

SEED TREATMENT & INOCULANT GUIDE 2020.

CEREALS | PULSES

GET IT.
UFA
DONE.

CERTIFIED SEED
PULSES
CEREALS



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OTHER AVAILABLE GUIDES:

- Seed Guide
- Essential Nutrients Guide
- Crop Storage and Handling Guide
- Forage Guide
- Livestock Minerals and Supplements Guide

ONE UFA FOR ALL YOUR NEEDS.

UFA has everything you need to give your cereal and pulse crops the best possible start. Our seed treatment and inoculant products are specially formulated to protect and support UFA's broad seed offerings, allowing your crops to thrive in your local growing conditions.

We also provide a full lineup of essential nutrients, crop protection products, fuel, fuel delivery, financing options and our dedicated Customer Account Managers (CAMs) who can help you plan your crop, scout and are always just a phone call away with help and advice.



CEREALS

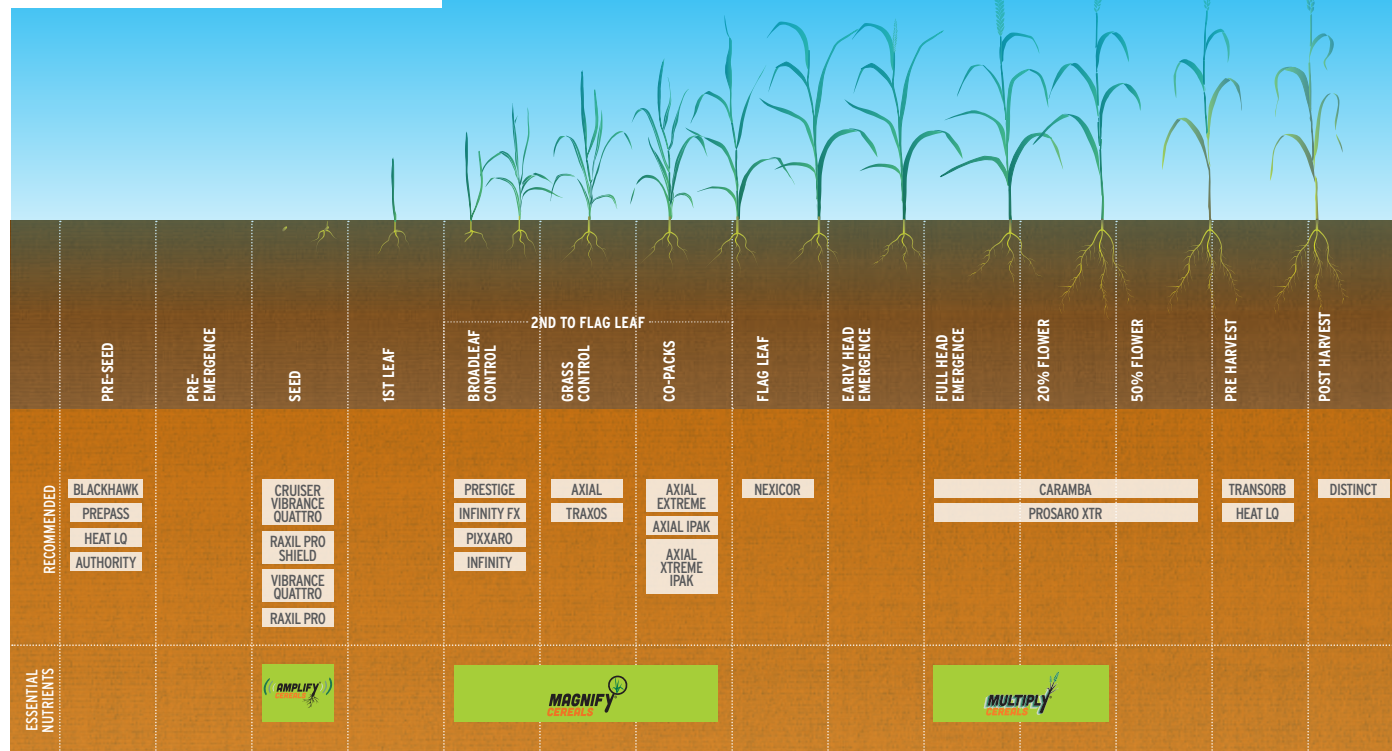
For many, cereals are a key crop because of their reliability within local markets. Still, when cereals turn on grade as much as they yield, UFA is here to help and support for your season's success. We have a wide range of solutions starting with effective seed treatments designed to protect your valuable crop from early season insects and disease. Fast, strong, uniform crop emergence starts with seed treatment - let us help you choose the right option for your unique farm conditions.





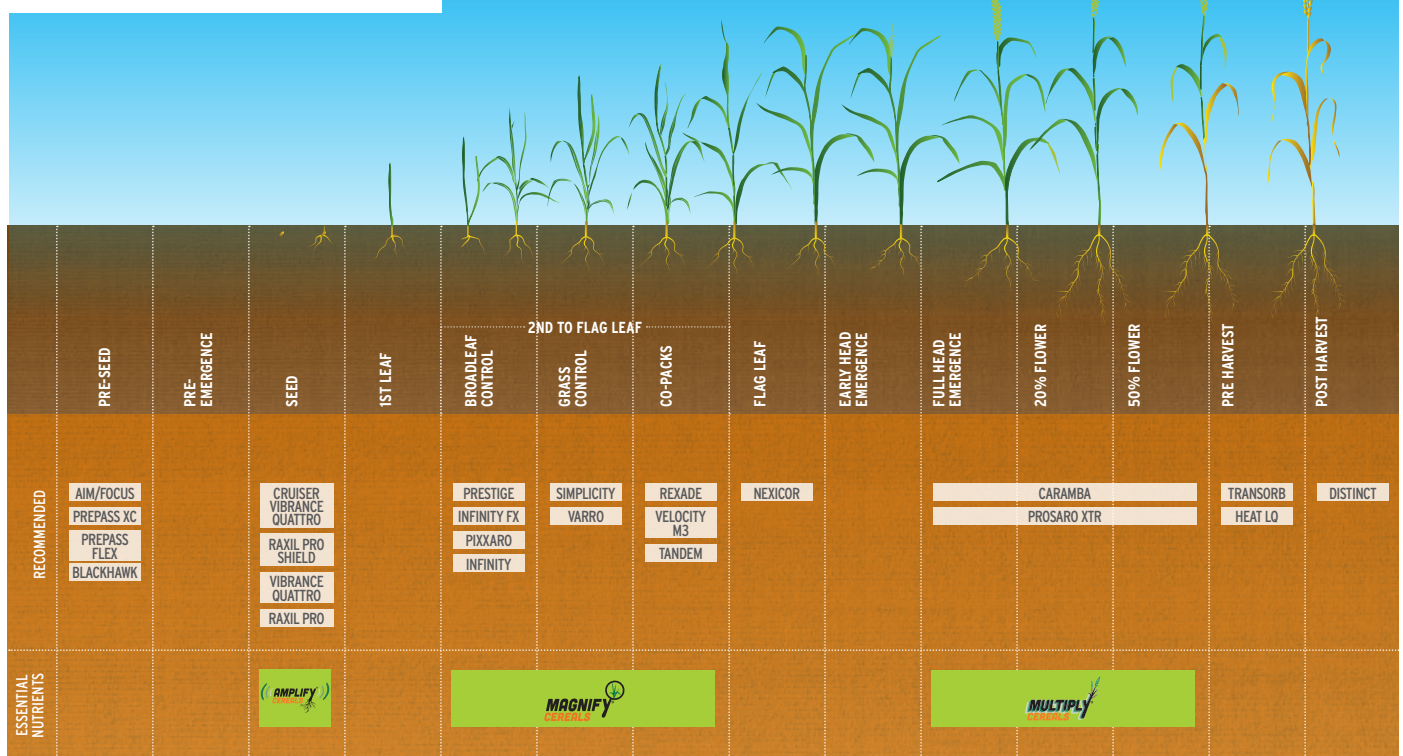
WHEAT GROUP 1

CROP STAGE SOLUTIONS



WHEAT GROUP 2

CROP STAGE SOLUTIONS



ALWAYS READ AND FOLLOW LABEL DIRECTIONS.
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CEREAL SEED TREATMENT COMPARISON

Fungicide Only

| | Syngenta Vibrance® Quattro | Bayer Raxil® PRO | BASF Insure® Cereal FX4 |
|--|--|--|--|
| Container size(s) | 10 L, 115 L, 450 L | 10 L, 58.5 L , 175.5 L | 9.8 L, 120 L, 450 L |
| Application Rate mL/100 kg seed | 325 mL | 325 mL | 300 mL |
| Wheat | 113/10 L jug | 113/10 L jug | 120/9.8 L jug |
| Barley | 141/10 L jug | 141/10 L jug | 150/9.8 L jug |
| Oats | 200/10 L jug | 200/10 L jug | 212/9.8 L jug |
| Active Ingredients | Difenoconazole, Metalaxyl-M, Sedaxane, Fludioxonil | Prothioconazole, Tebuconazole, Metalaxyl | Pyraclostrobin, Triticonazole, Fluxapyroxad, Metalaxyl |
| Fungicide Group | 3, 4, 7, 12 | 3, 4 | 3, 4, 7, 11 |
| Insect Control (Need to Tank Mix) | Cruiser 5FS | Stress Shield | None registered |
| Wheat Diseases | | | |
| Seed Rot & Damping off caused by: | | | |
| <i>Fusarium</i> spp. | C | C | C |
| <i>Cochliobolus sativus</i> | S | C | C |
| <i>Pythium</i> spp. | C | C | C |
| <i>Rhizoctonia</i> | C | S | C |
| <i>Penicillium</i> | C | S | |
| <i>Aspergillus</i> | C | C | |

C CONTROL **S** SUPPRESSION* NOT REGISTERED

*Suppression means consistent control at a level that is not optimal, but is still of commercial benefit.

| | Syngenta Vibrance® Quattro | Bayer Raxil® PRO | BASF Insure® Cereal FX4 |
|-----------------------------------|-------------------------------|---------------------|----------------------------|
| Wheat Diseases (continued) | | | |
| Seedling Blight caused by: | | | |
| <i>Fusarium</i> spp. | C | C | C |
| <i>Pythium</i> spp. | C | C | C |
| <i>Cochliobolus sativus</i> | S | C | S |
| Common Root Rot caused by | | | |
| <i>Fusarium</i> spp. | C | | S |
| <i>Pythium</i> spp. | C | | C |
| <i>Cochliobolus sativus</i> | S | S | S |
| Loose Smut | C | C | C |
| Common Bunt | C | C | C |
| Fusarium Crown and Foot Rot | S | S | S |
| Take All | S | | |
| Barley Diseases | | | |
| True Loose Smut | C | C | C |
| False/covered Smut | C | C | C |
| Common Root Rot | S | S | S |
| <i>Pythium</i> spp. | C | C | C |
| <i>Fusarium</i> spp. | C | C | C |
| Take All | S | | |
| <i>Rhizoctonia</i> | C | S | |
| Leaf Stripe | | C | |

CEREAL SEED TREATMENT COMPARISON

Fungicide plus Insecticide

| | Syngenta Cruiser® Vibrance® Quattro | Bayer Raxil® PRO Shield | Nufarm Nipsit™ Suite |
|--|---|---|--------------------------------------|
| Container size(s) | 10 L, 115 L, 450 L | 10 L + 1.54 L and 175.5 L + 27 L | 10 L, 110 L |
| Application Rate mL/100 kg seed | 325 mL | Raxil PRO 325 mL Stress Shield 50 mL | 326 mL |
| Application Rate bu/jug | | | |
| Wheat | 113/10 L jug | 113/10 L jug | 113/10 L jug |
| Barley | 141/10 L jug | 141/10 L jug | 141/10 L jug |
| Oats | 200/10 L jug | 200/10 L jug | |
| Active Ingredients | Difenoconazole, Metalaxyl-M, Sedaxane, Fludioxonil, Thiamethoxam | Prothioconazole, Tebuconazole, Metalaxyl, Imidacloprid | Metalaxyl, Metconazole, Clothianidin |
| Insecticide Group | 4 | 4 | 4 |
| Fungicide Group | 3, 4, 7, 12 | 3, 4 | 3, 4 |
| Insecticidal Activity | | | |
| Wireworm | S | S | S |
| Wheat Diseases | | | |
| Seed Rot and damping off caused by: | | | |
| <i>Fusarium</i> spp. | C | C | C |
| <i>Cochliobolus sativus</i> | S | C | C |
| <i>Pythium</i> spp. | C | C | C |
| <i>Rhizoctonia</i> | C | S | |
| <i>Penicillium</i> | C | S | |
| <i>Aspergillus</i> | C | C | |

C CONTROL **S** SUPPRESSION* NOT REGISTERED

*Suppression means consistent control at a level that is not optimal, but is still of commercial benefit.

| | Syngenta Cruiser Vibrance® Quattro | Bayer Raxil® PRO Shield | Nufarm Nipsit™ Suite |
|-----------------------------------|---------------------------------------|----------------------------|-------------------------|
| Wheat Diseases (continued) | | | |
| Seedling Blight caused by: | | | |
| <i>Fusarium</i> spp. | C | C | C |
| <i>Pythium</i> spp. | C | C | C |
| <i>Cochliobolus sativus</i> | S | C | S |
| Common Root Rot caused by: | | | |
| <i>Fusarium</i> spp. | C | | C |
| <i>Pythium</i> spp. | C | | C |
| <i>Cochliobolus sativus</i> | S | S | S |
| Loose Smut | C | C | C |
| Common Bunt | C | C | C |
| Fusarium Crown and Foot Rot | S | S | |
| Take All | S | | |
| Barley Diseases | | | |
| True Loose Smut | C | C | C |
| False/covered Smut | C | C | C |
| Common Root Rot | S | S | S |
| <i>Pythium</i> spp. | C | C | C |
| <i>Fusarium</i> spp. | C | C | C |
| Take All | S | | |
| <i>Rhizoctonia</i> | C | S | |
| Leaf Stripe | | C | |



AGI STORM

TREAT NOW, SAVE TIME LATER

No matter what, we can all agree that a strong head start makes for a strong season. Have UFA treat your seed this fall and be ready for Spring 2020.

BENEFITS OF UFA FALL SEED TREATMENT:

TIME MANAGEMENT

- Spring is hectic- gain peace of mind knowing seed is ready
- We come right to you

APPLICATION ACCURACY


- Uniform application for complete coverage
- There is no leftover seed treatment; you only purchase what is treated on seed

REDUCED SEED HANDLING

- Less impact on seed

ENHANCED CROP PERFORMANCE

- Protect seeds and seedlings from early-season insect pests and seed- or soil-borne pathogens

A person wearing a tan cap and safety glasses is looking at a red Storm Treater machine. The machine has a touchscreen display showing a software interface with various colored buttons and text. Below the screen, there are two large red knobs and a small logo. The background is blurred, showing other people and equipment.

**WITH THE STORM TREATER, WE
CAN APPLY SEED TREATMENT WITH
GREAT COVERAGE ON YOUR CEREALS.
THERE IS NEVER ENOUGH TIME IN
THE SPRING TO GET EVERYTHING
COMPLETED - SO LET US ARRANGE A
TIME TO COME TO YOUR FARM AND
TREAT YOUR SEED.**

Shelly Skoberg - CAM Camrose

AMPLIFY YOUR PLANT HEALTH!

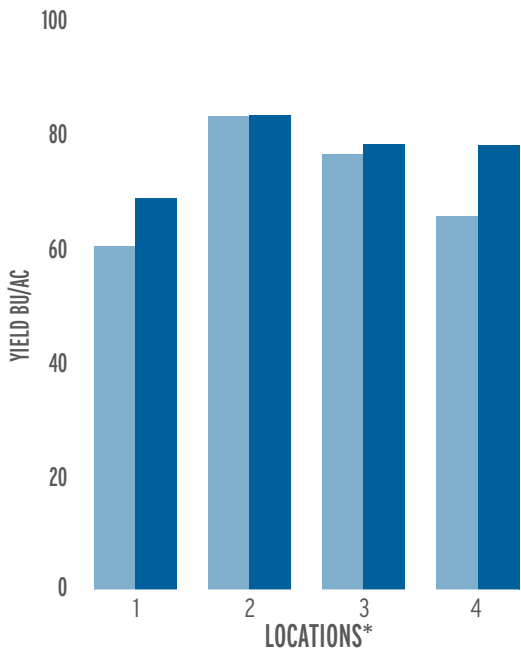


When young, emerging plants have all the essential nutrients they need, you get fast germination, rapid vegetative growth and maximized vigour. You can deliver those nutrients with Amplify®, a seed-applied essential nutrient product that helps cereal and pulse crops better withstand the typical early-season stressors for a stronger, healthier start. It contains proprietary bio-stimulants that removes inherent barriers to the plant's full genetic potential.

Amplify is available for cereals and pulses, and our proprietary formulation was designed specifically to address the unique growing conditions of each prairie province. Simply ask for Amplify to be applied to your treated cereal and pulse seed (treat first, then apply Amplify). Complete your pulse seed preparation by adding inoculant last.

CEREALS SEED-APPLIED NUTRIENTS

2017 ATP AVERAGE TRIAL RESULTS



*Various Western Canada locations

■ Check

■ Treated

Average
5.7
BU/AC
increase with
Amplify



0-7-1 + 4Zn + 2Cu + 1Mn + 0.125B +
Transit-S

Rate: 3 ml/kg seed

Crop Stage: BBCH 00
Seed Treatment



Check

Amplify

POWERED BY



Performance Guarantee



TARGETED SEEDING RATE

Regardless of the crop being seeded, optimizing yield starts with getting the proper number of seeds for the desired plant stand density seeded in the ground.

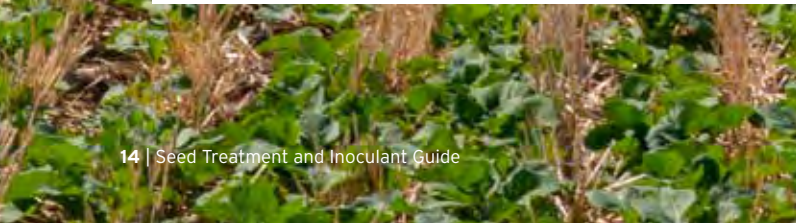
Research over the years has shown that seed size and weight is so variable, not only among varieties, but among seed batches there is no trusted rule of thumb of bushels or pounds per acre that will deliver the proper plant stand. For cereal, oilseed and pulse crop producers, it's a new era of targeting plants per square meter or square foot.

It's not really a new message, but with increasing input costs, efforts to increase yields and greater emphasis on profitability, producers are urged to use calculators to determine 1000 kernel/seed weights for each seed batch.

“THERE ARE SEVERAL FACTORS THAT WILL DETERMINE SEEDING RATE...

But starting with a properly measured and weighed seed count is an important first step. If you have a heavy seed batch, for example, and just go with a guesstimate, you can end up with fewer standing plants in the field to optimize yield potential.” Randy Campbell - CAM Claresholm

There are also several reliable on-line calculators to help producers determine proper seeding rate (Alberta Agriculture and Forestry website is one good example).

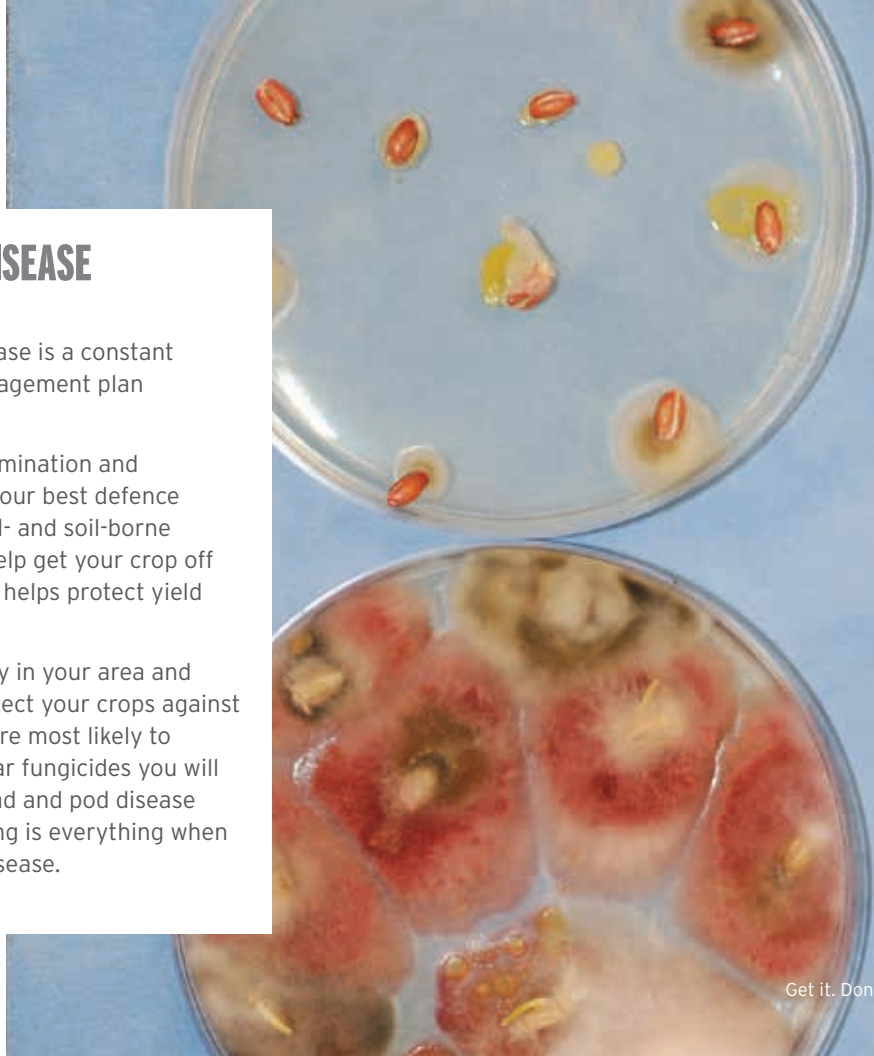


MAKE A PLAN TO MANAGE DISEASE

From seedling to grain or pod fill, disease is a constant presence that a well-thought-out management plan can defeat.

Plants are most vulnerable during germination and emergence and seed treatments are your best defence against underground attack from seed- and soil-borne disease. A good seed treatment can help get your crop off to a fast, uniform start, which, in turn, helps protect yield potential.

Talk to your CAM about disease history in your area and choose a seed treatment that will protect your crops against the seed- and soil-borne diseases you're most likely to encounter. Then think about what foliar fungicides you will need to protect against leaf, stem, head and pod disease and have them on hand, because timing is everything when it comes to controlling later season disease.



PULSES

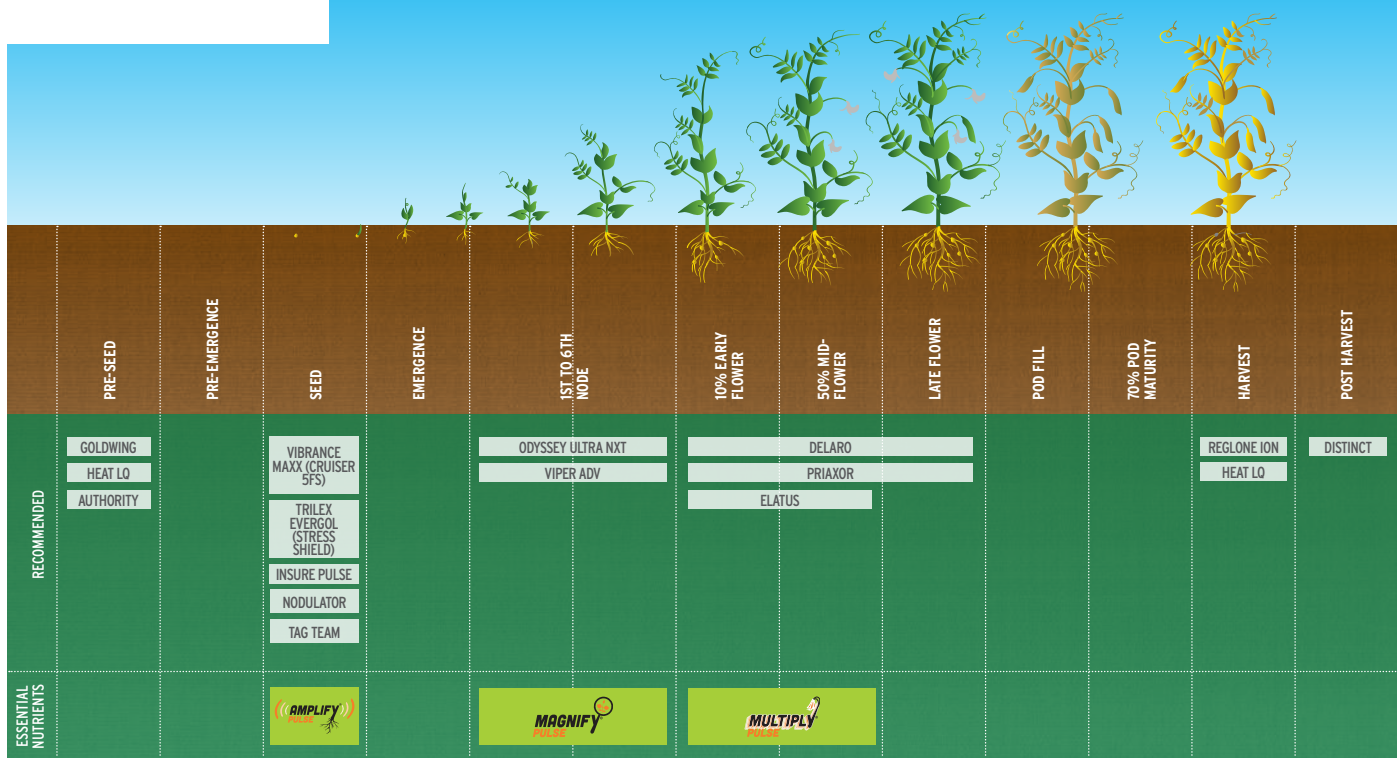
You know pulses can take a lot of TLC to get up and out of the ground and growing well. UFA can help you get your crops off to a strong, healthy start with an excellent line of pulse seed treatments, essential nutrients and inoculants. And we're there with you throughout the season with products and advice through every stage of crop growth to harvest.





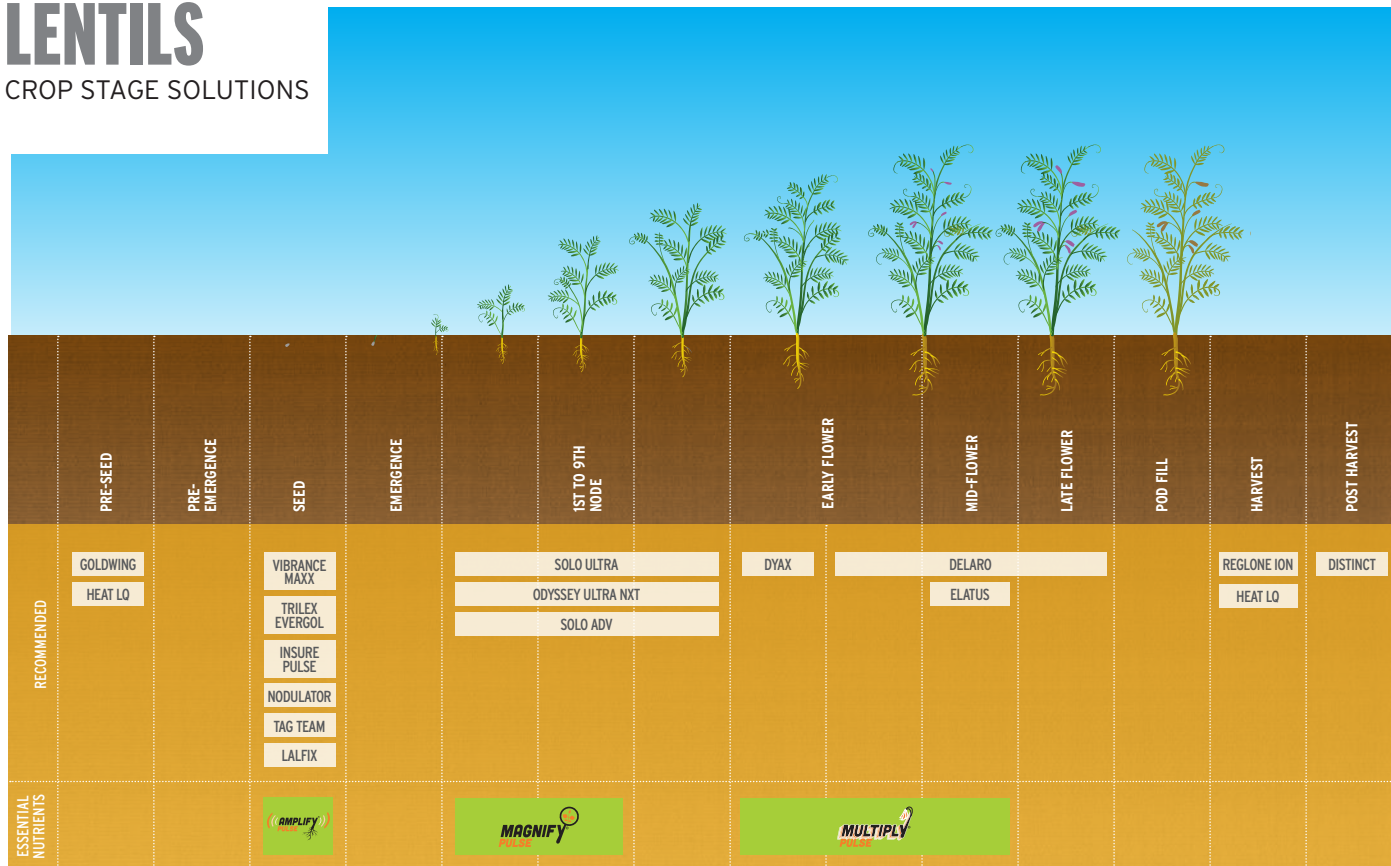
PEAS

CROP STAGE SOLUTIONS



LENTILS

CROP STAGE SOLUTIONS



ALWAYS READ AND FOLLOW LABEL DIRECTIONS.
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PULSE SEED TREATMENT COMPARISON

Fungicide Only

| | Syngenta Vibrance® Maxx | Syngenta Vibrance® Maxx RFC | Bayer Trilex® | BASF Insure® Pulse | Syngenta Vibrance® Maxx with Intego™ | Syngenta Apron Advance® |
|---|--|---|---|---|--|--|
| Container size(s) | 115 L + 3.33 L, 450 L + 4 x 3.33 L | 2 x 3.075 L, 56.78 L | Cases: 1.5 L + 0.96 L or 6.49 L + 4.15 L | 9.8 L, 120 L, 450 L | 2 x 3.075 L + 2 x 0.605 L | 2 x 10 L |
| Application Rate mL/100 kg seed | Apron Maxx 325 mL Vibrance 10 mL | 100 mL, 325 mL with water slurry | Trilex® Jug A 25 mL, Trilex® Jug B 16 mL - Mix with Water | 300 mL | Vibrance Maxx RFC 100ml Intego Solo 19.6 mL | 100 mL |
| Application Rate bu/jug | | | | | | |
| Peas, Lentils, Chickpeas | 113/10 L jug | 113/10 L jug | 221/case | 120/9.8 L jug | 226/case | 734/case |
| Active Ingredients | Fludioxonil, Metalaxyl-M, Sedaxane | Fludioxonil, Sedaxane, Metalaxyl-M, S-isomer | Penflufen, Trifloxystrobin, Metalaxyl | Fluxapyroxad, Pyraclostrobin, Metalaxyl | Fludioxonil, Metalaxyl-M, Sedaxane, Ethaboxam | Thiabendazole, Fludioxonil, Metalaxyl-M, S-isomer |
| Fungicide Group | 4, 7, 12 | 4, 7, 12 | 4, 7, 11 | 4, 7, 11 | 4, 7, 12, 22 | 1, 4, 12 |
| Insect Control (Tank Mix) | Cruiser 5FS | Cruiser 5FS | Stress Shield | None registered | Cruiser 5FS | Cruiser 5FS |

Fungicide Only

| | Syngenta Vibrance® Maxx | Syngenta Vibrance® Maxx RFC | Bayer Trilex® EverGol® | BASF Insure® Pulse | Syngenta Vibrance® Maxx with Intego™ | Syngenta Apron Advance® |
|---------------------------------------|----------------------------|-----------------------------------|---------------------------|-----------------------|--|----------------------------|
| Pea Diseases | | | | | | |
| Seed and seedling rot/blight | C | C | C | C | C | C |
| Pythium seed rot/damping off | C | C | C | C | C | C |
| Seed-borne ascochyta | C | C | S | C | C | C |
| Aphanomyces (Peas) | | | | | S | |
| Lentil and Chickpea Diseases | | | | | | |
| Seed and seedling rot/blight | C | C | C | C | C | C |
| Pythium seed rot/damping off | C | C | C | C | C | C |
| Botrytis seed rot and seedling blight | C | C | | | C | C |
| Seed-borne ascochyta | C | C | C | C | C | C |

C CONTROL **S** SUPPRESSION* NOT REGISTERED

*Suppression means consistent control at a level that is not optimal, but is still of commercial benefit.

Syngenta Vibrance Maxx®, Vibrance Maxx® RFC, Intego™ and Apron Advance® are registered trade-marks of Syngenta® Canada.
 EverGol® and Trilex® are registered trade-marks of the Bayer Group.
 BASF Insure® Pulse is a registered trade-mark of BASF Canada Inc.

PULSE SEED TREATMENT COMPARISON

Fungicide plus Insecticide

| | Syngenta Cruiser® Maxx® Vibrance Pulses | Bayer Trilex® EverGol® SHIELD | Syngenta Cruiser® 5FS | Bayer Stress Shield® |
|--|--|---|---|---|
| Container size(s) | 23.4L or 56.78L 115 L + 3.33 L, 2 x 3.075 or 56.78 L | 1.5 L + 0.96 L + 6.25 L tri-pack | 23.4 L, 56.78 L | 27 L |
| Application Rate mL/100 kg seed | Apron Maxx 325 mL Vibrance 10 mL Cruiser 5S 50 mL | Trilex Jug A 25 mL, Trilex Jug B 16 mL, Stress Shield 104 mL – Mix with Water | 50 mL* | 104 - 208 mL |
| Application Rate bu/jug | | | | |
| Peas, Lentils, Chickpeas | 113/jug plus target rate of Cruiser 5FS | 221/case | To be mixed with fungicide seed treatments | To be mixed with fungicide seed treatments |
| Active ingredients | Thiamethoxam, Fludioxonil, Metalaxyl M, Sedaxane | Imidacloprid, Penflufen, Trifloxystrobin, Metalaxyl | Thiamethoxam | Imidacloprid |
| Insecticide Group | 4 | 4 | 4 | 4 |
| Fungicide Group | 4, 7, 12 | 4, 7, 11 | N/A | N/A |

* 50 mL is the rate to obtain the 30g/100 kg rate of Cruiser 5FS which is the rate for pea leaf weevil.

Fungicide plus Insecticide

| | Syngenta Cruiser Maxx® Vibrance Pulses | Bayer Trilex® EverGol® SHIELD | INSECTICIDE ONLY | |
|---------------------------------------|--|----------------------------------|--------------------------|-------------------------|
| | | | Syngenta Cruiser® 5FS | Bayer Stress Shield® |
| Insects | | | | |
| Pea Leaf Weevil | S | S | S | S |
| Wireworms | S | S | S | S |
| Pea Diseases | | | | |
| Seed and seedling rot/blight | C | C | | |
| Pythium seed rot/damping off | C | C | | |
| Seed-borne ascochyta | C | S | | |
| Aphanomyces (Peas) | | | | |
| Lentil and Chickpea Diseases | | | | |
| Seed and seedling rot/blight | C | C | | |
| Pythium seed rot/damping off | C | C | | |
| Botrytis seed rot and seedling blight | C | | | |
| Seed-borne ascochyta | C | C | | |

C CONTROL **S** SUPPRESSION* NOT REGISTERED

*Suppression means consistent control at a level that is not optimal, but is still of commercial benefit.

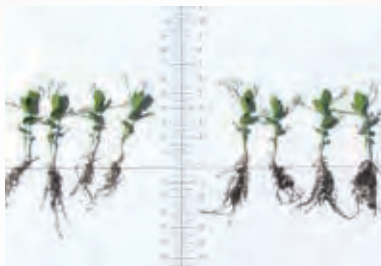
Syngenta Cruiser Maxx® Vibrance Pulses and Cruiser® 5FS are registered trade-marks of Syngenta® Canada.
EverGol®, Stress Shield® and Trilex® are registered trademarks of the Bayer Group.



2Ca + Transit-S

Rate: 3 ml/kg seed

Crop Stage: BBCH 00
Seed Treatment



Check

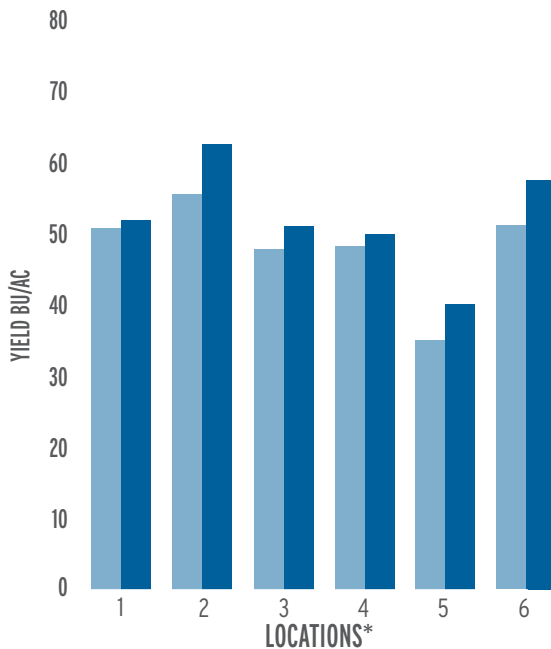
Amplify

POWERED BY **Transit-S** 

Performance Guarantee


PULSE SEED-APPLIED NUTRIENTS

2017 ATP AVERAGE TRIAL RESULTS



*Various Western Canada locations  Check  Treated

Average
4.1
BU/AC
increase with
Amplify



PRODUCERS ARE FINDING SEED TREATED WITH AMPLIFY GETS OUT OF THE GROUND SOONER WITH MORE EVEN GERMINATION. IT HELPS THE PLANTS DEVELOP BIGGER AND LONGER ROOTS AND AS THE SEASON PROGRESSES THAT SHOULD TRANSLATE INTO A MORE ROBUST CROP, WITH HIGHER YIELDS AND MORE EVEN MATURITY.

Bruce Kemmere - CAM Olds

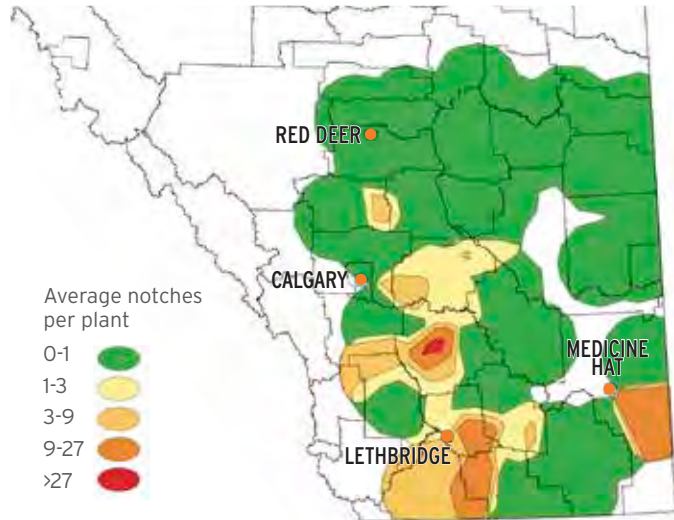
PEA LEAF WEEVIL MARCHES ON.



As you can see from the map, the pea leaf weevil (PLW) continues to expand its range throughout Alberta. PLW prefers pea and faba bean crops and do the most damage in their larval stage, feeding underground on the root nodules that are critical to nitrogen fixation.

If you're growing pulses, talk to UFA about treating your seed with an insecticidal seed treatment. The systemic activity of the insecticide will stop PLW from feeding on nodules, roots, shoots and seedlings to protect yield potential. In fact, seed treatment is the best preventative solution for PLW compared to a foliar insecticide later in the season.

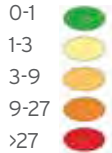
PEA LEAF WEEVIL 2008



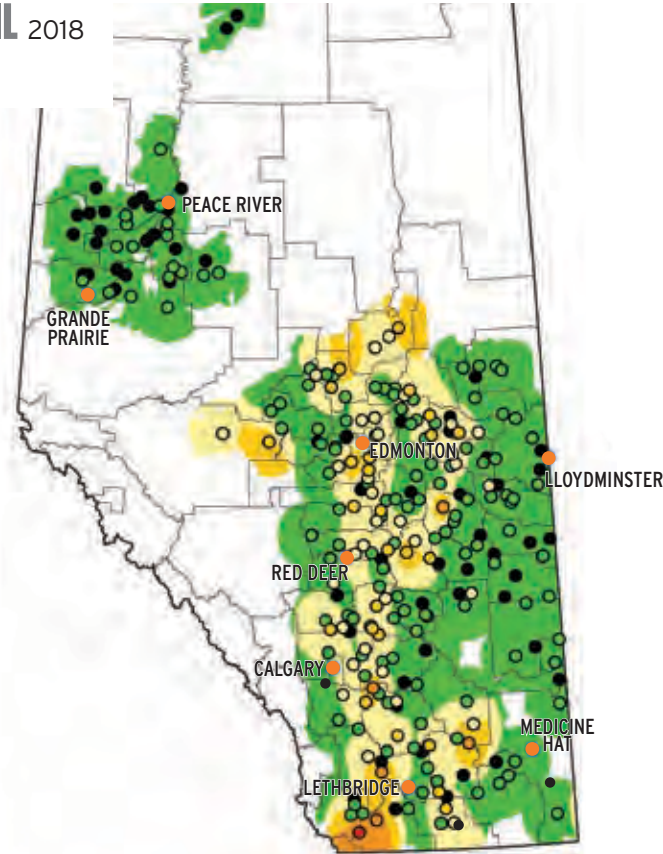
Talk to your CAM today.

PEA LEAF WEEVIL 2018

Average notches
per plant



Average notches
per plant



THOUGH THE ADULT PEA LEAF WEEVIL CREATES A NOTCH ON LEAF EDGES, THE LARVA IS ACTUALLY THE MOST DAMAGING AS THEY FEED ON THE NODULES, RESTRICTING OR STOPPING THE PLANT IN NITROGEN FIXATION. USING AN INSECTICIDE SEED TREATMENT IS THE ONLY WAY OF PREVENTING THIS FROM HAPPENING. THESE PESTS CAN CAUSE DAMAGE QUICKLY IF YOU ARE NOT SCOUTING YOUR FIELDS IN THE SPRING.

Russell Nail - CAM Strathmore

Source: Alberta Government
Department of Agriculture

INOCULANT

Looking to give your crops a strong, healthy start? Choosing a quality inoculant will help your plants to form ample root nodules as they grow, which can improve nutrient status, reduce plant disease and pests, and improve yields.

Whether liquid, granular or peat, UFA can supply the right product for your crop and ensure seed treatment compatibility.





SEED TREATMENT-INOCULANT COMPATIBILITY

| | BASF Nodulator® DUO Solid Core Granular | BASF Nodulator® XL Liquid | | | BASF Nodulator® XL Peat | | TagTeam® LCO Granular |
|---|---|---------------------------|-----------------|---------------------------------------|--|------------|---|
| | | Tank Mix time on Seed | Simultaneous | Sequential | Simultaneous | Sequential | |
| Syngenta Vibrance® Maxx | Nodulator® DUO Solid Core Granular is compatible with all pesticide treated seed in furrow. | 4 hours | 2 hours | 2 hours | 24 hours | 24 hours | TagTeam® LCO Granular is compatible with all pesticide treated seed in furrow. |
| Bayer Trilex® EverGol® | | Not recommended | 2 hours | 1 hour for pea, 2 hours for lentil | 2 hours for pea, 4 hours for lentil | 4 hours | |
| Bayer Trilex® EverGol® SHIELD | | Not recommended | Not recommended | Not recommended | 2 hours | 4 hours | |
| BASF Insure® Pulse | | Not recommended | Not recommended | Not recommended | Not recommended | 2 hours | |
| Syngenta Vibrance® Maxx with Intego® | | 4 hours | 2 hours | 2 hours | 24 hours | 24 hours | |
| Syngenta Vibrance® Maxx RFC | | 4 hours | 2 hours | 2 hours | 24 hours | 24 hours | |
| Syngenta Cruiser Maxx® Vibrance® Pulses | | Not recommended | Marginal | Not recommended | 6 hours | 6 hours | |

Tank Mix

The inoculant is mixed with the seed treatment in a single tank and applied as one solution or suspension using the same applicator. The inoculant and seed treatment can be tank mixed for a period of time before application to the seed.

Simultaneous (Wet Sequential)

The inoculant and seed treatment are applied at the same time, from separate tanks. They must be applied by separate applicators to be defined as a simultaneous or wet sequential application.

| TagTeam® Liquid | | | TagTeam® Peat | | | LalFix Duo FS |
|-----------------------|--|--|--|--|--|---|
| Tank Mix time on Seed | Simultaneous | Sequential | Tank Mix time on Seed | Simultaneous | Sequential | |
| Not recommended | 48 hours for pea, 24 hours for lentil | 48 hours for pea, 24 hours for lentil | 48 hours for pea, not recommended for lentil | 48 hours | 48 hours | LalFix Duo FS for Peas & Lentils is compatible with all pesticide treated seed in furrow. |
| Not recommended | Not recommended | Not recommended | 48 hours | 48 hours | 48 hours | |
| Not recommended | Not recommended | Not recommended | Not recommended | 24 hours for pea, 48 hours for lentil | 24 hours for pea, 48 hours for lentil | |
| Not recommended | Not recommended | Not recommended | Not recommended | Not recommended | Not recommended | |
| Not recommended | Not recommended | Not recommended | 48 hours for pea, not recommended for lentil | 48 hours | 48 hours | |
| Not recommended | 48 hours | 48 hours | 48 hours | 48 hours | 48 hours | |
| Not recommended | 48 hours | 48 hours | | | | |

Dry Sequential

One product is applied first and allowed to dry, before the second product is applied. This can be a seed treatment followed by an inoculant or inoculant followed by a seed treatment. Drying time will vary based on formulation, relative air humidity and other factors.

A minimum 30 minutes is typical, but it may take up to a day.



We create chemistry

BASF continues to provide inoculants and biologicals backed by research, development and innovative technologies that benefit growers by improving nodulation, nitrogen-fixation, root vigor, nutrient uptake and yield potential.

NODULATOR XL PEAT

Application Rate – Sterile peat formation:

One case will treat 300 bushels of seed.

The standard rate of application is 1.2 kg per 600 kg of seed.

NODULATOR XL LIQUID

Application Rates – Light formulation:

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 | 1340 | 45 | 487 | 1074 (18) |
| 4 | 1660 | 56 | 604 | 1332 (22) |
| 5 | 1780 | 60 | 647 | 1426 (24) |
| 6 | 2030 | 68 | 738 | 1627 (30) |

NODULATOR DUO SCG

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)

| 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 | 3.6 | 5.7 | 13.9 |
| 25.4 | 10 | 3.7 | 3.3 | 6.1 | 15.2 |
| 27.9 | 11 | 3.4 | 3 | 6.7 | 16.7 |
| 30.5 | 12 | 3 | 2.7 | 7.6 | 18.5 |

Data provided by BASF Canada Inc.



LALLEMAND PLANT CARE

Lallemand brings a new kind of inoculant to the table for peas and lentils. LALFIX® DUO FS for Pea & Lentil is a high quality, dual-action, in-furrow spherical inoculant with 1×10^8 viable *Rhizobium leguminosarum* biovar *viciae* cells per gram.

LALFIX® DUO FS for Pea & Lentil brings a number of enhancements over traditional granular inoculants:

- Technologically advanced spherical granule
- Provides accurate inoculant placement while increasing granule durability and Rhizobia survival
- Low dust partition allows for even application
- Selected *Rhizobium leguminosarum* strains enables the plants to start fixing nitrogen earlier and more efficiently
- Better crop establishment and enhanced yields

APPLICATION RATES

| Row Width | | Recommended Rate | | | Area treated - acres (ha) | |
|-----------|----|------------------|-------|-------|---------------------------|-------------|
| in | cm | lbs/ac | kg/ac | kg/ha | Bag | Tote |
| 6 | 15 | 4.4 | 2 | 5 | 6.1 (2.5) | 196 (79.3) |
| 7 | 18 | 3.8 | 1.7 | 4.3 | 7.1 (2.9) | 227 (91.8) |
| 8 | 20 | 3.3 | 1.5 | 3.7 | 8.2 (3.3) | 262 (106) |
| 9 | 23 | 3.0 | 1.4 | 3.3 | 9.0 (3.6) | 288 (116.5) |
| 10 | 25 | 2.7 | 1.2 | 3.0 | 10.0 (4.0) | 320 (129.5) |
| 12 | 30 | 2.2 | 1.0 | 2.5 | 12.3 (5.0) | 393 (159) |

NexusBioAg offers leading crop nutrition solutions for your unique operation. Through best-in-class capability, a strong team-oriented approach, and commitment to agricultural integrity, NexusBioAg is helping customers innovate and grow in an increasingly dynamic agricultural environment.

TAGTEAM LIQUID

Application Rates

| TagTeam liquid | | Amount of seed treated/bag | | |
|----------------|-----------------|----------------------------|-------|-------|
| Crop | Size | bu | lb | Units |
| Pea/Lentil | 3.0 L + 57 g WP | 40 | 2,400 | – |

TAGTEAM PEAT

Application Rates

| TagTeam Peat | | Amount of treated/bag | | | Water rate* |
|--------------|----------|-----------------------|-------|-------|-------------|
| Crop | Bag Size | bu | lb | Units | |
| Chickpea | 2.20 kg | 50 | 3,000 | – | 4.0 |
| Lentil | 2.20 kg | 30 | 1,800 | – | 2.5 |
| Pea | 2.20 kg | 50 | 3,000 | – | 4.0 |
| Soybean | 2.45 kg | 33 | 2,000 | 40 | 3.0 |

*Approximate water volume for peat slurry application.

TAGTEAM LCO

Granular Application Rates

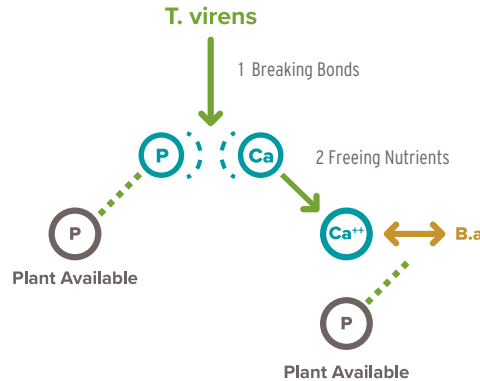
| Crop | Pea/Lentil | | | | |
|------------------|--------------|----------------------|--------|---------------------|--|
| | Package Size | 18 kg (39.68 lb) bag | | 264 kg (582 lb) bag | |
| Row Spacing (in) | ac/bag | lb/ac | ac/bag | lb/ac | |
| 6 | 7.2 | 5.5 | 105.6 | 5.5 | |
| 7 | 8.4 | 4.7 | 123.2 | 4.7 | |
| 8 | 9.7 | 4.1 | 140.8 | 4.1 | |
| 9 | 11.0 | 3.6 | 161.6 | 3.6 | |
| 10 | 12.0 | 3.3 | 176.0 | 3.3 | |
| 12 | 14.7 | 2.7 | 214.4 | 2.7 | |
| 15 | 18.0 | 2.2 | 264.0 | 2.2 | |

Data provided by Acceleron BioAg

QUICKROOTS

WITH THE COMBINATION OF JUMPSTART AND QUICKROOTS WE HAVE SEEN A BENEFIT OF INCREASED YIELD AND QUICKER MATURITY IN CANOLA, WHEAT AND CORN. THESE PRODUCTS CONTINUE TO PROVE TO BE SUCCESSFUL IN MULTIPLE CROPS.

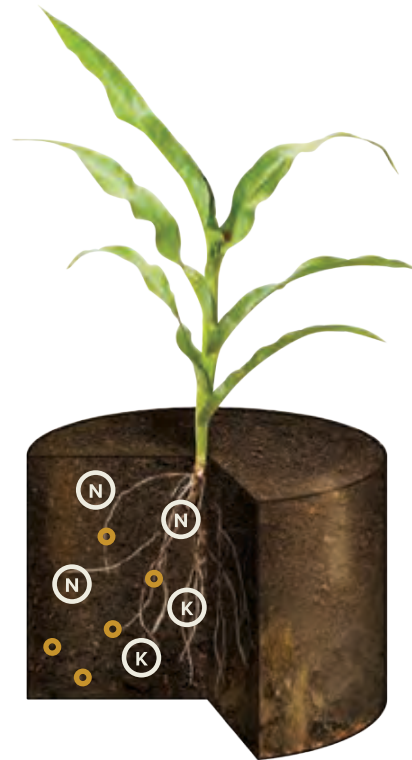
Sheldon Budzak BSc, CCA, PAg CAM Westlock



T. virens = *Trichoderma virens*
B. a. = *Bacillus amyloliquefaciens*
P = Phosphate
Ca = Calcium

HOW IT WORKS

- 1.) The biologicals *Bacillus amyloliquefaciens* and *Trichoderma virens* have the ability to release phosphate in the soil not readily available to the plant.
- 2.) Improved phosphate availability can lead to expanded root volume, which enhances nitrogen and potassium uptake.
- 3.) This ultimately can enable optimal plant growth and increase yield potential.



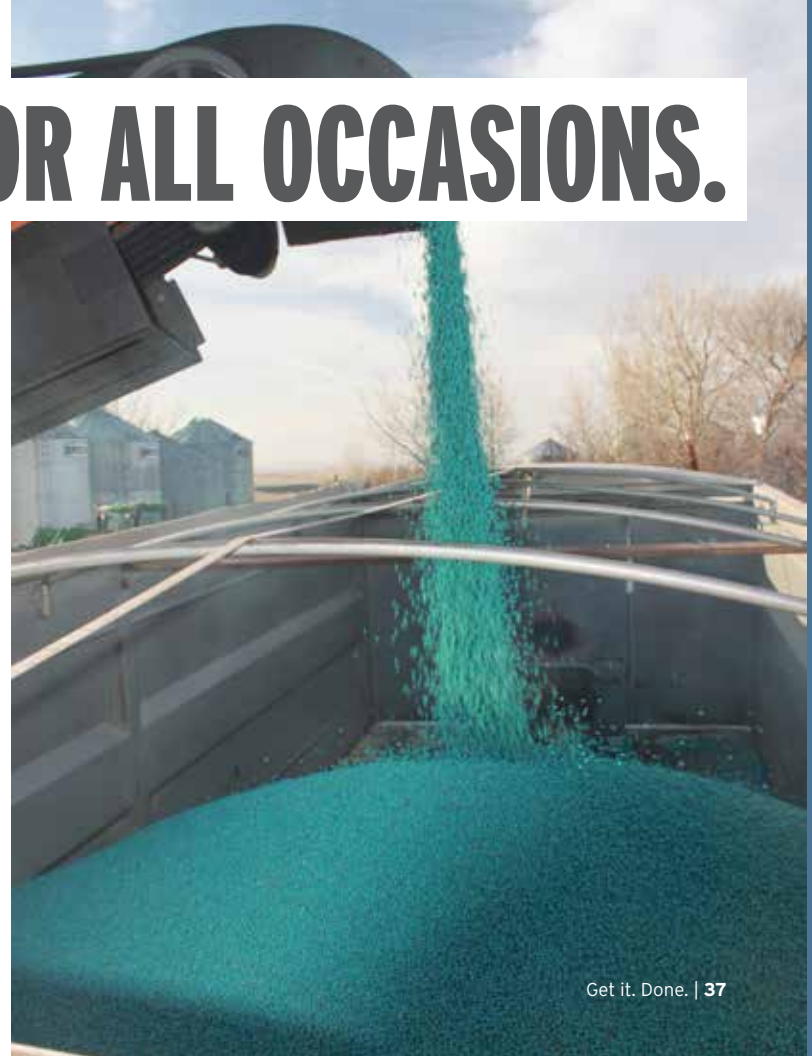
Courtesy Nexus BioAg

AN INOCULANT FOR ALL OCCASIONS.

Inoculant technology continues to grow and get even more specific in terms of the biological processes they tap into for even better plant growth and performance. UFA offers two excellent inoculant products to help you get the best out of your pulse crops this year.

- **QuickRoots®** is a microbial, seed-applied inoculant that can be used on many crops, including field peas and lentils. QuickRoots helps release essential nutrients such as nitrogen, phosphate and potassium from the soil and increase their uptake for improved yield potential.
- **JumpStart®** enhances the availability of phosphate for increased root growth, larger leaf area, better early-season vigour, greater crop uniformity, all of which leads to higher yield potential.

Corn growers take note! QuickRoots and JumpStart used together is an excellent way to build corn root mass, and get your corn crop up earlier and more uniformly.





CERTIFIED SEED

WHY PICK CERTIFIED SEED?

- Premium Quality Seed
- Rigorous Production Standards
- Guaranteed Germination
- Free of Impurities
- Newest Traits and Genetics

COMING SOON TO A UFA NEAR YOU: CERTIFIED CEREAL AND PULSE SEED

UFA is bringing the best cereal and pulse varieties for your area including **barley***, **hybrid fall rye***, **wheat*** and **pea seed***. And on top of selecting the right genetics for your growing conditions, UFA is making it easier by providing certified seed **that is already treated**, and in a selection of convenient sizes ranging from 2mt tote to 44mt semi.

Ask your CAM for details.

WHY CONSIDER HYBRID FALL RYE FOR 2020

Hybrid Fall Rye is a strong agronomic and production option that fits well within rotations for Western Canadian Farmers.

BENEFITS INCLUDE:

- Suitable for grain, grazing and silaging hybrid yield potential 20-40% more than traditional rye varieties, performs well under stress
- Strong root system for excellent over wintering
- Early harvestability for improved efficiency and time management

VARIETIES AVAILABLE FOR 2020:

- Guttino
- KWS Daniello
- KWS Propower



Connect with us today.

Visit UFA.com/SeedTreatment or contact your local CAM.



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