

Does *Phytophthora idaei* pose a threat to the raspberry crop?

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Phytophthora idaei was first isolated at SCRI from roots of Scottish and English raspberry crops in the 1980s.



Pathogenicity tests in pots showed that although *P. idaei* caused moderate root damage¹ the most serious threat to the industry was raspberry root rot caused by *Phytophthora fragariae* var. *rubi*.

P. idaei was not studied further until a Scottish soft fruit survey in 2001-2003. Molecular diagnostic testing of raspberry roots showed that *P. idaei* was present in over 40% of the commercial plantations sampled².

This finding coupled with the fact that different cultivars and production systems are now used, led us to investigate whether *P. idaei* should be considered a threat to the soft fruit industry.

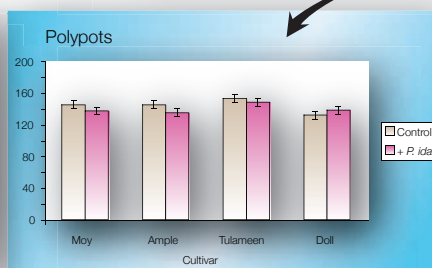
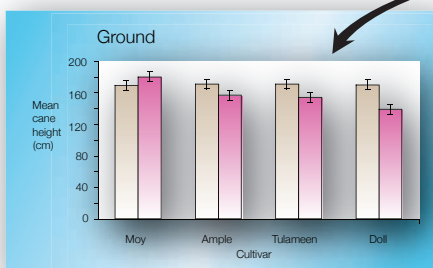
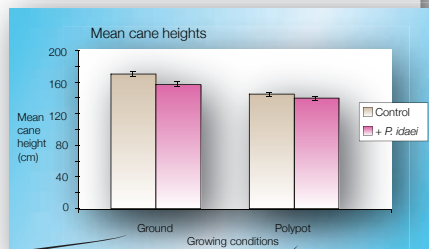
A field trial was established in November 2006 in combination with a series of glasshouse experiments to examine the impact of *P. idaei* on a range of cultivars under different growing conditions. Detailed monitoring of the health of plants inoculated with *P. idaei* compared to uninoculated controls is ongoing.

Results to date

Field trial

In the first season *P. idaei* had the following impact:

- Visual assessments of root systems in polytops showed that *P. idaei* inoculation resulted in noticeable disease.
- No clear above-ground disease symptoms were observed although cane height was reduced.
- This trend for reduced cane height was common to most cultivars but was only statistically significant for those plants grown in the ground.



Glasshouse trials

Assessments of *P. idaei* and *P. fragariae* var. *rubi* inoculated plants over several weeks showed that *P. fragariae* var. *rubi* caused severe root rot and subsequent plant death. *P. idaei* infected plants showed significant proportions of diseased roots but no apparent disease symptoms on the stems or foliage.



Conclusions/Future work

Thus far, it seems that *P. idaei* is causing moderate root damage which, in turn, is affecting cane height in the field trial.

This project is funded for 3 years (May 2006 – May 2009). Plants from the glasshouse trials will be over-wintered and monitored throughout the 2008 season. Plant health data, fruit yield and environmental recording from the field trial will be continued throughout the rest of the project.

References:

1. Kennedy, D.M & Duncan, J.M. 1995. A papillate *Phytophthora* species with specificity to *Rubus*. Mycological Research 99, 57-68.
2. Duncan, J.M, Cooke, D.E.L & Young, V.2003. Final report: *Phytophthora* diseases of soft fruit: determining their prevalence and the source of new outbreaks in Scotland. Scottish Government funded research project 2000-2003.

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