British Beet BBRO Research Organisation

Advisory Bulletin

Issued: 11th October 2022

IN BRIEF

- Continuing warm and sunny conditions have allowed many crops to 'green-up' and to help improve root yield and sugar content. Unfortunately, this is not the case for all crops, especially those affected by beet moth, foliar disease or where soils have remained dry hampering recovery.

- Whilst many of you will have decided on your harvest plans, it is important to continue assessing crops in October for foliar disease, beet moth feeding damage and root rots, prioritising crops for earlier or later harvesting. Whilst soil type and subsequent cropping plans may dictate this, experience shows that selecting the best crops to optimise yield potential at this stage, can still be worth an additional 10-15% of yield, whilst conditions remain conducive to growth.

- Beet moth caterpillar damage continues to be reported, with adult moths still active. Early infected crops, especially where previously drought stressed, have struggled to regrow canopies due to caterpillar feeding on the new leaf growth. Severely affected crops should be prioritised for early harvesting.

- Warm conditions have favoured foliar diseases such as rust but have not been warm enough for rapid cercospora development. In general, crops with just one fungicide application and /or where the gap between T1 & T2 was left too long have higher levels of disease. 'Keep a close eye' on the levels of disease in your crops as these can change quickly, especially following rain. You may need to consider changing your harvest plan accordingly.

- Reports of root rots have increased. It is vital to monitor crops carefully for incidence of any root rots such as fusarium, rhizoctonia and violet root rot during harvesting and ensure these are harvested and delivered as soon as possible to avoid further losses. Check carefully for root rots in crops where beet moth feeding may have damaged the crown.

- A good start to the harvesting campaign has seen low harvest losses and low levels of root damage. Some areas remain very dry, and harvesting is challenging. A change to wetter conditions will undoubtably make harvesting and delivery more challenging, it is necessary to keep a close eye on losses and damage as the campaign progresses.

- During harvesting, undertake regular checks for surface losses, over-crowning, and root breakage to avoid unnecessary yield losses. Make sure root breakage is kept to a minimum especially in crops which are likely to be placed in short-term clamps for more than 5-10 days. Prioritise crops with higher root damage levels for delivery.

Beet moth

Severely affected crops are being harvested early to preserve sugar levels and reduce the risk of secondary infection where there is crown damage. It is important to avoid the spread of beet moth pupae in soil from cleaning operations.

To date, good harvesting conditions means there may not be a lot of crop debris (which may contain the beet moth larvae and pupae) left on the soil. However, where there is a lot of crop debris, especially if harvesting conditions change, it is worth considering ploughing crop debris down to reduce over winter survival.

Soil and crop debris under cleaners will have a high beet moth burden and should ideally be disposed in a non-crop area or returned to the original source field(s) to avoid potential spread around the farm, especially fields destined for sugar beet next season.

Foliar Disease

Rust and powdery mildew remain the two most prevalent foliar diseases. In crops that have received two timely fungicides, diseases have been kept in check, but recent warm temperatures are challenging their persistence and effectivity. Differences between varieties can be observed and are broadly in-line with their RL disease ratings. Remember that fungicide resistance will also be factor. Levels of Alternaria and Phoma are higher than normal in many crops and in most cases this is due to secondary infection following drought-induced leaf senescence and virus infection.

Most crops are now past the point where further fungicide applications will provide an economic return, especially where there are established levels of disease **and** crops are likely to be harvested in the next 4-6 weeks. However, remain vigilant to the levels of disease in crops as this can change quickly, especially following rain. You may consider changing your harvest plan. Remember healthier canopies are key to autumn increases in root yield and sugar content. High levels of disease, especially cercospora may stimulate leaf regrowth and an associated loss of sugar content.

Harvesting checks

Minimising root breakage when harvesting is key to avoiding accelerated sugar losses. The average sugar beet clamp loss rates are usually 0.1% of total sugar volume/day but in poorly harvested and handled crops, sugar loss can be 3-4 times greater. Losses will be even greater where temperatures are above 10^{o}C.

Monitor the areas outlined below to minimise sugar losses:

• Excessive dirt tare – reduces ventilation in the clamp by limiting airflow between the beet although some dirt can help “cushion” beet during loading.

• Excessive green material – Similar to too much dirt, too much green matter can limit air flow in the clamp. Whilst the cleaner loader will remove a lot of excessive top material, poor ventilation in the clamp prior to cleaning will accelerate sugar loss.

• Damaged beet - minimise the amount of root breakage. Keep turbine speeds and drops as low as possible. Avoid pushing up beet on the clamp.

• Scalping - don't over-top the sugar beet crop by removing too much crown, otherwise this can accelerate sugar loss and lead to rotting, mould development or bacterial infection.

• Make sure there is someone regularly checking on the condition of beet at the clamp/pile and feeding this back to the harvester operator.

For further information on how to assess crops for harvesting losses see.
https://bbro.co.uk/publications/harvesting-assessment-guide

Root rots

Check crops carefully for the incidence of root rots (see below). Do some test digs before the harvester is in the field to give yourself some advanced warning, or at least by having someone monitoring for rots at the clamp. Check crops which have been affected by beet moth once harvested, as feeding damage to the crown will increase susceptibility to secondary infection. Prioritise affected crops for delivery to the factory. If the period before delivery is likely to increase, avoid storing contaminated beet crops which contain fungal rots as this will inevitably raise the clamp temperature, leading to greater respiration rates and increased sugar loss. Any parts of a field which are severely infected by rots should be managed separately and not mixed in the main clamp.
Where root rots are found (especially Rhizoctonia and violet root rot), record the field of origin as it may be necessary to consider alternative crop and soil management options to reduce future risk.

Fusarium rot

When: Middle June onwards

Symptoms: Black rot on the external root surface

Risk: Warm soils (optimum disease development 27°C)

Severity: Losses can be severe when fusarium rot is present particularly if left in clamps

Advice: Avoid storing rotten roots

Rhizoctonia (root rot)

When: Middle June onwards

Symptoms: Dry rot spots gradually deepen and disrupt the beet close to the soil surface. Patchy infested areas are typical

Risk: Wet, poorly drained soils. Optimum temperature of 25-33°C

Severity: Yield losses range from negligible to more than 50%

Advice: No treatment for root rot. Avoid close rotations of susceptible crops (eg maize, beans)

Violet root rot

When: Late in the season

Symptoms: Purple spots/red mycelial growth on root surface. Root rot has characteristic purple tinge, generally found in circular patches within the field

Risk: Temperatures above 13°C. Close rotation of susceptible species (e.g. potato, carrots)

Severity: Generally doesn't affect whole fields or destroy plants, but does lower root yield and sugar content

Advice: No treatment. Avoid close rotations of susceptible crops, control susceptible weed hosts (eg bindweed, sowthistle). Avoid storing rotten roots

EVENTS

The **Advanced Sugar Beet Course** is now full.

BBRO BeetTech23 dates confirmed (details to follow):
7th February – Newark Showground
9th February – Newmarket Racecourse

Drill training. Half day event supported by Germains, Kverneland, Monosem and Vaderstad.
22nd February – Morley
23rd February – Bexwell

Booking will open shortly for these events via the BBRO website.

CONTACTS

British Beet Research Organisation, Centrum, Norwich Research Park, Colney Lane, Norwich, NR4 7G
Prof Mark Stevens mark.stevens@bbro.co.uk 07712 822194
Dr Simon Bowen simon.bowen@bbro.co.uk 07718 422717
Stephen Aldis stephen.aldis@bbro.co.uk 07867 141705
General Enquiries info@bbro.co.uk

BASIS POINTS

Two BASIS points in total (not per bulletin) have been allocated for the period between 01/06/22 and 31/05/23 reference **CP/120094/2223/g**. To claim these points please email cpd@basis-reg.co.uk
Two NRoSO points in total (not per bulletin) have been allocated between 01/06/2022 and 31/05/2023 **NO471260f** reference. To claim these points please email NRoSOCPD@cityandguilds.com