

Verticillium wilt

The IDM fast facts series.

The pathogen

Verticillium wilt is caused by the soil-borne fungal pathogen *Verticillium dahliae*. In Australian cotton there are currently three identified strains of *V. dahliae*; two non-defoliating strains (VCGs 2A and 4B) and a defoliating strain (VCG 1A). It is unclear why only now the disease is causing such significant damage in some fields.

Symptoms

Characteristic symptoms of Verticillium wilt include wilted plants, leaf mottle and necrosis, defoliation and in some cases the death of plants. All plants from which *V. dahliae* has been isolated showed internal vascular discolouration however not all plants showed external symptoms.

Internal symptoms can be checked by cutting the stem at the base of the plant just above the soil. An infected plant will reveal flecked brown discolouration of the vascular tissues running from the main root up into the stem. Severe cases of Verticillium wilt can be easily mistaken for Fusarium wilt, and there are instances where both diseases have been found in the same field.

Flecked brown discolouration in the vascular tissues.



Fast facts:

- It is currently not well known how V-rank relates to strain. There were consistent trends across trials and current rankings fit well with individual trial results. CSD have increased the number of V-rank trial sites which will continue to be monitored in the future for any possible links.
- Verticillium wilt is most severe during extended wet or overcast weather, waterlogging and in late maturing crops.
- Pushing the last irrigation to add further yield to the crop can allow the crop to be exposed to cooler weather which is ideal for Verticillium.
- Most of the inoculum in furrow irrigated fields is found in the top 10cm of the permanent bed soil profile; this may increase the risk of disease in plants with a shallow root system.
- Raking and burning is not a viable management option for reducing inoculum levels in soil. Instead it moves the pathogen around the field in the small trash material left behind. In fields where Verticillium wilt is present, the incorporation of trash as soon as possible after harvest is recommended to increase plant and trash breakdown.
- Recent preliminary pot trials with Australian strains suggest that mung bean, chickpea and faba beans may be hosts.
- *V. dahliae* may have asymptomatic host plants. Asymptomatic host plants may not be as adequate as hosts in the short term but, over time, the fungal population may be maintained within the environment to some degree.

For more:

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- Read: Vert Update - the latest in vert research fact sheet.