Project title:	Improving integrated pest and disease management in tree fruit
Project number:	TF223
Project leader:	Dr Robert Saville East Malling Research
Report:	Annual report, March 2017 (Year 2)
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Industry Representative:	The programme management group (PMG) Nigel Kitney, Jeremy Linsell, Nigel Jenner and Tom Hulme
Date project commenced:	01/04/2015
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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

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GROWER SUMMARY

Objective 1 - Surveillance

Headline

- Work continues to survey current and invasive pests and diseases of relevance in the UK.

Background and expected deliverables

Project TF 223 is a five year project which was commissioned to tackle a number of current pests and diseases affecting tree fruit crops. Objective 1 deals with the surveillance of existing and potential new invasive pests and diseases.

Summary of the project and main conclusions

Scab virulence

As part of a large pan-European project, orchards containing the same indicator cultivars have been planted in 25 European countries. The purpose of this study is to increase our understanding of scab populations, monitoring when and where the resistance is being broken and helping to inform the deployment of resistance genes in future cultivar releases.

Scab incidence is recorded each season and the data from each orchard is compiled by the project coordinator based in Switzerland. Analysed data will be made available as part of the wider project.

One result of note in the 2016 growing season at the indicator orchard planted at NIAB EMR was that the severity of the disease epidemic on the *Vf* (scab resistance gene) containing cultivars was much greater than assessments in previous years and comparable to the disease incidence on Gala. This result suggests that the local scab population has broken the resistance conferred by *Vf*.

Apple rot survey

This task is a continuation of the apple rot survey which has been undertaken over the last century. The survey involves visiting pack houses during the months of January – March to determine the type and incidence of rot causing pathogens. A total of 60 samples were

assessed over 25 visits this storage season. The overall average loss was 2.6% which is similar to recent, past surveys.

Nectria rot was the main rot identified in the 2015/16 survey with incidence being particularly high in canker susceptible cultivars where inoculum is prevalent; Gala (67% of total rots), Cameo (57%), Jazz (49%) and Braeburn (44%).

Brown rot (*Monililnia*) is the next most prevalent rot causing an overall average of 13% of total rots followed by **Gloeosporium** (9%), **Botrytis** (8%), **Phytophthora** (6%) and **Penicillium** (6%). Notably, Gleosporium was present in 58% of the samples which is a higher occurrence than in recent years (2012 - found in 47% of samples, 2013 - 18%, 2014 - 29%). A particularly high incidence was observed in Cox (28% of total rots) and Daliclass (35%). The higher incidence compared to recent years may have resulted from conditions conducive to the multiplication of the causative fungal species. These conditions include the autumn of the previous season (high rainfall), the winter which preceded the season (mild) and the long, drawn out spring all of which may have promoted canker development resulting in high levels of inoculum in the orchard approaching harvest.

Invasives

Xylella fastidiosa still remains a major threat for the UK horticultural industries. With such a large host range including horticultural crops such as Prunus, Vaccinium and Vitis along with a number of wild woodland species such as Quercus and Ulmus, the arrival of this pathogen in the UK would have a detrimental effect on the horticultural sector. At the time of writing there had been no reports of the disease in the UK but there is a heightened risk of it being accidentally introduced following discovery in Italy in 2013 and Corsica and mainland France in 2015. The Plant Health and Seeds Inspectorate (PHSI) are currently conducting surveys and inspections on host material coming into the UK. The main action for growers is to keep plant passports up to date and ensure plant material is not brought in from demarkated areas. More information on this disease can be found at: (https://planthealthportal.defra.gov.uk/assets/factsheets/xylellaFastidiosa2015.pdf)

Xanthomonas arboricolae, pv. pruni is a notifiable bacterial disease which causes shot holing symptoms on leaves. Plum and sweet cherry are both hosts. To date, it has only been reported on *Prunus laurocerasus* (cherry laurel) in the UK. More information can be found on the DEFRA factsheet found at https://planthealthportal.defra.gov.uk/assets/factsheets/x-arboricola-pv-pruni-factsheet.pdf

Drosophila suzukii numbers continued to increase for the fourth year since its discovery in the UK in 2012. Numbers were 30% higher in woodlands in winter 2015-16 compared to the same period in the previous year. Fruit damage was reported in all monitored fruit growing regions, with the exception of Scotland.

Summer fruit tortrix was detected for the first time in the West Midlands during the 2015 growing season and it is recommended that growers now monitor for this pest in the region using pheromone traps alongside codling moth and fruit tree tortrix monitoring traps.

Brown marmorated stink bug traps are in place at NIAB EMR and a terminal in Essex, but none were captured in 2015 or 2016.

A currently unidentified weevil has become an increasing problem in pear orchards. The weevil lays eggs in the flower bud in spring before it has opened. This project is investigating this further in Objective 10.

The RHS has reported sightings of Pear Shoot sawfly, *Janus compressus*. This 'occasional' pest of pear in Europe was identified in the UK in non-commercial pears and affects the shoots, causing symptoms similar to fire blight – hook shaped tips caused when the larvae feed inside the shoots.

Financial benefits

- No financial benefits are delivered from surveillance type work.

Action points for growers

- Growers and agronomists should be vigilant for signs or symptoms of new or invasive pests and diseases and report any to Defra's Plant Health Department.