

Phytophthora / Root Rot

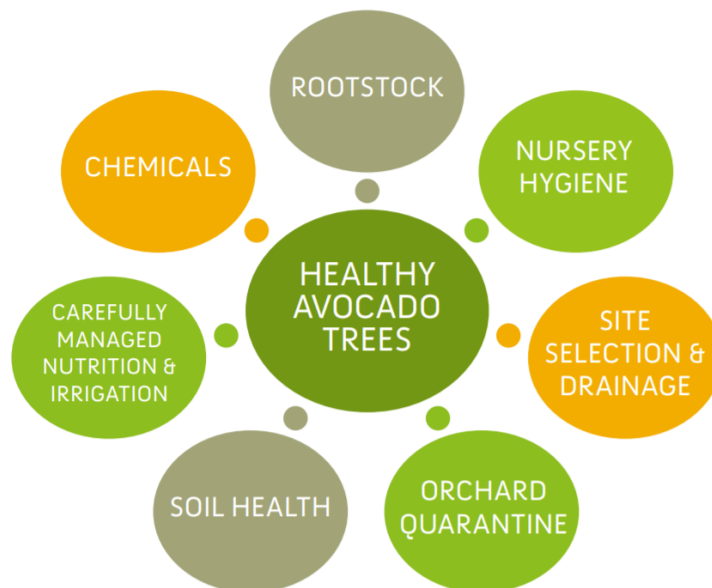


DIAGRAM COURTESY K PEGG

Phytophthora cinnamomi is a species of water mold which infects avocado tree roots and causes the feeder roots to rot.

Initial symptoms include feeder root dieback from the tips, small fruit size and a reduction in production. Subsequent symptoms are more visible and include small leaves, sparser canopy, yellow to light green leaf colour. In severe cases, trees die.

Phytophthora cinnamomi is prevalent in New Zealand soils, and a holistic management strategy for *Pc* should be implemented on all orchards.

PLANTING

Plant only disease-free trees on well drained soils. Drainage can be modified by mounding, ripping or addition of sub-soil and surface drains.

Plant only clonal varieties tolerant of *Phytophthora cinnamomi* in replant situations.

Saturate the potting mix of the tree (in its bag) with a solution of 2.5 mL of 40% potassium phosphonate per litre of water.

Apply gypsum or lime at 20g per square meter around the trees after planting.

Apply a coarse mulch 10-15 cm in depth after planting 10 cm from the stem to the edge of the individual tree shelter or at least 0.5 m from the trunk.

YOUNG TREES

All young trees in a replant situation, as well as those planted in new soil but showing symptoms, should be sprayed every 4-6 weeks from autumn to spring with foliar potassium phosphonate.

Be careful not to over-irrigate trees.

Mulch trees annually in late spring.

MATURE TREES

Be careful not to over-irrigate trees - reduce the sprinkler output on sick trees.

Mulch trees annually in spring.

Trees with a trunk diameter >7 cm should be injected annually with potassium phosphonate.

Inject trees with potassium phosphonate using low pressure syringes. Timing of injection is very important, and it should be done when the leaf flush has hardened off and roots are actively growing or present in large numbers (there is a natural root dieback at flowering).

- For healthy trees, inject once in autumn (Feb to April) at 20%
- For sick trees, inject in autumn and again in late winter at 10-20%

Use at least one syringe containing 20ml of solution per metre of canopy diameter, evenly spaced around the trunk. Do not drill holes in the same part of the trunk year after year.

Flowers and fruitlets should be removed from sick trees - if the tree health is less than or equal to 6 (Appendix 1: Ciba-Geigy Scale), 100% of the inflorescences should be removed.



Figure 14: Tree with low pressure syringes.

Using a 40% stock solution

Concentration % w/v	10%	15%	20%
Amount of product	250 mL	375 mL	500 mL
Amount of water	750 mL	625 mL	500 mL
Total volume	1 L	1 L	1 L

Using a 60% stock solution

Concentration % w/v	10%	15%	20%
Amount of product	166 mL	250 mL	333 mL
Amount of water	834 mL	750 mL	667 mL
Total volume	1 L	1 L	1 L