Integrated control of grey mould in container-grown ornamentals

Growers need an integrated control programme for *Botrytis* in protected container-grown ornamentals based on a sound understanding of the disease if current substantial plant losses are to be eliminated.

**The challenge**

It is estimated that almost £7m worth of container grown ornamentals are lost each year due to grey mould caused by *Botrytis cinerea*. It affects a broad range of plants causing death, leaving plants unmarketable, or causing them to be downgraded. For several species such as cyclamen, primula, geranium and fuchsia it is probably the principal cause of lost production. For many others it means significant losses.

For many of the ornamental species affected, the precise conditions favouring infection are not fully understood. Leaf wetness and/or high humidity is believed to be a major factor and some improvement in *Botrytis* control has been achieved by lowering night-time humidity by raising the temperature a few degrees and opening the vents.

If this technique is to be applied economically and efficiently, a better understanding is needed of the response of *Botrytis* infection to cycles of temperature and humidity so that optimum periods of ‘heat lift’ can be integrated with plant production schedules.

In addition, a number of new fungicides need to be assessed for their value as part of integrated programmes of *Botrytis* control.

**Research objective**

The aim is to develop an integrated disease management system targeted at key stages in the development of *Botrytis* in protected container-grown ornamental crops using cyclamen, primula and calluna as model crops.

**Research methods**

- Experimental and commercial crops of cyclamen and primula are being studied to see which stages of growth and which parts of plant canopies are most at risk to infection.
- Experimental chambers are being used to identify the temperature and humidity conditions favouring disease establishment and the combinations of temperature lift and humidity drop that will give optimum disease control.
- Sensors will be used to investigate the significance of high humidity periods and leaf surface wetness in *Botrytis* infection. The feasibility of using these sensors in a system controlling the

*The lack of an effective control strategy means many growers suffer unacceptable losses due to *Botrytis*.*

Stuart Coutts
Ornamentals consultant

![Image of plants and fungi](image-url)
The efficacy of several new fungicides is being assessed. These components of the programme will be brought together in an integrated strategy for disease control which will be tested experimentally and evaluated on commercial nurseries.

**Expected achievements**

An integrated chemical, cultural and environmental programme for Botrytis control in cyclamen, primula and calluna crops based on:
- Using new fungicides.
- Minimising chemical use.
- Managing high humidity periods and surface wetness with sensors linked to glasshouse controls.
- Using cultural methods shown to be beneficial, such as irrigation techniques and debris removal.

**Benefits to the industry**

Assuming an integrated control programme could reduce by 50% losses due to plants being killed or downgraded by Botrytis, the potential savings for the industry are around £3.5m a year, less the costs of implementing the control.

**What is HortLink?**

LINK is the UK Government’s principal mechanism for supporting collaborative research partnership between UK industry and the research base. The HortLink programme was launched in 1996 and has recently been extended. The aims of the extended programme are:
- To improve the sustainability of the horticultural industry.
- To improve knowledge and understanding of processes and factors which determine the performance of the horticultural industry.
- To enable access by the horticultural industry to innovative ideas and technology by involving a wide range of research institutes and university departments.
- To promote wider awareness of the benefits of advanced horticultural techniques/methods, especially to SMEs.

Further information from the programme co-ordinator:
Dr Clive Wall, MAFF, 7th Floor, 1A Page Street, London SW1P 4PQ. Tel: 020 7904 6249. Fax: 020 7904 6801. E-mail: Clive.Wall@maff.gsi.gov.uk

**Project details**

Integrated control of grey mould (Botrytis cinerea) in container-grown ornamentals

**Reference number**

HORT 25

**Project co-ordinator**

Dr Tim O’Neill, ADAS

**For further information**

contact
Dr Tim O’Neill
ADAS Arthur Rickwood
Mepal
Ely
Cambs CB6 2BA
Tel: 01354 692531
Fax: 01354 695175
E-mail: Tim.O’Neill@adas.co.uk

**Participants**

- ADAS Consulting Ltd
- Campbell Scientific Ltd
- S Coutts
- Horticultural Development Council (PC/HNS 121)
- Horticulture Research International
- Scottish Agricultural College
- Silsoe Research Institute
- University of Reading

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