

# INNOVATION. IT'S IN OUR ROOTS.

2019 Pulse Solutions Guide



 **BASF**

We create chemistry

# COUNT ON US FOR SOLUTIONS THAT FIT YOUR PULSE PRODUCTION.

There are many reasons to be proud of Canadian agriculture, starting with the industry's prioritization of high-quality pea and lentil production. As the market continues to evolve, BASF is committed to giving you the support you need to grow the best pulse crops possible. Whether you're looking for inoculants, seed treatments, herbicides or fungicides, we're ready to provide you with innovative crop solutions to fit the needs of your operation.

The expansion of our pulse crop portfolio is proof that we're behind you. With two new tools in the toolbox, your fight against weeds and herbicide resistance just got easier—and the hassle at harvest just got simpler.

The newest innovation for weed control and the cornerstone in the BASF Advanced Weed Control Program is Heat<sup>®</sup> Complete herbicide. It's the ultimate pre-seed burndown, providing extended residual activity on key grassy and broadleaf weeds.

You'll also discover Heat Harvest<sup>\*</sup> herbicide, an easy-to-use liquid formulation in bulk format with a pre-mixed adjuvant to make your pre-harvest application as efficient as possible.

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





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# Solutions for peas.

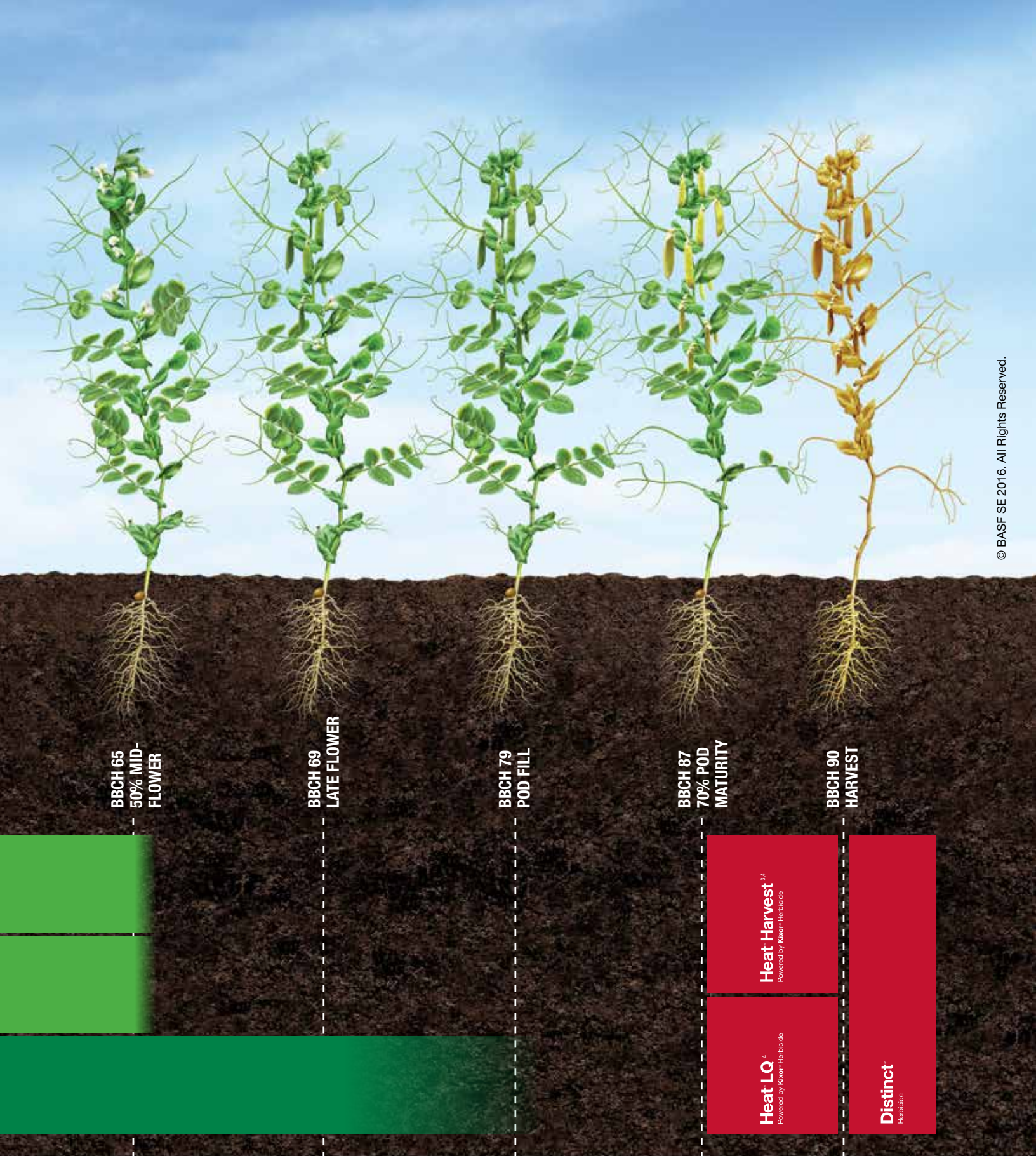


Staging graphics depicted here are for quick reference only. Refer to individual product pages and product labels for detailed staging information.

<sup>1</sup> For details on compatibility between seed treatments and inoculants, see the Pea Seed Applied Pesticide Compatibility Information document available on [agsolutions.ca](http://agsolutions.ca), call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) or contact your BASF Sales Representative.

<sup>2</sup> Registered for use only in the Prairie Provinces.



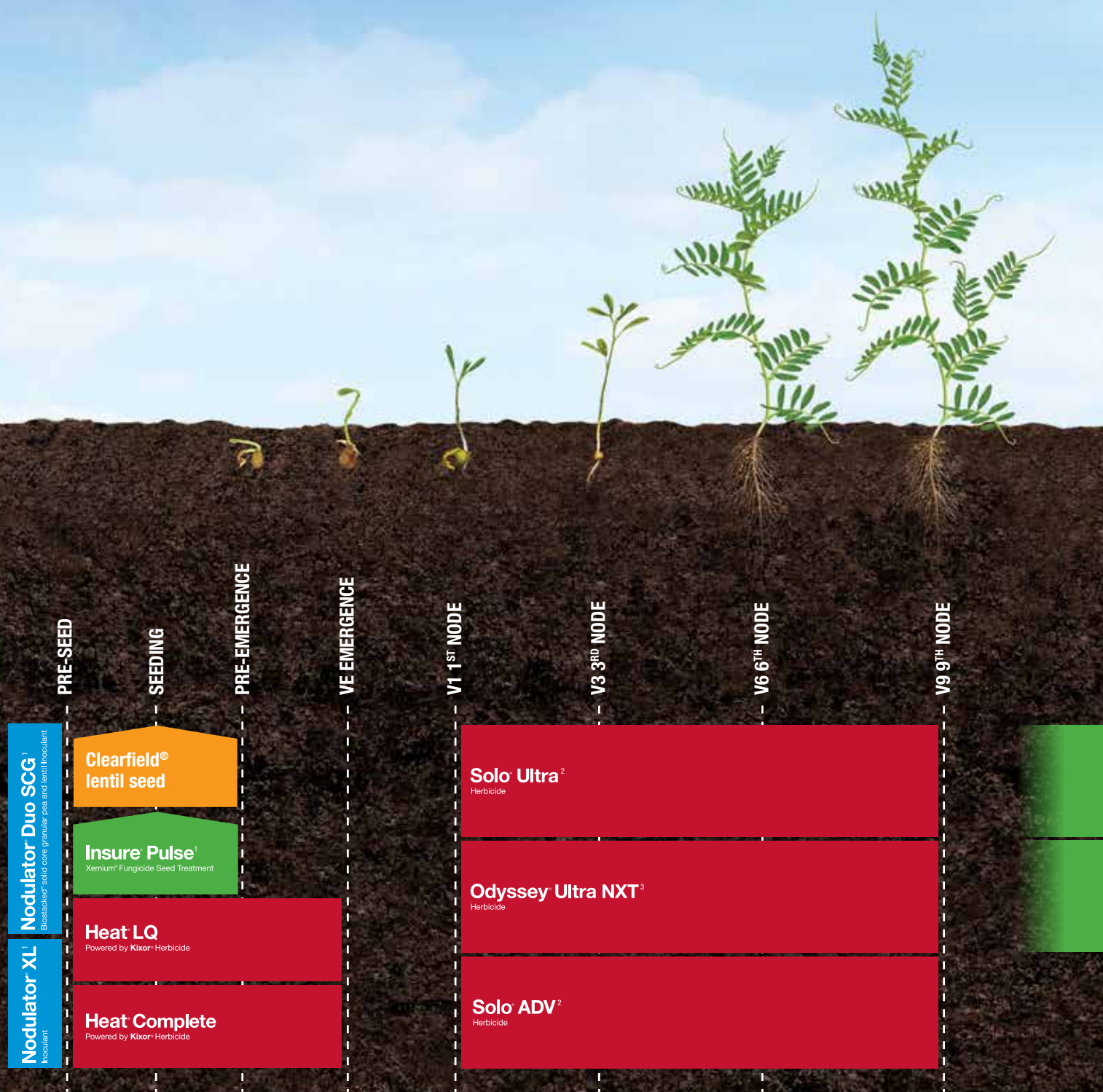


<sup>3</sup> Note: This product is currently being assessed for registration under the Pest Control Products Act. It cannot be manufactured, imported, distributed, or used in Canada at this time, unless explicit authorization has been obtained from Health Canada to use this product for the purpose of conducting research under the Pest Control Products Regulations.

<sup>4</sup> Apply when majority of pods are brown (70 to 80%).



# Solutions for lentils.



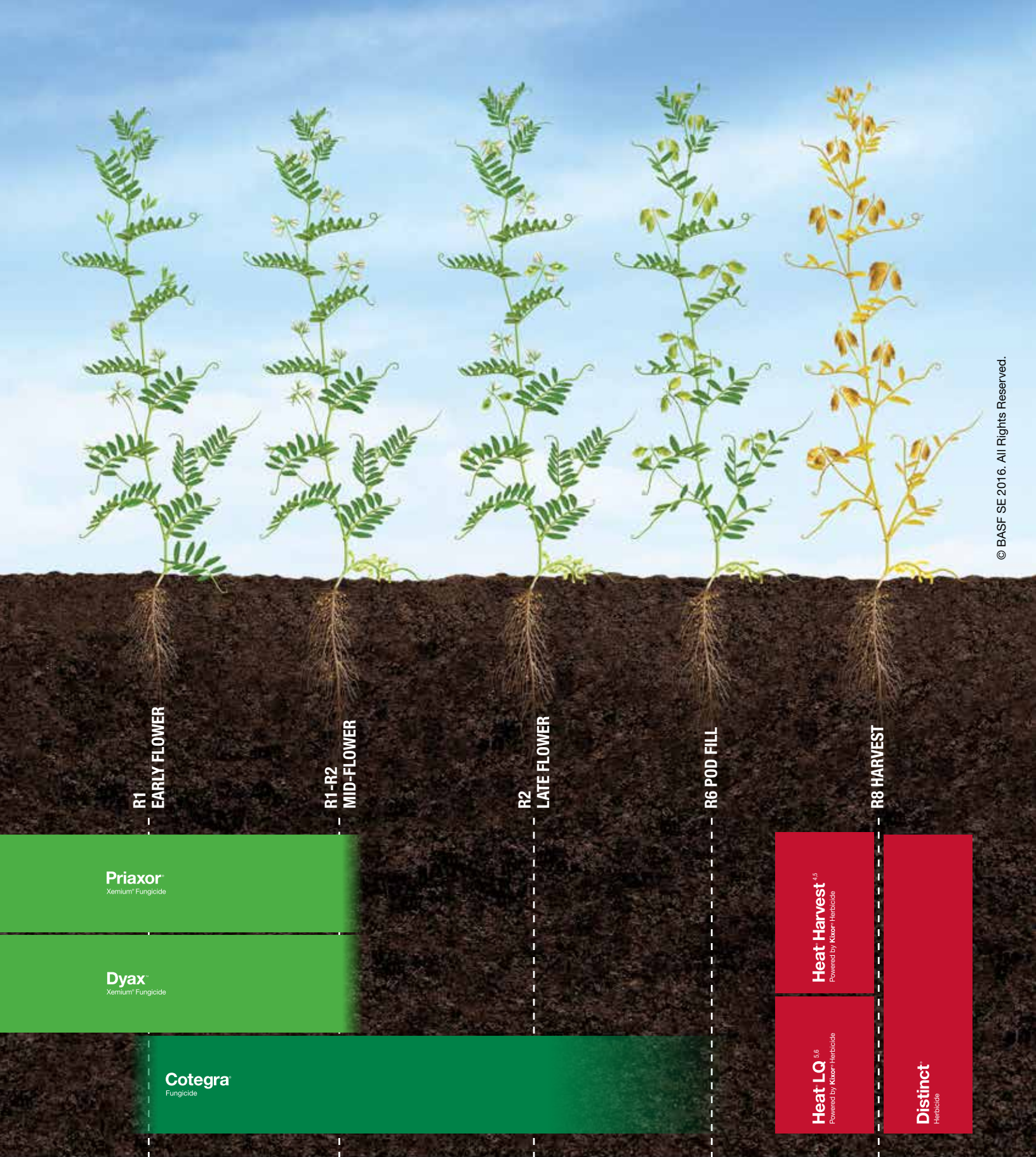
Staging graphics depicted here are for quick reference only. Refer to individual product pages and product labels for detailed staging information.

<sup>1</sup> For details on compatibility between seed treatments and inoculants, see the Lentil Seed Applied Pesticide Compatibility Information document available on [agsolutions.ca](http://agsolutions.ca), call AgSolutions Customer Care at 1-877-371-BASF (2273) or contact your BASF Sales Representative.

<sup>2</sup> Registered for use on Clearfield lentils in the Prairie Provinces and Peace River area of British Columbia only.

<sup>3</sup> Registered for use on Clearfield lentils and only in the Prairie Provinces.





<sup>4</sup> Note: This product is currently being assessed for registration under the Pest Control Products Act. It cannot be manufactured, imported, distributed, or used in Canada at this time, unless explicit authorization has been obtained from Health Canada to use this product for the purpose of conducting research under the Pest Control Products Regulations.

<sup>5</sup> Apply when bottom 15% of pods are mature and brown with ripened seeds.

<sup>6</sup> BASF supports the use of Heat LQ herbicide for pre-harvest for red lentils, however we are still in the process of aligning the Maximum Residue Limit (MRL) in the European Union with other trade jurisdictions. Note: 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.



A close-up photograph of a garden bed. In the foreground, there are several green, leafy plants growing from the soil. Behind them, a layer of dry, brown sticks and twigs is visible, likely mulch. The background is blurred, showing more greenery and a hint of a wooden structure. The overall scene is brightly lit, suggesting a sunny day.

**HERE'S  
SOMETHING  
PULSES CAN  
REALLY SINK  
THEIR ROOTS INTO.**





## Crop Establishment



## It all begins with great genetics.

The **Clearfield** Production System is the best way to grow lentils. With superior genetics across all major red and green lentil market classes, **Clearfield** varieties are designed for maximum yield and quality. Choose from different height, maturity or disease resistance traits to suit your operation.





Clearfield Red Lentil Varieties	Type	Yield Area (1&2)	Yield Area (3&4)	Ascochyta Resistance	Anthracnose Resistance (Race 1)	Maturity	Seed Weight (g/1000)
CDC Imp CL	Extra small red	TBD	TBD	TBD	TBD	TBD	TBD
CDC Imperial CL	Extra small red	84%	79%	Good	Good	Early	30
CDC Impala CL	Extra small red	94%	91%	Good	Good	Early	31
CDC Impact CL	Small red	80%	76%	Good	Poor	Early	34
CDC Maxim CL	Small red	100%	100%	Good	Good	Early-medium	40
CDC Dazil CL	Small red	104%	98%	Good	Fair	Early-medium	45
CDC Imax CL	Small red	96%	82%	Good	Fair	Early-medium	45
CDC Impulse CL	Small red	108%	95%	Good	Good	Early-medium	44
CDC Proclaim CL	Small red	105%	101%	Good	Good	Early-medium	40
CDC IBC 550 CL	Small red	106%	ID	Good	Fair	Early-medium	40
CDC KR-2 CL	Large red	105%	85%	Good	Good	Medium	55

Clearfield Green Lentil Varieties	Type	Yield Area (1&2)	Yield Area (3&4)	Ascochyta Resistance	Maturity	Seed Weight (g/1000)
CDC Invincible CL	Small green	96%	83%	Good	Early	34
CDC Impress CL	Medium green	87%	71%	Good	Medium	52
CDC Imigreen CL	Medium green	78%	71%	Good	Medium	57
CDC Lima CL	Large green	TBD	TBD	TBD	TBD	TBD
CDC Improve CL	Large green	87%	76%	Fair	Medium	67
CDC Impower CL	Large green	85%	68%	Good	Medium-late	61
CDC Peridot CL	French green	84%	94%	Fair	Early	38

Note: All varieties are compared against CDC Maxim CL.

## We go way back.

In 1990, BASF began working 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. To date, there are 18 **Clearfield** varieties developed across all major lentil classes.

## Commit to growing 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 herbicide sales are reinvested into the CDC breeding program to support ongoing research and development of new **Clearfield** lentil varieties. When you sign the evergreen **Clearfield** Commitment for lentils and register your acres in subsequent years, you gain access to technology and maintain the integrity of the system by committing to match the **Clearfield** trait with compatible BASF chemistries.

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

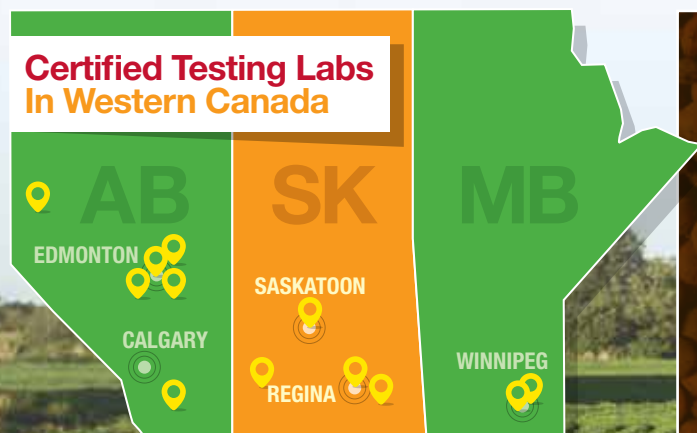
## 4 EASY STEPS

to complete your **Clearfield** Commitment.

1

Get your **Clearfield** lentils **Clearfield-Confirm**® tested. Free of charge. The costs are on us. See [agsolutions.ca/clearfieldlentils](https://agsolutions.ca/clearfieldlentils) for labs.

### Certified Testing Labs In Western Canada



### The **Clearfield** lentil Seed Quality Offer

You can get a free pre-seed quality and disease test package when you submit your lentil seed for **Clearfield-Confirm** testing. Test your seed for germination, vigour, disease and kernel weight and gain valuable information for choosing compatible herbicides and suitable seeding rates and seed treatments for your crop. Talk to your BASF Sales Representative to sign up now. Visit [agsolutions.ca/clearfieldlentiloffer](https://agsolutions.ca/clearfieldlentiloffer) for full terms and conditions.



2

Sign the **Clearfield** Commitment in 1 of 3 ways:

Log on to the Secure Grower Website.  
**agsolutions.ca**



OR

Speak to your **Clearfield** lentil retailer or seed seller.

OR

Call **AgSolutions** Customer Care at 1-877-371-BASF (2273) or contact your BASF Sales Representative.



3

Purchase matching compatible herbicides for **Clearfield** lentils and a portion of the sale will be reinvested into the Crop Development Centre.

4

Report seeded acres and variety annually.

Report acres with your BASF Sales Representative, **AgSolutions** Customer Care, **Clearfield** lentil retailer, seed seller or log on to the Secure Grower Website.



**BASF**  
We create chemistry



**Clearfield**  
Production System for Lentils

## Not all inoculants are created equal.

To enhance nitrogen fixation and increase yield potential, choose the top-performing strain of *Rhizobium leguminosarum* (strain 1435) specific to peas and lentils. Select from liquid, peat or granular formulations to fit your needs. Look for the guaranteed minimum number of viable cells for a high-quality product that maximizes nodulation and nitrogen fixation.

### Nodulator® Duo SCG

Biostacked® solid core granular pea and lentil Inoculant

### Nodulator® XL

Inoculant

## Chickpeas included.

An easy-flowing granular inoculant formulation is also available for chickpeas. Nodulator CP SCG contains *Bradyrhizobium* sp. (*Cicer*), strain 1635, for increased nodulation resulting in increased fixation of nitrogen for higher yield and protein potential.

### Nodulator® CP SCG

Solid core granular chickpea Inoculant





## Inoculant formulations? You have a choice in the matter.

When it comes to choosing a formulation, you've got options. Nodulator Duo SCG is available as free-flowing solid core granules—a formulation that reduces dust and ensures precise in-furrow application. Nodulator XL comes as a liquid or self-adhering peat formulation, designed for an on-seed application.

### On-seed application:

- Liquid
- Self-adhering peat

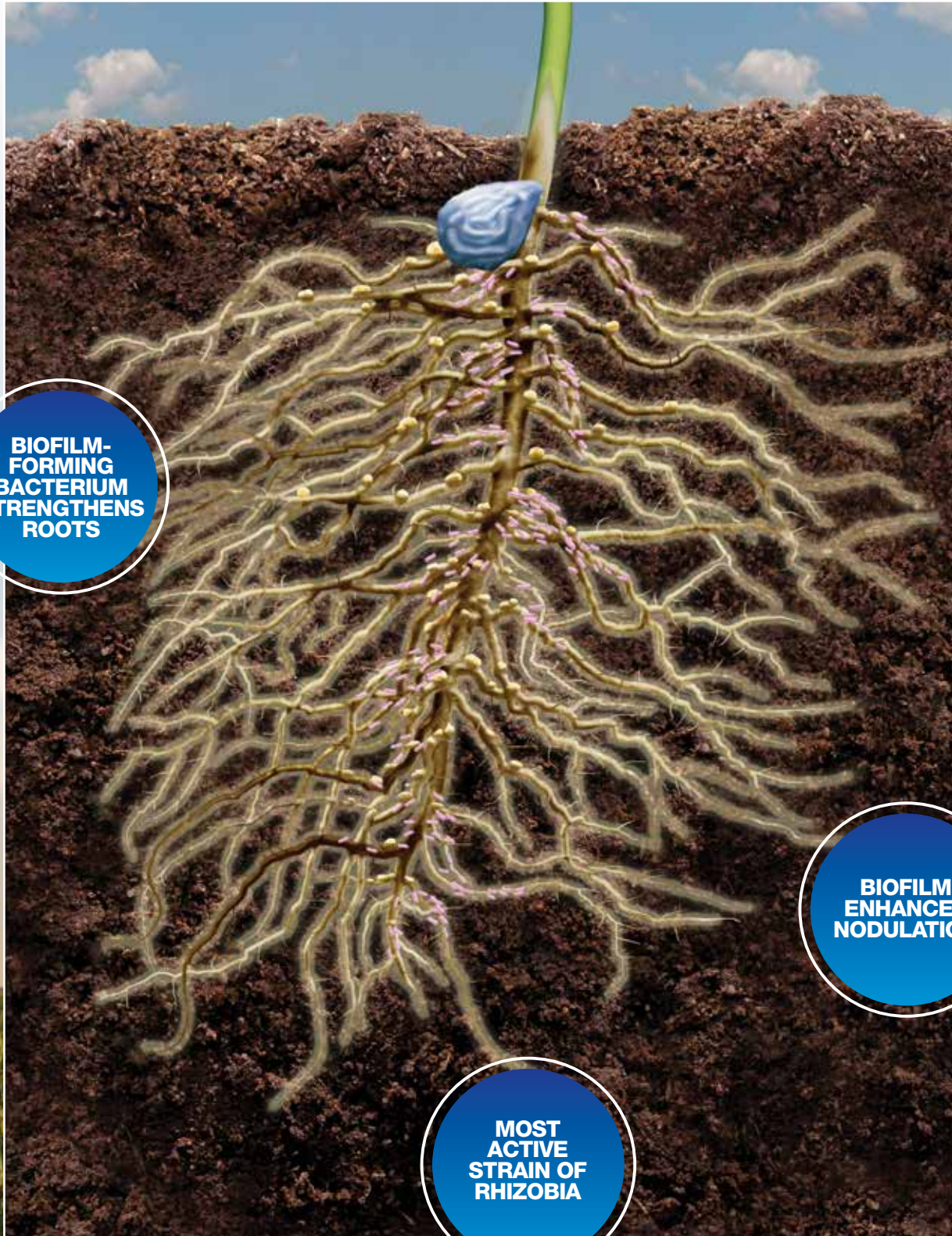
### In-furrow application:

- Solid core granules



# Nodulator® Duo SCG

Biostacked® solid core granular pea and lentil Inoculant





## All power to you. And your plants.

Introducing the newest inoculant innovation Nodulator Duo SCG, an inoculant that combines the top-performing rhizobial strain 1435 and biofilm bacterial strain BU1814. It's the first Biostacked® solid core granular inoculant for peas and lentils to contain a second active biological that forms root-strengthening biofilm. This results in greater energy efficiency and enhances the following reproductive functions:

- Seedling emergence
- Root and shoot biomass
- Nodulation
- Ability to manage environmental stress
- Nutrient and water uptake
- Resource utilization

## Getting to the root of biofilm.

Upon germination, *Bacillus subtilis* inhabits the roots of the plant, driving nodulation. *B. subtilis* forms a biofilm which in turn acts as a protective barrier and grows with the plant, protecting the roots from environmental stresses in the soil. This allows plants to reserve their energy for reproductive growth.

Comparison of untreated roots versus roots treated with Nodulator Duo SCG on media



Nodulator Duo SCG



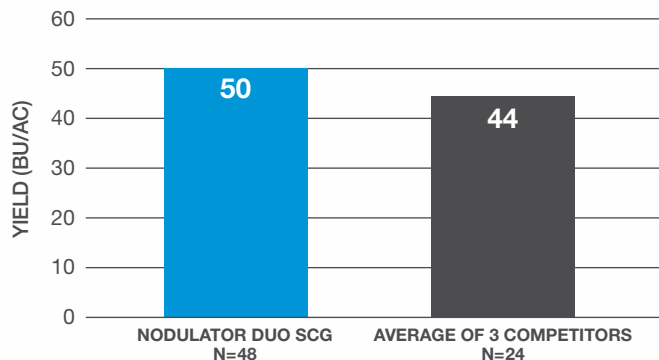
Untreated

Note: Please note that biofilm is invisible to the naked eye and can only be seen when the roots are grown on media in a laboratory setting.



## Nodulator Duo SCG brings great results as far as the eye can see. (And even where it can't.)

Average yield increase: Nodulator Duo SCG  
vs. competitors in peas and lentils



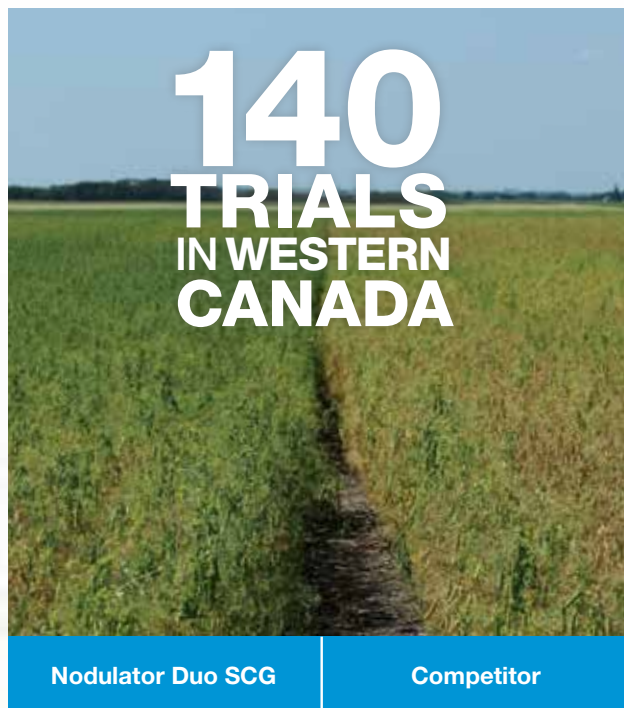
Source: BASF internal trials, 2017

Increased seedling vigour below ground in peas



Source: BASF research trials, 2017

Seeing is believing.  
And what we've seen is unbelievable.





# Nodulator<sup>®</sup> XL

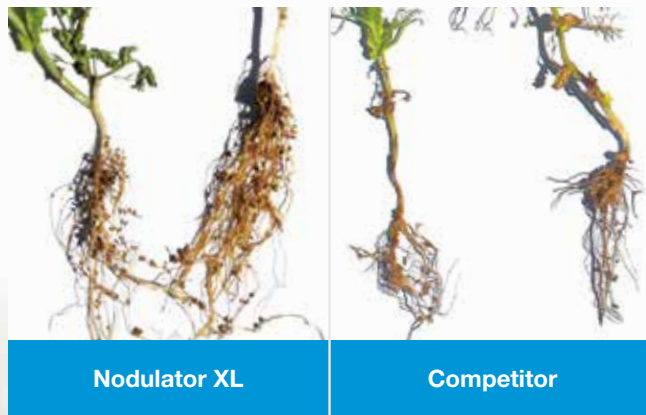
Inoculant

## Our inoculants excel in delivery. And potential.

Nodulator XL inoculant also delivers the highly efficient and more active strain of *Rhizobium leguminosarum* specific to peas and lentils. This strain is common to Canadian soils and well-suited to the growing conditions of your crop. Its specificity to the host crop means:

- Earlier nodule development
- Greater number of nodules
- More efficient nitrogen-fixing nodules with pink colour
- Nodules remain pink for a longer period of time

Comparison of nodulation in peas



**Greater nodulation for  
greater potential.**

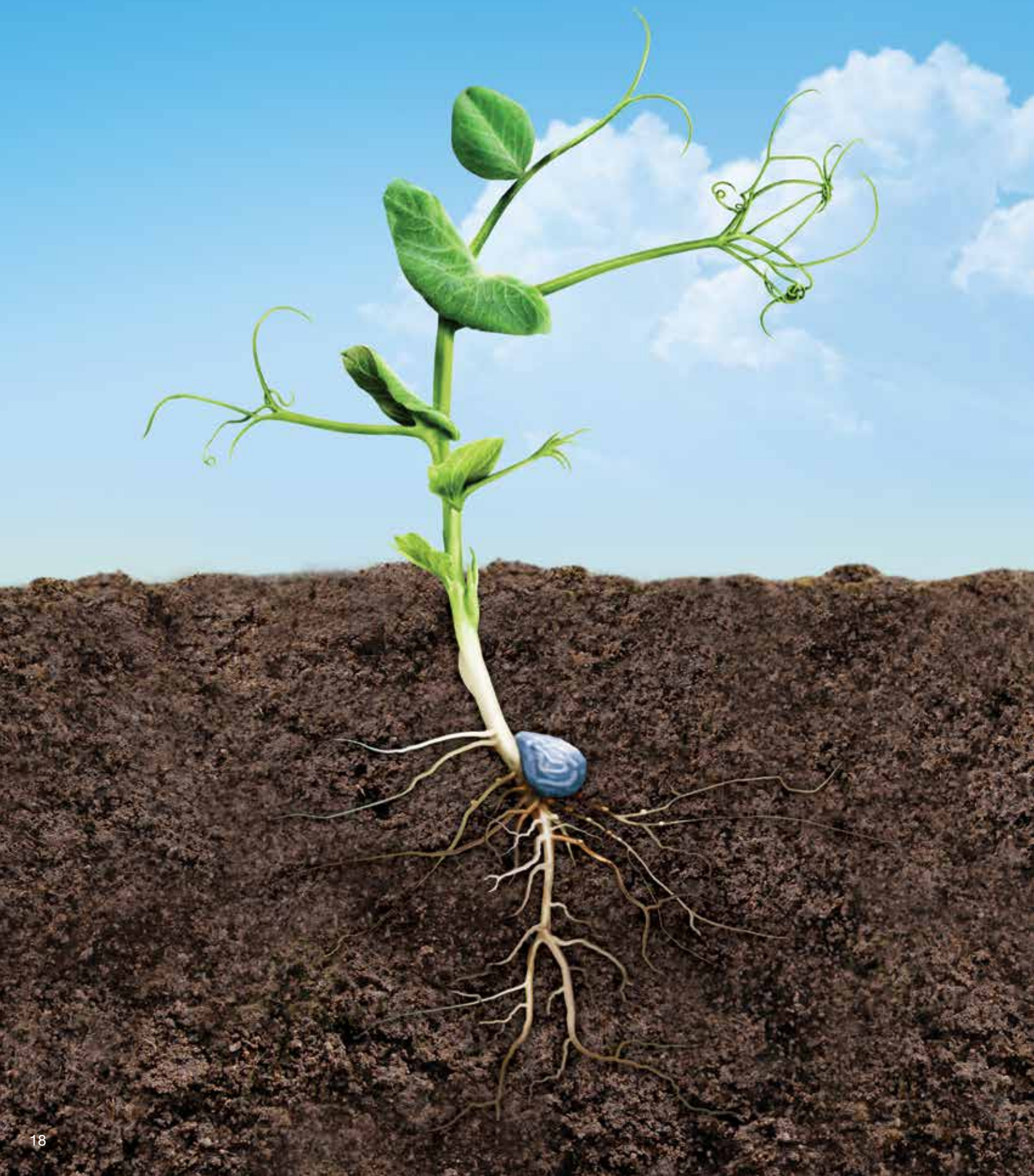
Comparison of nodulation in lentils





# Insure® Pulse

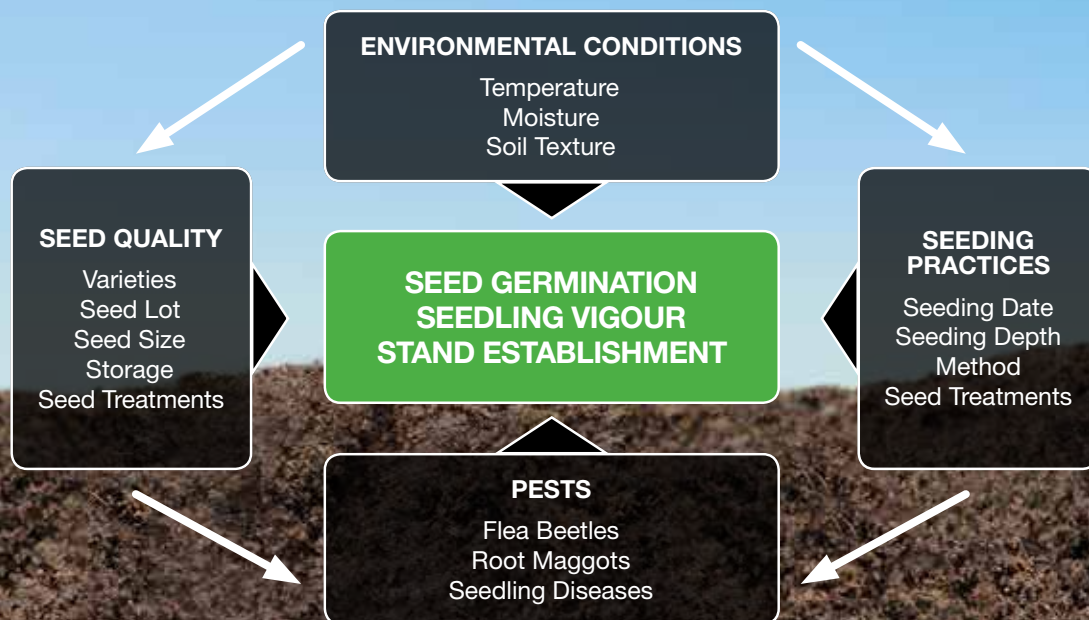
Xemium® Fungicide Seed Treatment





## Protect your crop from the get-go.

The evenness of your crop's germination, the vigour of your seedlings and the quality of your plant stand depend on a number of factors. Cold, damp conditions and seedling diseases can be unavoidable, but the right fungicide seed treatment will help you manage their effects and give your pulse crop the best start possible.



Source: Saskatchewan Ministry of Agriculture

## Analyze this.

Before you seed, have your seed lots tested at an accredited lab.

- **Germination test:** minimum 90% – measures the percentage of seeds that germinate under the best possible conditions
- **Vigour test:** minimum 90% – measures the percentage of seed “vigorous” enough to germinate under poor seeding conditions
- **Disease test:** assess level of disease present in a given seed lot, see chart for crop-specific levels

Disease	Crop	Disease Tolerance
Ascochyta	Field peas	Up to 15%
	Lentils	Up to 5%
Seed rots & damping-off ( <i>Pythium</i> spp.)	Field peas Lentils	Soil-borne (not applicable)
Seed rots & seedling blights ( <i>Botrytis</i> spp., <i>Rhizoctonia</i> spp., <i>Fusarium</i> spp.)	Field peas Lentils	Up to 10%
Anthrachnose	Lentils	Soil-borne (not applicable)

Source: Adapted from guidelines provided by Discovery Seed Labs

**TIP: Certified seed is only required to meet the minimum standards for germination and vigour—not the minimum standard for disease. Therefore, it is important to conduct disease testing for determining disease levels in all seed lots, certified or not.**



# Insure<sup>®</sup> Pulse

Xemium<sup>®</sup> Fungicide Seed Treatment

## The first pulse seed treatment containing Xemium.

Insure Pulse is the first seed treatment for peas and lentils containing the active ingredient Xemium<sup>®</sup>, for unique mobility and translocation characteristics, combined with the proven benefits<sup>1</sup> of AgCelence<sup>®</sup> to deliver:

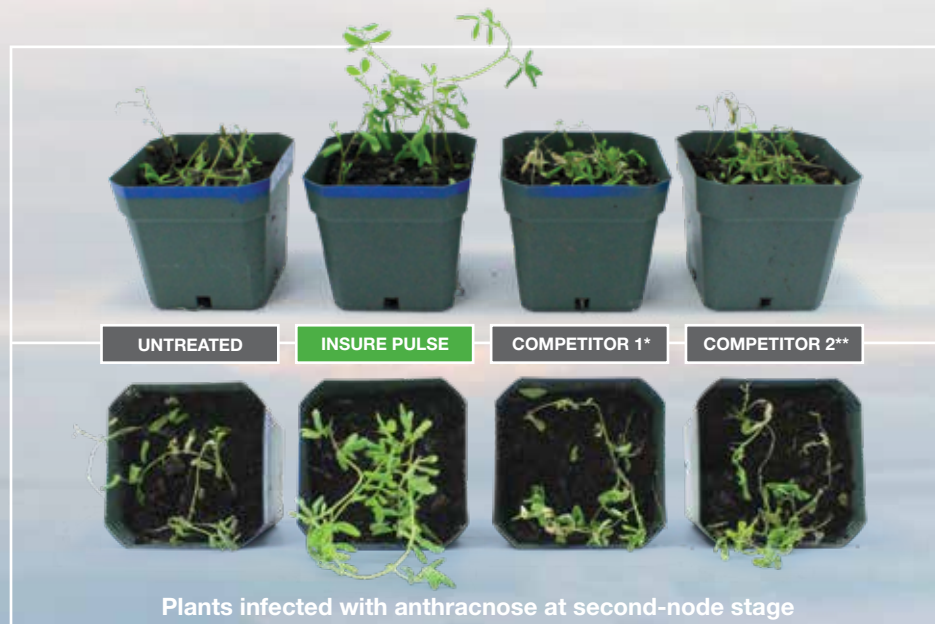
- Broad-spectrum seed and seedling disease control, including ascochyta
- More consistent and continuous germination and emergence, including under cold conditions
- Greater seedling vigour both above and below ground
- Enhanced ability to manage exposure to environmental stresses

**Note:** Insure Pulse is registered for pulses, flax, mustard and now soybeans.

<sup>1</sup> AgCelence benefits refer to products that contain the active ingredient pyraclostrobin.

## Uniquely mobile. That's the power of Xemium.

With the active ingredient Xemium, Insure Pulse provides unique translocation and mobility characteristics for enhanced seed and seedling disease protection, as young plants emerge and grow. See how Xemium gives lentil seedlings the start they need by increasing plant emergence and vigour when compared to the competition.



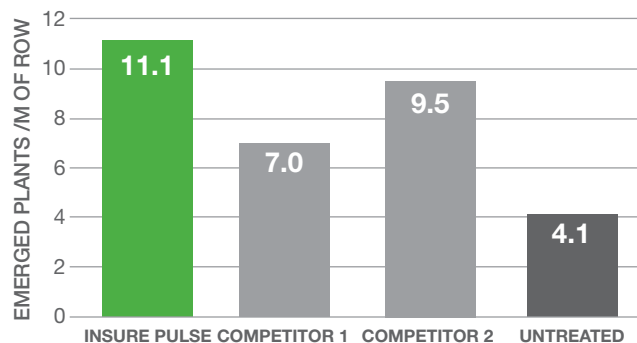
Source: BASF internal trial, 2017

\* Competitor 1 = Penflufen + Trifloxystrobin + Metalaxyl

\*\* Competitor 2 = Sedaxane + Fludioxonil + Metalaxyl-M

# You've seen the benefits of Insure Pulse. Now here's the proof.

**Lentil – Number of plants emerged under fusarium disease pressure**



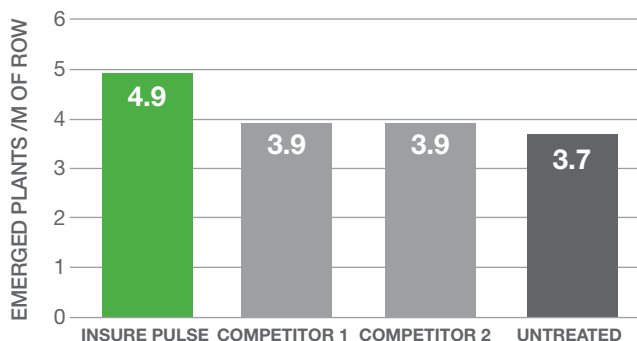
Source: Third party generated registration data, 2013

**Quicker germination and emergence, two days after seeding**



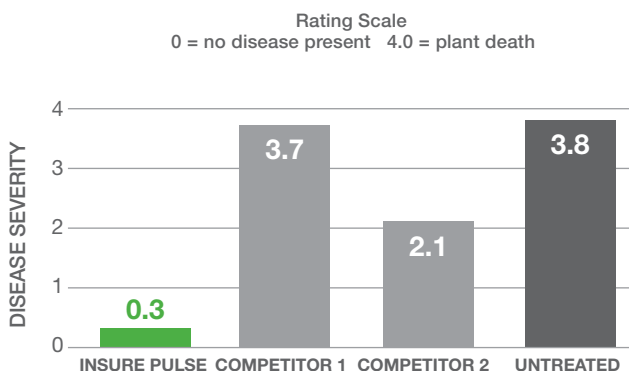
Source: BASF Ag Performance Trials, Mankota, SK, 2016

**Field pea – Number of plants emerged under botrytis disease pressure**



Source: Third party generated registration data, 2013

**Increased ascochyta control in lentils**



Source: Third party generated registration data, 2013



## Scope out how these fungicide seed treatments compare.

Products	Insure Pulse	Apron <sup>®</sup> Advance/Apron (Vibrance <sup>®</sup> ) Maxx <sup>®</sup> RTA <sup>®</sup> /RFC	Trilex <sup>®</sup> EverGol <sup>®</sup>
Crop(s)	Field pea, lentil, soybean, chickpea, dry bean, faba bean	Chickpea, dry bean, field pea, lentil, faba bean, soybean <sup>2</sup>	Bean, chickpea, field pea, lentil
Active ingredients per 100 kg	5 g Pyraclostrobin Group 11	2.5 g Fludioxonil Group 12	3.85 g Penflufen Group 7
	5 g Fluxapyroxad Group 7	2.0 g Metalaxyl M&S Group 4	3.85 g Trifloxystrobin Group 11
	4 g Metalaxyl Group 4	15.0 g Thiabendazole (Apron Advance Only) Group 1	5 g Metalaxyl Group 4
	—	2.5 - 5 g Sedaxane (Vibrance Maxx Only) Group 7	—
Rate	300 ml/100 kg	Apron Advance/Apron Maxx RFC – 100 ml/100 kg Apron Maxx – 325 ml/100 kg Vibrance Maxx – 325 ml/100 kg + 5 - 10 ml Vibrance	25 ml Trilex A + 16 ml Trilex B/100 kg
Bushels/jug	120	Apron Advance – 113 Apron Maxx – 113 Vibrance Maxx – 113	221
Diseases	All <i>Fusarium</i> spp.		
	seed rot	seed rot	seed rot
	seedling blight	seedling blight	—
	damping-off	damping-off	damping-off
	root rot <sup>1</sup>	root rot	—
	<i>Rhizoctonia solani</i>		
	seed rot	seed rot	seed rot
	root rot	root rot	—
	damping-off	damping-off	damping-off
	All <i>Pythium</i> spp.		
	seed rot	seed rot	seed rot
	seedling blight	seedling blight	seedling blight
	damping-off	damping-off	damping-off
	<i>Botrytis cinerea</i>		
	seed rot <sup>1</sup>	seed rot	seed rot
	seedling blight <sup>1</sup>	seedling blight	seedling blight
	—	—	damping-off
	All <i>Ascochyta</i> spp.		
	seedling blight	seedling blight <sup>3,4</sup>	seedling blight <sup>1</sup>
	Anthracnose ( <i>Colletotrichum lindemuthianum</i> )		
	seedling blight ( <i>Colletotrichum lindemuthianum</i> ) <sup>1</sup>	seedling blight ( <i>Colletotrichum lindemuthianum</i> ) <sup>5</sup>	—
Notes	—	Vibrance Maxx is a co-pack of Apron Maxx and Vibrance. The only disease on the Vibrance 500 FS label for pulses is rhizoctonia.	—

<sup>1</sup> Suppression. <sup>2</sup> Only Apron (Vibrance) Maxx RTA/RFC is registered for use in soybeans. <sup>3</sup> In chickpeas. <sup>4</sup> In lentils. <sup>5</sup> In dry beans.

Note: Insure Pulse is also registered on flax and mustard. Please refer to each product label for a complete list of registered crops.

A photograph of a field of green weeds under a cloudy sky. The weeds are in the foreground, slightly out of focus, and stretch across the bottom half of the image. The sky is filled with soft, white clouds and occupies the top half. The text is overlaid on the sky in a large, white, sans-serif font.

**WHEN IT  
COMES TO  
WEEDS,  
HOLD YOUR GROUND.**





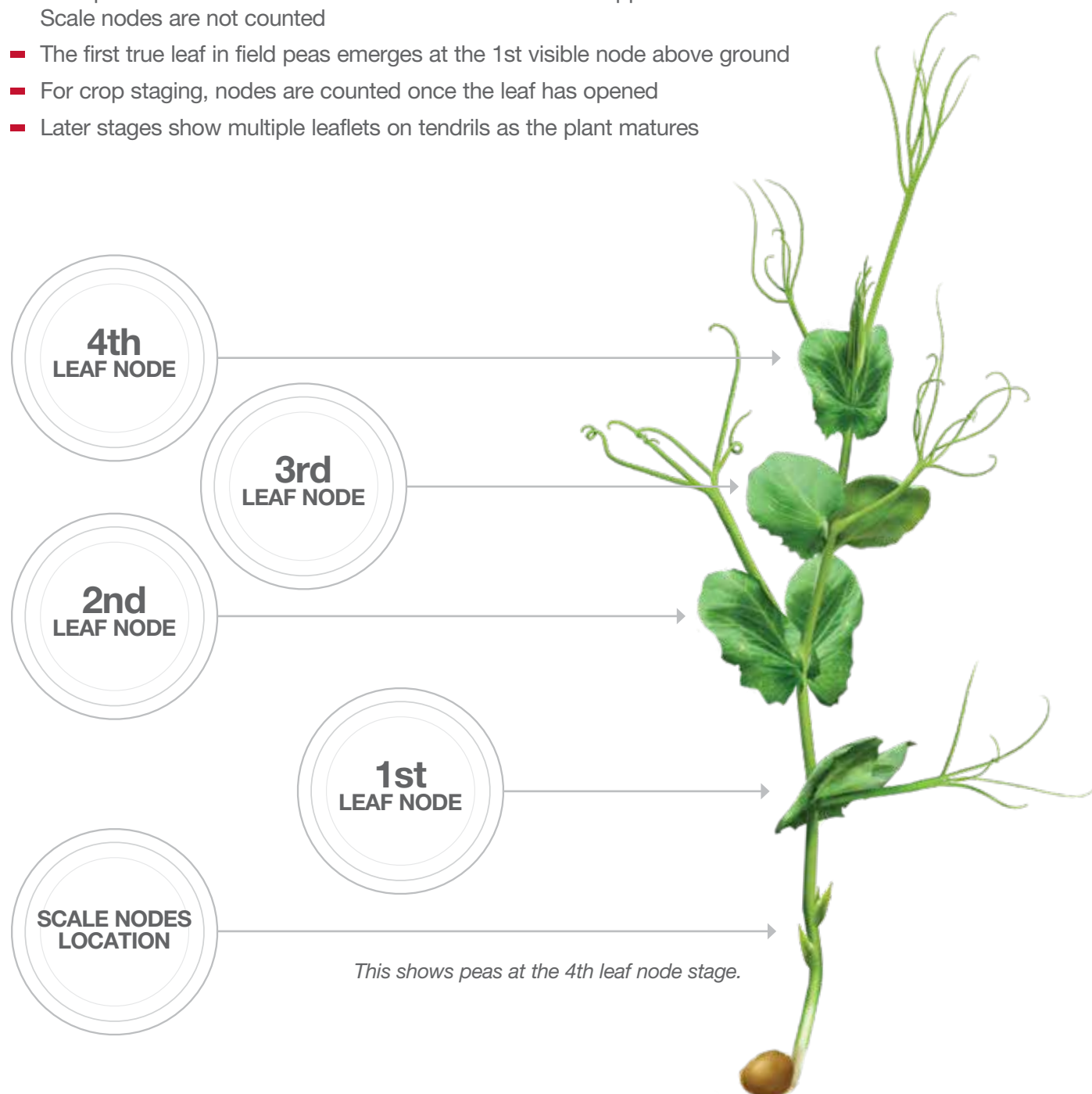
# Weed Management

# THE RIGHT HERBICIDE IS CRITICAL.

## So is the right timing.

### Identifying pea stages.

- Field peas show scale leaf nodes before the 1st true leaf appears.  
Scale nodes are not counted
- The first true leaf in field peas emerges at the 1st visible node above ground
- For crop staging, nodes are counted once the leaf has opened
- Later stages show multiple leaflets on tendrils as the plant matures

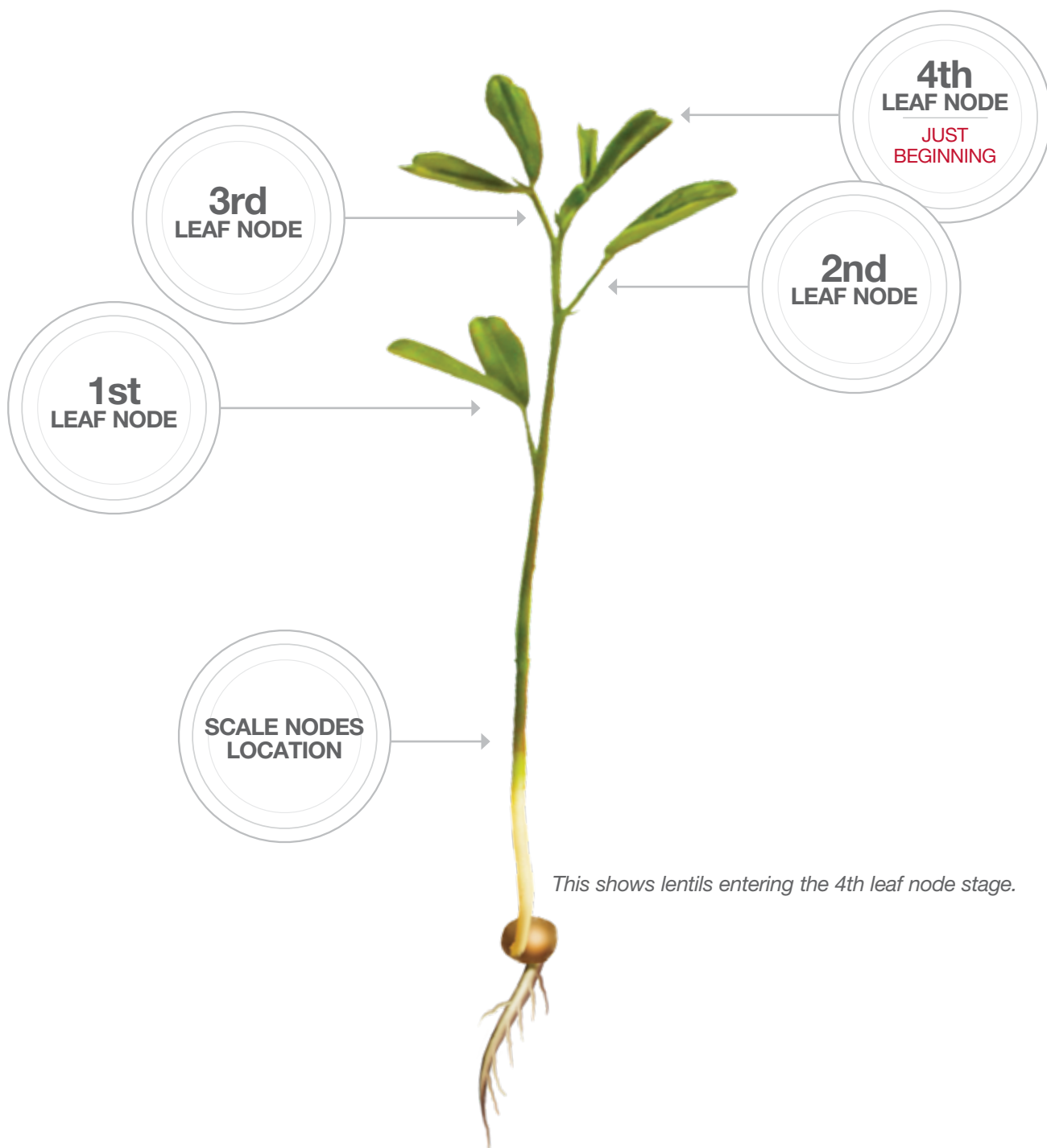




Controlling weeds during your crop's early developmental stages is key to preventing substantial yield loss. Use these staging diagrams to help time your next herbicide application.

## Identifying lentil stages.

- In lentils the first leaf emerges at the 1st visible node above ground
- Scale nodes are often at or below ground level making them less visible. Scale nodes are not counted
- Multifoliate leaves emerge later, depending on variety and environmental factors





**DON'T LET  
THE WEEDS  
GET TO YOU.**

**(Or your crops.)**



**USE THE  
ADVANCED  
WEED  
CONTROL  
PROGRAM.**





# ADVANCED WEED CONTROL



Herbicide resistance occurs when the same mode of action is used repeatedly to control a weed species. In world rankings for the highest number of herbicide resistant weeds, Canada comes second.<sup>1</sup> That's why an integrated management approach is crucial for meeting resistance challenges head-on. A major strategy in this approach is herbicide layering, the practice of applying different modes of action sequentially throughout the season.

The Advanced Weed Control Program by BASF is here to guide growers through integrating multiple industry best practices. These practices include multiple modes of effective action, herbicide layering and extended residual activity to combat weeds in even the toughest fields. The cornerstone of the program is Heat Complete herbicide, the newest innovation for rapid burndown and extended residual. With the program's systematic approach to reliable weed control, you can also ensure an effectively timed in-crop application. Now that there's a complete weed control solution for your peas and **Clearfield** lentils, you can approach resistance management with confidence—and a sound strategy.

For peas:

## Heat<sup>®</sup> Complete

Powered by **Kixor<sup>®</sup>** Herbicide

**OR**

## Heat<sup>®</sup> LQ

Powered by **Kixor<sup>®</sup>** Herbicide

followed by

## Viper<sup>®</sup> ADV

Herbicide



For **Clearfield** lentils:

## Heat<sup>®</sup> Complete

Powered by **Kixor<sup>®</sup>** Herbicide

followed by

## Solo<sup>®</sup> Ultra

Herbicide

**OR**

## Odyssey<sup>®</sup> Ultra NXT

Herbicide



<sup>1</sup> International Survey of Herbicide Resistant Weeds, weeds science.org, 2018.



## Weed control in peas.

Similar to lentils, the BASF Advanced Weed Control Program for peas is a strategy that focuses on using multiple modes of action sequentially throughout the season. To manage weeds and herbicide resistance, start with a pre-seed/pre-emerge application of either Heat Complete or Heat LQ followed by an in-crop application of Viper® ADV herbicide.





# ADVANCED WEED CONTROL



PEAS		Key weeds controlled (incl. resistant biotypes)
<div>PRE-SEED</div> <div> <b>Heat LQ</b>            Powered by <b>Kixor</b> Herbicide            (30 ac/case)         </div> <div>OR</div> <div> <b>Heat Complete</b>            Powered by <b>Kixor</b> Herbicide            (60 ac/case)         </div>	<div>IN-CROP</div> <div> <b>Viper ADV</b>            Herbicide         </div>	<p><b>Using Heat LQ:</b>            Cleavers   Redroot pigweed   Stinkweed   Volunteer canola            Wild buckwheat   Wild mustard</p> <p><b>Using new herbicide – the above, plus:</b>            Foxtail (green, yellow)   Kochia   Lamb's quarters            Waterhemp   Wild oats</p>



## Eliminate weeds during the critical time in field peas.

Apply Heat Complete herbicide at 60 ac/case in field peas for the ultimate pre-seed burndown with extended residual activity on grassy and broadleaf weeds, such as wild oats and kochia. This includes activity on Group 1-, 2- and 9-resistant weeds. Heat Complete combines Group 14 and Group 15 tank mixed with glyphosate, minimizing secondary flushes and preparing the field for an in-crop herbicide application.

**OR**

Applied pre-seed or pre-emerge, Heat LQ herbicide uses Group 14 chemistry to deliver burndown of tough broadleaf weeds in as few as 3 to 5 days.<sup>1</sup> Apply at the high rate (30 ac/case) with glyphosate for residual activity that suppresses key flushing weeds.

### Heat<sup>®</sup> Complete

Powered by **Kixor<sup>®</sup>** Herbicide

### Heat<sup>®</sup> LQ

Powered by **Kixor<sup>®</sup>** Herbicide

## Clean field? Keep up the trend.

Applied in-crop from 3rd to 6th node, Viper ADV herbicide delivers two modes of action for broad-spectrum control of later germinating broadleaf weeds and grasses. Plus, it offers excellent rotational flexibility for your follow-cropping needs.

### Viper<sup>®</sup> ADV

Herbicide

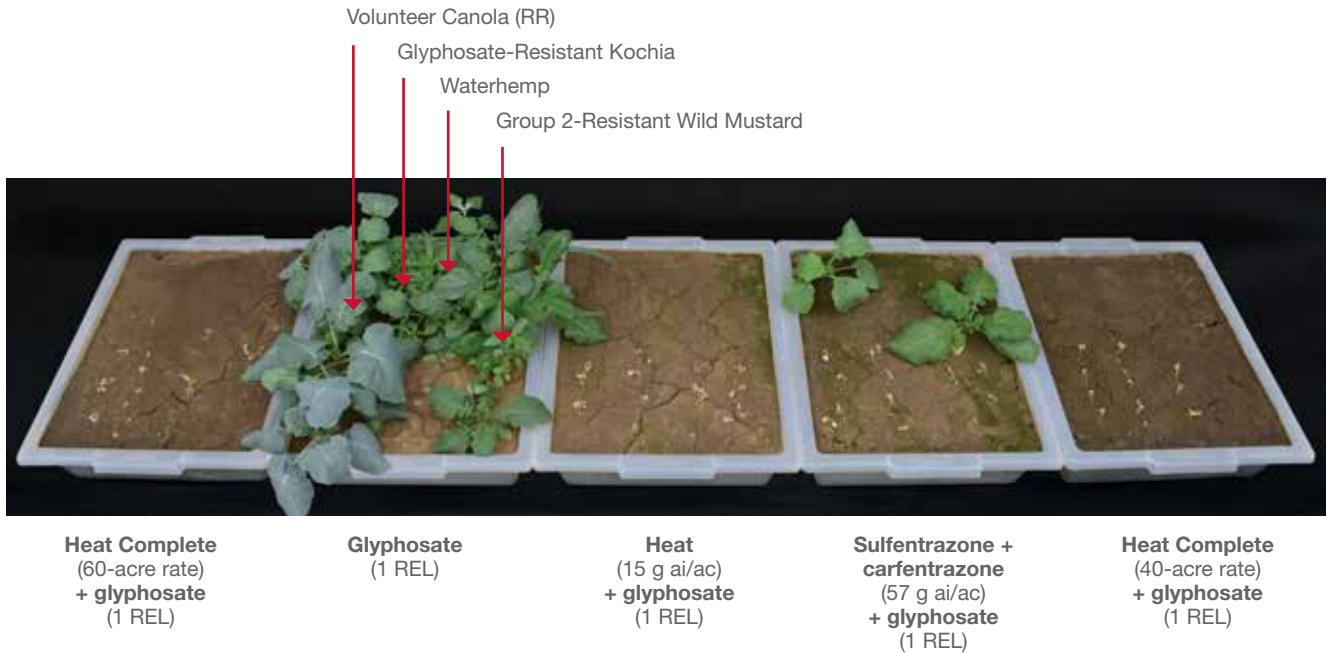
## Trust this program to take on your pea crop's toughest weeds.

The Advanced Weed Control Program manages a wide spectrum of tough weeds<sup>1</sup> from crop emergence through to canopy. It's the go-to for the best herbicide resistance management strategy. Plus, it provides supported management of kochia<sup>2</sup>, wild mustard<sup>3</sup>, cleavers<sup>3</sup>, volunteer canola, wild oats<sup>4,5</sup>, green and yellow foxtail<sup>4,5</sup>, common waterhemp<sup>4</sup>, lamb's quarters<sup>4</sup>, redroot pigweed, stinkweed and wild buckwheat, including resistant biotypes.

<sup>1</sup> Depending on growing conditions. <sup>2</sup> For a complete list of weeds that Heat Complete, Heat LQ and Viper ADV provide supported management for, refer to the product labels at [agsolutions.ca](http://agsolutions.ca). <sup>3</sup> Including Group 2- and glyphosate-resistant biotypes. <sup>4</sup> Including Group 2-resistant biotypes. <sup>5</sup> Residual suppression (may be rate dependent). <sup>6</sup> Residual suppression only.



### Pre-seed herbicide comparison



Source: BASF, 2018

### Enhanced residual weed control in peas.



Source: BASF Ag Performance Trials, Howden, MB, 2018

### Feel like the battle hasn't been won? We've got reinforcements.

The Advanced Weed Control Program also provides additional re-spray support for weed escapes (even resistant biotypes)—an industry first. For more information about product re-spray or the support process, contact your BASF Sales Representative or call **AgSolutions** Customer Care at 1-877-371-BASF (2273).



## Weed control for Clearfield lentils.

The Advanced Weed Control Program for **Clearfield** lentils includes an integrated strategy against weeds with a focus on herbicide layering. A pre-seed/pre-emerge application of Heat Complete herbicide frees the lentil crop from competition when it matters most. Plus, it provides extended residual activity to prevent secondary flushes and allows for a wider window of application for in-crop herbicides, such as Solo® Ultra or Odyssey® Ultra NXT.

# ADVANCED WEED CONTROL



CLEARFIELD LENTILS		
PRE-SEED	<b>Heat Complete</b> +	<b>Solo® Ultra</b> <b>OR</b> <b>Odyssey® Ultra NXT</b>
	Powered by <b>Kixor®</b> Herbicide (80 ac/case)	Herbicide (for re-cropping flexibility)      Herbicide (for flushing weed control)
<b>Key weeds controlled (incl. resistant biotypes)</b> Foxtail (green, yellow)   Lamb's quarters   Redroot pigweed   Volunteer canola Wild buckwheat   Wild oats		



## Give lentils a clean start.

Setting **Clearfield** lentils up for success happens from the very start of the season. Heat Complete is a new innovation combining Group 14 and Group 15 active ingredients, applied at 80 ac/case in lentils. Tank mixed with glyphosate, it's the ultimate pre-seed burndown with extended residual activity on key grassy and broadleaf weeds, including Group 1-, 2- and 9-resistant weeds. The residual activity delays the secondary flush of weeds through the crop's most vulnerable stage—up to 4 weeks following application.

Advanced Weed Control in Clearfield lentils



## Heat Complete

Powered by **Kixor**® Herbicide

Source: Demo site, Lethbridge, AB, 2018

## Every crop deserves follow-up.

With Heat Complete, secondary flushes are fewer due to residual activity, giving an in-crop herbicide the chance to be as effective as possible. When choosing an in-crop herbicide, it's important to select products with a different mode of action that will target the specific weed issues in your field.

With Group 1 and Group 2 active ingredients, Solo Ultra herbicide delivers multiple-mode-of-action control of grassy weeds with maximum re-cropping flexibility.

**OR**

Odyssey Ultra NXT herbicide combines two Group 2 active ingredients with a Group 1 for grassy weed control combined with flushing control of broadleaf and grassy weeds.

**Solo® Ultra**  
Herbicide

**Odyssey® Ultra NXT**  
Herbicide



# There's a solution to every weed. And Clearfield lentil need.

Whether you're looking for rotational flexibility or control of a particular weed, this chart will help you choose the best in-crop solution to fit your needs.

Products	Solo ADV	Solo Ultra	Odyssey Ultra NXT
I need	Excellent re-cropping flexibility the following year plus the convenience of a ready-to-use liquid formulation.	Proven control of grasses and tough broadleaf weeds, with rotational freedom.	Proven, early-season control of tough grassy and broadleaf weeds, including multiple flushes.
Active ingredients	Imazamox – Group 2	(a) Imazamox – Group 2	(a) Imazamox – Group 2 Imazethapyr – Group 2
	—	(b) Sethoxydim – Group 1	(b) Sethoxydim – Group 1
Merge®	Built-in	Built-in	Included in case
Formulation	Solution	(a) Liquid solution (b) Liquid emulsifiable concentrate	(a) Water dispersible granules (b) Emulsifiable concentrate
One case contains (40 ac/case)	2 x 6.5 L jugs or 3 x 4.33 L jugs	(a) 2 x 6.5 L jugs Solo ADV (b) 6.16 L jug Poast® Ultra	(a) 692 g jug (b) 6.16 L jug 8.1 L jug Merge adjuvant
Lentil staging	1 to 9 node <b>Clearfield</b> lentils only		
Broadleaf weeds controlled	Apply at cotyledon to 4 leaf (except where indicated)		
	Cleavers <sup>1</sup> (1 to 4 whorls) Cow cockle Green smartweed Lamb's quarters Redroot pigweed Round-leaved mallow <sup>1</sup> Russian thistle Shepherd's purse Stinkweed Volunteer canola <sup>2</sup> Wild buckwheat <sup>1</sup> Wild mustard	Cleavers <sup>1</sup> (1 to 4 whorls) Cow cockle Green smartweed <sup>4</sup> Lamb's quarters Redroot pigweed Round-leaved mallow <sup>1</sup> Russian thistle Shepherd's purse Stinkweed Volunteer canola <sup>2</sup> Wild buckwheat <sup>1</sup> Wild mustard	Chickweed Cleavers Flixweed Green smartweed Hemp-nettle <sup>5</sup> Lamb's quarters <sup>1</sup> Redroot pigweed Russian thistle <sup>5</sup> Shepherd's purse Stinkweed Stork's bill Volunteer canola <sup>2</sup> Volunteer tame mustard Wild buckwheat <sup>5</sup> Wild mustard

Note: Where indicated, one case contains two separate jugs: (a) and (b).



Products	Solo ADV	Solo Ultra	Odyssey Ultra NXT
Grasses controlled	Apply at 1 to 4 true leaf up until early tillering	Apply at 1 to 4 true leaf up until early tillering	Apply at 1 to 6 true leaf or up to 2 tillers (except where indicated)
	Barnyard grass Green foxtail Japanese brome grass <sup>1</sup> Persian dandel Volunteer barley Volunteer canary seed Volunteer durum wheat Volunteer spring wheat <sup>2</sup> Volunteer tame oats Wild oats Yellow foxtail	Barnyard grass Crabgrass Fall panicum Green foxtail Japanese brome grass <sup>1</sup> Persian dandel Proso millet Quackgrass <sup>1</sup> Volunteer barley Volunteer canary seed Volunteer corn Volunteer durum wheat Volunteer spring wheat <sup>3</sup> Volunteer tame oats Wild oats <sup>4</sup> Witchgrass Yellow foxtail	Barnyard grass Crabgrass (large) Fall panicum Green foxtail <sup>4</sup> Japanese brome grass <sup>5,7</sup> Persian dandel Proso millet Quackgrass (2 to 5 leaf) <sup>1,6,7</sup> Volunteer barley Volunteer corn Volunteer tame oats Volunteer wheat <sup>3</sup> Wild oats <sup>4</sup> Witchgrass Yellow foxtail
Follow crops	3 months after application		
	Winter wheat	—	—
	1 year after application		
	Canary seed Canola <sup>3</sup> Chickpeas Durum wheat Field corn Field peas Flax Lentils <sup>3</sup> Soybeans Spring barley Spring wheat Sunflowers <sup>3</sup> Tame oats	Canary seed Canola <sup>3</sup> Chickpeas Durum wheat Field corn Field peas Flax Lentils <sup>3</sup> Soybeans Spring barley Spring wheat Sunflowers <sup>3</sup> Tame oats	Canary seed Chickpeas <b>Clearfield</b> canola Durum wheat Field corn Field peas Lentils <sup>3</sup> Soybeans Spring barley Spring wheat Tame oats
	2 years after application		
	Mustard (condiment-type only)	Mustard (condiment-type only)	Flax Non- <b>Clearfield</b> canola Sunflower

Note: Odyssey Ultra NXT herbicide can also be applied in field peas at the 1 to 6 true leaf stage.

<sup>1</sup> Suppression only. <sup>2</sup> Non-**Clearfield** varieties only. <sup>3</sup> All varieties including **Clearfield**. <sup>4</sup> Including Group 1-resistant biotypes and Group 2-resistant biotypes. Will not control biotypes that have multiple resistance to both Group 1 and 2 herbicides. <sup>5</sup> Suppression in field peas and **Clearfield** lentils.

<sup>6</sup> Odyssey Ultra NXT herbicide will provide control of spring germinating Japanese brome grass and suppression of fall emerged Japanese brome grass.

<sup>7</sup> Odyssey Ultra NXT herbicide will provide suppression of quackgrass.

## A lens to compare pre-seed herbicides in pea and lentil crops.

Heat LQ (30 ac/case)	Heat LQ (80 ac/case)	Heat Complete (60 to 80 ac/case)	Authority® (FMC)	Authority Supreme (FMC)
<b>Group(s)</b>				
Group 14	Group 14	Group 14 & 15	Group 14	Group 14 & 15
<b>Active ingredient(s)</b>				
Saflufenacil	Saflufenacil	Saflufenacil + Pyroxasulfone	Sulfentrazone	Sulfentrazone + Pyroxasulfone
<b>Crop(s)</b>				
Field peas	Field peas Lentils	Field peas Lentils <sup>1</sup>	Field peas	Field peas Chickpeas
<b>Contact/Systemic</b>				
Contact Systemic	Contact Systemic	Contact Systemic	N/A	Contact
<b>Weed control</b>				
Foliar & Residual	Foliar	Foliar & Residual	Residual	Residual
<b>Moisture required for activation</b>				
1/4"	1/2"	1/2"	1/2"	1/2"
<b>Key herbicide resistant weeds on label</b>				
<b>Volunteer canola</b>				
C + Residual	C	C + Residual		
<b>Cleavers</b>				
C + Residual	C	C + Residual	Residual	Residual
<b>Kochia</b>				
C	C	C + Residual	Residual	Residual
<b>Wild buckwheat</b>				
C + Residual	C	C + Residual	Residual	Residual
<b>Redroot pigweed</b>				
C + Residual	C	C + Residual	Residual	Residual
<b>Stinkweed</b>				
C + Residual	C	C + Residual		Residual
<b>Wild mustard</b>				
C + Residual	C	C + Residual		S
<b>Lamb's quarters</b>				
C	C	C + Residual	Residual	Residual

C= Foliar Control    S= Suppression





GoldWing® (Nufarm)	Focus® (FMC)	Valtera™ (Nufarm)	Edge® (Gowan)	Express® SG (FMC)	Aim® <sup>2</sup> (FMC)
<b>Group(s)</b>					
Group 14 & 4	Group 14 & 15	Group 14	Group 3	Group 2	Group 14
<b>Active ingredient(s)</b>					
Pyraflufen + MCPA	Carfentrazone (Aim) + Pyroxasulfone	Flumioxazin	Ethalfuralin	Tribenuron-methyl	Carfentrazone
<b>Crop(s)</b>					
Field peas	Lentils	Field peas Lentils	Field peas Lentils (Fall application only)	Field peas	Field peas Lentils
<b>Contact/Systemic</b>					
Contact Systemic	Contact	Systemic	Systemic	Systemic	Contact
<b>Weed control</b>					
Foliar	Residual	Residual	Residual	Foliar	Foliar
<b>Moisture required for activation</b>					
N/A	½"	¼ – ½"	Incorporation	N/A	N/A
<b>Key herbicide resistant weeds on label</b>					
<b>Volunteer canola</b>					
C		S		C	
<b>Cleavers</b>					
C	C + Residual		S		
<b>Kochia</b>					
C	S	Residual	Residual		
<b>Wild buckwheat</b>					
S	S		Residual	C	
<b>Redroot pigweed</b>					
C	C + Residual	Residual	Residual	C	C
<b>Stinkweed</b>					
C	S				
<b>Wild mustard</b>					
S	S			C	
<b>Lamb's quarters</b>					
C	S	Residual	Residual	C	C

<sup>1</sup> Lentils are registered at the 80 ac/case rate. <sup>2</sup> Based on the low rate of 14.8 ml/ac.

## Recrop as follows.

Whether it's pre-seed/pre-emergent burndown or chemfallow, peas and lentils can be safely planted within the same season or in the following season, depending on the rate of Heat LQ you use.

# Heat LQ

Powered by Kixor® Herbicide



**TIME TO PUT  
DISEASE  
UNDER PRESSURE.**





# Disease Management



## If you want to prevent disease in your fields, you've got to get there first.

With the right conditions, disease can cause severe damage to both quality and yield in pulse crops—and diseases such as mycosphaerella blight in peas and anthracnose in lentils can lead to yield losses of over 50%.<sup>1,2</sup> That's why it's crucial to apply a preventative fungicide to stop fungal development before it even starts.



<sup>1</sup> Saskatchewan Pulse Growers, 2017.

<sup>2</sup> Manitoba Agriculture, 2017.



## Early-season disease control.

To prevent early-season diseases such as mycosphaerella blight in peas and anthracnose in lentils, apply Priaxor at first flower. Priaxor is the proven standard for disease control in pulses. If conditions are conducive for high disease pressure, Dyax, a premium fungicide, is the recommended application at first flower.

**Priaxor**<sup>®</sup>  
Xemium<sup>®</sup> Fungicide

**Dyax**<sup>™</sup>  
Xemium<sup>®</sup> Fungicide



## Late-season disease control.

Sclerotinia (white mold) overwinters in the soil and thrives under humid conditions and dense canopies. Tight rotations with broadleaf crops also contribute to inoculum buildup in the soil, increasing the risk for sclerotinia. If damp, humid conditions persist, follow the first fungicide with Cotegra 10 to 14 days later for ideal efficacy against sclerotinia in peas and lentils.

**Cotegra**<sup>®</sup>  
Fungicide

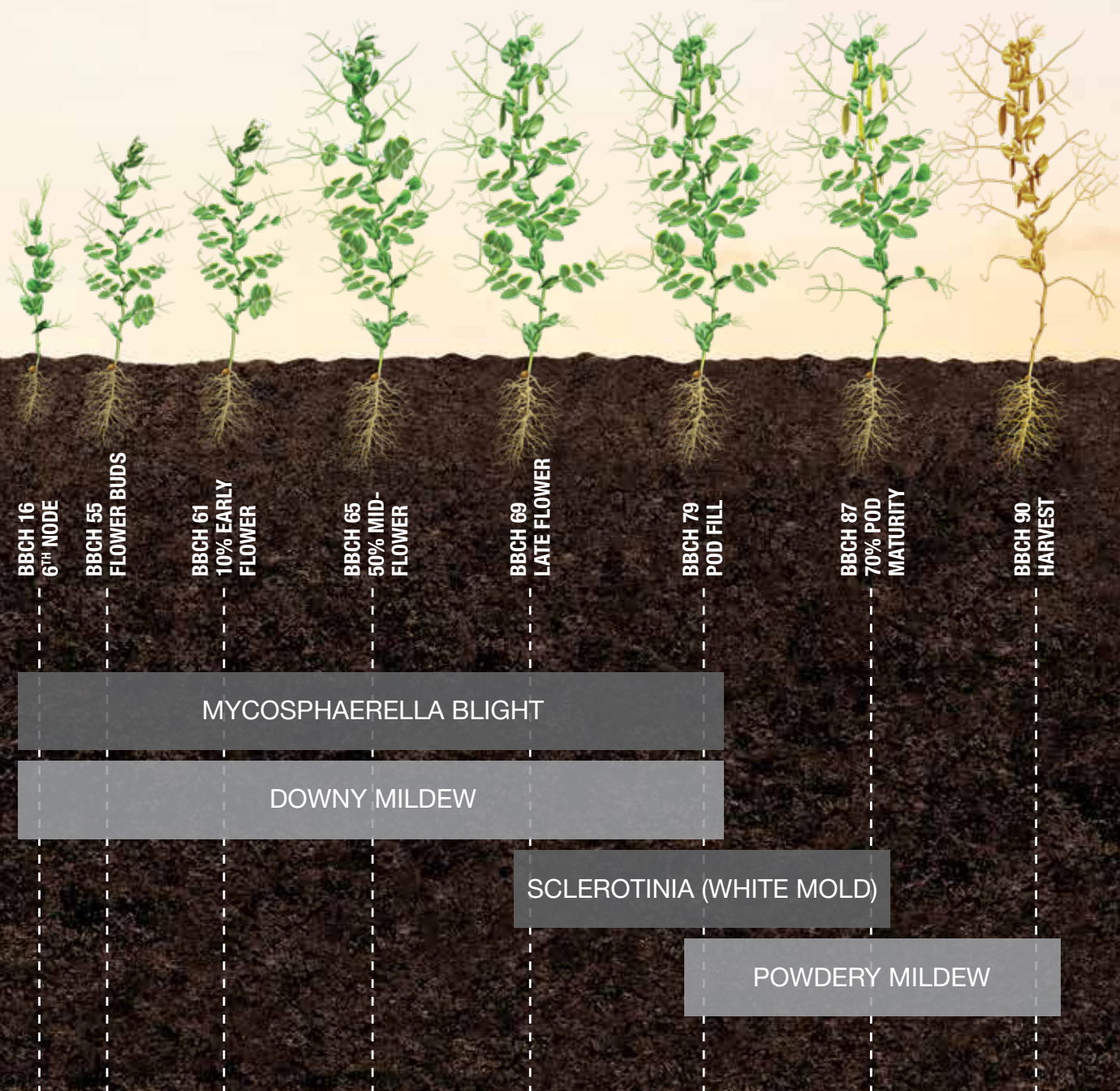




## Every master plan includes scouting.

To prevent disease in your pulse crops, scout conditions early in the season—and scout often. That way you can make well-informed decisions about the best possible fungicides to use and better plan for the next season.

### Diseases in peas.

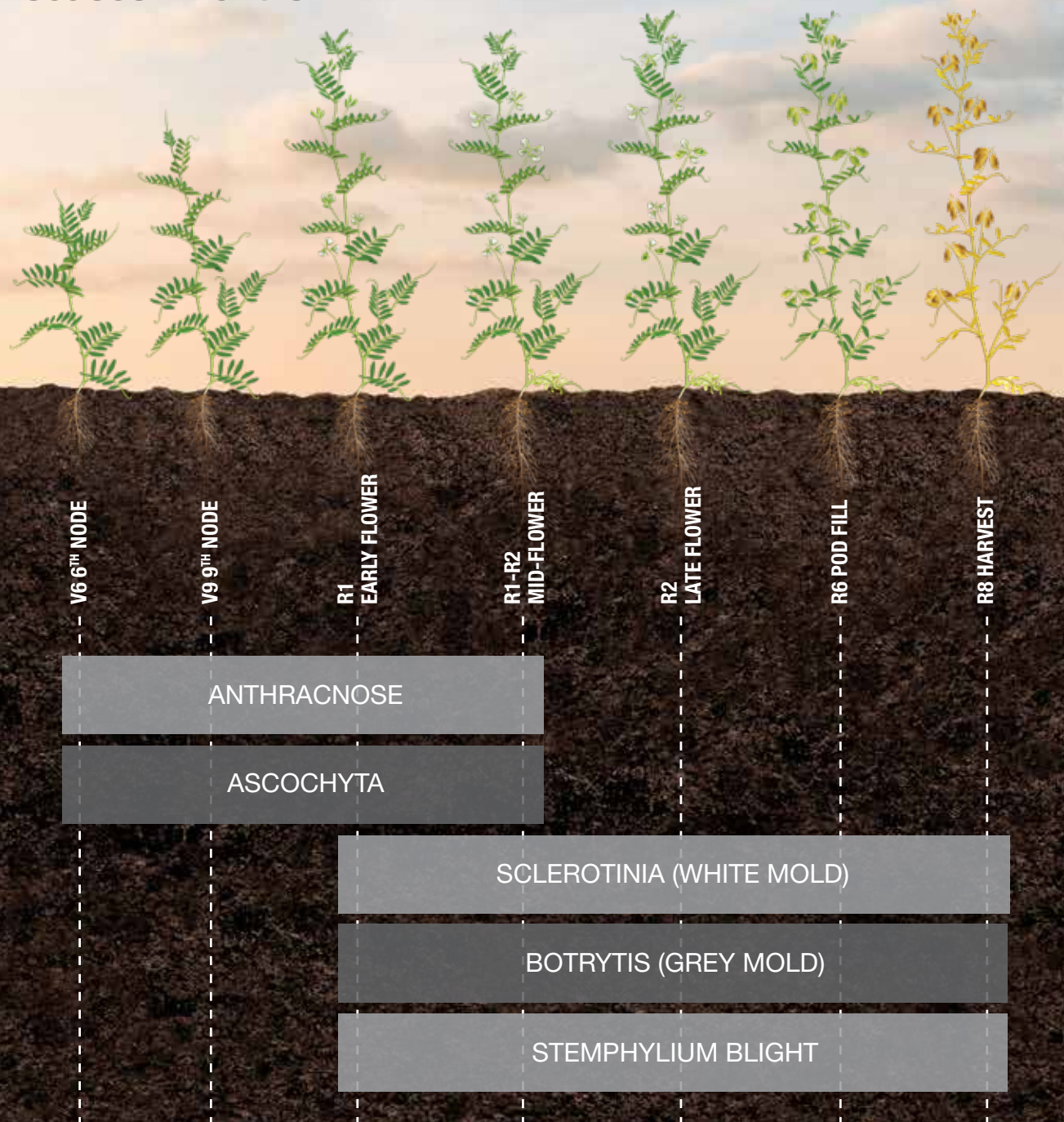




**TIP: Mycosphaerella blight in peas and anthracnose in lentils are the most prevalent diseases in pulse crops and it's important to have a plan to prevent them.<sup>1</sup> Early fungicide application is a key strategy for getting ahead of disease and establishing a healthy pea or lentil crop.**

<sup>1</sup> The Canadian Phytopathological Society, Canadian Plant Disease Survey, 2017.

## Diseases in lentils.

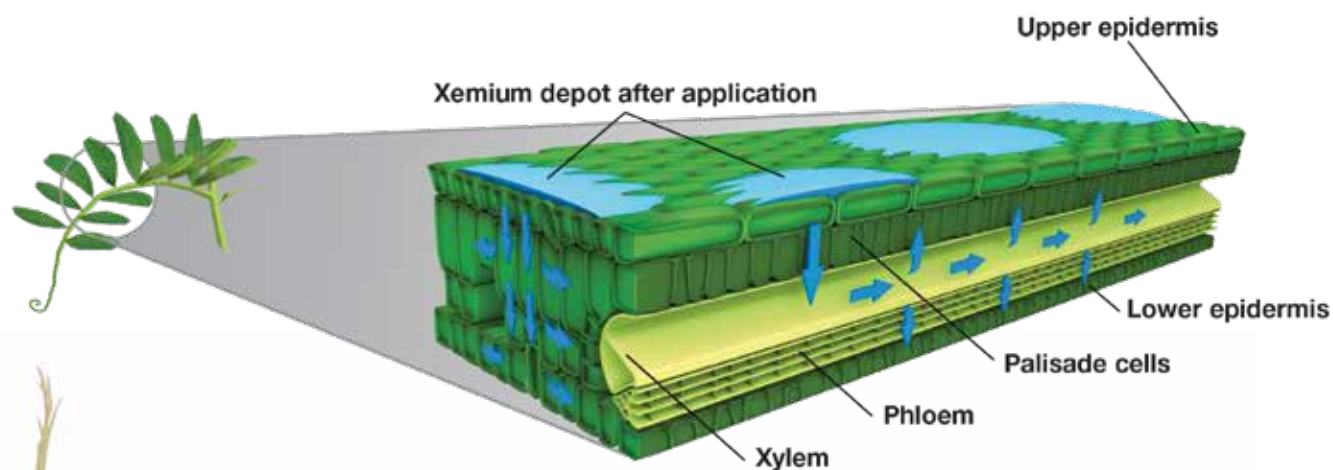


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## When it comes to disease management, you want Xemium on your team.

### How Xemium works.

Using a fungicide that contains Xemium, such as Priaxor or Dyax, is another way to improve disease management in your pulses. Xemium rearranges its chemical structure to better maneuver through different layers of the leaf, quickly reaching the target fungi. A portion of the Xemium applied also forms depots on the leaf surface for continuous release over time. The result is a fungicide that delivers more consistent and continuous disease control.

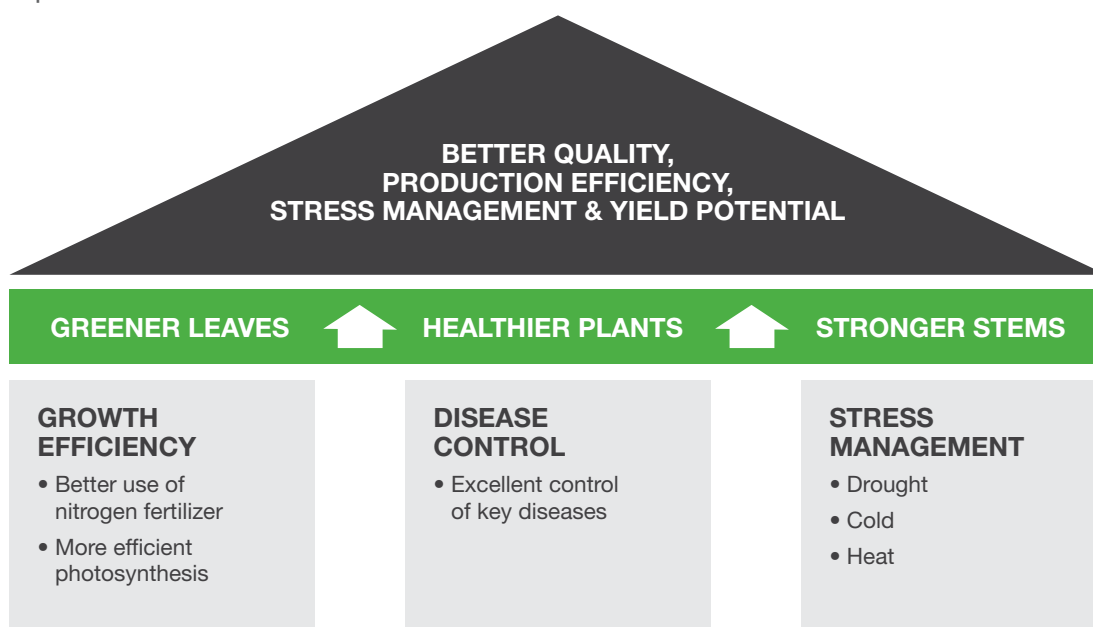




## A key ingredient you want in the mix.

### How AgCelence works.

**AgCelence** fungicides, such as Priaxor and Dyax, contain pyraclostrobin, an active ingredient that shuts down the mitochondria in fungal cells. Unlike any other fungicides, research shows that **AgCelence** fungicides also interact with the crop itself to increase the plant's growth efficiency and ability to manage minor stress. The result is a larger, healthier crop better able to achieve its maximum potential.



### The AgCelence advantage of Priaxor in field peas



**84%** Greener leaf retention = greener longer

**89%** Taller, less lodged crop = easier to harvest

**72%** Increased length of pod fill = more yield potential

Source: BASF Ag Performance Trials, 2014  
n=18 vs. all competitors combined

Each trial assessed 5 locations with 10 plants each  
40 ac of Priaxor vs. 40 ac of competitor on same field and variety.



**BASF**  
We create chemistry

**AgCelence**  
Expect more

## Clear choices. Easier decisions.

Take preventative action against disease in your pulse crops by choosing a fungicide that best fits the needs of your operation. Start by identifying whether your crops are facing high, moderate or low disease pressure and follow up with the recommended fungicide application.

<b>NORMAL – LOW DISEASE PRESSURE</b>	<b>MODERATE – HIGH DISEASE PRESSURE</b>	<b>HIGH DISEASE PRESSURE</b> including late season sclerotinia (white mold) concerns
<p><b>EARLY SEASON DISEASES</b></p> <p><b>In peas:</b> mycosphaerella blight</p> <p><b>In lentils:</b> ascochyta blight anthracnose</p>	<p><b>EARLY SEASON DISEASES</b></p> <p><b>In peas:</b> mycosphaerella blight</p> <p><b>In lentils:</b> sclerotinia (white mold) botrytis (grey mold) anthracnose ascochyta blight</p>	<p><b>EARLY SEASON DISEASES</b></p> <p><b>In peas:</b> mycosphaerella blight</p> <p><b>In lentils:</b> anthracnose</p> <p><b>LATE SEASON DISEASES</b></p> <p><b>In peas:</b> sclerotinia (white mold)</p> <p><b>In lentils:</b> sclerotinia (white mold) botrytis (grey mold)</p>
<p><b>Priaxor</b><sup>®</sup> Xemium<sup>®</sup> Fungicide</p> <p>Priaxor is the proven, trusted standard for disease control in pulses, combining the unique mobility of Xemium with <b>AgCelence</b> benefits<sup>1</sup>.</p>	<p><b>Dyax</b><sup>™</sup> Xemium<sup>®</sup> Fungicide</p> <p>With increased levels of Xemium, the premium pulse fungicide Dyax provides improved disease control.</p>	<p><b>Dyax</b><sup>™</sup> Xemium<sup>®</sup> Fungicide</p> <p>With increased levels of Xemium, the premium pulse fungicide Dyax provides improved disease control.</p> <p><b>Followed by:</b></p> <p><b>Cotegra</b><sup>®</sup> Fungicide</p> <p>With two industry-leading active ingredients targeting sclerotinia, Cotegra brings a new era of white mold management.</p>

<sup>1</sup> AgCelence benefits refer to products that contain the active ingredient pyraclostrobin.



# Priaxor®

Xemium® Fungicide

## Rely on the proven standard for disease management.

Priaxor fungicide is the proven standard for maximizing your pulse's yield potential.<sup>1</sup> It combines the unique mobility of Xemium with the proven benefits<sup>2</sup> of **AgCelence** to deliver:

- Results that lead to more consistent and continuous control of disease, including anthracnose and ascochyta, along with increased growth efficiency and better management of minor stress<sup>1</sup>
- Multiple modes of action for increased performance and reduced risk of developing fungicide resistance

<sup>1</sup> All comparisons are to untreated, unless otherwise stated.

<sup>2</sup> **AgCelence** benefits refer to products that contain the active ingredient pyraclostrobin.



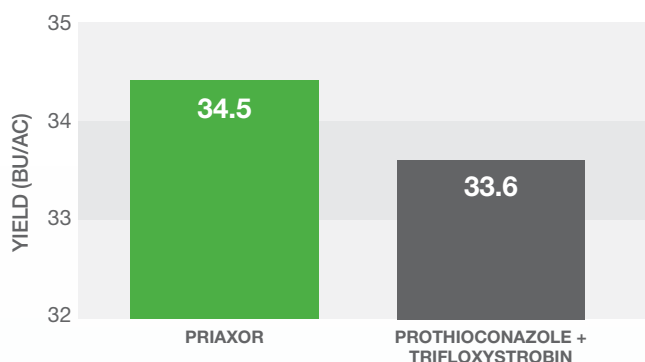
**BASF**  
We create chemistry

 **AgCelence®**  
Expect more

## Developed in the lab. Proven in the field.

Results from over 40 grower-applied, field-scale trials in 2015 showed that Priaxor delivered better disease control and increased yield potential compared to the leading competitive pulse fungicide in peas and lentils.

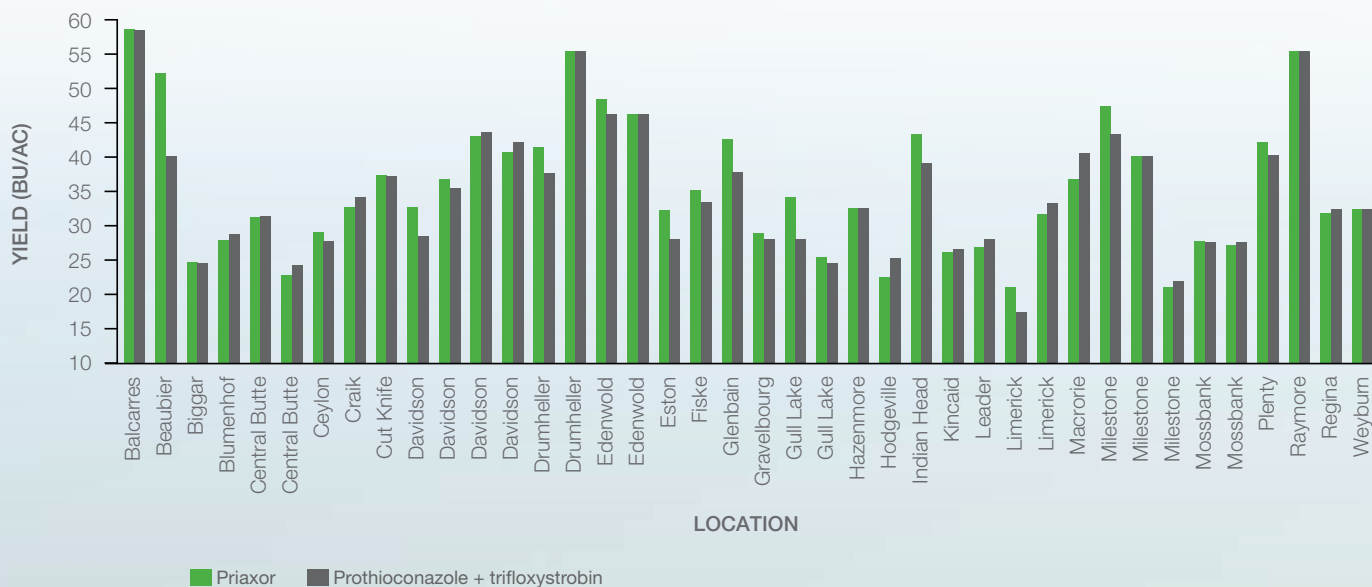
Pulse yield comparison



Priaxor yielded an average of up to 1 bu/ac over the competitor.

Source: BASF grower-applied trials, Western Canada, 2015, n=42

Trial results by region

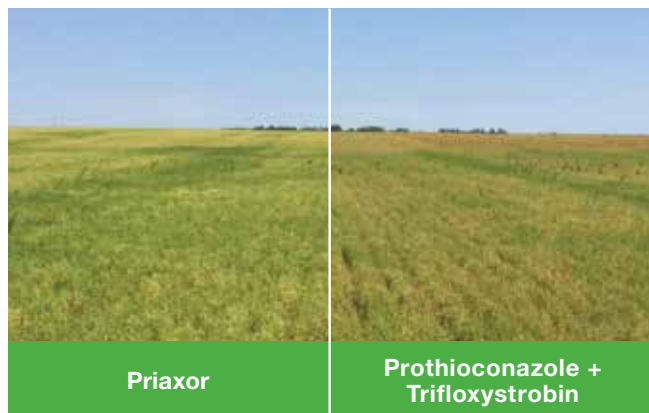


Source: BASF grower-applied trials, Western Canada, 2015, n=42



**With Priaxor comes a difference so clear,  
it's hard to ignore.**

Comparison of disease control



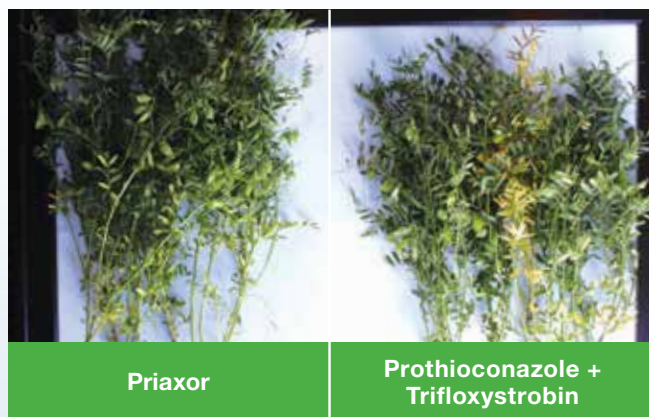
Source: BASF grower-applied trials, Western Canada, 2015

Comparison of disease control



Source: BASF grower-applied trials, SK, 2015

Comparison of disease control in lentils



Source: BASF grower-applied trials, Davidson, SK, 2015

**TIP:** When applying your fungicide, be sure to use the recommended water volumes to ensure thorough penetration of the canopy and adequate coverage.



**BASF**  
We create chemistry

**AgCelence**  
Expect more

# Dyax™

Xemium® Fungicide

## High disease pressure? No problem.

Dyax fungicide is a premium fungicide designed for peas and lentils. It contains increased levels of Xemium for even more consistent and continuous disease control. It also includes:

- Proven benefits<sup>1</sup> of **AgCelence** for increased growth efficiency, better management of minor stress and greater yield potential<sup>2</sup>
- Multiple modes of effective action for broad-spectrum disease control and resistance management in pulses

**Dyax yielded an average of 2 bu/ac over the competitor in field peas and lentils.<sup>3</sup>**

<sup>1</sup> **AgCelence** benefits refer to products that contain the active ingredient pyraclostrobin.

<sup>2</sup> All comparisons are to untreated, unless otherwise stated.

<sup>3</sup> In a dry year.



 **AgCelence®**  
*Expect more*

 **BASF**  
We create chemistry

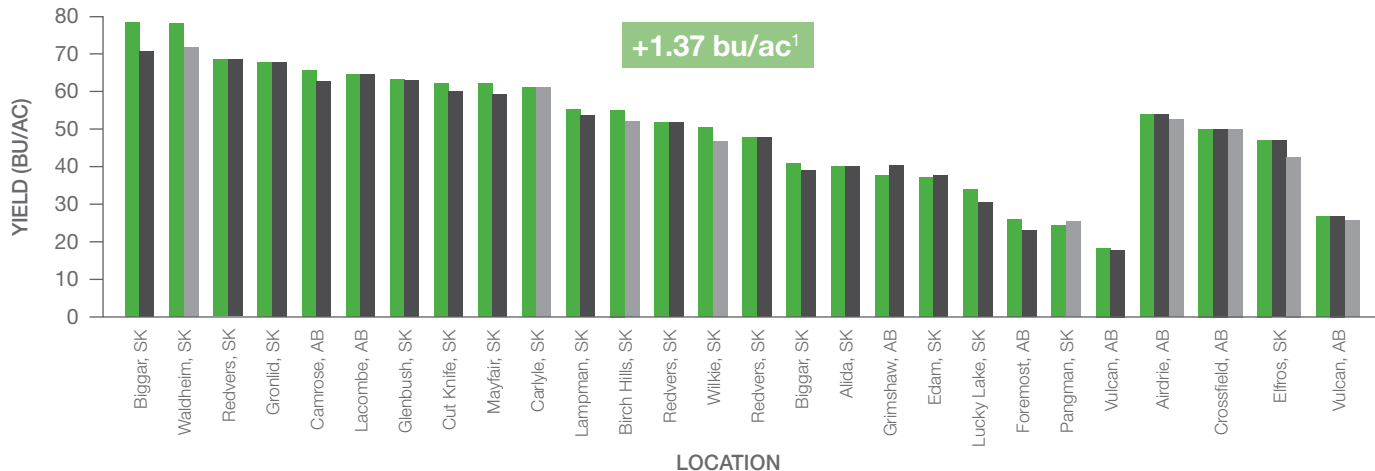


## Results you can see for yourself.

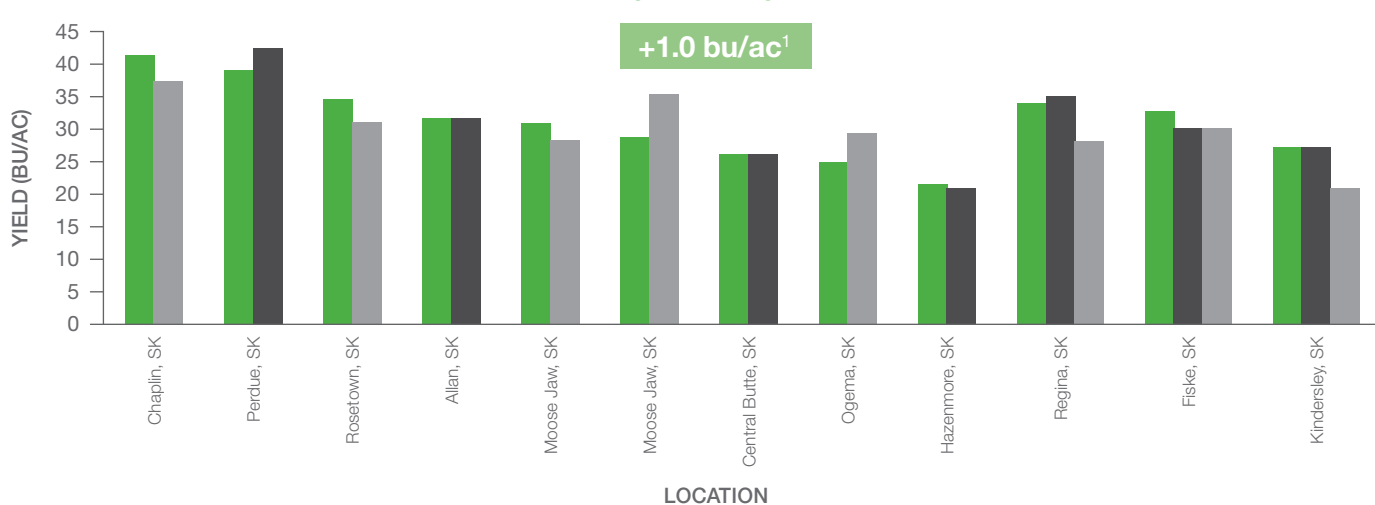
As seen in the BASF field trials in 2017-2018, Dyax manages disease and increases the yield potential for both pea and lentil crops across diverse regions in Western Canada.

■ Dyax ■ Competitor 1 ■ Competitor 2

### Increased yield with Dyax for peas



### Increased yield with Dyax for lentils

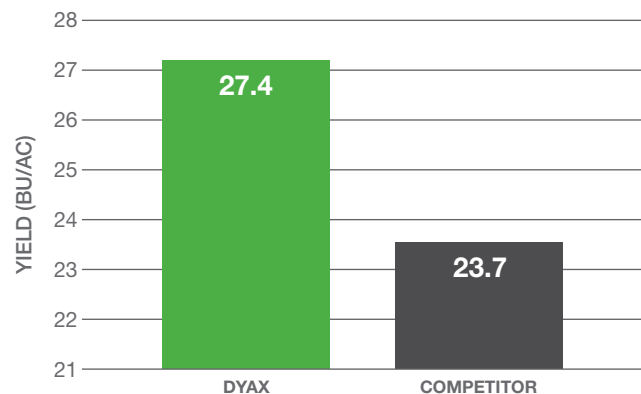


<sup>1</sup> Average yield increase compared to competitors in 2017-2018  
Source: BASF internal trials, 2017-2018, for peas n=27, for lentils n=12

### Increased growth efficiency and disease control with Dyax for peas



### Chickpea yield comparison



Source: BASF grower-applied trial, Foremost, AB, 2017

Source: BASF internal trials, 2017, n=1

# Cotegra®

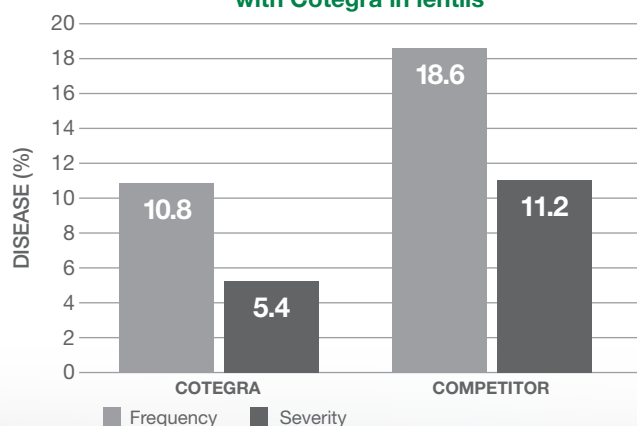
Fungicide

## We've raised the bar on sclerotinia (white mold) management. Again.

Cotegra fungicide preserves yield and quality in pulse crops by delivering:

- Best-in-class management of sclerotinia
- Two industry-leading active ingredients targeting sclerotinia in a liquid premix for increased performance and multiple modes of action
- Greater convenience and flexibility in a wide range of crops including canola, pulses, soybeans and dry beans

Decreased disease frequency and severity with Cotegra in lentils



Source: BASF grower-applied trials, 2016, n=9

Increased sclerotinia (white mold) management in lentils



Source: BASF Ag Performance Trials, Montmartre SK, 2016

**TIP:** Damp conditions support the development of sclerotinia by giving sclerotia the environment they need to germinate and produce apothecia. These golf-tee-like mushrooms then produce ascospores, which are distributed by wind and rain to infect plant tissue.



## Get a birds eye view of how these fungicides compare for lentils and peas.

Products	Priaxor	Dyax	Cotegra	Elatus®	Delaro®	Acapela®
Active ingredients per L of product	167 g Fluxapyroxad Group 7 333 g Pyraclostrobin Group 11	250 g Fluxapyroxad Group 7 250 g Pyraclostrobin Group 11	250 g Boscalid Group 7 150 g Prothioconazole Group 3	250 g Azoxystrobin Group 11 100 g Benzovindiflupyr Group 7	175 g Prothioconazole Group 3 150 g Trifloxystrobin Group 11	250 g Picoxystrobin Group 11
Rate	120 ml/ac	160 ml/ac	280 ml/ac	Azoxystrobin – 200 ml/ac Benzovindiflupyr – 200 ml/ac	355 ml/ac	240 to 352 ml/ac
Acres	160 ac/case	120 ac/case	70 ac/case	40 ac/case	40 ac/case	54 to 80 ac/case
Diseases for lentils	Anthracnose	Anthracnose	—	Anthracnose	Anthracnose	Anthracnose
	Ascochyta blight	Ascochyta blight	—	Ascochyta blight	Ascochyta blight	Ascochyta blight
	—	—	—	Asian soybean rust	—	Asian soybean rust
	—	—	—	—	Botrytis (grey mold)	—
	—	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold)	Sclerotinia (white mold) <sup>1</sup>
Diseases for peas	Mycosphaerella blight	Mycosphaerella blight	—	Mycosphaerella blight	Mycosphaerella blight	Mycosphaerella blight <sup>1</sup>
	Ascochyta blight	Ascochyta blight <sup>2</sup>	—	Ascochyta blight	Ascochyta blight	—
	Powdery mildew	Powdery mildew	—	Powdery mildew	—	—
	Downy mildew <sup>1</sup>	—	—	—	—	—
	—	—	—	—	Botrytis (grey mold)	—
	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold) <sup>1</sup>	Sclerotinia (white mold)	Sclerotinia (white mold) <sup>1</sup>
Application timing	Beginning of flowering or prior to row closure	Beginning of flowering or prior to row closure	Beginning of flowering or at first sign of disease	At first sign of disease, and no later than onset of flowering	Beginning of flowering or at first sign of disease	Prior to disease development or beginning bloom and full bloom for white mold
Packaging	2 x 9.6 L jugs	2 x 9.6 L jugs	2 x 9.8 L jugs	1 x 8.1 L (Azoxystrobin) + 1 x 8.1 L (Benzovindiflupyr) co-pack	2 x 7.1 L jug	2 x 9.6 L jug

<sup>1</sup> Suppression. <sup>2</sup> Not on current label. This disease has been submitted to the PMRA for registration.



**MANAGE YOUR  
HARVEST  
WITH THE PROPER  
PRE-HARVEST.**





# Harvest Management

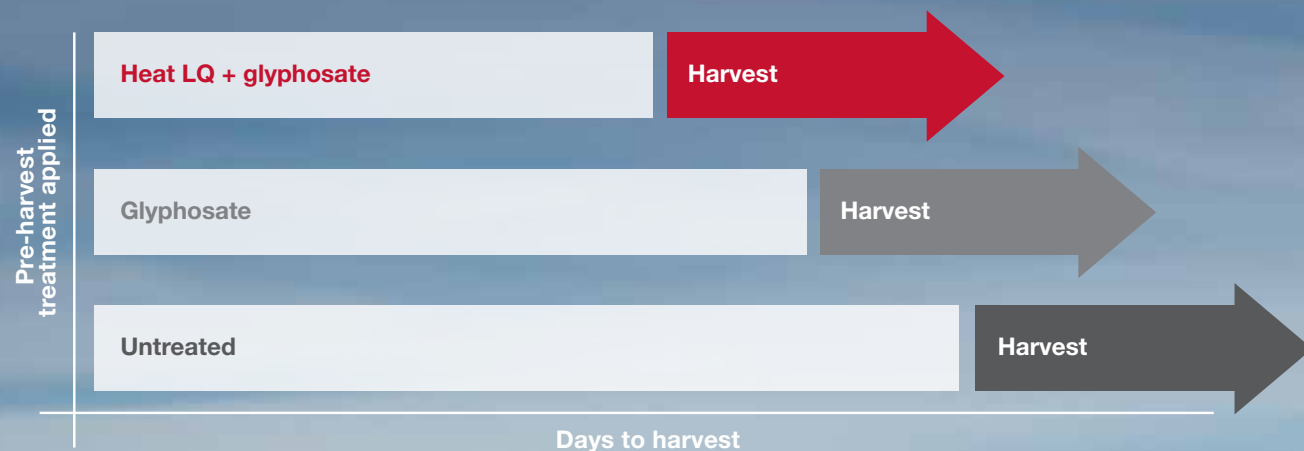
# Heat<sup>®</sup> LQ

Powered by Kixor<sup>®</sup> Herbicide

## Timing is everything.

Timing is essential to your pre-harvest herbicide application. To optimize the yield and quality of your harvest, scout regularly and keep an eye on the weather forecast. Rainfall, cool temperatures and high humidity can slow your plant and weed dry down, delaying the start of your harvest. Choose a harvest management tool with the contact or systemic properties to suit your needs or tank mix Heat LQ plus glyphosate to get both.

### Comparison of days to harvest





## Time to get the breakdown on these dry downs.

See how these pre-harvest herbicides compare and choose the one that fits best with your operation.

Heat LQ + glyphosate	Diquat	Glyphosate
<ul style="list-style-type: none"> <li>■ Contact and systemic activity</li> <li>■ Speeds up crop and weed dry down</li> <li>■ Translocates to growing points of plant for complete plant death/ reduced risk of regrowth</li> <li>■ Perennial weed control</li> <li>■ Minimum water volume – <b>10 gal/ac</b></li> <li>■ 1-pass for both crop and weed dry down including the following season</li> <li>■ Key weeds controlled: Canada thistle, quackgrass, perennial sow thistle, dandelion, narrow-leaved hawk's beard, foxtail barley, cleavers, volunteer canola, and wild buckwheat</li> <li>■ Provides 1.5-2 times faster crop dry down compared to glyphosate alone</li> </ul>	<ul style="list-style-type: none"> <li>■ Contact activity causes rapid dry down of plant tissue</li> <li>■ May not result in complete plant death, leading to regrowth</li> <li>■ No perennial weed control</li> <li>■ Minimum water volume – <b>20 gal/ac</b></li> <li>■ Treatment is often more effective when application is made on cloudy days or prior to periods of darkness, including early morning or late evening</li> <li>■ Potential marketing issues for certain markets<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>■ Systemic activity</li> <li>■ Helps improve crop uniformity for even dry down, but is the slowest herbicide option</li> <li>■ Use for perennial weed-control benefits</li> <li>■ Key weeds controlled: Canada thistle, quackgrass, perennial sow thistle, dandelion, narrow-leaved hawk's beard, foxtail barley and wild buckwheat</li> </ul>













<sup>1</sup> Pulse Canada, 2017.



**TIP: To maximize coverage, use higher water volumes and drive sprayers at slower speeds. Point nozzles backwards and adjust sprayer pressure for finer droplets.**


## You won't be able to get over this overview of Heat LQ.


Consider potential marketing issues for your pre-harvest herbicide choice.

Crop Protection Products	Peas	Lentils	Comments
Glyphosate			Consult with your exporter/processor before using the product for certain crops/destinations. MRLs are established in key markets, however MRLs are set at low levels for dry beans in the EU and Japan and all pulse crops in Korea except for lentils.
Diquat (Reglone®)			Consult with your exporter/processor on pulse crops destined for the U.S. MRLs are established in key markets but are set at low levels in the U.S.
Saflufenacil (Heat LQ)			MRLs have been established for all major export crops.
Glufosinate			Consult with your exporter/processor before using the product. MRLs are established in the EU and Japan, but not in the U.S. or at CODEX.
Carfentrazone			Consult with your exporter/processor before using the product. MRLs are established in the EU, U.S. and Japan, but not at CODEX.
Flumioxazin			Consult with your exporter/processor before using the product for certain crops/destinations. MRLs are established in key markets, however MRLs are set at low levels for beans, chickpeas and lentils in the EU.

Source: Pulse Canada, Market Access, Crop Protection Products Bulletin, 2017, <http://www.pulsecanada.com/pulse-industry/market-access>

 – No marketing issues.

 – Know your market. There is at least one market where MRLs are not established. Consult with your exporter/processor.

 – Not registered. Only use registered products.

## Heat Harvest\*, a tool for the future.

With a Group 14 active ingredient ready to tank mix with glyphosate at a 1:1 ratio, Heat Harvest\* herbicide is a dedicated pre-harvest solution that provides a fast dry down of broadleaf crops and weeds. Packaged in bulk format with a pre-mixed adjuvant, it saves time and hassle during the busiest time of the year.

**Heat Harvest**  
Powered by **Kixor®** Herbicide

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



## Harvesting peas and lentils?<sup>1</sup> The heat is on.

Applied at pre-harvest, Heat LQ offers:

- The benefits of an easy-to-use liquid formulation for fast dry down of crops and control of broadleaf weeds
- Improved crop uniformity, harvestability and storability
- Control of broadleaf and perennial weeds when tank-mixed<sup>2</sup> with glyphosate, for cleaner fields next season

Comparison of field peas, 7 days after application



Source: BASF Ag Performance Trials, Penhold, AB, 2010

Comparison of lentils, 12 days after application



Source: BASF Ag Performance Trials, 2015

## Work this into your rotation.

Whether it's pre-harvest or post-harvest, find out which crops can be planted and when following an application of Heat LQ herbicide.

Heat LQ Rate	
Following Season	Second Season (1-season interval required)
Barley (spring, winter and malting) Canary seed Canola Chickpeas Corn (field and sweet) Flax Lentils Mustard Oats Dry field peas Soybeans Wheat (spring, winter and durum)	All crops

<sup>1</sup> BASF supports the use of Heat LQ for pre-harvest for red lentils, however we are still in the process of aligning the Maximum Residue Limit (MRL) in the European Union with other trade jurisdictions. NOTE: 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. <sup>2</sup> For seed production fields, Heat LQ should be used as a standalone product only. BASF and third party research have shown no decrease in seed germination from an application of Heat LQ.



**THERE'S  
MORE  
WHERE  
THIS  
CAME  
FROM.**



For product information, agronomic advice and more, explore our resources and see what they have to offer.

#### **BASF Pulse Solution Website**

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#### **Knowledge Centre**

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## Always read and follow label directions.

**AgCelence, AgSolutions, BIOSTACKED, Clearfield**, the unique Clearfield symbol, CLEARFIELD-CONFIRM, COTEGRA, DISTINCT, HEAT, INSURE, KIXOR, MERGE, NODULATOR, ODYSSEY, POAST, PRIAXOR, SOLO, VIPER, and XEMIUM are registered trade-marks; and DYAX is a trade-mark of BASF; all used with permission by BASF Canada Inc. INSURE PULSE fungicide seed treatment, and COTEGRA, DYAX, and/or PRIAXOR fungicides should be used in a preventative disease control program. © 2019 BASF Canada Inc.

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