

Capitalising on the canopy

Sugar beet

Effectively managing the canopy characteristics of sugar beet is the foundation of a healthy and profitable crop. In a world where the list of pest and disease threats keeps growing, *CPM* explores the importance of maximising the green leaf power.

By Janine Adamson

Cercospora, powdery mildew, rust and ramularia, not to forget drought, frost, virus yellows and now the potential occurrence of beet moth. The list of threats goes on, yet this year, the sugar beet hectareage is up at around 96,500ha.

"It's the improved beet pricing which has encouraged the increased crop area," says Prime Agriculture agronomist, Philip Simons. "Plant populations are very good and if fungicide timings are kept close, we should be in for a decent crop. Having moisture now at least helps the beet crop, if nothing else."

However, with weather conditions turning unseasonably cool and wet [end of July], protecting the crop's valuable green leaf area will be essential if growers are to make the most of the increased hectareage.

BBRO's Mark Stevens says this is because sugar beet has the potential to gain 40% of its yield from September onwards. "You can't be complacent — keeping on top of the spray programme is essential, with a watch-out for diseases such as cercospora and rust."

A fungicide which effectively controls both diseases is Revystar XE (mefentrifluconazole+ fluxapyroxad) — available this season following a label extension for use in sugar beet. It also has action against powdery mildew and ramularia, which Mark says makes it much welcomed.

Fungicide diversity

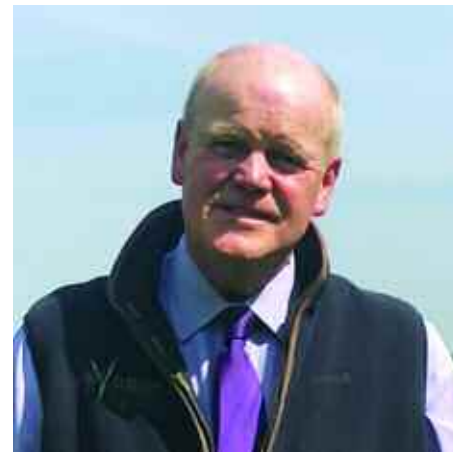
"Greater diversity in the fungicide toolbox was required, even so, it's important to remember the principles of the BBRO's eight-point plan for autumn disease management. A key part of this is application timing — wait for signs of disease to show, but equally, don't hang about either," he says. "Have no more than a 28-day gap between sprays to prevent potential re-infection."

According to BASF's Iain Ford, Revystar XE gives persistent disease control. "Application should be at the start of a foliar disease attack and a maximum of two applications can be made, with a minimum 14-day interval between treatments.

"As shown in BBRO trials, strong greening effects can be seen even where disease levels are relatively low. This maintenance of green leaf area allows plants to photosynthesise for longer, put sugar into their roots and improve yield quality," he says.

“Recent fungicide introductions are very welcome for the beet crop when we've lost so many actives over the years.”

In terms of rate, Iain says this depends on the disease present — 1.0 l/ha is recommended for cercospora whereas 0.8 l/ha is more suitable for rust, powdery ▶



For this season's sugar beet, Philip Simons says plant populations are good and if fungicide timings are kept close, growers should be in for a decent crop.



Maintaining green leaf area allows plants to photosynthesise for longer, put sugar into their roots, and improve yield quality, says Iain Ford.

► mildew and ramularia. “Some stock may be out there without sugar beet on the label but it can still be used,” he stresses.

Philip explains fungicides have become even more intrinsic to the success of sugar beet growing, given modern campaigns are much longer. “It’s all about canopy

preservation. Not only does this mitigate the impact of disease, but it also protects the crop from potential frost damage.

“That said, if growers are lifting beet early towards the end of September, it’s important to be mindful of fungicide application timings and harvest intervals,” he says.

Despite earlier conditions not lending themselves to infection, there’s been much talk about cercospora – a disease which can cause up to 50% yield loss. “Cercospora likes warm, humid conditions above 25°C. So far this year, we’ve had either moisture or heat, but not the two together,” says Mark.

“The problem is, it rapidly degrades the crop’s canopy and is also high risk for evolving and developing resistance. BBRO is monitoring the disease in the UK to understand the current situation and to help inform future programme management.”

Mark’s team is also working with breeders with a view to developing new traits for genetic resistance. Importantly, cercospora is now part of BBRO Recommended List ratings.



Mark Stevens says cercospora likes warm, humid conditions above 25°C but so far this year, we’ve had either moisture or heat but not the two together.

However, it’s the greening effect of strobilurins which adds value, says Andy. “The azoxystrobin found in Priori Gold works by inhibiting the electron transfer in the mitochondria of the fungus, causing it to run out of energy and die. But the well-documented ‘greening’ benefit is arguably just as important.”

He explains that improving the green leaf area enhances the rate of photosynthesis in the treated crop, which not only improves yield and sugar content of the root, but also creates a more resilient plant through periods of stress such as freezing temperatures.

“Strobilurins extend the life of crop leaves by reducing the plant senescence process and improving the retention of chlorophyll content, which is essential for the photoassimilates critical for yield.

“This is due to strobilurins decreasing levels of the amino acid, acetyl carboxylic ►



Cercospora rapidly degrades the crop’s canopy and is high risk for evolving and developing resistance.

Beware of the beet moth

Although not a regular pest in the UK, 2022 saw beet moth (*Scrobipalpa ocellatella*) being recorded by entomologists in Norfolk, Suffolk and Essex, with reports suggesting incidences further afield too.

The pest breeds by depositing eggs into the crown of the crop which then hatch as feeding larvae. Once adult, the moth produces further generations. Symptoms can be confused with those of boron deficiency or downy mildew, but closer inspection should reveal caterpillars within the damaged area of the heart leaves.

Symptoms include:

- Blackening of the crown
- Loss of new leaves
- In severe cases, lateral growing points are stimulated to produce leaves, resulting in multi-crowning
- The presence of adult moths among the canopy

The pest thrives in warm, dry autumn conditions and the resulting damage can leave the crop exposed to pathogen infection and further deterioration. So far, this season’s wet, unsettled weather will have helped to hinder beet moth development as downpours can drown the caterpillars.

But what about this season? Mark Stevens says the BBRO continues to monitor for the pest and will provide guidance to growers, with hope that 2022 was a uniquely bad year.

Ratings test

Although this is a positive move, due to not having a bad year for the disease recently, Philip says the data hasn’t been fully tested. “The cercospora scores are bracketed which means the data is limited, for example, lower scoring varieties are Stewart ([5.5]) and Annatina KWS ([5.9]). We perhaps won’t truly know until we have a bad year for the disease.”

He says the biggest issue is timing and the fact that follow-up treatments can sometimes take a backseat. “The problem is, second fungicide application can often coincide with the cereal crop harvest and as with most crops, application interval is important. Everyone is distracted and this could give cercospora and rust the chance to take hold,” he says.

Syngenta’s Andy Cunningham says the two actives found in Priori Gold (azoxystrobin+ difenoconazole) also offer valuable action against sugar beet diseases, especially rust, which conditions currently favour.

“In a similar high rust pressure scenario last year, trials in Lincolnshire showed a two-spray Priori Gold programme in August reduced the infected leaf area from the more than 85% found in untreated plots, to less than 20%,” he says.

Andy advises that two applications can be made per crop at a rate of 1.0 l/ha with the latest application timing being when roots have reached harvestable size (GS49), and no less than 35 days before harvest.

conviso®
SMART

I'VE GOT THE POWER

to save time with
a single application

Push the button for more efficient weed control in sugar beet.

With only one application you need less time to manage weeds in your sugar beet and have more time for other crops. Get the power with CONVISO® SMART sugar beet seeds from KWS and CONVISO® ONE herbicide from Bayer.

www.kws.com

SEEDING
THE FUTURE
SINCE 1856

KWS



CONVISO® is a registered trademark of Bayer.

ADVERTORIAL

Tools against foliar diseases in sugar beet crops

Andrew Dear, head of technical support - agriculture

After the recent rain sugar beet crops are growing well despite later drilling dates and a wet spring. All crops are now well past the 12-leaf stage and with aphid and weed control complete, the focus should shift to foliar diseases. The wet weather has provided near perfect conditions for the onset of some diseases, so it is time to think about control measures.

British Beet Research Organisation (BBRO) trials have demonstrated that yields can be increased by up to 40% if the green leaf area is kept clear of disease through late summer and autumn. But foliar disease control can be challenging, particularly with cercospora infection increasing as our weather patterns become more favourable for this disease. Although focusing on cercospora is important, it's vital not to lose sight of the key actions which should underpin a foliar disease control programme.

Firstly, don't apply fungicides too early; wait for the first signs of disease to appear. Conversely, avoid applying too late, as effective control can be compromised. Timings between fungicides should be kept within 28 days, or 21 days if the risk is high, to prevent significant reinfection between treatments. Check the AHDB Recommended List for varietal foliar disease scores.

The BBRO produces a guide in its weekly bulletin looking at early disease onset and symptoms. If the foliar disease pressure is high and the crop is partially wilting, applying a fungicide may be necessary. Target applications in a cooler period of the day when the crop is under less stress from the sun. In the early stages, some symptoms can be similar so be clear on what disease is present before treating it.

British Sugar and the BBRO continue to run cercospora monitoring stations across the beet growing area. These give an early indication of risky conditions and generate postcode specific warnings for the weekly bulletin.

Always take advice from an agronomist about what chemistry to use; there are several tools in the armoury. These include Angle or Priori Gold (azoxystrobin and difenoconazole), Impact (flutriafol), and Caligula (fluopyram and prothioconazole). Used correctly, these prevent a range of foliar diseases. A new fungicide available this year is Revystar XE (fluxapyroxad and mefentrifluconazole), which has recently been given approval and is a welcome addition to the current fungicide portfolio.



Andrew joined British Sugar in 1996, based in the trials team before becoming an area manager supporting growers. He moved into agriculture operations and business manager roles before becoming Head of Agriculture at Bury St Edmunds. Today, Andrew leads the Technical Support Team. He is also on the British Beet Research Organisation Stakeholder Committee.



Recent weather conditions have favoured sugar beet diseases such as rust.

► acid (ACC), which acts as the direct precursor of ethylene, which then leads to chlorophyll loss," explains Andy.

Later applications

For those heading into T2 fungicide timings and beyond, Philip reminds that as of last year, Caligula (fluopyram+ prothioconazole) can be used from 1 September onwards for late onset cercospora control. "Most growers seem to have been able to apply a first round of fungicide, which is reassuring given recent downpours.

"To follow up, Caligula is authorised for a single spray at a maximum rate of 1.2 l/ha, although the recommended rate is 1.0 l/ha. It's a particularly good option for those lifting beyond mid-October who'll be considering going through a third time," he says. "It's our second year with Caligula and it's been a welcome replacement following the loss of Escolta (cyproconazole+ trifloxystrobin)."

Philip warns of the cumulative cost of a robust sugar beet fungicide programme this season. "Necessary disease control is becoming rather expensive due to the requirement for best-in-class chemistry — currently around £80/ha for a good fungicide programme. This jumps to more than £100/ha for those crops requiring three sprays," he comments.

"But recent fungicide

introductions are very welcome for the beet crop, when we've lost so many actives over the years. Hopefully we can look forward to some positive yield responses with the addition of the newer chemistry."

He also stresses the role of trace elements throughout the sugar beet crop's lifecycle, which can be applied as multi-nutrient mixes, along with fungicides, to prolong greenness. "Fungicides and trace elements are major contributors to the maintenance of a clean, healthy crop canopy. Manganese and magnesium are particularly important in helping to retain chlorophyll and so green leaves."

According to Philip, different beet varieties can have very varied canopy characteristics. "Not only is it about greenness, but it's also how the varieties stand and present themselves — some have longer petioles [the stalk that attaches the leaf blade to the stem] whereas others have larger leaves.

This could be important when selecting varieties for say different locations, weed pressures or lifting periods.

"Although these traits might not be high on the agenda for growers when they're selecting varieties, we may see the concept being explored more based purely on how much the above ground canopy impacts the below ground crop," he concludes. ■

If you have any questions, please contact your British Sugar account manager. You can also read the British Beet Research Organisation's advisory bulletins at www.bbroy.co.uk



Resilient varieties you can depend on whatever the season



Our varieties undergo 10 years of UK testing before 3 years of Animal and Plant Health Agency Variety trials for UK and Northern Ireland to confirm value for cultivation and use.

With more extreme weather and regional variation choose robust, resilient varieties for 2024 sowing. All varieties are rhizomania tolerant, and in addition **Jackdaw** is tolerant to Beet Cyst Nematode and **Osprey** to the more aggressive AYPR rhizomania. All are available with our own proven pellet technology and quality.

Wren, Adder, Osprey and Tawny are also on the BBRO Recommended List.



SES VANDERHAVE UK LTD
Heath Farm, Plottergate Road,
Wellingore, Lincoln LN5 0DW
T: 01522-442000
follow us on   

#TogetherWeGrow