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# Addressing the fungicide challenge 2022

BBRO has conducted many fungicide trials over recent years and has clearly demonstrated the benefits of these products as part of an integrated approach to disease control, improving canopy health and management, as well as early frost protection. Protecting the crop against foliar disease has contributed towards the continued increase in UK industry sugar beet yields over recent years, helping to deliver sustainable returns to growers (Stevens 2017, 2018, Stevens & Bowen 2021).

However, due to recent product withdrawals (e.g. Opera, Escolta and Mirador Xtra) and ongoing registrations for new products that are still to come to market (e.g. Caligula), alongside potentially developing supply issues for currently approved products there are some key challenges for disease control on beet in 2022.

The challenges:

- Withdrawn products
- Reduced availability of active ingredients
- Increased disease pressures

UK sugar beet growers now have a reduced number of remaining fungicides (and choice of active ingredients) to protect their crops against powdery mildew, rust, ramularia and cercospora leaf spot throughout the summer and autumn. This is against a background of warmer and wetter summer, conditions which favour many foliar diseases. All UK existing fungicides are based on either triazole or triazole/strobilurin active ingredients, so a narrow choice of mode of action remains.

Cyproconazole-based products were withdrawn in November 2021, alongside the recent loss of epoxiconazole, which were all central to control of foliar diseases over last 15 years. Although the fungicides Escolta and Mirador Xtra (products containing cyproconazole) can be used on farm in 2022 (as part of the current use up period until November 2022) it is estimated that there is only 5-10% of previous sales available on farm. Many growers do not have these products available.

Products Piori Gold/Angle are commercially available (fully approved PPPs for 2022) but supply issues could affect the availability of the active ingredients azoxystrobin and difenconazole within these products.

Autumn growth can account for up to 40% of yield potential, so foliar disease control is critical to maximise grower return. The recommended practice of just in time harvesting to maximise yield potential allows growers, particularly those on lighter soil types, to leave their crops in the ground until after December and beyond. These growers may need to spray against disease at least three times.

Following the mild winter of 21/22, it is looking increasingly likely that it will be a high disease risk year, consequently growers may need access for up to a three-spray programme. Disease control has become more complex in recent years with the rise in cercospora leaf spot infection; a disease that can decrease yield by up to 40% in mainland Europe. The prevalence of cercospora is increasing due to climate change and its ability to infect and spread more rapidly now in the UK. Sugar beet growers in Italy, Greece

and southern Germany may need to apply up to six fungicides to control cercospora in high-risk seasons. Many of the cercospora leaf spot isolates are resistant to the strobilurin/triazole fungicides, therefore an alternative mode of action is required, such as in Caligula. In addition, no cercospora resistant varieties are currently available in the UK. These varieties are available in mainland Europe but would need to be developed for UK conditions.



**Fig. 1.** Impact of rust clearly demonstrated in BBRO trials



**Fig. 2.** Cercospora leaf spot can cause high levels of damage to the canopy



**Fig. 3.** Powdery mildew clearly visible

## Meeting the fungicide challenges this season.

Against the background of fewer fungicides, there are two key approaches:

1. Optimising the use of the available fungicides
2. Additional fungicide options. BBRO and the industry have identified this as an emergency situation and, at the time of writing, are working to explore alternative options.

Whatever the options you should:

- ✓ Start assessing crops in early July or earlier if crops have already met across rows and the canopy microclimate may be encouraging infection.

### Crops need to be checked weekly when conditions are conducive for disease development.

- ✓ Check the regular editions of the BBRO Advisory Bulletin for information as these will be collating all the very latest crop intelligence on foliar diseases.

- ✓ Make sure whoever is monitoring your crops can identify the early symptoms of disease.

- ✓ Know where specific varieties are in fields to monitor for any variety-disease interactions. Check more susceptible varieties as a priority.

- ✓ Don't apply the first fungicide (T1) too early, wait for the first sign of symptoms. Conversely, do not apply fungicides too late otherwise effective disease control will be difficult for the rest of the season. After applying your T1 fungicide, keep checking the BBRO cercospora risk warning system. As temperatures increase in August and especially when there are warm nights that coincide with humid conditions and/or rain, the risk of disease development is higher.

- ✓ Make sure you follow label instructions on rates and water volumes and application timings with regards crop growth stages.

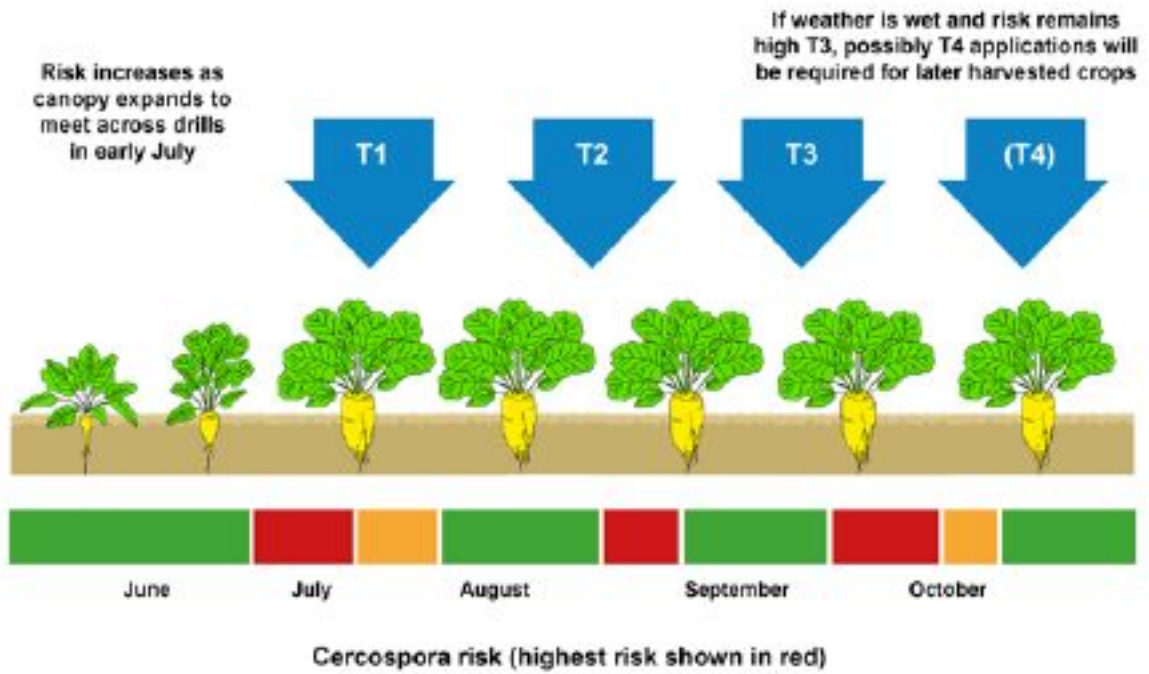
- ✓ Ensure the gap between T1 and T2, or T2 and T3 is kept to within 21-28 days to prevent significant re-infection occurring between treatments. Where there is a higher risk of diseases developing (such as a high

risk cercospora warning) consider the shorter interval but check and follow recommendations for specific products. Crops which are destined for later harvesting will need protection against cercospora when the risk is high to preserve leaf cover. If there is a protracted period of high risk, a T4 fungicide could be a possibility.

- ✓ It is unlikely to be worthwhile applying a fungicide later than mid-October as temperatures have usually dropped to below that where there is significant further disease progression. However, be mindful of the variable seasonal weather patterns as climate change is making this less predictable.

- ✓ Make sure you are aware of the harvest intervals of different products. Be aware that some products can be applied up to BBCH 49 (root has reached harvestable size) but a minimum harvest interval must still be observed.





**Fig. 4.** Periods of warm, humid weather create the ideal environment for the development of Cercospora as shown in this chart from the 2021 season

### What fungicides and where in the programme?

It can be difficult to be prescriptive about fungicide programmes as this may depend on which diseases are present, the level of symptoms and the expected weather conditions. This will also depend on whether additional fungicide options are available.

Starting with a triazole/strobilurin-based product such as Escolta, Mirador Xtra or Priori Gold is a sensible first (T1) spray option. Depending on the disease pressure, especially where there is a high risk of cercospora, a second (T2) spray may be required at 21 days later. This may mean that a 3-spray programme is a minimum requirement for later lifted crops or those under high disease pressure. A second spray option may be a straight triazole such as Impact (Flutriafol) but loss of Escolta/Mirador Xtra is problematic and hence the need for alternative products in 2022.

The BBRO Advisory Bulletin will keep you right up-to-date with the latest news on fungicide availability and options. This is usually published weekly during the summer.

### What do the trials tell us?

In 2021, which was a relatively low disease year following the previously cold winter, BBRO identified the following yield benefits from disease control at Bracebridge, Lincolnshire (see Fig. 5.). Rust was the main disease issue reaching up to 10% infection in the untreated plots during October; little powdery mildew or cercospora (less than 1%) was recorded.

The results also highlight the challenge of relying on Impact as the second

spray of a three-spray programme in a trial where the main disease was rust. This product states moderate control of cercospora and ramularia and not of rust or powdery mildew, reinforcing the view of knowing what diseases you have present.

In 2022, all beet delivered by growers to British Sugar will now be paid a minimum of £27/adjusted tonne. Therefore, foliar disease control will be critical to maximise grower return in 2022.



**Fig. 5.** Table from the 2021 BBRO fungicide trials at Bracebridge. Impact exhibits moderate control of Cercospora leaf spot for up to two months.