

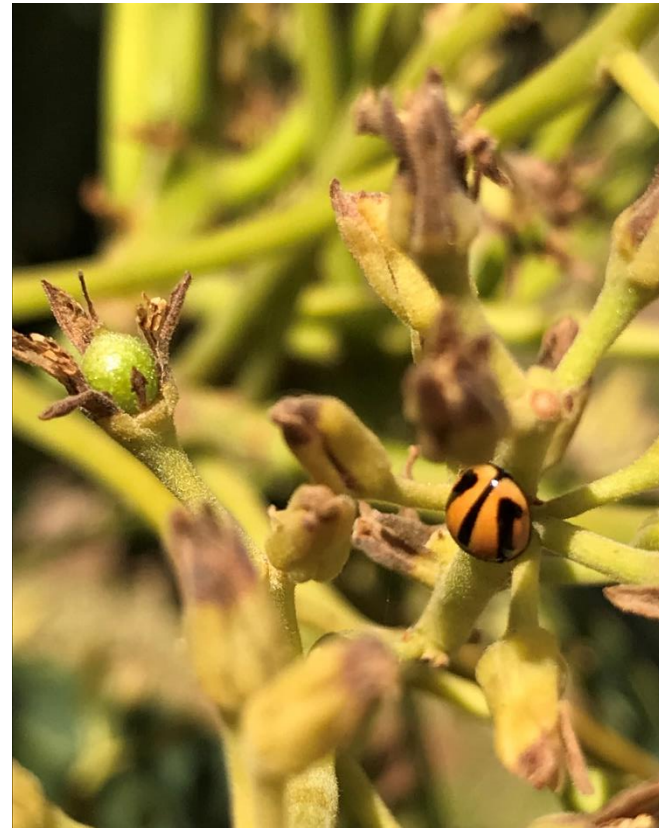
Avocado panicle blight (flower dieback)

Liz Dann and avocado pathology team, e.dann@uq.edu.au

Presentation to California Avocado Commission, 17 September 2020

Panicle blight

- What is it? What does it look like?
- Is it new?
- What causes it?
- What are we doing about it?



October 2019



Photo: Grower/agronomist



Photo: Grower/agronomist



October 2019 – August 2020



Manjimup (WA) and NZ Nov 2019

- Often associated with branch wilt



What causes it?

- Fungi isolated from symptomatic panicle material
 - *Alternaria*, *Cladosporium*, *Colletotrichum*, *Fusarium*, *Pestalotiopsis*, *Diaporthe*, *Botryosphaeria* (e.g. “*Dothiorella*”)
- Very high frequencies of *Alternaria*
- Nothing of particular biosecurity concern
- Is it related to water quality or leaf burn?
- Is it related to environmental conditions or tree stress?
- Does it progress to cause branch dieback?

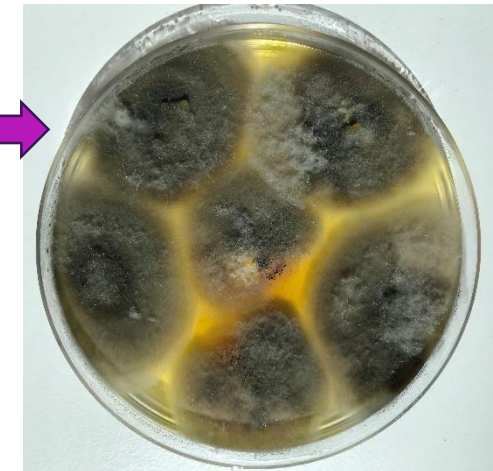
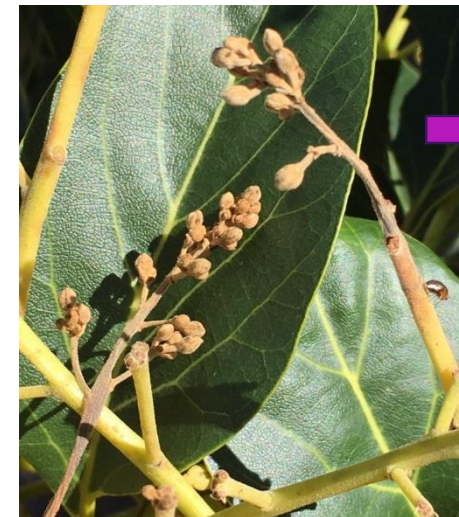
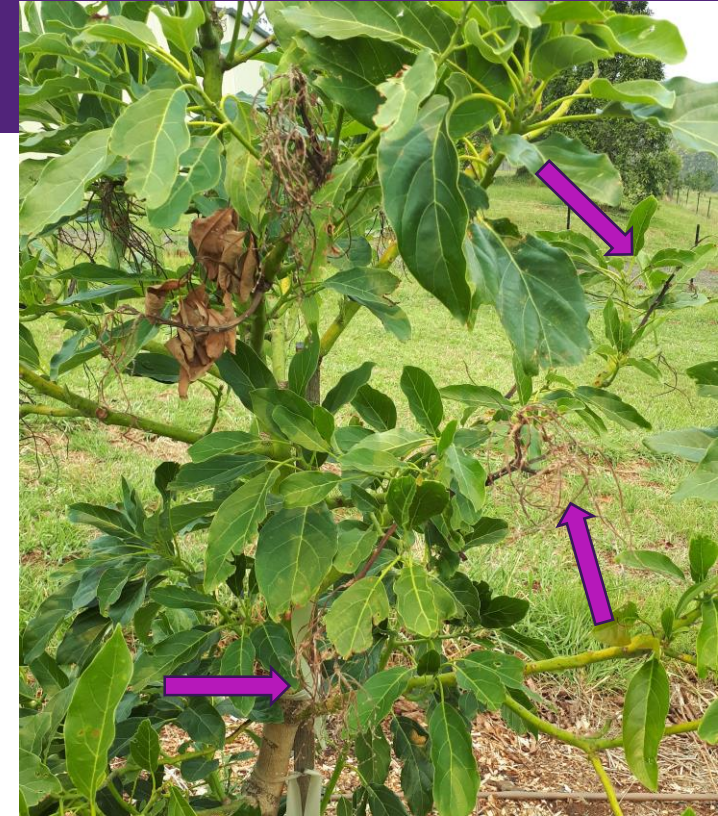


Photo: Grower/agronomist

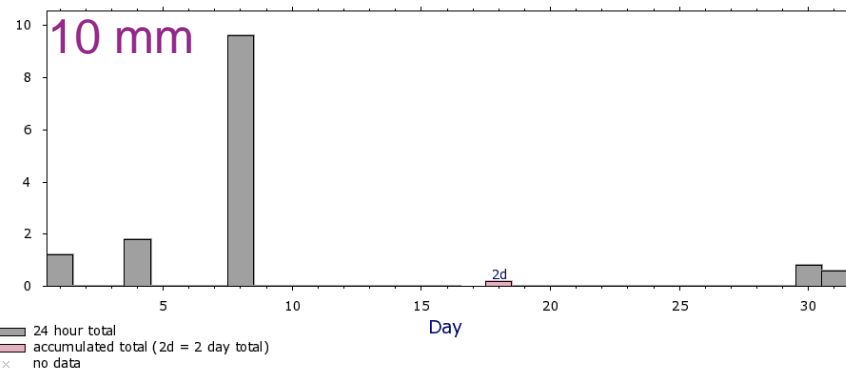
Alternaria sp.

What causes it?

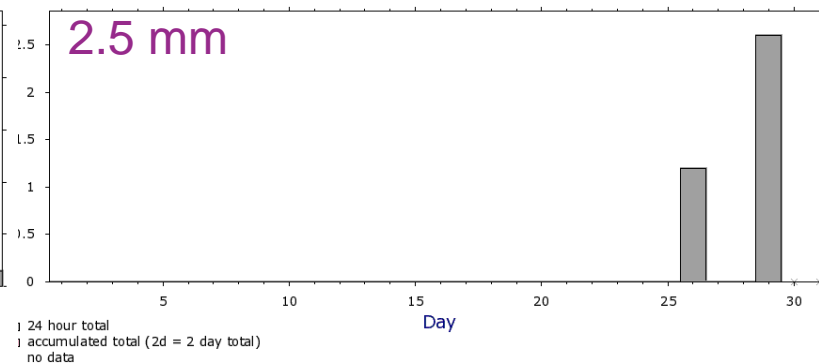
- May be associated with extended dry period, trees stressed even though they were irrigated
- Low rainfall pre-flowering and flowering in 2019, water chloride >80 mg/L
- 2020 is very different July 35 mm, August 38 mm



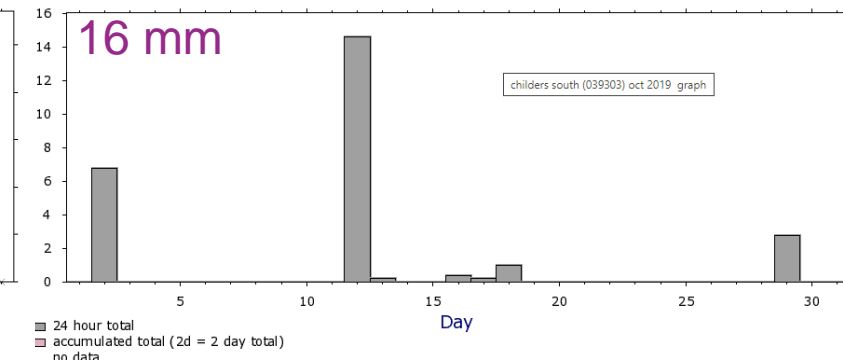
August



September



October



Grower/agronomist observations 2019

- A big problem in Central Queensland (Bundaberg/Childers) in 2019, although seen in previous years
 - i.e. not likely to be something new or of biosecurity concern
- Hass and Maluma fruit set affected – no fruit in some blocks – major loss in production
- Shepard (earlier variety) apparently not affected
- Determinate inflorescences affected, not such a problem in indeterminate
 - higher proportion of the flowering in 2019 was determinate flowers (generally the lesser of the two flowerings)
- More prevalent on younger trees
- Not related to PGR application
- Azoxystrobin applied in most cases with little success in slowing down the dieback
 - in some cases new leaf flush continued to die back



Shoot dieback in new plantings



Photo: Grower/agronomist



Photo: Grower/agronomist



Samples from nursery trees 2020

- dieback in our research glasshouse!



Similar problems overseas and other crops

- Anecdotal reports of problems in avocado in California and Israel
- Macadamia
- Pistachio
- Mango
- Lychee

Dry mould (dry flower) - Pestalotiopsis blight
(Diseased florets are loosely attached & dry appearance)



Femi Akinsanmi, UQ

Samples from August 2020 Hass & Shepard



Photo: Grower/agronomist



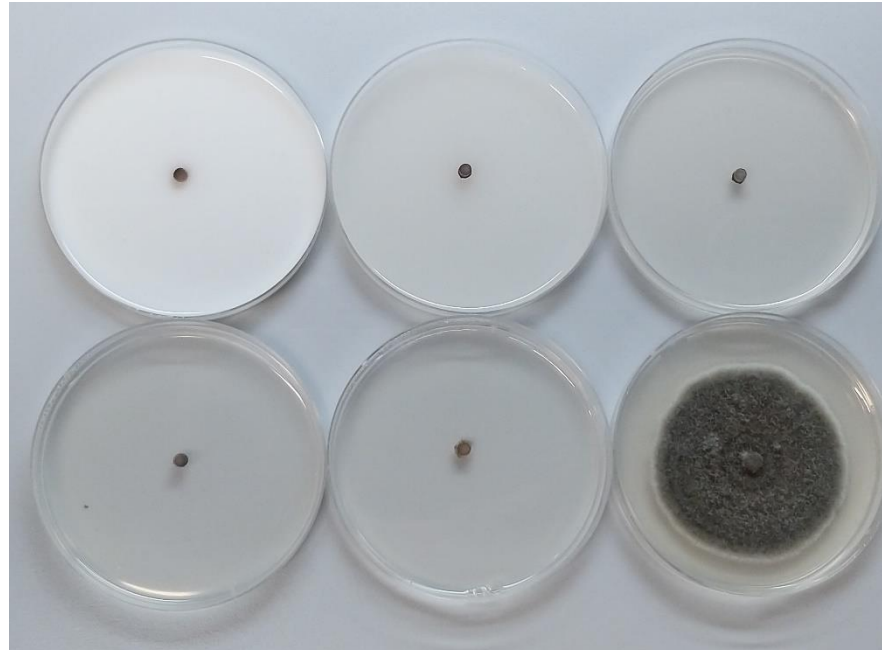
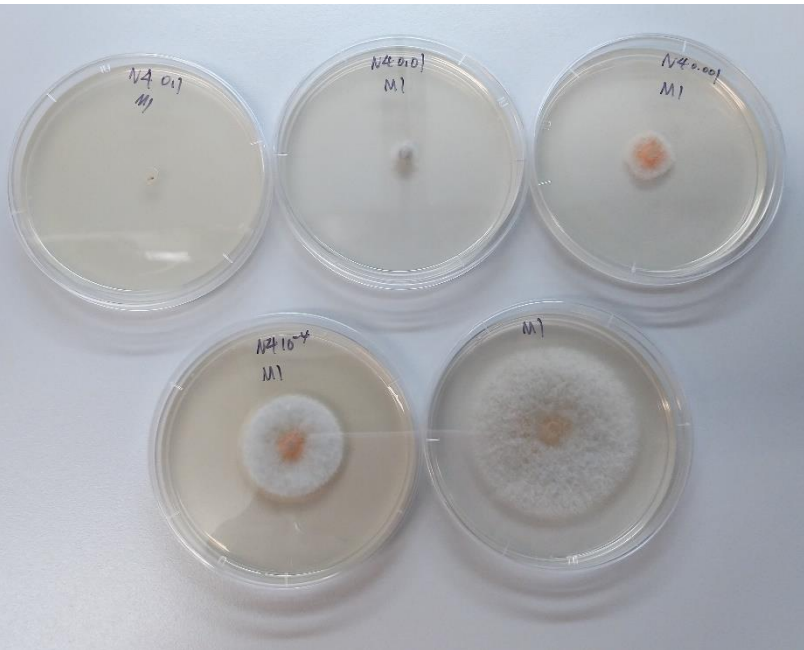
Photo: Grower/agronomist



Photo: Grower/agronomist

What are we doing about it?

- Industry-wide awareness and further sampling from all regions
- Completed Petri dish assays to test relative efficacy of fungicides and biofungicides against likely key fungi



What are we doing about it?

- Hons student project August 2020 - June 2021
 - Review literature in avocado and other fruit/nut crops
 - Isolation of associated fungi from more grower samples
 - Pathogenicity testing to determine causal organisms
 - Review Bureau of Meteorology data and compare 2019 with 2020
 - Molecular analyses (ID) of isolates



What are we doing about it?

- Field trials with promising fungicide candidates
- Pre-spray sampling and isolations for baseline infection (match-head size)
- Post-spray sampling (? pea size), isolations and assessment of fungicide efficacy



What are we doing about it?

- Field trials with promising fungicides (very inhibitory in Petri dish tests)
 - 2 trials in Bundaberg/Childers area
- 2x *sprays during flowering*, then regular program
- 4 curative fungicides (not registered in avo) as well as registered Nordox (copper) Serenade Opti, Amistar, and untreated control
- Assess severity of blight (isolations etc.), anthracnose and stem end rot, yield, residue analyses
- Data to support registration/application for Permit through APVMA



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