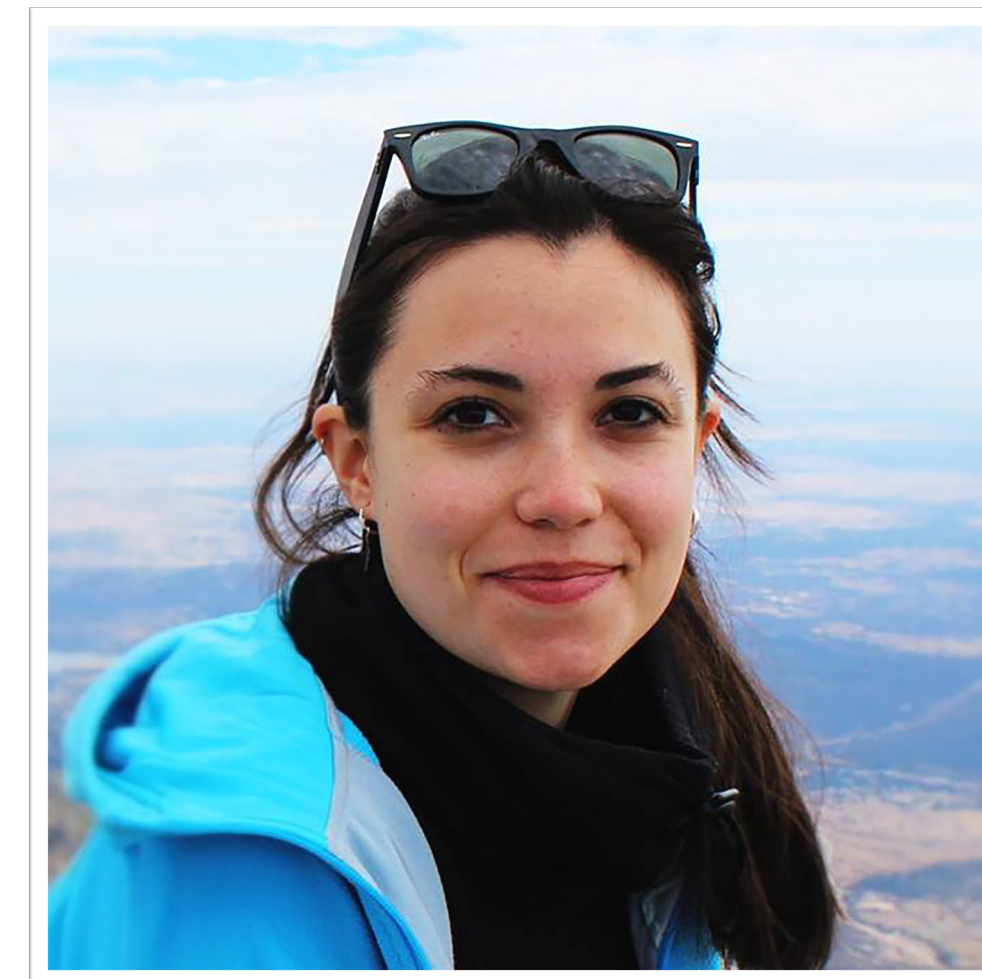
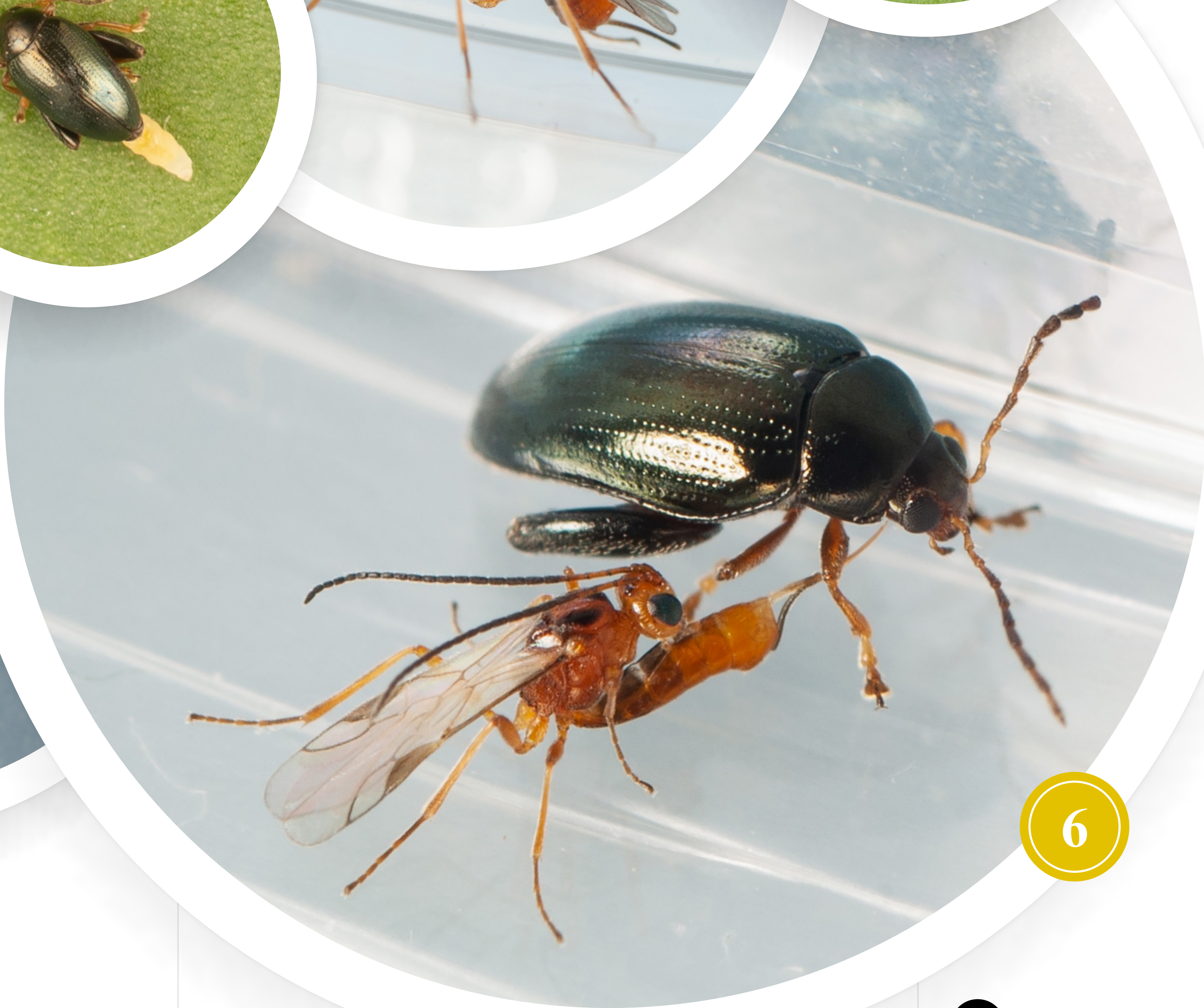


New heroes to defeat cabbage stem flea beetles

By PATRICIA ORTEGA-RAMOS

Scientists at Rothamsted Research are conducting investigations into a little-known parasitoid attacking adult beetles. These parasitoids could act as biological control agents reducing the number of cabbage stem flea beetle (CSFB) feeding in the field, thus reducing the millionaire-breaking yield losses caused by this pest. The Rothamsted team is leading the way to integrated pest management in oilseed rape (OSR) by developing ecologically-based strategies that will help farmers to sustainably intensify production, reducing the use of insecticides.



Patricia Ortega-Ramos is a PhD student at Rothamsted Research and the University of Reading. Her project focusses on understanding the ecology of cabbage stem flea beetle (CSFB) and their parasitic wasps. This project involves monitoring the daily activity of CSFB in the field, lab-based experiments on both CSFB and parasitic wasps, and modelling of climate and agricultural management impacts on CSFB populations.

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MEET THE TEAM

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1 The decline of OSR

OSR is the 3rd most important arable crop in the UK. After the ban on neonicotinoid seed treatments in 2013, farmers in the UK have faced complete crop losses meaning that growing OSR in some areas has become untenable. As a result, there has been a **30% decrease** in the area of OSR grown in the UK since 2013.

2 Countering an insidious problem

CSFB is the most abundant and widely distributed OSR autumn pest. Adults feed in newly sown OSR crops **threatening the crop establishment**. After the neonicotinoid ban, 70% of the OSR crop in UK has been affected by adult CSFB causing more than 4.5% crop loss.

3 A new hope for OSR farmers

Recently, a parasitoid of CSFB's adult stage, *Microctonus brassicae*, was found. The female thrusts its abdomen forwards, inserting the ovipositor into the host beetle and **laying eggs into its body**.

4 How does it kill CSFB?

The larvae of this parasitoid develop inside CSFB adults, feeding on them for around 30 days. When larvae are fully developed, they kill their host while **exiting their body**. Then they pupate, giving rise to a new generation.

5 Important facts

It takes around 10 days for the larvae to develop into an adult inside the cocoon with a pupal **emergence success of 70%**. Studies found the maximum **parasitization rate** for *M. brassicae* was **7%**. This parasitoid was present in 21 out of 30 fields studied, suggesting that it is **widespread across UK**.

6 National call for farmers help

To assess the potential biocontrol of these parasitoids, a nation-wide survey of CSFB was undertaken. Farmers were asked to **send live adult CSFB** to Rothamsted Research, where the parasitisation rate was assessed. Response from farmers and agronomists has been great, with **over 200 samples received**.