

Project title: **Monitoring of bean seed fly (*Delia platura*)**

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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

Bean seed fly (*Delia platura*) affects more than 40 different host plants and is an important pest of peas, maize and beans. Hosts include Phaseolus beans, peas, broad beans, cucumber, melon, onion, pepper, potato, maize (alfalfa, cotton, strawberry and tobacco are secondary hosts) and the bean seed fly larva is a common pest found in most temperate countries. In severe infestations plant loss at seedling stage may be high, often resulting in re-drilling and subsequent loss of production of high value vegetable crops at an early growth stage.

Adult flies are attracted to freshly disturbed soil containing debris from previous crops, high levels of organic matter such as farmyard manure, or weed debris. Eggs are laid on the soil surface and larvae hatch after a few days and feed on newly planted seeds or plant and crop debris. After 10-14 days, larvae pupate and emerge as a second generation of flies, which move to suitable feeding sites. There may be several overlapping generations per year, occurring from late spring until early autumn. Seed of later planted peas or beans is attacked during germination and larvae feed on newly planted seeds and seedlings, tunnelling into freshly imbibed seeds and the stems of small seedlings.

The Horticulture Innovation Hub, co-funded by AHDB, NIAB, ADAS, PGRO and Duchy College, has helped to develop an application to report incidence of bean seed fly in all susceptible crops. This can be found in the PGRO App at Google and Apple stores – search for PGRO Pea and Bean Guide.

The link to the bean seed fly recording page is shown on the opening page of the app, so click on bean seed fly and select the crop type that you're growing or working with. If the crop is not a legume crop select 'other crops'. As you follow the links you will reach the page where you can create a report, and here you can enter the farm name, field name and any additional notes you have about crop type, level of infestation or damage. You can add photos to the report, and it will geolocate you if you're able to provide the report from in-field, or you can add a postcode if you're reporting the pest from your office. The data will be used only for the purposes of the project and the report will be visible at <http://pgroapp.org/>

No personal data is published.

Background

In consultation with the Legume Panel, bean seed fly was identified as of high priority in vining peas following the loss of available pesticide treatments that reduce the level of damage to seed and seedlings caused by the larvae. Other crop sectors have also experienced high levels of damage due to larval feeding at early crop growth stages.

This project was identified as part of a suite of research to improve management of bean seed flies in susceptible crops. Other research includes a PhD project being carried out at Warwick University (Warwick Crop Centre) to develop a prediction model to identify the timing of peak activity of adults and larvae as well as to investigate the use of cultural techniques to reduce crop damage. PGRO carried out a survey in 2019 to identify preliminary indicators of beans seed fly damage in pea crops.

The development of a reporting application for growers was considered important to track the activity of bean seed fly in crops across the country, to establish the timing of attacks in different crops, and the geographical distribution of the pest in the UK.

Summary

The reporting application was made available by mid-March 2019 and nine reports were submitted throughout 2019. The application continues to be available to growers to report incidence of bean seed fly in crops. We strongly encourage growers to use the application so that activity can be monitored each year and over several years. This will help us to provide more accurate guidance about management of the pest for the future.



Figure 1: Map showing the geographic distribution of bean seed flies (adults or larvae) recorded between March 2019 and June 2020

Financial Benefits

Not applicable at present

Action Points

Use the reporting application – go to Google or Apple stores and search for PGRO Pea and Bean Guide.