British Beet BBRO Research Organisation

www.bbro.co.uk

Beet moth

Scrobipalpa ocellatella

Identification:

Moths- Small brown moths with a 1cm wingspan. Dark dot on the wing which looks like an eye.

Caterpillars- 0.5-2cm
White caterpillars often tinged pink or brown.

Burrowing activity- caterpillars tend to enter plants at the base of the petiole (stem) and move down towards the crown where they burrow into the heart.

Eggs- beet moth eggs are very small, round white dots. Despite moths and caterpillars being common in the crop eggs are hard to find.

Issued July 2025

Damage:

Beet moth larvae cause damage to the **crown of the beet** through their burrowing activity.

One of the first signs of damage is **black frass** (faeces) appearing around the heart leaves. This shows there are caterpillars present- these can often be found by picking inner leaves and looking into the crown or splitting the base of the petiole.

More severe damage will cause loss of the heart leaves and can lead to hole in the crown where the caterpillars have burrowed in. Leaf and crown damage causes problems as when the beet regrows damaged leaves, the sugar levels in the root will be compromised. Crown damage can also be problematic later in the season as damaged crowns are more susceptible to root rots and frost damage. **Consider lifting badly damaged fields early.**

Control:

Heavy rainfall events seem to cause a dip in adult moth population numbers (observed via pheromone traps).

Pyrethroids containing the active cypermethrin (with label approval) and **Coragen** (chlorantraniliprole) have activity against caterpillars. Based on the IOBC toxicity categories, pyrethroids are classed as harmful to beneficial insects, whilst chlorantraniliprole is classed as slightly harmful. Coragen has recently received emergency authorisation for use in sugar beet (until 30th September 2025). Please follow stewardship guidelines and restrictions of use (available on the BBRO website). Both chlorantraniliprole and Coragen require high water volumes to penetrate the canopy.

NB: Coragen label states it "must not be applied to any crop suffering from stress". Caution should be taken to make sure the beet are not suffering from drought or disease.

Research:

Professor Rosemary Collier, University of Warwick is leading a masters project to research the life cycle of beet moth further.

Lots of chemicals state the ideal time to spray for beet moth is at egg hatch, however we need more information to determine when this is and how long each stage of their life cycle takes. We are also yet to find many examples of eggs in the field – another area the project is investigating.

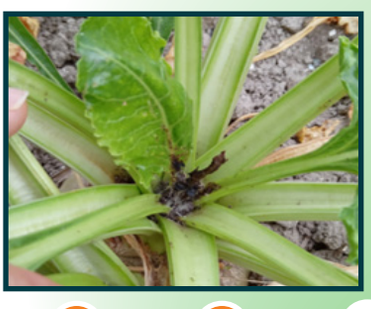
At **BBRO,** we have undertaken a small controlled environment trial to test the efficacy of Coragen, a pyrethroid and a control water treatment. This work is continuing.

Beet moth occurs widely in Europe including a number of warmer countries and also in Egypt, Libya, and Morocco, where it can be a serious pest and complete up to 5 generations a year (there appear to be 2 generations in England). It seems that hot, dry conditions, such as we experienced in 2022, may be very suitable for its development and survival. We are conducting pheromone trapping at the BBRO monitoring sites to track numbers of adult moths across the beet growing area to confirm how many generations occur in the UK. The moths caught on these traps are being verified by a micro moth expert, but we are working to expand BBRO capability in moth identification.

Beet moth damage scorecard


Score: 1

- First signs of foliage damage in the leaf system or heart with regrowth ongoing and significant canopy remaining
- First signs of short and limited surface tunnelling limited to the root crown and shoulders

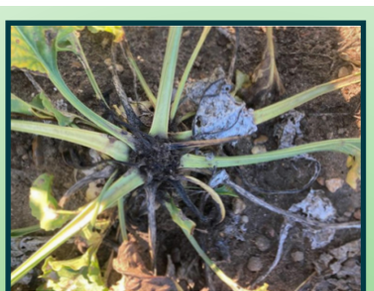



Score: 2

- Damage is causing regrowth to be hampered, damage seen as no more than a £1 coin from above with notable canopy remaining
- Tunnelling extends beyond the tap root shoulders, in limited separate short runs

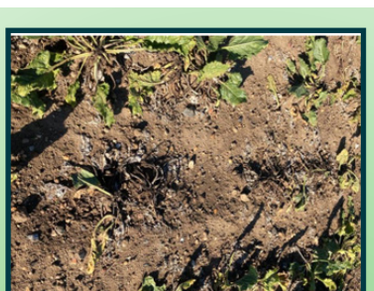

Score: 3

- Limited if any new growth fron the heart, damage could be similar to a £2 coin or bigger, remaining canopy is less than 50% of original
- Tunnelling is a more obvious network extending below soil level

Score: 4

- Significant attempts of damaged heart regrowth leading to increased risk of sugar quality being reduced
- No regrowth coming from the crown and most of the remaining canopy has limited potential
- Tunnelling affects large areas of the tap root surface

Score: 5

- Foliage is senescing or dead, no new growth remains
- tunnelling and damage is widespread over the taproot and secondary infections may have taken hold

Spray considerations

- **How severe and widespread** is the damage to the beet?- We know beet moth can be found in lots of fields this year, particularly if you go looking in the crowns. However, if damage isn't severe or is localised continue to monitor before deciding whether to spray. A range of thresholds are advised in Europe ranging from 10-40% of the field affected, the UK doesn't currently have a threshold for spraying. Consider both **severity of damage** (based on the scoring scale) and the **percentage of the field affected** when making spray decisions.
- **Water volumes-** Both Coragen and pyrethroid options require high water volumes when spraying, reducing water volumes could mean the product will not penetrate the crown effectively.
- **When are you spraying?**- Coragen has an emergency authorisation approval in sugar beet until 30th September so can't be used after this date.
- **Do you have many beneficials?**- Consider how many beneficials you have in your crop as, based on the IOBC toxicity categories, pyrethroids are classed as harmful to beneficial insects, whilst Coragen is classed as slightly harmful.
- **Is the crop stressed?**- Coragen cannot be used on stressed plants e.g. droughted, diseased, experiencing nutrient deficiency.
- **When are you planning to harvest the field?**- If the field is scheduled for early lifting you may not need to spray as the beet will be lifted before damage gets too severe.

Help identifying beet moth is available through the BBRO Plant Clinic and we encourage you to use this service as this pest is a developing issue and we are keen to gather information on its spread and impact.

Plant clinic form: https://form.jotform.com/233522565381052 or use the QR code