

# LALFIX PROYIELD

## LIQUID SOYBEAN



SOYBEAN



LIQUID



INOCULANT

### FEATURES

Two Active Ingredients:

- $1 \times 10^{10}$  *Bradyrhizobium elkanii* per ml
- $2 \times 10^7$  *Delftia acidovorans* per ml

Package Sizes:

- 1 x 400 unit case (45 cases per pallet)
- 4 x 100 unit case (45 cases per pallet)

Easy to use Formulation:

- One package to open (no mixing)
- 0.75 fl oz (22.2 ml) per 140,000 seeds OR 1.5 fl oz per 100 lbs of seed (44.4 ml per 45.4 kg)
- Limited tackiness/bridging
- On-seed life of 240 days

Refer to the website for the latest compatibility information. Refer to the label for in-furrow application details.

Always read and follow label instructions.

## Dual Action Liquid Inoculant for Soybeans

LALFIX® PROYIELD LIQUID SOYBEAN is a leading formulation containing *Bradyrhizobium elkanii* and *Delftia acidovorans*. Lallemand Plant Care is utilizing two unique strains of *Bradyrhizobium elkanii* to bring soybean growers an innovative inoculant with higher rhizobia survival and competitiveness. In addition, *Delftia* increases root growth, nutrient and water uptake - ultimately leading to enhanced nodulation and nitrogen fixation, early vigor and higher soybean yields. In partnerships with university researchers, who have concluded that *Delftia* produces a significant amount of chaperone molecules that help solubilize iron for soybean availability. This has shown out in fields with history of Iron Deficiency Chlorosis (IDC) to decrease symptoms caused by lack of iron as part of an overall offensive strategy against IDC.

## Modes of Action

### *Bradyrhizobium elkanii*

Two strains for balanced performance

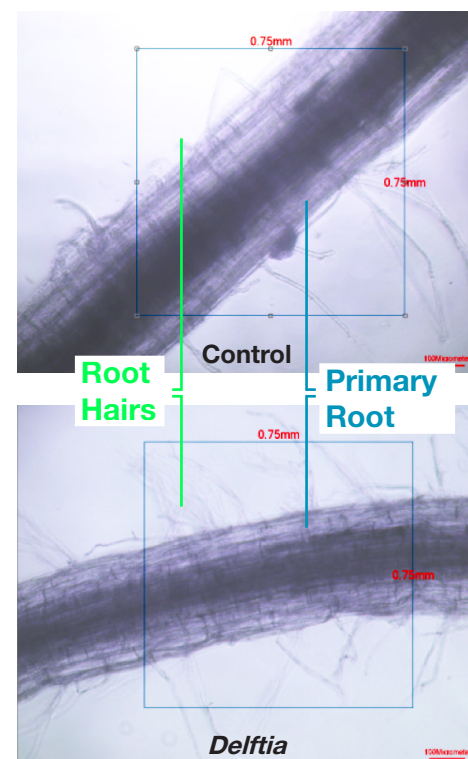
- More N fixation through utilization of nitrogenase enzyme compared to competitor rhizobia.
- Robust, early nodulation dispersed over the crown and lateral roots compared to competitive inoculants.

### *Delftia acidovorans*

- Stimulates intricacy of root system allowing for increased nodule formation.
- Aggressively colonizes roots and out-competes other soil bacteria and fungi.
- Solubilizes iron through siderophore production.
- Makes more sulfur available to the plant.

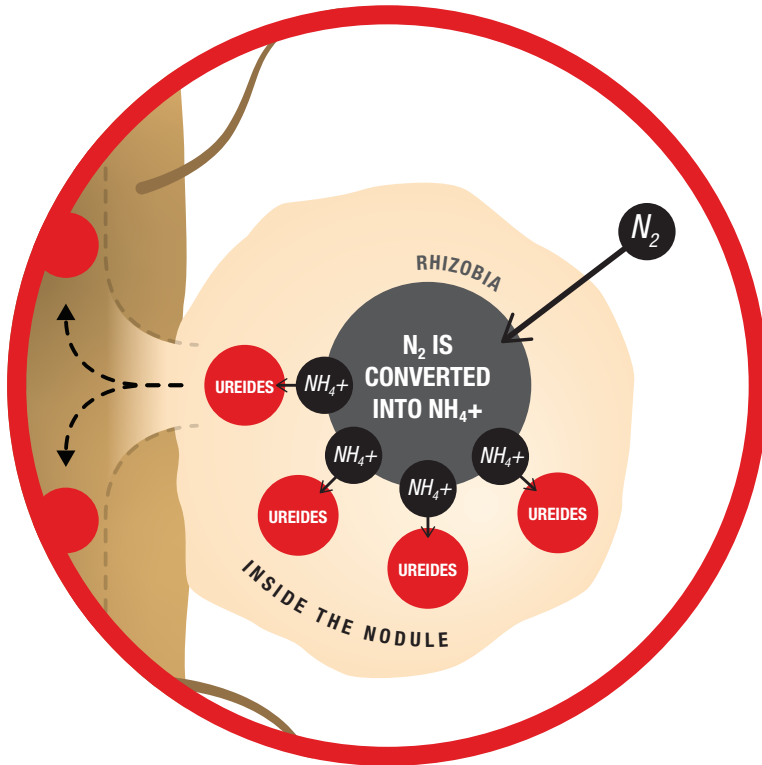


### Effects of *Delftia* on Root development



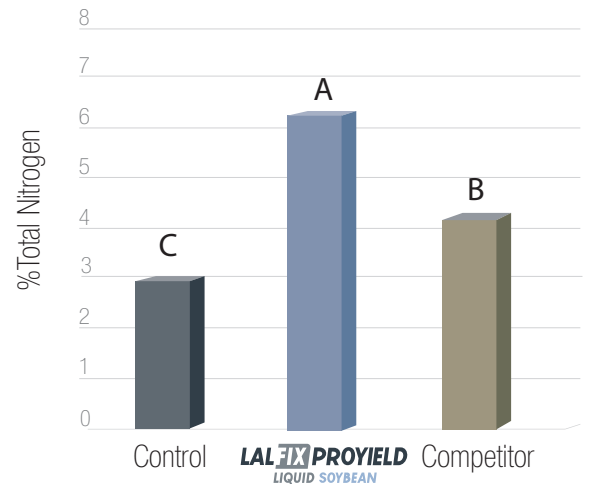
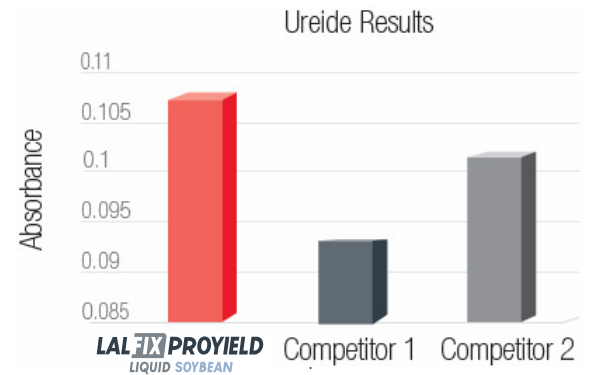
Treatment with *Delftia* produced plants with increased length and numbers of root hairs in comparison to the control. Root hairs are the access points for *Bradyrhizobia* nodulation.

# Product Results



Developed by Dr. Jay Goos at NDSU

- Objectives and context: Quantify Nitrogen Fixation
- Demonstrate advantage *Elkanii* vs *Japonicum*
- Using LALFIX PROYIELD LIQUID SOYBEAN



LALFIX® PROYIELD LIQUID SOYBEAN treated soybeans had significantly more total nitrogen ( $p=0.0002$ ) than competitor and control treated soybeans. *Bradyrhizobium elkanii* supplied at least 50% more N, as the only source, over competitive *Bradyrhizobium japonicum* inoculant.

## 30% average improvement in plant color!



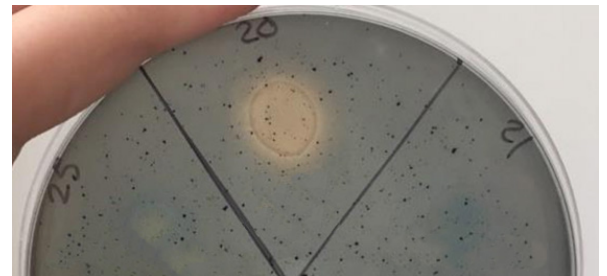
Competitor

LALFIX PROYIELD  
LIQUID SOYBEAN

	Greenness Index	Nitrogen Reflectance Index	Green Leaf Index	Triangular Greenness Index
Competitor	1.472	0.191	0.221	3157
PROYIELD	1.612	0.234	0.209	6011
% increase to PROYIELD	9.5	22.6	-5.7	90.4
Augmentation moyenne	29.2			

Vegetative Indexes for PROYIELD Treated Soybeans  
— Buxton, ND - 2019

**MORE IRON & NITROGEN UPTAKE  
=  
GREENER PLANTS**



Competitor

LALFIX PROYIELD  
LIQUID SOYBEAN

Competitor

Visual representation of iron chelation by *Delftia acidovorans* following CAS agar method.

## About Lallemand Plant Care

Lallemand Plant Care (LPC) specializes in employing microorganisms including, but not limited to, yeast, bacteria, fungi and plant derivatives for biocontrol (i.e., controlling of harmful insects or microorganisms), biostimulation (i.e., eliciting natural responses) and biofertilization (i.e., enhancing plant nutrition).

Using a "field-led, science-supported" approach, LPC works closely with clients to deliver the right products for the right applications that benefit crops and create better customer experiences.