

## Project VM22001 'Identification and management of a fungal disease complex in melons'

Project VM22001 seeks to improve productivity for the Australian melon industry through improved knowledge and management of soilborne fungal diseases. This includes research into options for diseases such as gummy stem blight, charcoal rot, fusarium wilt and vine decline.

Since the start of the project in February 2023, the project team has visited several growing districts and collected disease samples for identification. This included Chinchilla, Burdekin, Bowen, Gumlu and Bundaberg in QLD, Mildura in VIC and Griffith in NSW. The crops surveyed were a mix of rockmelon and watermelon. Disease incidence and crop losses attributed to soilborne diseases in these districts varied a lot, from <1% to almost 100%. Seedling health was identified as a contributing factor in some disease outbreaks (Figure 1).

From these surveys multiple pathogens were identified. This included *Fusarium oxysporum* (causes wilt), *Stagonosporopsis* sp. (causes gummy stem blight), *Pythium* sp. (causes root damage and sometimes wilt) and *Macrophomina phaseolina* (causes charcoal rot).

Evaluation of disease pathways from seed to production has commenced with experiments underway with a major nursery supplier of melon seedlings. In particular, this is to evaluate the risk of transfer of *Stagonosporopsis* sp., from seed or within the nursery environment to seedlings and potential options to reduce this risk (Figure 2). Review of published literature confirmed that pathogens causing gummy stem blight, fusarium wilt and charcoal rot can all be seedborne.

How can you help?

- If you have disease outbreaks, please contact the project research team to discuss options for having samples tested. Identifying which combination of pathogens are present in your crops will help you manage disease outbreaks better in the future. It will also assist in clarifying what is causing vine decline in Australia.
- The VM22001 project team will be evaluating a range of management options for vine decline over the next three years (2023-2026) and welcome input from industry to do this. Feel free to contact us.

For further information or to send samples please contact

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**Figure 1:** Diseased mature melon plant with damaged root system initially caused by a delay in planting the seedlings.

**Figure 2:** Watermelon seedling with gummy stem blight disease. The close up photo on the right shows the fungal black fructing bodies on the cotyledon and top of the stem. These fructing bodies contain hundreds of spores which are released when the fructing body becomes wet.

