



Issued: 18th January 2023



ADVISORY

Management of crops which are unsuitable for processing

Please refer to the latest British Sugar information and advice on the most effective management of frost-damaged crops prior to harvest and delivery. If crops have been rejected or deemed unfit for process, the options on how to manage these situations are limited, but this note aims to outline some things you may need to consider.

Sugar beet that has been harvested, and then rejected

Where sugar beet has been harvested and rejected for processing then options are limited to returning the beet to the field, feeding it to livestock or possibly for use in AD plants. If temporarily storing the beet make sure that this is away from water sources or ditches and that storage areas comply with the code of good practice for soil, air and water, just as you would with storage of manures.

Rejected crops left in the ground – natural breakdown

For crops that have been rejected and remain in the ground, the best way to dispose of beet is to incorporate it in-field. The preferred option is to leave the roots for as long as possible and certainly until soil conditions dry out, before carrying out cultivations. The speed of natural breakdown will depend on the extent to which roots were frozen. Those frozen from the crown to root tip will breakdown quickly, initially dehydrating and then delaminating with the flesh soft and oozing out as the vascular rings break apart. However, it is likely that many crops were not completely frozen and will therefore be slower to breakdown. In these cases, cultivation is advisable to try and chop the beet into smaller pieces to speed up the degradation process.

Cultivations

The aim with all cultivations is to increase the surface area of the beet to aid breakdown and mixing within the soil profile. Most beet would benefit from being chopped up first to aid the degradation process before being ploughed in.

Discs are likely to be the most effective option. Aim to shallow disc with the first pass and cut rather than inverting the beet. A second deeper pass with the discs may be required prior to ploughing. Rotovators and power harrows may be options if they

can be taken over the land without compromising traction for the following plough. If frosty conditions prevail and/or light land is being targeted, then rotovating and power harrowing become feasible.

Ensure that ploughing is done in good conditions as this will limit the risk of anaerobic conditions developing. If soil is ploughed under poor, very wet conditions then oxygen diffusion to the beet degradation zone will be too slow for aerobic digestion by the soil organisms, so anaerobic digestion could start. Skimmers on ploughs should be adjusted to get beet distributed within the profile. Anaerobic digestion of any organic material in the soil, be it beet, muck, potatoes etc. means that various growth-inhibiting products could accumulate in the soil and will not escape in the muddy conditions. These products will contain some materials that will damage the roots of the next crop if they are allowed to accumulate. Therefore, it is essential that the land, if it is ploughed, is turned over in good condition: it must not be a case of simply burying a muddy slurry.



Fig 1. Glassy vascular rings can be seen throughout damaged beet

Residual nutrient value

The Nutrient Management Guide (RB209) indicates that 0.8 kg/t of P₂O₅ and 1.7 kg/t of K₂O would be taken off in every tonne of sugar beet (roots) removed from the field. Therefore, a 70t/ha crop will potentially provide 56 kg/ha of P₂O₅ and 119 kg/ha of K₂O.

Estimating the residual nitrogen value is more difficult. Typical nitrogen removal is about 1.7 kg N/tonne fresh roots. A yield of, say, 70 t/ha roots would also include some 5000 kg C/ha so the C/N ratio would be about 42/1. It is possible that there could be some short-term immobilisation until enough C is respired. Within the soil, there would be local zones of strong immobilisation around decomposing roots and other zones of early N release around decomposing leaves. However, it's not possible to predict with any reliability when overall net immobilization will change to net mineralization.

It is best therefore to plan for normal early spring N applications but to monitor the crop and adjust later N applications if necessary.

The use of soil mineral nitrogen tests could be considered prior to drilling the next crop to obtain an indication of nitrogen levels, although care needs to be taken not to include beet residues in the sample.

Groundkeeper monitoring

It is possible that some fragments of roots will remain viable through to the spring and produce new plants. These can act as sources of virus and disease and fields should be monitored regularly and groundkeeper beet plants controlled accordingly. Any plants left uncontrolled are likely to bolt and produce seed. Pre-flowering control is required to avoid this. This is especially important for any Conviso Smart varieties, to avoid production of herbicide resistant weed beet.

Communications - keep in close contact with your harvester operator, haulier, and your British Sugar Account Manager on any potential issues.



EVENTS

BBRO BeetTech23

[7th February – Newark Showground](#)

[9th February – Newmarket Racecourse](#)

BEETING THE CHALLENGE
Invest time now to build resilience in future
BOOK: WWW.BBRO.CO.UK/EVENTS

Guest Speaker
Professor Rosemary Collier, University of Warwick
A trained entomologist, Rosemary's main research interest is in IPM strategies. Her areas of research include application of novel pesticides and biopesticides, biological control, host-plant resistance (in collaboration with colleagues at Warwick), methods of physical control and approaches that influence pests through increased plant diversity in the cropping system.

Featuring
Presentations from the BBRO team including:

- Champion your soil for better beet
- Disease decisions - new actives
- Your beet future - PhD presentations
- Carbon monitoring supported by Dr Iain Gould (Lincoln University)

Collaborators
Meet some of our collaborators and hear of our joint endeavours to help bring practical solutions to the fore.

BeetTech23

7th February 2023 : Millennium Suite,
Lady Eastwood Building : Newmarket Race Course
Newark Showground

9th February 2023 : Millennium Suite,
Newmarket Race Course

9:00 - 12:45

Drill training.

Half day event supported by
Germain's, Kverneland, Monosem and
Vaderstad.

22nd February - Full

23rd February – Bexwell



DRILL OPERATOR TRAINING

British Beet
B BRO
Research Organisation

**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 principles 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 Germain's)
Book online at: www.bbro.co.uk/events

Presentations and practical support from:



CONTACTS

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