

Pathogenicity screening of *Ceratocystis fimbriata* on kiwifruit

Project overview

Background

Ceratocystis fimbriata is a fungal pathogen that is causing significant damage to kiwifruit orchards in Brazil, with some growers reporting 50 % vine loss over the past 5 years.

Ceratocystis fimbriata is a complex that consists of many strains. The *C. fimbriata* complex has a wide and unpredictable host range, both as a simple wound coloniser and as an aggressive tree killer. In the past 15 years, new host crops and new epidemics of Ceratocystis wilt have been reported worldwide, especially in Brazil and Asia. The sudden appearance of this pathogen in kiwifruit in Rio Grande do Sul, Brazil, has been considered particularly alarming as the kiwifruit is particularly susceptible and the production impacts of the pathogen threaten the viability of this industry in Brazil. There have been no reports of impacts to kiwifruit from this pathogen outside of Brazil to date.

New Zealand does have a strain of the *C. fimbriata* complex, first identified in 1907 causing black rot on kumara. It is unknown if this strain is pathogenic to kiwifruit, and if found to be host specific to kumara, how easily could this strain mutate to become pathogenic to other hosts.

Susceptible varieties

Hayward on Bruno rootstocks seems to be the most susceptible cultivar combination to *C. fimbriata* making the potential impacts of this pathogen to the New Zealand industry significant given the popularity of this cultivar combination in New Zealand.

Control options against *C. fimbriata* have limited effectiveness and developing resistant or more tolerant cultivars is considered the best course of action to prepare for this pathogen.

Objectives

The objective of this proposal is to screen a number of *C. fimbriata* isolates, including the NZ and Brazilian isolates, for pathogenicity against a number of kiwifruit cultivars. This will allow the identification of:

1. Isolates of *C. fimbriata* that are pathogenic to kiwifruit
2. Identification of tolerant / resistant cultivars or rootstocks.

Implementation of outcomes

Kiwifruit varieties of commercial value which are resistant / tolerant to Ceratocystis wilt could be identified and included in breeding programmes.

Deliverables:

1. Results generated from the project will be made available to kiwifruit growers in NZ, Brazil and other kiwifruit growing countries through reports, publications, presentations and release on the KVH website.
2. A selected highly aggressive culture of *C. fimbriata* on kiwifruit to be used for screening for resistance.
3. Information regarding tolerant or resistant rootstock / varieties will be discussed with respect to a potential breeding / grafting programme.