

BioStart Young Viticulturist of the Year Education Day Presentation 2021

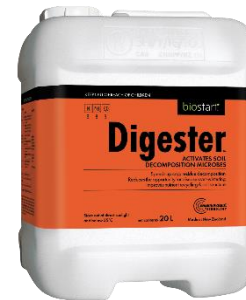
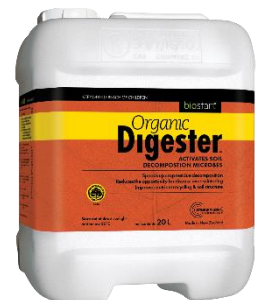
SUPPLYING INNOVATIVE BIOLOGICAL
PRODUCTS TO THE NZ WINE INDUSTRY



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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



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



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Getting ready to start the 2020 HortiSports
Final in Martinborough

Martinborough Final 2020



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George winner of the
2020 HortiSports Final

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





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

- *Cylindrocarpous*,
Phytophthera

Soil
Bacteria

Soil Fungi

Indirect Effects

Reduce Vine Disease

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

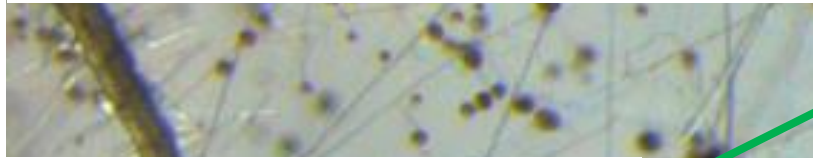
Decompose soil Organic Matter

- Bacteria Low C:N (= high N)
- Fungi Woody OM (= high C)

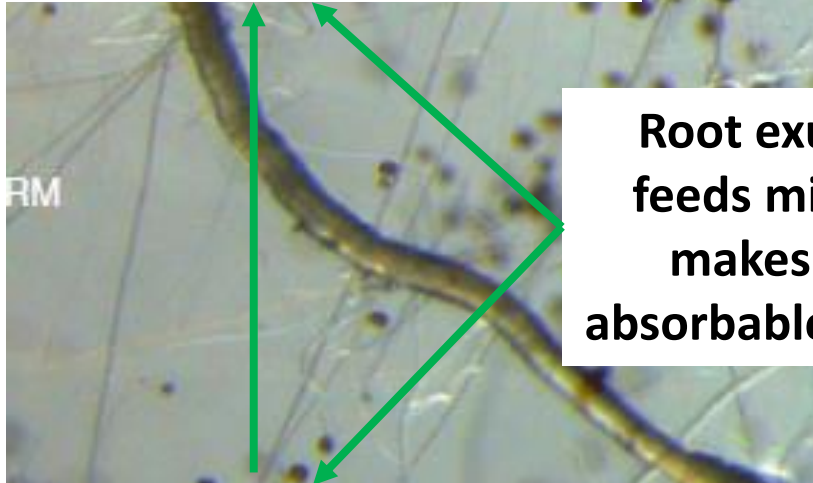
Soil Biology is essential for vine growth and maintaining vineyard soils

How Do Soil Microbes Help With Vine Nutrition?

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



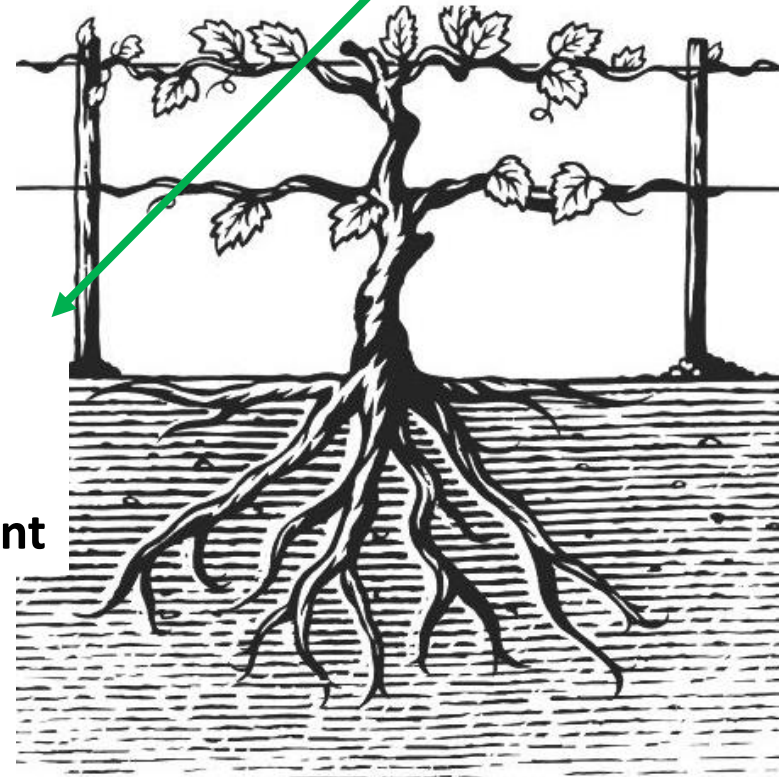
Root hairs take up nutrients



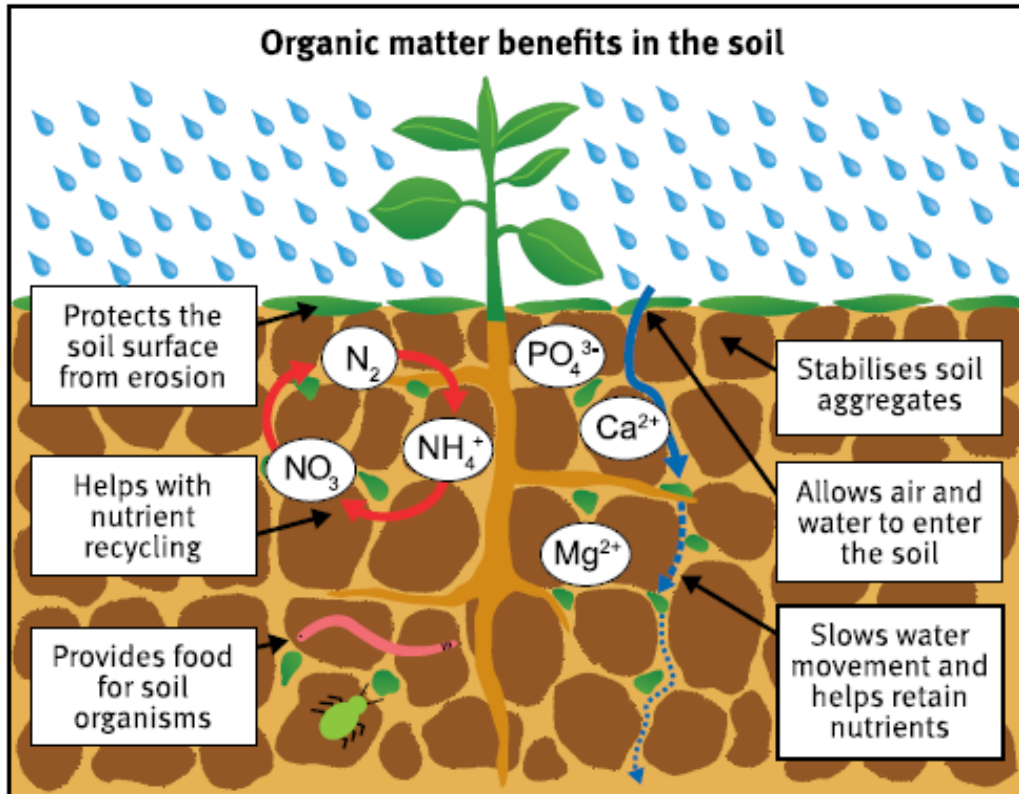
Mycorrhizal Fungi mycelium

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

Plant leaves make sugars that become



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 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



Soil biostimulants maximise soil microbial function

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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 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 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%

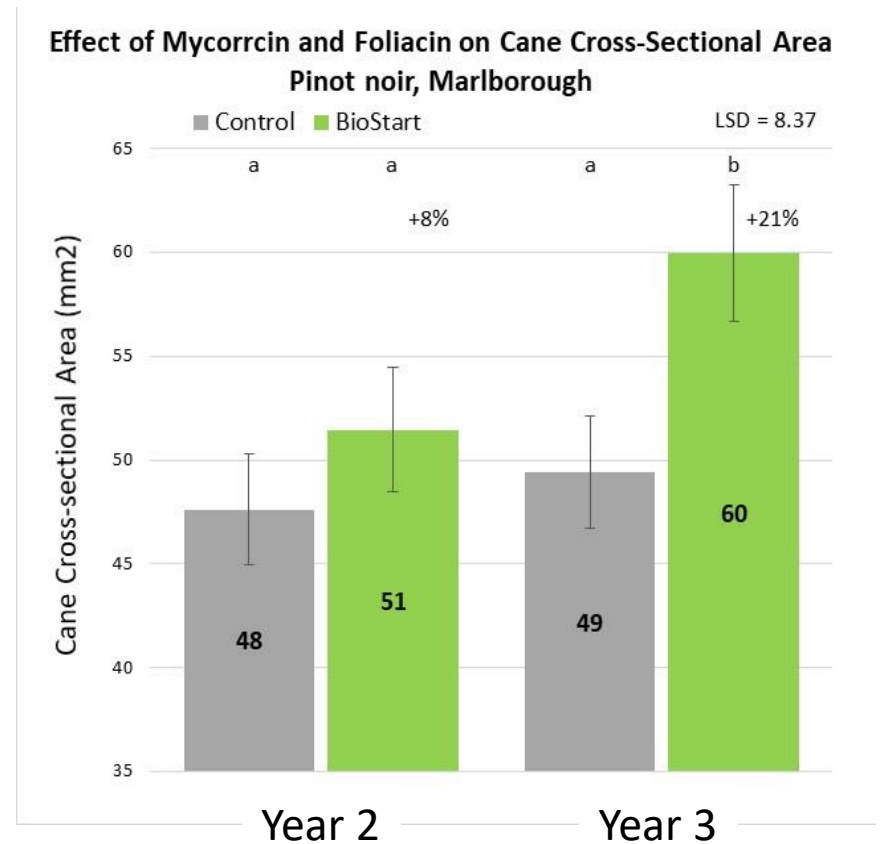
BioStart treated soils had lower calcium and magnesium levels as the vines had been using these nutrients to grow

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 Produced Bigger Canes

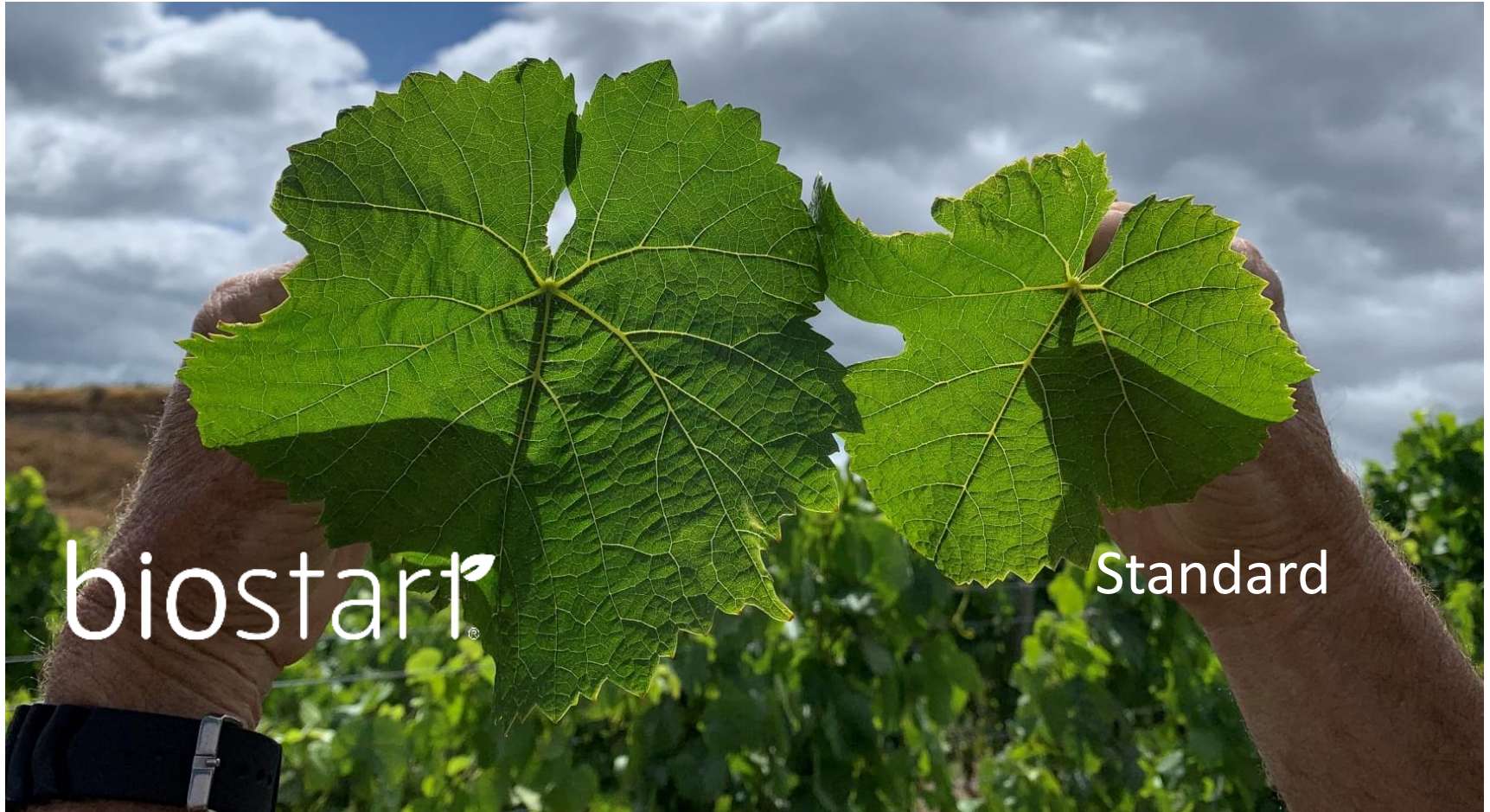
- The untreated vines had similar cane cross-sectional area between Years 2 and 3
- Cane cross sectional area of BioStart treated canes was 8 % and 21 % bigger in Yr 2 and Yr 3
- Shows it takes time for biology to produce results
- These bigger canes should hang and mature more fruit



Canes that were grown in Year 1

and Year 2

BioStart Treated Vines had Bigger and Darker Leaves



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%

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



Want to Learn More – Checkout Our BioGuides?

The screenshot shows the BioStart website interface. At the top, the BioStart logo is on the left, and the phone number 0800 116 229, My account, and 0 Items are on the right. Below the header is a navigation menu with links for Home, Products, Shop, Commercial, Gardener's Corner, Field Notes, About Us, and Contact Us. The main content area features a large green banner with the text "BIOGUIDES" and a sub-header: "Want to get started with biological farming, but don't know where to start? Here's our series of educational articles to get you up and running." Below the banner are four white boxes, each representing a BioGuide article. Each box contains a title, a sub-header, a brief description, and a "Learn more" button.

biostart 0800 116 229 My account 0 Items

Home Products Shop Commercial Gardener's Corner Field Notes About Us Contact Us

BIOGUIDES

Want to get started with biological farming, but don't know where to start? Here's our series of educational articles to get you up and running.

Bioguide #1

Soil types and the potential for microbial life.
How soil biology differs across soil types and what you can do about it. When you buy a rural property, what are you getting? Soil.

[Learn more](#)

Bioguide #2

How soil microbes improve plant health.
Exploring the dynamic relationship between soil microbes and plants, and why healthy plants start with biologically active soil.

[Learn more](#)

Bioguide #3

Meet your soil microbes – Mycorrhizal fungi, other fungi and bacteria.
An overview of the classes of soil microbes and their role in supporting healthy plants.

[Learn more](#)

Bioguide #4

Growing nutrient-dense food.
How soil biostimulants improve mineral uptake and help grow nutrient-dense food. Today's food is often calorie-dense but low in nutrients.

[Learn more](#)

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

