Learning through reflection

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Cereal diseases

Disease control was a mixed bag last season, with a late influx of septoria catching some growers with their trousers down. *CPM* joins a roundtable discussion hosted by Bayer to find out what went right and what went wrong.

By Lucy de la Pasture

Whether there's any such thing as a normal season in the UK's volatile maritime climate is a matter for debate, but last spring was an outlier by any standards. A second wet but cool winter was followed by a very slow, dry spring, with frosts throughout April when crops would normally be beginning to rip through their growth stages.

Most crops appeared remarkably clean as leaf three emerged, backed up by the emerging science of rapid disease tests which seemed to indicate that there wasn't too much to worry about — sampling of leaves three and four were coming back with zero or very low levels of septoria DNA. Latent disease wasn't brewing and that led to a widespread assumption that no nasty surprises were round the corner. Some growers took their chances and cut fungicide rates or forwent a T1 spray altogether.

Fast forward a few weeks and the continuing cool, dry spell led to a very protracted period of flag leaf emergence and consequently an extended gap between the main spray timings. In many cases, disease still seemed fairly inconsequential. Then boom, the weather turned and septoria took advantage. Add in a failing resistance gene in varieties with a Cougar parentage and things began to look bad. Reflecting on the season, what can be learned?

Septoria in Firefly

AICC member Damian McAuley of Indigro reckons that, on the whole, things went well across his client base. "The very cold, dry spring reminded me of 2012, so I wasn't looking at cutting rates even though rapid disease testing suggested there wasn't much latent septoria. Most of the wheat varieties on my patch have strong disease resistance and disease control was good late in the season when septoria came in, with the notable exception of Firefly."

Damian says that the level of septoria in Firefly, possibly the worst affected of those with a Cougar lineage, scared him. "We had septoria on the flag leaf which was the thing that first alerted us to the fact that something had gone wrong."

Last season also provided the first real test for old and new chemistry, he adds. "We did see some of the differences in fungicides eek out, but we also felt the loss of chlorothalonil. Its efficacy on septoria was probably something that hadn't really been appreciated and it had obviously been punching above its weight within fungicide programs for years."

That said, Damian feels slightly reassured by the performance of folpet in difficult situations, even if it wasn't at the level offered by chlorothalonil. "Folpet isn't chemistry I have much experience of because it was less cost-effective and not as good as chlorothalonil. But I can see that it's now going to play more of a role and I may use it at both T1 and T2 in more septoria susceptible varieties but otherwise at T1, depending on disease."

Dr Aoife O'Driscoll, NIAB's senior specialist in crop protection and agronomy, agrees it has a role in high pressure situations and confirms the advice from NIAB will be that where folpet is used, to apply it twice in the programme. "It's clear two uses are better than one."

Aoife advises that part of the disease control process should be variety selection — ideally selecting four or five wheat varieties to spread the risk rather than relying on a handful of varieties with high septoria ▸

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"We didn't cut back on the fungicide and it's paid off."
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It's important not to forget that fungicides are being applied to protect leaf layers rather than eradicate disease, says Aoife O'Driscoll.

▸ resistance. This was exemplified by the issues seen in KWS Extase last season, she believes, and put these down to a number of factors, including the popularity of the variety which occupied 10% of the winter wheat area.

"There were some issues with poor grain fill and disease in some crops of KWS Extase last year. In many cases it was early drilled (which lowers its septoria resistance rating) and had lots of early N applied, putting these very forward crops under higher disease pressure," she says.

Damian agrees an integrated approach to disease control should consider variety selection, drilling date and nutrition.

It was also its popularity that meant Group 4 RGT Saki also came under undue duress as the so-called Cougar strains of septoria made the most of the susceptible varieties in the ground. Occupying 10-11% of the winter wheat acreage, RGT Saki joined a further six Group 3 varieties on the AHDB Recommended List with a Cougar lineage. It illustrates the point that genetic diversity is also important if resistance genes are to be looked after, adds Aoife.

"This year NIAB will be working off both the one-year AHDB RL ratings for varieties rather than the three-year average when devising our fungicide strategies."

Greg Hanna, Bayer's marketing development agronomist, adds that there are other advantages to having a spread of varieties, one of which is their different developmental characteristics. This means they reach the critical growth stages for fungicide application at different times — easing the workload and potentially improving on spray timings.

That's a point Aoife picks up on, stressing that dissecting wheat plants is very important to establish the correct timing for fungicides. "The importance of correct timing was highlighted last spring so, in some ways there are loads of positive things to come out of last year."

Damian dissects religiously to give his clients the best advice on timing but, even so, he says that the uneven development of crops last spring made it a real challenge to hit fungicide timings spot on.

Tebuconazole threat

The continued loss of active ingredients is another point of contention. Hanging like the Sword of Damocles is the possible threat to the popular azole, tebuconazole. With other azoles having already fallen foul of the (EC) 1107/2009 regulations, the prospect of losing another with so many uses isn't a happy one.

Because of this Aoife believes it's not a time to rest on our laurels. "We should take the opportunity to consider life without tebuconazole and ask what else we could do so that we're ready for any change," she says.

"If we lose tebuconazole then we'll have lost a very important active in a lot of crops, particularly for yellow rust control in wheat. Even though we still have the strobilurins, there are few options for yellow rust since we've already lost epoxiconazole and cyproconazole," says Damian.

Aoife is a lot more positive, believing too much choice can be a bad thing. "A small number of options which work well and are used properly can be enough but that's not to say we don't need to have alternatives available."

Damian is less convinced by the argument. "Being an agronomy nerd, it's the technical decisions that are a part of the fun of the job," he smiles.

Part of that job is to make recommendations that provide cost-effective control in the field. "I take account of the information provided by the AHDB dose response curves and fit that to the variety and the season. Although supply chain issues mean there has to be an element of planning ahead, I don't have recipes for disease control — it has to have flexibility," he says.

Aoife agrees that fungicide decisions must be made according to what's going on in the field in real time — not T1 recommendations made in February or March for application in several weeks' time.

Both agronomists agree that there's increasing social pressure to use rates which may be too low. Aoife believes that while there's a changing technical story, with apps and technology providing information that's never been available before, it's crucial not to forget about the biology and how fungicides actually work.

"We have to be mindful about why fungicides are applied to the leaf layers, which is primarily all about protecting them from disease, as well as fungicide modes of action and their persistence, which links into rates," she explains.

On a practical note, Damian isn't a fan of the twin-packs which have become popular with some manufacturers. "Providing a straight with a partner product doesn't ensure using the two in the right balance and could even be considered a licence for people to use the better chemistry alone. It's not a good idea and you're always left with part cans," he says.

Moving on to new chemistry, how do the agronomists advise fitting these into programmes? The Univoq (fenpicoxamid+ prothioconazole) label allows just one application, devised to help manage resistance. Aoife questions whether we should be looking more at using the different mode of action groups just once in the programme as an anti-resistance strategy. It was an approach her mentor Dr Bill Clark favoured (see p29 *CPM, September 21*).

Damian believes awareness of resistance amongst farmers is already high. "My clients have lived through the failure of the strobilurins, reducing efficacy of the azoles and now a drift in sensitivity in the SDHIs. They are aware of what can happen.".

The best anti-resistance strategy would be to tank-mix Revystar XE (fluxapyroxad+ mefentrifluconazole) and Univoq, says Aoife, recalling comments from ADAS' Jonathan Blake as he was questioned after presenting the results of the AHDB's fungicide response trials last December.

This is probably why Ascra XPro (bixafen+ fluopyram+ prothioconzole) is

Septoria with different symptom expression (left) than usual (right) infected the flag leaves of varieties with the Cougar lineage in late spring.

holding up so well, suggests Greg. "Ascra contains two SDHIs with incomplete cross-resistance to one another. Even though the AHDB data suggests a further shift in the efficacy of bixafen, it's not translated through to field performance because in Ascra the bixafen is partnered by fluopyram — they protect each other.

Damian says the AICC data shows Ascra did well in trials last year. He says he's going to 'keep his powder dry' with the new actives, saving them for use at the T2 timing, if required.

Ascra was also one of the best performing products in a number of NIAB trials in 2021, again indicating it doesn't seem to have lost its performance in the field.

Eyespot was a disease which reared its head last year, having fallen down the list of agronomist's nightmares in recent years due to good varietal resistance and decent fungicide activity. Stem-based diseases were particularly noticeable in Extase which has poor resistance due to its French lineage, says Damian.

"The pressure from stem-based diseases has been very high coming out of the past two wet winters and this is where prothioconazole is helpful at T1."

Greg adds that prothioconazole also gives Ascra some activity on yellow rust, though Aoife points out that Elatus Era (benzovindiflupyr+ prothioconazole) would be the better option in a yellow rust situation.

Aoife stresses that a well-timed T1 spray can save so much hassle further down the line, remembering that where diseases are concerned, prevention is so much better than cure.

Generic chemistry

Asked about generics and whether they provide the 'same thing' as the original prothioconazole, Proline, Greg explains that there are two pieces to that particular puzzle. "There are two types of generics — those which are reverse engineered to produce a carbon copy of the original product and those which have a tweaked formulation and contain the same active ingredient but with different excipients. Indeed some available prothioconazole generics contain solvents that were assessed and rejected by Bayer."

Damian wants confidence that a generic will do what he expects it to and provide a cost saving. That means he does recommend well formulated generic products with good trials data behind them, and he notes that sometimes they can even be an improvement on the original formulation.

For Aoife it's the lack of proprietary knowledge behind some generics which can be a red flag. "Where products are reverse engineered, the science is very good but there's often little trials validation behind the products. In contrast, the manufacturers who first developed the active have done all the R&D work to support its authorisation and more to support growers in its use. They've invested in it and that knowledge is worth something," she says.

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Damian sums up saying that it was good to see both old and new chemistry under septoria pressure, some for the first time since approval. "Both existing and pipeline chemistry looks good, which is reassuring," he concludes. ■

Bayer testing recorded very low levels of latent septoria in April as crops were heading towards leaf three emergence. Source: Bayer, 2021.