



Horticultural
Development
Company

New Project

FV 356

Onions: Further development
and calibration of detection
tests for conidia of onion downy
mildew in combination with the
Morph forecast model
MILIONCAST

Project Number: FV 356

Title: Onions: Further development and calibration of detection tests for conidia of onion downy mildew in combination with the Morph forecast model MILIONCAST

Start and end dates: 1 April 2009 to 31 March 2012

Project Leader: Dr Roy Kennedy, Warwick HRI

Project Co-ordinator: Andy Richardson, Allium and Brassica Centre

Location: Most of the work will be conducted at Warwick HRI, University of Warwick. Additional field testing of the test kits will be undertaken at appropriate bulb and salad production areas in the UK.

Background and project objectives

Downy mildew can cause heavy yield losses in both salad and bulb onions. Onion downy mildew caused by *Peronospora destructor* (onion downy mildew) is currently the most important problem facing bulb and salad onion production in the UK. At present fungicidal control is the only effective means of controlling the disease and avoiding crop loss. In field test kits (lateral flow devices) have been successfully developed for onion downy mildew. The test is based on the competitive lateral flow device as described in the final report for FV189a (Kennedy & Wakeham, 2006). In this type of lateral flow test the absence of a test line represents a positive result. The competitive lateral flow assay for onion downy mildew conidia proved sensitive in its reaction to relatively low numbers of onion downy mildew conidia in test samples. However tests conducted during 2005 in commercial crops were not successful due to very hot climatic conditions and the lack of disease in the field. New work is required to optimise and validate the onion downy mildew lateral flow device on both salad and bulb onion crops and mass produce the optimised device. This would include the integration of the optimised device with output from forecasting models and with lateral flow reader devices. The use of lateral flow reader devices could make the test semi-quantitative and reduce the reliance on visual assessments of the device. This will improve the accuracy of the test and integrate it into existing risk management systems.

Further information

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

Horticultural Development Company
Tithe Barn
Bradbourne House
East Malling
Kent
ME19 6DZ

Tel: 01732 848 383
Fax: 01732 848 498

The contents of this publication are strictly private to HDC members. No part of this publication may be copied or reproduced in any form or by any means without prior written permission of the Horticultural Development Company.