New Project

HNS/PO 188

Baiting and diagnostic techniques for monitoring *Phytophthora spp*. and *Pythium spp*. in irrigation water on ornamental nurseries

Project Number:	HNS/PO 188
Project Title:	Baiting and diagnostic techniques for monitoring Phytophthora spp. and Pythium spp. in irrigation water on ornamental nurseries
Project Leader:	Dr Erika Wedgwood
Contractor:	ADAS UK Ltd
Industry Representative:	Charles Carr, Lowaters Nursery (Garden Beauty) Russell Woodcock, Bordon Hill
Start Date:	1st April 2012
End Date:	31st March 2014
Project Cost:	£31,796

SUBJECT TO CONTRACT

Project Summary:

Future irrigation water costs and potential shortages are encouraging growers to collect and reuse irrigation water. Whether or not it is treated, growers would benefit from the ability to have an instant check that the water being used on plants was tested free of *Phytophthora* spp. and *Pythium* spp.

Some nursery stock nursery reservoirs were experimentally bait-tested in project HNS 181, and *Phytophthora* and *Pythium* species able to cause root rots were detected using lateral flow devices (LFDs). The current project intends to develop these techniques and provide guidelines to bait deployment to enable “Do it Yourself” testing by growers of their irrigation water. The plant material to be used in baits, bait placement location and depth, immersion period and any seasonal differences in infestation will be determined by laboratory and nursery based experiments.

Aims & Objectives:

(i) Project aim(s):

To produce reliable procedures for growers to carry out on-site testing for *Phytophthora* spp. and *Pythium* spp in irrigation water.

(ii) Project objective(s):

1. To identify plant material baits that have the greatest sensitivity for zoospore detection;

2. To examine the sensitivity of lateral flow devices for detecting *Phytophthora* spp. and *Pythium* spp. to different quantities of infested bait material;

3. To determine the optimum number of bait bags, quantity of bait material and placement positions in reservoirs to maximise detection;

4. To determine whether there are any seasonal/weather related influences on zoospore release to use as guidance to maximise detection;

5. To provide step-by-step instructions for nursery staff on bait use and to provide a demonstration of the techniques at a grower event.

Benefits to industry

- Rapid on-site test available for growers of both ornamental and edible crops to test their own irrigation water, utilising materials available on the nursery to make bait bags together with already commercially available relatively inexpensive diagnostic kits
- Reduced contamination of propagation or standing beds from pathogen infested water
- Reduced losses to *Phytophthora* spp. and *Pythium* spp. root rots
- Potential reduction in fungicide use giving both environmental and economic benefits
- The use of baits for detection will contribute to the Integrated Crop Protection measures that can be utilised to fulfil the requirements of the Sustainable Use Directive.

Disclaimer

Further information

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

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HDC is a division of the Agriculture and Horticulture Development Board.