



Horticultural
Development
Company

New Project

FV 349

Brassicas: Further
Development of “in field” tests
for resting spores of clubroot
and the development of
clubroot control based on
detection

Project Number: FV 349

Title: Brassicas: Further Development of “in field” tests for resting spores of clubroot and the development of clubroot control based on detection

Start and end dates: 1 April 2009 to 31 March 2013

Project Leader: Dr Roy Kennedy, University of Warwick

Project Co-ordinator: Alastair Ewan, East of Scotland Growers Ltd

Location: Warwick HRI, University of Warwick, Wellesbourne, Warwick, CV35 9EF and field sites in Scotland.

Background and project objectives

This is a collaborative project with the HGCA.

Clubroot caused by the fungus *Plasmodiophora brassicae* Woronin is one of the most important plant pathogens of cultivated cruciferous crops world-wide. Mild clubroot infections lead to slowed growth, lack of uniformity in crops, delayed harvesting and yield loss. Severe infections result in total crop failure. Once soil has been contaminated spores remain viable for up to 18 years. Information on the presence or absence of clubroot in soils has been difficult to obtain because traditional methods could not detect low levels of clubroot in soils. However the presence or absence of clubroot can be determined in most soil samples using molecular tests. These tests are laboratory based but require a high degree of precision by the operator. The molecular test has been used to develop a competitive lateral flow device for rapid testing and detection of the clubroot resting spore detection in the field.

The incidence of club root varies considerably from soil to soil. Differences in pH, exchangeable Ca, soil solution Ca, carbon dioxide, soil texture and weather conditions are important. An additional objective of the study would be to prepare a simple soil based models for predicting the expected suitability of a given soil for clubroot development. It could provide contour diagrams showing for example of the effects of factors which crystallize the dominant influences on the suitability of soil for club root proliferation. Important factors are pH and total anion concentration. These estimates could be used in conjunction with the clubroot test to determine proper risk assessments for clubroot development in different soil types.

Further information

Email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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