mustard	
Wild buckwheat[2]	
Wild mustard	
Grasses	1 to 4 true leaf
Barnyard grass	
Green foxtail	
Persian darnel	
Volunteer barley	
Volunteer tame oats	
Volunteer wheat	
Wild oats	

[1] Registered for use only in the Prairie Provinces.
[2] Suppression in less competitive crops, such as field peas and **Clearfield** lentils.
[3] Suppression only.

Application rates

One case of Odyssey NXT will treat 80 acres.

Odyssey NXT	17 g/ac (43 g/ha)
Merge[4]	0.5% v/v (e.g. 500 ml per 100 L solution)

Water volume

Ground application only	20 to 40 L/ac (5 to 10 gal/ac)

[4] Merge (required for optimum activity) is included in the Odyssey NXT case.

Mixing order

1. Use a 50 mesh (or coarser) filter screen and fill the spray tank 3/4 full with the correct amount of water. Start and continue agitation throughout mixing.
2. Add the required amount of Odyssey NXT and continue to agitate until fully dissolved.
3. After the herbicide is dissolved, if using a tank mix, add the correct amount of second herbicide and continue agitating.
4. Continue agitation while adding the required amount of Merge. If excess foaming occurs, a silicone anti-foaming agent may be added (e.g. Halt®).
5. Complete filling the tank to the desired level with water. If agitation is stopped for more than 5 minutes, re-suspend spray solution by full agitation prior to commencing spraying again.
6. Between loads of tank mix, check in-line and nozzle screens and rinse clean if needed.

Application tips

Rainfastness – 3 hours.

Apply in warm weather to weeds that are actively growing.

Avoid applying immediately after or preceding a frost or unseasonably cold weather.

Pre-harvest interval

60 days after application for faba beans, fenugreek, field peas and **Clearfield** lentils.

85 days after application for soybeans.

Field peas treated with Odyssey NXT may be fed to livestock 30 days after application. Application to alfalfa, birdsfoot trefoil and clover is for seed production only. Harvested crop is not to be fed to livestock.

Follow crops[5]

1 year after application

Chickpeas, **Clearfield** canola, field corn, field peas, lentils (incl. **Clearfield** lentils), soybeans, spring barley, spring wheat, tame oats[6]

2 years after application

Canola[7], canary seed, durum wheat, flax, sunflowers

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

[5] Refer to label for additional follow crop restrictions. Contact your local BASF **AgSolutions** Grower or Retail Representative for details on any crops not listed here.

[6] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of tame oats by an additional year.

[7] If drought conditions are experienced between June 1 and September 1 in the year of application or between June 1 and September 1 in the year following application, delay planting of canola (non-**Clearfield**) by an additional year.

Odyssey® Ultra Q

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Multiple modes of action for proven, early-season control of tough grassy and broadleaf weeds.

- Early post-emergence treatment for control, including multiple flushing weeds
- Proven control of a wide-spectrum of key grassy weeds
- Wide application window of up to 6 leaf on grassy weeds and up to 4 leaf on broadleaf weeds
- Management of resistant grassy weeds with multiple modes of action

Active ingredients

(a) Imazamox – Group 2
Imazethapyr – Group 2

(b) Quizalofop-p-ethyl – Group 1

Formulation

(a) Water dispersible granules

(b) Emulsifiable concentrate

One case contains

(a) 692 g jug of Odyssey® NXT herbicide

(b) 6.16 L jug of Caziva® Ultra Q herbicide
8.1 L jug of Merge® adjuvant

Storage

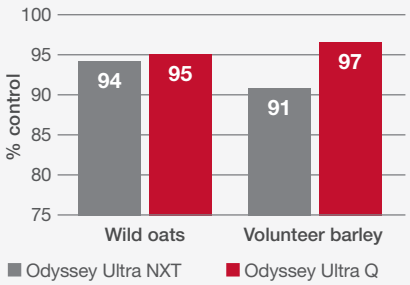
Requires heated storage.

Grassy weed control 21 days after application in peas

Untreated | Odyssey Ultra Q

Source: BASF Small Plot Trials, Regina, SK, 2020

Weed control of wild oats and volunteer cereals in peas and lentils, 42 days after application



Source: BASF Small Plot Trials, 2021, n=5

Crops[1]

Crops[1]	Staging
Clearfield® lentils	1 to 9 node
Faba beans	1 to 6 leaf
Field peas	1 to 6 true leaf
Soybeans	1 to 3 true leaf

Weeds controlled

Weeds controlled	Staging
Broadleafs	cotyledon to 4 leaf
Chickweed	
Cleavers	
Flixweed	
Green smartweed	
Hemp nettle[2]	
Lamb's quarters[3]	
Redroot pigweed	
Russian thistle[2]	
Shepherd's-purse	
Stinkweed	
Stork's-bill	
Volunteer canola (non-**Clearfield** varieties)	
Volunteer tame mustard	
Wild buckwheat[2]	
Wild mustard	
Yellow foxtail	
Grasses	1 to 6 true leaf or up to 2 tillers (except where indicated)
Barnyard grass	
Downy brome	
Foxtail barley	
Green foxtail (incl. biotypes resistant to Group 1 or 2)[4]	
Japanese brome	
Persian darnel	
Quackgrass[3]	
Volunteer barley	
Volunteer corn	
Volunteer tame oats	
Volunteer, spring and durum wheat (incl. **Clearfield** wheat)	
Wild oats (incl. biotypes resistant to Group 1 or 2)[4]	
Yellow foxtail	

[1] Registered for use only in the Prairie Provinces.
[2] Suppression in field peas and **Clearfield** lentils.
[3] Suppression.
[4] Odyssey Ultra Q tank mix will not control weed biotypes that have multiple-resistance to both Group 1 and Group 2 herbicides.

Application rates

One case of Odyssey Ultra Q will treat 40 acres.

(a)	Odyssey NXT	17 g/ac (43 g/ha)
(b)	Caziva Ultra Q	154 ml/ac (380 ml/ha)[5]
	Merge[6]	0.5% v/v (e.g. 500 ml per 100 L spray solution)

Water volume

Ground application only	40 L/ac (10 gal/ac)

[5] (b) Caziva Ultra Q can be topped up using an equivalent quizalofop-p-ethyl product to a maximum rate of 305 ml/ac (750 ml/ha) to provide additional control of grasses. See label for details.
[6] Merge is required, is included within Odyssey Ultra Q in the case and will treat 40 acres at the 10 gal/ac water volume.

Mixing order

1. Start with a clean sprayer. Fill the spray tank with 3/4 of the required amount of clean water, start agitation and continue agitation throughout the entire mixing and spraying procedure.
2. Add the required amount of (a) Odyssey NXT and continue to agitate until fully dissolved.
3. Add the required amount of (b) Caziva Ultra Q while agitating the spray solution.
4. After the herbicide is dissolved, continue the agitation and add the required amount of Merge adjuvant. If excess foaming occurs, a silicone anti-foaming agent may be added (e.g. Halt®).
5. Complete filling the tank to the desired level with water. If agitation is stopped for more than 5 minutes, re-suspend spray solution by full agitation prior to commencing spraying again.
6. Between loads of tank mix, check in-line and nozzle screens and rinse and clean if necessary.
7. Upon completion of spraying, thoroughly flush tank, boom, hoses and in-line and nozzle screens with clean water to avoid possible injury to other crops.

Application tips

Rainfastness – 3 hours.

Apply in warm weather to weeds that are actively growing.

Avoid applying immediately after or preceding a frost or when the temperature is under 5ºC.

Pre-harvest interval

60 days after application for faba beans.

65 days after application for **Clearfield** lentils and field peas.[7]

85 days after application for soybeans.[8]

[7] Field peas may be fed to livestock 30 days after application.
[8] Do not graze treated soybeans or cut for hay; sufficient data is not available to support these uses.

Follow crops[9]

1 year after application

Chickpeas, **Clearfield** canola, field corn, field peas, lentils (incl. **Clearfield** lentils), soybeans, spring barley, spring wheat, tame oats[10]

2 years after application

Canola[11], canary seed, durum wheat, flax, sunflowers

[9] Refer to label for additional follow crop restrictions. Contact your BASF Sales Representative for details on any crops not listed here.
[10] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of tame oats by an additional year.
[11] If drought conditions are experienced between June 1 and September 1 in the year of application or between June 1 and September 1 in the year following application, delay planting of canola (non-**Clearfield**) by an additional year.

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Smoulder®

Powered by **Kixor®** Herbicide

Effective control of broadleaf weeds in a pre-seed application to start the season with cleaner fields.

- Post-emergence burndown of emerged weeds and residual pre-emergence control of secondary flushes of volunteer canola prior to seeding wheat and barley
- Control of tough winter annual and perennial weeds like narrow-leaved hawk's beard, dandelion and Canada thistle
- Burndown control of resistant broadleaf weeds, including resistant biotypes of kochia (Group 2, 4 and 9)

Active ingredients

Metsulfuron-methyl – Group 2
Saflufenacil – Group 14

Formulation

Water dispersible granules

One case contains

907 g jug of Smoulder® herbicide
2 x 8.1 L jugs of Merge® adjuvant

Storage

Requires heated storage.

Extended residual control of Roundup Ready® canola, 35 DAT

Heat® LQ herbicide (80 ac/jug rate)

Smoulder (80 ac/jug rate)

Glyphosate (450 g ae/ha) and Merge (0.5 L/ha) included with both treatments.

Source: BASF Small Plot Trials, Lethbridge, AB, 2019

Crops

Barley
Fall rye
Oats
Triticale
Wheat (incl. durum, spring and winter)
Post-harvest

Staging

pre-seed

Weeds controlled[1]

Broadleafs	Staging
	8 leaf (except where indicated)
Canada fleabane	(15 cm)
Canada thistle[1]	(15 cm)
Cleavers	(4 whorl stage)
Dandelion[1]	(15 cm maximum)
Flixweed[1]	
Kochia[2]	(15 cm)
Lamb's quarters	
Narrow-leaved hawk's beard	(8 cm)
Redroot pigweed	
Round-leaved mallow	
Stinkweed	
Volunteer canola[3]	
Wild buckwheat	
Wild mustard	

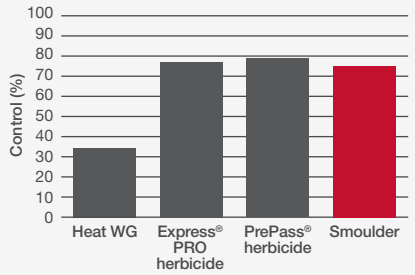
Application rates

One case of Smoulder will treat 80 acres.

Barley and wheat	11 g/ac (28 g/ha)
Post-harvest[4]	11 g/ac (28 g/ha)
All applications	
Merge	200 to 400 ml/ac (0.5 to 1 L/ha)
Water volume	
Ground application	20 to 40 L/ac (5 to 10 gal/ac)

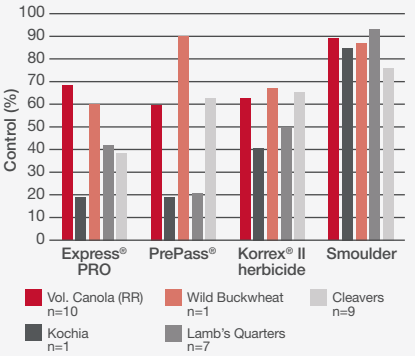
[1] When applied with glyphosate. It is recommended that Smoulder only be used when tank mixed with glyphosate.
[2] Including biotypes resistant to Group 2, 4 and 9.
[3] Provides control of secondary flushes (including Roundup Ready® and LibertyLink®) in addition to burndown control of volunteer canola (all types).
[4] Post-harvest application is only to be used prior to seeding wheat, barley and oats.

Residual volunteer canola control, 22-50 DAT



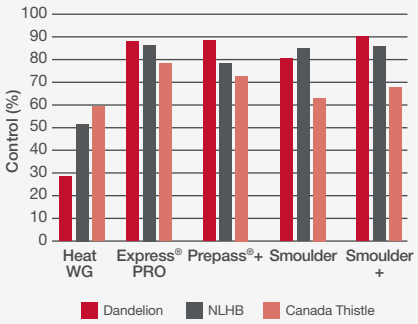
Source: BASF Small Plot Trials, 2016-2020, n>11

Enhanced annual burndown performance, 11-19 DAT



All treatments applied without glyphosate.
Source: BASF Small Plot Trials, 2020-2021

Perennial/winter annual weed control, 28-36 DAT



+ indicates glyphosate added (450 g ae/ha)
Source: BASF Small Plot Trials, 2017-2020, n=4

Mixing order

1. Use a 50 mesh filter screen and fill clean spray tank 1/2 full of water. Start agitation system.
2. Add the required amount of Smoulder and continue agitation until completely dissolved and product is fully dispersed.
3. Add in glyphosate.
4. Add the required amount of Merge.
5. Continue agitation while adding the remaining amount of water to fill the tank.
6. Continue to agitate or run the by-pass system.
7. After any break in sprayer operation, agitate thoroughly before spraying again.

Sprayer cleanout instructions

1. Immediately after spraying, completely drain the spray tank.
2. First rinse: Fill tank 1/10 full of water; rinse spray tank for 15 minutes; flush through booms and hoses. Remove all end caps or open ball valves and flush solution through boom ends. Drain tank completely.
3. Second rinse: Fill tank with clean water. Add a commercial grade tank cleaner or 1 L of household ammonia (minimum 3% ammonia) per 100 L of water and agitate and flush booms. Agitate for 15 minutes. Remove end caps or opening ball valves to flush booms and hoses after allowing cleaning solution to stand in sprayer tank and booms for several hours or overnight. Drain tank after flushing boom and hoses. Clean nozzles and screens separately with a cleaning agent or an ammonia solution.
4. Third rinse: Rinse tank with clean water and flush through boom and hoses. Remove all end caps or open ball valves and flush solution through boom ends. Drain tank.

Application tips

Restricted entry interval – 12 hours.
Do not use on soils that have large gravelly or sandy areas, eroded knolls or calcium deposits.
Do not apply during periods of dead calm or gusty winds.

Pre-harvest interval

60 days when used as a pre-seed application.

Grazing

Wheat and barley forage may be used as feed (hay or silage) or grazed 30 or more days after application.

Follow crops

24 hours after pre-seed application
Barley, fall rye, oats, triticale, wheat (durum, spring and winter)
11 months after application
Canola (all types), imidazolinone-tolerant chickpeas, faba beans, field corn, flax[5], **Clearfield®** lentils, peas, soybeans
Following season after post-harvest application
Fall rye, oats, spring barley, triticale, wheat (spring or durum)

[5] Flax may only be seeded 11 months after application in Black and Dark Brown soil zones. In the Brown soil zone, flax may be seeded 22 months after application.

Tank mixes

Glyphosate only.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Smoulder®
Powered by **Kixor®** Herbicide

Solo® ADV

Herbicide

Provides reliable control of tough weeds with rotational flexibility in a convenient liquid formulation.

- Includes a built-in adjuvant, for ease of handling and reduced fill-up times
- Provides the re-cropping flexibility of Solo® herbicide in a convenient liquid formulation
- Delivers reliable control of tough grasses and targeted broadleaf weeds

Active ingredient

Imazamox – Group 2

Formulation

Solution

One case contains

2 x 6.5 L jugs
or
3 x 4.33 L jugs

Storage

Requires heated storage.

Weed control in Clearfield lentils

Solo ADV

Source: Grower Applied Strip Trials, Wilkie, SK, 2015

Crops	Staging
Clearfield® lentils	1 to 9 node
Clearfield sunflowers	2 to 8 leaf
Soybeans	cotyledon to 4 leaf

Weeds controlled	Staging
Broadleafs	cotyledon to 4 leaf (except where indicated)
Cleavers[1]	(1 to 4 whorls)
Cow cockle	
Green smartweed	
Lamb's quarters	
Redroot pigweed	
Round-leaved mallow[1]	
Russian thistle	
Shepherd's-purse	
Stinkweed	
Volunteer canola[2]	
Wild buckwheat[1]	
Wild mustard	
Grasses	1 to 4 true leaf stage up until early tillering
Barnyard grass	
Green foxtail	
Japanese brome grass[1]	
Persian darnel	
Volunteer barley	
Volunteer canary seed	
Volunteer durum wheat	
Volunteer spring wheat[2]	
Volunteer tame oats	
Wild oats	
Yellow foxtail	

Application rates

Both case options will treat 40 acres.

Solo ADV	325 ml/ac (800 ml/ha)
Water volume	
Ground application only	40 L/ac (10 gal/ac)

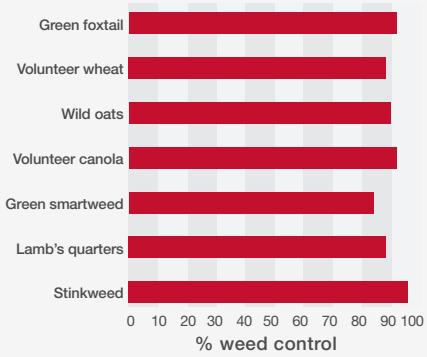
[1] Suppression only.
[2] Non-**Clearfield** varieties.

Green foxtail control after Solo ADV application in Clearfield lentils

Solo ADV

Source: Grower Applied Strip Trials, Frobisher, SK, 2015

Solo ADV weed control efficacy



Source: BASF Small Plot Trials, Saskatchewan, 2015

Mixing order

1. Always start with a clean sprayer. Refer to previously applied product labels for specific cleaning instructions.
2. Fill the clean tank with 1/2 to 3/4 of the required amount of clean water and start agitation system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of Solo ADV and continue to agitate.
4. If required, add the correct amount of Caziva® Ultra Q herbicide while agitating the spray solution.
5. Continue the agitation while filling the spray tank with the remaining amount of water.
6. Thoroughly flush tank, boom, hoses and nozzle screens with clean water to avoid possible injury to other crops.

Application tips

Note: Solo ADV may contain a small amount of sediment, which is completely normal. Always perform a triple rinse of the jug when preparing the spray solution.

Rainfastness – 3 hours.

Avoid application immediately before or after frost or during unseasonably cold weather. Treat when weeds are actively growing.

Pre-harvest interval

60 days after application for **Clearfield** lentils and soybeans.

70 days after application for **Clearfield** sunflowers.

Grazing

Do not graze treated **Clearfield** lentils or soybeans or cut for hay within 20 days of application.

Do not graze treated **Clearfield** sunflower plants or cut for straw.

Follow crops

3 months after application
Winter wheat[3]

1 year after application
Canary seed[3], **Clearfield** canola, non-**Clearfield** canola[3], chickpeas, durum wheat[3], field corn, field peas, flax[3], lentils, soybeans, spring barley, spring wheat, sunflowers (incl. **Clearfield** sunflower) and tame oats[3]

2 years after application
Mustard (condiment-type only)[3]

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[3] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of winter wheat, durum wheat, canary seed, tame oats, flax and canola (non-**Clearfield**) by an additional year. If drought is experienced between June 1 and September 1 in the year of application OR between June 1 and September 1 in the year following application, delay planting of mustard by an additional year.

Solo® ADV
Herbicide

Solo® Ultra Q

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Two modes of action for proven control of grasses and tough broadleaf weeds, with rotational flexibility.

- Built-in adjuvant, for ease of handling and reduced fill-up times
- Reliable control of a wide spectrum of tough grasses and targeted broadleaf weeds
- Extended application window on grassy weeds
- Multiple modes of action for management of resistant weeds

Active ingredients

(a) Imazamox – Group 2
(b) Quizalofop-p-ethyl – Group 1

Formulation

(a) Liquid solution
(b) Emulsifiable concentrate

One case contains

(a) 2 x 6.5 L jugs of Solo® ADV herbicide
(b) 6.16 L jug of Caziva® Ultra Q herbicide

Storage

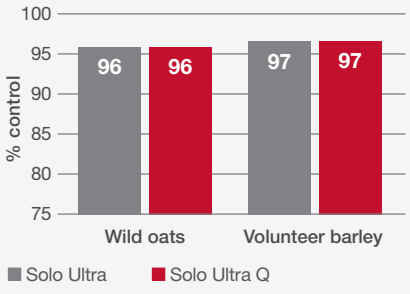
Requires heated storage.

Grassy weed control 21 days after application in Clearfield lentils

Untreated | Solo Ultra Q

Source: BASF Small Plot Trials, Vanscoy, SK, 2020

Weed control of wild oats and volunteer cereals in lentils, 42 days after application



Source: BASF Small Plot Trials, 2021, n=3

Crops

Clearfield® lentils
Clearfield sunflowers
Soybeans

Staging

1 to 9 node
2 to 8 leaf
cotyledon to 4 leaf

Weeds controlled

Broadleafs

Staging

cotyledon to 4 leaf (except where indicated)

Cleavers[1]
Cow cockle
Green smartweed
Lamb's quarters
Redroot pigweed
Round-leaved mallow[1]
Russian thistle
Shepherd's-purse
Stinkweed
Volunteer canola (non-**Clearfield** varieties)
Wild buckwheat[1]
Wild mustard

(1 to 4 whorls)

Grasses

1 to 6 leaf stage up until early tillering

Barnyard grass
Downy brome
Foxtail barley
Green foxtail
Japanese brome grass
Persian darnel
Volunteer barley
Volunteer canary seed
Volunteer corn
Volunteer durum wheat[2]
Volunteer spring wheat[2]
Volunteer tame oats
Wild oats[3]
Yellow foxtail

[1] Suppression only.
[2] All varieties including **Clearfield**.
[3] Including biotypes resistant to Group 1 and Group 2. Solo Ultra Q will not control biotypes that have multiple-resistance to both Group 1 and Group 2 herbicides.

Application rates

One case of Solo Ultra Q will treat 40 acres.

(a)	Solo ADV	325 ml/ac (800 ml/ha)
(b)	Caziva Ultra Q	154 ml/ac (380 ml/ha)[4]

Water volume

Ground application only	40 L/ac (10 gal/ac)

[4] (b) Caziva Ultra Q can be topped up to a maximum rate of 305 ml/ac (750 ml/ha) to provide additional control of grasses. See label for details.

Mixing order

1. When applying Solo Ultra Q, always start with a clean sprayer. Refer to previously applied product labels for specific cleaning instructions.
2. Fill the clean tank with 1/2 to 3/4 of the required amount of clean water and start agitation system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of (a) Solo ADV and continue to agitate.
4. Add the correct amount of (b) Caziva Ultra Q while agitating the spray solution.
5. Continue the agitation while filling the spray tank with the remaining amount of water.
6. Maintain continuous and constant agitation throughout application until spraying is complete.

Application tips

Note: (a) Solo ADV may contain a small amount of sediment, which is completely normal. Always perform a triple rinse of the jug when preparing the spray solution.

Rainfastness – 3 hours.

Apply in warm weather to weeds that are actively growing. Avoid applying immediately before or after a frost or during unseasonably cold weather. Treat when weeds are actively growing.

Pre-harvest interval

65 days after application for **Clearfield** lentils.

70 days after application for **Clearfield** sunflowers.

80 days after application for soybeans.

Grazing

Do not graze treated crops or cut for hay. Sufficient data is not available to support these uses.

Follow crops[5]

3 months after application

Winter wheat[6]

1 year after application

Canary seed[6], **Clearfield** canola, non-**Clearfield** canola[6], chickpeas, durum wheat[6], field corn, field peas, flax[6], lentils, soybeans, spring barley, spring wheat, sunflowers (incl. **Clearfield** sunflowers) and tame oats[6]

2 years after application

Mustard (condiment-type only)[6]

[5] Refer to label for additional follow-crop restrictions. Contact your BASF Sales Representative for details on any crops not listed here.

[6] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of winter wheat, durum wheat, canary seed, tame oats, flax and canola (non-**Clearfield**) by an additional year. If drought is experienced between June 1 and September 1 in the year of application OR between June 1 and September 1 in the year following application, delay planting of mustard by an additional year.

Tank mixes

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Solo® Ultra Q
Herbicide

Viper® ADV

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Proven, broad-spectrum weed control for field peas, soybeans and dry edible beans.

- Convenient, user-friendly 100% liquid formulation
- Multiple modes of action to help manage resistant weeds
- Control of resistant wild mustard and volunteer canola
- Excellent rotational flexibility

Active ingredients

Imazamox – Group 2
Bentazon – Group 6

Formulation

Liquid concentrate

One case contains

2 x 8.1 L jugs
Also available in 129.6 L drum

Storage

Requires heated storage.

Cleavers control, 7 days after application of Viper® ADV herbicide

Untreated | Viper ADV

Source: Grower Applied Strip Trials, SK, 2012

Volunteer canola control with application of Viper ADV vs glyphosate in soybeans

Glyphosate | Viper ADV

Source: Grower Applied Strip Trials, SK, 2012

Crops	Staging
Dry edible beans[1]	1 to 2 trifoliate leaf
Field and succulent peas	3 to 6 above ground node (3 to 6 true leaf)
Soybeans	cotyledon to 4th trifoliate

Weeds controlled	Staging
Broadleafs	cotyledon to 4 leaf
Cleavers[2,3]	
Cow cockle	
Green smartweed	
Hemp-nettle[3]	
Kochia[2,3]	
Lamb's quarters	
Redroot pigweed	
Round-leaved mallow[3]	
Russian thistle	
Shepherd's-purse	
Sow thistle (annual)[3]	
Sow thistle (perennial)[4]	
Stinkweed	
Volunteer canola[5]	
Volunteer lentils[5]	
Wild buckwheat[3]	
Wild mustard[2]	
Grasses	1 to 4 true leaf or early tillering
Barnyard grass	
Green foxtail	
Japanese brome grass[3]	
Persian darnel	
Volunteer barley	
Volunteer canary seed	
Volunteer durum wheat	
Volunteer spring wheat[6]	
Volunteer tame oats	
Wild oats	
Yellow foxtail	

[1] Dry edible beans may vary in their tolerance to herbicides. See label for important notes. For dry edible beans, Viper ADV requires addition of Basagran® Forte herbicide plus 28% UAN.
[2] Includes resistant biotypes.
[3] Suppression.
[4] Top growth suppression only.
[5] Including **Clearfield®** and non-**Clearfield** varieties.
[6] Excluding **Clearfield** wheat.

Application rates

One case will treat 40 acres. One shuttle treats 320 acres.

Viper ADV[7]	404 ml/ac (1 L/ha)
28% UAN[8]	809 ml/ac (2 L/ha)

Water volume

Ground application only	40 L/ac (10 gal/ac)

[7] For dry edible beans only, Viper ADV requires the addition of Basagran Forte at 146 ml/ac (360 ml/ha) to control additional weeds. Basagran Forte is not included in case.
[8] Addition of a nitrogen source (28% UAN) is recommended for grass control, and is not included in the case.

Mixing order

1. Add 3/4 of needed water.
2. Start agitation and continue agitation throughout mixing and spraying procedure.
3. Add the required amount of Viper ADV.
4. If tank mixing Basagran Forte for dry edible beans or glyphosate for Roundup Ready® soybeans[9], add the required amount of tank-mix partner.
5. Add correct amount of nitrogen source (required for grass control).
6. Complete filling with water and continue agitation.

Application tips

Rainfastness – 6 hours.

Avoid application immediately before or after frost or during unseasonably cold weather. Apply in warm weather (15°C to 28°C) when weeds are actively growing.

Use higher water volume on dense weeds and thicker canopies.

Initial transient crop yellowing may occur but is outgrown and will not affect yield.

Pre-harvest interval

40 days after application for succulent peas.

60 days after application for field peas, soybeans and dry edible beans.

Follow crops

3 months after application

Winter wheat[10]

1 year after application

Canary seed[10]
Clearfield canola
Chickpeas
Durum wheat[10]
Field corn
Field peas
Flax[10]
Lentils
Non-**Clearfield** canola[10,11]
Soybeans
Spring barley
Spring wheat
Sunflowers (incl. **Clearfield** sunflowers)
Tame oats[10]

2 years after application

Mustard (condiment-type only)[10]

Tank mixes

Herbicide for dry edible beans: Basagran Forte at 146 ml/ac (360 ml/ha)

Herbicide for Roundup Ready® soybeans: Glyphosate[9]

None on label for field or succulent peas.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

[9] For soybeans, 28% UAN is not required when tank mixing with glyphosate.
[10] If drought conditions are experienced between June 1 and September 1 in the year of application, delay planting of winter wheat, durum wheat, canary seed, tame oats, flax and canola (non-**Clearfield**) by an additional year. If drought is experienced between June 1 and September 1 in the year of application OR between June 1 and September 1 in the year following application, delay planting of mustard by an additional year.
[11] Research studies have shown that non-**Clearfield** canola may be safely planted the year following an application of Viper ADV in all regions of Western Canada except the Northern Peace River Region of Alberta (any area in Township 100 and north, including the areas of Keg River, La Crete, Fort Vermilion and High Level). In this region, non-**Clearfield** canola can be grown safely the second year following an application (2 YAT).

Voraxor®

Powered by **Tirexor®** Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

The new standard in pre-seed burndown control.

- Improved burndown with increased activity, compared to Heat® LQ herbicide, on most broadleaf weeds
- Enhanced residual consistency and weed spectrum, including cleavers, kochia and wild mustard
- Contains the new unique active ingredient Tirexor®

Active ingredient

Saflufenacil – Group 14
Trifludimoxazin – Group 14

Formulation

Suspension concentrate

One case contains

1 x 1.56 L jug Voraxor® herbicide

2 x 8.1 L Merge® adjuvant

Storage

Requires heated storage.

Voraxor vs competitors, 14 to 21 days after treatment (DAT)

Glyphosate was not included in this trial.
Source: BASF Small Plot Trials, Saskatoon, SK, 2020

Crops	Staging
Barley	pre-seed and pre-emergence
Canary seed	
Chickpeas	
Faba beans	
Fall rye	
Field corn	
Lentils	
Oats	
Peas (dried field)	
Soybeans	
Triticale	
Wheat (incl. durum, spring and winter)	
Chemfallow	apply to actively growing weeds less than 15 cm in height

Weeds controlled	Staging
Broadleafs[1]	8 leaf (except where indicated)
Canada fleabane	
Cleavers[2]	(4 whorl stage)
Dandelion[3]	(15 cm)
Hemp-nettle	(4 leaf)
Kochia[2]	(15 cm)
Lamb's quarters[2]	
Narrow-leaved hawk's beard	(8 cm)
Redroot pigweed[2]	
Round-leaved mallow	
Russian thistle	(15 cm)
Shepherd's-purse	
Stinkweed[2]	
Volunteer canola[2,4]	
Wild buckwheat[2]	
Wild mustard[2]	

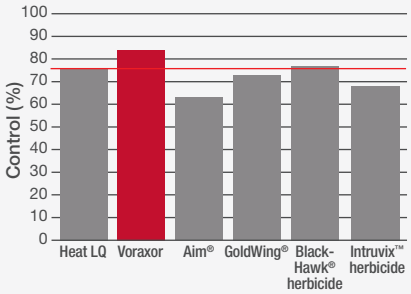
Application rates[4]

One case of Voraxor will treat 30 to 80 acres, depending on rate. One case will treat 80 acres for burndown and 30 to 40 acres for residual control.

Lentils, canary seed, oats, triticale and fall rye	19.5 ml/ac (48 ml/ha)[5]
Field corn and soybeans	19.5 to 40.5 ml/ac (48 to 100 ml/ha)[6]
Faba beans, chickpeas, wheat (incl. durum, spring and winter), peas and barley	19.5 to 58 ml/ac (48 to 144 ml/ha)
Chemfallow	19.5 to 29 ml/ac (48 to 72 ml/ha)
All applications	
Merge	200 to 400 ml/ac (0.5 to 1 L/ha)
Water volume	
Ground application only	20 to 40 L/ac (5 to 10 gal/ac)

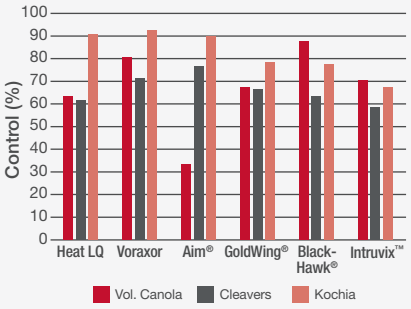
[1] Voraxor applied at 19.5 to 29 ml/ac (48 to 72 ml/ha) provides rapid burndown control of all weeds listed below.
[2] Apply Voraxor at a rate of 41.5 to 57 ml/ac (100 to 140 ml/ha) for suppression of secondary flushes.
[3] Top growth control only with glyphosate.
[4] All types including Roundup Ready®.
[5] Rate restrictions apply. Do not use rate higher than 19.5 ml/ac (48 ml/ha) or injury could result.
[6] Rate restrictions apply. Do not use higher than 40.5 ml/ac (100 ml/ha) or injury could result.

Annual broadleaf weed control burndown, 28 to 36 DAT



Weeds controlled: redroot pigweed, volunteer canola, lamb's quarters, wild mustard, cleavers, kochia and wild buckwheat
Source: BASF Small Plot Trials, 2020, n=22

Innovative active with improved burndown over Heat LQ



Burndown activity at 28 to 36 days after treatment. Glyphosate was not included in this trial.
Source: BASF Small Plot Trials, Western Canada, 2020, n=10

Mixing order

1. Thoroughly clean the sprayer prior to use by flushing the system with water containing detergent. Refer to previously applied product labels for specific cleaning instructions.
2. Fill the clean spray tank 1/2 full with clean water. Start the agitation system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of Voraxor and continue to agitate until thoroughly mixed.
4. Prior to adding glyphosate, add the correct amount of herbicide tank-mix partner if required.
5. Add in glyphosate.
6. Add the correct amount of Merge.
7. Continue agitation while filling the remainder of the tank with water necessary to fill the spray tank.
8. Maintain continuous and constant agitation throughout application until spraying is complete. After any break in spraying, agitate thoroughly before spraying again.
9. Thoroughly clean the sprayer after use by flushing the system with clean water and detergent.

Application tips

Restricted entry interval –12 hours.

Avoid application when heavy rain is forecast.

Do not apply during periods of dead calm or when winds are gusty.

Pre-harvest interval

There is no required pre-harvest interval between a pre-seed or pre-emergent application and harvest.

Follow crops

3 months after application[7]

Fall rye, winter wheat

Plant back crops[8]

Barley, canary seed, dry field peas, fall rye, field corn, lentils, oats, soybeans, triticale, wheat (spring, winter, durum)

Following season[7]

Barley, canary seed, canola, chickpeas, dry common beans, dry field peas, faba beans, flax, field corn, lentils, mustard, oats, soybeans, triticale, wheat (spring, durum)

[7] Following a spring application of Voraxor.

[8] To be planted in the same season in case of crop failure. Rate restrictions apply. Lentils, canary seed, oats, fall rye, triticale, field corn and soybeans can only be grown as plant back crops provided that a maximum product rate of 19.5 ml/ac (48 ml/ha) for lentils, canary seed, oats, fall rye and triticale, and 40.5 ml/ac (100 ml/ha) for field corn and soybeans was applied in the previous crop. A second application of Voraxor cannot be made in the rescue crop. Crops can also be planted in the next season following chemfallow treatment applied after August 1.

Tank mixes

Herbicide for all crops: Glyphosate

Herbicide for lentils, field corn, soybeans, peas (dried field), chickpeas and faba beans:
Zidua® SC herbicide

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Voraxor®
Powered by **Tirexor®** Herbicide

Voraxor® Complete

Powered by **Tirexor®** Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

The most consistent pre-seed burndown on the market, with outstanding residual activity to provide you with a one-two punch to start the season.[1]

- Combining new, unique Tirexor® herbicide with trusted active ingredient Kixor® for burndown control, and Zidua® SC herbicide for reliable residual
- High-performance, broad-spectrum weed control including activity on grassy weeds
- Enhanced residual activity including efficacy on volunteer canola, cleavers, kochia, wild mustard, foxtail (green and yellow) and wild oats

Active ingredient

Saflufenacil – Group 14
Trifludimoxazin – Group 14
Pyroxasulfone – Group 15

Formulation

Suspension concentrate

One case contains

1 x 1.56 L jug Voraxor® herbicide

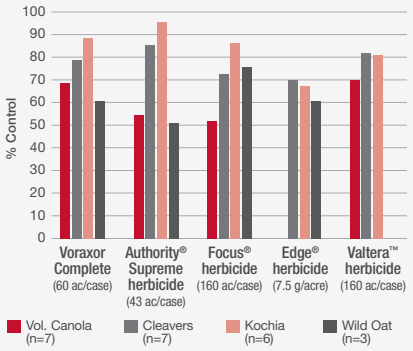
1 x 3.89 L jug Zidua SC

2 x 8.1 L Merge® adjuvant

Storage

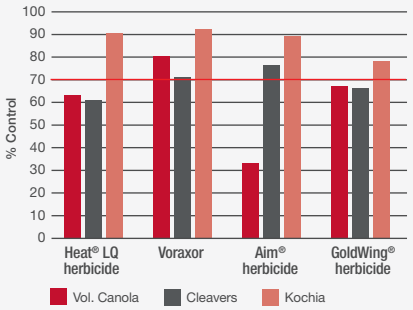
Requires heated storage.

Residual weed control, 21 to 35 DAT



Source: BASF Small Plot Trials, Western Canada, 2020-2021

Burndown control in pulses (Voraxor only), 28 to 36 DAT



Glyphosate was not included in this trial.
Source: BASF Small Plot Trials, 2020, n=10

Crops

Chickpeas
Faba beans
Field corn
Lentils
Peas (dried field)
Soybeans

Staging

pre-seed and pre-emergence

Weeds controlled

	Staging
Broadleafs	8 leaf (except where indicated)
Canada fleabane[2]	
Cleavers[3]	(4 whorls)
Common chickweed[4]	(prior to emergence)
Common waterhemp[4]	(prior to emergence)
Dandelion[5]	(15 cm height)
Eastern black nightshade[4]	(prior to emergence)
Hemp-nettle	(4 leaf)
Kochia[2,3]	(15 cm height)
Lamb's quarters[3]	
Narrow-leaved hawk's beard	(8 cm height)
Redroot pigweed[3]	
Round-leaved mallow	
Russian thistle[3]	(15 cm height)
Shepherd's-purse[3]	
Stinkweed[3,6]	
Volunteer canola[3,7]	
Wild buckwheat[3]	
Wild mustard[3]	
Grasses	prior to emergence
Barnyard grass[4]	
Downy brome[4]	
Foxtail (green, yellow)[4]	
Japanese brome[4]	
Wild oats[4]	

[1] Source: BASF Small Plot Trials, Western Canada, 2020-2021, n=10.
[2] Includes biotypes resistant to Group 2, Group 4 and glyphosate.
[3] Residual suppression also provided (may be rate dependent).
[4] Residual suppression only.
[5] Top growth burndown control with glyphosate only.
[6] Voraxor must be applied at a rate of 100 ml/ha in tank mix with Zidua SC.
[7] All herbicide-tolerant canola systems, including glyphosate-tolerant canola.

Voraxor Complete vs competitors

Volunteer canola, wild mustard and kochia resistant to Group 2, lamb's quarters and wild oat control (front to back). All treatments included glyphosate in the pre-seed burndown. Source: BASF Small Plot Trials, Lethbridge, AB, 2021

Application rates

One case of Voraxor Complete will treat 40 to 80 acres, depending on rate. One case will treat 40 to 80 acres for corn, peas (dried field) and soybeans, and 80 acres for lentils.

Field corn	Voraxor 19.5 to 40.5 ml/ac (48 to 100 ml/ha) Zidua SC 49 to 97 ml/ac (120 to 240 ml/ha)
Lentils	Voraxor 19.5 ml/ac (48 ml/ha)[8] Zidua SC 49 ml/ac (120 ml/ha)
Chickpeas, faba beans, peas (dried field)	Voraxor 19.5 to 40.5 ml/ac (48 to 100 ml/ha) Zidua SC 49 to 97 ml/ac (120 to 240 ml/ha)
Soybeans	Voraxor 19.5 to 40.5 ml/ac (48 to 100 ml/ha) Zidua SC 49 to 97 ml/ac (120 to 240 ml/ha)
All applications	
Merge	200 to 400 ml/ac (0.5 to 1 L/ha)
Water volume	
Ground application only	20 to 40 L/ac (5 to 10 gal/ac)

Mixing order

1. Use a 50 mesh filter screen and fill clean spray tank 1/2 full of water. Start agitation system.[9]
2. Add Zidua SC followed by Voraxor followed by glyphosate; continue agitation.
3. Add Merge. If excess foaming occurs, add an anti-foaming agent.
4. Continue agitation while adding the remaining amount of water.
5. Continue agitation or run the by-pass system. After any break in spraying, agitate thoroughly before spraying again.

Note: Always follow the WAMLEGS mixing procedure when tank mixing.

Application tips

Restricted entry interval –12 hours.
Avoid application when heavy rain is forecast.
Do not apply during periods of dead calm or when winds are gusty.
Do not use on peat or muck soils with 7% or more organic matter content.

Should the product freeze, thaw at room temperature and agitate well before use.

Pre-harvest interval

There is no required pre-harvest interval between a pre-seed or pre-emergent application and harvest.

Follow crops

3 months after application[10]
Winter wheat

Following season[10]
Barley, canola, dry common beans, peas (dried field), field corn, flax, lentils, mustard, soybean, wheat (spring, durum)

Tank mixes

Herbicide for all crops: Glyphosate

Contact **AgSolutions®** Customer Care or your local BASF **AgSolutions** Grower or Retail Representative for additional information on supported tank mixes.

[8] Rate restrictions apply. Do not use rates of Voraxor higher than 19.5 ml/ac (48 ml/ha) or injury could result.
[9] Do not over-agitate at any point in the process.
[10] Following a spring application of Voraxor. For Zidua SC follow crop restrictions, see the Zidua SC label. The most restrictive label must be followed.

Voraxor® Complete
Powered by **Tirexor®** Herbicide

Zidua® SC

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

Residual control of key annual grasses and select broadleaf weeds.

- Group 15 chemistry delivers management of tough weeds, including redroot pigweed and green and yellow foxtail
- Residual activity helps to stop germinating weed seedlings before or soon after crop emergence
- Wide window of application from early pre-seed to early post-emergence and post-harvest

Active ingredient

Pyroxasulfone – Group 15

Formulation

Suspension concentrate

One case contains

2 x 4.05 L jugs

Storage

Requires heated storage.

Application or crop	Staging
Chickpeas, faba beans, field peas, lentils	pre-seed, pre-emergence, fall prior to seeding
Field corn	pre-seed[1], pre-emergence, early post-emergence up to 4 leaf
Herbicide-tolerant soybeans[2]	pre-seed[1], pre-emergence, early post-emergence up to 3rd trifoliate
Sunflowers	pre-seed[1], pre-emergence
Potatoes	pre-emergence (after planting or following drag-off or hilling)
Post-harvest	after harvest

Weeds controlled/suppressed	Staging
Broadleafs	prior to emergence
Cleavers[3]	
Common chickweed[3]	
Eastern black nightshade[3]	
Kochia[3]	
Lamb's quarters[3]	
Palmer amaranth[4]	
Redroot pigweed[3,4]	
Shepherd's-purse[3]	
Waterhemp[3,4]	
Wild buckwheat[3]	
Grasses	prior to emergence
Annual bluegrass[5]	
Barnyard grass[3,4]	
Crabgrass (large)[4]	
Downy brome[3]	
Foxtail (giant[4], green[3,4], yellow[3,4])	
Japanese brome[3]	
Ryegrass (Italian)[4]	
Wild oats[3]	

[1] Up to 30 days before seeding.
[2] Talk to your grain buyer before applying to conventional or IP soybeans.
[3] Early-season residual suppression only.
[4] Controlled at 101 to 200 ml/ac (250 to 493 ml/ha).
[5] Provides control when applied as a post-harvest treatment prior to weed emergence.

Application rates

One case of Zidua® SC herbicide will treat 40 to 165 acres.

Crop	Rate by soil texture for residual control				Recommended acres/case
Residual control					
	Coarse	Medium-fine		Fine	
		Organic matter ≤ 3%	3% ‹ Organic matter ‹ 7%		
Field corn (pre-plant, pre-emerge, early post-emerge) or herbicide-tolerant soybeans (pre-plant, pre-emerge)	101 ml/ac (250 ml/ha)	134 ml/ac (332 ml/ha)	169 ml/ac (417 ml/ha)	200 ml/ac (493 ml/ha)	40 to 80
Post-harvest application	49 to 97 ml/ac (120 to 240 ml/ha)[6]				83 to 165
Early-season residual suppression[7]					
Herbicide-tolerant soybeans (early post-emerge)	73 ml/ac (180 ml/ha)				110
Chickpeas, dry field peas, potatoes, sunflowers	49 to 97 ml/ac (120 to 240 ml/ha)				83 to 165
Lentils	49 to 73 ml/ac (120 to 180 ml/ha)				110 to 165
Fall application					
Chickpeas, dry field peas, lentils	73 to 97 ml/ac (180 to 240 ml/ha)				83 to 110

[6] Application rates are for all soil types. Use the higher rate for longer residual and under heavier weed populations.
[7] When an in-crop application of another registered herbicide is planned.

Water volume

Ground application only — 40 L/ac (10 gal/ac)

Mixing order

Add products separately. Do not mix multiple products at the same time.

1. Use a 50 mesh filter screen and fill clean tank 1/2 to 3/4 full of water.
2. Add water conditioners if needed.
3. Add a **W**ettable powder or water dispersible granular (WG) tank-mix partner if applicable.
4. **A**gitate.[8]
5. Add a **M**icro-encapsulated (ME) tank-mix partner if applicable.
6. Add the required amount of Zidua SC.
7. Add a **L**iquid, solution or suspension tank-mix partner if applicable.
8. Add an **E**mulsifiable concentrate (EC) tank-mix partner if applicable.
9. Add **G**lyphosate if needed.
10. Add any **S**urfactants or adjuvants if required.
11. Fill the remainder of the tank with water. If the solution is left for an extended period of time, agitate once every 8 hours before spraying again.

Note: A detergent-based cleaning solution should be used before changing over to a different chemistry.

[8] Do not over-agitate at any point in the process.

Application tips

Restricted entry interval – 12 hours. Minimum seed depth is 2.5 cm for chickpeas, corn, field peas and lentils, and 4 cm for soybeans. A minimum of 2 inches of soil covering the vegetative portion of potato plants following drag-off or hilling is required. Zidua SC must be applied and activated by moisture prior to weed emergence. When adequate moisture is not received after Zidua SC application, weed control may be improved by irrigation (except flood irrigation). Do not use on peat or muck soils with 7% or more organic matter content. Do not apply more than 1 application of Zidua SC per season.

Grazing

Do not feed or graze treated hay or forage to livestock.

Tank mixes

Herbicides for field peas and lentils: Glyphosate[9,10], Heat® LQ[11], Voraxor®[11]
Herbicides for chickpeas: Glyphosate[9,10], Heat LQ[11]
Herbicides for corn: Aatrex® Liquid 480, Armezon®, glyphosate[9], Heat LQ[11]
Herbicides for soybeans: Engenia®, glyphosate[9], Heat LQ[11]
Herbicide for sunflowers: Glyphosate[9]
Herbicide for potatoes: Glyphosate
Herbicides for post-harvest application: Engenia, glyphosate[9]

[9] Glyphosate present as isopropylamine salt, di-ammonium salt or potassium salt.
[10] Can be applied in fall to lentils.
[11] Pre-seed or pre-emergence only.

Zidua® SC
Herbicide

Zidua® SC

Herbicide

SUPPORTED BY THE ADVANCED WEED CONTROL PROGRAM

late fall application

Zidua SC herbicide now available for late fall application before planting lentils next spring.

Get your spring weed cleanup started with Zidua® SC herbicide. When applied before ground freeze, a fall application of Zidua SC provides residual activity on key weeds next spring. Follow up with a spring pre-seed application of Voraxor® herbicide to give lentils a cleaner start to the growing season.

- Zidua SC is Group 15 chemistry that provides suppression of a broad spectrum of weeds, including broadleaf weeds resistant to Group 2, 4 and 9 and grassy weeds resistant to Group 1 and 2
- Provides residual suppression the following spring on key grassy and broadleaf weeds including cleavers, kochia, lamb's quarters, redroot pigweed, wild oat, and green and yellow foxtail
- Supported by the Advanced Weed Control Program when followed by Voraxor pre-seed and an eligible in-crop herbicide

See how fall-applied Zidua SC compares.

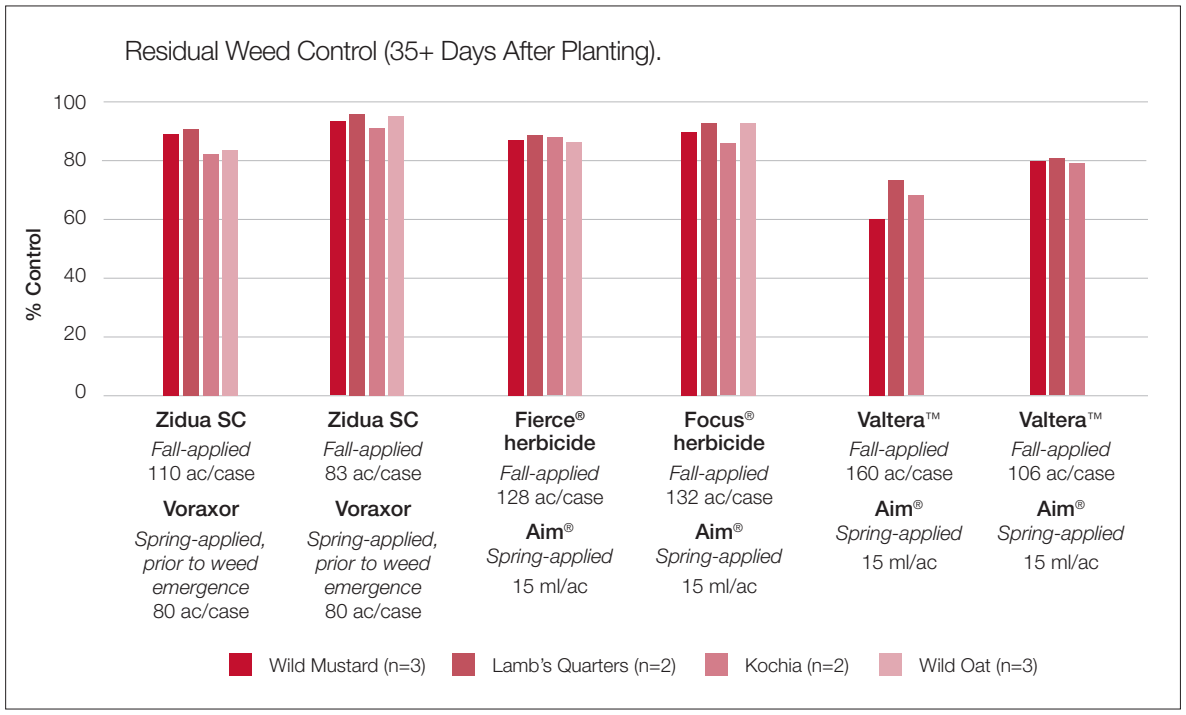
Untreated

Fall-applied Zidua SC followed by spring-applied Heat® LQ herbicide*

Fall-applied Valtera™ herbicide followed by spring-applied Aim® herbicide*

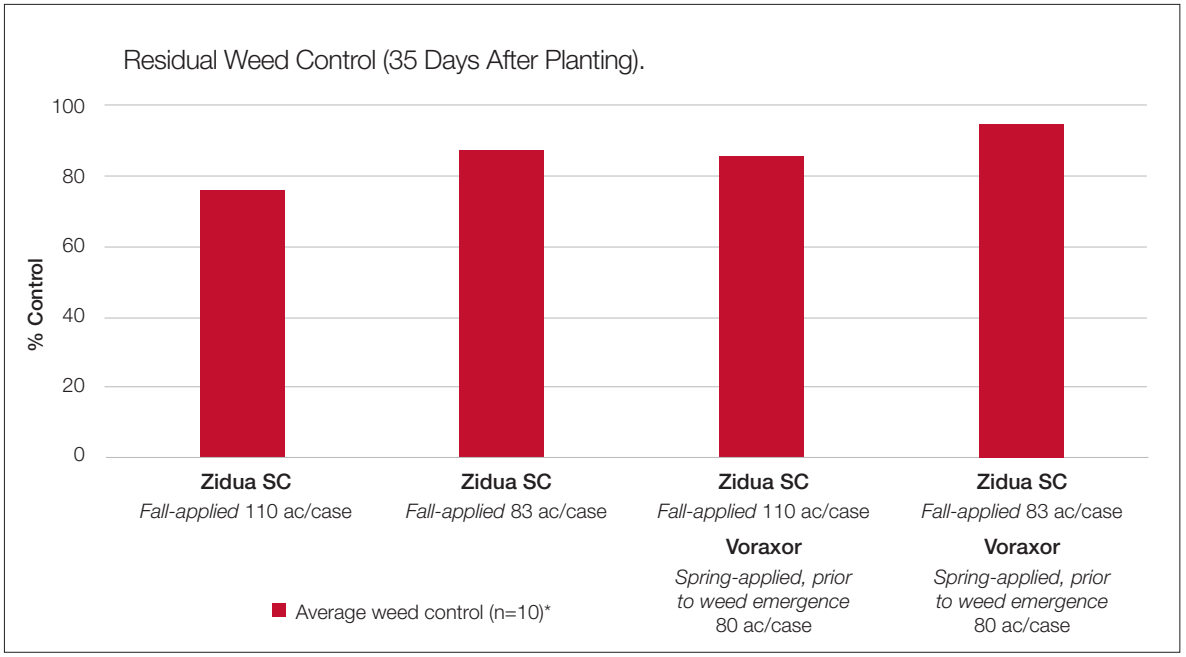
*Prior to weed and crop emergence
Source: BASF Small Plot Trials, Regina, SK, 2021

Combine fall Zidua SC with spring Voraxor for better weed control.



Residual activity on lamb's quarters, wild mustard, kochia and wild oat is based on fall application of Zidua SC prior to freeze up and spring application of Voraxor 0-3 days before seeding. Fall application of competitors is followed by Aim® in the spring.
Source: BASF Small Plot Trials, Lethbridge, AB and Vanscoy, SK, 2020-2021, n=10

Fall Zidua SC with spring Voraxor offers more consistent, broad-spectrum weed control.



*Lamb's quarters, kochia, wild oats and wild mustard

Note: 2021 was very dry during seeding in Lethbridge, AB and Vanscoy, SK locations, with less than optimal activation of all spring-applied treatments, where this data was collected.
Source: BASF Small Plot Trials, Lethbridge, AB and Vanscoy, SK, 2020-2021, n=10

Merge®

Surfactant

A blended surfactant designed for use with a wide range of BASF herbicides.

- Packaged separately for flexibility and handling convenience
- Merge® surfactant helps ensure maximum uptake of specific BASF herbicides into weeds
- Purchase and use only what is required, reducing storage, waste and disposal concerns

Active ingredients

Surfactant blend
and solvent

Formulation

Emulsifiable concentrate

One case contains

2 x 8.1 L jugs
Also available in 130 L shuttle

Storage

Requires heated storage.

Application rates

Merge is a requirement when using the BASF herbicides listed in the table below.

The amount of Merge applied depends on the herbicide and the water volume rates used. See the individual herbicide labels for more complete information.

The following table can serve as a guide for determining the approximate amount of Merge required.

	Acres/case herbicide	Merge requirement (at water volume of 40 L/ac (10 gal/ac))
Armezon® herbicide	160	0.5% v/v[1]
Certitude® herbicide	40	1 jug/40 ac[2] (incl. with herbicide)
Distinct® herbicide	40 to 80	1 jug/40 ac[3]
Facet® L herbicide	160	0.5% v/v[2]
Heat® LQ herbicide	30 to 80	1 jug/40 ac[3] (incl. with herbicide)
Heat Complete herbicide	30 to 80	1 jug/40 ac[3] (incl. with herbicide)
Odyssey® NXT herbicide	40	0.5% v/v[2] (incl. with herbicide)
Odyssey Ultra Q herbicide	40	0.5% v/v[2] (incl. with herbicide)
Poast® Ultra herbicide	80 to 120	1% v/v[2]
Smoulder® herbicide	80	1 jug/40 ac[3] (incl. with herbicide)
Voraxor® herbicide	30 to 80	1 jug/40 ac[3] (incl. with herbicide)
Voraxor Complete herbicide	40 to 80	1 jug/40 ac[3] (incl. with herbicide)

Mixing order

1. Thoroughly clean sprayer prior to use, using instructions of the previously used product.
2. Fill spray tank 1/2 full with clean water and start agitation system.
3. Add the required amount of herbicide.
4. If tank mixing herbicides, add the required amount of tank-mix partner.
5. Add the correct amount of Merge.
6. Complete filling with water and continue agitation.

[1] Merge can be added when tank mixed with glyphosate (not required).
[2] Merge is required at a rate that fluctuates with water volume used. At 40 L/ac (10 gal/ac), Merge would treat 40 acres.
[3] Merge is required at a standard rate regardless of herbicide and water rate used.

28% UAN

Liquid Fertilizer

Maximize performance of Viper® ADV herbicide with the addition of BASF 28% UAN.

- BASF 28% UAN helps the two active ingredients in Viper ADV work together to help ensure effective control of grasses and broadleaf weeds
- Addition of BASF 28% UAN increases spray droplet retention and herbicide absorption by weed foliage
- Sprayer grade, filtered to maximize sprayer performance

Active ingredient

Urea – Ammonium nitrate

Formulation

Water-based solution

One case contains

2 x 8.0 L jugs
Also available in 128 L shuttle

Storage

Requires heated storage.

Function

BASF 28% UAN is recommended for tank mixing with Viper ADV for effective control of grassy weeds in field and succulent peas, dry beans and soybeans.

Application rates

Two cases of BASF 28% UAN required for each case of Viper ADV.

One shuttle provides enough nitrogen for 4 cases of Viper ADV.

BASF 28% UAN[1]	809 ml/ac (2 L/ha)
Viper ADV[2,3]	404 ml/ac (1 L/ha)

Water volume

Ground application only	40 L/ac (10 gal/ac)

Mixing order

1. Add 3/4 of needed water.
2. Start agitation and continue agitation throughout mixing and spraying procedure.
3. Add the required amount of Viper ADV.
4. If tank mixing a herbicide, add the required amount of tank-mix partner.
5. Add the correct amount of BASF 28% UAN (recommended for grass control).
6. Complete filling with water and continue agitation.

Tank mixes

Herbicides for dry edible beans:

Viper ADV at 404 ml/ac (1 L/ha) and Basagran® Forte herbicide at 146 ml/ac (360 ml/ha) and BASF 28% UAN at 809 ml/ac (2 L/ha)

Herbicides for field peas:

Basagran Forte at 506 ml/ac (1.25 L/ha) and
BASF 28% UAN at 809 ml/ac (2 L/ha)

[1] For dry edible beans only.
[2] Viper ADV is purchased separately.
[3] For dry edible beans only. Viper ADV can be tank mixed with Basagran Forte to control additional weeds.

Clearfield® Production System for Lentils

BASF We create chemistry

High-performing genetics. Innovative solutions.

The **Clearfield®** Production System is a great way to grow lentils, combining excellent genetics across all major red and green lentil market classes. BASF has worked with the Crop Development Centre (CDC) to develop herbicide-tolerant varieties, leading to the release of CDC Impact and CDC Imperial, the first herbicide-tolerant lentil varieties on the market. Currently, there are 21 **Clearfield** varieties to choose from across all major lentil classes. These varieties are designed for maximum yield potential and quality with the option to choose from different height, maturity or disease resistance traits to suit your operation.

		Yield % CDC Maxim		Resistance to[1]:	
Market class	**Variety**	**Area 1 & 2**	**Area 3 & 4**	**Ascochyta blight**	**Anthracnose race 1**
Extra small red	CDC Imperial	84	79	MR	MR
	CDC Impala	84	82	MR	MR
Small red	CDC Maxim	100	100	MR	MR
	CDC Dazil	97	92	MR	I
	CDC Impulse	108	102	MR	MR
	CDC Nimble	108	107	MR	MR
	CDC Proclaim	106	102	MR	MR
	CDC Simmie	109	103	MR	MR
Large red	CDC KR-2	105	90	MR	MR
	CDC Sublime	118	109	MR	MR
	CDC Monarch	120	119	MR	MR
Small green	CDC Imvincible	94	81	MR	MR
	CDC Jimini	108	100	- -	- -
Medium green	CDC Impress	87	71	MR	S
Large green	CDC Grimm	94	82	MR	MR
	CDC Lima	93	88	MR	MR
	CDC Impower	82	68	MR	S
	CDC Improve	91	86	I	S
French green	CDC Peridot	84	91	I	MS
Spanish brown	CDC SB-3	90	87	I	MR
	CDC SB-4	103	101	I	MR

Source: Saskatchewan Seed Growers Association, Seed Guide 2024; Saskatchewan Pulse Growers

[1] Resistance ratings: R=Resistant; MR=Moderately Resistant; I=Intermediate Resistance; MS=Moderately Susceptible; S=Susceptible.

Grow a better future.

Our seed partners are dedicated to the integrity of the **Clearfield** trait and understand the demand for **Clearfield** lentil varieties to tackle the challenges of production. That's why a portion of BASF **Clearfield** herbicide sales are reinvested into the CDC breeding program to support ongoing research and development of new **Clearfield** lentil varieties. When you have your seed **Clearfield**-Confirm® tested annually and use a BASF **Clearfield** herbicide on your lentils, you invest in that research and development with the CDC. Plus, you get the benefits of the BASF Ag Rewards Program and helpful product support.

CDC breeding objectives:

- Improving disease resistance, with a focus on ascochyta, anthracnose and stemphylium blight
- Herbicide tolerance for improved weed management
- Higher yields for improved economic returns

Clearfield® Production System for Wheat

Clearfield® Plus Production System for Wheat

BASF We create chemistry

Combines top genetics with customizable weed control to help achieve the cleanest fields possible.

The **Clearfield®** Production System for wheat is the only herbicide-tolerant wheat system that delivers complete control of volunteer barley and cereal off-types. It features varieties with high yield potential, reduced lodging and disease resistance while providing a weed control solution specifically designed for use on **Clearfield** wheat.

Clearfield wheat varieties

- Top-yielding genetics from high-performance wheat varieties
- Herbicide-tolerant traits help you maximize weed control
- Choose from varieties bred for early maturity, short stature, good standability and resistance to fusarium head blight

Clearfield-Confirm testing

Prior to using your own farm-saved seed or selling it to others, you must first have it **Clearfield**-Confirm® tested. When you **Clearfield**-Confirm test annually and use a BASF herbicide on your wheat, you help ensure the integrity of the **Clearfield** trait. Plus, you reap the benefits of the BASF Ag Rewards Program and helpful program support.

Send samples to one of the SGS Canada Inc. seed labs below:
280 Portage Close, Unit 310, Sherwood Park, AB T8H 2R6 (1-800-952-5407)
10136128 Ave, Unit 106, Grand Prairie, AB T8V 4H3 (1-877-532-8889)

Clearfield Production System for wheat herbicide	
Altitude FX® 3 herbicide	Offers high-level control of grasses including volunteer barley and wild oats resistant to Group 1, plus your choice of tank-mix partner for customizable broadleaf weed control.

Compatible seed treatments	
Insure® Cereal FX4 seed treatment	Formulated with Xemium®, Insure Cereal FX4 combines four modes of action with **Plant Health Benefits**[1] to deliver effective broad-spectrum protection against seed- and soil-borne diseases.
Teraxxa® F4 seed treatment	In addition to offering four fungicide active ingredients for effective broad-spectrum protection against key seed- and soil-borne diseases, including fusarium, Teraxxa F4 is a proven cereal seed treatment that provides true wireworm control by breaking the lifecycle.

Compatible herbicides	
Distinct® herbicide	Complements glyphosate for effective chemfallow and post-harvest control of broadleaf weeds, including resistant biotypes.
Heat® LQ herbicide	Applied **pre-seed** or **pre-emergent** with glyphosate for rapid burndown of tough broadleaf weeds with residual activity (at higher rates) on key flushing weeds. Applied **pre-harvest** with glyphosate for fast, complete dry down of tough broadleaf weeds and improved harvest efficiency.
Smoulder® herbicide	Applied pre-seed for superior burndown control of resistant broadleaf weeds, including resistant biotypes of kochia (Group 2, 4 and 9).
Voraxor® herbicide	Applied pre-seed and pre-emergent for improved burndown with increased activity on most broadleaf weeds.

Compatible fungicides	
Nexicor® fungicide	Three modes of action with proven **Plant Health Benefits**[1] for broad-spectrum control of key cereal leaf diseases, including rust, septoria and tan spot.
Sphaerex® fungicide	Improved cereal head timing fungicide for management of late-season leaf diseases with enhanced protection for yield and grain quality.

[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.

Mixing order for tank mixes.

Ensure tank-mix compatibility by using the proper mixing order:

Wettable powders, flowable

Agitate, **A**nti-flowing compounds, buffers

Microcapsule suspension

Liquid and soluble

Emulsifiable concentrates

High load **G**lyphosates

Surfactants

Always remember:

W.A.M.L.E.G.S.

Always consult the label prior to mixing.

4830

BASF Fungicides

- Caramba®
- Cevya®
- Cotegra®
- Dyax®
- Forum®
- Lance®
- Nexicor®
- RevyPro®
- Sercadis®
- Serifel®
- Sphaerex®
- Veltyma®

Caramba®

Fungicide

Preventative protection against challenging leaf diseases and fusarium.

- Proven protection against fusarium
- Effective control of foliar diseases
- Reduces deoxynivalenol (DON) contamination to preserve grade quality

Active ingredient

Metconazole – Group 3

Formulation

Liquid

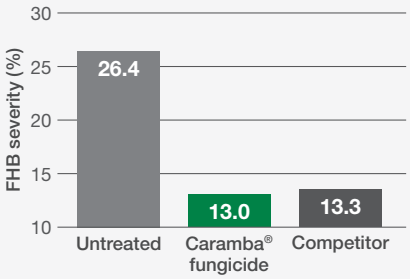
One case contains

2 x 8.1 L jugs
Also available in 128 L shuttle and 400 L tote

Storage

Requires heated storage.

Reduction in fusarium head blight (FHB) severity in wheat



Source: Grower Applied Strip Trials, 2010-2017, n=42

Crops

Crops	Staging
Barley	full head emergence to 3 days after full emergence[1]
Corn (field, sweet, pop, seed types)	full silking to silk browning[2]
Oats	20% flower[1,3]
Rye	20% flower[1,3]
Triticale	20% flower[1,3]
Wheat (all types incl. durum)	20% flower[1,3]

Diseases controlled

In barley.

Fusarium head blight (*Fusarium graminearum*)[4]
Leaf rust *(Puccinia hordei)*
Net blotch *(Pyrenophora teres)*
Powdery mildew (*Erysiphe graminis*)
Scald (*Rhynchosporium secalis*)
Spot blotch (*Cochliobolus sativus*)[4]
Stripe rust (*Puccinia striiformis*)

In corn (field, sweet, pop, seed types).

Fusarium ear rot (*Fusarium graminearum*)[4]
Gibberella ear rot (*Gibberella zeae*)[4]

In oats.

Crown rust *(Puccinia coronata)*
Fusarium head blight (*Fusarium graminearum*)[4]
Septoria leaf blotch *(Septoria avenae)*

In rye.

Fusarium head blight (*Fusarium graminearum*)[4]
Leaf rust *(Puccinia recondita)*
Powdery mildew (*Erysiphe graminis*)
Stripe rust (*Puccinia striiformis*)

In wheat (all types incl. durum) and triticale.

Fusarium head blight (*Fusarium graminearum*)[4,5]
Leaf rust *(Puccinia recondita)*
Powdery mildew (*Erysiphe graminis* f. sp. *tritici*)
Septoria glume blotch (*Stagonospora nodorum*)
Septoria leaf spot (*Septoria tritici* or *Stagonospora nodorum*)
Spot blotch (*Cochliobolus sativus*)[4]
Stem rust (*Puccinia graminis*)
Stripe rust (*Puccinia striiformis*)
Tan spot (*Pyrenophora tritici-repentis*)

[1] For suppression of fusarium head blight and leaf disease control at heading. For leaf disease control prior to heading, apply before the appearance of symptoms.
[2] This is BBCH stage GS 63-67.
[3] This is BBCH stage GS 61-63.
[4] Suppression only.
[5] Not suppressed or controlled in triticale. Wheat only.

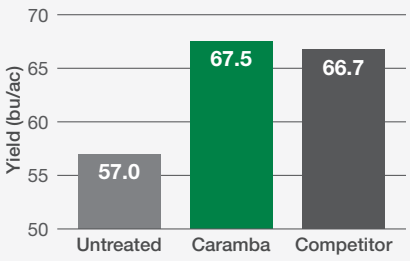
Fusarium head blight management with Caramba

Untreated

Caramba

Source: Grower Applied Strip Trials, AB, 2011

Increased wheat yield potential with Caramba



Source: Grower Applied Strip Trials, 2010-2017, n=55

Application rates

One case of Caramba treats 40 acres at the fusarium rate and 60 to 80 acres[6] at the cereal leaf disease rate. One shuttle treats 320 acres at the fusarium rate. One tote treats 1,000 acres at the fusarium rate.

For fusarium head blight, fusarium ear rot, gibberella ear rot	405 ml/ac (1 L/ha)
For cereal leaf diseases	202 to 283 ml/ac (500 to 700 ml/ha)[6]

Water volume

Ground application	40 L/ac (10 gal/ac)
Aerial application	20 L/ac (5 gal/ac)

[6] These rates should be used only for leaf disease control prior to heading. They are not recommended for applications targeting fusarium head blight, fusarium ear rot or gibberella ear rot.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of Caramba to the tank.
4. Continue agitation while filling the remainder of the spray tank.
5. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – 1 hour.

Caramba should be applied preventatively, prior to the onset of disease.

Avoid application when heavy rain is forecast.

Apply when conditions are favourable for disease development.

Pre-harvest interval

7 days after application for sweet corn (mechanical harvesting only).

18 days after application for sweet corn (hand harvesting only).

20 days after application for pop and field corn.

30 days after application for barley, oats, rye and wheat.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Caramba®
Fungicide

Cevya®

Revysol® Fungicide

Cevya® fungicide is powered by Revysol® to provide fast, systemic, continuous pre- and post-infection control of key diseases.

- Fast and continuous control of key diseases in potatoes
- Preventative and post-infection control
- Unique, new binding activity to control biotypes that may have developed resistance to other Group 3, 7, 9 and 11 fungicides
- Timing and tank-mix flexibility to adapt to the season's needs

Active ingredient

Mefentrifluconazole – Group 3

Formulation

Suspension concentrate

One case contains

2 x 4 L jugs

Storage

Requires heated storage.

Crops

Potatoes

Timing

7 to 14 day application interval

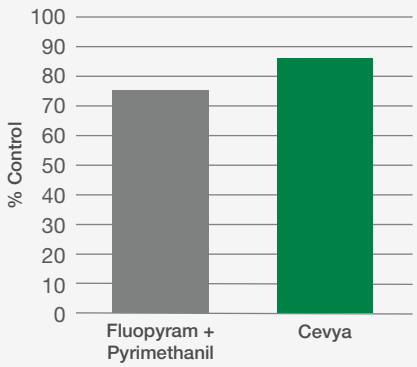
Cevya should be used preventatively.

Diseases controlled

In potatoes.

Early blight *(Alternaria solani)*
Black dot *(Colletotrichum coccodes)*[1]
Brown spot *(Alternaria alternata)*[1]

Early blight control



Source: BASF Small Plot Trials, 2016-2018, n=3

[1] Suppression.

Application rates

One case of Cevya will treat 32 to 42 ha (80 to 104 acres).

Potatoes	0.19 to 0.25 L/ha (0.075 to 0.1 L/ac)

Under high disease pressure and during rapid growth, use the higher rate and shorter spray interval.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of Cevya to the tank.
4. Add the required amount of tank-mix partner, if applicable.
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness - 1 hour.
Restricted entry interval - 12 hours.
Resistance management - Cevya is an excellent resistance management tool to include in an IPM program. It can be used in combination or rotation with other chemistries to prevent the development of resistant strains. To limit the potential for development of resistance, rotate the use of Cevya or other Group 3 fungicides with different groups that control the same pathogens.

Pre-harvest interval

7 days.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Cevya®
Revysol® Fungicide

Cotegra®

Fungicide

The standard for sclerotinia management in canola.

- Combines two leading active ingredients in a convenient liquid premix
- Provides yield protection from sclerotinia or white mold in canola, field peas, lentils, chickpeas, soybeans and dry beans

Active ingredients

Boscalid – Group 7
Prothioconazole – Group 3

Formulation

Suspension concentrate (SC) liquid premix

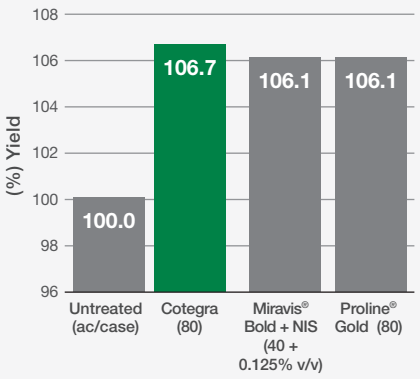
One case contains

2 x 9.8 L jugs

Storage

Requires heated storage.

Canola yield protection from sclerotinia



Source: Grower Applied Strip Trials, 2020-2022, n=14

Crops

Canola, oriental mustard, rapeseed	20 to 50% flowering
Chickpeas, field peas, lentils	beginning of flowering or at first sign of disease*
Dry beans[1]	20 to 50% flowering
Soybeans	prior to disease development (late R1/R2 to R3)

*If planned as a second application, apply 7-14 days after the first application, depending on weather conditions and disease severity.

Diseases managed

In canola, oriental mustard, rapeseed.
Sclerotinia stem rot *(Sclerotinia sclerotiorum)*[2]

In chickpeas.
Ascochyta blight (*Ascochyta rabiei*)[2]
Gray mold (*Botrytis cinerea*)[3]
White mold *(Sclerotinia sclerotiorum)*[3]

In dry beans.
White mold *(Sclerotinia sclerotiorum)*[3]

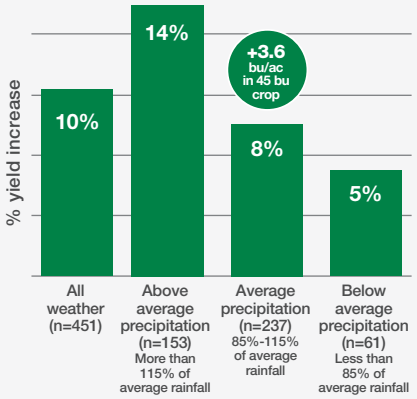
In field peas.
Ascochyta blight *(Ascochyta pinodes)*[4]
Mycosphaerella blight *(Mycosphaerella pinodes)*[4]
White mold *(Sclerotinia sclerotiorum)*[5]

In lentils.
Anthracnose *(Colletrotrichum lentis)*[4]
Gray mold (*Botrytis cinerea*)[5]
White mold *(Sclerotinia sclerotiorum)*[6]

In soybeans.
Asian soybean rust *(Phakopsora pachyrhizi)*[2]
Frog eye leaf spot *(Cercospora sojina)*[2]
Pod and stem blight (*Diaporthe phaseolorum*)[2]
Septoria brown spot *(Septoria glycines)*[3]
White mold *(Sclerotinia sclerotiorum)*[3]

[1] Dry beans include *Lupinus* spp. (grain lupin, sweet lupin, white lupin, white sweet lupin), *Phaseolus* spp. (field beans (dry common and coloured beans) such as kidney, black, cranberry, pink, navy bean, pinto bean, tepary bean, lima bean (dry)), *Vigna* spp. (adzuki bean, blackeyed pea, catjang, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, broad or faba bean (dry)).
[2] Control.
[3] Suppression.
[4] Suppression at the low rate of 80 ac/case (0.6 L/ha) and control at the high rate of 70 ac/case (0.7 L/ha).
[5] Suppression at the rate of 70 ac/case (0.7 L/ha).
[6] Control at the rate of 70 ac/case (0.7 L/ha).

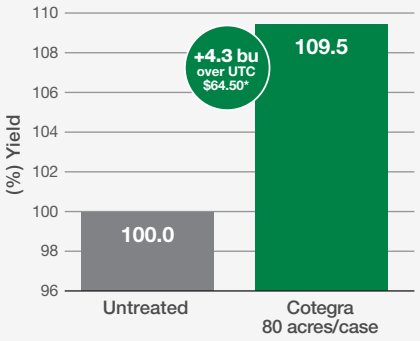
Sclerotinia fungicide return in canola across varying weather conditions[7]



Under average precipitation, a sclerotinia fungicide provides a 7.9% yield increase. In a 45-bushel canola crop, this is 3.6+ bushel/acre.

Source: BASF Small Plot Trials, 2007-2017, n=451

Cotegra performance on canola[7]



*Based on 45 bu/ac crop and $15/bushel canola prices.
Source: BASF Small Plot Trials, 2014-2017, 2019-2021, n=23

[7] Subject to sound agronomic practices and environmental conditions.

Application rates

One case of Cotegra® fungicide will treat 50 to 80 acres, depending on crop.

Canola, field peas, lentils, oriental mustard, rapeseed[8]	240 to 280 ml/ac (0.6 to 0.7 L/ha)
Chickpeas, soybeans	280 ml/ac (0.7 L/ha)
Dry beans	400 ml/ac (1 L/ha)

Water volume

Ground application[9]	40 L/ac (10 gal/ac) minimum
Aerial application	20 L/ac (5 gal/ac) minimum

[8] Use the high rate for canola, oriental mustard and rapeseed and the control of anthracnose on lentils if weather conditions are favourable for disease development (i.e. high humidity/moisture) and/or when risk for disease development is high (i.e. narrow host rotation with disease history and high potential for inoculum).
[9] Higher water volumes recommended for optimal coverage.

Mixing order

1. Fill the cleaned spray tank 1/2 full of water and start agitation.
2. Add the required amount of Cotegra to the tank.
3. Add the required amount of the tank mix partner, if required.
4. Continue agitation while filling the remainder of the spray tank.
5. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – Avoid applying when rain is forecast within 3 hours of application.

Pre-harvest interval

36 days after application for canola, oriental mustard and rapeseed.

21 days after application for chickpeas, dry beans, field peas, lentils and soybeans.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Cotegra®
Fungicide

Dyax®

Xemium® Fungicide

Designed for pulses with increased levels of Xemium® for improved disease control.

- Increased rate of Xemium provides more consistent and continuous disease control
- Broad-spectrum disease control
- Proven **Plant Health Benefits**[1] for increased growth efficiency, better management of minor stress and greater yield potential[2]

Active ingredients

Pyraclostrobin – Group 11
Fluxapyroxad – Group 7

Formulation

Suspension liquid premix

One case contains

2 x 9.6 L jugs

Storage

Requires heated storage.

Crops	Staging
Field peas	start of flowering or prior to row closure
Lentils	start of flowering or prior to row closure if second application is required, apply a fungicide containing an alternative mode of action
Chickpeas	at the onset of symptoms prior to row closure do not apply consecutive applications of Dyax® fungicide
Flax	20 to 50% flowering
Soybeans, faba beans, dry beans	start of flowering or at onset of symptoms

Note: If disease persists or weather conditions are favourable for disease development, make a second application 10 to 14 days later with a fungicide that contains an alternative mode of action.

Diseases managed

In field peas.
Mycosphaerella blight (*Mycosphaerella pinodes*), ascochyta blight (*Ascochyta pisi*), powdery mildew (*Erysiphe pisi*), Asian soybean rust (*Phakopsora pachyrhizi*) and suppression of white mold (*Sclerotinia sclerotiorum*)

In lentils.
Anthracnose (*Colletotrichum truncatum*), ascochyta blight (*Ascochyta lentis*) and suppression of white mold (*Sclerotinia sclerotiorum*)

In chickpeas.
Ascochyta blight (*Ascochyta rabiei*) and suppression of white mold (*Sclerotinia sclerotiorum*)

In flax.
Pasmo (*Septoria linicola*) and suppression of sclerotinia stem rot (*Sclerotinia sclerotiorum*)

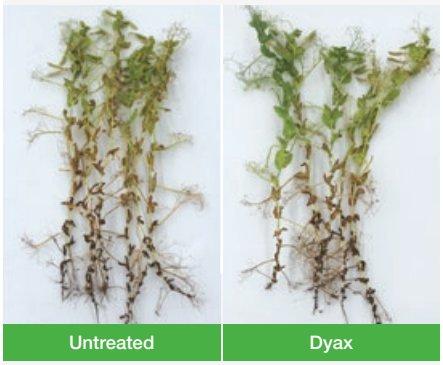
In faba beans.
Asian soybean rust (*Phakopsora pachyrhizi*), suppression of ascochyta blight (*Ascochyta* spp.) and white mold (*Sclerotinia sclerotiorum*)

In soybeans.
Asian soybean rust (*Phakopsora pachyrhizi*), suppression of frog eye leaf spot (*Cercospora sojina*), septoria brown spot (*Septoria glycines*) and sclerotinia stem rot (*Sclerotinia sclerotiorum*)

In dry beans.
Rust (*Uromyces appendiculatus*), anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), powdery mildew (*Erysiphe* spp.) and suppression of white mold (*Sclerotinia sclerotiorum*)

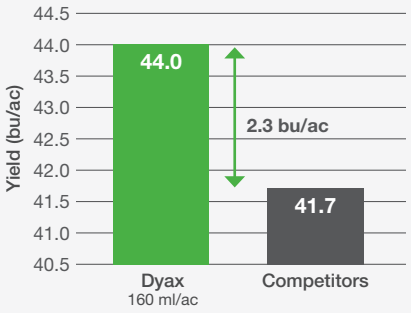
[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.
[2] All comparisons are to untreated, unless otherwise stated.

Dyax controls mycosphaerella blight in field peas



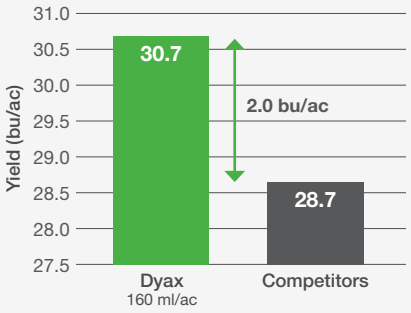
Source: Grower Applied Strip Trials, Drumheller, AB, 2011

Yield protection with Dyax on field peas[3]



Source: Grower Applied Strip Trials, 2017, n=6

Yield protection with Dyax on lentils[3]



Source: Grower Applied Strip Trials, 2017, n=7

[3] Subject to sound agronomic practices and environmental conditions.

Application rates

One case of Dyax will treat 120 to 160 acres, depending on rate.

Field peas, lentils, chickpeas, faba beans, flax, soybeans, dry beans[4]	120 to 160 ml/ac (300 to 400 ml/ha)

Water volume

Ground application	40 L/ac (10 gal/ac)
Aerial application	20 L/ac (5 gal/ac)

[4] To suppress white mold, apply Dyax at 240 to 320 ml/ac (600 to 800 ml/ha).

Mixing order

1. Fill the cleaned spray tank 1/2 full of water and start agitation.
2. Add the required amount of Dyax to the tank.
3. If tank mixing, add the required amount of the tank-mix partner.
4. Continue agitation while filling the remainder of the spray tank.
5. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – 1 hour.

Do not apply during periods of dead calm, gusty winds or conditions conducive to spray drift.

Do not apply more than 2 applications of any fungicide containing a Group 11 or Group 7 active ingredient per season.

Use at least the minimum water volume to ensure thorough coverage of the foliage.

Pre-harvest interval

21 days after application for soybeans and flax.

30 days after application for field peas, lentils, chickpeas, faba beans and dry beans.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Dyax®
Xemium® Fungicide

Forum®

Fungicide

Excellent activity on late blight in potatoes, both in the field and into storage.

- Highly systemic tank-mix partner for control of late blight in potatoes
- Antisporulant activity controls spores and stops the spread of disease
- Easy-to-use liquid formulation

Active ingredient

Dimethomorph – Group 40

Formulation

Suspension concentrate

One case contains

2 x 4.5 L jugs

Storage

Requires heated storage.

Crop[1]

Potatoes

Timing

5 to 10 day interval

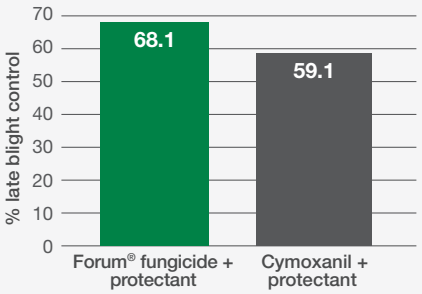
During periods of rapid growth or high disease pressure, use a shorter interval. See label for details.

Diseases controlled

Late blight (*Phytophthora infestans*)

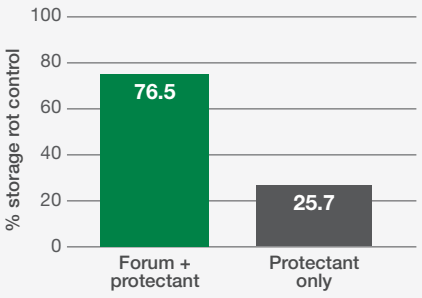
Suppression of tuber blight in storage (*Phytophthora infestans*)

Curative late blight control



Source: BASF Small Plot Trials, 2001-2006, n=17

Storage rot control with Forum and protectant applied pre-harvest



Source: BASF Small Plot Trials, 2001-2006, n=7

[1] Refer to label for additional crops.

Application rates

One case of Forum will treat 50 acres (20.2 ha).

Potatoes	182 ml/ac (450 ml/ha)

Always apply Forum in a tank mix with a fungicide from a different group that is effective on the target pathogen when such is permitted.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the tank 1/2 full of water and start agitation.
3. Add the required amount of Forum to the tank while agitating.
4. Add the required amount of fungicide tank mix partner to the tank.
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank according to label precautions.

Application tips

Apply a maximum of three applications per season.

Rainfastness – 2 hours.

Restricted entry interval – 12 hours.

Resistance management – In order to reduce the risk of developing fungicide resistance, Forum must be used in a tank mix with other fungicides effective against late blight.

Pre-harvest interval

4 days after application for potatoes.

Tank mixes

Fungicides: Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Forum®
Fungicide

Lance®

Fungicide

A proactive approach to disease control in a range of crops including canola, dry beans and lentils.

- Unique Group 7 with systemic activity
- Proven and consistent yield protection
- Cost-effective sclerotinia control relative to competitor sclerotinia control products

Active ingredient

Boscalid – Group 7

Formulation

Wettable granules

One case contains

2 x 2.83 kg jugs

Storage

Does not require heated storage.

Control of sclerotinia stem rot with Lance® fungicide

Untreated

Lance

Source: Grower Applied Strip Trials, AB, 2012

Crops

	Staging
Alfalfa (for seed production)	20 to 50% flowering
Canola, mustard	20 to 50% flowering[1]
Chickpeas, lentils	beginning of flowering
Dry beans[2]	20 to 50% flowering
Field peas	beginning of flowering
Potatoes	apply preventatively from tuber initiation through bulking
Succulent beans	20 to 50% flowering
Succulent peas	beginning of flowering
Sunflowers	early flower

Note: For most crops, applications can be repeated if conditions are conducive for disease development. See label for details.

Diseases controlled

In canola and mustard.
Alternaria black spot *(Alternaria brassicae* and *raphani)*[3]
Sclerotinia stem rot *(Sclerotinia sclerotiorum)*

In chickpeas and lentils.
Ascochyta blight (*Ascochyta* spp.)
Gray mold (*Botrytis cinerea)*
White mold (*Sclerotinia sclerotiorum*)

In dry beans.[2]
White mold (*Sclerotinia sclerotiorum)*

In field peas.
Ascochyta blight (*Ascochyta* spp.)
Gray mold (*Botrytis cinerea*)
Mycosphaerella blight (*Mycosphaerella* spp.)

In potatoes.
Early blight *(Alternaria solani*)

In succulent beans.
Gray mold (*Botrytis cinerea*)
White mold *(Sclerotinia sclerotiorum*)[4]

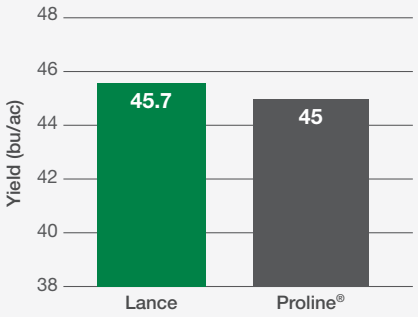
In succulent peas.
Ascochyta blight (*Ascochyta* spp.)
Mycosphaerella blight (*Mycosphaerella* spp.)
White mold (*Sclerotinia sclerotiorum*)[4]

In sunflowers.
Leaf spot (*Alternaria helianth*)[3]
Sclerotinia head rot (*Sclerotinia sclerotiorum*)[3]

In alfalfa.
Blossom blight (*Sclerotinia sclerotiorum* and *Botrytis cinerea*)
Common leaf spot (*Pseudopeziza medicaginis*)
Leaf spot (*Leptosphaerulina briosiani*)
Spring black stem (*Phoma medicagnis*)

[1] To control sclerotinia stem rot and suppress alternaria black spot. Apply at late flowering to early green pod to control alternaria black spot.
[2] Except for soybeans.
[3] Suppression.
[4] Control with higher rate 227 to 312 g/ac (560 to 770 g/ha).

Yield protection with Lance vs. Proline® fungicide on canola



Source: Grower Applied Strip Trials, 2008-2017, n=79

Yield protection with Lance

Source: Grower Applied Strip Trials, Moose Jaw, SK, 2012

Application rates

One case of Lance will treat 18 to 40 acres, depending on crop.

Canola[5], mustard[5]	142 g/ac (350 g/ha)
Chickpeas[6], field peas[7], lentils[6], alfalfa[5]	170 g/ac (420 g/ha)
Dry beans[5]	227 to 312 g/ac (560 to 770 g/ha)
Potatoes	71 to 127 g/ac (175 to 315 g/ha)
Succulent beans[7], succulent peas[7]	170, 230 to 312 g/ac (420, 560 to 770 g/ha)
Sunflowers[6]	142 to 259 g/ac (350 to 640 g/ha)

Water volume

Ground application	40 L/ac (10 gal/ac)
Aerial application	20 L/ac (5 gal/ac)

[5] Ground, aerial and pivot or sprinkler irrigation.
[6] Ground and aerial application only.
[7] Ground application only.

Mixing order

1. Fill the spray tank 1/2 full of water and start agitation.
2. Add the required amount of Lance to the tank.
3. If tank mixing, add the required amount of the tank-mix partner.
4. Continue agitation while filling the remainder of the spray tank.
5. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – 2 hours.

Lance should be applied preventatively, prior to the onset of disease.

Avoid application when heavy rain is forecast.

Apply when conditions are favourable for disease development.

Grazing

Do not graze or feed treated alfalfa to livestock.

Pre-harvest interval

7 days after application for succulent beans and succulent peas.

21 days after application for dry beans, canola, chickpeas, lentils, mustard, field peas and sunflowers.

30 days after application for potatoes.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

Lance®
Fungicide

Nexicor®

Xemium® Fungicide

For control of the toughest leaf diseases in cereals and blackleg in canola.

- Enhanced, broad-spectrum control of key cereal leaf diseases, including rust, septoria and tan spot
- Builds on proven **Plant Health Benefits**[1] to increase growth efficiency and help better manage minor stress, leading to greater yield potential[2]
- High-level control of blackleg in canola
- Combines three powerful modes of action, including the unique mobility of Xemium®, for more consistent and continuous control

Active ingredients

Propiconazole – Group 3
Fluxapyroxad – Group 7
Pyraclostrobin – Group 11

Formulation

Emulsifiable concentrate

One case contains

2 x 8.0 L jugs
Also available in 130 L shuttle

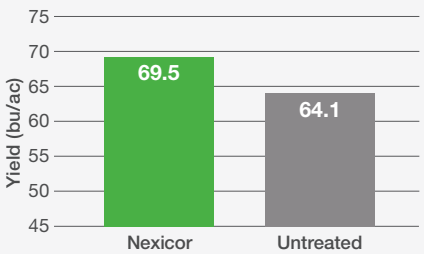
Storage

Requires heated storage.

A greener cereal crop with Nexicor® fungicide

Source: Grower Applied Strip Trials, Stenen, SK, 2017

Increased yield potential at high disease pressure in cereals



Source: Grower Applied Strip Trials, Western Canada, 2016, n=15

Crops

Barley, oats, rye, triticale, wheat (all types)

Canola

Staging

stem elongation to early head emergence[3]

2 to 6 leaf (rosette)

Diseases controlled

In barley.
Net blotch *(Pyrenophora teres)*
Scald *(Rhynchosporium secalis)*
Stripe rust *(Puccinia striiformis)*
Spot blotch *(Cochliobolus sativus)*

In canola.
Blackleg *(Leptosphaeria maculans)*

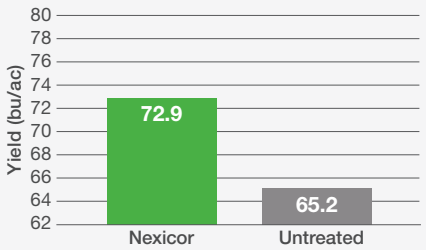
In oats.
Crown rust *(Puccinia coronata)*
Septoria leaf blotch *(Septoria avenae)*

In rye.
Leaf rust *(Puccinia recondita)*
Powdery mildew *(Erysiphe graminis* f. sp. *tritici)*

In wheat (all types) and triticale.
Leaf rust *(Puccinia recondita)*
Powdery mildew *(Erysiphe graminis* f. sp. *tritici)*
Septoria leaf spot *(Septoria tritici* or *Leptosphaeria nodorum)*
Stripe rust *(Puccinia striiformis)*
Spot blotch *(Cochliobolus sativus)*
Tan spot *(Pyrenophora tritici-repentis)*

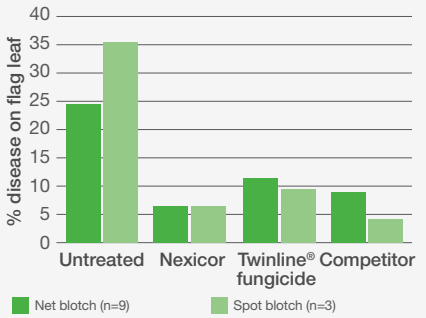
[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.
[2] All comparisons are to untreated, unless otherwise stated.
[3] While Nexicor can be applied between stem elongation and early head emergence (GS 31-55), research suggests that applying at flag-leaf (GS 37-39) helps maximize yield potential in cereals.

Increased yield potential at low disease pressure in cereals



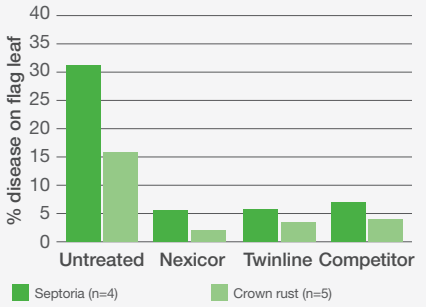
Source: Grower Applied Strip Trials, Western Canada, 2017, n=13

Effective control of diseases in barley



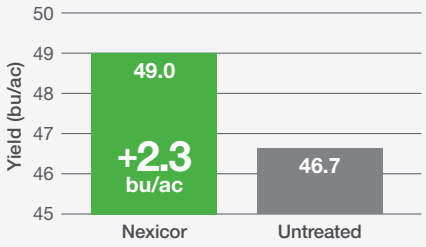
Source: BASF Small Plot Trials, Western Canada, 2015-2016

Effective control of diseases in oats



Source: BASF Small Plot Trials, Western Canada, 2015-2016

Increased early-season disease control in canada



Source: Grower Applied Strip Trials, Western Canada, 2016-2017, n=32

Application rates

One case of Nexicor treats 80 acres.
One shuttle treats 640 acres.

Barley, canola, oats, rye, triticale, wheat	202 ml/ac (500 ml/ha)

Water volume

Ground application	40 L/ac (10 gal/ac)
Aerial application	20 L/ac (5 gal/ac)

Mixing order

1. Fill the spray tank 1/2 full of water and start agitation.
2. Add the required amount of Nexicor to the tank.
3. If tank mixing, add the required amount of the tank-mix partner.
4. Continue agitation while filling the remainder of the spray tank.

Application tips

Rainfastness – 1 hour.

Nexicor can be applied from stem elongation (GS 31) until early head emergence (GS 55) in cereals. For best results, apply prior to disease development or at the onset of symptoms. For optimal disease control and **Plant Health Benefits**[1], apply at flag leaf.[3]

Do not apply during periods of dead calm, gusty winds or conditions conducive to spray drift. Use the minimum water volumes and ensure thorough coverage of foliage.

For cereals, do not apply more than two applications of any fungicide containing a Group 11 or Group 7 active ingredient per season.

For canola, do not follow up with a Group 11 fungicide as the first subsequent fungicide treatment if additional applications are required.

Pre-harvest interval

30 days after application for canola.

45 days after application for barley, oats, rye, triticale, wheat.

Tank mixes

Herbicides for canola: Ares®[4], Liberty®[5], glyphosate[6]

Herbicides for cereals: Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for additional information on supported tank mixes.

[4] For **Clearfield®** canola only.
[5] For glufosinate-tolerant canola varieties.
[6] For glyphosate-tolerant canola varieties.

Nexicor®
Xemium® Fungicide

NEW

RevyPro®

Fungicide

New and innovative pulse fungicide.

- Pulse fungicide designed and researched in Western Canada
- Proven performance on all major pulse diseases regardless of pathogen's Group 11 resistance status
- Effective on early- and late-season diseases to help improve yield across crops[1]
- Powered by the latest BASF technology, Revysol®, for broader, stronger and longer management of diseases

Active ingredients

Mefentrifluconazole – Group 3
Prothioconazole – Group 3

Formulation

Emulsifiable concentrate

One case contains

2 x 8.6 L jugs
Also available in 129.6 L drum

Storage

Requires heated storage.

Healthier lentil fields with RevyPro® fungicide*

Source: Grower Applied Strip Trials, Outlook, SK, 2022
*Subject to sound agronomic practices and environmental conditions.

Crops

Chickpeas, dry beans, faba beans, field peas and lentils

Staging

Apply at the beginning of flowering or at the onset of symptoms. If a second application is required, apply a fungicide containing an alternative mode of action 10 to 14 days after first application.

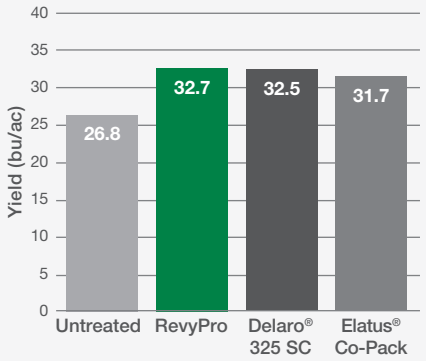
Diseases controlled

In chickpeas, dry beans, faba beans, fields peas and lentils.

Anthracnose (*Colletotrichum lentis, C. lindemuthianum*)[2,3]
Ascochyta blight (*Ascochyta* spp.)[3]
Gray mold/Chocolate spot (*Botrytis cinerea*)[4]
Mycosphaerella blight (*Mycosphaerella pinodes*)[5]
Powdery mildew (*Erysiphe pisi*)[4]
White mold (*Sclerotinia sclerotiorum*)[6]

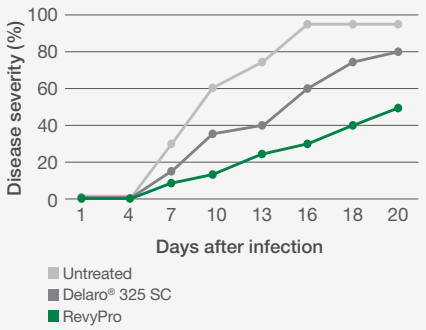
[1] BASF Small Plot Trials, Saskatchewan, 2020.
[2] In lentils and dry beans only.
[3] Including populations resistant to Group 11 chemistry.
[4] Suppression.
[5] In field peas only.
[6] Control in lentils, field peas, chickpeas and faba beans; suppression in dry beans.

Yield protection in lentils with RevyPro



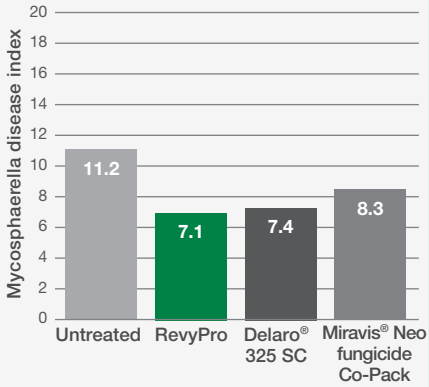
Source: Grower Applied Strip Trials, AB & SK, 2022, n=12

Revysol provides long-lasting protection
Anthracnose disease severity in timelapse trial



Application at flowering in lentils.
Source: BASF Greenhouse Trials, Saskatchewan, 2023

Mycosphaerella blight control in field peas



Source: Grower Applied Strip Trials, AB, SK & MB, 2022, n=24

Application rates

One case of RevyPro treats 40 acres. One drum treats 320 acres.

In chickpeas, dry beans, faba beans, fields peas and lentils	405 ml/ac (1.0 L/ha)

Water volume

Ground application	10 gal/ac (100 L/ha)
Aerial application	5 gal/ac (50 L/ha)

Mixing order

1. Ensure the spray tank is clean before use. Follow the clean-out recommendations stated on the label of the product that was previously used.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of RevyPro to the tank.
4. Add the required amount of the tank-mix partner (if applicable).
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – Do not apply when heavy rain is forecast.

Restricted entry interval – 12 hours.
Use at least the minimum water volumes to ensure thorough coverage of foliage. See guidelines above.

Pre-harvest interval

21 days after application for all labelled crops.

Tank mixes

Refer to label.

Contact **AgSolutions®** Customer Care or your local BASF **AgSolutions** Grower or Retail Representative for additional information on supported tank mixes.

RevyPro®
Fungicide

Sercadis®

Xemium® Fungicide

Consistent, continuous control of key diseases.

- Control of early blight, white mold and rhizoctonia canker
- Highly systemic activity helps protect new growth
- Timing and tank-mix flexibility to adapt to the season's needs

Active ingredient

Fluxapyroxad – Group 7

Formulation

Suspension

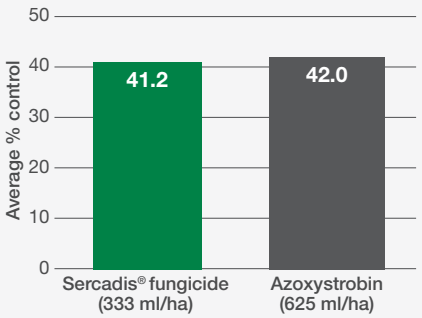
One case contains

2 x 4.05 L jugs

Storage

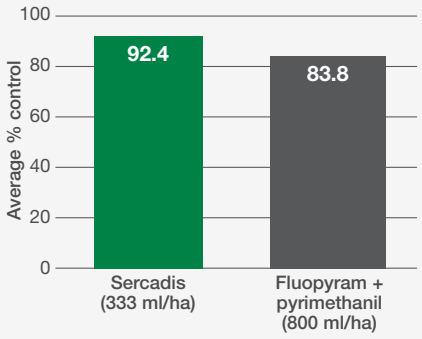
Requires heated storage.

Rhizoctonia black scurf control



Source: BASF Small Plot Trials, 2010, n=2

White mold control



Source: BASF Small Plot Trials, Oregon, USA, 2010, n=1

Crop[1]	Timing
Potatoes	
For rhizoctonia canker (soil-borne)	at planting (in-furrow spray)
For early blight	preventatively, from tuber initiation to row close as part of a regular early blight control program
For white mold	begin applications at flowering when there is a risk of disease

Diseases controlled

Early blight (*Alternaria solani*)

Rhizoctonia canker (*Rhizoctonia* spp.)[2]

White mold (*Sclerotinia sclerotiorum*)

[1] Refer to label for additional crops.

[2] When applied in furrow.

Application rates

One case of Sercadis will treat 60 to 120 acres, depending on rate.

For early blight	67 to 135 ml/ac (167 to 333 ml/ha)
For rhizoctonia canker[2], white mold	135 ml/ac (333 ml/ha)

For control of rhizoctonia, apply in-furrow spray by uniformly covering seed pieces and surrounding soil. Spray pattern should be a 10 to 20 cm (4" to 8") band that is applied to the seed piece prior to being covered with soil.

Product rate (ml per 1000 metres of row)

81 cm (32") rows	86 cm (34") rows	91 cm (36") rows	96.5 cm (38") rows	101 cm (40") rows
26 ml	28 ml	30 ml	32 ml	34 ml

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the tank 1/2 full of water and start agitation.
3. Add the required amount of Sercadis to the tank.
4. Add the required amount of tank-mix partner, if applicable.
5. Add the recommended amount of adjuvant, if applicable.
6. Continue agitation while filling the remainder of the spray tank.
7. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – 1 hour.

Restricted entry interval – 12 hours.

Resistance management – Tank mix with a non-Group 7 fungicide when such use is permitted. Do not apply more than two sequential applications of Sercadis before alternating to a fungicide with a different mode of action that controls the same pathogens.

Use of a non-ionic surfactant at 0.125% v/v is recommended.

Pre-harvest interval

7 days after application for potatoes.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Sercadis®
Xemium® Fungicide

Serifel®

Fungicide

An innovative biological fungicide with multiple modes of action that forms a shield of protection on plants' surfaces to protect against disease.

- Highly effective, biological fungicide that targets early blight and rhizoctonia in potatoes
- Complements chemistry-based solutions, with multiple unique modes of action, to form a protective shield against disease
- Zero PHI, 4-hour REI and 36-month shelf life offer new flexibility and choice to address potato production challenges
- Sets the standard for purity, performance and quality

Active ingredient

Bacillus amyloliquefaciens
strain MBI 600 – Group BM02

Formulation

Wettable powder

One pack contains

4 x 2 kg jugs

Storage

Requires heated storage.

Crops

Potatoes

Staging

7 to 10 day application interval

Serifel® fungicide must be used preventatively.
Maximum application rates and shorter spray intervals are recommended when conditions favour high disease pressure.

Diseases suppressed

Early blight (*Alternaria solani*)
Rhizoctonia stem canker/black scurf (*Rhizoctonia solani*)[1,2]

[1] In-furrow.
[2] Partial suppression.

Application rate

One jug of Serifel will treat 4 to 8 ha (10 to 20 acres).

Potatoes (foliar) 0.25 to 0.5 kg/ha (0.1 to 0.2 kg/ac)

Potatoes (in-furrow)[3]

Product Rate (kg/ha)	Product Rate (kg per 1000 metres of row)				
	81 cm (32”) rows	86 cm (34”) rows	91 cm (36”) rows	96.5 cm (38”) rows	101 cm (40”) rows
0.25 to 0.5	0.020 to 0.041	0.022 to 0.043	0.023 to 0.046	0.024 to 0.048	0.025 to 0.051

[3] Consult label for in-furrow use instructions.

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 3/4 full of water and start agitation.
   a. The pH of the spray solution should be between 4 and 9.
3. Before adding Serifel to the spray tank, create a pre-slurry by mixing the required amount of Serifel with water in a bucket.
4. With the spray tank agitation system running, add the Serifel pre-slurry to the spray tank.
5. Add the required amount of tank-mix partner, if applicable.
6. Add the recommended amount of adjuvant, if applicable.
7. Continue agitation while filling the remainder of the spray tank, throughout mixing and application.
8. The spray mixture should be applied shortly after mixing. Do not allow the spray mixture to sit overnight.
9. After use, clean the spray tank according to label precautions.

The product mixture should be applied shortly after mixing. DO NOT store mixed suspensions of Serifel overnight.

Application tips

Rainfastness – 3 hours.

Restricted entry interval – 4 hours or until sprays have dried.

Resistance management – Serifel is an excellent resistance management tool to include in an IPM program. It can be used in combination or rotation with other chemistries to prevent the development of resistant strains.

Pre-harvest interval

0 days for all labelled crops.

Tank mixes and additives

BASF supported tank-mix partners include:

- Apogee® plant growth regulator
- Cabrio® fungicide
- Cantus® fungicide
- Kumulus® fungicide
- Sercadis® fungicide
- Abamectin
- Acetamiprid
- Azoxystrobin
- Chlorantraniliprole
- Copper hydroxide
- Copper oxychloride
- Copper sulfate
- Cyprodinil
- Difenoconazole
- Dinutefuron
- Fenhexamid
- Fludioxonil
- Fluopyram
- Imidacloprid
- Non-ionic surfactant
- Organosilicone surfactant
- Paraffinic oil
- Pyrimethanil
- Spinosad
- Spirotetramat
- Trifloxystrobin

For other information concerning additives and supported tank mixes, contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273).

Serifel®
Fungicide

Sphaerex®

Fungicide

The improved cereal fungicide.

- Helps improve yield and protects grain quality
- Best-in-class fusarium head blight (FHB) efficacy to drive improved quality management
- Sphaerex® fungicide provides management of leaf diseases in barley, oats, rye, triticale and wheat
- Flexible use pattern for a diversity of situations

Active ingredients

Metconazole – Group 3
Prothioconazole – Group 3

Formulation

Emulsifiable concentrate

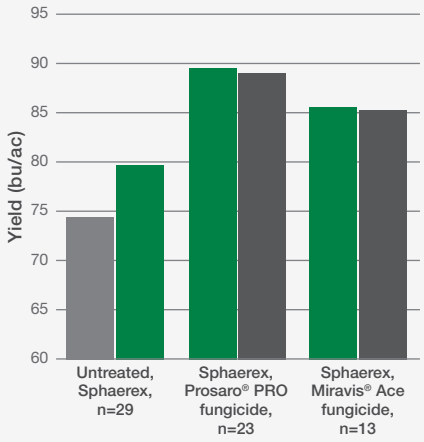
One case contains

2 x 8.65 L jugs
Also available in 138.24 L drum

Storage

Requires heated storage.

Higher yield potential with Sphaerex on wheat



Source: Grower Applied Strip Trials, AB, SK & MB, 2023

Crops

	Staging
Barley	75% spike emergence to 3 days after full emergence[1]
Oats	early panicle to flowering[2]
Rye, triticale	anthesis stage[3]
Wheat (durum, spring, winter)	75% head emergence to end of flowering[4]

Diseases controlled

In barley.
Ergot (*Claviceps purpurea*)[5], fusarium head blight (*Fusarium graminearum*)[1], leaf rust (*Puccinia hordei*), net blotch (*Pyrenophora teres*), powdery mildew (*Erysiphe graminis*), scald (*Rhynchosporium secalis*), spot blotch (*Cochliobolus sativus*)[6], stripe rust (*Puccinia striiformis*)

In oats.
Crown rust (*Puccinia coronata*), ergot (*Claviceps purpurea*)[5], fusarium head blight (*Fusarium graminearum*)[2], stagonospora (septoria) leaf blotch and black stem (*Stagonospora avenae syn. Septoria avenae*)

In rye and triticale.
Ergot (*Claviceps purpurea*)[5], fusarium head blight (*Fusarium graminearum*)[3], leaf rust (*Puccinia recondita*), powdery mildew (*Erysiphe graminis*), stripe rust (*Puccinia striiformis*)

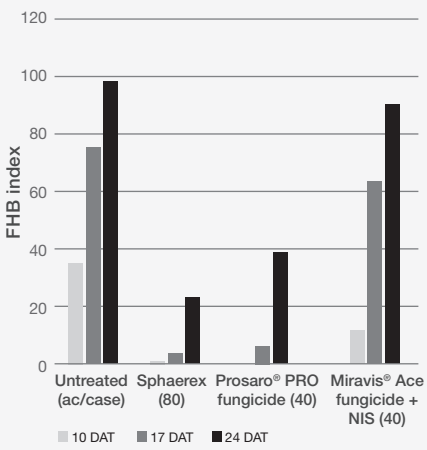
In wheat (all types incl. durum wheat).
Ergot (*Claviceps purpurea*)[5], fusarium head blight (*Fusarium graminearum*)[4], leaf rust (*Puccinia recondita*), powdery mildew (*Erysiphe graminis* f. sp. *tritici*), septoria/stagonospora leaf blotch (*Septoria tritici* or *Stagonospora nodorum*), spot blotch (*Cochliobolus sativus*)[6], stem rust (*Puccinia graminis*), stripe rust (*Puccinia striiformis*), tan spot (*Pyrenophora tritici-repentis*)

Increased FHB efficacy with Sphaerex

Source: BASF Greenhouse Trials, SK, 2022, 15 days after disease inoculation at anthesis, 18 days after fungicide application

[1] For suppression of FHB, apply when 75-100% of main stem barley spikes are emerged until 3 days after.
[2] For suppression of FHB, apply at anthesis stage or at early panicle stage when anthers are yellow to white.
[3] For suppression of FHB, apply at early heading stage when anthers are yellow to white.
[4] For suppression of FHB, apply Sphaerex as a preventative application, beginning when at least 75% of mainstem wheat heads are fully emerged until anthesis stage (Growth Stage (GS) 61-69), early heading stage when anthers are yellow to white. Optimal timing is at anthesis, or until 50% flower.
[5] Suppression at the 80 ac/case rate (0.53 L/ha).
[6] For suppression of spot blotch only.

Best-in-class FHB management



Source: BASF Greenhouse Trials, 2021, n=1

Application rates

One case of Sphaerex treats 80 to 108 acres. One drum treats 640 to 864 acres.

Barley, oats, rye, triticale, wheat (all types)	160 to 216 ml/ac (0.4 to 0.53 L/ha)

Water volume

Ground application	40 L/ac (10 gal/ac)
Aerial application[7]	20 L/ac (5 gal/ac)

Mixing order

1. Ensure the spray tank is clean before use.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of Sphaerex to the tank.
4. Continue agitation while filling the remainder of the spray tank with water.
5. After use, clean the spray tank according to label precautions.

Application tips

Sphaerex should be applied preventively, prior to the onset of disease.

Avoid application when heavy rain is forecast.

Apply when conditions are favourable for disease development.

Restricted Entry Interval (REI) is 24 hours for all crops and activities.

All crops can be grazed or fed to livestock 30 days after application.

Do not apply Sphaerex beyond the anthesis stage (>GS 69) when kernels begin milk development stage (GS 70).

Do not make more than one application of Sphaerex per year.

Rotational crops: A plant-back interval of 35 days is required for all crops not listed on the label.

Pre-harvest interval

30 days after application for barley, oats, rye, triticale and wheat.

Tank mixes

Refer to label.

Contact **AgSolutions®** Customer Care or your local BASF **AgSolutions** Grower or Retail Representative for additional information on supported tank mixes.

[7] Aerial application can be lower than 20 L/ac (5 gal/ac) depending on target pathogen.

Sphaerex®
Fungicide

Veltyma®

Revysol® Fungicide

An optimal fungicide for protection against key foliar diseases in potatoes, including early blight, black dot and brown spot.

- Multiple modes of effective action on early blight, including enhanced performance provided by the unique binding activity of Revysol®
- Proven **Plant Health Benefits**[1] for increased growth efficiency, better management of minor stress and greater yield potential[2]
- Delivers preventative and post-infection activity
- Liquid formulation for optimized usability

Active ingredients

Mefentrifluconazole – Group 3
Pyraclostrobin– Group 11

Formulation

Suspension concentrate

One case contains

2 x 8.1 L jugs

Storage

Requires heated storage.

Increase in yield potential with Veltyma® fungicide

Source: Grower Applied Strip Trials, NB, 2021

Crop

Potatoes

Timing

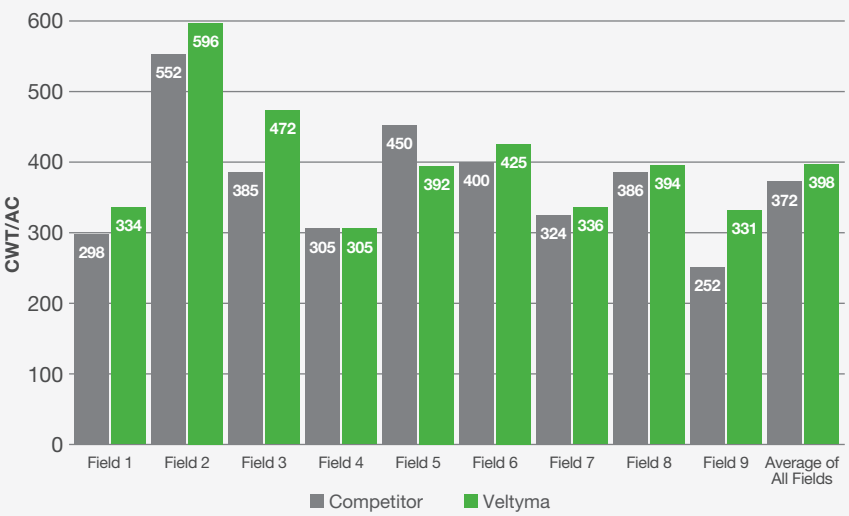
7 to 14 day application interval

Diseases controlled

In potatoes.

Black dot (*Colletotrichum coccodes*)
Brown spot (*Alternaria alternata*)[3]
Early blight (*Alternaria solani*)[4]

Potato yield compared to competitor



Source: Grower Applied Field Trials, PEI, NB, ON, AB, 2021-2022, n=9

[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.
[2] All comparisons are to untreated, unless otherwise stated.
[3] Suppression.
[4] Includes control of biotypes resistant to Group 11 chemistries.

Application rate

One case of Veltyma will treat 80 acres.

Potatoes	500 ml/ha (202 ml/ac)

Mixing order

1. Ensure the spray tank is clean before use. Follow the clean-out recommendations stated on the label of the product that was previously used.
2. Fill the spray tank 1/2 full of water and start agitation.
3. Add the required amount of Veltyma to the tank.
4. Add the required amount of the tank-mix partner (if required).
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank according to label precautions.

Application tips

Rainfastness – When product has dried on crop. Do not apply when heavy rain is forecast.

Restricted entry interval – 12 hours.

Resistance management – Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

Pre-harvest interval

7 days after application for potatoes.

Tank mixes

Refer to label.

Contact your local BASF **AgSolutions®** Grower or Retail Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273) for information on supported tank mixes.

Additional Resources

- Chickpea solutions
- Faba bean solutions
- Flax solutions
- Dry beans solutions
- Alfalfa solutions

Chickpea solutions.

Chickpeas

Brand	Timing	Rate	Notes
Insure® Pulse seed treatment	Apply prior to seeding.	300 ml/100 kg of seed	Thorough seed coverage helps to optimize protection from seed- and soil-borne diseases. Seed should be tested for germination, vigour and disease and well-cleaned prior to treatment to provide maximum coverage.
Nodulator® CP SCG inoculant	Apply directly in-furrow.	One bag will treat up to 10 acres	Unique solid core granular (SCG) formulation containing *Bradyrhizobium* sp. (*Cicer*), a highly efficient, more active strain of rhizobium specifically selected to perform on chickpeas.
Voraxor® Complete herbicide	Apply pre-seed or pre-emergence.	Voraxor 19.5 to 40.5 ml/ac + Zidua® SC herbicide 49 to 97 ml/ac	
Voraxor herbicide	Apply pre-seed or pre-emergence.	19.5 to 58 ml/ac	
Solo® ADV herbicide	Early post-emergence, 1 to 6 node of chickpea.	324 ml/ac	Solo ADV should only be applied on the following varieties: **CDC Alma (Kabuli)** **CDC Cory (Desi)**
Centurion® ADV herbicide	Post-emergence – apply to actively growing weeds.	154 ml/ac	Post-emergence application up to 9 node.
Dyax® fungicide	At the onset of symptoms or beginning of flowering.	160 ml/ac	Follow the BASF recommended sequence every 10 to 14 days (as disease conditions dictate): 1st pass: Dyax at early flower or prior to first disease symptoms. 2nd pass: RevyPro. 3rd pass: Cotegra.
RevyPro® fungicide	At the onset of symptoms or beginning of flowering.	405 ml/ac	
Cotegra® fungicide	Beginning of flowering or at first sign of disease.	280 ml/ac	
Heat® LQ pre-harvest herbicide	Apply when majority of plants are mature with only the upper part remaining green. Seed moisture is 30% or less. Majority of Desi type seeds are yellow/brown, and Kabuli type seeds are tan/white.	43 ml/ac	

Faba bean solutions.

Faba beans

Brand	Timing	Rate	Notes
Insure® Pulse seed treatment	Apply prior to seeding.	300 ml/100 kg of seed	Thorough seed coverage helps to optimize protection from seed- and soil-borne diseases. Seed should be tested for germination, vigour and disease and well-cleaned prior to treatment to provide maximum coverage.
Voraxor® Complete herbicide	Apply pre-seed or pre-emergence.	Voraxor 19.5 to 40.5 ml/ac + Zidua® SC herbicide 49 to 97 ml/ac	
Voraxor herbicide	Apply pre-seed or pre-emergence.	19.5 to 58 ml/ac	
Basagran® Forte herbicide	After 2 leaf.	700 to 900 ml/ac	Use larger water volumes for weeds at the upper limit of their recommended stage for treatment.
Odyssey® NXT herbicide	1 to 6 leaf.	17 g/ac	For flushing control on broadleaf weeds.
Viper® ADV herbicide	1 to 2 trifoliate leaf.	404 ml/ac	For multiple modes of action (MMOA) on broadleaf weeds.
Centurion® ADV herbicide	Post-emergence – apply to actively growing weeds.	154 ml/ac	
Dyax® fungicide	Start of flowering or at onset of symptoms.	160 ml/ac	To manage disease in faba beans, apply a fungicide at early- to mid-flower. BASF recommendations include Dyax, RevyPro, Lance and Cotegra fungicides. Apply RevyPro for control of ascochyta blight and suppression of gray mold/chocolate spot and white mold. Apply Dyax for control of Asian soybean rust and suppression of ascochyta blight with added **Plant Health Benefits**[1]. Apply RevyPro/Lance/Cotegra for late-season white mold management.
RevyPro® fungicide	Start of flowering or at onset of symptoms.	405 ml/ac	
Lance® fungicide	20 to 50% flowering.	227 to 312 g/ac	
Cotegra® fungicide	20 to 50% flowering.	400 ml/ac	
Heat® LQ pre-harvest herbicide	Apply when 80% of lower pods have turned black, middle pods have turned yellow/tan and top green pods have firm seed.	43 ml/ac	

[1] **Plant Health Benefits** refer to products that contain the active ingredient pyraclostrobin.

Flax solutions.

Flax

Brand	Timing	Rate	Notes
Insure® Pulse seed treatment	Apply prior to seeding.	300 to 600 ml/100 kg of seed	Use a higher rate of 600 ml/100 kg seed if: a) there is a history of high disease pressures in the field or b) where field conditions favour seed- and soil-borne pathogens. If using the 600 ml/100 kg rate, it is highly recommended that the seed be treated into a bin or grain truck box to allow the treated seed to dry prior to placing into the seeder hopper. This will prevent clumping and bridging in the seeder.
Basagran® Forte herbicide[1]	After 5 cm height.	700 to 900 ml/ac	The best option for in-crop management of cleavers.
Centurion® ADV herbicide	Post-emergence – apply to actively growing weeds.	154 ml/ac	
Dyax® fungicide	20 to 50% flowering.	120 to 160 ml/ac	If disease persists or weather conditions are favourable for disease development, make a second application 10 to 14 days later with a fungicide that contains an alternative mode of action. Apply Dyax for control of pasmo and suppression of sclerotinia stem rot.
Heat® LQ pre-harvest herbicide	Apply when 75% of bolls have turned colour.	43 ml/ac	Do not apply at more than 30% crop moisture.[2]

[1] Excluding low linolenic acid varieties.
[2] It is recommended to only apply Heat LQ as a standalone product not tank mixed with glyphosate.

Dry beans solutions.

Dry beans

Brand	Timing	Rate	Notes
Insure® Pulse seed treatment	Apply prior to seeding.	300 ml/100 kg of seed	Thorough seed coverage helps to optimize protection from seed- and soil-borne diseases. Seed should be tested for germination, vigour and disease and well-cleaned prior to treatment to provide maximum coverage.
Basagran® Forte herbicide	After 1st trifoliate.[1]	700 to 900 ml/ac	
Viper® ADV herbicide	1 to 2 trifoliate leaf.	404 ml/ac[1]	Viper ADV requires the addition of Basagran Forte in higher weed pressure situations (145 ml/ac or 360 ml/ha). Initial transient crop yellowing may be observed after application, but this is outgrown and should not affect yield. Refer to label for specific variety information. Addition of a nitrogen source (28% UAN) is also recommended.
Centurion® ADV herbicide	Post-emergence – apply to actively growing weeds.	154 ml/ac	
Lance® fungicide	20 to 50% flowering.	227 to 312 g/ac	Use Lance or Cotegra for management of white mold. A second application can be made 7 to 14 days later if disease persists. BASF recommends a rotation of fungicides for resistance management. Use Dyax for leaf diseases such as anthracnose, rust, powdery mildew and Asian soybean rust. For suppression of white mold, apply at a higher rate of 242 to 323 ml/ac. Use RevyPro for management of white mold[2] and leaf diseases such as anthracnose.
Cotegra® fungicide	20 to 50% flowering.	400 ml/ac	
Dyax® fungicide	Start of flowering or at onset of symptoms.	160 ml/ac	
RevyPro® fungicide	Start of flowering or at onset of symptoms.	405 ml/ac	
Heat® LQ pre-harvest herbicide	Apply when stems are green to brown, pods are mature (yellow, brown) and 80 to 90% of leaves have dropped.	43 ml/ac	Consult glyphosate label or your BASF **AgSolutions®** Grower or Retail Representative for information regarding use on specific varieties of dry common beans.

[1] Dry edible beans may vary in their tolerance to herbicides. See label for important notes specific to Basagran Forte and Viper ADV.
[2] Suppression only.

Alfalfa solutions.

Alfalfa

Brand	Timing	Rate	Notes
Basagran® Forte herbicide[1]	Seeding alfalfa: Tolerant after third trifoliate stage. Established alfalfa: Tolerant before crop canopy closes, prior to flowering.	700 to 900 ml/ac	
Viper® ADV herbicide	Early post-emergence. Seedling alfalfa: Tolerant after third trifoliate stage. For seedling alfalfa grown for seed, apply prior to bud formation. Established alfalfa: Tolerant before canopy closes, prior to flowering.	Viper ADV 40 ac/case + Basagran Forte 146 ml/ac (required for broad-spectrum control)	Do not graze treated alfalfa or cut for hay within 20 days of application.
Odyssey® NXT herbicide	Early post-emergence.	40 ac/case	For seed production only.
Sefina® insecticide	Emergence to harvest.	80 ac/case (81 ml/ac)	Control of labelled aphids throughout all life stages. Provides quick activity and extended control while also being low impact on beneficial insects, including predatory and parasitic insects.
Dyax® fungicide	10 to 30% bloom or at the onset of disease.	120 to 160 ml/ac[2]	For seed production only. For management of common leaf spot and blossom blight.

[1] Do not graze treated alfalfa or cut for hay within 20 days of application.
[2] No more than one application per year.

Always read and follow label directions.

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