



# Kiwifruit | Benefits Sheet

## Biostart Kiwifruit Programme



The Biostart programme creates optimal soil and leaf biology, leading to faster orchard establishment, higher graft take, increased cane growth and bud numbers, more resilient vines, and higher and better-quality yields.

### Mycorrcin

Mycorrcin is a soil biostimulant that activates naturally occurring beneficial microbes present in your soil, improving root development, nutrient availability, and uptake, as well as plant resilience during drought and heat stress. Better soil microbiology also leads to soil aggregate formation, reducing soil compaction.

### Foliacin

Foliacin is a foliar biostimulant that activates beneficial microbes living on the leaf surfaces (biofilm), improving plant growth and resilience, particularly in times of plant stress. It promotes green leaf retention, enabling greater levels of photosynthesis and growth.

### Digester

Digester is a soil microbial stimulator that activates naturally occurring saprophytic microbes responsible for decomposing old plant matter. Digester promotes the breakdown of leaf litter, old roots, and prunings, recycling nutrients and organic matter from previous crops rapidly and completely. Thorough decomposition of the old plant material also removes the host material on which disease inoculum overwinters, reducing disease in the following season.

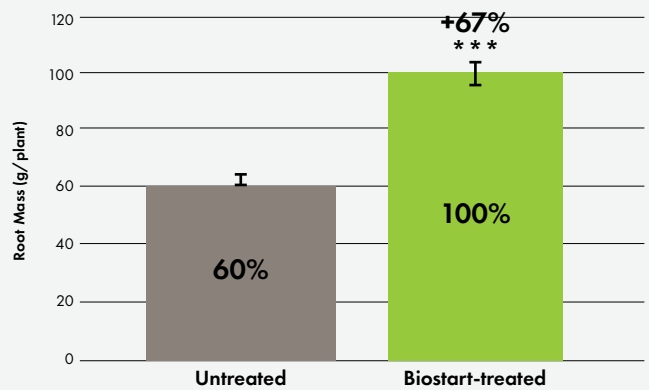
### Benefits

Trials show that the Biostart Kiwifruit Programme:

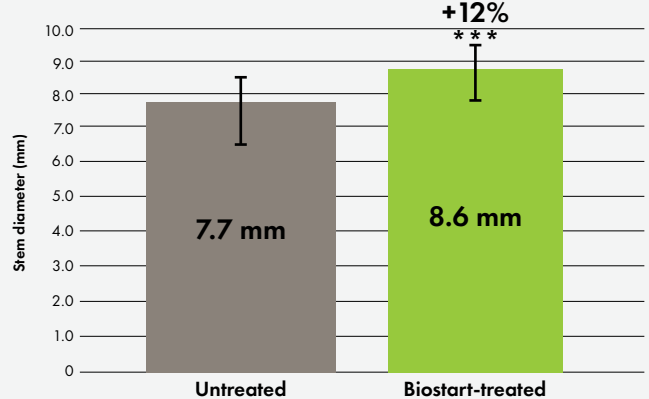
#### **Increases root growth for faster orchard establishment**

Trials in a Bay of Plenty kiwifruit nursery, where Mycorrcin is used as a root drench, show that plants establish faster with a 67% increase in root mass and a 12% increase in stem diameter (Figure 1). In addition, in a PSA-infected orchard, the Mycorrcin-treated regrafted vines show a 42% increase in root numbers in the top 25 cm of soil, a 14% increase in root branching, and a 21% reduction in nematode damage to roots.

**Figure 1. Effect of Mycorrcin on Kiwifruit Nursery Plant Root Mass**



**Figure 2. Effect of Mycorrcin on Kiwifruit Nursery Plant Stem Diameter**



### Improves soil

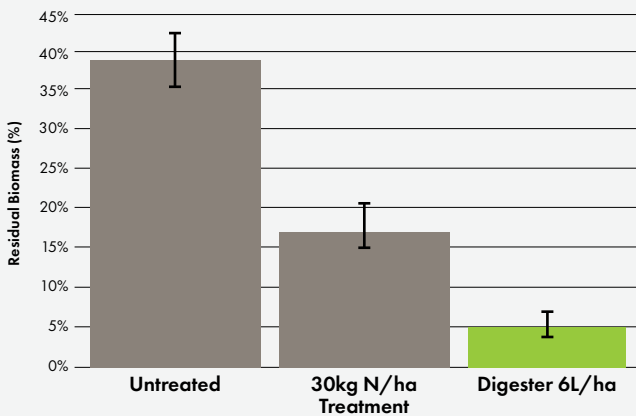
Over the three-year trial period, Mycorrcin increases soil cation exchange capacity by 21%, soil organic matter by 25%, and soil carbon by 27%, resulting in better water retention during droughts, an increased population of soil microbes, and a larger pool of available nutrients.

In another kiwifruit leaf litter trial, Digester significantly speeds up the decomposition of leaf litter, increasing the amount of nutrients and organic matter available for uptake by the next season's crop (Figure 4).



**Figure 3.** The soil in an organic Bay of Plenty orchard shows the improvements gained through regular organic Mycorrcin use

**Figure 4.** Residual Biomass (%) of Kiwifruit Leaves 100 days after treatment (2011)

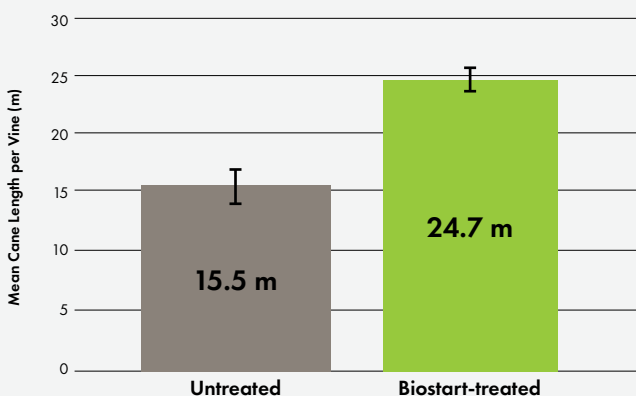


**Digester improves kiwifruit litter decomposition by 33%**

### Strengthens vines

In year two of a block grafted with G3 gold, Mycorrcin improves leader development and cane length. Only 2% of Mycorrcin-treated plants show impaired leader development, compared to 22% in the control plants. Additionally, the average cane length increases by 60% per vine (Figure 5), both of which have implications for crop yield in the following year.

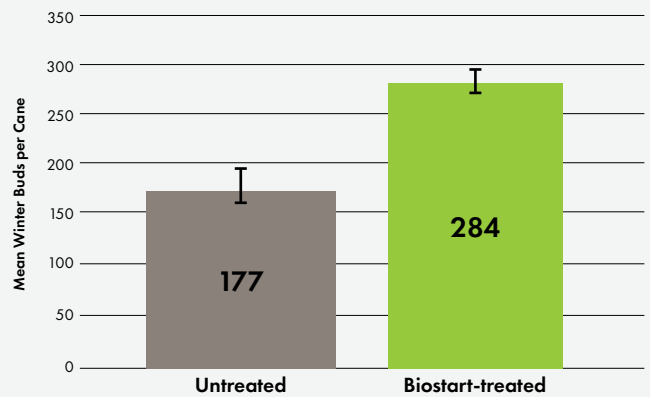
**Figure 5.** Mean Cane Length per Vine



### Increases yield and quality

Mycorrcin increased the number of winter buds on treated G3 gold vines by 60% in the second year, which is a predictor for increased yield (Figure 6).

**Figure 6.** Winter Buds per Cane on G3 Gold Vines



In the third year of a Mycorrcin/Digester programme in a Hayward orchard in Edgecumb, orchard gate return increased by 17.4% (\$7,175/year) over the adjacent control area, and export quality numbers were increased (Figure 7).

**Figure 7.** Impact of a 3-year Mycorrcin/Digester programme

Hayward orchard	Untreated	Biostart
Supplied harvest weight (kg/ha)	108,810	113,194
Export (trays/ha)	26,630	30,894
Orchard Gate Return (\$/ha)	\$123,491	\$145,018
Increase in OGR (\$/ha)		\$21,527
Whakatane average (trays/ha)	20,898	
Average fruit size	33.1	32.7

### Increases fruit size

In a Foliacin trial in the Bay of Plenty, TZG kiwifruit size increases from 0.35 to 0.75 three weeks prior to picking.



**Figure 8.** Foliacin treated vines in the Bay of Plenty trial showed significant size increases compared to the adjacent control block.