FUNB20: Unlocking Nutrient Potential for Sustainable Yield

White Paper | Technical Summary

Overview

FUNB20 is an innovative biological solution based on the endophytic fungi Paecilomyces sp. which enhances Nutrient Use Efficiency (NUE) and sustains crop productivity under reduced input conditions.

Product Profile

- **Active Ingredient:** High-potency Paecilomyces sp. spores.
- **Target Function:** Enhancement of Agronomic Efficiency (AE) and yield stability under nutrient deficiency.
- **Application Method:** Seedling treatment applied prior to planting.
- **Dose Rate:** $1x10^7$ endophyte spores per seedling.
- **Primary Crops:** Tomatoes and Basil.

Mode of Action

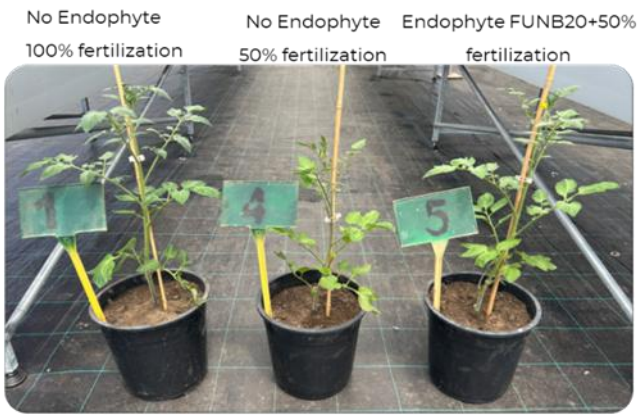
FUNB20 functions by colonizing the plant's internal tissues, creating a symbiotic relationship that significantly boosts the plant's ability to absorb and utilize supplied nutrients. This biological "boost" enhances the plant's metabolic pathways, leading to higher yield and quality traits even when nutrient availability is suboptimal or reduced by up to 50%.

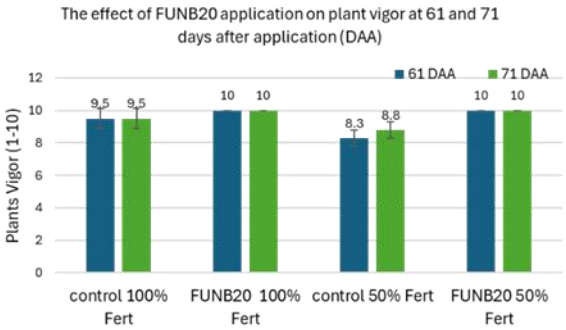
Proof-of-Performance: Trial Results

Extensive greenhouse trials conducted By Agrigeos in Italy demonstrate the significant impact of FUNB20 on crop vigor and productivity:

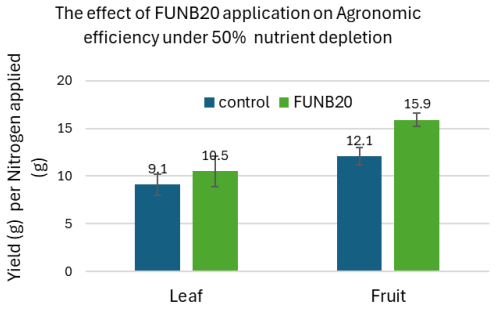
Greenhouse trial in Tomato

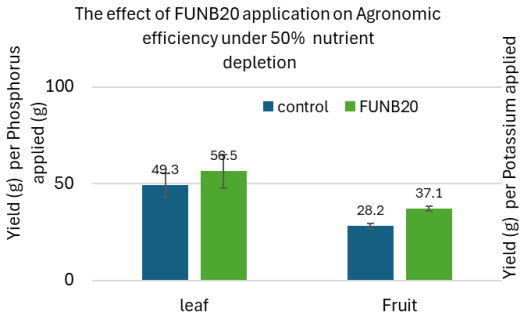
- Resilience to Input Reduction :Tomato plants treated with FUNB20 and only 50% fertilization exhibited a growth appearance and vigor level comparable to untreated plants receiving 100% fertilization.

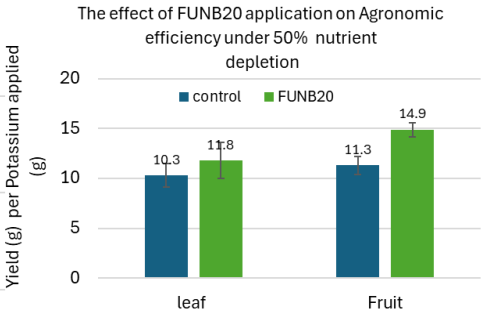




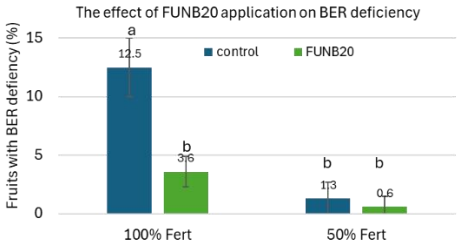
- <u>Agronomic Efficiency (AE) Boost:</u> In nutrient-depleted environments, FUNB20 exhibited a consistent improvement in the ratio of both leaf and fruit biomass (yield) to each nutrient supplied (AE).

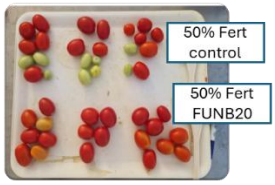


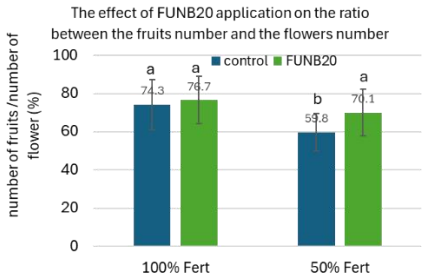




- <u>Yield & Quality</u>: Under 50% depleted nutrient, FUNB20 treatment led to an 11.5% improvement (p value = 0.12) in total yield of the first cluster and significantly enhanced fruit set (+9.5%) compared to the untreated control group. Additionally, with 100% nutrient input, the treatment significantly reduced Blossom End Rot (BER) incidence compared to untreated control groups.







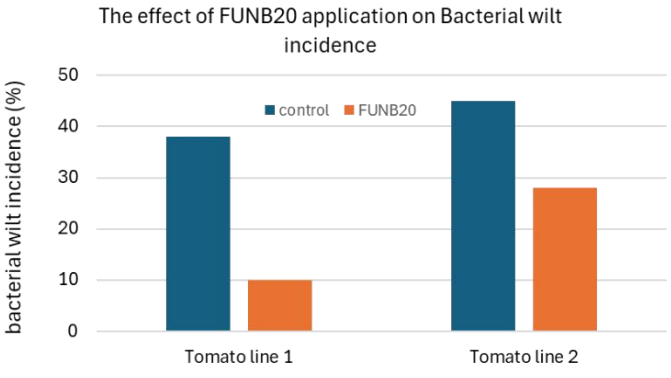
Greenhouse trial in Basil

- Yield and AE improvement**:** Under nutrient-deficit conditions, FUNB20 significantly improved AE compared to control, reaching values comparable to 100% Fertilization. In particular, FUNB20 exhibited increases of approximately +14% in yield relative to control.

Field Trial: Bacterial Wilt induced Disease Resistance in Tomato

Field trials conducted in Benin with collaboration of World vegetable center evaluated the effect of FUNB20 in inducing biotic stress resistance against Bacterial Wilt (BW) disease in tomato plants. The experiment included two BW-sensitive tomato lines, each with 25 plants grown for 90 days. Bacterial Wilt incidence was documented 13 weeks post-transplant.

Results: The percentage of infected plants in the FUNB20-treated groups was reduced by 28% and 18% in the two BW-sensitive tomato lines, demonstrating FUNB20's ability to induce biotic stress resistance and reduce disease impact in field conditions.



Key Features & Benefits

- **Crop Input Optimization:** Maintains high yields while potentially reducing fertilizer requirements by up to 50%.
- **Enhanced Nutrient Uptake:** Maximizes the plant's ability to utilize nutrients, leading to superior Agronomic Efficiency.
- **Abiotic & Biotic Stress Mitigation: Protects plants against vigor loss and physiological disorders (like BER) during periods of nutrient deficiency, and reduces susceptibility to Bacterial Wilt disease.**
- **Integrated Management:** Seamlessly integrates into existing greenhouse and seedling production protocols.

FUNB20 provides growers with the necessary tool to succeed despite increasingly demanding production specifications and environmental challenges.