



Horticultural
Development
Company

New Project

SF 118

Irrigation scheduling of
substrate-grown raspberry as a
tool for improving cane
management

Project Number: SF 118

Title: Irrigation scheduling of substrate-grown raspberry as a tool for improving cane management

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

Project Leader: Olga Grant, EMR

Project Co-ordinator: John Clark, Maidstone, Kent

Location: East Malling Research or Tim Chambers, Belks Farm, Sutton Valence, Kent

Background and project objectives: In raspberry, excessive vegetative growth substantially increases labour required for tying and cutting canes and fruit picking. Some raspberry varieties (particularly new primocane varieties) are excessively vigorous. Excessive foliage increases relative humidity around the fruit which increases risk of disease and reduces berry firmness

Optimising water availability by improved irrigation scheduling has been shown to reduce vegetative vigour and improve fruit quality i.e. flavour, shelf-life, and soluble solids content in strawberry and other fruit crops, as well as saving water. Potential evapotranspiration can be calculated from meteorological data. For many crops, crop coefficients are used with potential evapotranspiration to calculate actual evapotranspiration i.e. the amount of water being used by that specific crop. The development of the Evaposensor at EMR has meant that the relevant meteorological data are acquired simply and cheaply without a weather station. The Evaposensor plus meter costs about £500 and is a one-off cost. The one sensor can be used to schedule irrigation of different crops on the same farm. Thus the limited number of sensors required is a huge advantage over e.g. soil moisture sensors. Connecting the Evaposensor via an interface to an irrigation timer allows automatic daily adjustment of the quantity or frequency of irrigation applied. Crop coefficients are not known for raspberry. EMR has found that relating canopy density and plant height to water use has been very successful for establishing coefficients for a very diverse range of ornamental crops. A similar approach could be used to calculate crop coefficients for different raspberry varieties. This would mean that scheduling regimes can be easily adjusted for all varieties.

The aim of the proposed work is to improve cane management of substrate-grown raspberry through optimised irrigation scheduling. Using low cost sensors, the work will define irrigation requirements that will optimise irrigation scheduling to reduce vegetative vigour whilst maintaining harvest yield and fruit quality. This will be achieved by developing wide ranging crop (irrigation) coefficients for florican and primocane varieties as a function of the maturity of the crop (vegetative and fruit phases) in substrate production. The results also will form the basis for improved guidelines for soil production. This project will deliver labour savings to growers, improve water use efficiency, reduce diffuse pollution and help growers comply with current and future legislation.

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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