



Root Health



Andermatt
Madumbi

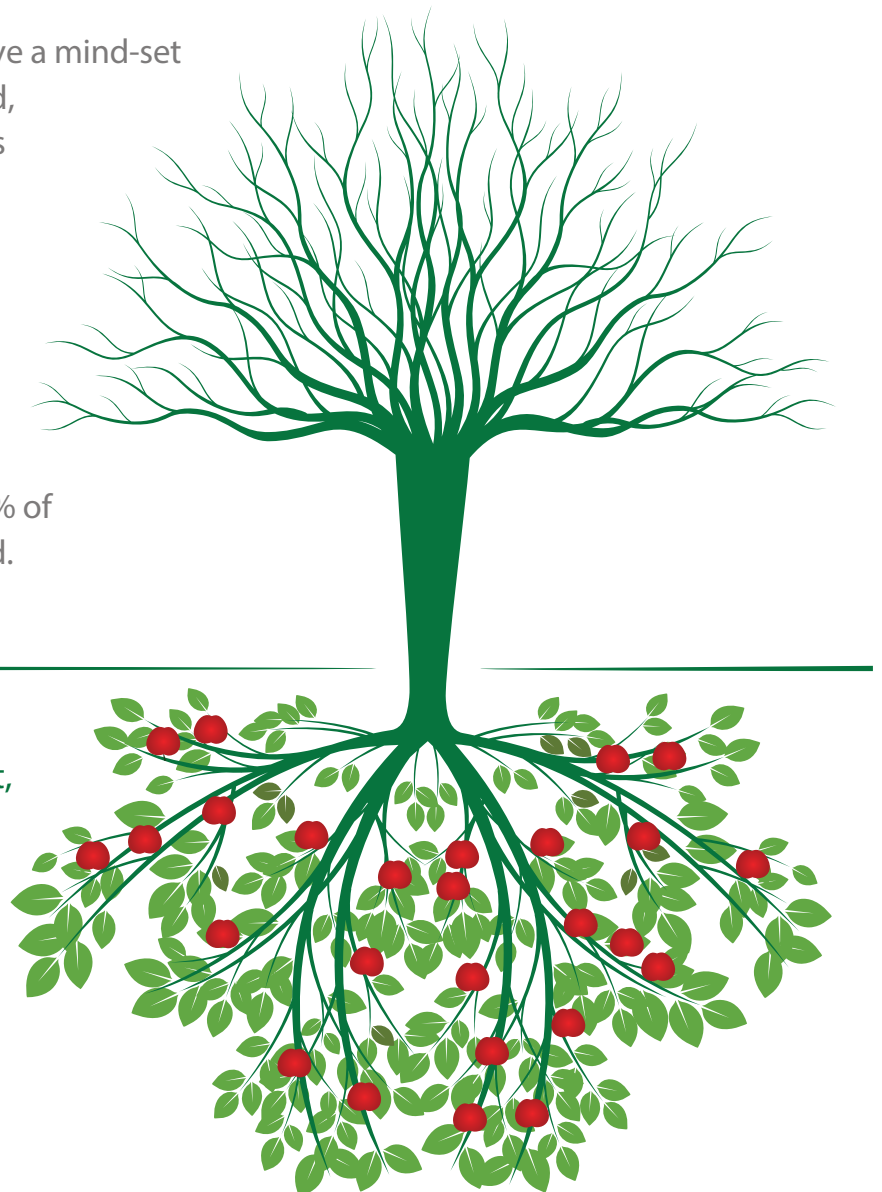
Healthy yields start with healthy soil & roots.

The goal of every farmer (regardless of crop), is to grow healthy plants capable of producing the best possible yield/harvest.

During the 2020 BioSolutions Africa-Virtual conference, Rod Bell, CEO of CropLife South Africa re-iterated that 'Healthy crops have higher yield potentials and are better equipped to withstand the effects of stress and pests than a weak crop'.

Pest damage can be devastating. As a result, growers develop and constantly enhance, improve and refine their individual Integrated Pest Management (IPM) programs to minimize pest damage. With significant advancements and developments in the pest control industry, it is important to remember that 'Pest management is only one aspect of overall crop production. More significantly, pest management does not affect the plants potential, it can only protect what the crop produces' - Rod Bell.

At Andermatt Madumbi, we believe a mind-set change in IPM programs is needed, if a farmer's goal is to maximise his crops potential. Rather than focusing on the above-ground plant and pest control, growers should prioritise and understand the below-ground environment, to ensure root and plant health are maximized. In terms of the 80:20 principle, 80% of 'farming' takes place underground.



"The world as we have created it, is a process of our thinking. It cannot be changed without changing our thinking."

- Albert Einstein

Healthy roots and soil are essential for the production of nutrient-dense food.

Plants grown with Andermatt Madumbi's Root Health Programme are stronger, exhibiting increased pest and disease resistance. Ideally, treatment should start in the nursery and continue into the field, with annual repeat applications throughout the crop's lifetime. The biggest benefits are usually seen in the first 2-3 years after transplanting.

The Andermatt Madumbi Root Health Program incorporates a suite of different products, used in combination to enhance soil, root and ultimately plant growth.

- **ECO-T®**: Fungal inoculant, *Trichoderma asperellum*

- **RhizoVital**: Liquid formulation of the beneficial bacteria *Bacillus amyloliquefaciens*

- **AgriSil K50**: Fully soluble, liquid formulation potassium silicat

- **V12 Initiate**: Specially formulated nutrition for early growth phases



The Root Health products include one Andermatt Madumbi **Biofungicide** and three **Biostimulant** solutions as follows:

Biofungicide solutions



Eco-T®

A fungal inoculant for the suppression of crop root disease and for enhanced root growth.

L6938	Available in: 40 g, 250 g and 1kg	<i>Trichoderma asperellum</i> , a fungal inoculant for the control of plant root diseases and for enhanced plant growth on all crops.
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Biostimulant solutions



AgriSil K50®

Strengthens plant cells and improves tolerance to biotic and abiotic stress.

B3756	Available in: 450 ml, 1 L, 5 L, 20 L and 1000 L	Fully soluble, liquid formulation Potassium silicate designed for agricultural use. The ultimate silica supplement to aid in building plant stress and disease tolerance.
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V12 Initiate®

Supports and optimises the initial plant growth phases, germination or bud burst.

B4513	Available in: 450 ml, 1 kg, 5 kg, 30 kg and 1300 kg	Specially formulated nutritional support for early growth phases and maintenance of healthy plants
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RhizoVital®

Liquid formulation of beneficial bacteria to colonise the root and enhance root development.

B4201	Available in: 40 ml and 500 ml	Highly concentrated liquid formulation of the beneficial bacteria <i>Bacillus amyloliquefaciens</i> . Designed for inoculation into the root zone, aiding with mobilisation of nutrients and supporting healthy root growth.
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All products in the Andermatt Madumbi Root Health program are registered under Act 36 of 1947

BIOSTIMULANTS

AgriSil K50® contains potassium silicate.

Reg. No. B3756, Act No. 36 of 1947, skin irritant. PQ Silicas South Africa (Pty) Ltd, PO Box 14016, Wadeville, 1422. Reg. No. 2000/027189/07.

RhizoVital® 42 contains *Bacillus amyloliquefaciens* FZB42.

Reg. No. B4201, Act No. 36 of 1947. Madumbi Sustainable Agriculture (Pty) Ltd, Postnet Suite 20, Private Bag X6011, Hilton, 3245. Reg. No. 2009/020798/07.

V12 Initiate® contains potassium, sulphur, calcium, magnesium, manganese, zinc, iron, silica, copper, molybdenum and boron.

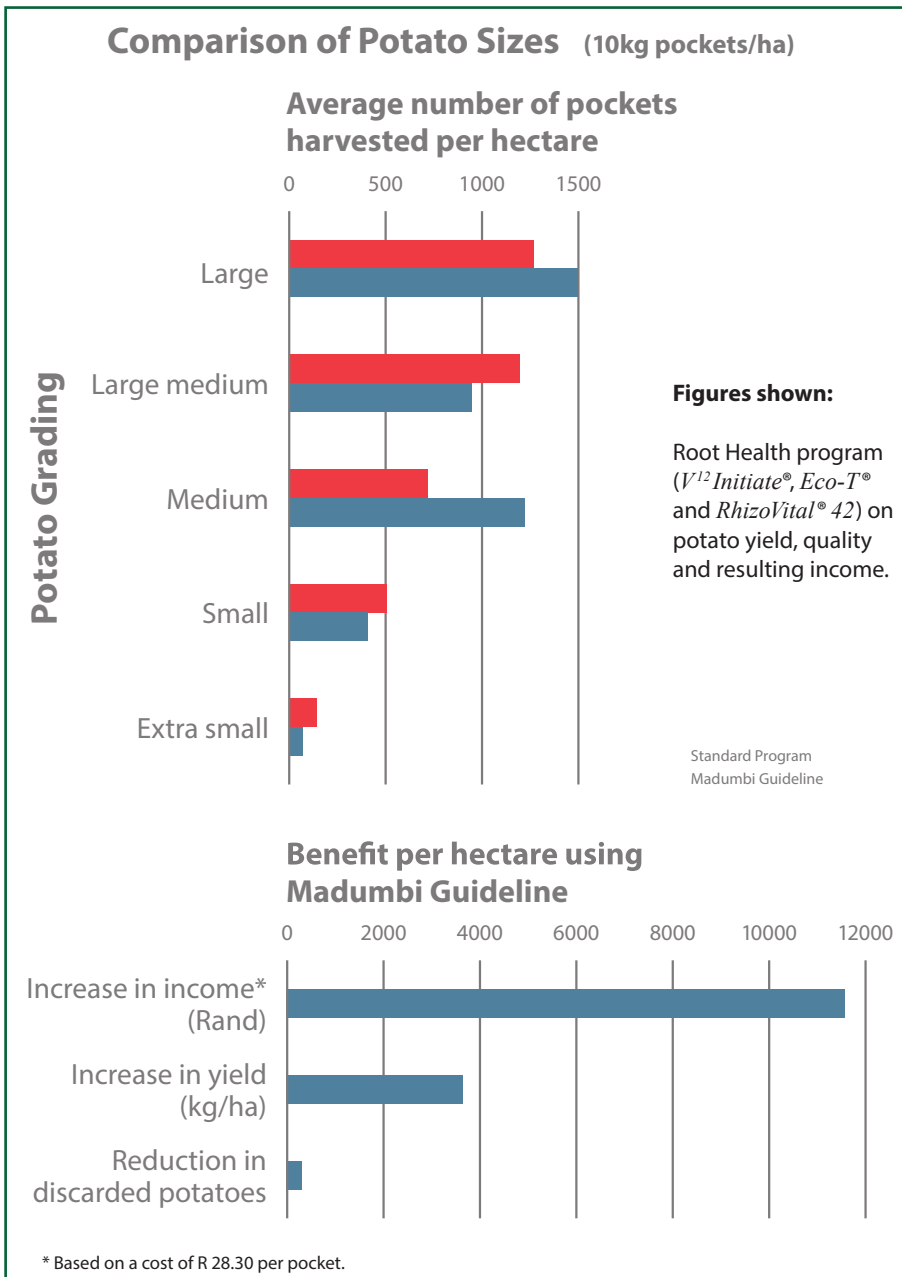
Reg. No. B4513, Act No. 36 of 1947. Madumbi Sustainable Agriculture (Pty) Ltd, Postnet Suite 20, Private Bag X6011, Hilton, 3245. Reg. No. 2009/020798/07.

Eco-T® contains *Trichoderma asperellum*.

Reg. No. L6938, Act No. 36 of 1947. Plant Health Products (Pty) Ltd, PO Box 207, Nottingham Road, 3280. Reg. No. 2003/007987/07.

1. Potato commercial trials:

2. Carrot commercial trial:



3. Citrus demonstration trial: (Addo, Eastern Cape)



Various examples of programs are provided below. Note that these are NOT the ONLY possibilities in terms of programs but just provided to give some idea of how programs may differ depending on the desired outcome and the prevailing soil conditions and problems on the farm in question.

New plantings - replant disease a primary concern. Also, a good option for restoring soil biology post fumigation

Product	At planting	4 weeks later	4 weeks later	4 weeks later	4 weeks later	4 weeks later
<i>V12 Initiate</i>	4L/ha					
<i>Eco-T</i>	500g/ha		250g/ha		250g/ha	
<i>Rhizovital</i>		500ml/ha				
<i>AgriSil K50</i>			5L/ha	5L/ha	5L/ha	5L/ha

New plantings - replant disease NOT a concern. Primary aim is stimulating growth and improving nutrient availability and uptake.

Product	At planting	4 weeks later	4 weeks later	4 weeks later	4 weeks later	4 weeks later
<i>V12 Initiate</i>	4L/ha					
<i>Eco-T</i>		500g/ha				
<i>Rhizovital</i>	500ml/ha			250ml/ha		250ml/ha
<i>AgriSil K50</i>		5L/ha	5L/ha	5L/ha	5L/ha	5L/ha
<i>Fulvic acid</i>			2kg/ha		2kg/ha	

Established trees - Root disease e.g. Phytophthora the primary concern

Product	Spring root ~ush	2-4 weeks later	2nd root ~ush (Nov/Dec)	3rd root ~ush (Jan/Feb)	Pre-winter (winter rainfall poorly drained soil only)
<i>Eco-T</i>	500g/ha		250g/ha	250g/ha	250g/ha
<i>Rhizovital</i>		500ml/ha			
<i>AgriSil K50</i>	5L/ha	5L/ha	5L/ha	5L/ha	5L/ha

Established trees - Nutrient availability and uptake, and growth stimulation the primary concern. The humic and fulvic applications are especially important in low Carbon soils or in soils with sub-optimal pH and resulting issues with nutrient availability.

Product	Before or with Pre-season fertilizer application	Spring root ~ush	1 month later	2nd root flush	3rd root flush	Post-harvest fert (deciduous fruit)
<i>Potassium Humate</i>	5-10kg/ha (granules) or 10-20L/ha liquid					5kh/ha
<i>V12 Initiate</i>		4L/ha				
<i>Rhizovital</i>		250-500ml/ha		250ml/ha	250ml/ha	
<i>Fulvic acid</i>			1kg/ha	1kg/ha	1kg/ha	
<i>Eco-T</i>			250-500g/ha			
<i>AgriSil K50</i>			5L/ha	5L/ha	5L/ha	

