Grower Summary

SF/TF 170

New approaches to aphid control in strawberries combining botanicals and natural enemies.

Annual report 2021

Project title:	**New approaches to aphid control in strawberries combining botanicals and natural enemies.**
Project number:	CRP_RES_0148
Project leader:	Dr Tom Pope, Harper Adams University
Report:	Annual report, December 2021
Previous report:	Annual report, October, 2020
Key staff:	Ross George
Location of project:	Harper Adams University
Industry Representative:	Harriet Duncalfe
Date project commenced:	23rd September, 2019

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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

Headline

Initial laboratory bioassays indicate that physically-acting pesticide products demonstrate high efficacy against three aphid pests of strawberry (the potato aphid, the strawberry aphid and the cotton-and-melon aphid).

Background

Control of strawberry-feeding aphid pests has historically relied upon conventional synthetic insecticides. Several of these insecticides, however, have recently been withdrawn from use amid concerns about their impact on human and environmental health whilst insect resistance to the remaining insecticides is becoming increasingly widespread. Additionally, pressure from consumers and retailers to reduce the use of synthetic pesticides is leading growers to consider alternative control options.

Summary

Bioassays were completed to determine the effect of a conventional synthetic insecticide (Batavia) and three physically acting insecticides (AHDB9811, AHDB9810 and FLiPPER) on the mortality and reproduction of three aphid pests of strawberry, *Macrosiphum euphorbiae* (potato aphid), *Chaetosiphon fragaefolii* (strawberry aphid) and *Aphis gossypii* (melon-and-cotton aphid). Each bioassay utilised leaflets taken from strawberry plants, *Fragaria* × *ananassa*, which had been infested with one of the target aphid species. Each infested leaflet was directly sprayed to 'run-off' with one of the products being tested. Control leaflets were sprayed with water to 'run-off' (water control) or were not sprayed at all (unsprayed control).

Bioassays demonstrated an increase in mean aphid mortality following the application of each of the four insecticide products tested compared to controls. This research demonstrates that under laboratory conditions these insecticides show comparable efficacy against strawberry aphid pests. However further work, including field trials and bioassays using natural enemies, is required to fully understand how effective these products may be within an integrated pest management system.

Financial Benefits

According to figures from DEFRA (2021), in 2020 the UK strawberry industry was worth £429.1 million domestically, with exports amounting to a further £10 million. Improved control of strawberry pests, including aphids, provided by a wider range of control products will lead to a reduction in crop damage.

Action Points

There are no grower action points at this stage.