Adapting disease management

Targeting T0

Establishment is a critical period of any season, but it's been a challenging time to get crops drilled, so what does this mean for T0 applications? *CPM* explores the diseases likely to be most problematic this spring and how to manage them.

By Melanie Jenkins

The main feeling in the industry is that this season's crops are a 'mixed bag' due in part to the autumn weather and the subsequent spread of drilling dates.

According to Syngenta's fungicide technical manager Joe Bagshaw, it's going to be a year of contrasts between decent crops that were planted early and those that are hit-and-miss due to being delayed. "There are some good crops out there but there'll also be quite a few headlands and areas that require redrilling, so it'll be a case of adapting at field level — you might even want to redrill your headlands with spring crops and this'll mean a mix of inputs which will be a challenge."

Jonathan Blake of ADAS says there were still crops going into the ground as of mid-January. "Because of this wide drilling window, we're really going to have to think about how to manage these late sowings. Generally, we're more familiar with managing crops sown earlier than this, but those that go in late are a lot more susceptible to mildew and yellow rust, so plan this into your management.

Yellow rust control

He says it might seem as though a T0 is less important for late sown crops, but this is a dangerous presumption as yellow rust can be more prevalent on younger plants. "When the frosts dissipate into March and early April, the damp and mild conditions will be favourable to the disease. Alongside late sown susceptible varieties, this could be the perfect storm for a yellow rust epidemic. So the primary reason for a T0 is to prevent this situation."

When approaching decisions around T0 applications, Joe reminds that it's about protection and providing a level of insurance early doors. "It can be a challenge to work out what you should and shouldn't do based on the unknown weather that's ahead of us.

"We're facing a difficult task due to crops being all over the place, so you have to prepare yourself to treat every crop differently and to work with your agronomist to make sure inputs are tailored to each field. In a year where many are likely to curtail inputs to save costs, it can be worth focusing on specific areas rather than blanket spraying," he suggests.

"For crops that were drilled in September, it started to rain about 6 October and then didn't stop until early January, meaning they're at a reasonable risk of septoria. Conversely those drilled later are at an increased risk from yellow rust infections."

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Syngenta's forecasting model for overwinter survival of different pathogens indicated that as of early January, there was a lot of inoculum around, explains Joe. "Because it's been so warm and damp —

This season's winter wheat crops are a 'mixed bag' due in part to the autumn weather and the subsequent spread of drilling dates.

barring that cold spell early December and then mid-January — and if it remains so, then we could see a quick spread of disease, especially in early sown lush crops or those which are quite backwards and more susceptible to infection. In these instances, it's even more important to consider T0 protection."

Although last year was a low-pressure year for yellow rust, it's not to say this year won't be, says Joe. "If there's consistent mild weather without cold spells between now and the key timings, then we might see yellow and brown rust as well as mildews appearing — continual moisture in the crop will drive that sporulation. Although it wasn't an issue last year, it doesn't mean it's gone away."

According to Jonathan Blake, one of the reasons for a fungicide strategy failing can be down to going on too early with a T0.

And yellow rust can be devastating, highlights Jonathan. "I've known it to stunt a crop by affecting its development which can result in yield losses of 5-6t/ha. It can be the most damaging disease but it's also the most responsive to fungicides, meaning it's relatively easy to control."

Crop walking

In instances where there's risk from yellow rust, which can be quite variety dependent or if a variety goes in late, it's important to provide protection for crops, advises Joe. "The disease can come out of nowhere and if the inoculum has survived through the winter then it can cycle within 7-10 days and quickly become a big problem.

"So the main thing is, to ensure you're keeping an eye on crops by walking them a minimum of once a week when it comes to early spring."

One aspect to be aware of is the potential shift in yellow rust races which has meant an increase in the disease appearing in colder conditions, says Joe. "But we can usually expect to see a fast increase in the amount of rust when temperatures are between 12-15ºC. And although some varieties have juvenile yellow rust resistance, others don't meaning it can appear early on, even where there's good adult resistance.

"So if you see it in the crop, get on top of it with Amistar (azoxystrobin) and tebuconazole because adult resistance might not kick in until GS39." Not only does this reduce inoculum, but it also provides a solid foundation in readiness for a robust T1, says Joe. "Elatus Era

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(benzovindiflupyr+ prothioconazole), provides strong yellow rust control and long-lasting protection against septoria."

Last year septoria was the predominant issue for growers, and with this disease there's always going to be enough inoculum in the crop to become a problem, he says. "If there's the right levels of humidity and rainfall between March and May then this could provide ideal conditions for the disease."

On a positive note, there's been no real change in how septoria reacts to the available chemistry, says Joe. "I'd still advise to get on protectively and to use mixed modes of action, but because its lifecycle is 14-28 days, it's evident between spray timings. ▸

Building barley yield

For the most part, winter barley crops went into the ground well, says Joe Bagshaw. "If crops weren't hammered by pre-emergence herbicides then they appear to be in good condition, so just make sure you're nitrogen timings are correct for hybrid varieties or forward crops."

Joe advises growers to keep an eye out for brown rust — which cycles in 5-7 days as it can 'pop out of nowhere' depending on conditions. "Also be aware of mildew, depending on the variety, however I think we've moved away from the most of the more susceptible varieties now.

"Keep an eye on disease ratings and watch out for hybrids which can be rust prone. If you do see disease in the crop, keep on top of it. Kayak (cyprodinil) is an option you can use early in barley and potentially Amistar or Proline (prothioconazole) to help dry up rust and keep mildew out.

"PGRs will also be important to try and manage the canopies of these crops this year. Applying Moddus at T0 will help with both rooting and tillering," he says.

As with wheat, Joe says to look after p roblematic areas in the fields, rather than the entire crop. "With the wet weather we've had leading into January, even rusts and mildews won't be particularly well established because if crops were under water, it would have just washed all the spores and fruiting bodies away. So again, we could have a mixed bag with winter barley."

Unlike wheat, which forms its yield late during the grain fill period, barley is more sink-limited, meaning its yield is formed earlier, explains Jonathan Blake. "So in the case of barley,

In barley, earlier fungicides could directly affect grains in the ear and tillering, improving both and helping to significantly aid yield up to 0.5t/ha where disease is present.

earlier fungicides could directly affect grains in the ear and tillering, improving both and helping to significantly aid yield up to 0.5t/ha where disease is present, meaning applying a T0 in February or early March can be really beneficial."

Adapting disease management

For crops which haven't gone into the ground until January, one approach to T0s could be to consider using products that are approved for use in both winter and spring crops.

▸ The main message is to apply some protection at T0, says Joe. "If there's a high septoria risk, then the advice is to use a multi-site product, for instance folpet, or even a sulphur, potentially I've seen recent data that suggests these are performing similarly against septoria, and there's also some activity against mildew with sulphur."

In addition, PGRs such as Moddus (trinexapac-ethyl) are going to be quite important for management, he adds.

As of early January, the inoculum levels of eyespot and take-all appeared quite high, he adds. "A lot of growers delay their drilling where they have second wheats, so you might think there's less risk of take-all. But possibly because of the weather we've had and the fact the disease quite likes wet conditions, it looks like there's a high risk. So if you have second cereals it might be one to watch out for.

"Amistar provides useful activity against take-all if you can apply it at T0 or T1. In a higher-risk situation it might be possible that growers have used Latitude (silthiofam), but an application of Amistar in the spring could be useful to slow down the pathogen in the soil."

For crops which haven't gone into the ground until January, one approach to T0s could be to consider using products that are approved for use in both winter and spring crops, advises Joe. "This could include using Amistar, Elatus Era or folpet, and would mean you don't have to change your plans if you've ended up drilling a spring rather than winter crop.

"But do keep in mind that in the HSE Chemical Regulation Division's (CRD) eyes, spring crops are considered to be any drilled after 31 January," he reminds.

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Weather constraints

An additional reason to apply a T0 is because it's impossible to know whether T1s will be applied in good time, warns Joe. "Last year a lot of people struggled with the T1 timing, and there was a lot of septoria pressure early on. If you're having to delay your T1 then you're leaving the crop open to the disease, so if you can get something on early then you're potentially insuring yourself against the possibility of wet weather and delayed applications."

With newer chemistry coming to the fore, Joe imagines that growers may be inclined towards this. "But realistically, so long as your T0 and T1 timings cover leaves three and four, allowing for 3-4 week's protection, then even products perceived as weaker, when timed right, can still help produce equivalent yields to newer chemistry even if there's higher disease pressure."

Jonathan agrees that targeting T0s at the right time is important. "One of the reasons for a fungicide strategy failing can be down to going on too early with your T0. The aim is to use a T0 to protect crops ahead of a T1, but if a T0 is applied too early then there's opportunity for disease to come in between.

"It might be that the T0 can control rusts during March but sprays will generally only protect leaves which are emerged at the time of application. Any new leaves which emerge after won't be protected and this can potentially be where the yellow rust comes in, making it harder to control at T1."

He says for this reason, a T0 spray should be applied 3-4 weeks prior to a T1. "Trying to control yellow rust once it's established in a crop is very difficult and attempting to remove it is almost impossible — the fungus might calm down and slow but it'll rarely be entirely eradicated.

"Clearly some products have more activity than others on yellow rust, but there's good activity from strobilurins, while some azoles are more effective. In a curative situation, stronger chemistry such as the SDHI benzovindiflupyr comes into play. But keep in mind that timing is the priority," adds Jonathan. ■