

SEED APPLIED SOLUTIONS 2017 OFFERINGS

ACCELERON
SEED APPLIED SOLUTIONS **BASIC**

ACCELERON
SEED APPLIED SOLUTIONS **STANDARD**

ACCELERON
SEED APPLIED SOLUTIONS **ELITE**
plus Poncho®/VOTIVO®

MONSANTO
BioAg **QuickRoots**
Nature. It's powerful technology.

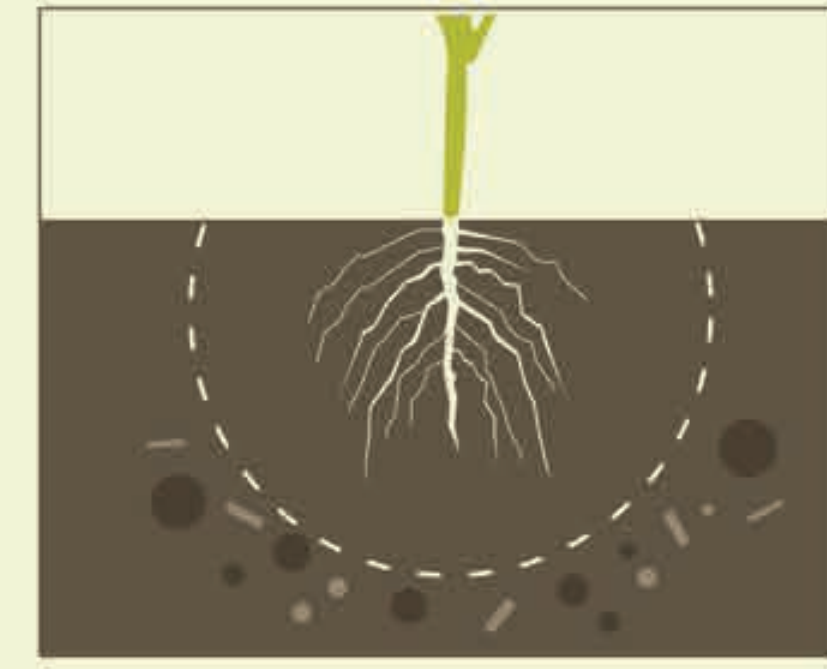
MONSANTO
BioAg **Optimize** XC
Nature. It's powerful technology.

MONSANTO
BioAg **TagTeam** LCO XC
Nature. It's powerful technology.

TALK TO YOUR DEALER FOR MORE INFORMATION.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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Without QuickRoots Application

Without the root enhancing benefits of QuickRoots, valuable nutrients may be left just out of your plant's reach.

QuickRoots®

QuickRoots works to improve nutrient availability and uptake. The microbial seed treatment performs in a variety of soil conditions and types, resulting in optimal plant health, growth and yield potential.

Promotes early season vigor.

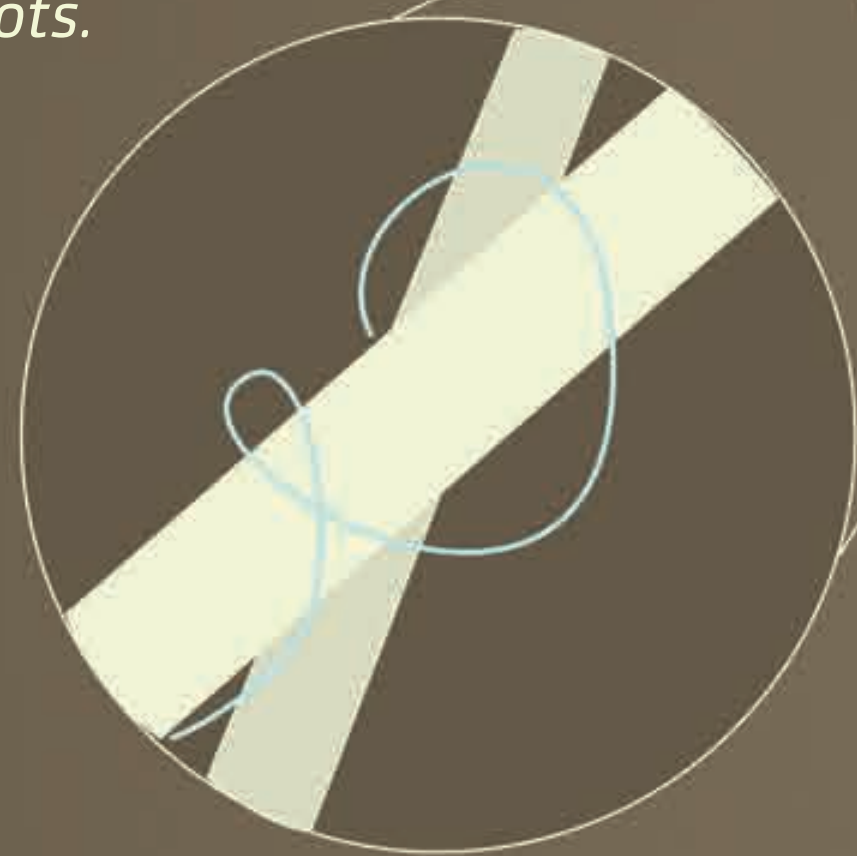
A healthier plant has better stalk strength.



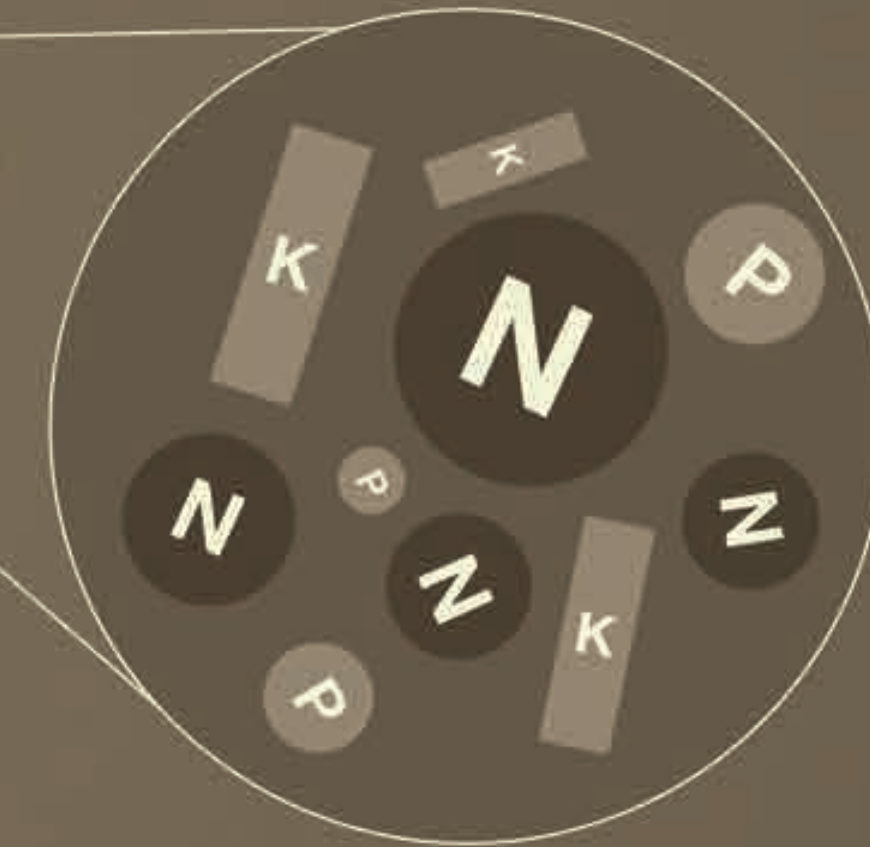
Works in a variety of soil types, including:

- Soils low in P availability
- Soils with N depletion due to high flooding

QuickRoots Extension wrapped around roots.



A *Bacillus amyloliquefaciens* and *Trichoderma virens* based seed treatment that produces novel enzymes which helps to release key nutrients from the soil.



After novel enzymes are released, they help enhance your plant's ability to access and uptake the N, P and K locked in your soil.

For more information on how QuickRoots can benefit you, visit MonsantoBioAg.com

WHAT ARE NODULES?

Nodules are masses that form on the roots of plants that associate with symbiotic nitrogen-fixing bacteria, like Rhizobia, to convert atmospheric nitrogen into a form the plant can use.

Keep an eye out for light green and/or stunted growth for potential nodulation issues.

HOW DO NODULES FORM?

Nodulation occurs when plants need additional nitrogen. Soybeans send flavonoids into the soil through their root systems. Rhizobia bacteria in the soil sense the flavonoids and send a signal called LCO back to the plant. The plant responds with root hair curling where the Rhizobia enter the plant and nodules are formed around them.

WHEN DO NODULES FORM?

Nodule formation on soybean roots can happen shortly after emergence. They will continue to grow and begin fixing N around the V2 to V3 stage¹.

Nodules will continue to form and the amount of N fixed will continue to increase until just after R5 (about 6-7 weeks).

For more information on how you can promote nodulation on your crops, visit MonsantoBioAg.com

Healthy soybean roots should show between **8-20** nodules²

HOW DO I KNOW IF I HAVE NODULES?

The only verifiable way to see if your soybeans are getting the Nitrogen they need, and forming nodules, is to do a root dig.

Nodule color should be inspected

Red/Pink nodules are actively fixing N

Brown/Green nodules do not fix N for the plant.

HOW CAN I INCREASE NODULES?

Monsanto BioAg™ products help make nutrients in the soil more available to crops, resulting in healthier plants that can meet their maximum yield potential.

- TagTeam® LCO XC combines the LCO molecule, *Penicillium bilaii* and a Rhizobia inoculant to develop a stronger root system and a healthier plant.
- Optimize® XC is a dual-action inoculant that combines LCO and Rhizobia to improve nodule formation, nitrogen fixation and overall nutrient capability.

Sources:

¹<https://mdc.itap.purdue.edu/item.asp?itemID=16942#.VJEGBBCrSVk>

²http://msue.anr.msu.edu/news/evaluating_soybean_nodulation

Legals:

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