

Summary of avocado "tree blowover" events

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Older trees (3-4 years old)







Section through the constricted area at the snap off zone shows segmented root development, and lines of black decay (necrosis)



Any remaining lateral roots also show discolouration and brown/black decay



Frequently see brown patches under the bark at the crown or snap off point

What we know

Most severe losses from WA during winter 2018, but also reports from Tasmania, central NSW, Tristate. A few cases over the years from Childers and far north Queensland.

Affected trees have been very healthy up until blowing over, often with high crop loads. Trees with heavy crops have sometimes snapped off without high winds.

Recent losses have mostly been with Zutano rootstock.

Possibly associated with potbound (rootbound) nursery stock.

Does not seem to be associated with the graft.

Results from lab isolations

- Fungi consistently isolated from necrotic tissue (the black internal necrosis) include *Mariannaea* and *Ilyonectria*.
- *Mariannaea* and *Dactylonectria* often isolated from the brown patches under the bark.
- There is another fungus we are isolating consistently, but we're not sure what it is, and are following up with DNA based identifications

All of these fungi are in the same family as those causing black root rot. *Dactylonectria* is a known root pathogen of avocado. While we frequently isolate *Ilyonectria* from unhealthy roots, it didn't cause severe root damage in our glasshouse tests. We did not assess its ability to cause internal (stem) disease. *Mariannaea* is less commonly isolated from roots, and we haven't done any pathogenicity testing with this genus yet.

Younger trees (2 years old)





Brown patchy decay on lower trunk

Results from lab isolations

- *Fusarium*, *Dactylonectria*, *Ilyonectria* and *Gliocladiopsis* commonly isolated from roots, root initials, internal (stem) necrotic areas and cankers

Nursery





Results from lab isolations

- *Dactylonectria*, *Ilyonectria* and *Gliocladiopsis* commonly isolated from roots, root initials, internal (stem) necrotic areas and cankers

Further work

- A few more samples from younger plantings
- Compare with "healthy" root system and internal structure
- Molecular (DNA) work to confirm identity of fungi consistently isolated
- Pathogenicity testing, including checking for stem colonisation and decay
- What is causing the brown patches on lower trunks, and is it affecting trees?