

# Signal molecules

## Novel concept for Biological Seed Applied Solutions

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With 100+ years of innovation as our foundation,  
we will keep delivering transformative solutions

novozymes® 

CHR HANSEN

novonesis

We have the world's most advanced biotech toolkit,  
enabling world-class innovations

100+

years of  
dedication  
to science

~10%

of turnover  
is re-invested  
in R&D

~2,000

employees  
in R&D

~40

R&D and  
application  
centers

1

unparalleled library  
of documented  
microbial strains  
and enzymes

~9,900

patents

# How we have organized our commercial offerings

Division : Food & Health Biosolutions



Business area:  
Biosolutions for human health



Business area:  
Biosolutions for food and beverages

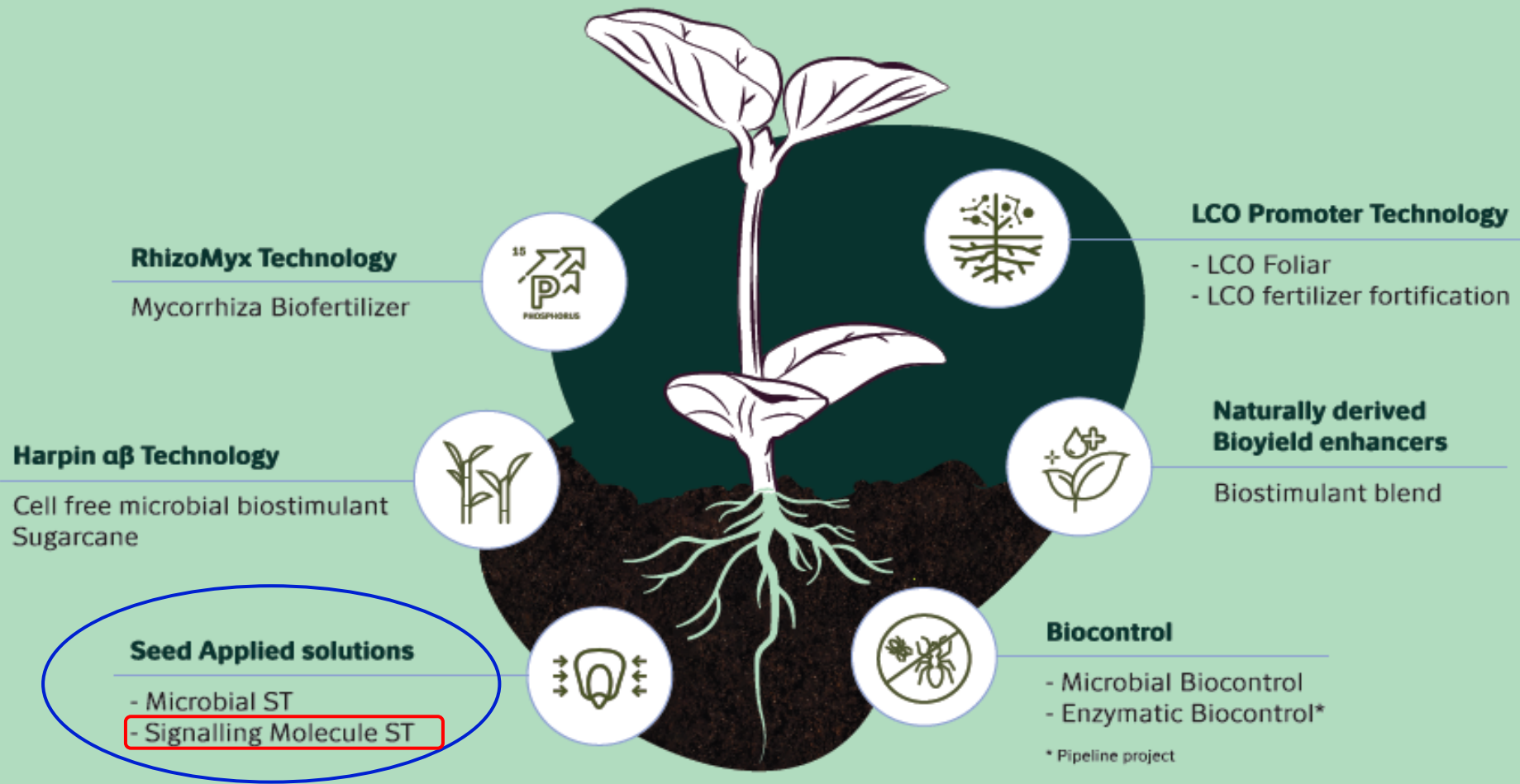
Division : Planetary Health Biosolutions



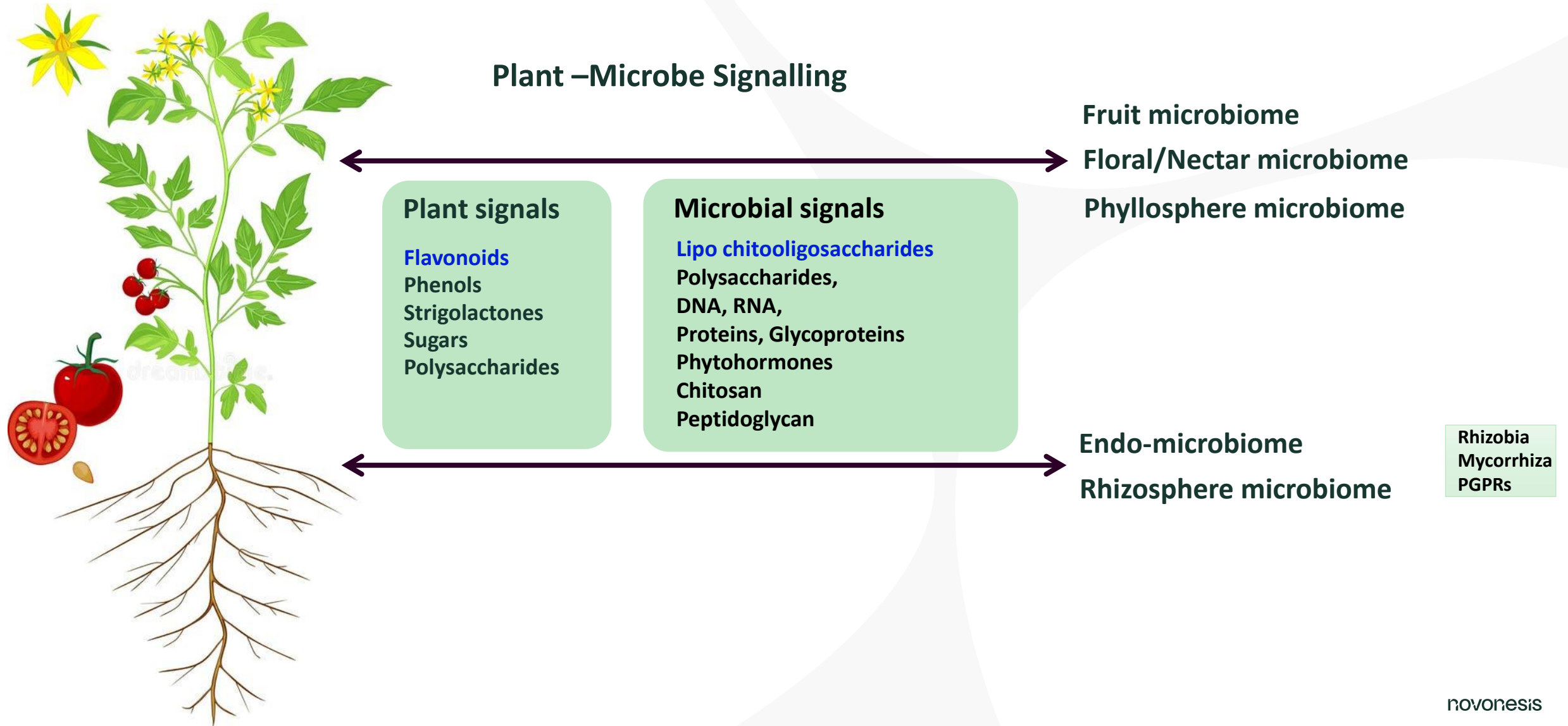
Business area:  
Biosolutions for planetary health

# Think bio-logical

**Novonesis scientific heritage** guarantees innovative technologies and reliable products to **boost crop performance**, while preserving nature. We work in close collaboration with Ag input partners across the globe in order to deliver impactful innovation where it is most needed.



# Recruitment of microbiomes involves complex signalling and scrutiny



# Signaling molecules

## LCO upstream seed treatment

**LCO molecule** is a microbial signal that initiates nodulation, aids in mycorrhization and stimulates plant growth.



Increase stress tolerance leading to healthier plants



Consistent yield increase across geographies

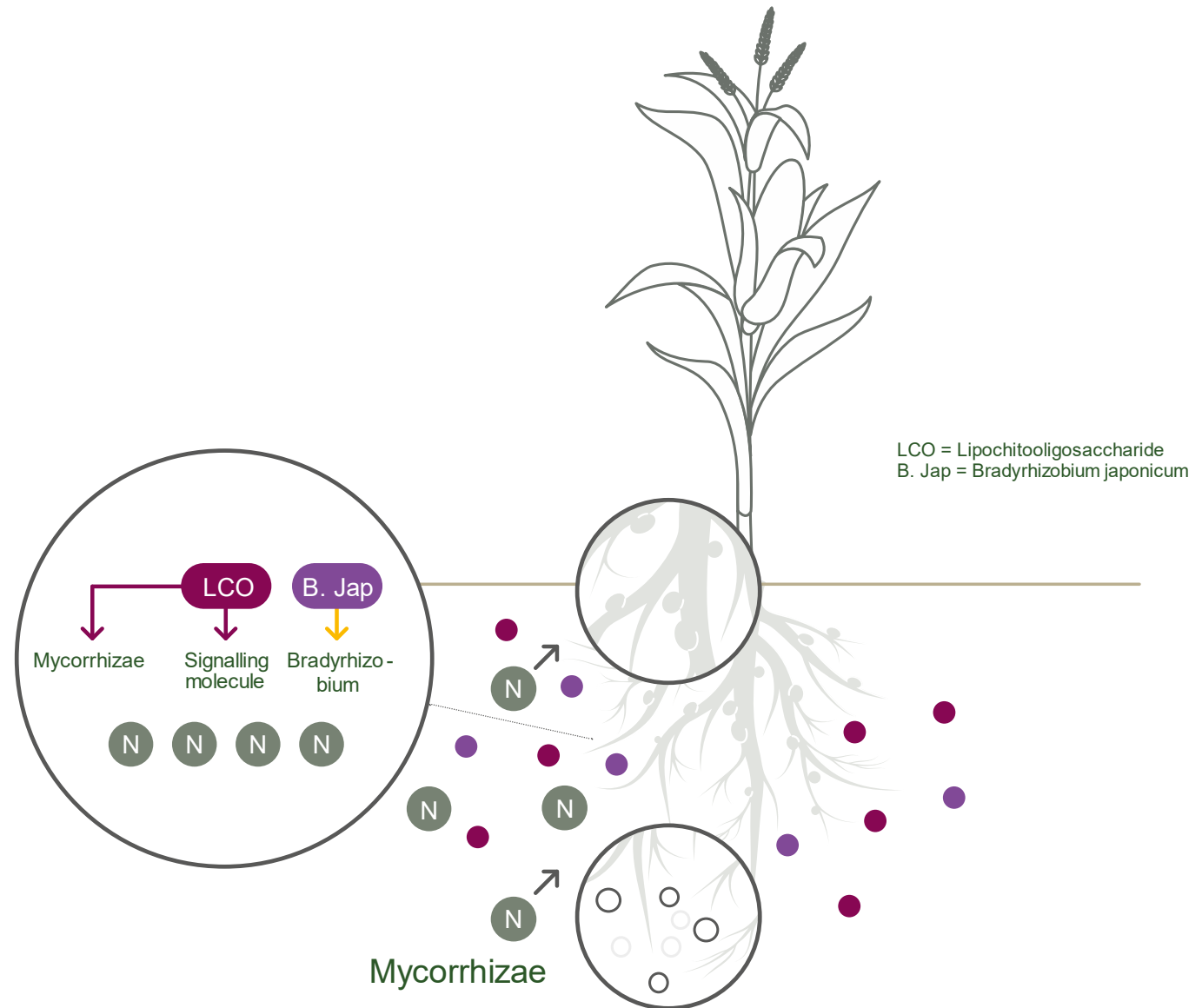


Compatible with wide variety of liquid nutritional products, fungicides and insecticides



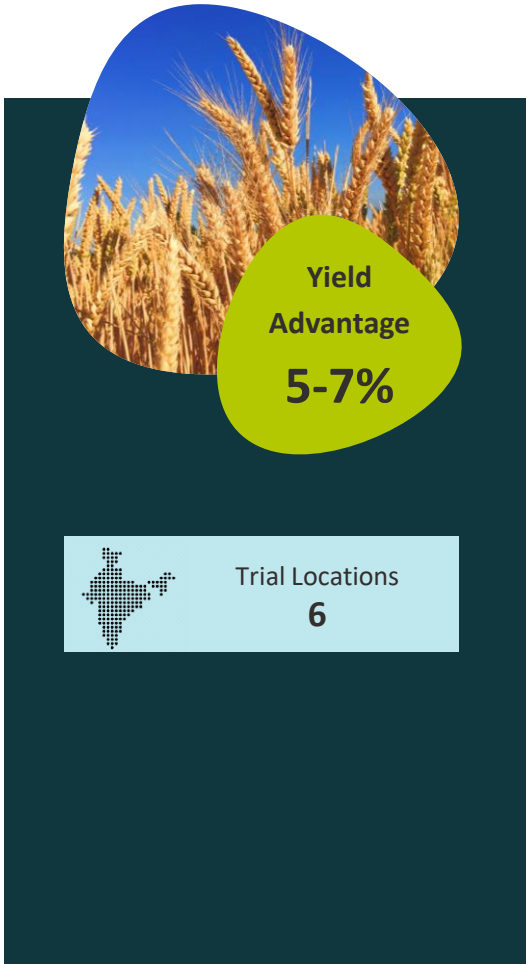
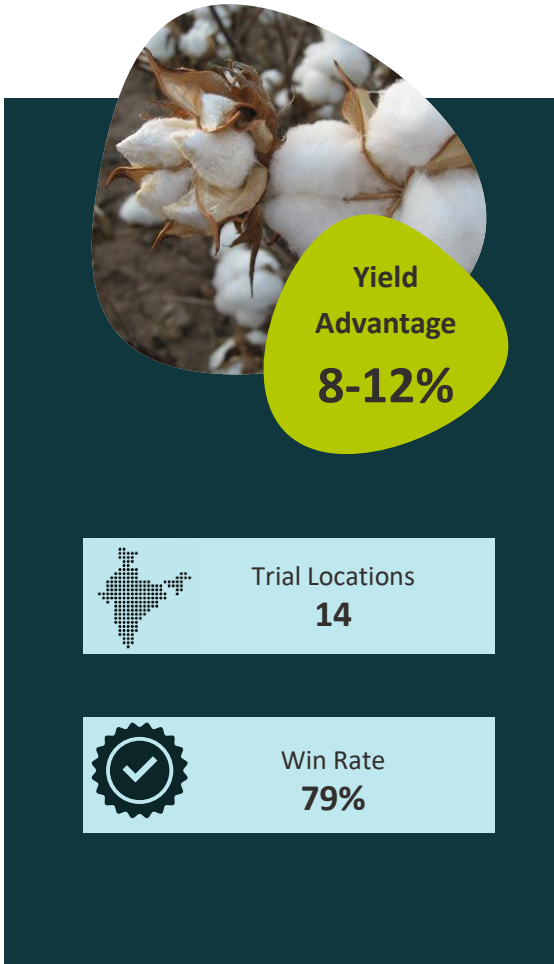
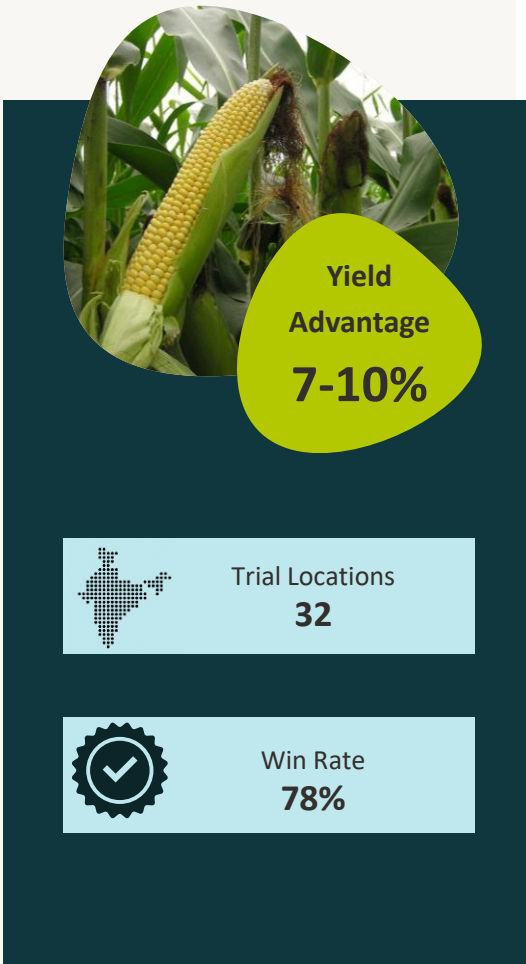
# How does LCO seed treatment work?

LCOs enable the crop to achieve their full genetic potential by enhancing nutritional capabilities that drive natural growth processes, maximizing plant health and crop performance



# LCO upstream seed treatment

Our LCO molecule has a **proven track record** and is being applied on more than **35 million acres globally** (including through our partner Bayer's footprint on corn and wheat)



Data source: Multi-location trials conducted through State Ag. Univ across India

# Signaling molecules

## Isoflavonoid upstream seed treatment

Isoflavonoids are plant signalling compounds that increase root surface area allowing the plant greater access to nutrition and water



Promotes early emergence and stand establishment



Convenient low use rate for on - seed application



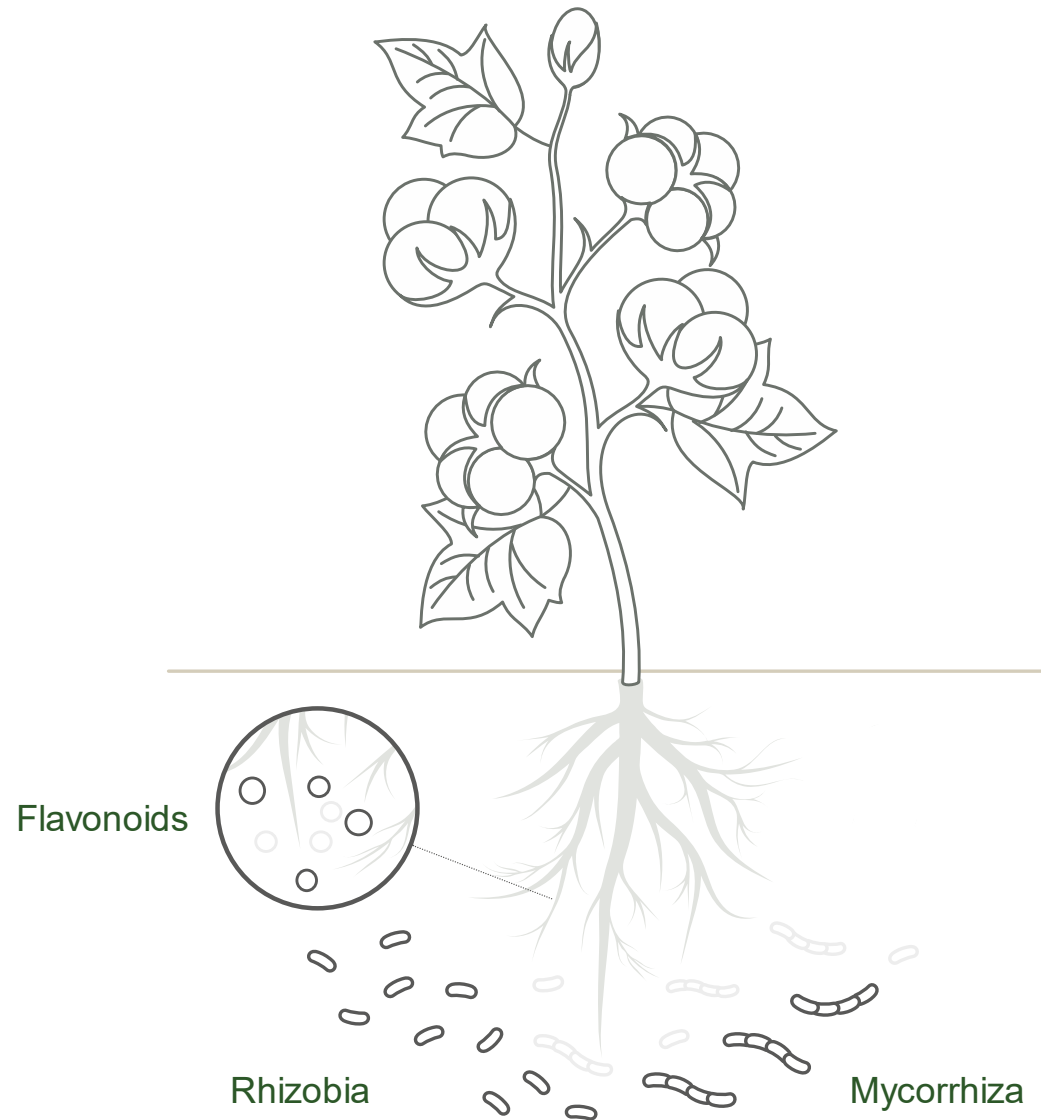
Compatible with most other chemical and biological seed treatments



# How does Isoflavonoid Technology work?

It triggers beneficial soil fungi (mycorrhizae) in the soil profile enhancing nutrient uptake, which in turn leads to lateral root development and increased stress tolerance.

This improves the nutrient, water and phosphorus uptake to overcome environmental stress. It helps crops reach their true genetic potential.



# Isoflavonoid for upstream seed treatment

Our Isoflavonoids have shown consistent performance across geographies to sustainably support plant growth and development.



**Data source:** Multi-location trials conducted through State Ag. Univ across India

# Signal molecules – A novel technology designed for growth and yield enhancement



Promotes **early emergence** and **crop stand** establishment



Enhances root and shoot development for **improved nutrient and water uptake.**



Increase **stress tolerance** leading to healthier plants right from the start.



Thank you.