



Agriculture & Horticulture  
DEVELOPMENT BOARD



# New Project

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## SF 122

Strawberry and raspberry: using soil nematode threshold levels to reduce direct feeding damage on roots and interactions with verticillium wilt

**Project Number:** SF 122

**Title:** Strawberry and raspberry: using soil nematode threshold levels to reduce direct feeding damage on roots and interactions with verticillium wilt

**Start and end dates:** 1st April 2011 to 31st March 2013

**Project Leader:** Tim O'Neill, ADAS

**Industry Representative:** Laurie Adams (Soft Fruit Panel)

**Location:** Main site: ADAS High Mowthorpe, Malton, Duggleby, North Yorkshire YO17 8BP

Additional sites: ADAS Boxworth, Cambridge CB23 4NN;  
Fera, Sand Hutton, York, YO41 1LZ

**HDC Cost:** £69,700.00

*SUBJECT TO CONTRACT*

### **Project Summary:**

Nematodes cause crop losses by feeding on roots and possibly by increasing susceptibility to verticillium wilt. Root lesion nematodes (*Pratylenchus* spp.) in particular have been linked with severe damage to strawberries. Guidelines are required on nematode levels likely to be damaging and if this threshold should be modified to take account of verticillium wilt. Current information on thresholds is anecdotal.

Expertise in extraction and identification of nematodes is limited. However, recent advances in DNA bar-coding techniques offer the potential to identify nematode species accurately and quickly without the need for taxonomic expertise. Moreover, a quantitative molecular test recently developed for quantification of *Verticillium dahliae* in soil could be developed to offer near-simultaneous determination of nematodes.

This project aims to identify nematodes associated with soft fruit and determine a damage threshold for the single most dominant species. Interaction of *V. dahliae* and nematodes in causing damage to the strawberry will be examined. The potential for a quantitative molecular test to determine levels of nematode infestation in soil will also be studied.

### **Aims & Objectives:**

#### **(i) Project aim(s):**

This proposal aims to reduce losses in strawberry and raspberry caused by root nematodes through determination of threshold levels that cause direct damage and

an increased understanding of their interaction with *Verticillium dahliae* to cause verticillium wilt in strawberry.

**(ii) Project objective(s):**

1. To determine the nematode species most commonly found associated with soil-grown strawberry and raspberry crops in the UK.
2. To confirm the soil threshold level for direct root damage to strawberry by the predominant *Pratylenchus* species as identified in objective 1.
3. To determine whether nematode species present in a soil sample can be identified by testing the mass DNA extracted from soil samples for *V. dahliae* molecular quantification.
4. To determine the soil threshold level for the predominant nematode species which increases the risk of strawberry verticillium wilt caused by *V. dahliae*.

## **Further information**

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

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