

“The dry weather is not a get-out-of-jail-free card for disease.”

Nurturing through to full potential

**Technical
Crop Doctor**

As the key flag leaf timing approaches, the Crop Doctors have taken another virtual tour of the UK's trial plots to assess the issues growers face and encourage peak performance from Britain's cereal crop. *CPM* joins the discussion.

By Tom Allen-Stevens

It's been three weeks since the Crop Doctors — Jonathan Blake of ADAS and SRUC's Prof Fiona Burnett — took a virtual 'tour' of the UK's cereal crops to assess levels of disease. Hardly any rain has fallen since then, but crops have moved on significantly and there's plenty of potential to protect as thoughts turn to the key flag-leaf timing.

Following COVID-19 lockdown restrictions, trial plots at each of four sites in Herefordshire, Oxon, Lincs and Yorks have been visited by Bayer field representatives. They assessed disease levels, took samples and photos and joined a web conference with the Crop Doctors, along with a local grower or agronomist to gain a true picture on the state of the UK's crops.

Variation in Oxon

"The wheat varieties are all over the place," comments Bayer's Ben Giles, who took a detailed look at plots at Hinton Waldrist, near Oxford, on 20 April. The sandy land site hadn't seen any rain at all over the past three weeks, with some varieties showing signs of stress, although 20mm fell just after Ben's assessment.

KWS Extase is the most forward of all, he notes, with leaf three just about fully emerged, but Skyfall is noticeably further back in the plots that were drilled on 21 Oct. "There's septoria infection on lower leaves of pretty much every variety — even Extase. Theodore gets the prize as the cleanest in the plots. Any early sign of yellow rust has largely cleared up, although RGT Wasabi is badly affected."

Fiona notes it can be hard to distinguish crop stress from actual disease lesions in current conditions. "But the dry weather is not a get-out-of-jail-free card for disease, and that the weekend's rain will have fuelled infections that won't be evident until the beginning of May."

Jonathan adds that many crops inspected at T1 will be hiding a level of latent septoria infection that will be within the leaf, but not yet showing as lesions. "If you tested Extase, Graham and KWS Barrel for latent infection, that's when the differences would show," he notes.

Calling in from the nearby Great Tew Estate, Colin Woodward reports that yellow rust found earlier on his Revelation has now

largely cleared up, following a T0 application of tebuconazole plus chlorothalonil. "All wheats are putting on rapid growth and we're just making the T1 applications," he reports.

He brings a leaf for inspection, showing signs of discolouration. "It doesn't look pathogenic — more stress-related or signs of earlier disease," Fiona diagnoses. "You'd hope that adult plant resistance to yellow rust will now be kicking in on most varieties, but you can't rely on it, so it's important to keep walking crops and keep an eye out for any signs."

Nevertheless, Colin is applying an SDHI to his Revelation and LG Skyscraper wheats, mixed with an azole and CTL, while the less disease-susceptible wheats are getting



Growth stage and ground cover varies considerably across varieties in the winter wheat plots in Oxon, although in this drone picture, taken on 24 April, a week after 20mm of rain fell, some are catching up. Skyscraper and Graham (marked) stand out as the greenest.



Discolouration on leaves of Revelation at the Great Tew Estate are put down to crop stress or previous infections, rather than active yellow rust lesions.

Prosaro (prothioconazole+ tebuconazole) plus CTL. "On the flag leaf, in most years we'd go with an SDHI across all the wheats, but we may have a rethink if this dry weather continues."

Fiona agrees that the T1 timing is the best one to hold back on an SDHI, with the T2 timing most likely to give the best response. "From a resistance point of view, dropping an SDHI from one of the timings is the best strategy when disease risk is low. You'd look to include an azole and multisite at both, and tailoring azole dose to disease risk is the best strategy. The real dilemma at T2 this year is whether it will still be in scope to use CTL as the multisite fungicide."

CTL loses its approval and cannot be applied to crops after May 20. Colin plans to use folpet after that date, although Ben wonders whether a T1.5 application, timed at around leaf two emergence, is a wise choice for those growers with CTL to use up.

It's a good idea, agree both Crop Doctors, but not a good reason to stretch timings, and the T2 must still go on at flag leaf fully emerged. "Watch in particular for yellow rust between the T1 and T2, and if you're putting on CTL at T1.5, add in a rust-active component if you find it," advises Jonathan.

Dry in the Wash

At Long Sutton in Lincs, the last rain to fall was just 4mm on 18 March. "We've had to irrigate land just to get it ploughed in front of potatoes," reports David Hoyles of GH Hoyles, who hosts the trial site.

Bayer's Darren Adkins has walked the plots. "Generally disease levels were low and all wheats were looking fairly healthy," he reports. "I found low levels of yellow rust in untreated plots of Gleam, KWS Kinetic, LG Spotlight and RGT Saki, but it was not particularly active. Where the T0 of tebuconazole plus folpet had been applied

the disease had dried completely, leaving old necrotic tissue. The septoria is there at the bottom of the crop and ready to go."

Fiona remarks that the yellow rust evident across the sites visited previously had not taken hold. "The septoria will continue to hang around and will require attention when wetter conditions return."

Jonathan notes that raises a question for the T1 spray. "If you wanted to create a season to minimise septoria pressure, you couldn't come up with better conditions than we're seeing at Long Sutton. There's every reason to cut back on the T1 and just apply an azole and a multisite, especially where you have the varietal resistance."

A dose of tebuconazole at T0 dealt with the early yellow rust, reports David. High winds and work priorities drawn to the potato crop have meant T1 timings are slightly later than he'd planned. "About half of our wheats are looking good, and these have received Ascra (bixafen+ fluopyram+ prothioconazole). The thinner wheats have just had azole plus CTL. About 10% of the crop is quite backward and not yet had its T0 — we'll roll this into the T1.

"We already have our stock in the spray shed for the T2 application, based on Revystar XE (fluxapyroxad+ mefentrifluconazole), Adexar (fluxapyroxad+ epoxiconazole) and Firefly (fluoxastrobin+ prothioconazole). What we actually apply will come down to crop potential, as well as disease, and we'll relate that to total spend."

Darren reveals there are plans to carry out latent septoria tests on crops in the region, hoping to get results back in time to inform what's applied at the T2 and T3 timings. "Tests last year showed low levels until June, but exploded when the rain came, which shows it's important to consider not just the weather you've had, but also what might come."

Fiona agrees latent disease testing will be a useful tool to "add to the suite" used to apply inputs appropriately, although



Low levels of yellow rust in untreated plots of Gleam at Long Sutton were not particularly active.



Disease levels were low and all wheats were looking fairly healthy, including this plot of Extase at Long Sutton.

Jonathan sounds a note of caution over interpreting results. "An infected leaf could be a high level of infection early in the cycle or a low level that's just about to appear."

Disease climbs in the West

Independent agronomist David Lines, looking after crops in Shrops and Herefordshire joins the web conference for the region. "The main issue we have is the massive variation in crop growth — the timings are sure to be compromised for some of the T1 sprays going on," he says.

Bayer's Gareth Bubb has been to the trial site at Hartpury College. "There's quite a lot of active septoria in untreated plots and we're still seeing yellow rust in a few varieties, although the T0 spray, where applied, has dried the disease up. We had 10mm of rain over the weekend which has freshened everything up and will aid spread of disease."

He reckons varieties with a more upright growth habit will be particularly susceptible as a result of leaf-to-leaf contact, and that's where infection will be building. "Latent infection testing we carry out always shows there's a higher level than you think there is," adds Gareth.

It's a point Jonathan picks up on. He's also visited the Hartpury site and found septoria on Santiago. "Where you find it's active on leaf five, you can be sure it's brushed up against leaf three, especially in upright varieties. But if it's no higher than leaf seven, that'll probably be below the danger zone. Importantly, just the low amount of rainfall we've had, or even the morning dew, can bring on this leaf-to-leaf contact and spread infection, particularly in susceptible varieties," he points out.

Most at risk are early sown crops of varieties such as Grafton and Barrel, which are now progressing well and have good potential, he adds. David agrees that there are plenty of wheat crops with good



Eyespot levels were generally low, although it was found in Graham at Hartpur.

► potential, and that's going to decide which crops get the spend when it comes to fungicide.

"As for what to apply at the T2 timing, I'd go for one or two products to keep life simple for the spray operator, but just adjust the dose according to risk and crop potential — I'll be doing that on a field-by-field basis

this year," he adds.

Fiona notes that the timing of the application is important. "The number one critical job at T2 is to coat the flag leaf."

Jonathan agrees. "Chances are leaf two will have some latent infection by the time the T2 goes on, so product choice and dose should bear this in mind."

Pace picks up in Yorks

At the Stockbridge Technology Centre, Cawood, Yorks, Adam Tidswell reports the late Nov drilled plots have put on good growth and have reached GS30. "The T0 application has just gone on and the T1 timing probably won't come until the end of April. But crops have developed well, and I expect they'll catch up by the time the T2 timing comes around.

"Yellow rust is still active on a number of varieties and there's some septoria on lower leaves," he adds.

Jonathan notes there's quite a lot of difference in the levels of yellow rust seen across the UK. "There are differences in varieties as well as regional differences and these backward crops will also confuse the picture."

It's a good reason for vigilance, adds Fiona. "It adds to the uncertainty that



Septoria evident on leaf five at Hartpur will quite likely have brushed up against and infected leaf three.

surrounds yellow rust and part of the general swirl. It's good to have a variety with a good resistance score, but you can't rely on it. It all builds a strong case for an SDHI at T2. You might want to moderate the dose, depending on risk, but it's best to include one with the azole."

Adam's planning Aviator (bixafen+



prothioconazole) plus CTL for the T1 spray with Ascra plus a multisite at T2.

Phil Jennings joins the conference from nearby Fera. He's been monitoring the fusarium situation so far this season.

"Fusarium doesn't like wet conditions over the winter so that will have knocked back the risk, and the chances of finding any in a Nov-drilled crop are very low," he says.

"But unlike other diseases, if it carries on warm and sunny that can build inoculum from a low level. Then, if we get wet weather towards the end of May, that's ideal for the development of the perithecia — the



Yellow rust is still active at Cawood on a number of varieties, including Dunston.

spore-bearing structures. The crucial period is during flowering, and wet conditions here would be high risk for fusarium and the mycotoxins associated with the disease."

Barley spotting

In the barley plots at Cawood, Adam has found some strange-looking spotting he suspects is net blotch. Fiona confirms there are two different species of the disease. "This looks like the spot form, which is slightly different from the more common net blotch. Strobilurin fungicides and SDHIs differ in their strengths against the two types, so it's important to apply a mixture of actives," she advises.

"It's also important not to confuse this form of net blotch with ramularia, that's a later season disease and the lesions of net blotch don't tend to be confined to the veins in the leaf, as they are with ramularia."

Overall, what's struck Fiona about this virtual tour of the UK's crops is their variability. "It's dry and disease levels are generally low, but the difference in growth stages and crop condition mean that fungicide programmes are going to have to be tailored quite carefully to the crop in question. At the T2, things should come together, but the risk of yield loss through



Strange-looking spotting in KWS Cassia at Cawood is confirmed as the spot form of net blotch.

trimming the crucial flag-leaf spray outweighs any potential cost saving."

Jonathan agrees the disease risk is low. "You'd be hard-pressed to say that conditions have favoured septoria, although there are situations and susceptible varieties where the risk remains high. But the need for a robust T2 spray remains where crops have potential, while it's also crucial to remain vigilant for signs of yellow rust, especially where it's not expected." ■



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