



Horticultural
Development
Council

New Project

PC 283

New approaches to microbial control of insect pests in protected crops and their interaction with waste-based growing media (LINK)

Project Number: PC 283

Title: New approaches to microbial control of insect pests in protected crops and their interaction with waste-based growing media (LINK)

Start and end dates: 1 April 2008 to 31 March 2011

Project Leader: Dr David Chandler, University of Warwick

Project Co-ordinator: Russell Woodcock, Bordon Hill Nurseries Ltd & Steering Group

Location: W-HRI and grower sites

Background and project objectives

The aim of this proposal is to develop novel microbial control strategies for dipteran insect pests for sustainable production of containerised herb and ornamental crops and to investigate their interaction with growing media (composts) containing recycled green material. Pest problems associated with these materials are a barrier to replacing peat in growing media.

The work will concentrate on the management of sciarid and shore flies, the larvae of which live in or on the compost, and are serious pests and contaminants in a wide range of protected crops including herbs.

With increasing demand for novel growing media containing green waste and other non-peat materials, it is essential to ensure that the interactions between novel approaches to fly control and plants grown in new media are fully understood. We will investigate these to ensure that effective integrated pest management is compatible with quality production using media that help.

The approach will be to understand how populations of pest insects (in this case sciarid and shore flies) are affected by:

- 1) *natural outbreaks of fungal entomopathogens*. A combination of surveys on nurseries and laboratory experiments under controlled conditions will be done to understand the factors that determine the timing and extent of natural outbreaks to provide underpinning knowledge for *conservation* and *inoculation* biological control (see Objectives 1 & 2 below).
- 2) *inundative applications of biocontrol fungi*. Commercial products will be evaluated against pest populations for an *inundation* biological control strategy (see Objective 3).
- 3) *interaction with plant growing media and fungal control agents*. Laboratory experiments will be done to determine the effect of temperature and the composition of the plant growing medium (using peat-based media and green waste peat alternatives) on pest populations including the ovipositional behaviour of adult female flies. Laboratory based research will be done to quantify the compatibility of selected fungal pathogens with chemical and biological control agents used in the integrated growing system (see Objective 4).

In addition, work will be done on the regulation of the biological control strategies investigated in this project as well as knowledge exchange / technology transfer. The use of an inundation augmentation biocontrol product will require registration under the Pesticides Safety Directorate Biopesticides Scheme. The regulatory status of conservation and inoculation strategies needs to be resolved as it may well fall outside the remit of the Biopesticides Scheme. Early dialogue will be established with PSD and other regulators. Dr David Chandler is well placed to lead this: he is currently investigating biopesticide regulation through an interdisciplinary RELU grant which includes joint working with PSD.

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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