

# Product Guide 2023

- ▶ Pulses
- ▶ Soybeans
- ▶ Oilseeds
- Cereals
- ▶ Legumes
- ▶ Tubers

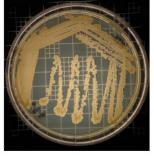


















Healthier Plants. Better Yields.

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## XiteBio®

#### **Message From Our CEO**



Every year in agriculture finds lots of challenges as well as opportunities. This demands new or different solutions, technologies, products and approaches. XiteBio® thrives on unique technologies and approaches. High crop demand, tight seed supply, record high fertilizer prices, and low fertilizer supply all create opportunities for crop inputs like inoculants & ag-biologicals now more so than ever. All our crop inoculants like SoyRhizo®, PulseRhizo®, Yield+ and OptiPlus® fit that need. XiteBio®

OptiPlus® is the new multi-action inoculant we fully launched last year which is equipped to tackle the challenges of nitrogen (N) fixation, phosphorous (P) solubilization and plant hormone production. We hope the distinctiveness of OptiPlus® will be embraced by soybean growers in North America. So far, the result we have seen is very heartening.

XiteBio® is a forward-looking company and over a decade has already gone by with your support, help and encouragement. We hope we have met your expectations of XiteBio® along the way, and we want to continue to exceed those expectations in the coming days, months and years. Thank you to all our customers, be it the distributors, dealers, or farmers. We couldn't do what we do without your support and feedback. We will need more of your support and blessings to create more "Thriving Through Innovation" kind of products to do our part to make agriculture more sustainable.

Thank you again for holding our hands on the road of Healthier Plants and Better Yields!

Respectfully,

Manas Banerjee, Ph.D., P. Ag.

President & CEO

## **Company Overview**

XiteBio Technologies Inc. is an agriculture biotech company that over the last decade has become a leading edge ag-biological solutions provider in North America and elsewhere. XiteBio®'s IRD (Innovation, Research & Development) Centre researches and develops unique, efficacious ag-biological product lines and brings them to the Canadian, U.S. and some international markets to benefit farmers' bottom lines.

All of XiteBio®'s commercial products are exclusively developed by our own proprietary platform technology AGPT® (Advanced Growth Promoting Technology) and patented PGPR (Plant Growth Promoting Rhizobacteria) technology. The AGPT® based products are: XiteBio® SoyRhizo®, a premium liquid inoculant for soybean and XiteBio® PulseRhizo®, a premium liquid inoculant for pea, lentil & faba bean. XiteBio® SoyRhizo® and XiteBio® PulseRhizo® are the only inoculants on the market that do not compete with the pre-existing beneficial microbial populations, rather they work with the soil microflora to benefit the crops. The PGPR based product, XiteBio® Yield+ for oilseeds, cereals, legumes & tuber crops, is powered by patented phosphorous solubilizing bacteria and can be tank mixed with herbicides as early post application or in-furrow application with liquid starter fertilizers.

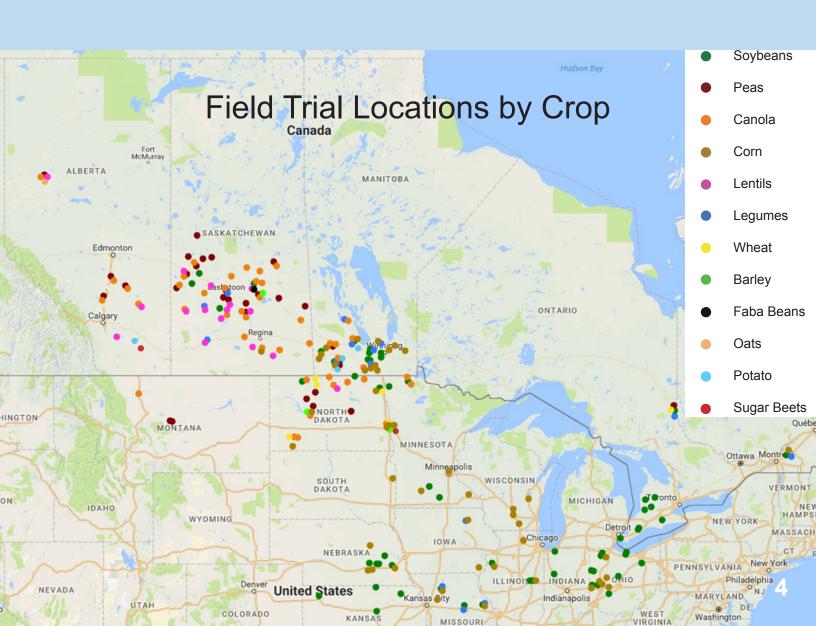
XiteBio® does believe in biotechnological innovations and provide our customers unique products and services that increase their bottom line in an eco-friendly manner.

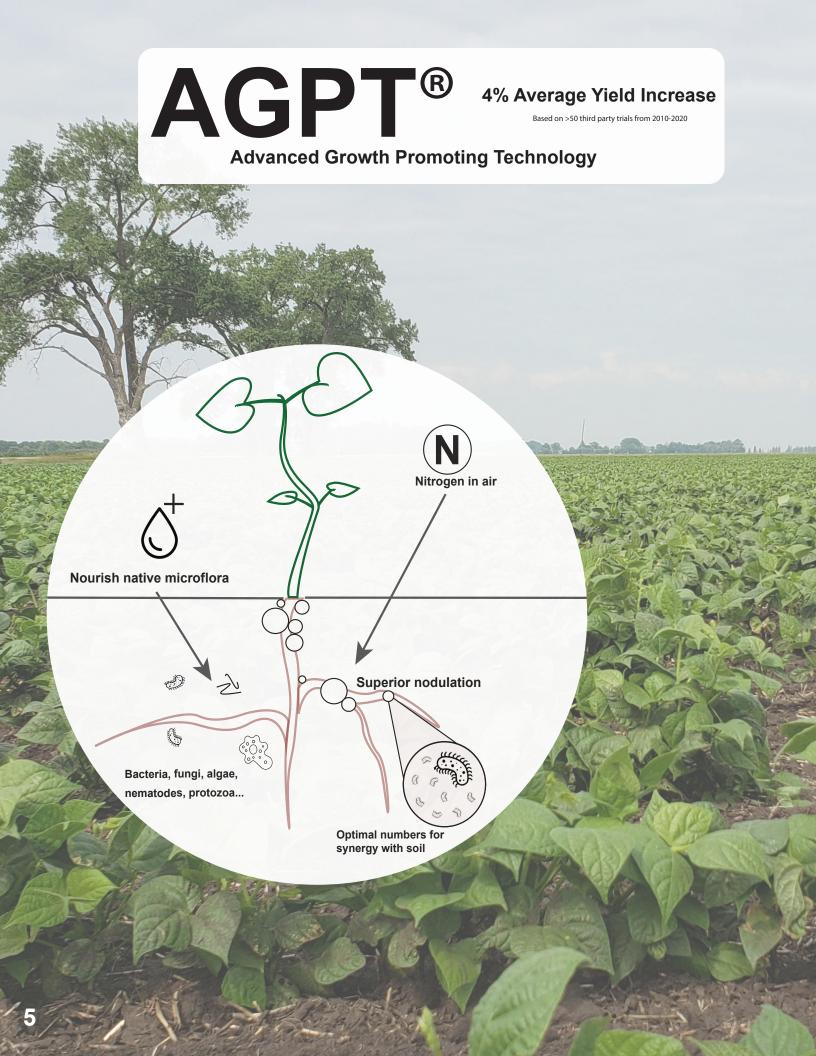


## Field Science

The development of an inoculant or ag-biological requires several years of extensive research to ensure that farmers are using a product of the highest quality. This includes testing its performance over a wide range of agro-climatic conditions. From small-plot, to large-plot, to farm-sized trials, across multiple geographic locations, products are tested repeatedly. Our products are only commercially launched once they demonstrate consistent and measurable performance. This is the standard of care that goes into every XiteBio® product.

Below you can see a map of various field trial locations and the different crops that were tested at each site. If you would like to see a dataset for a specific region or crop, please contact us toll free at: 1-855-XITEBIO (1-855-948-3246). Or you can contact the XiteBio<sup>®</sup> sales representative for your region listed in the back of this guide.





## AGPT® Explained

AGPT® is a revolution in liquid inoculant technology. It is a proprietary liquid formulation combined with the beneficial bacteria *Rhizobium*.

What makes AGPT® powered inoculants different from conventional inoculants is the liquid solution in which the bacteria are suspended. Not only does our formulation nourish our premium rhizobia, it also nourishes the native soil microflora.

Our biotechnological research, and rigorous QA/QC process, guarantees the optimal number of live bacteria are delivered through our inoculants. Too many or too few rhizobia can be detrimental to the natural balance of the soil. AGPT® ensures that once the product is applied, either on-seed or in-furrow, the existing soil ecosystem thrives and works in synergy with the newly introduced rhizobia.

Generic inoculants rarely invigorate native soil microflora. They simply introduce new rhizobia without taking into account the needs of the soil. This can cause competition for resources in the soil.

AGPT® products are sustainable and compatible with regenerative farming practices. Whether you use them in organic applications (in Canada) or in tandem with your regular fertilizer program, they produce healthier plants and better yields.



## XiteBio® SoyRhizo® with AGPT®

#### **Active Ingredient:**

Minimum of 2 x 10<sup>9</sup>

Bradyrhizobium japonicum CFU per mL

#### Formulation:

Ready-to-Use (RTU) Liquid

#### **Application Options:**

On-seed or in-furrow

#### **Application Rate:**

On-seed:

49 mL/27 kg (1.68 fl oz/bu)

In-furrow:

175 mL/ac (at 30" row spacing) 350 mL/ac (at 15" row spacing)

#### Package Size:

1 x 300 Unit/Case (12.6 L or 426.1 fl oz) 4 x 50 Unit/Case (4 x 2.1 L or 71.0 fl oz)

#### **Case Treats:**

12.6 L bag: 252 bu/6810 kg/15,000 lb seed 2.1 L bag: 42 bu/1135 kg/2,500 lb seed

#### On-seed Life:

Up to 90 days
Please consult compatibility charts

#### Shelf Life:

2 years

Approved for organic use in Canada

XiteBio® SoyRhizo® Inoculant vs.

No Inoculant

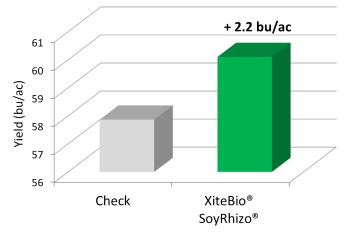
+ 2.2 bu/ac\*

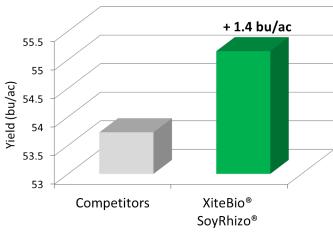
XiteBio® SoyRhizo® Inoculant

VS.

**Competitors** 

+ 1.4 bu/ac\*





<sup>\*</sup>Source: >50 third party studies 2011- 2020 average.
Please contact us if you would like to receive a dataset specific to your region.

#### Seed Treatment Compatibility

Compatible Seed Treatment Product Choices	Soybean On-Seed Planting Window	Compatible Seed Treatment Product Choices	Soybean On-Seed Planting Window
Allegiance® FL	64 days	Insure® Pulse	64 days
Apron Maxx® RFC	90 days	PreCede® Soybean	64 days
Apron Maxx® RTA®	90 days	Rancona® Apex	90 days
Cruiser®	90 days	Rancona® RS	90 days
Cruiser Maxx® Vibrance® Beans	90 days	RhiZone® V	90 days
Clariva® pn	64 days	Senator® PSP	90 days
EverGol® Energy	64 days	Vibrance® Maxx	90 days
EverGol Energy® + Stress Shield® 600	30 days	Vibrance® Maxx RFC	90 days
Fortenza®	64 days	Vitaflo® 280	64 days
Hibrix™	28 days	Warden® CX	64 days
ILEVO®	64 days		

Application Rates: 49 mL/27 kg or 1.68 fl oz/bu of seed

NOTE: SoyRhizo® may be applied with approved seed treatment products either simultaneously, sequentially, or in a tank mix (slurry). If a tank mix is used, the mixture must be applied to the seed immediately and only the amount that can be applied to the seed in an hour should be premixed.

#### In-Furrow Tank-Mix Fertilizer Compatibility

Compatible In-Furrow Fertilizer Product Choices	Soybean Tank-Mix Planting Window	Compatible In-Furrow Fertilizer Product Choices	Soybean Tank-Mix Planting Window
3-18-18	8 hours	Lignijoule™	8 hours
10-34-0	8 hours	LS 624	8 hours
Alpine Bio20™	8 hours	Nachurs® 3-18-18	8 hours
Alpine G22®	8 hours	Nachurs® Triple Option®	8 hours
Arise™	8 hours	Nexus Zinc 9% EDTA	8 hours
Alpine K24®	8 hours	NutriPak™	8 hours
Alpine MicroBolt Mn®	8 hours	Pro-Germinator®	8 hours
Alpine MicroBolt Zn®	8 hours	Sunalta Boron	8 hours
CHS Aventine™ Complete	8 hours	Soygreen® - Low Rate	6 hours
KS 1022	8 hours	Soygreen® - High Rate	_
KS 1410	8 hours	XiteBio® Yield+	8 hours

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List last Updated: 07 June 2022

Please read product label carefully & follow application directions. For more info and any updates:

Visit www.xitebio.ca or call toll-free 1-855-XITEBIO (1-855-948-3246)

## XiteBio® PulseRhizo® with AGPT®

#### **Active Ingredient:**

Minimum of 7.2 x 10<sup>8</sup> Rhizobium leguminosarum CFU per mL

#### Formulation:

Ready-to-Use (RTU) Liquid

#### **Application Options:**

On-seed or in-furrow

#### **Application Rate:**

On-seed:

75 mL/27 kg (2.5 fl oz/ 60 lb or 2.1 fl oz/ 50 lb)

In-furrow:

250 mL/ac (at 12" row spacing)

#### Package Size:

1 x 12.0 L or 405.76 fl oz/Case 4 x 3.0 L or 101.4 fl oz/Case

#### **Case Treats:**

12 L bag: 160 bu/4356 kg/9584 lb seed 3 L bag: 40 bu/1089 kg/2400 lb seed

#### On-Seed Life:

Up to 7 days
Please consult compatibility charts

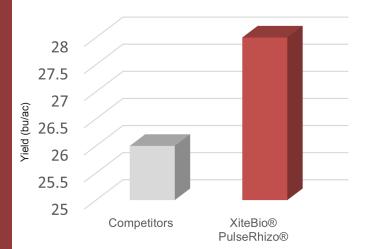
#### Shelf Life:

1 year

Approved for organic use in Canada

## XiteBio<sup>®</sup> PulseRhizo<sup>®</sup> on Lentils vs. Competitors

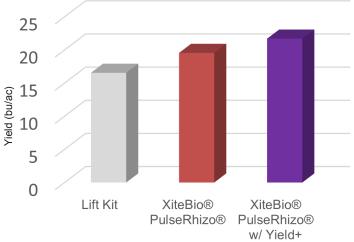
### + 2 bu/ac



Source: 5 third party trials, SK, 2020 Competitors are: Nodulator® Duo, TagTeam® and Cell-Tech®

## XiteBio® PulseRhizo® on Lentils vs. Competitor

### + 4 bu/ac

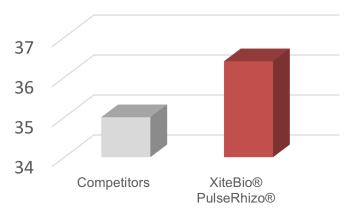


Source: Synergy Ag, Govan SK trial, 2021 Lift Kit: N-Take, Accolade, Takeoff

Please read product label carefully & follow application directions. For more info and any updates:
Visit www.xitebio.ca or call toll-free 1-855-XITEBIO (1-855-948-3246)

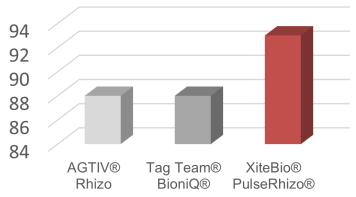


vs. + 1.4 bu/ac



Source: >50 third party studies 2011-2019 average

## XiteBio® PulseRhizo® on Peas vs. + 5 bu/ac



Source: Hamman Ag Reserach Inc., Lethbridge AB trial, 2021

#### Seed Treatment Compatibility

Compatible Seed Treatment Product Choices	Pea, Lentil & Faba Bean On-Seed Planting Window	Compatible Seed Treatment Product Choices	Pea, Lentil & Faba Bean On-Seed Planting Window
Allegiance® FL	7 days	PreCede® Pulse	7 days
Apron® Advance	7 days	Rancona <sup>®</sup>	24 hours*
Apron Maxx® RFC	7 days	Rancona® Trio	24 hours*
Apron Maxx® RTA	7 days	Regent®	7 days
Crop Aid Seed	48 hours	Stress Shield® 600	24 hours*
Cruiser® 5FS	7 days	Sombrero™ 600 FS	24 hours*
Cruiser Maxx® Vibrance® Pulses	7 days	Trilex® AL	7 days
EverGol® Energy	7 days	Trilex® EverGol®	7 days
Inspire - Seed Starter	48 hours	Vibrance® Maxx	7 days
Insure® Pulse	24 hours*	Vibrance® XL	7 days
INTEGO® Solo	48 hours	Vitaflo® 280	7 days
Lumivia CPL™	48 hours	Zeltera® Pulse	48 hours

Application Rate: 75 mL/27 kg (2.5 fl oz/bu if 1 bu = 60lbs, 2.1 fl oz/bu is 1 bu = 50lbs)

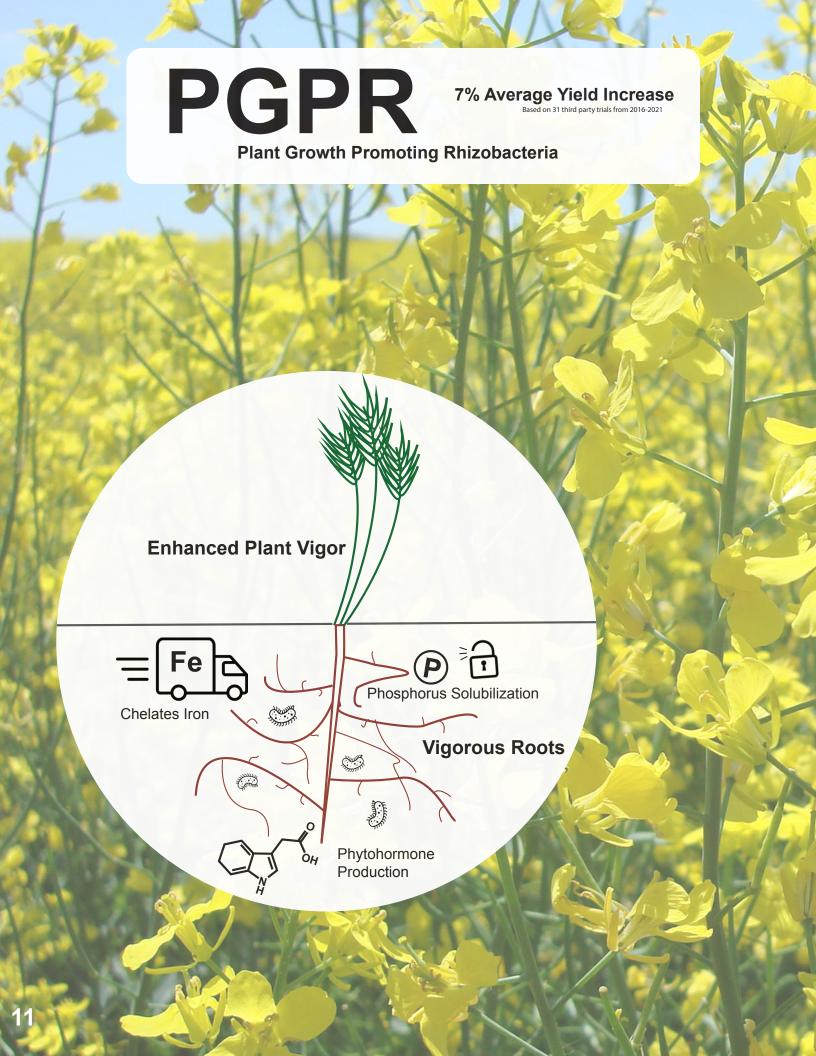
NOTE: PulseRhizo® may be applied with approved seed treatment products either simultaneously, sequentially, or in a tank mix (slurry). If a tank mix is used, the mixture must be applied to the seed immediately and only the amount that can be applied to the seed in an hour should be premixed.
\*Treat and seed same day.

#### In-Furrow Tank-Mix Fertilizer Compatibility

Compatible In-Furrow Fertilizer Product Choices		Compatible In-Furrow Fertilizer Product Choices	Pea, Lentil & Faba Bean Tank-Mix Planting Window
Arise™	8 hours	Lignijoule™	8 hours
Alpine K24®	8 hours	NutriPak™	8 hours**
Kalibrate <sup>®</sup>	8 hours	XiteBio® Yield+	8 hours

<sup>\*\*</sup>Fertilizer must be diluted with water to a ratio of 10:1 or greater

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## PGPR Explained

PGPR (Plant Growth Promoting Rhizobacteria) are the class of beneficial soil bacteria in the root zone that colonize the roots and stimulate plant growth. The XiteBio® Yield+ product line uses patented PGPR *Bacillus firmus*. XiteBio® Yield+ promotes plant growth and development resulting in more yield via the following modes of action:

#### **Phosphorus Solubilization**

Adequate P (phosphorus) is critical to plant development, particularly early in the growing season. Not all P is accessible to plants as it can bind to minerals in the soil such as calcium, iron, aluminum and magnesium. XiteBio® Yield+ releases enzymes into the soil that unlocks P from these ions and makes it more available for plants.

#### **Phytohormone Production**

Just as they are for animals, hormones are important for healthy plant growth. XiteBio® Yield+ produces vital plant hormones such as IAA (indole-3-acteic acid) that encourage the root system to grow early, vigorously and seek out nutrients.

#### **Iron Chelation**

Iron (Fe) is a critical component of many plant functions such as chlorophyll production. Not all Fe in the soil is accessible to plants since it is in the unavailable form. XiteBio® Yield+ produces siderophores, which are molecules that chelate (bind to) Fe and make them more available to plants.



## XiteBio® Yield+ with PGPR

#### **Active Ingredient:**

Minimum of 1 x 10<sup>8</sup>

Bacillus firmus CFU per mL

#### **Modes of Action:**

- Phosphorus (P) Solubilization
- Phytohormone Production
- Iron (Fe) Chelation

#### Formulation:

Ready-to-Use (RTU) Liquid

#### **Application Options:**

- In-furrow (at planting)
- Early post-emergence (at 0-6 leaf stage)

#### Tank-Mix Compatible:

Yes

Please consult compatibility charts

#### Package Size:

10 L or 338.1 fl oz/Case

#### **Case Treats:**

40 - 65 acres depending on row spacing

#### **Application Rate:**

0.25 L/ac (post-emergent or in-furrow)

#### Shelf Life:

2 Year

Approved for organic use in Canada

#### Why is XiteBio® Yield+ revolutionary?

- 1. Solubilizes soil-bound P (phosphorus) into forms plants can uptake, increasing plant available P.
- 2. Produces and releases phytohormones, encouraging early root growth and development.
- 3. Produces Iron (Fe) chelating siderophores, increasing iron availability for plant uptake.

#### Why you should use XiteBio® Yield+?

- Enhanced root development and plant vigor
- Improved P availability encourages earlier flowering
- Easy-to-use, all-in-one 10 L package treats 40-65 acres depending on row spacing
- · Compatible with most herbicides and starter fertilizers
- In-furrow or early post-emergent application
- No extra passes needed
- Tank mixable
- Extended shelf life over 2 cropping seasons

#### About Bacillus firmus

Bacillus firmus (B. firmus) is a competitive and resilient bacteria. It has a high stress tolerance and is able to persist through unfavorable environmental conditions. B. firmus is a spore forming bacteria, meaning when it becomes stressed it produces spores that will persist in the soil if it is unable to survive. The spores remain in the soil until conditions become more convenient, which then leads to the sporulation/regeneration of the bacteria.

#### In-Furrow Tank-Mix Compatibility

Compatible In-Furrow Fertilizer Products	Tank-Mix Application Window	Compatible In-Furrow Fertilizer Products	Tank-Mix Application Window
6-24-6	8 hours	iQ Phos	8 hours
10-34-0	8 hours	KQ2517™	8 hours
15-0-0-20	8 hours	KQ-XRN™	8 hours
15-0-0-20 + 28-0-0	8 hours	KS1022	8 hours
28-0-0	8 hours	KS1410	8 hours
Active BUILD™	8 hours	KS2075	8 hours
Agriflora™	8 hours	LigniJoule <sup>®</sup>	8 hours
Alpine Bio20™	8 hours	LS624	8 hours
Alpine Bio22 Micro	8 hours	LS924	8 hours
Alpine G22®	8 hours	ManZinPhos™	8 hours
Alpine HKW18®	8 hours	Nachurs® Bio-K®	8 hours
Alpine K24®	8 hours	Nachurs® Triple Option®	8 hours
Alpine MicroBolt B®	8 hours	Pro-Germinator®	8 hours
Alpine MicroBolt Mn®	8 hours	TNT Starter	8 hours
Alpine MicroBolt Zn®	8 hours	Sunalta Boron	8 hours
Bio-Forge®	8 hours	XiteBio® PulseRhizo®	8 hours
CHS Aventine™ Complete	8 hours	XiteBio® SoyRhizo®	8 hours

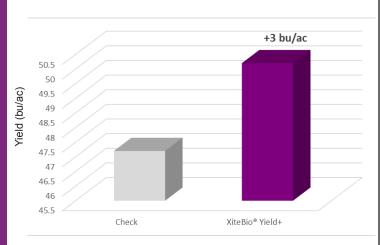
#### Early-Post Tank-Mix Compatibility

	,	1	
Compatible Early-Post Herbicide/Pesticide Product Choices	Tank-Mix Application Window	Compatible Early-Post Herbicide/Pesticide Product Choices	Tank-Mix Application Window
2,4-D Ester 700	8 hours	Headline <sup>®</sup>	8 hours
AAtrex® Liquid 480	8 hours	Liberty <sup>®</sup>	8 hours
Ares <sup>®</sup>	8 hours	Odyssey <sup>®</sup>	8 hours
Armezon®	8 hours	Pounce <sup>®</sup>	8 hours
Axial® + Infinity®	8 hours	Primextra®	8 hours
Boundary®	8 hours	Prowl® H20	8 hours
Broadstrike™	8 hours	Roundup <sup>®</sup>	8 hours
Buctril® M	8 hours	Sencor®	8 hours
Callisto®	8 hours	Sierra <sup>®</sup>	8 hours
Classic® Grande + Glyphosate	8 hours	Solo® WDG	8 hours
Centurion® + Amigo® + Liberty®	8 hours	Talinor <sup>®</sup>	8 hours
Curtail® M	8 hours	Traxos <sup>®</sup>	8 hours
Factor® 540	8 hours	Viper® ADV	8 hours
Frontier® Max	8 hours	XtendiMax®	8 hours
Halex® GT	8 hours		

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#### XiteBio<sup>®</sup> Yield+ Yield increase on Canola

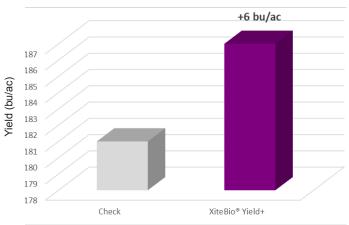
### + 3 bu/ac



Source: 3rd Party Research Trials, Ag-prove trials, 2012-2019

#### XiteBio® Yield+ Yield increase on Corn

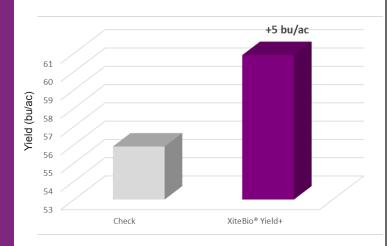
### + 6 bu/ac



Source: Third Party Trials, Ohio State University, University of Illinois, University of Wisconsin, 2012-2019

#### XiteBio® Yield+ Yield increase on Wheat

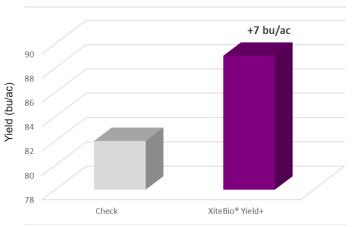
## + 5 bu/ac



Source: 3rd Party Research Trials, Ag-prove trials, 2016-2019

#### XiteBio® Yield+ Yield increase on Barley

### +7 bu/ac

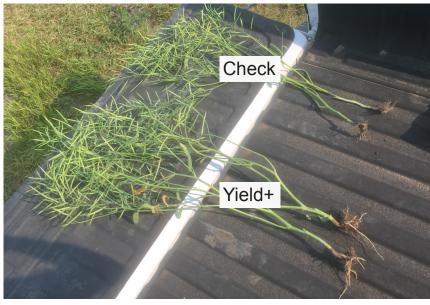


Source: Third Party Trials, 2016-2018





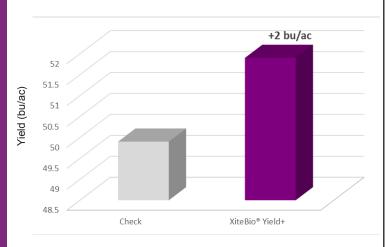






#### XiteBio® Yield+ Yield increase on Soybean

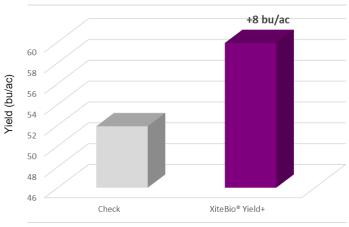
### + 2 bu/ac



Source: University of Missouri, 3rd Party Research Trials, 2016-2019

#### XiteBio<sup>®</sup> Yield+ Yield increase on Peas

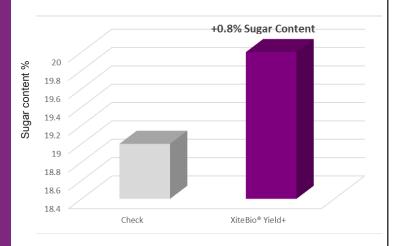
### +8 bu/ac



Source: 3rd Party Research Trials, 2017-2020

#### XiteBio® Yield+ Yield increase on Sugarbeet

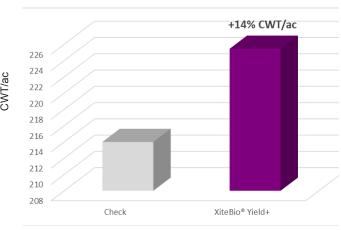
## + 0.8% Sugar Content



Source: 3rd Party Research Trial, 2020

#### XiteBio<sup>®</sup> Yield+ Yield increase on Potatoes

### + 14% CWT/ac



Source: 3rd Party Research Trials, 2019-2020











## $XiteBio^{\mathbb{R}}\ OptiPlus^{\mathbb{R}}\ \ \text{with AGPT$^{\mathbb{R}}$ and PGPR}$

#### **Active Ingredients:**

Minimum of 1 x 10<sup>8</sup>

Bacillus firmus CFU per mL

Minimum of 2 x 10<sup>9</sup>

Bradyrhizobium japonicum CFU per mL

#### **Modes of Action:**

- Nitrogen (N) Fixation
- Phosphorus (P) Solubilization
- Phytohormone Production
- Iron (Fe) Chelation

#### Formulations:

Ready-to-Use (RTU) Liquids

#### **Application Options:**

In-furrow (at planting)

#### Tank-Mix Compatible:

Yes

Please consult compatibility chart

#### Package Size:

22.6 L or 764 fl oz/Case

#### **Case Treats:**

Variable acres depending on row spacing, previous history of soybeans on field. Consult label for full details.

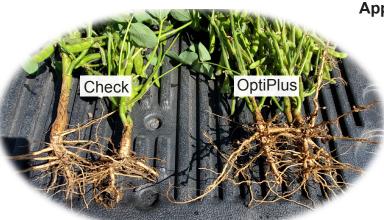
#### **Application Rate:**

Variable rate depending on row spacing, previous history of soybeans on field. Consult label for full details.

#### Shelf Life:

1 Year

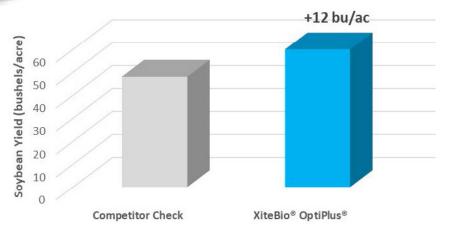
Approved for organic use in Canada



XiteBio® OptiPlus® vs. Competitor

+ 12 bu/ac\*





Please contact us if you would like to receive a dataset specific to your region.

<sup>\*</sup>Source: third party trial, Minot ND, 2021.

#### XiteBio® OptiPlus® with AGPT® and PGPR

XiteBio® OptiPlus® saves you time and money. This product is for soybean growers that want to take their yields to the next level. We have combined our AGPT® and PGPR formulations into one easy to use liquid package. By combining formulations we have been able to receive field trial results that are more than the sum of their parts.

Our liquid formulation saves retailers and growers space over the granular competitor. This means less shipping and warehousing costs. XiteBio® OptiPlus® is a future first product that uses cutting edge ag-biological technology to reduce inputs while delivering healthier plants and better yields.

#### Why you should use XiteBio® OptiPlus®

- Unlocks tied up nutrients
- · Cost effective vs. dry granular inoculant
- No air tank bridging, no dust
- No plugged equipment

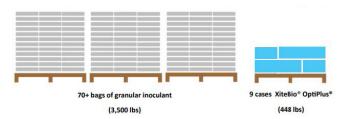
- Easy & uniform in-furrow application
- · Quick and simple inoculant refill
- Use your preferred liquid starter fertilizers
- Agronomic performance equal to or better than granular inoculants expected by 3-6%

Photo from Minot trial 2021 (+12 bu/ac advantage)

Competitor

XiteBio® OptiPlus®

Product needed to treat 800 acres of soybeans at 12" row spacing:



#### In-Furrow Tank-Mix Fertilizer Compatibility

Compatible In-Furrow Fertilizer Product Choices	Tank-Mix Planting Window	Compatible In-Furrow Fertilizer Product Choices	Tank-Mix Planting Window
3-18-18	8 hours	KS 1410	8 hours
10-34-0	8 hours	Lignijoule™	8 hours
Alpine Bio20™	8 hours	LS 624	8 hours
Alpine G22®	8 hours	Nachurs® 3-18-18	8 hours
Alpine K24®	8 hours	Nachurs® Triple Option®	8 hours
Alpine Microbolt Mn®	8 hours	Nexus Zinc 9% EDTA	8 hours
Alpine Microbolt Zn®	8 hours	NutriPak™	8 hours
Arise™	8 hours	Pro-Germinator®	8 hours
CHS Aventine™ Complete	8 hours	Soygreen® - Low Rate	6 hours
KS 1022	8 hours	Soygreen® - High Rate	_

Alpine G22°, Alpine K24°, Alpine Microbolt Mn°, Alpine Microbolt Zn° and Triple Option° are registered trademarks of Nachurs Alpine Solutions, LLC; Pro-Germinator° is a registered trademark of AgroLiquid; Lignijoule™ is a trademark of Lab JAER; Arise™ is a trademark of ATP Nutrition; CHS Aventine™ is a trademark of CHS Inc.; All other trademarks are property of their respective owners.

List last Updated: 07 June 2022

#### **Glossary**

**Dry Sequential:** With dry sequential application, the seed treatment is first applied and allowed to dry. Once the seed treatment has dried, the inoculant is applied. The duration of time needed for the seed treatment to dry after application may vary based upon many factors, including the relative humidity and seed treatment formulation.

**Early-Post Tank-Mix with Herbicide/Pesticide:** With an early-post tank-mix application, the biological and herbicide/pesticide are mixed in a single tank and sprayed together as a solution/suspension via the same applicator. Early-post tank-mixes must be applied from the 0 to 6 leaf stage. The tank-mix planting window is the length of time the grower has to spray the tank-mix application.

**In-Furrow Tank-Mix with Fertilizer:** With an in-furrow tank-mix, the biological is applied alone or mixed with a liquid starter fertilizer. The tank-mix is then applied in the furrow with the seed. The tank-mix planting window is the length of time the grower has to spray the tank-mix application, from the time the biological and fertilizer were first tank-mixed, to ensure that the minimum required number of bacteria will survive.

**On-Seed Planting Window:** The on-seed planting window is the length of time before the seed is planted that the minimum required number of rhizobia in the inoculant will survive on the seed, beginning from the time of inoculation. This on-seed planting window is determined through a series of analytical tests.

**Simultaneous or Wet Sequential:** With wet sequential (also called simultaneous) application, the inoculant and seed treatment are applied to the seed from separate tanks at the same time. Unlike tank-mix application, the seed treatment and inoculant must be applied by separate nozzles, first mixing upon reaching the seed.

**Tank-Mix:** With a tank-mix application, the inoculant and seed treatment are mixed in a single tank and applied to the seed together as a solution/suspension via the same applicator. When the inoculant is applied as part of a tank-mix, the on-seed planting window is based on the requirement that the mixture is applied to the seed immediately and that only the amount that can be applied to the seed in an hour is premixed.



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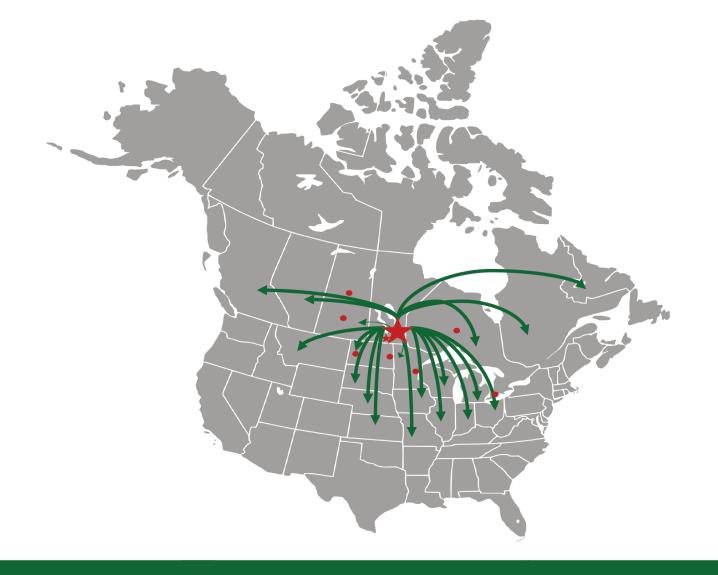
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