Horticultural Development Company

Grower summary

TF 183

Apples and Pears: The use of Biological Control, Plant Health Promoters and copper to Effect Control of Fireblight (Erwinia amylovora)

Annual Report 2009

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The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

Use of pesticides

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

Further information

If you would like a copy of the full report, please email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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Headline

- Due to the low incidence of fireblight throughout the trials it was not possible to draw any definite conclusions relating to the effectiveness of the treatments of Pre-tect, Regalis + Cuprokylt FL, Sentry P and Sentry S (Serenade equivalent) for fireblight control.

Background and expected deliverables

Fireblight, caused by the bacterium *Erwinia amylovora*, is a widespread destructive bacterial disease of pome fruit trees and other related plants and is seen with increasing frequency. Typical symptoms include wilting and death of flower clusters and withering and death of young shoots causing a loss of fruiting wood and potentially tree death. Control in the UK is limited to cutting out diseased material and copper sprays which can lead to russeting of the fruit surface. In fact Defra states that "There are no effective chemical measures available in the UK to control Fireblight" (PB 10843). In the USA antibiotics are used but they are not allowed in the UK currently.

A suitable method of control would benefit the industry in two ways:

1. Reduce labour costs by eliminating the need for cutting out infected shoots;
2. Increase cropping potential as potential fruit bearing wood would not be removed.

Summary of the project and main conclusions

The introduction of certain biological control agents and plant health promoters offers the opportunity for potential fireblight control. This project will determine the effectiveness of the products Pre-tect (active ingredient harpin), Regalis + copper, Sentry P (active ingredient *Bacillus pumilis*) and Sentry S (active ingredient *Bacillus subtilis*) against fireblight.

Egremont Russet apple and Concorde pear are known to be particularly susceptible to the disease and were therefore chosen for the first year of this project.

Treatments of Pre-tect (1kg in 500L/ha), Regalis (0.5kg in 500L/ha) + copper (Cuprokylt FL 2.5L in 500L/ha), Sentry P (15L in 1000L/ha), Sentry S (Serenade equivalent) (10L in

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1000L/ha) and a control were applied as a randomised block experiment with five blocks of five trees per treatment. Bacillus and harpin treatment applications began prior to bud burst and consisted of fifteen weekly applications. Copper was applied pre bud-burst and Regalis was applied mid-April and mid-May prior to two predicted infection periods.

Assessments of Fireblight were made monthly throughout the growing season from March to August. Both orchards were on a sandy loam soil with individually staked trees laid out as single row beds. All branches showing symptoms of fireblight prior to the beginning of the treatments and at the end of the assessment period were pruned out.

Levels of fireblight were too low in this first year of the trial for the Concorde treatment plots to determine if any of the treatments were effective. In the case of Egremont Russet as there was no incidence of fireblight recorded in or near to the plots, the decision was made to use a nearby Gala orchard for the second year of the trial as it had a high incidence of fireblight throughout during 2008.

Due to the low incidence of fireblight throughout the experiment it was not possible to draw any definite conclusions relating to the effectiveness of the treatments.

Action points for growers

- Inspect vulnerable orchards routinely for fireblight symptoms during winter pruning, soon after bud break, during mid June, from late July to early August and soon after leaf fall. Inspect young trees more frequently.
- Make additional inspections after frost, following storms and when fireblight warnings are issued.
- Slice off bark to determine the extent of infection and then cut out diseased wood at least 30cms below the stained tissue on smaller wood (< 2cm diameter) and at least 50 cm below on larger wood.
- Disinfect tools between cuts and burn diseased wood.

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