

White root rot of avocado caused by *Rosellinia necatrix*

Fact Sheet (April 2018)

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Background

Rosellinia necatrix Berl. ex Prill., an ascomycete, is the causal agent of white root rot disease on a wide range of plant species. White root rot is increasingly becoming a problem pathogen in regions with subtropical, tropical and temperate conditions¹ and has been present on apples and pears in the Western Cape, South Africa since the 1970s² and in neighboring country, Mozambique³. The presence of white root rot was only officially reported on avocado in South Africa in 2016/7⁴.

Symptoms

Diagnosis via aerial symptoms is very difficult, as it resembles *Phytophthora* root rot. Distinguishing primary symptoms include rapid decline of vigour, sparse foliage and leaf wilting (Fig. A). Secondary symptoms occur quickly (2 weeks) and include chlorosis, leaf drop and death of the entire tree often with fruit still attached (Fig. B)^{1,4}.

Dark brown lesions are present at the base of the trunk with white mycelial growth on the bark (Fig. C) and mycelial strands occasionally extending under the bark. Infected roots become necrotic and covered with a fine layer of mycelia. White shoe-string mycelia are present in the surrounding soil⁴.

Early symptoms of white root rot usually occur 28 days post inoculation and late symptoms occur 32 days post inoculation, with death normally within a few weeks after the appearance of the foliar symptoms⁵.

The Fungus

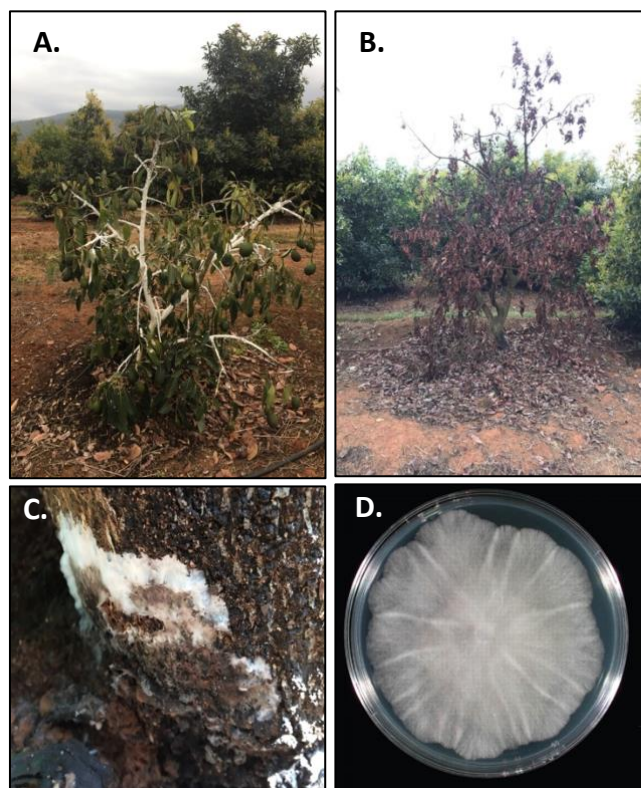
Rosellinia necatrix is a soil-borne saprophyte and grows at temperatures between 5-30°C and a soil pH between 6-8. The pathogen produces toxins that are involved in the death of the tree and can survive in the soil by producing thick-walled spores⁶.

Known Hosts

This pathogen is widely distributed over five continents across the globe and has been reported on 437 plant species. Economically important woody hosts include apple, peach, orange, pear, grape, coffee, olive and avocado⁷.

Control

Control options are limited. No fungicides have been efficient in controlling the disease. However, Fluzinam has shown potential in controlling white root rot and is registered as Shirlan® on apples in Australia. An integrated approach of biocontrol, solarization^{8,9} and good orchard sanitation has shown promising results in other countries. Orchard sanitation should focus on immediately removing infected material and restricting vehicle movement in the orchard until the disease has been identified. Solarization and good soil preparation prior to planting is critical. Resistant rootstocks are regarded as the most promising control option. However, avocado rootstocks in South Africa do not appear to be resistant to white root rot.



What to do?

1. Monitor your trees for **sudden, rapid decline** and death and/or the presence of white mycelia on the trunk.
2. Collect a sample from the trunk and soil, package separately in a brown bag and send it to the ARP.

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