

“Crops are forward in height not in growth stage.”

The danger of potential

**Technical
Disease control**

Just ahead of this season's fungicide programme, BASF hosted a roundtable with a Scotsman, an English man and an Irish man to discuss their fungicide plans with NIAB's Bill Clark. *CPM* reports.

By Lucy de la Pasture

In spite of their geographical differences, all three growers reported cereal crops that are brimming with potential. There was a distinct air of optimism about their crops, which are generally looking well after what's been a relatively mild and dry winter.

NIAB technical director Bill Clark says making fungicide choices based on a crop's yield potential is a common trap that growers can fall into when deciding on their fungicide programmes.

"It implies that you'd treat crops differently according to their yield potential. Potential is misleading and fungicide

decisions should be driven by risk, which depends on location, drilling date and weather patterns. Regardless of whether the crop could yield 10t/ha or 14t/ha, it's the impact of the disease on the crop that's the important factor," he explains.

It may surprise some growers that assessing the risk in different varieties goes beyond the disease resistance ratings published in the AHDB Recommended List, says Bill. In fact, there's no meaningful correlation between the resistance rating and yield responses.

Revealing variation

"In 2018, the average yield response across the RL trials was 2.2t/ha. But if you look at the results for each variety at each trials site, it's the variation from the mean that's revealing. For example, KWS Extase has an RL rating of 8.1 for septoria and an average yield response to fungicides of less than 1t/ha — indicating that there's a huge opportunity to reduce fungicide inputs, but it also has by far the largest variations from the mean.

"There was a 25% range in yield responses in KWS Extase, which means you can't just decrease fungicide input without thought," he warns.

"The variations around the mean are

huge around the country, so fungicide decisions come back to managing your own farm based on historic knowledge and on-farm trials. Some varieties with a high RL disease rating for septoria may still have large responses to fungicides which don't necessarily correspond to disease levels," comments Bill. ▶



Bill Clark warns there's danger in using crop potential as a basis for fungicide decisions.



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Edward Vipond believes having trials on his own farm is the best way to fine-tune his agronomy decisions.

► Farm manager Edward Vipond is BASIS registered and takes responsibility for the agronomy on Troston Farms' 1450ha in Suffolk. He acknowledges that variety choice has become an increasingly important part of disease management and he tends to drill a strip of a variety he'd like to try out on the farm and gain experience with before jumping in. His current choices range from LG Sundance, at the cleaner end of the scale, and KWS Santiago at the notoriously dirty end.

Edward's goal has been to limit the farm's reliance on any subsidy payments, an aim which has become all the more pertinent with payments in doubt beyond 2028. "After the transition period, we'll be left naked and it's a thought that makes me feel considerably uncomfortable. I have to

make the right decisions about how I treat my crops with fungicide because at the end of the day, that's my margin," he says.

He's been pitting his own fungicide strategy against the BASF standard programme in their Real Results programme and is now in his third year of trials on the farm. "It's the ideal place to have a trial — on my soil, in my system and in my environmental conditions — and gives me the opportunity to prove BASF wrong," he says, with tongue firmly in cheek.

Later drilling

Edward farms a range of soil types, from heavy clay to blowing Breckland sand, which he says is too light to grow winter wheat reliably. His drilling window spanned from 12 Oct in 2018, where he was planting 325 seeds/m², to 10 Jan this year on ground following sugar beet and potatoes. The later drillings were at a much higher seed rate of 650 seeds/m², with the objective across all drilling dates of achieving 750-800 ears/m².

In contrast, David Lalor from Griffinstown Farm on the Wicklow/Kildare border farms 195ha, typical of the much smaller holding size across the Irish sea. His soil is a fertile silty clay loam and is under a conventional deep tillage regime because he believes this helps underpin his yields.

"I aim for yields of 12.5t/ha in wheat and would be devastated at 10t/ha, though yields haven't been consistently over 11t/ha over the past couple of years, mainly due to the weather."

Water shortage isn't normally a problem in Ireland, with annual rainfall at Griffinstown approx. 1100mm. That means crops are drilled before it gets too wet in the autumn and he has the capability to get the job done in just five days. Harvest often takes ►



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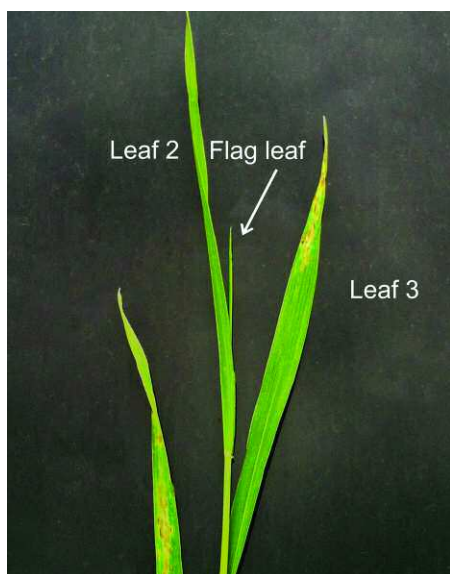


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It's important to keep leaf three clean because it sits above the emerging flag leaf on the plant.

► place when grain has a moisture content of 20% so drying is a cost he has to endure.

It's an environment where septoria thrives and is the number one disease challenge for Irish farmers. Many growers have replaced wheat with winter barley in recent years as a result of a diminishing fungicide toolbox, a decrease in fungicide efficacy and a lack of varieties with good septoria resistance — which differs markedly from the UK, where there are now several resistant varieties to choose from.

"We use a four-spray programme as standard, with 1.0 l/ha chlorothalonil at

T0 followed by Adexar (epoxiconazole+ fluxapyroxad) at 1.8-2.0 l/ha plus CTL at T1. We alternate triazoles so use Librax (metconazole+ fluxapyroxad) at T2 plus a further CTL and then a follow up with prothioconazole at T3. Our average cost is around € 190/ha (£162/ha)," he comments.

"In Teagasc trials, the average yield response in KWS Lomus was 3.9 t/ha (rated 5 for septoria resistance), so we're trying to keep the top leaves as green as possible to achieve a return on investment (ROI) of 4:1," he adds.

Disease pressure

The high fungicide cost reflects the difference in disease pressure the two growers face. In contrast, Edward estimates his highest fungicide cost will be on KWS Santiago, where he'll spend £120/ha using two SDHIs in the programme.

"T0's will be applied to the early drilled crops, according to disease pressure and the heavy land will justify an SDHI at both T1 and T2. Lighter-land crops may just receive triazole plus CTL at T1, again depending on variety and disease. T3 is generally applied as a top-up to the flag leaf spray," he says.

Scottish grower David Fuller-Shapcott farms 400ha in the Scottish Borders on predominantly heavy clay loam soils. Another BASF Real Results grower, he's also a keen participant in ADAS's Yield Enhancement Network (YEN).

One of the biggest challenges for David is a limited number of spray days, so a T0 may be applied to give septoria protection to some crops in case the T1 spray timing becomes delayed due to the weather.

"Our standard T1 will be Adexar at 1.25 l/ha plus CTL, followed by a further spray at T2 with the addition of a strobilurin. Fungicide at T3 tends to be cheap and cheerful," he says.

He estimates that fungicides take around half of his total spend on the wheat crop, but he reckons his programmes gives him a good ROI, as borne out in the trials run on the farm.

Edward echoes that it's really important to get an ROI from fungicides. But in order to get the best out of them, getting the timing right is absolutely fundamentally important to achieve the disease prevention and green leaf area retention that builds yield, he stresses.

Bill believes there's still considerable room for improvement when it comes to timing fungicides to coincide with the correct growth stage of the crop.

Wheat varieties grouped by risk

	Yield response	Fungicide requirement
Myriad	3.85	High input T0 chlorothalonil T1 chlorothalonil + high dose SDHI + triazole T2 chlorothalonil + high dose SDHI + triazole T3 triazole
Leeds	3.45	
KWS Barrel	3.26	
JB Diego	3.19	
KWS Lili	3.16	
Zulu	2.92	
KWS Jackel	2.87	
KWS Basset	2.86	
RGT Gravity	2.73	
Viscount	2.69	
LG Detroit	2.63	
Elation	2.62	
Crusoe	2.54	
KWS Kerrin	2.51	
LG Skyscraper	2.49	
KWS Trinity	2.39	
Shabras	2.39	
LG Spotlight	2.38	
Evolution	2.29	
Elicit	2.10	
Gleam	2.10	
Skyfall	2.04	
Costello	2.01	
Bennigton	1.99	Low input No T0 T1 chlorothalonil + triazole T2 chlorothalonil + moderate dose SDHI + triazole T3 triazole
Revelation	1.97	
KWS Crispin	1.97	
KWS Siskin	1.89	
KWS Firefly	1.82	
LG Motown	1.78	
LG Sundance	1.75	
Dunston	1.64	
KWS Zyatt	1.62	
Graham	1.61	
RGT Illustrious	1.61	
KWS Extase	0.69	

Source: NIAB-TAG, 2019



One of the biggest problems David Fuller-Shapcott faces in spring is a limited number of spray days in his part of Scotland.

“T1 is a difficult timing to determine correctly but must be as leaf three is emerged, which can only be properly determined by dissecting the plant,” he says.

Explaining why this timing is so important, Bill shows the growers examples of where the T1 timing has been missed and the effect that has on disease control on the upper leaves of the crop.

“It’s really important to keep leaf three clean because it sits above the emerging flag leaf (GS37) on the plant. Controlling septoria on leaf three, especially on the tip, reduces disease pressure on the flag leaf and leaf two,” he explains.

An understanding of the how the disease develops and when it’s susceptible to fungicide treatment, helps explain the importance of getting the timing spot-on.

“The spore lands on the leaf surface and germinates, penetrating the leaf. It then begins to grow inside the leaf but there are no symptoms during this latent period. Fungicides are only effective until half-way through the latent period, and if they’re applied later than this then the fungal growth is beyond chemical control — particularly important since the eradicator activity of fungicides is the first to be eroded by resistance,” he explains.

Another factor is the time between fungicide sprays. “If the gap between T1 and T2 is

too long then the protection from the T1 won’t have lasted long enough. If a T1 is applied before the end of April then the gap to the flag leaf spray is likely to be more than 21 days to the flag and an interim treatment will be necessary.”

Timing mistakes

With crops romping away this spring, Bill believes it’s a year when timing mistakes will be made. “Crops are forward but it’s forward in height not in growth stage, which is determined largely by day length rather than temperature.

“It’s a good idea to look at leaf three when walking crops later in the spring as it will tell you a lot about your fungicide choice and timing at T1. If the T1 was too late then you’ll see no control of septoria on leaf four and the tip of leaf three will have lesions because it would have been too far into the latent window at the time of fungicide application,” he comments.

All the growers were very mindful of not stretching the gap between fungicides by more than three weeks, with Edward saying he’s prepared to apply an in-between spray (T1.5) of CTL if needed.

“It’s a case of holding your nerve with the T1 and making sure that leaf three is fully emerged before applying. We try and work backwards from when the flag leaf is expected to emerge to make sure T1 doesn’t go on too early,” he says. ■



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