



Root Health Toolkit



Andermatt

Madumbi

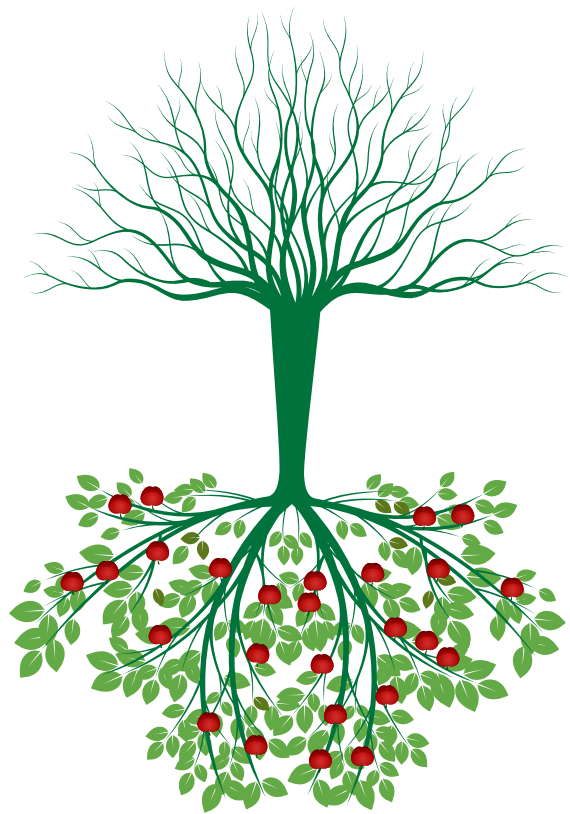
Healthy roots and soil are essential for the production of nutrient-dense food.

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 crops 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. The program is ideally tailored to each particular grower.

This brochure provides a generalised overview of the Andermatt Madumbi Root Health products to be considered along with their key contribution and benefit. Various examples of crop programs are also included to provide a guideline and framework from which to work.

Please contact your local Andermatt Madumbi Biospecialist for more clarity and support in developing the best program for your crop.



Root Health Program solutions:



Humates

Primarily used to help free up Phosphorous in soils where it is locked up (e.g. high pH, high Calcium soils). It can also be used with Nitrogen fertilizer to improve the efficiency of N fertilizer applications by reducing leaching. Apply humate granules at 5-10kg/ha. Apply before main fertilizer applications or as a 5% blend with granular fertilizer. Alternatively, apply liquid humate ahead of fertilizer application at 10-20L/ha.



Fulvic acid

Primarily used for improved availability and uptake of micronutrients. Soil applied at 2kg/ha. Apply ahead of periods of maximum energy demand in crops e.g. flowering & fruit set.



AgriSil K50

Use where any stress event is the primary concern e.g. soil salinity. Also, where heat or cold stress can result in increased physiological fruit drop. Also works well with *Eco-T* as part of a *Phytophthora* program. Apply at 5L/ha throughout the main part of the season (September to March) or at least 2 months (2 applications) before anticipated stress period.



V12 Initiate

Slow release form of silica together with various organic carbon sources for support of microbial growth (e.g. calcium *lignosulphonate*, fulvic acid & kelp) and added micronutrients.



Eco-T

Use primarily where root pathogens (e.g. *Phytophthora*) is the primary factor. Apply at 500g/ha with the first root flush of the season (September). Follow up with another 250g/ha on each of the subsequent root flushes. In winter rainfall areas apply another 250g/ha in late autumn or early winter particularly on blocks which suffer from poor drainage and resulting/associated increased incidence of *Phytophthora*.



RhizoVital

Use primarily for root growth stimulation and improved uptake of nutrients especially in problematic soils e.g. high pH soils where availability of P, Fe etc are restricted. Where root pathogens are a primary concern then apply a single application of 500ml/ha approximately 2-4 weeks after the 1st *Eco-T* application of the season. If root pathogens are not a main concern and one is just looking for improved growth and nutrient uptake then recommend 2 applications of *RhizoVital*.

All Andermatt Madumbi Products are registered by the Department of Agriculture, Act 36 of 1947.

Humate Liquid Reg. No. B4946. *Fulvic Acid Powder* Reg. No. B4796. *V 12 Initiate*® Reg. No. B4513. *RhizoVital*® 42 Reg. No. B4201. *Eco-T*® Reg. No. L6938. - Andermatt Madumbi (Pty) Ltd. *AgriSil K50*®, Reg. No. B3756 registered by PQ Silicas South Africa (Pty) Ltd.

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 flush 2-4 weeks later	2nd root flush (Nov/Dec)	3rd root flush (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

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 flush	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	

