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IN BRIEF

Welcome to the first Advisory Bulletin of 2024. With the harvesting campaign still in progress and the land being so wet, the backlog of spring work is increasing, and sugar beet drilling may be furthest from your thoughts. However, here are some key pre-season pointers to start considering:

- The virus forecast will be available on the 1st of March. This forecast is critical for the threshold trigger of the EA on the use of Cruiser SB on seed for 2024.
- Crop hygiene is essential this season following the difficult harvesting conditions and the unseasonably warm weather.
- Make sure all cover crops are destroyed as soon as conditions allow
- Drill according to conditions not just date. Don't panic, later drilled crops into better conditions often out-perform crops drilled earlier into poorer conditions.
- Soil structure is key to rapid crop development, optimum plant populations and health. Be sure to check soil at depth before attempting any cultivations.
- Soil pH. Remember, sugar beet does not like low pH, and this can hold back plant development. There is still time to test soil pH and, when land conditions improve time to apply lime ahead of the beet crop.
- For those of you who were unable to attend the 2024 BBRO BeetTech Conference, videos are now available.

Nitrogen special: Assessing the potential Soil Nitrogen Supply (SNS) to your crops is especially important to deciding on the optimum rate. Remember too much nitrogen can increase impurity levels and decrease the sugar content. High winter rainfall has increased the likelihood of nitrogen leaching losses.



ADVISORY

The 2024 virus forecast:

The virus forecast will be available on the 1st of March. This forecast is critical for the threshold trigger of the EA on the use of Cruiser SB on seed for 2024. Remember, that this is the predicted level of virus in 2024 crops without any aphid control interventions. The use of Cruiser is only permitted if the predicted virus incidence level is **65%** or above, as determined on 1 March 2024 by the Rothamsted YV forecast model. The virus forecast also provides the expected date of the first arrival of aphids in 2024 crops. This has been shown to be very accurate previously and is essential

information for key management actions. The warm weather to date has increased the possibility of the virus level being higher this year and the EA being triggered.

BBRO will be hosting an online 'BeetChat' at 13:00 on the 4th of March (join via link in events below or via the BBRO website) to provide comprehensive information re management of aphids and other crop issues expected in the season ahead. Also, information will be provided via subsequent Advisory Bulletins and on the BBRO website.

Crop hygiene is essential this season:

The recent warm weather together with such a challenging harvest campaign is increasing the risk of virus sources existing on farm. Hopefully all the remaining crop in the ground will be harvested before drilling but any AD or fodder beet will increase risk. When conditions allow, pay particular attention to controlling /ploughing in groundkeepers and any unharvested crop. Remove and control any new growth on cleaner loader spoil heaps and check for new growth around areas where beet was clamped as there are usually some roots left behind.

Make sure all cover crops are destroyed:

Destroy as soon as conditions allow but ideally more than 5-6 week ahead of drilling. This will help guard against green bridging of aphids but will also help with cover crop biomass decomposition to release nitrogen and avoid trash issues at drilling.

Drill according to conditions not just date:

With land being wet, drilling date anxiety may be setting in! It is difficult to advise anything else but patience, and hope that will get a good drying period. Traditionally, March is considered the optimum drilling window however, recent weather trends is toward dry springs, resulting in more crops being drilled in April – May.

Later drilled crops into better conditions often outperform earlier drilled crops. Recent assessments of yield performance against drill date indicates that drilling into the right conditions is often more important than date. Many later drilled crops emerge quicker and develop their canopy faster and are healthier, often taking-over earlier drilled crop in poorer conditions. Don't panic.

Soil structure is key to rapid crop development optimum plant populations and health.

Remember to check soils are sufficiently dry at depth before cultivating, so that a reasonable seedbed fine tilth can be produced. A 5-7cm seedbed with a minimum of 30% of smaller soil particles (less than 3mm) around the seed is the target. This ensures good seed-soil contact for germination and early root development.

Nitrogen Special

Soil Nitrogen Supply (SNS)

Assessing the potential SNS to your crops is especially important to deciding on the optimum rates for yield and minimising amino N impurity levels. Nitrogen is essential for the growth of the crops, especially for the formation of the canopy. However, applying too much nitrogen will increase the risk of increasing impurities, reducing dry matter partitioning to the roots, with both having a negative impact on root yields and sugar levels.

Analysis of impurity levels in delivered crop over the last few years indicates that the amino N impurities have been increasing. This may be due to several interacting factors, including changing weather patterns but could also mean a negative effect on sugar content.

High nitrogen levels in the root at harvest are known to be associated with high amino N levels, so it is important that nitrogen levels are managed to minimise potential impact of this factor. An important starting point is to assess the supply of nitrogen (SNS) to the crop at outset of the season and to plan additional nitrogen inputs accordingly.

There are six SNS indices and most mineral soils are between Index 0-4. Organic and peaty soils are usually SNS indices 3-6. The following five steps should be followed when estimating the SNS index. Detailed information and relevant charts are available in the Nutrient Management Guide (RB209)

- 1) Identify soil category for each field**
- 2) Identify the previous crop**
- 3) Select the rainfall range (and excess winter rainfall) for the field**
- 4) Allocate to the relevant SNS index and identify crop nitrogen requirement (Table 1 BBRO fertiliser recommendations)**
- 5) Make any necessary adjustments for additional nitrogen sources (manures, cover crops) to calculate N fertiliser requirement. This is important for sugar beet to avoid excess nitrogen levels. Table 1 provides some indicative values but be aware that these will vary according to the source, management of material and timing of application/incorporation.**

Many sugar beet crops are grown after cereals and are SNS index 0-2 with lower indices (0/1) on very light sand soils and higher indices (1/2) on deep clays and silts.

Table 1: Indicative values of available nitrogen from organic amendments and cover crops

| Source | Range of available N (kg N/ha) | Comment |
|--------------|--------------------------------|--|
| FYM & slurry | 30-50+ | Variable according to source, storage and application date and incorporation |
| Digestate | 20 | Variable N content lost by volatilisation or leeching lightly |
| Compost | low | Useful source of organic matter but not readily available source of N |
| Cover crops | 30-70 | Higher N where legumes are grown, variable depending on cover crop species and biomass |

As these values are highly variable, an alternative approach to the field assessment method is to undertake a SMN test in the spring. SMN is the measured amount of mineral nitrogen (nitrate-N plus ammonium-N) in the soil profile. This is very useful approach following cover crops as the amount can vary significantly.

The SNS Index can be identified using the results of direct measurement of SMN to 90cm depth in spring, 60cm depth in autumn/early winter, or to maximum rooting depth in shallow soils over rock. Do not confuse Soil Nitrogen Supply (SNS) and Soil Mineral Nitrogen (SMN); an estimate of net mineralisable nitrogen must be added to the SMN result when calculating the SNS.

| Major Nutrient Recommendations (Kg/Ha) | | Soil Index | 0 | 1 | 2 | 3 | 4 | 5 |
|--|---|------------|-----|-----|-----|----|----|---|
| Nitrogen | Mineral soils | | 120 | 120 | 100 | 80 | 0 | 0 |
| | Organic soils | | | | | | 40 | 0 |
| | Peaty soils | | | | | | | 0 |
| P, K, Mg & Na | Phosphate (P ₂ O ₅) | | 110 | 80 | 50 | 0 | | |
| | Potash (K ₂ O) | | 160 | 130 | 100 | 0 | | |
| | Magnesium (MgO) | | 150 | 75 | 0 | 0 | | |
| | Sodium (Na ₂ O) (using K Index)* | | 200 | 200 | 100 | 0 | | |

- Yield response very shallow above 100kgN/ha on SNS Index 1 soils and 100kg N/ha is frequently sufficient.
- However, due to the high excess 2023-2024 winter rainfall levels we advocate applying 120kg N/ha
- On more N-responsive soils (very light sandy and shallow soils with low mineral N (SMN) reserves) Index 0 (typically less than 40kgN/ha)
- 120kgN/ha is optimum

Cover crop nitrogen release

There is increasing amounts of data that show that thorough destruction of a well-established cover crop by the end of February can release useful quantities of nitrogen for the following spring crop; sufficient to increase the SNS by up 1-2 Indices.

Placement of N can increase nitrogen use efficiency. Experience has shown that total nitrogen requirements can be reduced by 10-15%. Larger reductions are sometimes suggested but BBRO have no data to support these.

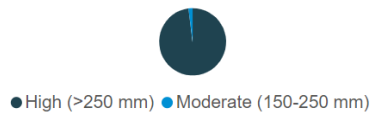
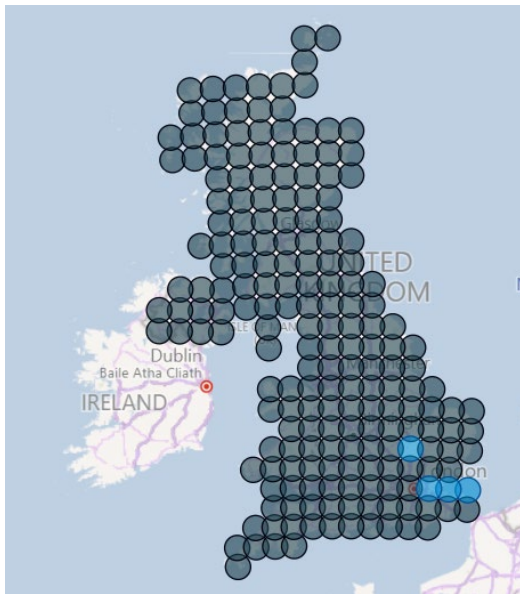
Impact of high winter rainfall

Some nitrogen may have been lost in the high winter rainfall so this should be taken into consideration when determining the SNS level. Excess winter rainfall (EWR) is the amount of rainfall the land receives after the soil profile becomes fully wetted in the autumn (field capacity) and before the end of drainage in the spring (around the end of March). EWR has an important influence on the amount of nitrate leached and, thus, the nitrogen availability to a crop. It should be considered when planning nitrogen applications. The UK Met Office UK presents the EWR data in 40 km squares across the UK. Rainfall in the winter period (Oct 2023-Jan 2024) across sugar beet growing has been high and is currently in the high (>250mm) category, indicating that nitrogen will have been lost from the soil profile.

Detailed information on the effect of EWR on SNS indices can be found in the Nutrient Management Guide (RB209)

Broadly, the implications are that there is likely to be less residual soil mineral nitrogen (SMN) available to sugar beet crops this season. For some soil types following different crops this may mean a different SNS index to years with normal winter rainfall. For example, on more medium soils following cereals the SNS index is one unit lower. Whilst for sugar beet this does not affect the nitrogen recommendation, being **conservative** in reducing nitrogen rates in conjunction with application of manures, growing of cover crops, and placed application of nitrogen is a **prudent approach**.

Figure 1. Excess winter rainfall (bare soil) Oct 2023-Jan 2024



 **EVENTS**

Got a question?
Join our on-line discussion session

British Beet
BBRO
Research Organisation



BeetChat
Monday 4th March:
13:00 - 14:00
Preparing for 2024 sugar beet
season including Virus yellows forecast
[Click here for easy access](#)

Missed our BeetTech24 event on IPM? Catch up here by clicking the links below.

IPM
at the heart of sugar beet production



[Event introduction \(Dr Vicky Foster\)](#)

[Journey to sustainable and regenerative farming \(Matt Hutcheson – SAI platform\)](#)

[Optimising IPM in sugar beet \(Prof Mark Stevens, Dr Alistair Wright and Dr Sacha White\(ADAS\)\)](#)

[Crop learning points from 2023 to apply in 2024 \(Prof Mark Stevens\)](#)

[PhD platform](#)

[Weed control in 2024 \(Pam Chambers, British Sugar\)](#)

[Considering cover crops? \(Dr Georgina Barratt\)](#)

[Soil health and IPM \(Dr Simon Bowen\)](#)

[Key conference messages \(Dr Vicky Foster\)](#)



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BASIS POINTS

Two BASIS points in total (not per bulletin) have been allocated for the period between 01/06/23 and 31/05/24 reference CP/126447/2324/g. To claim these points please email cpd@basis-reg.co.uk

Two NRoSO points in total (not per bulletin) have been allocated from 1st September 2023 to 31st August 2024 - NO500860f. To claim these points please email [nrroso@basis-reg.co.uk](mailto:nroso@basis-reg.co.uk).