Fieldwise
AGRONOMY NEWS FROM HUTCHINSONS
Crop Production Specialists
MARCH 2023

# Risk management strategies for T1 disease control

*Controlling visible disease is only half the story when it comes to planning T1 fungicides, as Hutchinsons head of integrated crop management, **David Howard**, explains.*

***David Howard** (Hutchinsons Head of ICM)*

**Assessing disease levels in crops is an obvious driver of T1 fungicide decisions, however the risk factors you cannot see should carry equal weight in this season's plans.**

We have seen before how quickly Septoria and yellow rust can take off from a seemingly low base if/when conditions are conducive, so spray programmes must insure against the 'hidden' risks and what we can see.

For **Septoria**, drilling date has a big influence on underlying risk, and with a large area of wheat sown relatively early, and some high biomass crops, there could be a greater risk throughout this season. Even if little disease is visible, it is hard to know how much is in the latent phase yet to express itself.

Conversely, **yellow rust** is generally favoured by later drilling, although this is a very dynamic pathogen, also making disease risk hard to predict. We are seeing more new races able to infect crops earlier, cycle faster, and potentially erode genetic resistance.

The T1 fungicide, as with other treatments, therefore provides a valuable insurance policy against hidden risks, while controlling any disease that has started establishing within crops, and helping manage the overall level of inoculum carried through to T2.

## Target leaf 3

Growth stage 32 is the traditional T1 timing, however growers must ensure the target leaf three is fully emerged before treating, usually between GS 31-33, but should be identified with careful plant dissection.

We saw two years ago how cool, dry conditions in April slowed crop growth, resulting in some T1s going on too early where growers had focussed more on calendar date than crop development. Coverage of leaf 3 was compromised and spray intervals to the flag leaf application were stretched, just as disease pressure surged following rain in April and May.

Many older actives lack the curative ability they once did, so an adequate T1 is essential to avoid undue pressure on later applications by expecting them to control high levels of disease inoculum. This is particularly important for resistance management and protecting the future of key actives.

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*Early Septoria infection*

## Product choices

Septoria is generally the focus of T1s, and recent years have seen a gap develop in the potency of new chemistry, such as fenpicoxamid + prothioconazole, or fluxapyroxad + Mefentrifluconazole, over older SDHI/azole fungicides.

For curative Septoria control, newer chemistry is therefore favoured, however SDHI/azole products, such as bixafen, Fluopyram + prothioconazole, have been effective in trials where timed well in protectant situations.

The challenge is identifying whether situations are truly protectant or curative, especially if disease is still in the latent phase, so close inspection and assessment of all risk factors is fundamental.

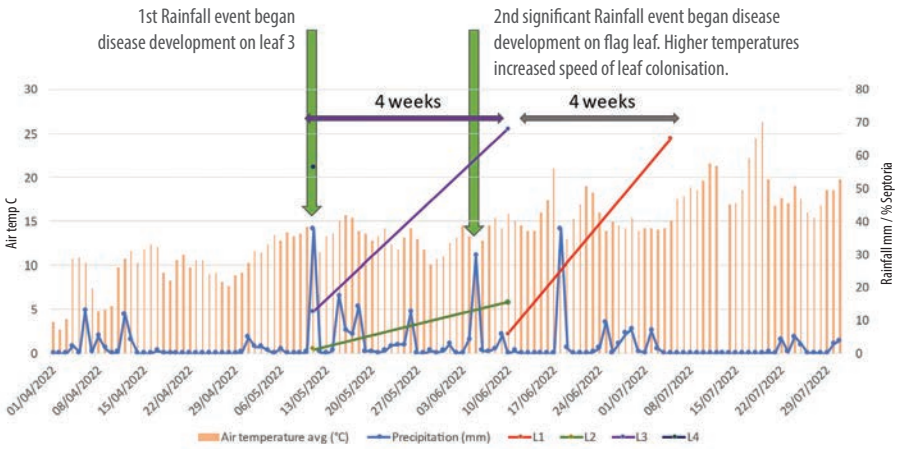
Where rust control is required, benzovindiflupyr + prothioconazole remains the best option, while strobilurins could be included at T1 as a protectant strategy against rust.

There were variable responses from including folpet last year, possibly reflecting the conditions, but long-term experience shows the multisite chemistry is a good addition to programmes, helping manage Septoria risk, providing some effect on rust, and for resistance management.

With highly diverse isolates of Septoria and rust, it is hard to know how they will respond to fungicide chemistry, so using multiple modes of action ensures a greater chance of success, and helps safeguard products for the future.

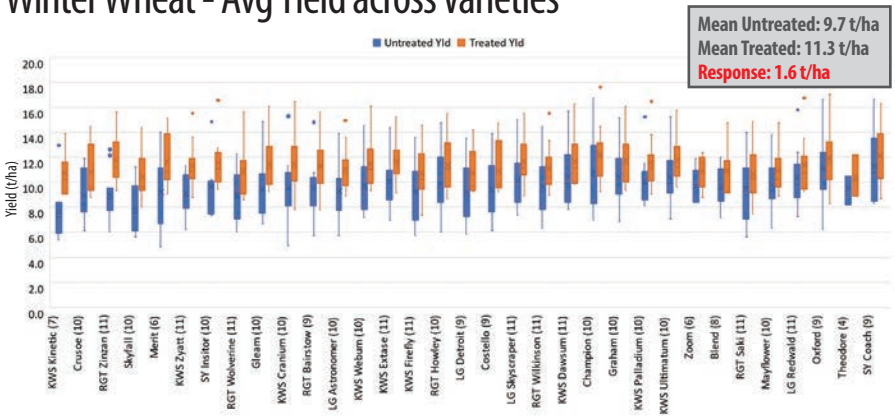
The higher cost of inputs means much more is invested in the 2023 crop, so it is vital we make sure they reach their full potential.

***[Chart 1]*** *Chart showing the correlation between major rainfall events and Septoria pressure in 2022*




Leaf 2 disease levels did not increase in line with earlier Leaf 1 or 3 perhaps due to reduced size at time of 1st rainfall event.

***[Chart 2]*** *Mean yield response from different varieties across HLH trial sites*




Variety (...) = Number of sites that variety is present at

# Barley fungicides

**The T1 is crucial for protecting the largest leaf in winter barley, allowing plants to support developing tillers and maximise yield potential. Remember, barley is less able than wheat to compensate for early tiller damage and ear number drives final yield.**

That said, barley is inherently less responsive to fungicides than wheat, although yield responses of 1.5-2.5 t/ha are typical, whereas winter wheat can vary wildly from 1-5 t/ha, depending on the season and variety.

Variety susceptibility, weather and drilling date should be considered when assessing disease risk, but note there can be subtle differences between conventional and hybrids too.

The bigger leaves and biomass of hybrid barley can create the ideal microclimate for disease within the canopy, making hybrids potentially more at risk of disease development than smaller-leaved conventional varieties. Most hybrids have a weakness to brown rust too, so the later T2 spray could be more important in such crops.

There are many good fungicide options at either timing in barley, with bixafen, Fluopyram + prothioconazole and fluxapyroxad + mefentrifluconazole-based products both providing good all-round disease control. Older chemistry in bixafen + prothioconazole or benzovindiflupyr + prothioconazole also has a place, so, as always, tailor product choice to individual situations.

Trials show folpet can improve protection against key barley diseases, with ramularia recently added to the label. However, it is a contact-acting protectant, so needs to be used twice within a programme, before disease takes hold, for optimum effect.

**Your Hutchinsons agronomist will be happy recommend a suitable disease control programme for you, or contact us: information@hlhltd.co.uk**

# Achieving successful spray outcomes

*Spray application, coverage, deposition and retention are all critical parameters to consider and achieve for successful disease, weed and pest control or when making foliar applications of nutrients, as **Dick Neale** (Hutchinsons Technical Manager) reminds us.*

***Dick Neale** (Hutchinsons Technical Manager)*

**The weather, time of year, target and crop type all influence successful outcomes and efficacy of applied products, there are no 'one size fits all' solutions.**

Modern nozzles have seen significant development technically as has sprayer boom stability and spray control, but the basics of getting good spray transfer to the target, adequate deposition, coverage and retention still remain of upmost importance and careful selection of water volume, forward speed, boom height and nozzle type and size is a careful balance.

Sprayer filling and hygiene routines are also vital disciplines to develop. Modern sprayers come with multiple automated functions, fill amount, dilution, line purge and wash out but the human element should never be removed from these processes, computation however basic is not infallible, if calibration is incorrect the resultant computer control is incorrect.

## Controlling drift

Drift control has huge environmental impact but equally, significant drift massively reduces transfer of the spray to the target. While ultra-low drift nozzles are increasing in popularity the quality of spray pattern may be too course for good coverage and retention resulting in poor efficacy of applied product. Many products require 3 or 4* rated low drift nozzles for variable width buffer zones on the headland but we must ensure when catering for these that the overall field application is not compromised.

While nozzles are a component choice in drift control, forward speed and boom height are both critically important parameters to get right.

While modern cab, axle and boom suspension allow for increased forward speeds in comfort, again the effective transfer of spay from nozzle tip to target at higher speeds can be poor via spray sheet disruption. Sprayer speeds should be kept at 12-14kph with nozzle tip height at 50cm above the target with a 50cm nozzle spacing on the boom.

Nozzles can all face down, alternate forward and back or all forward while twin caps allow forward and back at all nozzle mounting points. The choice depends entirely on the canopy type of the crop being treated, the growth stage and target within that crop.

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## Earliest applications

As we prepare for the new spring season the earliest applications will involve stubble cleaning with glyphosate, pre em treatment of newly sown seedbeds and then GS30 treatments in cereals. Almost all these applications and targets are bare soil or low upright cereal leaves or grassweed targets with those canopies and these are all best tackled with an alternating forward and back angled nozzle configuration that ensures a good balance of overall coverage and drift reduction.

Low water volumes of 100L/Ha are very effective for treatment of fine leaved grass weeds or volunteers where deposition of higher concentration droplets is vital, but pre-em herbicides may require an increased volume of 200L/Ha to achieve adequate coverage. This may require a change of nozzle size, but it can also be achieved via higher pressure and reduced forward speed.

## Good sprayer hygiene

Residual and contact grassweed ALS herbicides feature strongly in these early sprays, as does the total herbicide glyphosate, so it is vital that good sprayer hygiene is practised between crops. SU and ALS herbicides do require the sprayer wash out procedure to contain the appropriate wash additive that neutralises the activity of SU/ALS herbicides, as even the smallest traces can negatively impact sensitive crops.

The wash out procedure is far more effective with multiple rinses with small amounts of clean water +/- additive rather than one wash through with a significant amount of water. Four rinses with 200L of clean water each time is far more effective than one rinse with 800L water.

When Suspension concentrate formulations have featured in the applied mix, ensure filters are removed and cleaned during the washout procedure.

## Thorough mixing

Like nozzles and sprayers, product formulation technology has seen major development and many of these require a thorough shaking of the can prior to use. This requirement is normally highlighted via stickers on the can and the shaking is important to recombine formulants before any emptying of the can commences. Poor dispersion in the tank can occur if a formulant is left in the can …and the overall formulation cannot be recombined once diluted in the sprayer tank.

Likewise, it is often the case that if unused spray solution is left unagitated for any length of time, the formulants can drop out of solution. It is not always the case that agitation will successfully recombine these formulants into the spray solution.

It is frequently stated that for tank mixing of several products that the mix can only be used with constant and aggressive agitation and it is important to note these requirements particularly when new products are being utilised for the first time.

**Questions about this article? Please contact us: information@hlhltd.co.uk**

# Virus Yellows in Sugar Beet

***Darryl Shailes** (Hutchinsons Root Crop Technical Manager) looks at ways growers can mitigate the risk of Virus Yellows disease this season.*

**For 20 years or more Virus Yellows was a forgotten problem in Sugar Beet. Neonicotinoid seed dressings introduced in the early 1990's kept the aphid vectors (mainly Mysus persicae) at bay and hence the crop free of virus.**

When Neonicotinoids were withdrawn from the market in the EU in 2018 it took less than 2 years before the virus was once again an issue for UK sugar beet growers.

2020 was the first time in the working life of many farmers and agronomists that Virus Yellows caused a big problem and yield reductions of up to 50% occurred. This was mainly due to the very mild winter and an extremely early and large aphid migration occurring when the crop was small.

In some instances, 10 or more wingless green aphids per leaf were recorded when the crop was at the 1-2 leaf stage. When you consider the threshold for treatment with a foliar insecticide is 1 green wingless aphid per 4 plants, up to the 12-leaf stage, you can understand the problem. This was worse in the Fens and Lincolnshire but also an issue across the rest of the sugar growing area.

## Emergency approvals

Since then, BBRO has submitted an emergency approval to DEFRA for a derogation to use Cruiser SB based on the Rothamsted Virus Yellows risk model.

EU sugar beet growing countries have also done the same and been successful, but not based on any model of risk. The French government has very recently decided not to allow this anymore.

The emergency approval was not granted in 2021 as the model said the virus risk was low and was successful in 2022 as the risk was higher. The model in 2022 said the first migration would be on the 19th of April and the first recorded was the 18th April, so the science is very accurate.

Virus control from Cruiser SB was very good in 2022 even though the rate approved was lower than the previous approved rate.

To use the seed treatment, growers needed to accept some stewardship rules - mainly the restriction on flowering crops and cover crops that could be grown in the rotation for 32 months.

DEFRA has again issued an emergency approval for 2023 subject to the Rothamsted model, a calculation based on the weather in January and February, and we will know the outcome on 1st March.

Virus Yellows is a complex of 3 viruses - Beet Mild Yellowing Virus (BMYV), Beet Chlorosis Virus (BChV) and Beet Yellows Virus (BYV), all transmitted by aphids and mainly Mysus persicae. The fact that it is a complex of 3 viruses means variety resistance is very challenging, with only **Maruscha KWS** available on the recommended list showing strong tolerance to BMYV.

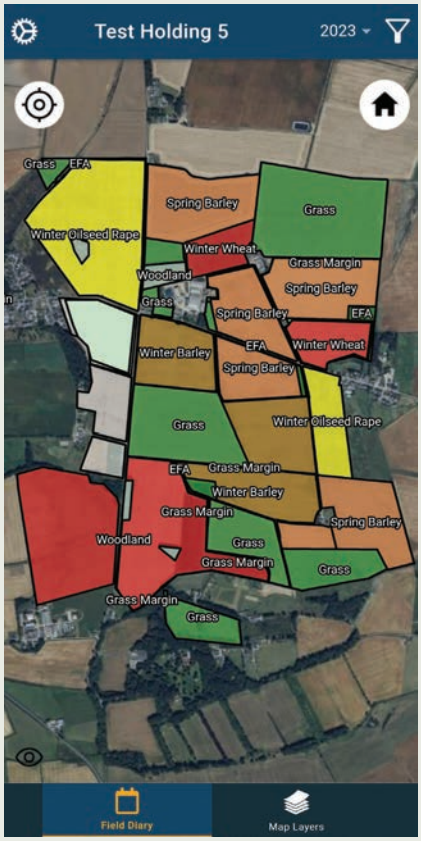
## Anything we can do to mitigate the risk will help:

- **Barley cover crops** have been shown to reduce virus infection by making the crop less visible to aphids.
- **Managing over-wintering refuges** for aphids, such as adjacent crops of brassica including cover crops can help.
- **Reducing virus infection sources** such as volunteer beet, clamps and harvesting spoil will help to reduce the inoculum in the surrounding area.

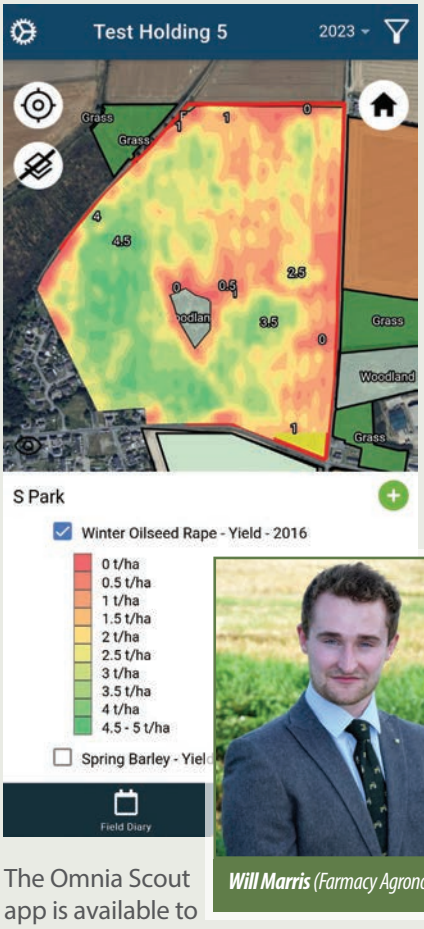
**Good agronomic practices** to get the crop growing well will also help. Ensuring beet is drilled accurately and into good seed beds, applying nitrogen by the 1st leaf stage and careful use of herbicides will aid good crop establishment and growth to the 16-leaf stage as quickly as possible when the crop is less susceptible to the virus.

All the above measures will reduce the effect of the virus, whatever the outcome of the emergency approval for Cruiser SB.

**If you have questions about managing Virus Yellows, please contact us: information@hlhltd.co.uk**








# Omnia Scout App – new features

*This spring will see the launch of a new and improved version of the **Omnia Scout app**. Along with new features and improvements, the app will now be available for both Android and iOS devices.*

**Scout App is designed to put Omnia in your pocket, to allow you to both view and capture data whilst out and about. One of the popular features of the app is the ability to create field inspections that get synced back to the Field Diary in Omnia.**

We spoke to Farmacy agronomist **Will Marris** who has been using the Scout app extensively with his clients over the last few years. On describing his use of the app, Will said, 'the app has been very useful to keep a visual history of the crop's development as we go through the season, it gives me a consistent way of taking fields notes that can then easily be sent to my clients'.

One area that has also been used to good effect is the **mapping of localised weed patches** such as blackgrass and bur-chervil. Treatment of these weeds can be both costly and time sensitive, so mapping them accurately has allowed spot treatments to be made. Will sees this as becoming very useful moving forward as a way of justifying decisions around product use such as insecticides, in the decision-making process to use, or not to use them.

Some of the other key features of the Scout app are the ability to **record field operations** and apply plans made in Omnia such as seed and nutrition. With more and more data being collected on fields such as yield maps, satellite imagery and precision soil maps, having these available in the field can help to assess variation in crop performance.

A new feature added in 2022 allows the **creation of soil assessment entries** to fulfil one of the requirements of the new SFI soils standard in England. The ability to log parameters such as VESS scores, worm counts, and infiltration rates, along with supporting location based photos, makes it very simple for the user to record.

*Will Marris (Farmacy Agronomist)*

The Omnia Scout app is available to all Omnia users to view their holding and map layers, with the addition of Field Diary coming as part of the Field Manager service level and above.

**For more information, please contact your local Hutchinsons or Omnia representative, alternatively please visit the Omnia website: https://omniadigital.co.uk**

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