

# WHAT IS AGNYTE?

- Product Name: Agnyte
- Powder By: N3 Microbial Technology
- Contains three different strains of beneficial bacteria
- N3 Bacteria are able to fix nitrogen from the air and deliver it to the plant as ammonium.
- The N3 bacteria have other function including the solubilisation and uptake of phosphorus and potassium.
- Sold as a soluble powder and applied at 0.7oz/ acre.
- Applied as a foliar spray to the plant.



# WHO SHOULD USE AGNYTE ?



High levels of synthetic N being used



Banned Or Legislation Around Use Of N Fertilizer



Environmental pressure to reduce N runoff / carbon footprint



No synthetic nitrogen is permitted



# HOW DOES AGNYTE WORK?

**Agnyte has a unique combination of PGPR (plant growth promoting rhizobacteria)**

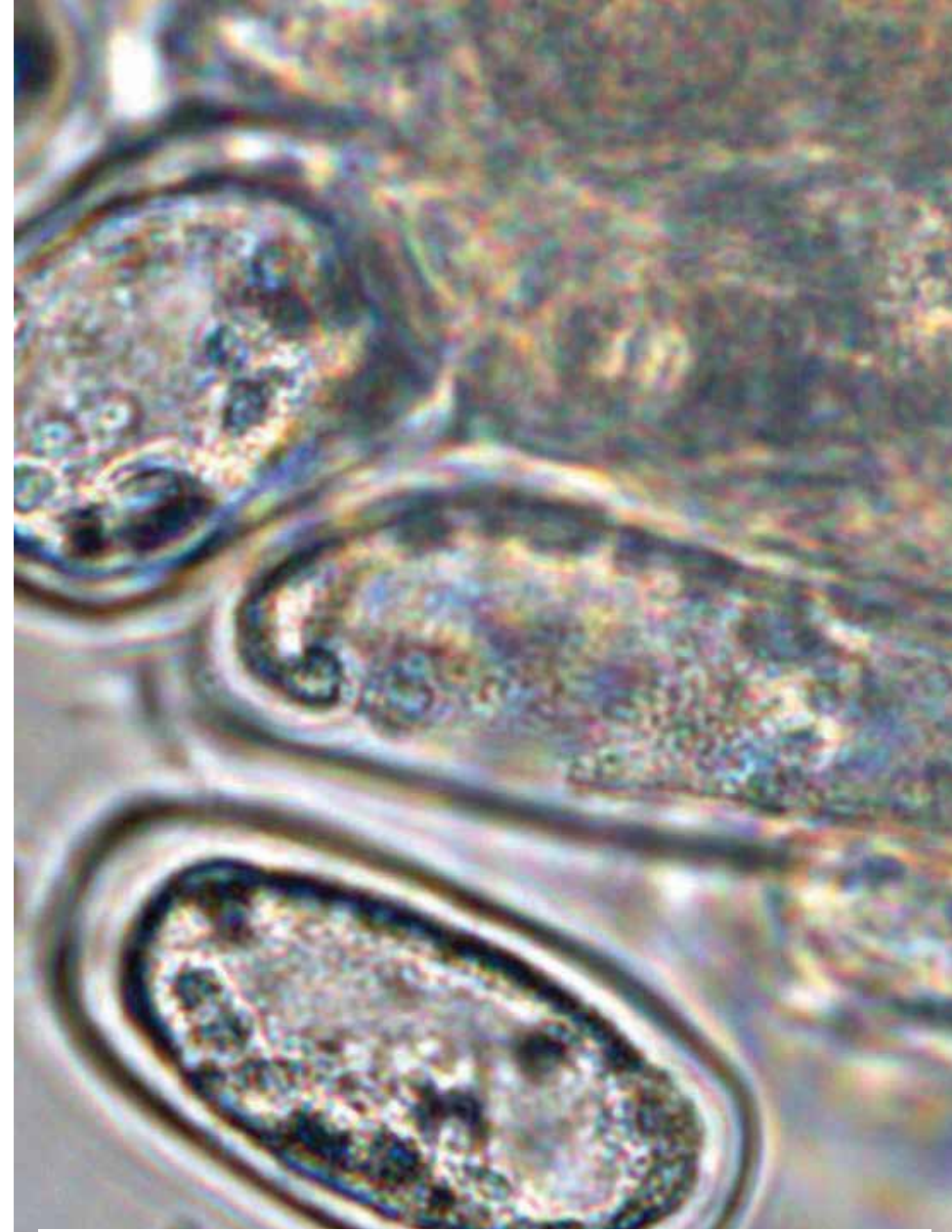
- Azotobacter chroococcum
- Azospirillum brasilense
- Bacillus megaterium

**These endophytic bacteria have been selected and optimized to;**

- fix nitrogen in the form of ammonium in the intercellular spaces within the plant leaves and roots.
- enhancing bioavailability of phosphorus and potassium in plants.
- produce plant growth stimulants called phytohormones, which include cytokinins, auxins and gibberellic acid and siderophores, which can influence the growth of the plant.

# HOW DOES AGNYTE WORK?

- Agnyte contains nitrogen fixing bacteria that are applied to the leaves surface.
- Once on the surface the N3 bacteria can enter the leaf through the open stomata or incorporated into the intercellular cavities during the process of cell division which occurs in the actively growing regions of the plant.
- Once inside the intercellular spaces of the leave, the bacteria are able to transfer nitrogen to the plant.
- Agnyte should be applied to the actively growing areas of the plant in order to provide maximum benefit.
- It is recommended that Agnyte be applied around V5 growth stage with a potential second application around during tasselling in maize.



Using a nitrate stain (acidified diphenylamine: purple color) more nitrate can be seen around bacteria (black arrows) in plant cells.



## HOW DOES AGNYTE WORK?

- Endophytic bacteria as essential in the interaction between plant and extraction of nutrients from the soil. The process in which this occurs is called the RHIZOPHAGY CYCLE.
- The bacteria are attracted to the plants roots, where they are then enter carrying nutrient from the soil.
- The plant is able to extract the nutrients in the plant cells and expels the bacteria back into the soil where they are replenished of soil nutrients before continuing the cycle.
- The Agnyte N3 bacteria are selected specifically to extract phosphorous and potassium from the soil and make it available to the plant.

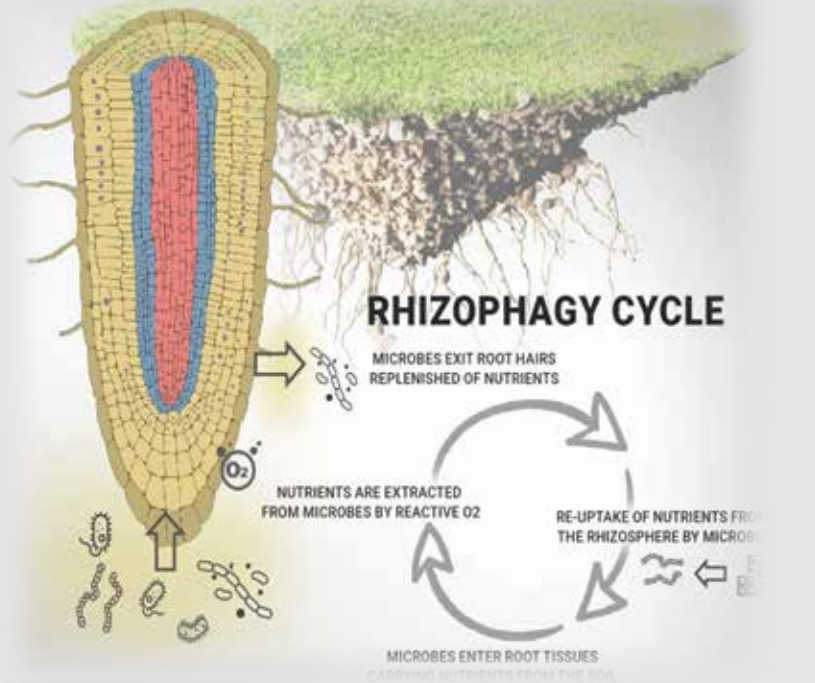
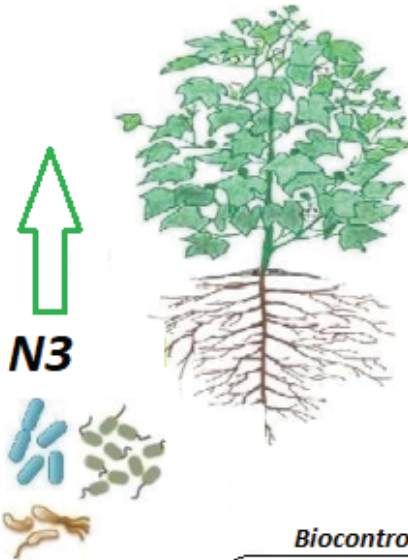


Diagram showing the Rhizophagy Cycle of endophytic bacteria's essential role between plants and soil nutrients.

### *Biofertilisation effect of N3*

- Fixing atmospheric nitrogen
- Secretion of phytohormones
- Phosphate solubilisation and transportation
- Potassium solubilisation
- Siderophore production



### *Biocontrol effect of N3*

- Inducing systemic resistance
- Competing for iron



*Schematic diagram of N3 mode of action on plants*

## WHAT TO EXPECT.

The combined effect of the mode of action of the N3 bacteria leads to;

- Enhances plant growth
- Protects plants from disease
- Protects plants from abiotic stresses.
- Improvement in overall plant health
- Increased root development
- Increased in yield
- Improve plant resistance to salt stress

Although the focus of Agnyte is to increase nitrogen delivery to the plant, there are various mechanisms working to improve plant health and promote productivity.

# WHAT TO EXPECT FROM AGNTYE



## ADDITIONAL SOURCE OF NITROGEN



Increased yields by up to **15%** and overall plant health



## REPLACEMENT OF SYNTHETIC NITROGEN



Reduce input costs by an average of **\$xx/acre**



Reduce levels of synthetic nitrogen by up to **30%**



Reduces greenhouse gas emissions by an average of **25%**

# WHAT IS N3 MICROBIAL TECHNOLOGY?

**N3 Microbial Technology is the combination of the**

- Consortium of selected microbes +
- Methods of production use to optimise the function and survivability of the microbes +
- Proprietary formulation used to facilitate foliar application and enhance the bacterial loading inside the cells of the plant

## Why is N3-MT important?

The resulting effect of N3-MT technology is;

- Survival and optimally functionality of microbes
- Good product efficacy in broad range of crops and geographies
- Ambient shelf life for up to 12 months



01.

Selected strains of bacteria

02.

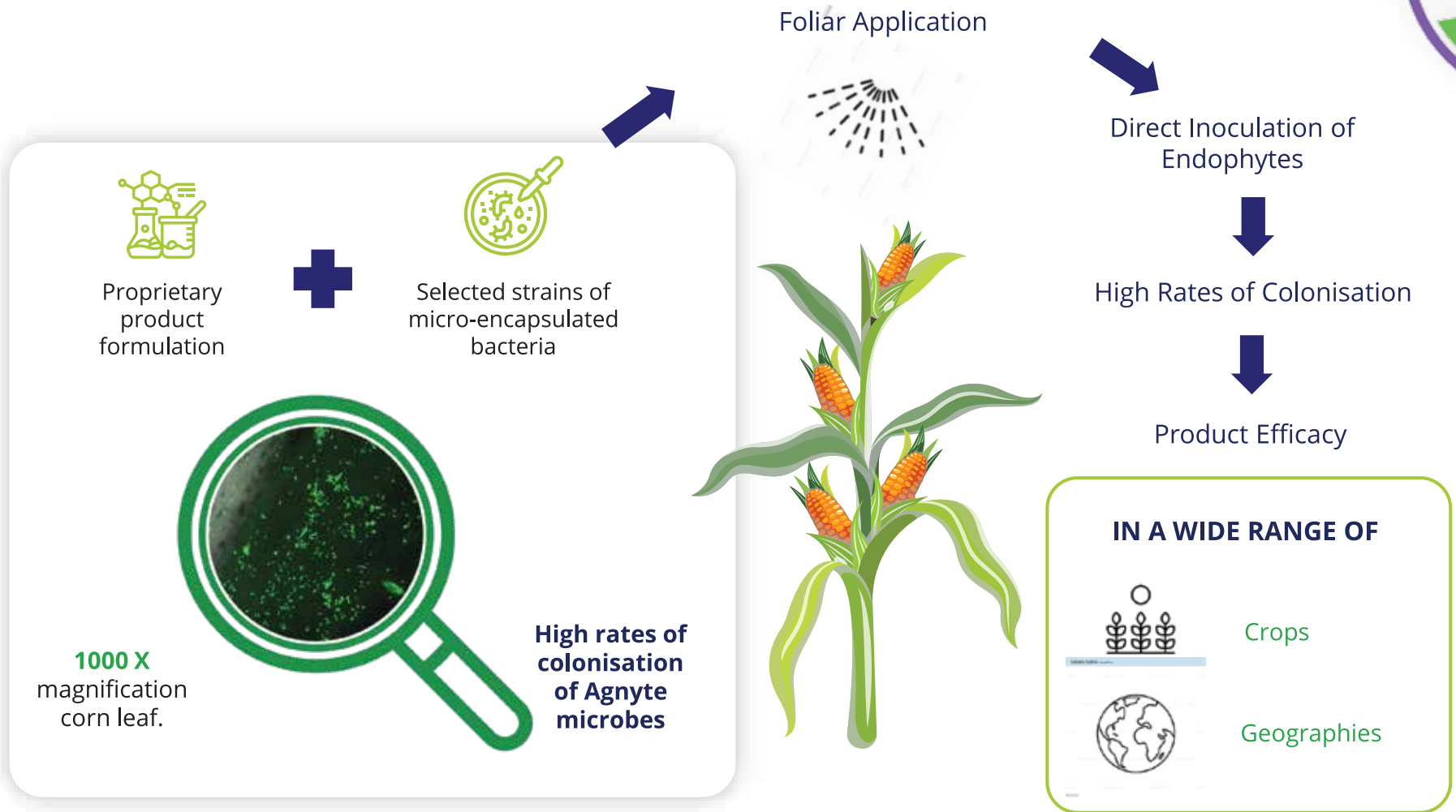
Proprietary product production

03.

Proprietary product formulation



# N3 MICROBIAL TECHNOLOGY



# COMPETITIVE ADVANTAGE FOLIAR APPLICATION



Proprietary Formulation



Foliar Application



High Rates of Colonization of Bacteria inside Plant



Consistent Product Efficacy

## COMPETING PRODUCTS ON MARKET

Standard Formulation



Applied to Seed and Soil



Low number of Bacteria



Inconsistent Product Efficacy

Variability and Competition in soil

This method of fast and reliable application of N3 endophytes directly into the plant, is critical to making the product effective.



# WHY CHOOSE AGNYTE?

## HIGHLY CONCENTRATED PRODUCT

- EASE TO HANDLE. LOW FREIGHT COSTS.

## CONSORTIUM BACTERIA

- DIFFERENT MODES OF ACTION WORKING TO PROMOTE GROWTH AND OVERALL PLANT HEALTH

## PROPRIETARY FORMULATION

- PRODUCT CAN BE APPLIED AS A FOLIAR AND DELIVER HIGH NUMBER OF STIMULATED BACTERIA

## N3 MICROBIAL TECHNOLOGY

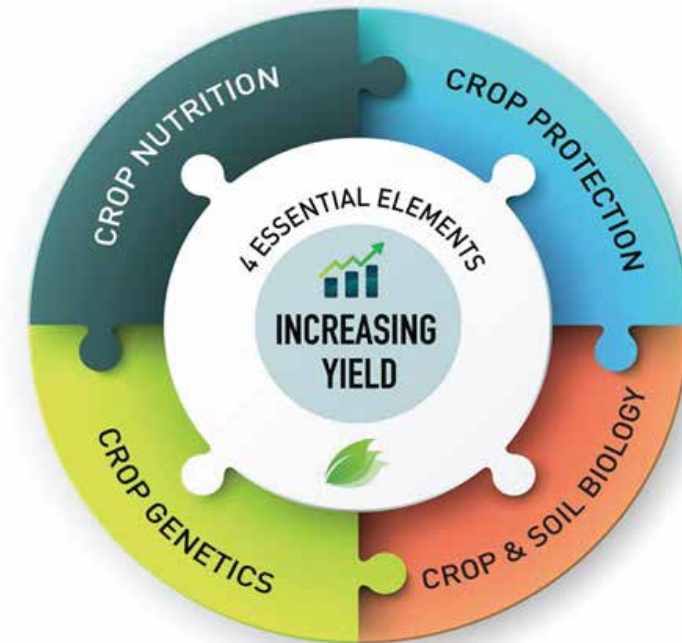
- 12 MONTHS SHELF LIFE & GOOD PRODUCT EFFICACY IN DIFFERENT CROPS AND GEOGRAPHIES

# LAST PIECE OF THE PUZZLE TO OPTIMISING CROP YIELDS

Every growers has looked at different ways to optimise plant yield through the improvement of plant genetics, nutrition and disease prevention.

*But what steps have growers taken to improve soil and plant biology?*

- The interaction between plant and microbes is now considered an essential process in order to boost plant growth.
- It should not be considered an optional extra. It is the time to pro actively manage the biology of your crop to maximise the yield potential of your crop.



DELIVERING THE LAST PIECE OF THE  
PUZZLE TO OPTIMISING CROP YIELD.

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