

Inoculants containing *Bradyrhizobium japonicum* provide a cost-effective way to ensure beneficial rhizobia for nodulation and nitrogen fixation. With a higher nodulation count, plants are more capable of fixing atmospheric nitrogen and reduce the need for nitrogen inputs on other crops in the rotation. Inoculants that increase soybean nodulation are recommended in most soybean management practices.

Titan Pro Soybean Inoculant Features & Benefits

- Delivers high concentration of beneficial Rhizobia bacteria for nitrogen fixation
- Extender product helps prolong Rhizobia up to 120+ days following application
- 10,000,000,000 minimum Colony forming units per milliliter
- Rhizobia per seed = 1.626 million (@2,800 seeds/lb)
- PASSER* tested

Recommended Rate:

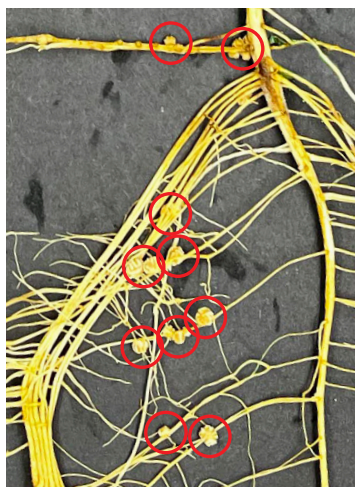
- Application Rate: 1.0 fl oz/140k (2.0 fl oz/cwt at average 2,800 seeds/lb)

Product Density:

- Titan Pro Soybean Inoculant is 1.0 g/ml (8.35 lbs/gal) and the extender is 1.19 g/ml (10.0 lbs/gal)

Available Packaging:

- 3 x 90 case (to treat 270 units)
- 2 x 270 case (to treat 540 units)



Titan Pro Soybean Inoculant plus F & I seed treatment - Healthy nodules present



N-Force Inoculant plus F & I seed treatment - No nodules present

The Facts About Rhizobia Survival

- Rhizobia stability in packaging and storage is measured by how many and how long rhizobia survive in their packaging from fermenter to seed treater.
- Rhizobia on-seed survival measured by how many and how long rhizobia survive on the seed after application and prior to planting.



Tips and Tricks for Handling Product

To maintain high Rhizobia counts and viability, it is critical for storage guidelines to be followed. Titan Pro Soybean Inoculant is packaged in bladders that lie flat to increase oxygen availability to the organisms and keep them alive longer.

- Understand the planting window needed to ensure effective Colony forming units (CFU) at the time of planting
- Keep inoculant in a separate tank and application line from other seed treatment products, such as fungicides and insecticides
- Follow expiration guidance provided on package
- Follow storage conditions provided on the package and do not allow liquid inoculants to freeze prior to use
- Keep inoculant in a cool location, out of direct sunlight (recommended between 35 and 50 degree F)
- Routinely clean and check calibration of treating equipment

Key Questions When Considering An Inoculant

Q Is the Rhizobia strain important?

A The strain of Rhizobia inoculum is important because they are crop specific and could be less efficacious, if not used for the crop they are intended for. Some have been selected for their ease of production and fermentation instead of their ability to nodulate and fix nitrogen. Additionally, not all strains are hearty and may only survive on-seed for a short period of time making it difficult to align with planting.

Effective nitrogen-fixing nodule biomass is more important than the total number of nodules. Native Rhizobia could stimulate nitrogen formation, but those nodules may not be able to fix nitrogen. A more effective nodule will be a red to pinkish in color while a less effective will be green or gray.

Q Is the inoculant viable through the addition of seed treatments?

A When incorporated with other seed treatments, it is critical to understand how they could impact Rhizobia survivability on the seed. In some cases, active ingredients may negatively effect the colony forming units (CFU) of the Rhizobia impacting its ability to form nodules.

Q Why is packaging important for Titan Pro Soybean Inoculant?

A Having a flat, specialized oxygen-permeable bladder along with an adequate surface area is important for Rhizobia colony health. Keeping oxygen available to the inoculant extends the survivability of the Rhizobia colonies.

Q How long can the inoculant be stored on the seed?

A Actual storage time will vary by the inoculant used and how it's handled. It is critical to understand the manufacturer's claims and certainty that the inoculant is still viable on the seed when you plant.

Q How many colony forming units are needed for nodulation?

A Understanding how many colony forming units (CFU) are present on the seed is key to maximizing performance. For yield to perform consistently the Rhizobia need to provide a high number of CFU on the seed at the time of planting. Proper storage and following the expiration date are critical for living organisms. With Titan Pro Soybean Inoculant we target 1.626 million (@ 2,800 seeds/lb).

With proper handling, we are confident that Titan Pro Soybean Inoculant will reach target inoculation levels at least 120 days from application.

Q How should Titan Pro Soybean Inoculant be stored?

A Titan Pro Soybean Inoculant should be stored on a flat surface in a cool location out of direct sunlight. The recommended temperature is between 35 and 50 degrees F.