British Beet BBRO Research Organisation

Advisory Bulletin

Issued: 2nd November 2022

IN BRIEF

- **Autumn yield potential** - unseasonably warm and sunny conditions have continued to allow crops to remain green and productive, helping to improve root yield and sugar content. Experience shows that whilst conditions remain conducive to growth, selecting the best crops to optimise yield potential, can still be worth an additional 5-10% of yield in November. Where crop canopies have not recovered from the drought, and/or are affected by beet moth and foliar disease there will be lower additional yield potential in November, and should ideally be prioritised for harvesting over other crops.

- **Harvesting conditions** - have been good to date with losses generally small. However, don't get lured into a 'false sense of security' especially if conditions become wet (as forecast). It is essential to keep checking for any losses of beet behind the harvester. Digging in the soil trench to check for any whole or sliced beet left behind is key. Additionally, check for root damage at the clamp, especially where harvesters may have to run more aggressively such as in wetter soils to remove soil.

- **Sugar losses** - as temperatures remain warm, any post-harvest sugar losses will be accelerated, especially where there are higher levels of root damage and/or lots of soil/tops in the clamp. Aim to keep the time in clamp as short as possible, ensuring rapid turnaround time to the factory. Prioritise crops with higher root damage levels for delivery, especially if they are likely to be left on farm for more than 5 days.

- **Beet moth caterpillar** - activity continues to be reported, with caterpillar larvae visible on freshly harvested crowns and roots. Where beet moth populations have been large, consideration to managing the crowns and leaf trash is required to reduce risk in subsequent seasons. The beet moth may survive overwinter both in the larval and pupal stages. Ploughing-in of crop residue will reduce numbers. Additionally, avoid returning spoil from cleaning and loading, especially from infected fields back on to future sugar beet fields. Soil under maus clamps may have a higher pest burden and should be checked and ploughed where necessary.

- **Foliar disease** - warm conditions have favoured 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.

- **Root rots** - early concerns about root rots have not materialised but we urge growers to continue to monitor crops carefully for incidence. A change to wetter conditions may encourage secondary infection, so ensure crops with any rots are harvested and delivered

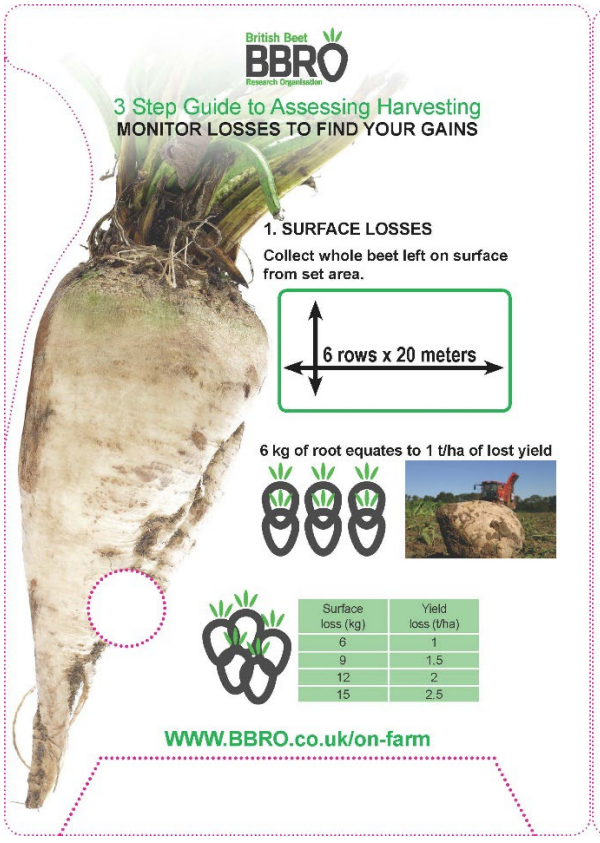
as soon as possible to avoid further losses. Check carefully for root rots in crops where beet moth feeding may have damaged the crown.

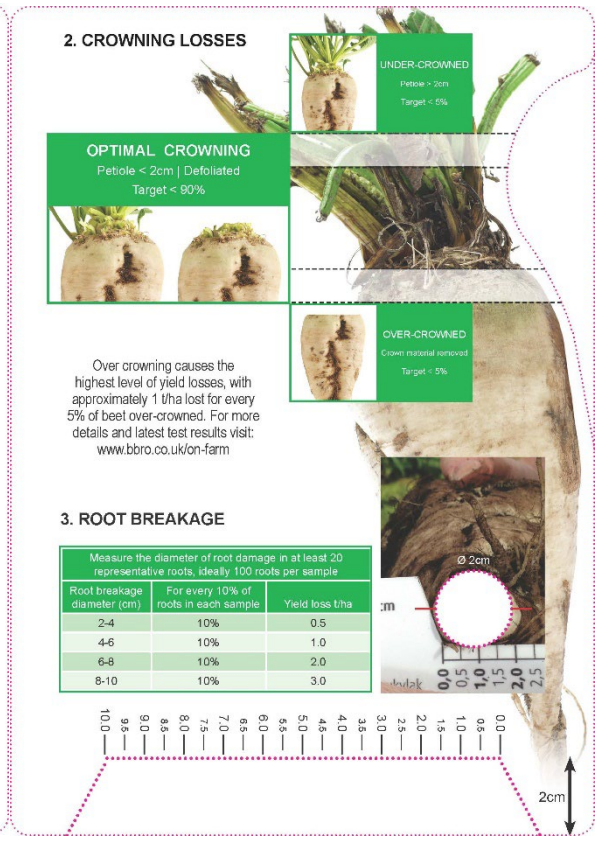
- **Soil health assessments –** Autumn is the ideal time to make your soil health assessments. It is simple and practical to undertake, and it will provide essential information on the health status of your soil. Not only will this allow you to build up your records, an essential part of the ELMS and SFI initiative, it will also allow you to identify where soil health improvement may be required as well as allowing you to compare the effectiveness of any soil health improvement practices you have already deployed. BBRO data shows that sugar beet responds very well to improving soil health, with better yields and greater resilience to challenges such as drought.

ADVISORY

Harvesting losses

It is essential to keep checking for any harvesting losses, especially when soil conditions change. Use the following guides to estimate your losses:





Harvesting checks

Minimising root breakage when harvesting is key to avoiding accelerated sugar losses. The average clamp loss rate is usually at 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°C. Follow these guidelines 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 – too much green matter can limit air flow in the clamp (similar to too much dirt). 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 guide above or download a larger version https://bbro.co.uk/publications/harvesting-assessment-guide.

Beet moth

Fig 1. Beet moth caterpillars enjoying the sun in freshly harvested beet.

Severely affected crops are being harvested as a priority to preserve sugar levels and reduce the risk of secondary infection where there is crown damage. Avoiding the spread of beet moth pupae in soil from cleaning operations to other fields is important, as is reducing the risk to subsequent crops in the same field.

To date, good harvesting conditions means there may not be a lot of crop debris, but it is worth checking fields for any activity/residue as soon as possible after harvesting.

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 of in a non-crop area or returned to the original source field(s) to avoid potential spread around the farm, especially to fields destined for sugar beet next season.

Foliar Disease

Rust is now the most prevalent foliar disease. In crops that have received two timely fungicides, diseases have been kept in check, but recent warm temperatures have resulted in further spread especially where there has been limited fungicide protection.

Fig 2. Rust development in the BBRO trial site at Bracebridge; left no fungicide treatment, right two fungicide treatments, in an adjacent plot.

Differences between variety susceptibility to diseases (especially rust) are now noticeable in many crops. Make a note of the difference between varieties in your crops. Whilst these will be broadly in-line with their RL disease ratings, it is useful information to help plan varieties and harvest dates for next season. 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.

Soil Health assessments

The soil health scorecard involves making a set of measurements (shown below). It is simple to conduct and can take around 30 minutes or so to complete. Some of the measures are made in the field whilst others are measured in a soil sample and sent for laboratory analysis. These measurements have been extensively evaluated and have been shown to provide a strong baseline assessment of soil heath, as well as signposting where interventions may be required.

One of the new laboratory tests of soil microbial activity involves measuring the amount of CO_2 released (the 'Solvita CO_2 burst test'). Some soil testing laboratories now offer this service.

Soil health scorecard indicators		
Physical	Chemical	Biological
Visual assessment of soil structure (VESS) most limiting layer	pH	Earthworm count
	P	SOM
	K	(Microbial activity)
	Mg	

Field measure	Measured in a soil sample

Broad guidelines on sampling are provided below. For more detailed information on this subject, especially how and what to measure, visit the BBRO website 'Soil Matters' and listen to the BBRO November Beetcast.

Sampling guidelines:

- Regular sampling and monitoring of soil health is ideally undertaken once per rotation.
- Aim to sample at the same time of year and the same point in the rotation to maximise comparability between samples.
- On balance, sampling in the autumn as the soil wets up is considered best. Ideally sample at least 1 month after any cultivations /moderate soil disturbance and/or application of organic inputs, such as manures/composts. This timing may mean that rotational sampling for soil health does not easily fit at all points of the rotation. In some rotations, this may mean sampling in an actively growing cover crop or after drilling of the next main crop.
- Identify representative sampling sites so these can provide useful data to monitor soil health and inform farm practice in soil management over time. There may be just one sample site per group of fields, or there may need to be several per field, where soil texture varies markedly.
- As for all soil sampling, the area selected should be uniform. Avoid headlands, gateways, and feeder locations unless they are specifically being targeted as a sampling site and avoid marked wheelings where possible.
- The centre point of each sampling site should be recorded. In the SBSH Partnership both mapping pins and "What 3 Words" locations were used by growers to record site locations. Aim for the sampling site to be the area within 5 m in all directions of that centre point i.e., a rough circle of 10 m in diameter.

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

DRILL OPERATOR TRAINING

Drilling for better establishment & improved crop performance

A successful sugar beet harvest begins with the preparation of the seed bed and ensuring optimum performance of both drill and operator. Good crop establishment leads to healthy uniform plants, improved yield and profitability.

This course is open to all sugar beet drill operators, providing the basic priniciples of drill set-up for all models.

Sessions to include:

- Practical soil management
- Cultivation techniques for the perfect seed bed
- Pelleting and seeds
- Drill maintenance for optimum performance

Wednesday 22nd February 2023
Morley Farms, Deopham Road, Morley, Nr Wymondham. NR18 9DF

Thursday 23rd February 2023
BBRO, Bexwell, Bexwell Road, Downham Market. PE38 9LH

Arrival 12:30, commence 13:00-16:30
Lunch included (sponsored by Germains)
Book online at: www.bbro.co.uk/events

Presentations and practical support from:

germains seed technology · Kverneland · MONOSEM Distributed by TOUCAN · VÄDERSTAD

CONTACTS

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