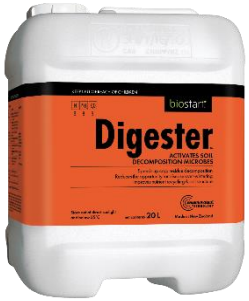
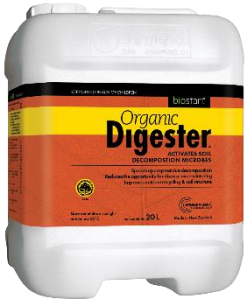
BioStart Young Viticulturist of the Year Education Day Presentation 2021

biostart®

BioStart Limited

- Supplying biological products to vineyards for 27 years
  - Soil biostimulants,
  - Biofungicides
  - Foliar plant health stimulant
- 100 % NZ owned & made in NZ
- Conventional and Organic product range





biostart®

BioStart has sponsored & run the Young Vit HortiSports for 16 years!

biostart®

Getting ready to start the 2020 HortiSports Final in Martinborough

Martinborough Final 2020

George winner of the
2020 HortiSports Final

biostart®

BioStart HortiSports

- 20-minute race of physical & theoretical viticulture skills
- Tests your ability to perform under pressure in the vineyard
- You need to adapt, think quickly
- Score is based on tasks completed correctly
- Typical activities include; pruning, irrigation, BioStart activity & questions, and 1 or 2 surprise items

biostart®

"Simulates your worst 20 minutes in the vineyard"
(ex-HortiSports Competitor)



IMPORTANCE OF SOIL BIOLOGY FOR GROWING GRAPES

What Does Active Soil Biology do for the Grapevine?

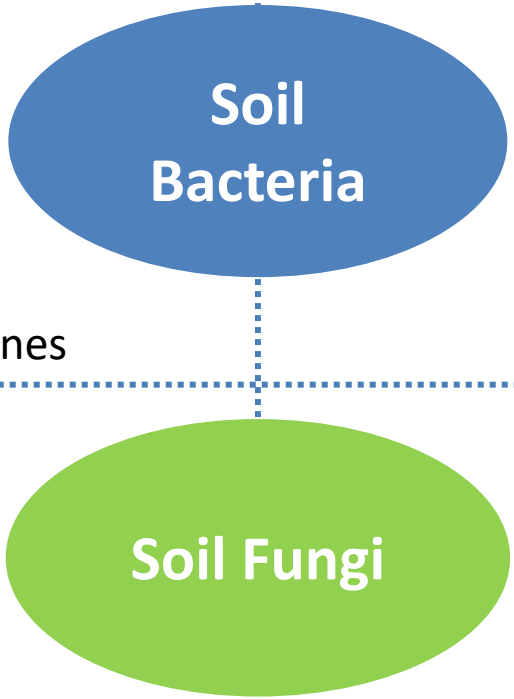
Direct Effects

Make nutrients available
- Especially N, P and S
- Ca and Mg

Stimulate root growth
- Produce plant growth hormones

Improve nutrient uptake
- Mycorrhizal fungi

Cause vine disease
- *Cylindrocarpons, Phytophthera*



Indirect Effects

Reduce Vine Disease
- Activate Induced Systemic Resistance (ISR)
- Competition in the soil with pathogens

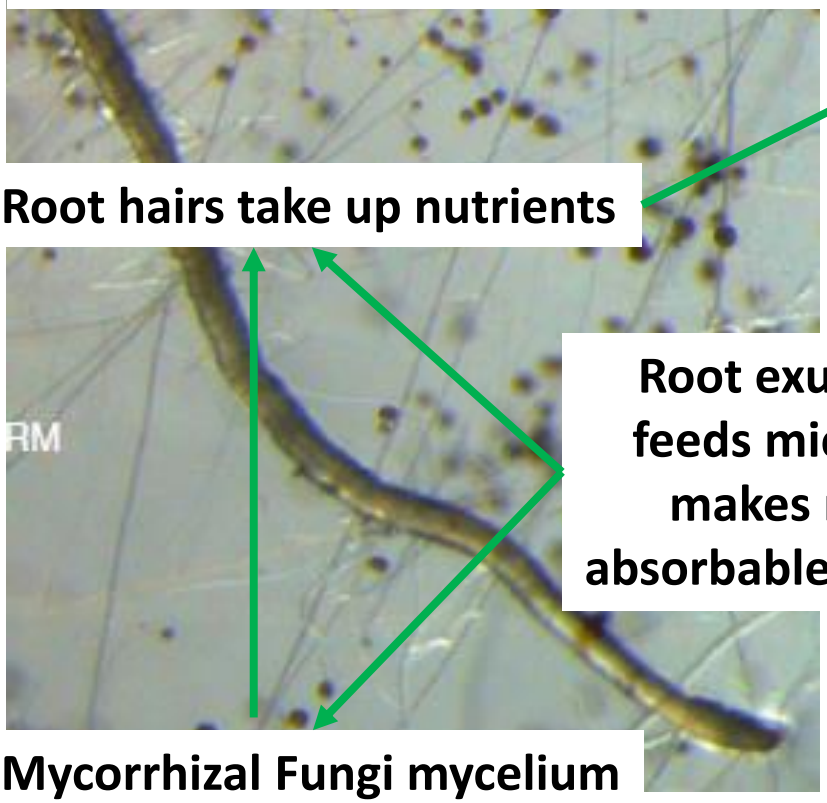
Decompose soil Organic Matter
- Bacteria Low C:N (= high N)
- Fungi Woody OM (= high C)

biostart®

Soil Biology is essential for vine growth and maintaining vineyard soils

How Do Soil Microbes Help With Vine Nutrition?

Rhizosphere or Vine root zone is area of highest soil biology activity

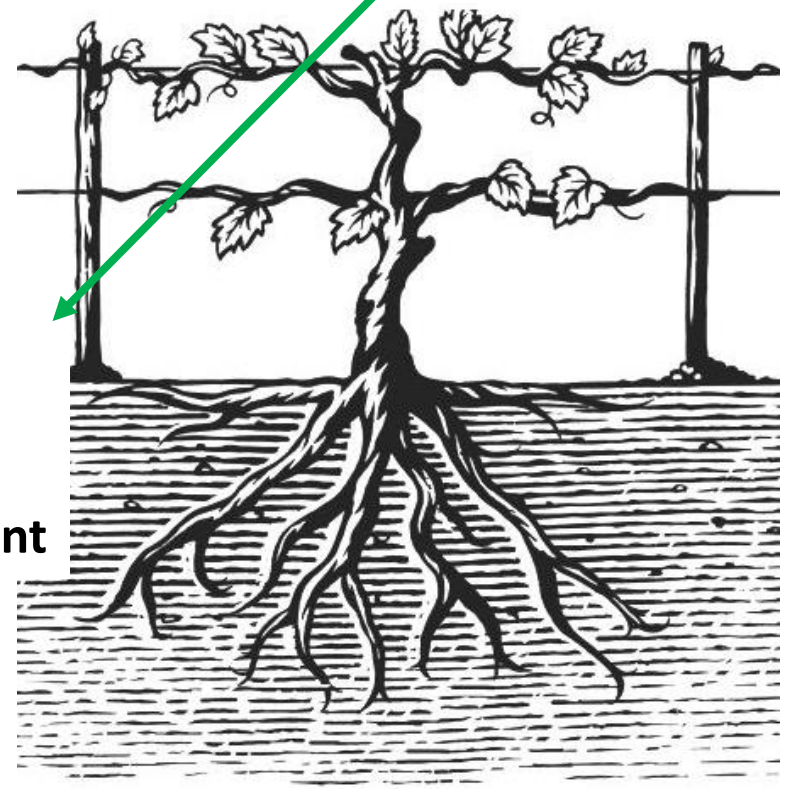


Root hairs take up nutrients

Root exudates that feeds microbes and makes nutrients absorbable by the plant

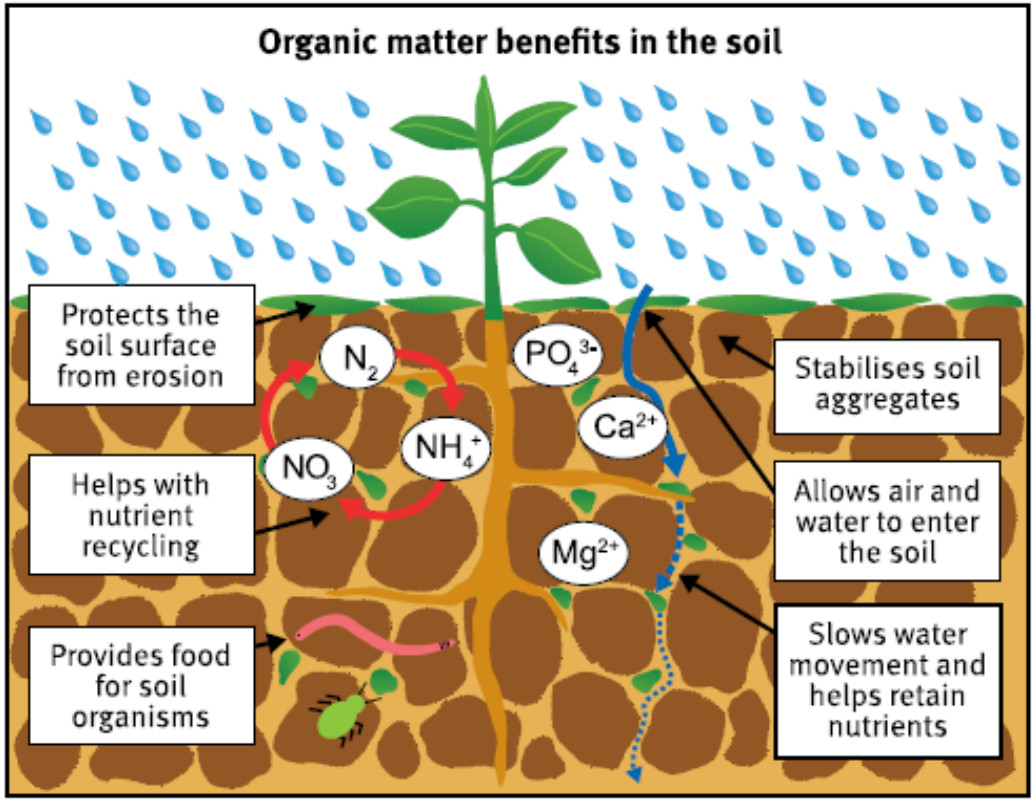
Mycorrhizal Fungi mycelium

Plant leaves make sugars that become



biostart®

Soil Biology Creates and Relies on Soil Organic Matter



Increase soil organic matter by

- Applying compost
- Growing Cover crops
- Stimulating vine root growth
- Breakdown of prunings

Enhance soil organic matter utilisation by applying soil biostimulants at the right time

biostart®

BioStart Soil Biostimulants are Catalyst for Growing Vines

Soil Chemistry	Soil Biology	Vine Benefits

Compost

Organic matter

Clay

Lime

Irrigation

Cation exchange capacity

Soil pH

Soil moisture

Microbial biomass
bacteria and fungi

Release nutrients from crop residues

Recycle soil organic matter

Provide vines with nutrients

Inputs | **Soil Chem** | **Catalysts** | **Outputs**

biostart®

Soil biostimulants maximise soil microbial function

Pinot noir Trial Wairau Valley

- Aim to improve vine health and performance through applying soil and foliar biostimulants
- Three year trial
- Used three BioStart products that work together
  - Mycorrcin – soil biostimulant activates soil microbes
  - Digester – activates soil decomposition microbes
  - Foliacin – promotes foliar health

biostart®

BioStart Treated Vines Grew More Branched Roots

BioStart treated vines had more roots that spread out over a bigger area allowing the vine to utilise nutrients from a larger volume of soil

biostart®

BioStart Treated Vines had Improved Soil Nutrient Uptake

Soil Mineral Test Spring Y3	Untreated	BioStart	Difference
Calcium (Mehlich 3; mg/L)	1,361	1,146	-16%
Magnesium (Mehlich 3; mg/L)	210	193.5	-8%

BioStart treated soils had lower calcium and magnesium levels as the vines had been using these nutrients to grow

Leaf Mineral Test Flowering Yr 3	Untreated	BioStart	Difference
Calcium-leaf (% DM)	1.34	1.59	19%
Magnesium-leaf (% DM)	0.36	0.40	11%
Magnesium - Petiole (% DM)	0.80	0.92	15%

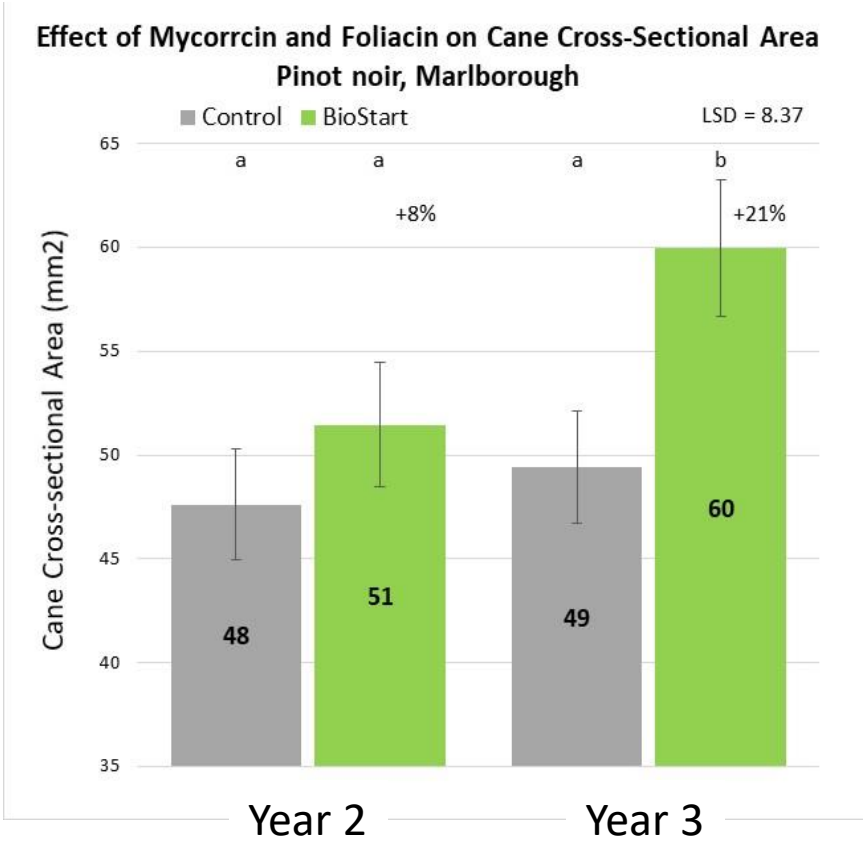
At flowering the BioStart treated vines had higher calcium and magnesium levels as they were better able to capture these nutrients from the soil

biostart®

BioStart Produced Bigger Canes

- The untreated vines had similar cane cross-sectional area between Years 2 and 3
- Cane cross sectional area of BioStart treated canes was 8 % and 21 % bigger in Yr 2 and Yr 3

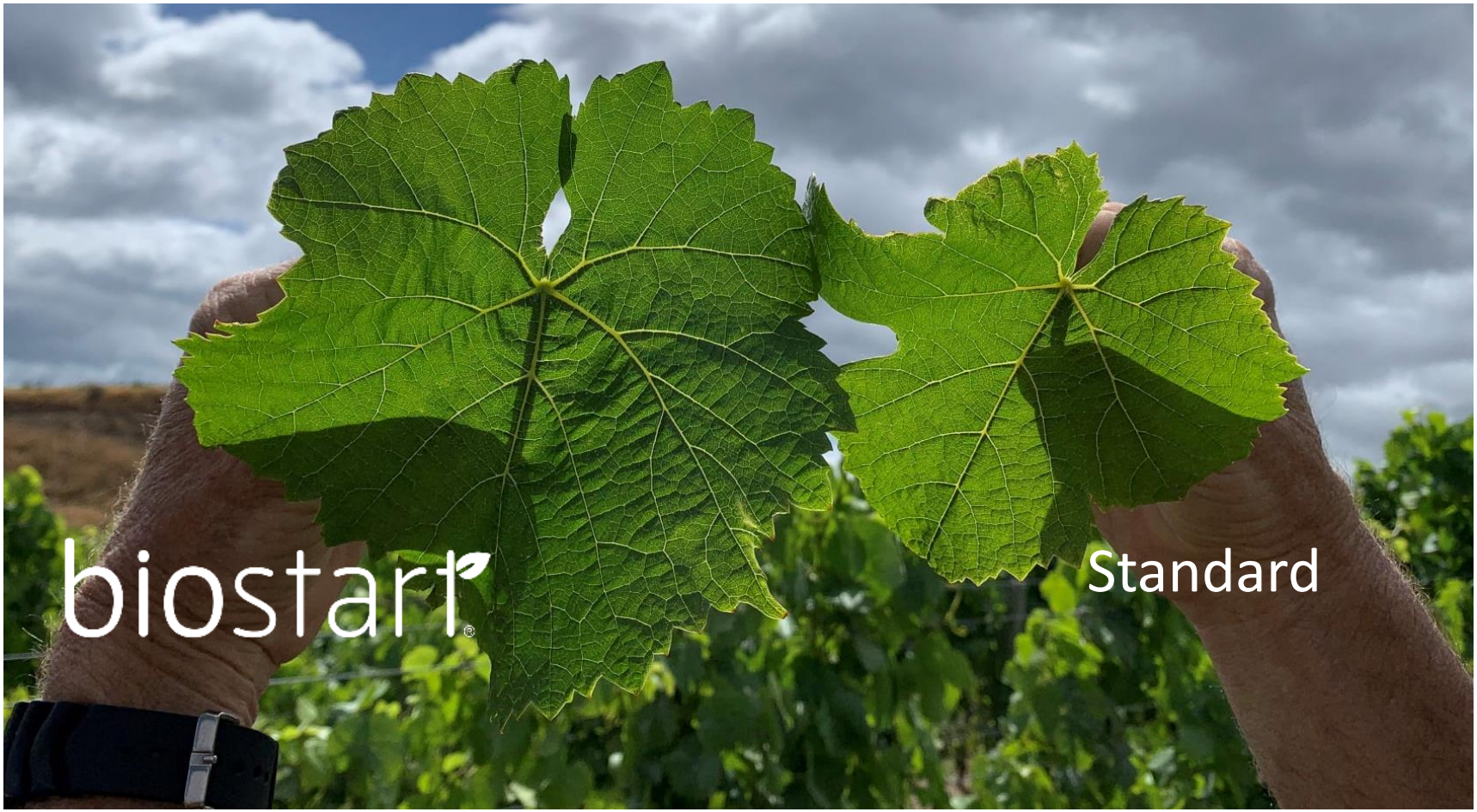
- Shows it takes time for biology to produce results
- These bigger canes should hang and mature more fruit



Canes that were grown in Year 1 and Year 2

biostart®

BioStart Treated Vines had Bigger and Darker Leaves



biostart®

Better Soil Biology Led to a Higher Grape Yield

- The BioStart programme produced
  - Bunch weights that was similar to standard
  - More bunches per vine
  - Higher yield – extra 1 kg/vine
  - Juice quality was similar

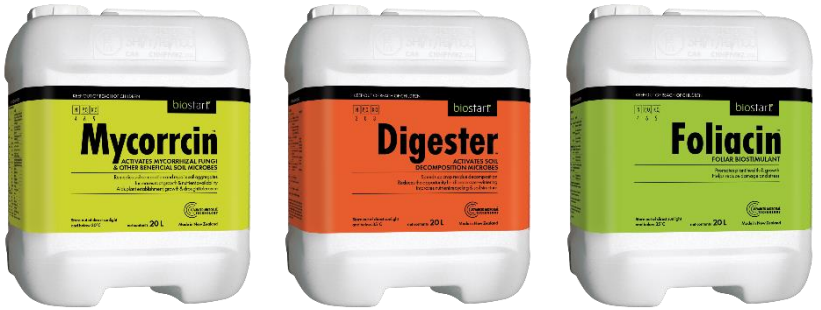
Parameter	Standard	BioStart-Treated	Difference	%
Vine Yield (g/vine)	4,093	5,139	1,046	26%
Bunches (/vine)	47.5	56.1	8.6	18%
Bunch weight	87.2	90.8	3.6	4%

biostart®

(Note poor fruit set over flowering in Marlborough meant no bunch thinning was carried out)

Stimulating Soil Biology Meant

- The BioStart treated vines had
  - Better and more root growth
  - Better leaf size
  - Better vine nutrient uptake
  - Bigger canes that carried more fruit without penalising juice quality



biostart®

Want to Learn More – Checkout Our BioGuides?

biostart®

www.biostart.co.nz

Biostart Viticultural Sales Team

North Island

Phil Carter 027 534 4080

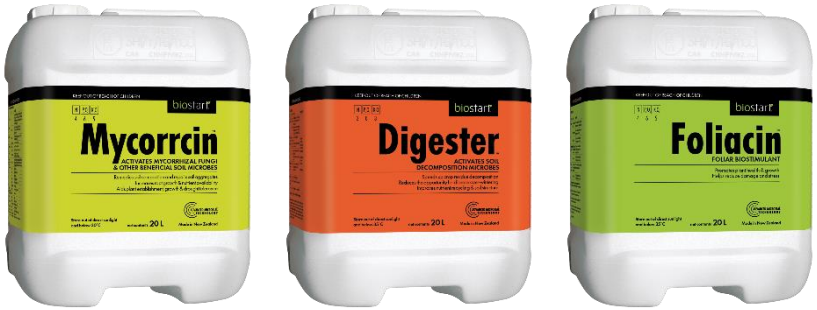
South Island

Geoff Warmouth 021 794 276

www.biostart.co.nz

0800 116 229

Conventional Range



Certified Organic Range

biostart®