

Cercospora Leaf Spot in the UK

Historically, Cercospora Leaf Spot (CLS) had been an occasional and inconsequential disease of sugar beet in the UK.

Incidence of CLS had been increasing since 2018 and the first severe outbreak was seen in 2020. Since then, significant strides have already been taken to support growers as the industry has been facing the fact that CLS has become an established threat in the UK. 2022 saw the introduction of Cercospora disease scores on the Recommended List, introduction of a wider portfolio of effective fungicides has been supported by BBRO fungicide trials, and 2025 brought the first CLS tolerant variety to the UK market.

To expand on this, BBRO has initiated a programme of work to understand the specific epidemiology of CLS in the UK – with particular focus on adaptation to the UK climate and the fungicide resistance landscape.

Insights from this research are being used to inform more effective CLS management strategies for UK sugar beet growers.

Materials and Methods

To review the ecology of CLS in the UK, Spornado spore traps have been deployed across the BBRO's network of CropWatch monitoring sites since 2023. These allow us to monitor temporospatial patterns of spore dispersal, as well as the fungicide resistance status of CLS populations.

Spornado cartridges are changed weekly between May and September. Mesh from the cartridges is incubated in potato dextrose broth for 24h to initiate spore germination before extraction of DNA. Presence of *C. beticola* and the Qol resistance status is monitored using qPCR.

The CropWatch monitoring sites also have DeltaT weather stations which enables us to integrate weather data with our results, allowing for better insights into the data collected, and in future to help improve CLS forecasting models.



Figure 1. Spornado spore trap

Results and Discussion

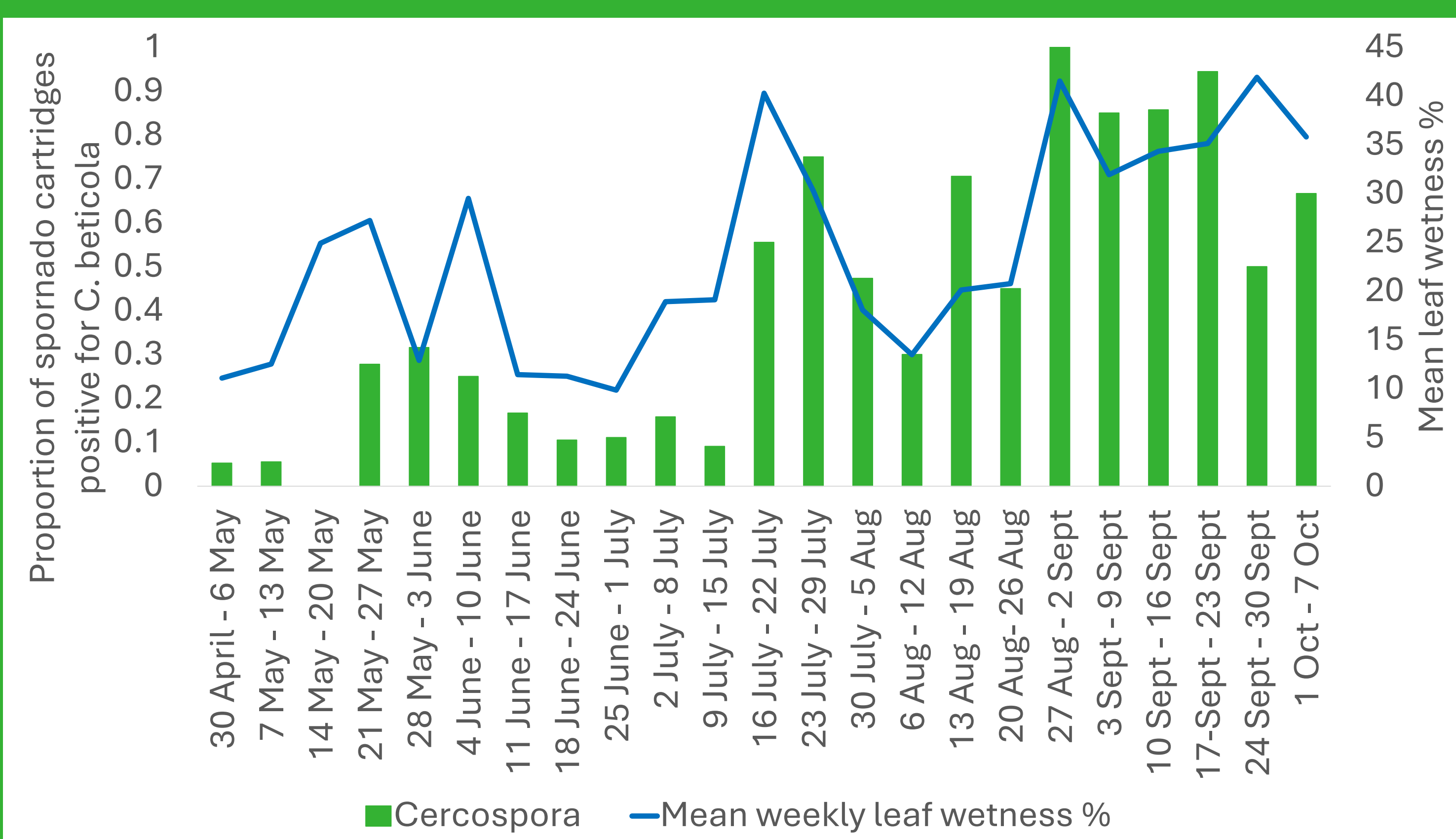


Figure 2. Proportion of spornado cartridges positive for *Cercospora beticola* each week between 30th April and 7th October 2025 (green bars, N=20 samples per week) and mean leaf wetness percentage each week (blue line, measured by in-crop leaf wetness sensors N=16 sites)

Spornado spore traps have been deployed between early May and early October since 2023. *Cercospora beticola* spores have been identified throughout the monitoring period each year. In 2025, symptoms were seen in the field from mid July. The proportion of sites where spores were detected increased during July following periods of higher leaf wetness which is favourable for CLS development (Fig. 2). From the end of July, spore detection tracked closely with leaf wetness which may suggest increasing levels of infection or that rain splash is factoring in spore release.

Unlike other foliar diseases common to sugar beet in the UK, *C. beticola* is notable for its ability to develop resistance to different classes of fungicides – including Qol and DMI fungicides. Assessment of the Qol sensitivity status of *C. beticola* spore populations from Spornado spore traps was made using qPCR. Analysis of the relative abundance of Qol resistant or sensitive alleles within samples allows for an estimation of allele frequency in *C. beticola* populations. In 2025, moderate to low levels of the Qol resistant allele were seen in May and early June (Fig. 3). From early June to mid-July, none of the resistant allele was detected. This would indicate a fitness cost to maintaining Qol resistance at the stage where populations are shifting from overwintering spores to latent infection. After the first applications of fungicides in the field, abundance of the resistant allele increased, peaking at 77% in late September.

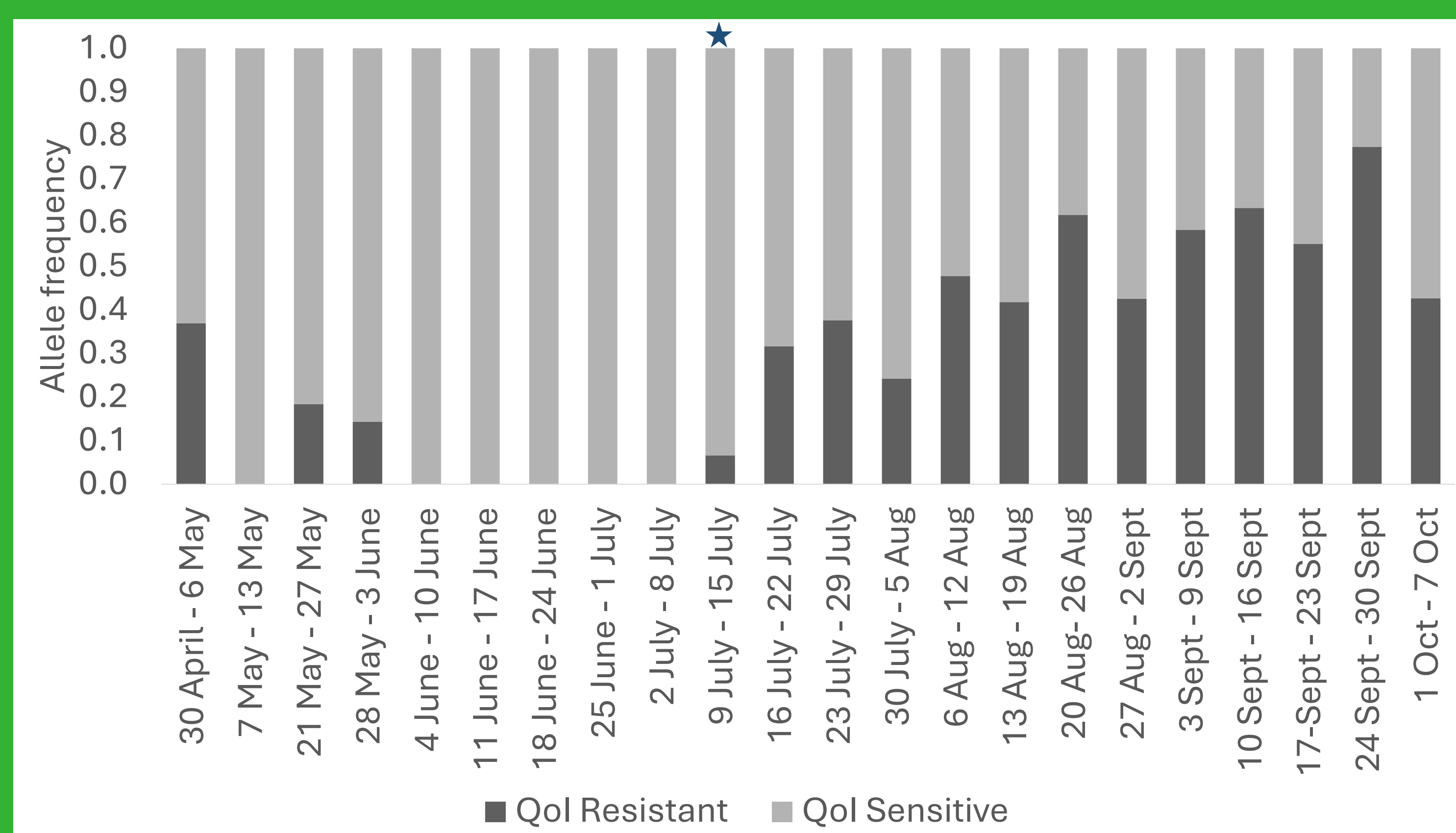


Figure 3. Frequency of *Cercospora beticola* Qol resistant and sensitive alleles in spore populations from Spornado cartridges collected from 20 sites in 2025. Star indicates date of first fungicide application in the field. Assessed by qPCR using primers from Bolton et al. (2012)

Supporting growers to manage CLS

An essential part of all BBRO research is to deliver our findings to growers in a way that supports better decision making on-farm. Weekly updates of results from Spornado spore traps, as well as in field observations, are shared to inform growers of up-to-date risk in their area.

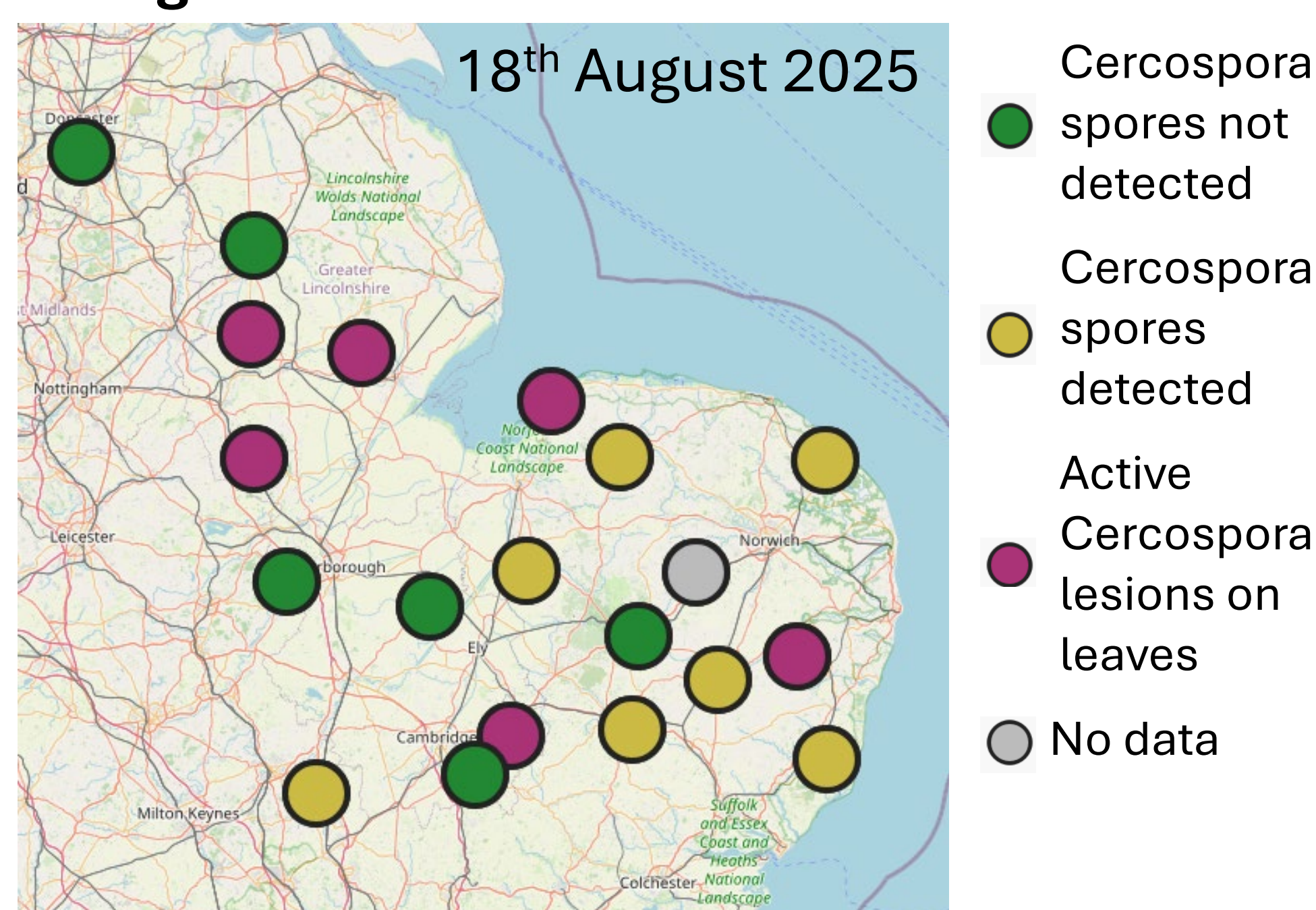


Fig. 4 Map showing status of CLS at 20 CropWatch sites in 2025

Future-proofing CLS management

To date, our work has largely been focussed on understanding the current state of CLS in the UK. We now have a baseline on all the factors that affect disease management – from varietal tolerance, fungicide efficacy and availability, and grower attitudes and concerns to this new threat, to *Cercospora* population dynamics, fungicide resistance status and the effects of weather on disease risk and severity.

Now we are looking to the future of CLS management in the UK. By using *in vitro* assays and molecular techniques to monitor changes in fungicide resistance, field trials of new varieties and control options, and integrating weather data to improve risk forecasting, we hope to have CLS management strategies which are fit for the future.

