Phellinus noxius: Brown root rot of avocado

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Phellinus noxius

- Widespread in tropical and subtropical regions of southeast Asia, Africa, Oceania (including Australia), Japan and Central America and the Caribbean
- Wide host range affecting 200 tree and plant species including avocado, mango, litchi, hoop pine and other forestry species as well as amenity trees in parks and gardens
- Diverse environments from rainforests and sand dunes to dry inland regions
- Important decay and recycling agent of dead wood in undisturbed environments

History in Australia

- Tentatively identified in 1952 from fruiting bodies on hoop pine
- Symptoms of progressive avocado tree death along rows observed on the Atherton Tablelands in Qld in 2001
- First positive identification of *P. noxius* causing avocado tree death in Maleny in Qld in 2002

Symptoms

- Rapid tree decline and death
- Leaves and fruit will often be left hanging on tree
- Infection stocking advancing up trunk
- Leaves, sticks and soil stuck to trunk of tree by infection stocking
- Mycelial felt between bark and wood
- Dead wood behind infection stocking

Tree Decline & Death

Infection “stocking”

Mycelial felt

Dead wood

Infection Process

- Typically by root contact with infested woody material in soil
- Spreads between trees where infected roots of one tree contact healthy roots of neighboring tree – root to root contact
- May also be through airborne basidiospores where fruiting bodies present (though uncommon in avocados)
- Persists in woody debris in the soil for many years

Scoping Study

- Approximately 30 avocado orchards in Atherton Tablelands & Childers/Bundaberg productions regions, Sunshine Coast and northern New South Wales visited from 2007 - 2009
- P. noxius confirmed on 17 Atherton, 5 Childers/Bundaberg, 1 Sunshine Coast and 2 northern NSW orchards
- Likely to be present on more orchards

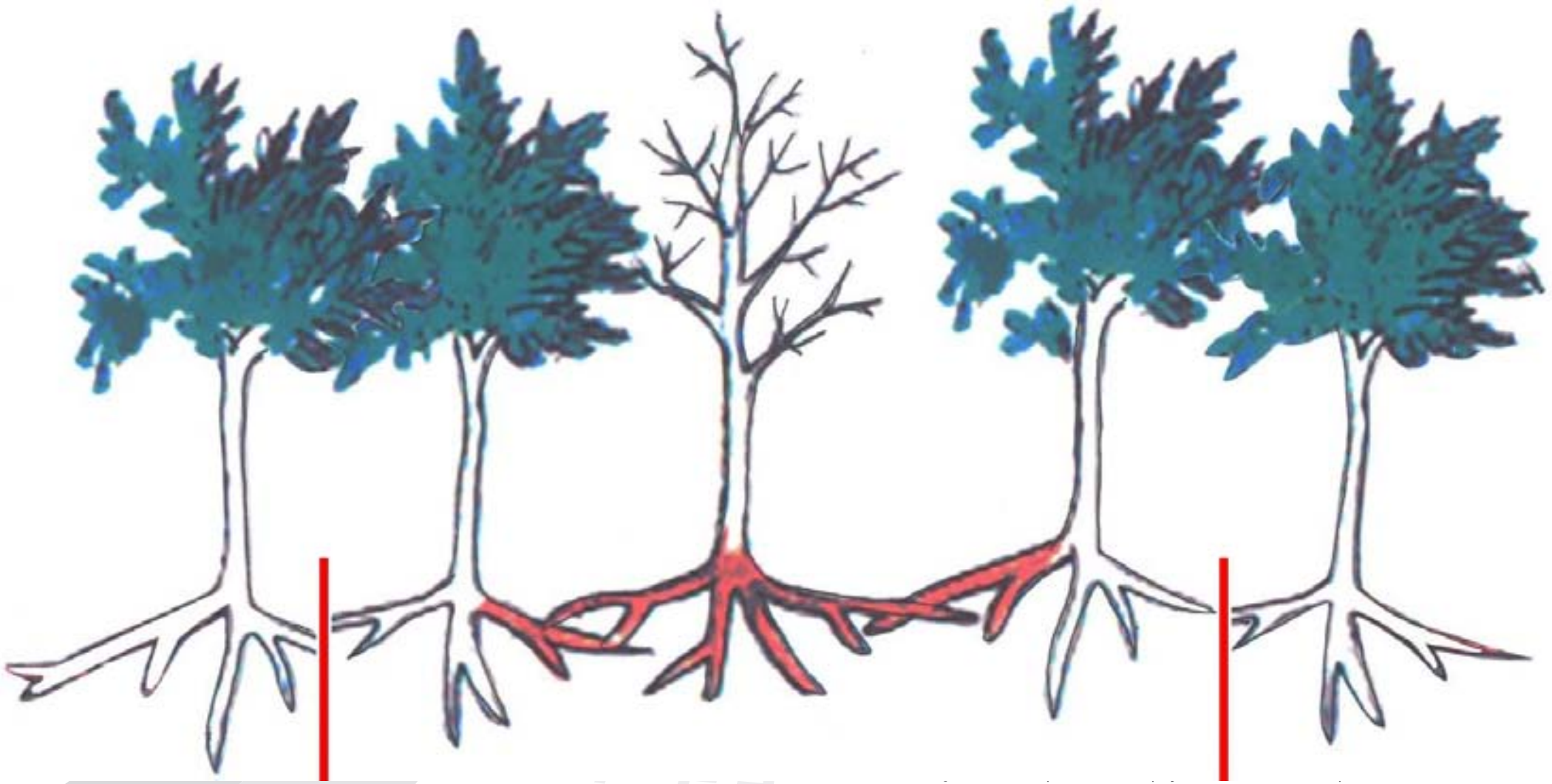
Scoping Study

- Severity ranged from minor (a few trees affected) to severe (80% of trees in a block)
- Extent of stocking development not indicative of severity of disease affecting a tree
  - Some dead trees had limited stocking development
  - Extensive stocking development on trees that had not succumbed
- Replanting typically failed

Control

- Removal of infected trees
- Installation of root barriers to prevent spread
- No current chemical control measures registered
- Promising control options in literature that may be effective in avocado.

Root Barriers



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