



# **Grower Summary**

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## **SF 147**

Development of a sex  
pheromone monitoring trap for  
gooseberry sawfly

Annual 2015

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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 this report, please email the HDC office ([hdc@hdc.ahdb.org.uk](mailto:hdc@hdc.ahdb.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

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HDC is a division of the Agriculture and Horticulture Development Board.

**Project Number:** SF 147

**Project Title:** Development of a sex pheromone monitoring trap for gooseberry sawfly

**Project Leader:** Dr Michelle Fountain, East Malling Research

**Contractor:** East Malling Research

**Industry Representative:** Richard Stanley, Stanley & Pickford

**Report:** Annual Report 2015

**Publication Date:** 14 May 2015

**Previous report/(s):** None

**Start Date:** 01 April 2014

**End Date:** 31 March 2017

**Project Cost:** £28,080

## **GROWER SUMMARY**

### **Headline**

- A potential component of the female sex pheromone of the gooseberry sawfly has been identified and will be tested during 2015.

### **Background and expected deliverables**

The common gooseberry sawfly, *Nematus ribesii*, is a sporadic, localised and unpredictable pest of gooseberry with lesser attacks on red and whitecurrant. The feeding larvae are able to defoliate whole gooseberry bushes if not detected in a timely manner. The monitoring of the pest relies on the detection of the eggs on the underside of leaves in the centre of the bushes. Damage begins in the centre of the crop low down and radiates outwards as the larvae devour the leafy areas of the bush. Crop scouting in plantations for eggs and larvae is not always the most reliable method as an adequate search is time-consuming. This project aims to identify the gooseberry sex pheromone which would lead to the development of a sex pheromone monitoring trap: a more sensitive and rapid monitoring method. The production of a sex pheromone attractive to males by virgin female gooseberry sawfly was reported by other workers but never identified. In other work by NRI and EMR, potential components of the female sex pheromone of the closely-related blackcurrant sawfly, *N. olfaciens*, have already been identified and synthesised.

### **Summary of the project and main conclusions**

In the first year of the project (2014), larvae of common gooseberry sawfly, *N. ribesii*, were collected and reared through to adults in the laboratory. Volatiles were collected from unmated males and females and analysed by gas chromatography (GC) with flame ionisation detection (FID) or linked to a mass spectrometer (MS). Collections from both males and females contained large amounts of long-chain hydrocarbons, probably derived from the cuticle, but the pattern of these was identical in male and female gooseberry sawfly and very similar to those in collections from male and female blackcurrant sawfly. There were no obvious differences in the composition of volatiles from female or male gooseberry sawfly that might be attributable to potential components of a female sex pheromone. However, after fractionation of the collections to remove the hydrocarbons and analysis by GC-MS with selective ion monitoring to maximise sensitivity, traces of a mono-unsaturated,

16-carbon isopropyl ester, similar to one of the compounds proposed to be a component of the pheromone of the blackcurrant sawfly, could be detected.

Future work will include further collections, analysis by GC with electroantennographic (EAG) detection, identification and synthesis and field testing in growers' fields to confirm this result.

## **Financial benefits**

Gooseberry sawfly is a devastating pest of gooseberry which is difficult to predict and may lead to unnecessary plant protection products being applied for control. A trap and lure designed to accurately time and target sprays would decrease or even eliminate the use of unnecessary pesticide applications. Targeting products better, usually chlorpyrifos, thiacloprid, lambda-cyhalothrin or pyrethrins, would protect crops from defoliation and the related fruit losses.

'Invicta' and 'Careless' are the two principal varieties grown and it is estimated that there are at least 600 pick-your-own and farm shop growers (39% and 50% of fruit respectively), and 116 commercial growers registered with the HDC growing gooseberries in the UK. At least three growers supply to supermarkets and 11% of fruit is grown for processing. 238 hectares of gooseberries are grown in the United Kingdom. In 2013, the price for gooseberry was ~£3.79/kg, and approximately 4,000 kg of fruit are produced per ha making the UK gooseberry industry worth over £3.5 million revenue per annum (238 ha x 4000 kg x £3.79).

## **Action points for growers**

Growers should:

- Look for adults flying in April and May and target with approved insecticides to prevent egg laying.
- Check for eggs on the underside of leaves in the centre of the bush.
- Check for larval damage low down in the centre of the bush.
- Contact [michelle.fountain@emr.ac.uk](mailto:michelle.fountain@emr.ac.uk) if they would like to trial the test trap and lure.
- Please send live gooseberry sawfly larvae, with leaves, in a crush proof box to Dr Michelle Fountain, East Malling Research, New Road, East Malling, Kent, ME19 6BJ.