BBRO Beet moth information sheet

(October 2022)

Fig 1: Adult moth (wingspan 12-14mm)

Description

The beet moth (***Scrobipalpa ocellatella*)** is not recorded as a regular pest in the UK, but adult moths are trapped and reported in the UK by entomologists. It is known to be more problematic in Mediterranean areas where its incidence and reports of damage are usually associated with warmer and drier climates. Unfortunately, we have limited information on its life cycle in UK sugar beet crops, but it is likely that adults can both over-winter and/or migrate into crops in the spring and after depositing eggs in the crown of crops, caterpillars (larvae) will hatch and feed on the leaves and crown. These will develop to adults and produce further generations, but it is not clear how many generations are completed, although this to a greater degree, will be weather related.

Fig 2: Caterpillar (larvae)

Symptoms and symptom progression

Symptoms begin as the caterpillars start to eat and develop within the centre heart leaves of the beet plant, this can resemble boron deficiency or downy mildew. On closer inspection the caterpillars can be found within the damaged area of the heart leaves and come in various colours. The black deposits are faeces/frass. The adult moths may also be seen in amongst the canopies.

The caterpillars continue to cause damage as more of the heart is affected and the caterpillars may become increasingly hard to find. The extent of damage will depend on the number of caterpillars and in many cases, plants will continue to produce new leaves. Where damage is more severe, the affected crown may be killed and lateral growing points stimulated to produce leaves, resulting in multi-crowning. Unfortunately, in some cases all the growing points may be affected.

Fig 3: Damage to growing point can be quite severe

As the damage progresses you may find a second generation has started with numerous moths flying around the canopy again and further damage done to the heart leaves. There may also be some limited

damage and mining of the root crown, but to date this does appears to be relatively superficial. Unfortunately, this damage may increase susceptibility to fungal infection and the establishment of root rots.

Fig 4 and 5: Damage to growing point can be clearly seen in-field.

Fig 6 (right): Dissecting the inner and lower petioles and part of the crown may reveal the caterpillars

Incidence

Starting from an initial small area between Cambridge and Stowmarket along the A14 corridor the symptoms have been spreading out from this central zone. There are reports of incidence across a wider area. Where infection was early and especially where crops were droughted or virus levels were high, the incidence and severity appears to be more severe.

Risk Factors

As autumn progresses and temperatures decrease, beet moth activity will decline. A wet and cool period is forecast, and this will help to hinder further development of the pest.

Some plants may recover from the damage to the heart leaves by forming multiple crowns around the damaged centre. However, there is also the risk that a hollow crown results

from the damage and that could lead to further tap root issues from water settling or from frost later in the winter.

Management and Mitigation

Cool, wet weather usually deters beet moth development, and heavy rain events and/or irrigation usually drowns the caterpillars.

There is the potential for a foliar applied insecticide to be used but this will require large water volumes to penetrate the canopy. Therefore, results may well be variable as it is the caterpillar within the heart leaves that the insecticide needs to target. Experiences with pyrethroids in the UK to date are variable and limited and this is re-enforced by comments from Europe. Use of pyrethroids will also impact any beneficial insects too.

There are a few products (e.g., Cythrin) that have general caterpillar control on their label. It is important that you follow the recommendations on the label. In many cases, this includes the use of high-water volumes.

It is important to keep all remaining and future leaves as green and healthy as possible for as long as possible to mitigate the impact of beet moth damage.

Ploughing down beet remnants that have been impacted by beet moth may well help to decrease the risk for 2023.

Manage spoil carefully from cleaning and loading operations to avoid contamination back on to sugar beet land. Soil under maus clamps may have a higher pest burden, as soil and tops dry and are dislodged during loading. These areas need to be recorded, ideally ploughed and monitored when next cropped with beet.

Please check your crops, especially in the Bury factory area, monitor symptoms and review against planned harvest date. Limited or late damage on early lifted crops will have little risk or impact on yield. More serious damage or later lifted crops will become increasingly at risk of yield and quality damage so earlier harvesting could be advisable. Please discuss this with your British Sugar Account Manager to aid with decision making and planning.