

Disease slows in dry April

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Technical Crop Doctor

The cool, dry April has slowed crop growth, disease development and T1 fungicide applications. CPM joins the Crop Doctors as they get back out into the field to see how different varieties have fared at Cawood, Long Sutton, Callow and Great Tew.

By Lucy de la Pasture

As the country begins to open up after lockdown, the Crop Doctors are able to get back out into the field to assess the Bayer regional trials sites, albeit not as their usual double act. SRUC’s Prof Fiona Burnett visits Cawood in North Yorkshire and Long Sutton in Lincolnshire on 27 April, while ADAS’s Jonathan Blake reports from the Callow site in Herefordshire and the Great Tew Estate in Oxfordshire on the second day of the tour.

Nowt brewing in Yorks

At the end of March the Crop Doctors gave the winter wheat and barley sites at Cawood an almost clean bill of health. The prolonged dry period in April means very little has changed on the disease front but the soil is now visibly cracked, more reminiscent of June than April, and both wheat and barley are showing signs of

stress from the abnormally cool weather.

“There’s been less than 5mm of rain at Cawood so far this month, though the forecast today gives a 40% chance of showers. It’s also been cold with frosts at night, but daytime temperatures have improved so far this week,” says James Howat, Bayer commercial technical manager (CTM).

Yellow tipping

Wandering into a plot of KWS Palladium, a hopeful for the AHDB Recommended List, Fiona has a closer look at the yellow tipping. “You can see clear crimp marks on the leaves where the growth has been checked by either a frost or a PGR application in the cold weather. A lot of the varieties are showing tipping, but the degree probably varies between varieties because they will have differed in growth stage at the time of the stress, making some more susceptible than others.”

Another leaf effect visible in some wheat varieties, KWS Firefly in particular, is abiotic spotting — further indicating that the weather during April has been a long way from the norm. In the barley plots, physiological spotting is even more prominent, she notes.

As far as disease goes most of the varieties look relatively clean, explains James. “The plots received 1.0 l/ha Aviator XPro (bixafen+ prothioconazole) at T1 on 25 April. We’ve found around 80% of plots have mildew lurking at the base of the canopy on lower leaves and stems, some septoria is present on leaf six but there’s very little yellow rust to be seen.”

The Rapid Disease Detection (RDD)

sampling of the newest leaf layers has detected no yellow rust so far this season and septoria levels appears to be static in the crop. It all adds up to making fungicide decisions at T1 much more tricky than normal, says James.

“Even though there’s septoria bubbling away in the lower canopy, it’s difficult to know whether the lesions are active enough or whether it will be wet enough to spread up the canopy.”

There’s clearly going to be a call on T2 decisions too. Plots will get Ascra (prothioconazole+ bixafen+ fluopyram) but James will use at the minimum 1.0 l/ha rate if it remains dry and septoria pressure in the upper canopy isn’t a serious concern. “At the 1.0 l/ha rate it still delivers a 65% azole dose, in line with stewardship recommendations.”

Fiona’s thoughts are that it will need particularly ‘splashy’ or sustained rain events for septoria to make the jump from leaf six to the newly emerging leaves, with leaf three emerging at the time of her visit and leaves four and five appearing clean. But even so, it’s not a ▶



Mildew is lurking at the base of the majority of varieties at Cawood, pictured here in Crusoe.

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► good reason to take out the T1 in her book.

"Septoria is pretty visible, even though low down, and there is also mildew there. It's worth remembering that chlorothalonil gave fungicide programmes invisible help in the past, effectively propping up programmes. To get to the same point without it will mean making the best use of the available chemistry, and that probably means using an SDHI plus azole at T1 at a site like this but moderating the dose due to the lower-than-normal disease pressure."

Behind at Long Sutton

Further south at David Hoyle's farm in Long Sutton, South Lincolnshire, the wheat is about two and a half weeks behind where it would normally be at the end of April and T1 sprays are still a good week away, says Darren Adkins, CTM at Bayer.

"The site received a T0 on 13 April and it hasn't really moved on since then due to the dry and cold."

David confirms that so far there have been 15 frosts during April, often a cold northerly wind and just 5mm of rain since 15 March. Potash applied on 23 March is still evident on the baked soil surface, further evidence of an April without showers.

The wheat plots were muddled in at the end of October after veg, he adds, leaving a crop that Jonathan Blake describes as 'open'. He had called into the site a few days earlier on 23 April and he joins his fellow Crop Doctor virtually to compare notes on disease levels at the site.

"There's a lot of leaf death at Long Sutton and it's damage that's completely unrelated to disease. It's the leaf tipping that makes it a difficult crop to look at."

Dissecting plants, Jonathan finds leaf four emerging — making leaf emergence at the site a leaf behind the more northerly site at Cawood. During the Crop Doctors last visit, yellow rust was the biggest concern and was readily found in a number of varieties.



Wheat is being irrigated at David Hoyle's farm as part of an AHDB project, even though costs vary from £80-400/ha depending on the water supply and infrastructure.

"You don't expect yellow rust to go from being present at that level at the end of March to being not much of an issue by the end of April. It would normally have been catastrophic in the untreated plots by now but this season the frost has controlled it as well as any fungicide," he says.

Although yellow rust could still be found, most noticeably in KWS Zyatt but also present in Gleam, Shabras and KWS Kinetic, the infection is in distinct foci rather than being widespread, notes Darren. The dead leaves in the lower canopy and leaf scarring in Zyatt are evidence of the disease that has been and gone.

Septoria is even harder to find at the site, where even KWS Barrel — one of the best indicators of septoria pressure — appears to be remarkably clean. Darren reports that the RDD sampling has found zero latent septoria infection present on leaves four and five, confirming that, for now, disease pressure is low.

For David, the T1 spray will be more about the physiological benefits than disease control and he is cutting back his fungicide spend at this timing. "I'm planning on using either prothioconazole on its own or with tebuconazole or a strobe as a partner or with folpet as well, depending on the variety. I'm saving the better chemistry for later, using an SDHI at T2 and T3 as historically we're often wet here during June, so we can capitalize on the soil's natural water holding ability and keep the crop greener for longer to drive yield."

The bigger decision is which PGR to use, he adds. "Crops are small and stressed now, but if it becomes warm and wet then they're going to romp through their growth stages and fall over."

Comparing the site to her earlier visit to Cawood Fiona says the tipping isn't as evident at Long Sutton, but that's because it's slightly hidden by the leaf above it in the canopy. "The openness of the crop means there's very little humidity in the canopy to get disease cycling. Consequently it's less evident than at Cawood, which although a low disease site I consider warrants a reduced rate of SDHI. I would agree that here at Long Sutton a lighter touch is justified."

Septoria lurking at Callow

On day two of the Crop Doctor tour Jonathan Blake visited his local Bayer trials site at Callow in Herefordshire, accompanied by Bayer CTM Gareth Bubb and AICC agronomist David Lines. Comparing the site with Long Sutton the



Eyespot lesions were hard to spot but the eagle-eyed Crop Doctors found some non-penetrating stem-based browning in Skyscraper at Long Sutton.

day before is like comparing apples with pears.

Drilled at the end of September, the Callow plots have much thicker, bolder canopies than the later drilled Lincolnshire site. With just 22mm of rain during March and a further 11mm in the form of snow during April, the cracking in the ground bears testimony that the western site is also dry for the time of year. Even so, septoria is surprisingly easy to find and more active than at the previous sites on the Crop Doctor tour, says Jonathan.

"Where septoria was found on leaf six at the other sites, here there are active lesions on the tip of leaf five which is close to the newly emerging leaves and increases the risk of septoria spreading up the canopy."

In spite of differences in the canopies between varieties, with KWS Barrel low and flat to the ground and KWS Extase looking upright and knee height, there's very little difference in their physiological development, with leaf three emerged, says Gareth. He reports the site received its T1 spray the previous day, in advance of the light rain that fell overnight and into the morning of the visit.

David adds that most of his crops in his North Herefordshire/South Shropshire/



Yellow rust had largely been subdued by the night frosts but was still bubbling away in KWS Zyatt at Long Sutton.

Worcestershire patch are levelling up when it comes to growth stage, with even the late-drilled wheats now with leaf three 40-50% emerged.

Yellow tipping and leaf scarring is evident at the Callow site, similar to the two sites visited the previous day, but some varieties stand out for all the wrong reasons. Jonathan describes Costello as looking particularly ‘ugly’, RL candidate variety RGT Bairostow as ‘not pretty’ and Kinetic as ‘yellow from a distance’. LG Skyscraper has easy to find septoria and noticeable leaf scarring, Graham is far from clean and Gleam has a structure where the septoria infection is particularly close to the emerging leaves, he notes. In contrast, septoria resistant variety Theodore stands out as ‘green and clean’.



At Callow, septoria lesions on the older leaves of Skyscraper are right next to emerging leaves due to the structure of the canopy.

Wolverine is another variety to watch carefully, believes Jonathan. “It was drilled early because of its BYDV resistance but has since had its septoria rating downgraded on the RL to 5.2, which when combined with early drilling will accentuate the problem.”

Yellow rust is almost absent, with the exception of KWS Kinetic — an observation which could mean something interesting is going on with yellow rust strains since none of the other susceptible varieties have infection, points out Gareth.

“At Callow it’s not a protective scenario for septoria as it was at Long Sutton, so it warrants an SDHI at T1 in many varieties,” says Jonathan. “With some of the more septoria-resistant varieties you can probably get away with a lower input strategy because although it’s still possible to find septoria, it will progress more slowly in the crop as there will be less latent infection than usual.”

Gareth adds that the interval between T1 and T2 is likely to be much closer than normal this spring but warns that, whatever happens, not to be tempted to compromise the timing of the T2 — which remains the most crucial timing in wheat, even if it’s less than three weeks after the T1 goes on.

Promise at Great Tew

Final destination on day two is Colin Woodward’s farm at Great Tew in Oxfordshire, where he takes Jonathan and Bayer’s Ben Giles for a whistle-stop tour of some of his wheat in the welcome rain.

Jonathan reports ‘substantial levels of septoria’ in September-sown Gravity, which is always a good barometer for septoria.



Septoria is evident in both early and later-drilled Gravity at Great Tew in Oxfordshire.

Even in later-drilled fields, Gravity has active septoria on leaves five and six, he says.

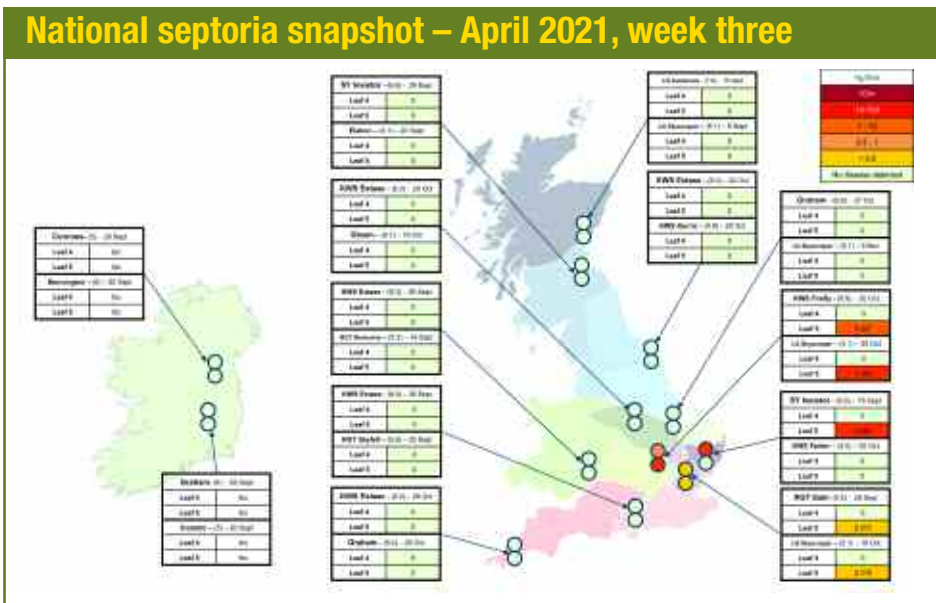
Having seen three of the four sites for himself, Jonathan’s view that visible disease levels aren’t that dissimilar to normal on the lower leaf layers at Great Tew and Callow, but the big difference is likely to be lower levels of latent infection on leaves five, four and newly emerging leaf three, a result of the predominantly dry weather during April.

Ben agrees and adds, “Leaf four has been present for 3-4 weeks this spring and normally that would result in plenty of latent septoria in the leaf, but this year the results from the RDD sampling have consistently picked up no latent disease across sites and varieties on leaf four.”

He highlights the most recent RDD results from five varieties at the local Bayer site, Hinton Waldrist, from testing earlier in the week. “As an example, RGT Saki had visible septoria on leaf six, the RDD results showed latent infection on leaf five but zero infection on leaf four.”

Ben believes it’s important not to be lulled into a false sense of security because, even though the dry weather has paused the spread of infection, septoria is present in crops and the important leaves are about to emerge. Much will hinge on the weather during May, he says.

The rain has certainly made the T1 decision much easier for Colin, particularly for the Extase which hasn’t received any fungicide up until now. “With wheat prices at around £200/t it’s going to be worth looking after crops this spring and maintaining green leaf for as long as possible,” he says. ■



Source: Bayer Rapid Disease Detection monitoring – samples of the newest leaf layers are taken from single commercial fields and are not representative of the whole country.