

BBRO Beetfield19

There are many facets to farming and each and every crop requires some level of management, but rather than looking at crops in isolation the BBRO are encouraging sugar beet growers to plan across their full rotation, creating an integrated management plan. This was addressed in more detail at the BBRO's Beetfield19 events 'A pathway to healthy crops' where growers had the chance to engage with researchers and industry representatives to discuss a number of aspects to improve not only the sugar beet crop but also to improve general soil health.

The three key messages were:

1. Be smarter in your choice of varieties, look at the range of traits available and tailor to your own requirements.
2. Soil management holds the key to improved plant populations and season-long crop canopy resilience.
3. Check crops regularly and be sure to respond to changing circumstances as the season progresses.



Sunshine welcomed visitors to BeetField19 events.

Varietal choice

Discussions relating to varieties were led by Mr Mike May, Chairman of the Recommended List Committee and Daniel Godsmark, Trials Manager of the BBRO. Growers were able to view trials of the 22 varieties available for the 2020 season, which included seven new varieties one of which being Smart Janninka KWS which is the first variety with ALS technology. This drew quite a bit of attention, particularly from growers with weed beet issues. BBRO's Stuart Harder talked specifically about the herbicide resistant variety and the spray programme required. At the Fotheringhay site an area of normal beet and ALS beet had been sprayed with the specially formulated herbicide to show the advantages of the one spray programme but also the pitfalls if used incorrectly. This new technology should be available to growers in 2020, along with the 6 other new varieties, Advena (KWS), Lighting (SESVANDERHAVE), BTS 4100 (BTS), VIXEN (SESVANDERHAVE), Conger and Puffin(SESVANDERHAVE)

Varieties were also touched upon by Dr Alistair Wright, a KTP Associate of the University of Nottingham and the BBRO. Alistair had created a display of a number of varieties that he is screening for BCN tolerance. He also demonstrated the new BBRO drone, explaining how the multi-spectrum camera, produces rapid phenotyping of varieties that will assist in making smarter decisions on varietal choices. The drone was demonstrated by both Alistair and Toby Townsend,

who is also a KTP Associate with the University of Nottingham and the BBRO. Toby had some exciting news for growers, the launch of the new BBRO benchmarking system. With support from British Sugar, over 5 years worth of on-farm commercial data has been anonymised and released for growers use. Growers can compare their previous results against growers across the growing region or in their locality. This benchmarking tool is available via the BBRO website, www.bbro.co.uk, clicking on the BBROplus link at the top of the page. Toby commented that growers are interested in looking at the crop in more detail and he will be developing the benchmarking capabilities of the new site over the following months.

All the presenters encouraged growers to mark-out where different varieties were drilled and monitor their performance closely, considering:

- Selecting the right variety for each of your fields.
- Your target drilling and harvest dates.
- Deploying special variety traits such as BCN tolerance
- Variety disease ratings to harvest dates and decisions on fungicide programmes

Soil and nutrition management

Dr Simon Bowen led a number of soil and crop establishment sessions with the support of Philip Draycott, independent agronomist, and some of the University of Nottingham Beet Team: Prof. Debbie Sparkes, Dr Jenny Bussell, Georgina Barratt, Lucy Tillier and Jake Richards.

The results from the 2018 Beet Yield Challenge (BYC) had reinforced the vital role of soil management ahead of sugar beet. Data collected from commercial crops highlighted how decisions about the use of manures, straw management, use of cover crops, sub-soiling and primary cultivations were key to unlocking yield potential, especially in the drought conditions of 2018. Arguably, more than 50% of your yield potential is already determined before you drill the crop!



Dr Simon Bowen discusses soil health with grower Tom Clarke

Simon Bowen urged growers to take the advantage of a slight pause in farm activity in July ahead of combining to take a good look at fields destined for beet in 2020. He reminded growers that 'there's no simple 'one size fits all' formula, making it important to understand your soil in detail as the foundation to increased yield. The soil pit at Thelverton (manned by Philip Draycott) demonstrated the full range of characteristics to be mindful of, not just checking top-soil but also sub-soil properties.



Philip Draycott with Alex Mann, checking conditions in the soil pit at Thelveton. Picture right showing a close up of soil with root systems clearly visible.

Stephen Aldis picked up the discussions on both primary and secondary cultivation techniques and the influence of soil type. Being prepared to be flexible and open to new approaches is just part of the 'attention to detail' that drives higher yields. BBRO trials are beginning to assess options such as strip tillage, non-inversion tillage in comparison to conventional plough-based approaches on different soil types.

The 'attention to detail' approach to growing beet, is all about using specific field and crop information to make more precise decisions about crop management, this method can also be applied to crop nutrition. Mapping of pH across field may identify the ranges of values allowing more accurate decisions about liming. Precise use, especially timing of foliar nutrients is key to ensuring optimal uptake into leaves. Don't apply to crops when highly stressed, target periods of rapid growth, post-stress and when conditions are warm and humid to improve any responses. BBRO work on precisely applying nutrients to the soil such as placement at drilling also continues to highlight yield benefits and the opportunities to reduce nitrogen rates as there is increasing evidence to show that there is more efficient use of fertiliser when it is placed. BBRO is working with a few growers to monitor crops where nitrogen rates have been reduced in association with fertiliser placement.

PhD students Georgina Barratt and Lucy Tillier addressed some important canopy issues. Both are investigating canopy characteristics with Georgina's work concentrating on water stress. Last year's drought and the current hot weather prompted many discussions around the differences in upright

and horizontal canopies regarding water retention. Whilst Lucy's work on radiation use efficiency (RUE) showed the positive sides of long sunny days. Lucy commented that working closely and communicating with growers was of extreme value to research. One such conversation led to Lucy adding a new research thread to her project, where she will investigate if a 'bubbly' leaf surface created a higher surface area and increased RUE to a smooth leaf.

Another topic of debate was the use of cover crops, with more interest shown at the Diss site than at Fotheringhay. Jake Richards, PhD student with the University of Nottingham spoke about the need to understand the soils requirements before planting. His advice was to keep it simple. Aiming for rapid autumn growth, destroying at least 4 weeks before land re use, earlier if a cereal based crop is used to reduce potential lock-up of nitrogen.

Crop Protection

Dr Mark Stevens and team managed the 'virus control centre' which also discussed some of the pest and disease issues being monitored this season. Suzannah Cobb and Kevin Sawford explained how the yellow water pan network was being used to keep growers informed of aphid population spread, and that whilst virus had been found it was currently at a low level. In infected plants yellowing of the leaf can be seen within 2-4 weeks but in many cases the yellowing of leaves can be due to other issues such as magnesium deficiency or just varietal colour. Growers were encouraged to send samples into the BBRO plant clinic for analysis. Dr Mark Stevens informed growers of the work currently being undertaken by BBRO and breeders to address virus yellows and the hope that tolerant/resistant varieties will be available in future.

The sugar beet crop on both sites looked amazing but growers were still urged to check their crops carefully. University of East Anglia PhD student Siobhan Hillman spoke about the re-emergence of leaf miner, which had been found in a limited number of crops. Other issues to be mindful of this autumn were silvering disease and downy mildew.

Monitoring EACH of your crops closely is key to using the right pesticides, and only where necessary, as well as possibly identifying opportunities for cost reductions. A simple 'one size fits all' approach, whilst simpler to manage may not always deliver the best return. The 2018 BYC showed that tailoring fungicide programmes to disease levels in the crop, harvest date, variety was important to maximising yield potential. Where crops were left for later harvest dates, a third fungicide gave a yield response of an additional 10% over a two-spray programme but only where disease was active in the crop, reinforcing the need to check individual crops.

More than 500 guests attended over the two events held on the 2nd July at Fotheringhay and 4th July at the Thelveton Estate. The BBRO would like to thank the hosts, presenters and trade stands for their support.

To view the Beetfield19 posters please click here <https://bbro.co.uk/publications/beetfield19-posters/>

