



Agriculture & Horticulture
DEVELOPMENT BOARD



New Project

TF 204

Improving codling moth spray timing
on apple and pear

Project Number:	TF 204
Project Title:	Improving codling moth spray timing on apple and pear.
Project Leader:	Professor Jerry Cross
Contractor:	East Malling Research
Industry Representative:	Mark Holden Adrian Scripps Ltd
Start Date:	1 st April 2012
End Date:	31 st March 2015
Project Cost:	£56,570.00

SUBJECT TO CONTRACT

Project Summary:

Three large dessert apple orchards on different farms in southern England will each be divided into three plots, each plot receiving sprays for codling moth using one of the three different timing methods (see 3 above) for 3 successive years (2012-2014).

Method 1: Pheromone trap

Method 2: Rimpro-Cydia + pheromone trap

Method 3. Rimpro-Cydia + previous years damage assessment

The same insecticides will be used (e.g. Coragen, Steward) but it is anticipated that the different methods of spray timing will result in different timings and numbers of sprays being applied. The orchards chosen will have a history of high codling moth pheromone catches and will each have a local high quality calibrated weather station nearby. Adult codling moth populations in each plot will be monitored with a sex pheromone and a pear ester kairomone

+ sex pheromone combi trap. Larval attack to fruits will be assessed in July (1st generation) and at harvest. Overwintering larval populations will be assessed by use of corrugated tree bands. Each year, the forecasts generated and the comparative success of the different methods will be judged in terms of the standard of control achieved, the numbers of larvae overwintering and the numbers and costs of insecticides used.

Note: This proposed work programme was devised at a special meeting that took place between Jerry Cross, Paul Bennett, Leon Jahe and Herman Helsen (Entomologist), Mark Trapman (advisor, RIMpro-Cydia model developer) and Matty Polfliet (Advisor) at Wageningen, NL on 29 October 2011.

Aims & Objectives:

(i) Project aim(s):

The aim of this work is to determine better practical methods for timing sprays of insecticides for control of codling moth on apple and pear in the UK so reducing overwintering populations and achieving better long term control.

(ii) Project objective(s):

To determine which of the following methods is best for timing insecticide sprays to get the most cost effective control of codling moth, including in the long term:

Method 1: Standard method of monitoring male moth flight using pheromone traps and spraying after a threshold of > 5 moths for 2 weeks is exceeded

Method 2: Use of the RIMpro-Cydia forecasting model in conjunction with pheromone trap records. Sprays only applied if both model indicates egg laying risk and pheromone trap threshold exceeded.

Method 3: Use of the RIMpro-Cydia forecasting model in conjunction with an assessment of codling moth damage the previous year to indicate general codling moth risk in the particular orchard

Benefits to industry

- Codling moth is the most important pest of apples and also an important pest of pears in the UK. Most insecticide sprays on apple are used against it. Codling moth control programmes typically cost growers >£200/ha/season
- Control is usually good, but populations are not being reduced to such low levels that spraying is reduced in subsequent years: growers are on an insecticide treadmill
- UK growers generally rely on pheromone traps to decide if and when to spray for codling moth but previous work in project TF189 suggested that they are of limited benefit and growers may not be making best use of their time and effort in using them
- Experience in NL indicates that as good or better control of codling moth can be obtained using development and population simulations given by the RIMpro-Cydia model using data from local met stations. The model, which is available to all growers, takes into account when conditions suitable for egg laying occur (dusk temperatures > 15 °C) as well as maturity and longevity of females rather than activity of males as indicated by sex pheromone trap catches
- This work will determine which of the three alternative decision-making methods is best leading to improvements in control and/or savings in monitoring costs and management time

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