

Rust: a cautionary tale



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PHOEBE FOSTER

Inability to travel plus cool, damp conditions last spring meant a distinct lack of T0s and therefore in many cases, yellow rust seized the opportunity to thrive. *CPM* looks at the importance of this spray timing in combatting the disease.

By Janine Adamson and Rob Jones

Each season there’s a cereal crop disease of the moment depending on a range of external factors, namely weather conditions. Last year it was rusts – both yellow and brown – which thrived in the cool wet spring following a mild winter.

With growers unable to travel and apply critical fungicide sprays, for those in high yellow risk regions, a lack of usual T0s meant the disease was able to repeatedly cycle and romp away. While for those on the fence, the consequences experienced

by others may have proved a cautionary tale for the future.

According to Agrii agronomist, Phoebe Foster, it was evident which growers had succeeded with a T0 last spring and who hadn’t. “Subsequently we were chasing our tails on rust control, the disease was cycling so fast it was hard to keep on top of.

“I suspect growers and agronomists will be very wary as a result, and if they weren’t already considering a T0, be more open to it if the weather allows,” she says.

VARIETY RATINGS

Phoebe highlights that of the wheat varieties on the current Recommended List, there appears to be a significant quantity which are susceptible to rust. “With so many traits to consider, it’s easy to be caught out especially with brown rust, which had a terrible year last season.

“If you’re choosing a variety with lower rust scores, and/or are in a high pressure area, it’s best to mitigate early and go with a T0. It’s perceived as an additional spend but going for azole-based chemistry like Sakura (bromuconazole+ tebuconazole) is relatively cost-effective and means you can save the more expensive options for later in the fungicide programme,” she explains.

Sakura, marketed by Sumitomo, offers the power of two azoles in one product, highlights the firm’s Simon Leak. He adds that although the

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Hampered plans

According to Agrii agronomist, Phoebe Foster, it was evident which growers had succeeded with a T0 last spring and who hadn't.

- ▶ chemistry is older than newer actives on the market, when looking to devise a robust programme, Sakura is a solid option for T0 and combatting rust.

"There's also a benefit in septoria control – admittedly tebuconazole won't be the first port of call for this, but what Sakura does do is offer a level of support for resistance management. That's because there's a case for using different azoles to target the different strains of septoria, which will also relieve some of the selection pressure on prothioconazole," he says.

Despite this added bonus, Simon's

keens to stress that the main target of the product is yellow rust, a disease which is prevalent most years. "With Sakura you're targeting this key disease at T0 but gaining an opportunity to add further diversity into the programme. This then reserves the 'bigger' chemistry for T1."

He also recognises a threat looming on the horizon: "We have to be realistic that at some point, tebuconazole may disappear from the armory. For that reason, we're in the process of registering straight bromuconazole as we believe that has a strong chance of retaining its regulatory status."

If this does come to fruition, Phoebe points out that trial work has shown bromuconazole's activity can equal that of prothioconazole when it comes to targeting eyespot, another tricky wheat disease. Whereas Simon highlights that used together (bromuconazole plus prothioconazole), the duo could prove a cost-effective mix for T3, helping to control fusarium.

ON-FARM PERSPECTIVE

South Cambridgeshire grower, Sam Kiddy, is already on board with using azoles at T0. Given last year's high yellow rust pressure situation, he's taking a preventative approach across the 1200ha farm.

And despite scoring an 8 for yellow rust on the RL, it was a crop of Crusoe which was hardest hit, he says.

"We're growing the variety again this season but have halved the area to 200ha, plus we'll be implementing a robust yellow rust programme

with a mix of azoles," he explains.

Sam adds that this is the farm's second year of using Sakura at T0, although septoria is usually the disease of primary concern. "We'll target septoria from T1 onwards," he comments.

PIPELINE SOLUTIONS

But with tebuconazole's future looking uncertain, what impact might this have on fungicide programmes? Simon suggests a solution could be a new fungicide technology.

"Sumitomo is in the process of securing registration for a new active ingredient technology known as Indiflin (inpyrfluxam), which will be targeted at the T1 and T2 timings. An SDHI, it's already on the market globally, targeting diseases like soybean rust.

"If successful, it should also offer some activity on septoria, however, perhaps unsurprisingly, its main use will be in combatting both rusts – yellow and brown – against which it's achieved excellent control in UK trials, including the severe brown rust experienced last season," he concludes. ● ▶



Brown rust

2024 proved a particularly bad year for not only yellow rust, but also brown rust (pictured).



Two azoles in one

Not only does Sakura target yellow rust at T0, but it helps to add further diversity into the overall fungicide programme, suggests Sumitomo's Simon Leak.



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Disease control post-CTL

Have grower concerns been founded five years on?

Higher fungicide programme costs, an increased risk of resistance and lower overall control of key cereal diseases, were often cited as potential outcomes of a loss of chlorothalonil (CTL).

Fast forward five seasons and only one of those concerns appears to have come to fruition – higher programme costs, albeit with some caveats. The risks of resistance and reduced efficacy, although not realised, do remain.

It could be perceived that the loss of the mainstay multi-site active substance has been mitigated in ways by the emergence of new single-site options – mefentrifluconazole, fenpicoxamid, isoflucypram and pydiflumetofen.

However, at a higher cost these can hike fungicide programme expenditure alongside other factors such as inflationary

pressures on manufacturing. In addition, replacement multi-site options such as folpet, sulphur and elicitor laminarin also have higher price tags than CTL.

One of CTL's key strengths was ramularia control especially in spring barley, states Neil Havis, plant

pathologist at SRUC. "Up until 2020, most growers would rely on CTL as part of T2 sprays. Afterwards, we were left with mefentrifluconazole which has a latest application date of GS45-49 if you were aiming for malting quality. If you missed that, you'd had it."

Other options have since emerged, he points out. "Pydiflumetofen looks to be a useful active for ramularia – it's ahead of mefentrifluconazole. We've also seen good trials results from two applications of folpet at T1 and T2 which isn't too far behind a single shot of mefentrifluconazole at T2," says Neil.

Both pydiflumetofen and mefentrifluconazole have single-site modes of action, but with azole- and SDHI-resistant strains of ramularia already detected, both require protecting, warns UPL's Stuart Jackson. He stresses the danger, particularly when looking at pydiflumetofen's performance, is that it adds to selection pressure.

Furthermore, AHDB fungicide performance curves for ramularia suggest a gradual decline in performance of mefentrifluconazole during the past five years, suggests Neil. "It's not a massive change but

a slow drift, as we've seen against septoria with azoles during the years as the number of mutations increase in the population."

That's where multi-sites such as folpet play an important role in helping to protect those actives, he says. "A classic resistance strategy is to partner products of equal strength although that's difficult with something as strong as pydiflumetofen. Prothioconazole will give you something, but you better have enough multi-site in there as well."

Despite this, market data from Kynetec indicates a stark drop in multi-site use since the loss of CTL. In 2019, almost the entire UK winter wheat area received a multi-site at T0, T1 and T2 whereas in 2024, this dropped to 3% at T0, 23% at T1 and 6% at T2.

That's worrying, states Stuart, who believes this could compromise resistance management. "It comes down to cost – growers have the mindset that CTL was only £5/ha while the new options are more; there's a suggestion that you're better off buying a higher dose of the single-site."

There's also a perception that current multi-sites aren't as effective as CTL, he adds. "But trials demonstrate that performance is as good, you just require a higher dose, which is why there are extra costs."

In wheat, there are three potential multi-site options – folpet, laminarin and sulphur. Plant defence response elicitor, laminarin, helps to fill the gap at T0 where CTL had been a

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popular choice, highlights Stuart. “It tricks the plant into thinking it’s under attack from septoria therefore should be applied around T0 or even before, for example, with a sulfonylurea grassweed herbicide.”

Thiopron (sulphur) and folpet have a place through the programme, but particularly at T1 and T2, he suggests. “Using 2.0 l/ha of Thiopron is equivalent to 1.0 l/ha of folpet in terms of septoria performance with the added benefit of mildew control. Equally, folpet provides the benefit of some control of rusts.”

Neil agrees that multi-site products should be used throughout wheat programmes. “Our trials demonstrate their efficacy and yes they do cost more, but they’re there for a reason. It’s false economy to save money on a multi-site to spend more on a single-site. In the long term you’re not going to win by not protecting the single-site actives.”

There could be a divide between use of multi-sites regionally with higher septoria pressure areas such as the West and North of England and Scotland using more,

while the East of England is more reluctant, suggests Stuart.

“There isn’t the same perception of disease pressure in the East but when we get a year like last season, it reminds you why you should be using a multi-site and keeping to key fungicide timings.”

Another change, albeit difficult to quantify, is that the loss of CTL could have accelerated the use of more resistant varieties, he adds. “CTL going was one of the drivers for growers to look more at resistant traits,” he says.

But variety choice remains market dependent, counters Neil. “In Scotland, variety choice is limited by market both in wheat and especially barley. In barley, it’s the tail wagging the dog – what the maltsters want is what’ll be grown, no matter the cost to keep it clean.”

Therefore resistance ratings of eight or nine are required to drive changes in fungicide inputs, he believes. “Some of the work we’ve looked at in barley suggests it has to be that before you start seeing a significant difference in inputs and managing the crop differently.”



Making cuts

According to SRUC’s Neil Havis, it’s false economy to save money on a multi-site to spend more on a single-site.



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