

Research update on *Alternaria* leaf blotch and fruit spot of apples in Australia

Alternaria Leaf Blotch

- *Alternaria* leaf blotch occurs in all apple growing regions in Australia.
- The disease has the potential to cause significant economic loss if control measures are not effective.
- Causing severe premature tree defoliation that reduces tree productivity in the following seasons.
- Several apple cultivars including Royal Gala, Pink Lady™, Red Delicious and Fuji are susceptible to leaf infection.
- *A. mali*, known to be the pathogen overseas is just one of the pathogens associated with the disease in Australia.
- Our research showed that multiple *Alternaria* species can cause leaf blotch. The dominant species is *Alternaria arborescens* which occurs in all apple growing regions of Australia.



Alternaria Fruit Spot



- *Alternaria* fruit spot occurs more frequently in the NSW and QLD growing regions than other apple production areas in Australia.
- The disease has caused significant economic loss that resulted in significant unmarketable proportion as fresh fruit.
- Several apple cultivars including Royal Gala, Pink Lady™, Red Delicious and Fuji are susceptible to fruit spot disease.
- Our research showed that *Alternaria mali*, *Alternaria alternata* and *Alternaria tenuissima* which are most common in NSW and QLD are more associated with fruit spot than other species.
- A major concern is that the severity of *Alternaria* leaf blotch might increase since current knowledge of the timing of fungicide applications and orchard

hygiene are limited. Increased incidence of leaf blotch may translate to increase severity of fruit spot.

Disease cycle

- Leaf residue on the orchard floor is a main source of *Alternaria* inoculum in the orchard between seasons.
- *Alternaria* spores blown by air and those that overwinter in leaf residue, on twigs and buds in the trees initiate leaf blotch which first appears on the leaves at about 40 days after bloom.
- Leaf blotch incidence increases rapidly in high relative humidity (above 65%) and warm temperatures (18 - 33°C) from an initial incidence of less than 5% of leaves infected to over 20-45% of leaves infected at 110 days after bloom, causing progressing severe leaf defoliation until harvest.
- Fruit infections may occur between around 110 days after bloom if leaf infections are not controlled.

Disease management strategy

Good orchard hygiene is essential for effective *Alternaria* diseases management.

Alternaria leaf blotch

- 1. Remove, mulch or breakdown leaf residues after harvest.**
- 2. Apply fungicide spray applications after harvest and/or at bud burst to clean the tree canopy of any residual *Alternaria* spores from the trees.**

Alternaria fruit spot

Monitor leaf blotch incidence and spray fungicide application from January - February if 1 out of every 6-10 leaves is infected early January.

Suggested fungicides:

- Delan®
- Pristine®
- Polyram®

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