



wiiibio

Enhances soil microbiota

Let's grow greener



Rovensa
Next

Enhances soil microbiota



Description

Wiibio is a soil regenerating Biostimulant based on a specifically selected strain of the probiotic *Bacillus subtilis* F1 bacterium, that acts on plant root systems and effectively activate and reinforce key microbial and metabolic processes in soil.

The strain in Wiibio is combined with organic matter and rhizogenic substances enriched with Calcium, that acts as a direct natural promoter and enhancer of plant growth and development, improving yield, quality and thus profitability.

It is suitable for use in most crops, and is specifically targeted for soil application, from early to mid-vegetative cycle, as well as post-harvest in perennial crops.

Main benefits

- Contributes to soil microbiome enhancement, by increasing rhizosphere microorganisms
- Specific coformulants and Calcium are proven to further enhance product efficacy
- Enhances and protects the root system
- Unlock confined nutrients (e.g.: Phosphorus)
- Increase the nutrient use efficiency – NUE (e.g. Iron)
- Better yields, improved fruit quality.
- Synergistic effect when applied with soil products.

Technical specifications

Wiibio is a solution composed of *Bacillus subtilis* F1 strain, prebiotic molecules, organic matter, rhizogenic substances, and enriched with Calcium.

Guaranteed contents:

- Calcium (CaO), water soluble: **14.7 % w/v**
- *Bacillus subtilis*: **1 x 10⁷ CFU/m**

CFU – Colony Forming Unit. Unit of measure that indicates the microorganism content and concentration of a probiotic product.



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Evaluation of the potential to increase the indicators of microbial biomass with Wiibio application

Location and Trial condition:

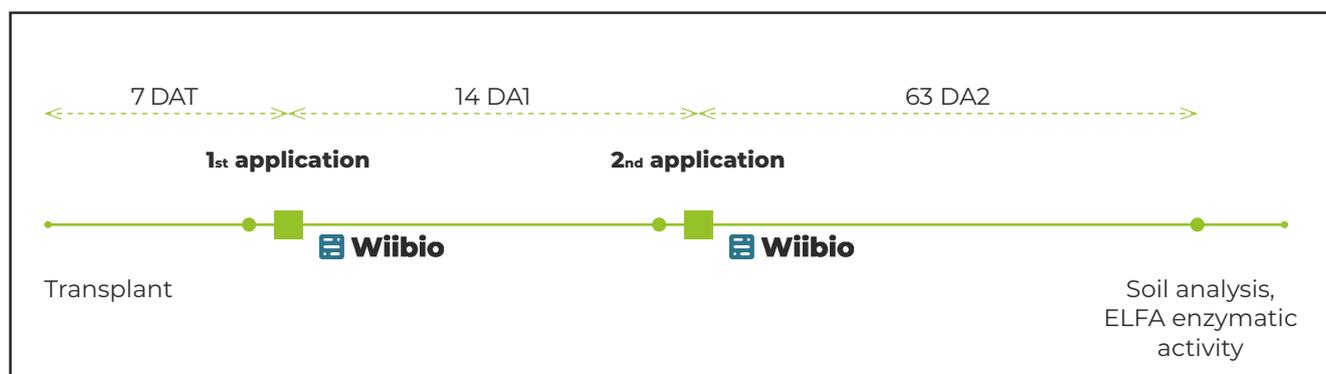
Crop: Wheat; Variety Amilcar

Localization: Sevilla - Spain

Condition: Growth chamber

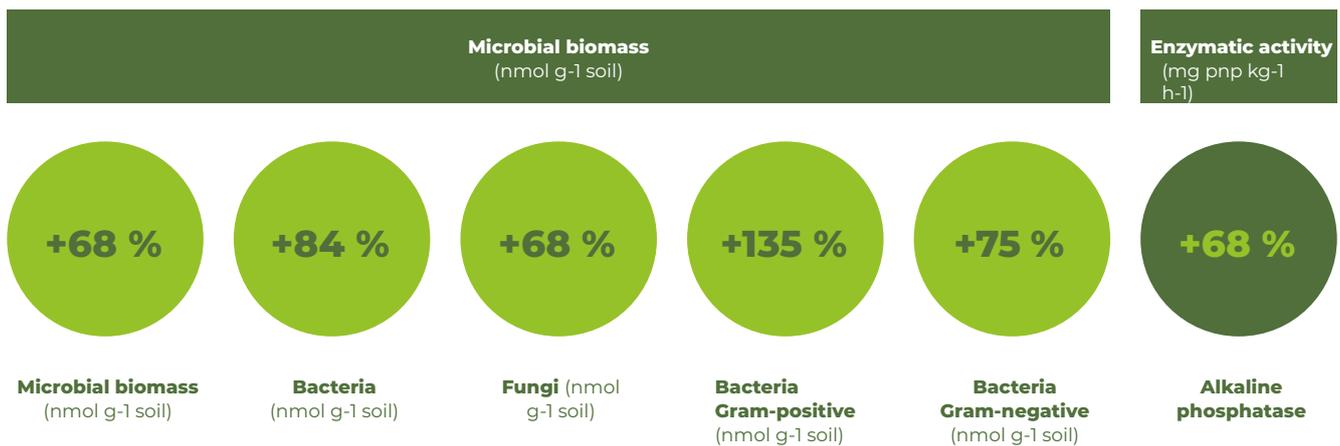
Year: 2022

Product	Dose	N° of applications	Application Stage
Control	-	-	Control treatment
Wiibio	10 l/ha	2	7 days after transplanted and 14 days after 1 st application



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Measured by Ester Linked Fatty Acid (ELFA) extraction: used as indicators of microbial biomass and composition of functional groups of fungi and bacteria in the soil



Wiibio: increased the microbial biomass (bacteria, fungi) and the alkaline phosphatase

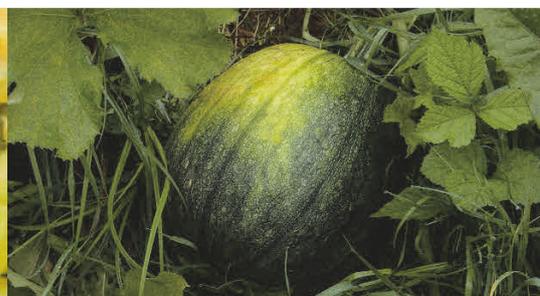
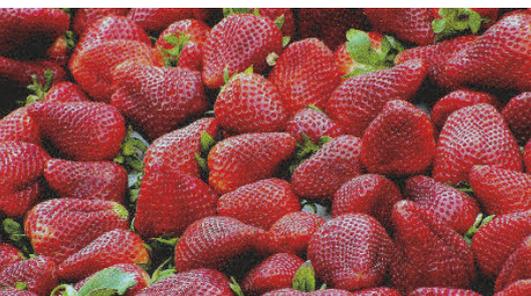
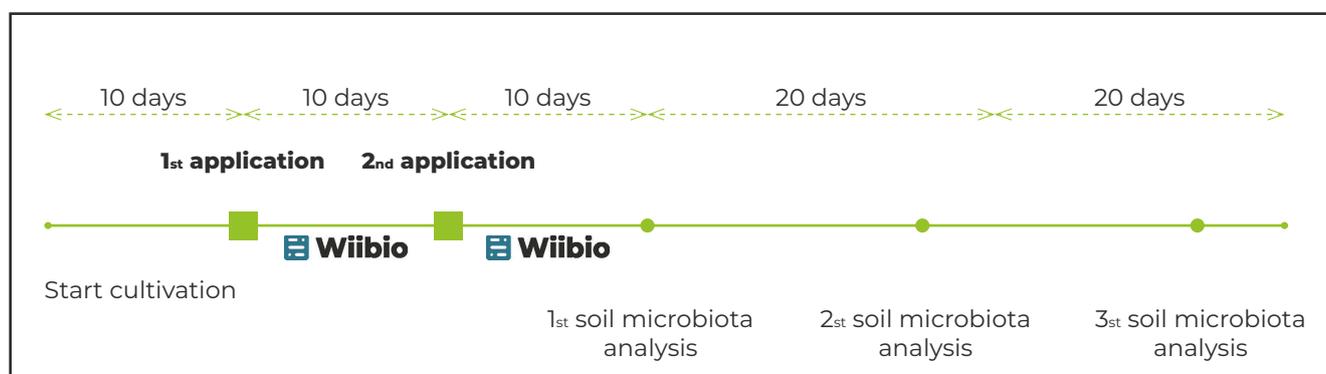
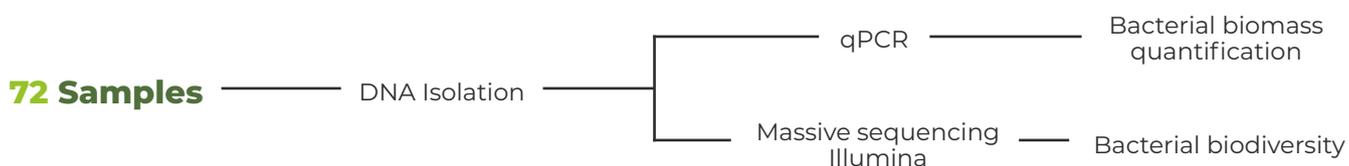
- Alkaline phosphatase is an enzyme that catalyzes the hydrolysis of phosphate, mainly produced by bacteria
- An increase of this enzyme can help on the bio-availability of soil P



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Influence of Wiibio on the microorganism communities, in different types of soils

Product	Dose	N° of applications	Application Stage
Control	-	-	Control treatment - No biostimulants applied
Wiibio	10 l/ha	2	A1 and 10 days after A1



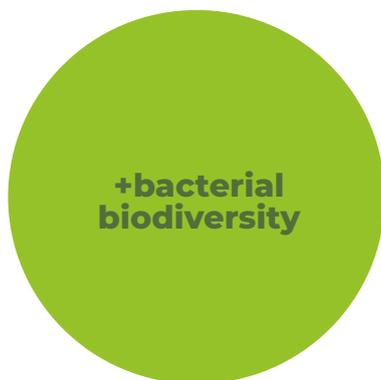
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Bacterial biomass quantification

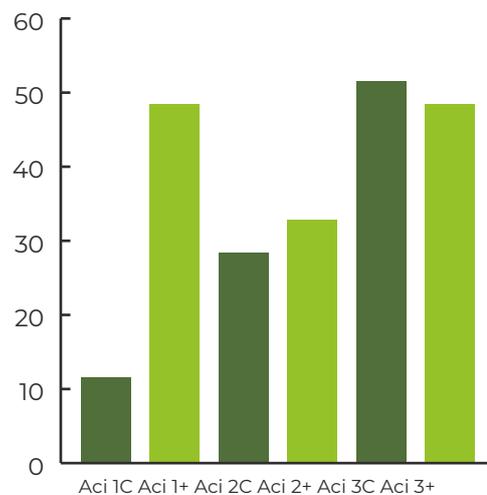
Clay soil

Acid soil

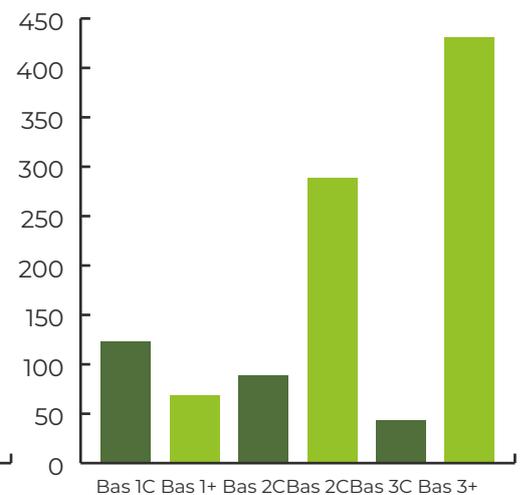
Basic soil



Arthrobacter
Relative Abundance ‰



Sphingomonas
Relative Abundance ‰



Higher bacterial biodiversity in soils treated with Wiibio in the short term after the 2nd treatment

Wiibio significantly increased *Arthrobacter* genus (PGPR bacteria)

Significantly increased the abundance of *Sphingomonas* genus, highly described as PGPR

What *Arthrobacter* do in soil

Soil Detoxification: Degrades Plant Protection Products and heavy metals, improving soil safety for crop production.

Nutrient Cycling: Enhances availability of nitrogen and carbon compounds, supporting soil fertility.

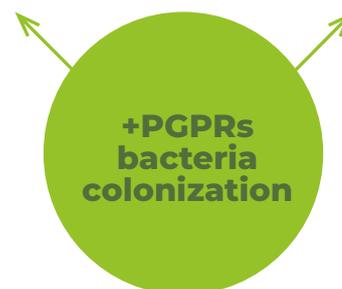
Biotech Applications: Develops amino acids such as L-glutamate production.

What *Sphingomonas* do in soil

Enhance Plant Growth: Stimulates root development, biomass accumulation, and chlorophyll synthesis for better crop yield.

Abiotic Stress Tolerance: Improves drought resistance by enhancing photosynthetic efficiency and water-use efficiency.

Bioremediation in Fields: Breaks down PPP, maintaining soil health and productivity.



Mode of application and dosage

Fertigation		
Flowering Vegetables	5 - 10 l/ha	2 - 3 applications, 10 days after transplanting at the higher dose, then repeated 14 days after first application using the lower dose
Leafy Vegetables	5 l/ha	2 - 4 applications, every 7 days, first application 10 days after emergence or transplanting
Potatoes, Roots & Tubers	5 - 10 l/ha	1 - 2 applications, at emergence and 14 - 21 days later when stems are 10 - 15 cm
Orchards & Vines	10 - 20 l/ha	2 - 3 applications, 14 - 21 day intervals at bud burst (leaf flush in tropical crops), mid vegetative stage and one application post-harvest. For the post-harvest application, use the higher dose
Ornamentals	5 l/ha	1 application, 10 days after planting
Soil application		
General dosage	10 - 15 l/ha	1 - 2 applications, from early in the cycle, a subsequent spray may be applied 10 - 14 days later
Cereals, Legumes & OSR	5 - 10 l/h	1 application applied before after emergence, or alternatively if planting will commence shortly after stubble cultivation the product can be sprayed directly onto the stubbles
Perennial Crops	10 - 20 l/ha	2 or more applications with an interval of 14 - 21 days, at budburst (leaf flush in tropical crops), and mid vegetative stage or during root flushes

Additional information

- Not mixing with agrochemicals & PPPs during application is advisable
- Application in mid irrigation cycle to guarantee proper soil penetration and product reaching root level is recommended
- Permeator use will increase water penetration, and help the inoculum position itself at rhizosphere level
- Rovensa Next Humic acids products will also increase the product activity and effectiveness
- In orchards and vines apply during root flushes for maximum product effect

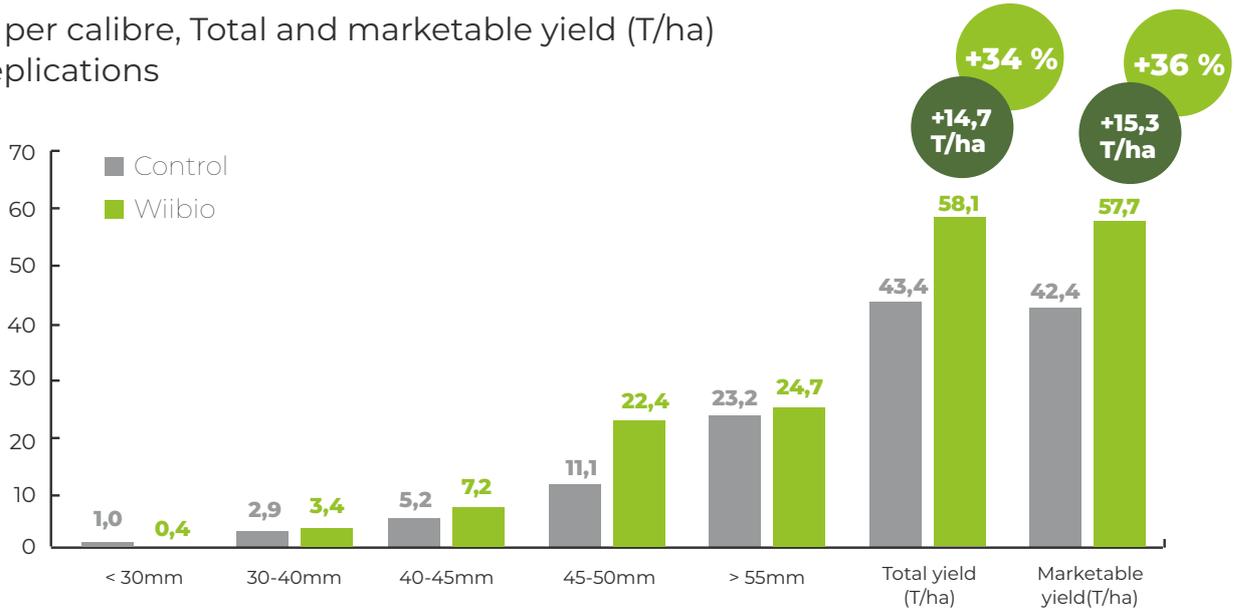
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Trial in potato, Germany 2023

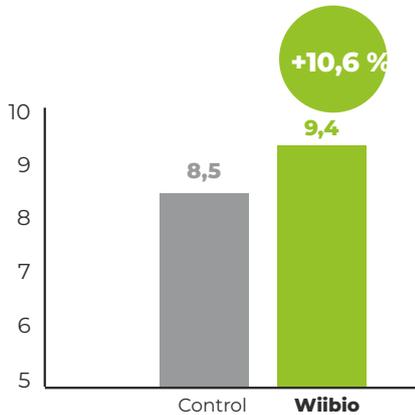
Potato var. Fasan (Starch potato) - Bade-Wurtemberg, Germany.
Research station: AgroNord



Yield per calibre, Total and marketable yield (T/ha)
- 4 replications



Number of tubers per plant at harvest



Wiibio increases:

- The number of tubers per plant
- The starch yield + 38 % (+ 3,3 T/ha) and content
- the big tubers size > 45 mm and > 55 mm
- The total & marketable yield



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Spray Wiibio into soil, 10 L/ha @ BBCH 00 on the ridge 2-3 days after planting.

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