



Horticultural  
Development  
Company

# New Project

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## **SF 114**

Development of temperature degree-based models to predict pest development on strawberry for optimisation of control strategies

**Project Number:** SF 114

**Title:** Development of temperature degree-based models to predict pest development on strawberry for optimisation of control strategies

**Start and end dates:** Start: 01/04/10  
End: 31/03/13

**Project Leader:** Xiangming Xu and Jean Fitzgerald, EMR

**Project Co-ordinator:** Harriet Duncalfe, Maltmas Farm, Wisbech, Cambs

**Location:** EMR, East Malling, Kent

**Background and project objectives:** Strawberries are very susceptible to many pests and diseases, most of which cannot currently be effectively controlled by non-pesticidal means. These include Botrytis, mildew, blackspot, European tarnished plant bug, strawberry blossom weevil, western flower thrips, aphids and tarsonemid mites. Correct timing/targeting of control strategies based on interpretation of pest monitoring or pest thresholds depend on our understanding of pest development in relation to climatic conditions. Some developmental stages of pests may be more susceptible to insecticides than others; information on when the most susceptible stages are present would enable more effective pesticide targeting. For pests in general (unlike diseases), the developmental rate is mostly related to temperature and mathematical models can be used to describe such temperature-developmental-rate relationships, which will be different for different insect and mite species. The potential loss of pesticides due to legislation may further place burdens on growers to improve the efficacy of the remaining products by more accurate timing.

In a current Horticulture-LINK project on the development of a holistic Integrated Pest and Disease Management system for production of strawberries simple forecasting models for Botrytis and powdery mildew are being developed and implemented.

The proposed new work aims to develop temperature-based models to predict development of several key pests - European tarnished plant bug (capsid), strawberry blossom weevil and tarsonemid mite - on strawberry and to conduct trials to validate models for one of these pests. The model will incorporate a general purpose tool for calculating day-degrees. Experiments, both in the field and in controlled conditions, will generate further sets of data on capsid development to validate and, if necessary, modify the model. Finally, the predictive system will be promoted to the industry by various means, including training workshops.

Further information

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

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