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SOFT FRUIT

AN **HDC** News **SUPPLEMENT**

review 2012-2013

AHDB Agriculture & Horticulture DEVELOPMENT BOARD

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HDC

due to low temperatures but later introductions, in late March and April, did establish and reduced numbers of thrips adults and larvae until June, compared to where no introductions had been made. After June, fruit damage began to increase although there remained more in plots where no *N. cucumeris* had been released.

In experiments with pesticides and biopesticides, numbers of WFT and of damaged flowers were reduced by two novel insecticides and spinosad, but the biopesticides did not have a significant effect. The work will continue to try to find out how biopesticide performance could be improved.

Further results will be made available in 2013.

● *The full Grower Summary for project SF 120 can be found on HDC's website www.hdc.org.uk*

"The strawberry industry in particular has suffered millions of pounds worth of damage from the European tarnished plant bug since it first started to appear in the UK in the early 1990s. The development of a trap to detect exactly when it appears in the crop is a huge advance for us all. This project has been an excellent example of how HDC levy can be used successfully to develop a practical solution to major pests"

Tom Maynard, Windmill Hill Farm

IPDM addresses residue risks in strawberries

New technology allowing analytical laboratories to detect the presence of pesticide residues at ever lower levels has increased pressure on the strawberry industry to find better ways of controlling the major pests and diseases while avoiding the use of chemical pesticides close to harvest.

ADAS

Bumblebees carry biofungicides into flowers to control botrytis infection

The project

This Defra Horticulture LINK project was commissioned to develop new approaches to crop protection in strawberry production. Led by East Malling Research in conjunction with ADAS, Fera and the Natural Resources Institute, it is exploring pesticide-free methods for managing powdery mildew, botrytis, black spot, capsids, aphids and strawberry blossom weevil.

Results so far

A range of novel control techniques for each of the six pests and diseases was developed during the first two years of the project. These were then integrated into a pest and disease management (IPDM) programme which is being tested on Elsanta under protection at two commercial sites in Surrey and Kent and compared with the programme usually used at each farm.

Botrytis control in the IPDM tunnels relied on East Malling Research's Botem computer based forecasting system in conjunction with applications of the biofungicide Serenade ASO (*Bacillus subtilis*) before using the services of bumblebees to disperse the biofungicide Prestop Mix (*Gliocladium catenulatum*). The Prestop Mix powder is carried to the strawberry flowers on the bodies of the bees.

At both sites, the incidence of botrytis under the IPDM programme was similar to that under the grower's standard programme, but because no coventional pesticides had been applied in the IPDM tunnels, residues were eliminated.

Powdery mildew control in the IPDM programme was based on a forecasting model which takes into account the in-crop temperature, humidity and disease levels. On both sites, significantly fewer sprays were applied using this approach and although there was slightly more mildew in the IPDM tunnels, it never reached damaging levels.

Strawberry blossom weevil traps showed only low numbers of weevils at both sites and the decision was taken not to apply an insecticide in the IPDM tunnels.

On both sites, aphid numbers were brought under control in the IPDM tunnels through the repeated use of a mix of six aphid parasitoids, which was effective enough to avoid the need for a conventional insecticide as backup.

Both sites introduced *Phytoseiulus persimilis* predators to control two-spotted spider mite in the IPDM tunnels which were compared to the use of acaricides in the grower's standard programme. Spider mite numbers did not reach damaging thresholds on either site.

On one site, thrips populations increased to similar levels in both the IPDM tunnels and where the grower's standard programme was followed. *Neoseiulus cucumeris* was introduced to gain control in the IPDM area.

European tarnished plant bug was caught in high numbers in pheromone traps on one site in August. Nymphs of the bug were found in higher numbers in a trap crop of alyssum, in the IPDM tunnels. There was no difference in damage levels caused by this pest between either approach.

On both sites, there were no overall differences in levels of pest or disease damage, fruit quality or yields between crops grown under IPDM or the grower's standard practice. The comparisons will be repeated for another year, before final recommendations are made.

● *The full Grower Summary for project SF 94 can be found on HDC's website www.hdc.org.uk*

"The early research work from this project has now been put into practice on two commercial sites and the progress being made is very encouraging. I look forward to reading about the positive recommendations which result from this project"

Harriet Duncalfe, H&H Duncalfe

PROJECT PROFILE

SF 94 Minimising pesticide residues in strawberry through integrated pest, disease and environmental crop management (Defra Horticulture LINK HL0191)

Term: April 2008 to March 2013

Project leader: Jerry Cross, EMR (pictured)

Industry representative: Harriet Duncalfe, H&H Duncalfe

Location: various sites