

COMBATING SOIL PATHOGENS WITH BIOLOGICAL SOLUTIONS

DISEASE IS SIMPLY A RESULT OF THREE THINGS

1. Susceptible Host (Stressed/rundown).
2. Favourable Environment (e.g. Poor soil biology).
3. Presence of a Pathogen.



IF YOU CAN CHANGE ONE OF THE THREE FACTORS FOR DISEASE YOU CAN STOP DISEASE INFECTING ITS HOST

REDUCE HOST SUSCEPTIBILITY TO DISEASE

We have all heard about how certain biostimulants can improve plant health. Quality seaweed extract products like STIMPLEX & SEASOL are probably the most widely researched and validated biostimulants to improve plant health and stimulate healthy root growth.

REDUCE FAVOURABLE ENVIRONMENT FOR DISEASE

A healthy root rhizosphere relies on the fragile balance of a biodiverse community of pathogenic and beneficial microorganisms. Keeping the balance in favour of beneficial biology is a challenge in highly disrupted microbiomes like cultivated crops. Introducing high quality rhizosphere competent bio-innoculants like RhizoVital FZB42 (*Bacillus velezensis*) and Trich-A-Soil (*T. viride*) to the root zone shifts the balance in favour of a healthy rhizosphere that can better cope with the presence of soil pathogens.

ENHANCE PLANT HEALTH & STIMULATE HEALTHY ROOT GROWTH

By production of

- Phytohormones
- Vitamins
- Siderophores

By plant health enhancement

- Induced systemic resistance (ISR)
- New root branching & increased root exudates



ENGINEER THE RHIZOSPHERE

Introduce biology that creates a hostile environment for pathogens by:

- Competition for space at the rhizosphere (crowd out)
- Competition for nutrients (starve the pathogen)
- Production of enzymes that chew up pathogenic spores, mycelia and other CFUs

RHIZOVITAL IN ACTION

The rhizosphere is the centre of all interactions between the turf and the soil. Colonisation of root hairs and root tips by good bacteria and fungi is critical to the healthy growth and vitality of your crop.

Fig 1. RhizoVital colonisation of a root hair and
Fig 2. The growth effects generated by *B. velezensis* rhizosphere colonisation

Fig 1

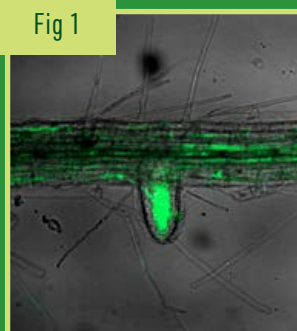
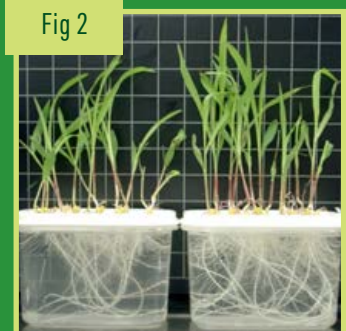


Fig 2





Organic Crop Protectants



RHIZOVITAL FZB42

CONTAINS: 2.5×10^{13} CFU/mL *Bacillus velezensis* (STRAIN FZB42)

Bacillus velezensis FZB42 is a natural soil bacteria that rapidly colonises new root growth, supporting healthy plant growth, improving plant vitality and resilience to stress. RhizoVital FZB42 should be applied preventatively as part of an integrated approach to plant and soil health. **RhizoVital FZB42 can be applied all year round to support a healthy rhizosphere.**

SITUATION	RATE	CRITICAL COMMENTS
Seeds, Seeding, In furrow (direct seed sown)	250 mL/100kg 1 mL/m ² of trays	According to seed size and volume, mix RhizoVital with 1-3 litres of water, spray on the seeds and mix well. After the treatment small vegetable seeds should be scattered to dry. Drench seedling trays
	0.5L/ha	Apply as an in-furrow spray in the required amount of water per hectare for the crop at planting. Direct the spray nozzle into the furrow just before the seeds or seed pieces are covered.
Drip irrigation: Boom spray (Soil surface)	1-2L/ha	Apply product with the first irrigation after transplanting. Repeat applications every 21 - 28 days depending upon growth rate. Apply after sowing or transplanting at the start of active root growth. Use irrigation or rainfall to incorporate the product into the root zone.



TRICH-A-SOIL

CONTAINS: 2×10^9 CFU/GRAM *Bacillus amyloliquefaciens* FZB42,
 1×10^9 CFU/GRAM *Trichoderma viride*, 5×10^{10} CFU/GRAM

Trich-A-Soil contains an Australian isolate (originally discovered by Dr Percy Wong, NSW DPI) of a beneficial soil fungi called *Trichoderma viride*. When applied to the soil it colonises at the rhizosphere and outcompetes with pathogens for nutrients. It also works synergistically with RhizoVital to support healthy plant establishment and growth while improving the plant's resilience to stress and disease.

SITUATION	RATE	CRITICAL COMMENTS
Seeds	100g/100kg of seed	Mix with Rhizovital and spray on the seeds and mix well. Spread seeds out to dry if they appear to be wet.
Seedlings trays	10g/1000m ²	Apply to seedling trays through irrigation making sure to drench the trays
Field crops	50g/ha	Apply to in-furrow or through Trickle tape at planting, and two follow-up applications 14 days apart if disease pressure is high. Apply with Acadian SSE 500g/ha, 3-5L liquid Acadian and 10L/ha Aminogro.



STIMPLEX

Pure 100% *Ascophyllum nodosum* seaweed extract. Contains all the essential amino acids & carbohydrates proven to enhance plant health and strong root development

VEGETABLES	DOSAGE	1ST APPLICATION	2ND APPLICATION	3RD APPLICATION	4TH APPLICATION	OPTIONAL
Rooting Crops: Carrots, onions, potatoes etc.	2-3L/ha	Transplant / planting	2-3 weeks	Root enlargement	14 days later	Every 14 days to harvest
Leafy Greens Ornamentals / Nursery	2-3L/ha	Planting	4 Leaf	Every 14 days		
Hydroponics	1L / 1000L B Tank 0.01 mL/L Open 0.001 mL/L Closed	Transplant	4 weeks	4 weeks	After picking	Every 14 days to harvest

FOR MORE INFORMATION CONTACT 1800 634 204 | ocp.com.au

