Grower Summary

SF 125

Evaluation of foliar sprays of acaricides for control of tarsonemid mite in strawberry 2012

Final 2013

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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.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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Project Number:	SF 125
Project Title:	Evaluation of foliar sprays of acaricides for control of tarsonemid mite in strawberry 2012
Project Leader:	Professor Jerry Cross
Contractor:	East Malling Research
Industry Representative:	Mr Seth Walpole
Report:	Final Report 2013
Publication Date:	15 May 2013
Previous report/(s):	Annual Report 2012
Start Date:	01 April 2011
End Date:	31 March 2013
Project Cost:	£29,230

Headline

- Trials demonstrated that good coverage sprays of Dynamec, Masai or a new novel product plus Silwet can reduce infestations of tarsonemid mite in strawberry.

Background and expected deliverables

The strawberry tarsonemid mite, *Phytonemus (Tarsonemus) pallidus* ssp. *fragariae*, sometimes called the strawberry mite, is a serious pest of strawberry. It feeds mainly on the upper surfaces of the young folded leaves of strawberry, making their surfaces rough and crinkled as they expand. Sometimes the leaves turn brown and die and the whole plant usually becomes stunted. Mites also feed in the flowers and fruits, seriously affecting yield and quality which can halt berry production..

There has been a significant and threatening increase in the frequency and severity of attacks in UK strawberry production in the last few years and the problem was particularly bad in 2010 and 2011, though the problem abated in 2012.

Controlling strawberry tarsonemid mite can be particularly difficult as most acaricides are contact acting with no, or at best limited, translaminar activity. The mites are readily controlled when directly intercepted by an acaricide, but penetration into the young folded leaves where the tarsonemid mites live and breed is limited; spray penetration being the chief factor limiting efficacy. Furthermore, strawberry leaves are waxy and covered in hairs, and many products are not specifically formulated for the crop and have insufficient wetting properties. Work by EMR in HDC project SF 79 clearly demonstrated substantive improvements in the efficacy of abamectin (Dynamec) when admixed with a silicone wetter.

There is a clear need to identify new, more effective spray treatments for tarsonemid mite. Ideally, these need to be compatible with biocontrol agents as well as being safe to plants, the environment and humans.

The overall objective of this trial was to identify new effective acaricide treatments for control of strawberry tarsonemid mite in propagation and/or fruiting crops.

Summary of the project and main conclusions

In the first year of the project (2011), tarsonemid mite populations on the strawberry plants failed to build up to more than a few per leaflet, despite repeated attempts at artificial

infestation. As a result few results and conclusions could be drawn on the efficacy of the control measures applied.

The experiment was repeated in 2012 with a different strawberry variety. Repeated introductions of tarsonemid mite infested strawberry leaves were made by placing them in between the leaflets of young trifoliate leaves. We evaluated seven day programmes of up to three sprays (not exceeding the maximum number of applications permissible) of Envidor, Masai, Sequel, Borneo, SAF-T-SIDE, Naturalis L, and 5 HDC coded products at their full recommended rates. Envidor, Masai, Sequel, Borneo, SAF-T-SIDE and 4 of the coded products were used in admixture with the silicone wetter Silwet L77. Single and three spray treatments of Dynamec+Silwet L77, and a three spray treatment with Silwet L77 were included as standards. Assessments included counts of tarsonemid motiles and eggs. Plants were assessed for any phototoxicity effects.

Four of the product combinations tested significantly reduced populations of tarsonemid mites (motiles and eggs) compared to the untreated controls. These were a single spray of Dynamec+Silwet L-77, three sprays of Dynamec+Silwet L-77, a single spray of Masai+Silwet L-77 and three sprays of the novel compound HDCB 004+Silwet L-77. The results show that Dynamec, the positive control, is still the most effective of the commercially available products and there was no significant difference between a single or three spray applications. A single application of Sequel+Silwet L-77, while not statistically significant, did reduce the numbers of eggs and the numbers of motile mites. This may be of some use, in conjunction with other modes of action, for resistance management programmes. HDCB 004 offered the most promise for future control of tarsonemid mite and is the highest priority for further investigation.

Financial benefits

Strawberry tarsonemid mite can cause devastating crop losses in highly valuable protected strawberry crops, with losses exceeding £10,000 per ha per annum in some instances. New effective chemical treatments for control typically cost <£100 per ha per application, so the cost benefit ratio of any new acaricide treatment is likely to be very high and will benefit UK strawberry propagators and fruit producers.

Action points for growers

- Sprays of Dynamec+Silwet L77 still offer the best available curative treatment for strawberry plants infested with tarsonemid mites, although three sprays seven days apart offered no benefit compared to one spray in this work.

- The use of Sequel+Silwet L77 is recommended as part of a resistance management spray programme.
- The key to effective control with these products is good spray coverage with high water volumes.
- Growers should always aim to prevent the build-up of tarsonemid mites by using commercially available predatory mites introduced early in the season.
- Monitoring should include looking for both mites and eggs, not just damaged leaves, which may have resulted from old damage.