Project Title:
Screening apple rootstocks for tolerance to *Phytophthora* crown rot.

Researcher: A Vermeulen

Objectives and Rationale

This project aimed to test apple rootstocks for tolerance to crown rot (*Phytophthora cactorum*) as part of an integrated disease management strategy.

Methods

Two methods were tested as a screening technique for tolerance to crown rot.
Tissue culture plants of rootstocks were planted in *Phytophthora cactorum* inoculated soils and grown for four to six months. Total, root and shoot weight along with shoot length were measured.
Excised stem inoculations were also made to determine tolerance to crown rot.

Key Results

Isolations from soils after planting showed that the inoculation procedure worked as *Phytophthora* was isolated from the soil samples. Isolation from the roots was done on all the plants and only a few isolates were recovered from the rootstocks.
Statistical differences obtained could not be claimed to be tolerance to crown rot as the results differ too much over seasons.

Conclusion and Discussion

No visual differences in plant growth were noted in any of the seasons. When comparing percentage growth of the different rootstocks with each other, significant differences were obtained but it varied from season to season. The differences are thus more likely to be due to factors such as vigour and coping with the growing conditions than the influence of the pathogen. No definite conclusions can be made from these results.

It is clear that there is still no reliable screening technique that gives a clear reliable result for rootstock susceptibility or resistance to *Phytophthora catorum*.