Inoculants and Biologicals Overview - 2021

Your Advanced Ag-Biological Solutions

XiteBio®

Thriving Through Innovation

XiteBio® PulseRhizo®

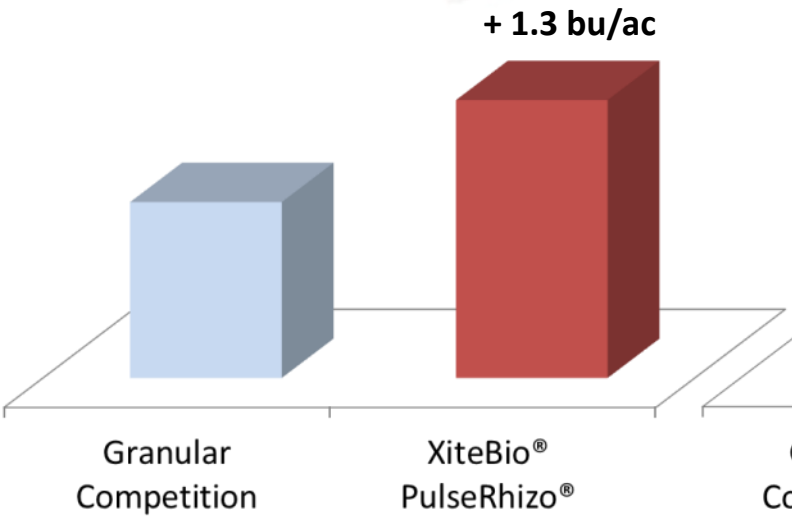
Inoculant for Peas, Lentils & Faba Beans

XiteBio® PulseRhizo® for pea, lentil & faba bean is an exciting premium liquid inoculant with Advanced Growth Promoting Technology (AGPT®) that delivers better plant vigour and higher yields. **XiteBio® PulseRhizo®** helps farmers produce successful pea, lentil & faba bean crops.

Why Should You Use XiteBio® PulseRhizo®?

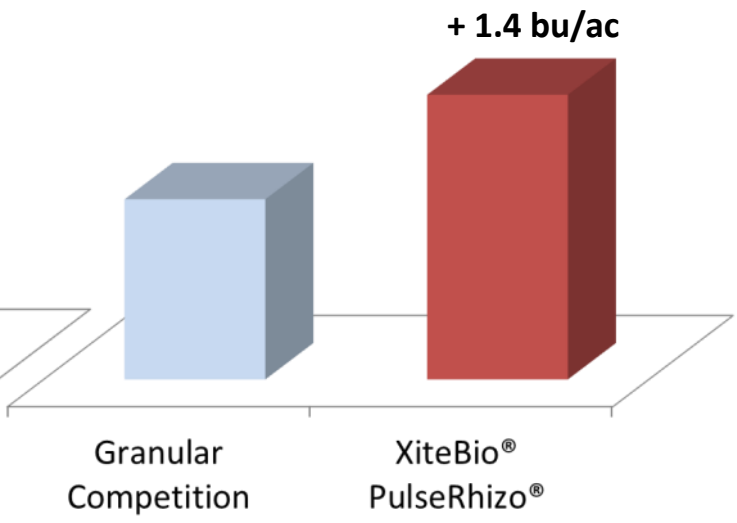
- Innovative, easy-to-use, all-in-one package liquid formulation
- Performance is equal to/better than leading granular products
- Compatible with most seed treatments/some fertilizers
- Lasts up to 48 hours on seed with seed treatments
- Lower cost than granular competitors
- No sticking/reduced bridging of seeds
- Encourages greater root nodulation and boosts nitrogen fixation

Peas



Source: North Dakota State University, University of Montana, University of North Dakota, Cavalier Agrow Research Trials. - 2011-2018.

Lentils



Source: 3rd Party Research Trials. - 2013-2018.

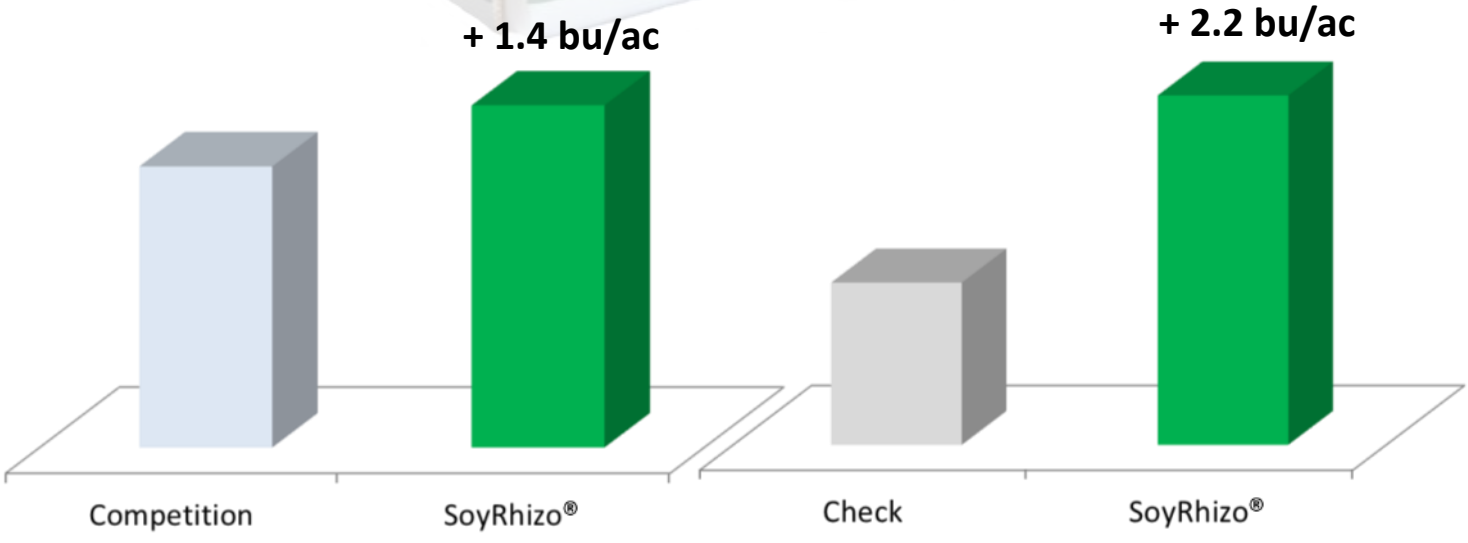
XiteBio® SoyRhizo®

Inoculant For Soybeans

XiteBio® SoyRhizo® for soybean is an innovative premium liquid inoculant with Advanced Growth Promoting Technology (AGPT®) that delivers better plant vigour and higher yields. **XiteBio® SoyRhizo®** helps farmers maximize the potential of their soybean crops.

Why Should You Use XiteBio® SoyRhizo®?

- User friendly, ready to use, all-in-one package liquid formulation
- No sticking/reduced bridging of seeds, easy equipment cleanup
- Product has an extended **shelf life of over two cropping seasons**
- Lasts 90 days on-seed with seed treatment chemicals
- In-furrow performance superior to granular
- Encourages greater root nodulation and boosts nitrogen fixation
- Compatible with most soybean seed treatments and fertilizers



Source: North Dakota State University, University of Nebraska – Lincoln, Virginia State University Ohio State University, University of Illinois, Kansas State University, University of Missouri, University of Minnesota, 3rd Party Research Trials. - 2011-2020.

XiteBio® Yield+

For Oilseeds, Cereals, Legumes and Tuber crops

XiteBio® Yield+ is an innovative, in-furrow or early post-emergent liquid biological with naturally occurring Plant Growth Promoting Rhizobacteria (PGPR). The active ingredient is a unique patented strain of *Bacillus firmus*. This PGPR is a vigorous colonizer of plant roots with distinct phosphorus (P) solubilizing characteristics that works throughout the growing season to help plants maximize growth and cope with stress conditions. **XiteBio® Yield+** enables farmers to grow crops with confidence and success.

Why is XiteBio® Yield+ revolutionary?

- Three distinct modes of action:

  1) Solubilizes soil-bound phosphorous (P) into forms plants can uptake, increasing plant available P

  2) Produces and releases phytohormones, encouraging early root growth and development.

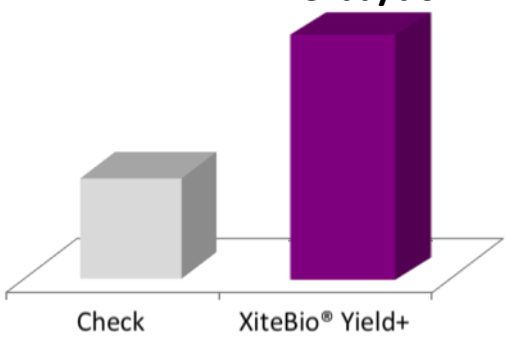
  3) Produces iron chelating siderophores, increasing iron availability for plant uptake.

Why Should You Use XiteBio® Yield+?

- Enhanced early root development and plant vigor
- Improved P availability and uptake encourages earlier flowering
- Easy-to-use, all-in-one 10L package treats 40 to 65 acres depending on seed row spacing
- Compatible with most herbicides and fertilizers
- In-furrow or early post-emergent application
- No extra passes needed
- Tank mixable
- Approved for organic use in Canada

Canola

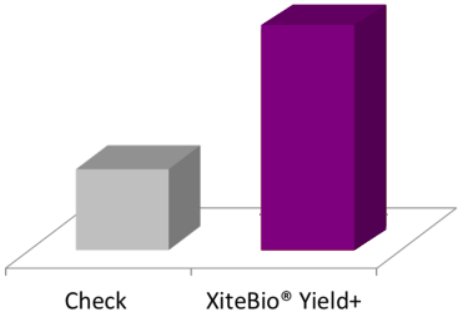
+ 3 bu/ac



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

Corn

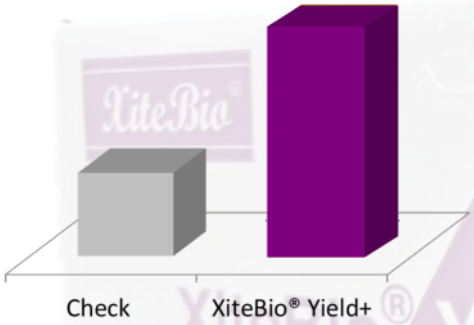
+ 6 bu/ac



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

Wheat

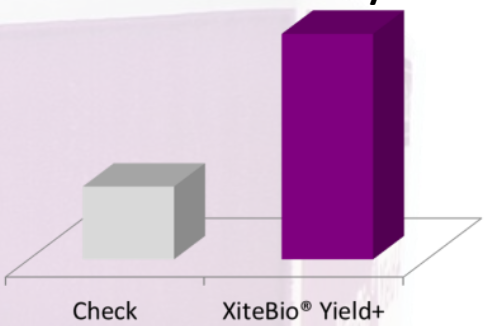
+ 5 bu/ac



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

Barley

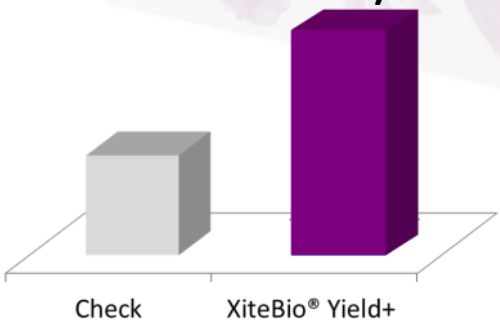
+ 7 bu/ac



Source: Third Party Trials—2016-2018

Soybean

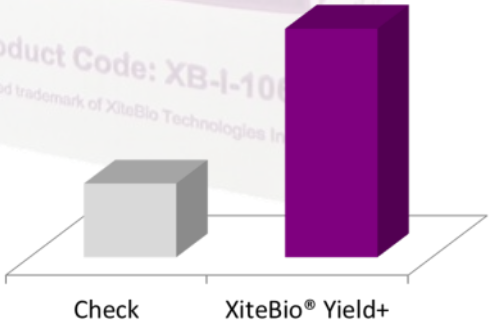
+ 2 bu/ac



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

Peas

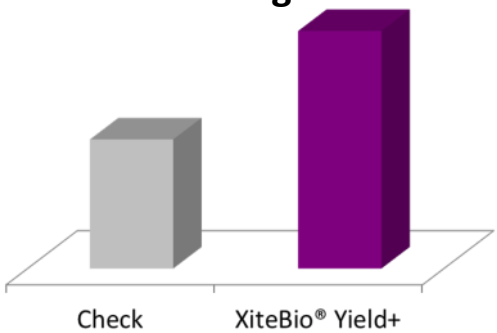
+ 8 bu/ac



Source: 3rd Party Research Trial—2017

Sugarbeet

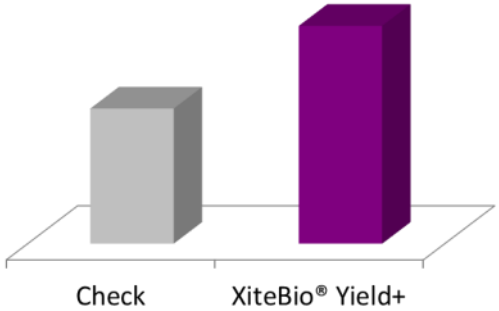
+ 0.8% Sugar Content



Source: 3rd Party Research Trial—2020

Potatoes

+ 14% CWT/ac



Source: 3rd Party Research Trials, —2019-2020

New in 2021

XiteBio® OptiPlus®

For Soybeans

XiteBio® OptiPlus® is an in-furrow multi-action liquid biological inoculant that combines nitrogen fixing bacteria *Bradyrhizobium japonicum* powered by AGPT® (Advanced Growth Promoting Technology) and XiteBio's patented strain of *Bacillus firmus*. AGPT® is XiteBio's unique proprietary technology, formulated to go beyond traditional inoculants by working with native soil rhizobium instead of competing with them. **XiteBio® OptiPlus®** adds an optimum number of nitrogen-fixing rhizobia to soybeans to enhance nodulation while also increasing plant available soil-fixed phosphorous, iron and calcium. The easy-to-use **XiteBio® OptiPlus®** liquid formulation can be tank-mixed with compatible liquid fertilizers or water for easy in-furrow application.

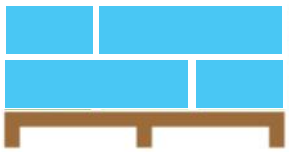
Why Should You Use XiteBio® OptiPlus®?

- Unlocks tied up nutrients
- Cost effective vs. dry granular inoculant
- No air tank bridging, no dust
- Quick and simple inoculant re-fill
- Easy & uniform in-furrow application
- Eliminate plugged equipment
- Ability to use your preferred liquid starter fertilizers
- Agronomic performance equal to or better than granular inoculants. Expected yield advantage: 3-6%

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

70+ bags of granular inoculant

(3,500 lbs)



9 cases XiteBio® OptiPlus®

(448 lbs)

XiteBio's Frequently Asked Questions

How Can I ensure good nodulation when planting legumes on virgin ground?

Higher rates of inoculant may be beneficial in fields with little or no history, or virgin soil, of any particular legume crop. It is a recommended best practice to apply both on-seed and in-furrow inoculant on virgin ground.

How do I know if my inoculant is working?

Approximately 4-6 weeks after planting, carefully dig out a plant with the roots and surrounding soil. Gently wash or break away the soil to reveal the nodules adhered to the roots of the plant. Slice them open and they should be pink in colour, indicating that the process of nitrogen-fixation is being carried out by the rhizobia.

Why should I use XiteBio® Yield+?

XiteBio® Yield+ introduces optimum numbers of a patented PGPR (Plant Growth Promoting Rhizobacteria) into the soil, who colonize plant roots and increase plant health with three distinct modes of action:

– Solubilizes soil-bound phosphorous, making it available for uptake by plants.

– Produces phytohormones to encourage earlier initiation of root hairs and helps to develop the root system.

– Produces siderophores that chelate iron and increase uptake by plants, making the plant more competitive.

These characteristics work together throughout the growing season to assist early plant development and increase nutrient availability in your soil.

How do I apply XiteBio® Yield+?

XiteBio® Yield+ is a liquid biological applied in-furrow with starter fertilizers. Alternatively, XiteBio® Yield+ can be applied early post emergence at the 0-6 leaf stage with the first post-emergent herbicide application. Always read and follow label recommendations.

Is XiteBio® OptiPlus® compatible with fertilizers?

Yes, it is compatible with some tank-mix fertilizers. Click Here to see a full list of compatible products.

Can XiteBio® OptiPlus® increase my soil phosphate levels?

The PGPR component of XiteBio® OptiPlus® colonizes plant roots and increases plant available phosphates. Applied P fertilizers generally have an efficiency of less than 50%, with most applied P becoming bound by soil particles, creating phosphate compounds or deposits that plants cannot uptake. Phosphate solubilizing bacteria found in XiteBio® OptiPlus® break the bonds between phosphates and soil particles that bind to them and create plant-available forms of phosphate, increasing the efficiency of your applied P fertilizer. These bacteria also solubilize fixed phosphates naturally found in your soil, and can increase your soil P even without fertilizer application.