



**ROTHAMSTED
RESEARCH**

Cabbage Stem Flea Beetle pyrethroid resistance and parasitization rate in the UK

Introduction - Why?

Cabbage stem flea beetle numbers have been increasing since the ban on neonicotinoid seed treatments in oilseed rape (OSR) in 2013 with serious yield losses, especially in the East and South-East of the country. Pyrethroid sprays are the only control option but resistance is now widespread in the UK. Without accurate information on the susceptibility of local populations, each treatment is a gamble - risking economic loss, increased pest resistance and harmful impacts on non-target organisms. But there is new hope for control! Recently, parasitoids of the adult stage of CSFB have been found and studies on its life cycle have revealed that the larvae of this parasitoid develop inside the adult CSFB killing them when exiting their body. However, the biocontrol potential and distribution of the parasitoid are still unknown.

Through this study we aim to understand the mechanisms of pyrethroid resistance developing in UK populations and the importance of parasitoids in biological control.

What are we asking for?

Rothamsted Research is calling for OSR growers to send samples of adult cabbage stem flea beetle (*Psylliodes chrysocephala*) collected at harvest so that we can assess resistance and parasitization levels in the UK in 2019.

To ensure a good sample size we ask for *at least* 250 beetles to assess both pyrethroid resistance and parasitization rate. If you're unsure of your ability to commit time for sampling, or if you farm in an area where CSFB populations are known to be low making it unlikely that you can sample more than 250 beetles, you can still send smaller samples (at least 50 beetles) for pyrethroid resistance testing only.

What's in it for you?

The results from your sample will be sent back to you detailing the degree of susceptibility /resistance to pyrethroids of the CSFB population attacking your crop and the percentage parasitization of that population. We will provide data so that you can compare your situation with the 'national average'.

If you need more information, please contact us:

patricia.ortega-ramos@rothamsted.ac.uk

caitlin.willis@rothamsted.ac.uk

Thank you!

How to collect the sample?

1. Collect beetles

The best way to collect adult cabbage stem flea beetles is from the grain at harvest - either from trailers or from the grain stores themselves.

Small samples: can be collected into a large padded envelope using a paintbrush, using one hand to close the opening between beetles to reduce escape.

Large samples (at least 250 beetles – the more the better!): the first 40 to commit collecting >250 beetles will get a free 'sampling kit' containing a hand-held electric vacuum (pooter) and plastic containers to store the beetles. If you wish to contribute with a large sample of beetles, please contact Patricia Ortega-Ramos (patricia.ortega-ramos@rothamsted.ac.uk) in advance so that we can send the equipment to you.

Note electric pooters can be purchased for c. £10 from: https://www.amazon.co.uk/dp/B00NEQVC50/ref=psdc_4224893031_t3_B005464Y5M

Transfer the beetles into a clean, crush-proof plastic container with a secure lid (e.g. food container) with a small amount of dry tissue paper inside (to help soak up any excess moisture while they are in transit). If possible, also include some oil seed rape leaves inside the box so the beetles can feed during the journey!

If sampling more than one field, please use a different box to store the beetles collected in each field.

2. Complete the paper work

For each sample submitted, complete a Sampling Form (overleaf) and include it with the sample. Ideally, please retain a copy of the paperwork for your own records.

Include a different *sampling form* for each field sampled. Label each plastic box with a different number according to the *sampling form* number.

3. Send the samples

Put all containers in an envelope (ideally padded) and post via first class or next-day-delivery. Please aim to send the sample so that it does not arrive at Rothamsted Research over the weekend or on a Friday afternoon! Address to:

FAO: Patricia Ortega-Ramos / Caitlin Willis
BCP Department,
Rothamsted Research,
Harpenden,
Herts,
AL5 2 JQ

4. Please let us know the samples are on the way!

If possible, alert Patricia and Caitlin that the samples are on the way either by email: patricia.ortega-ramos@rothamsted.ac.uk; caitlin.willis@rothamsted.ac.uk; or telephone: 07712 80 89 11 (Patricia), 07836 75 53 75 (Caitlin).

Confidentiality

We take data protection seriously and will not, in any circumstances, share your any details given or personal information with outside parties or organizations. Processed data will be anonymized and no personal details will be stored in any form beyond the duration of the project (2020).

This research project has been reviewed according to the procedures specified by the Reading University Research Ethics Committee, and has been given a favourable ethical opinion for conduct.