

BYDV the forgotten threat



Neil Watson (Hutchinsons Technical Manager) looks forward to an autumn of more 'normal' weather conditions, but considers the implications of controlling BYDV without Deter seed treatment.

Adapting to the new norm

This will potentially be the first normal autumn we will have to adapt to life without Deter (clothianidin, a neonicotinoid seed treatment) and its implications for Barley Yellow Dwarf Virus (BYDV) control in Winter Cereals.

Since the launch of Deter in the autumn of 2006, the industry has increasingly relied upon its use for the critical early virus protection afforded to early sown autumn cereals. Although last year was the first autumn without it, the way the autumn turned out with most of the crops being drilled late, by default rather than by design, we never quite experienced the full implications of its withdrawal.

With last autumn still very fresh in most people's minds, the temptation will inevitably turn to drilling early, irrespective of the impact on BYDV control or even the hard-learned lessons for grass weed control.

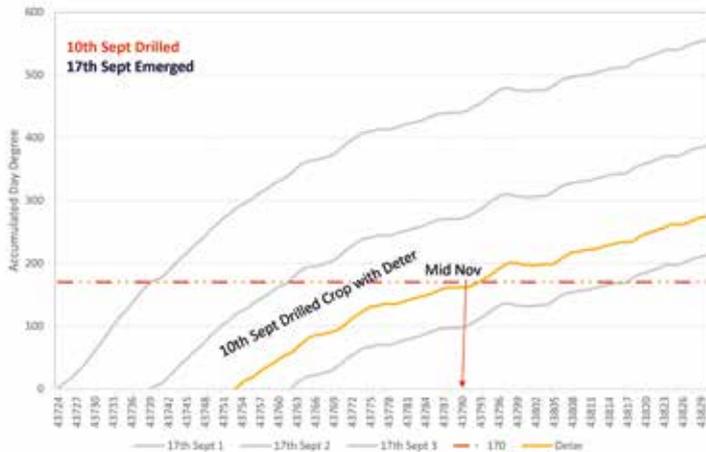
The implications for early drilling and BYDV control are likely to be two-fold: -

- Firstly, the number of potential sprays needed this autumn will increase (as illustrated by a worst-case scenario overleaf)
- Secondly despite our best endeavours, it is increasingly probable from now on we are more likely to see some BYDV in our crops. It will be because of timing issues and relatively short persistency of the products we are now having to rely upon.



To illustrate the potential problem we now face, and by way of an example, I have used real weather data from the East of England and two scenarios for a mid-September sown cereal crop (however, remember this is not just an issue with early drilled crops). The first example is where once we could rely upon Deter seed dressings and follow up sprays to control BYDV, and the second reflecting our new reality of a reliance on insecticides alone. A worst-case scenario where the crop is drilled in mid-September and aphids infect the crop from day one of emergence and recolonise shortly after each pyrethroid treatment.

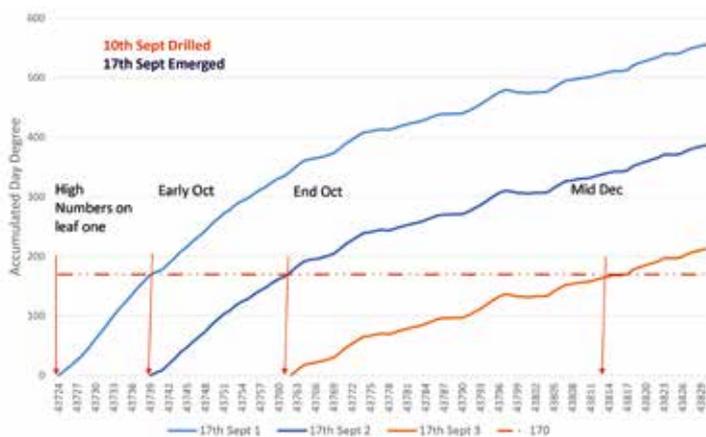
WITH DETER



Graph 1. The implication Deter would have had on timings of insecticide follow up treatments (from a 10th Sept drilled crop). The assumption being that Deter would have afforded approximately five weeks protection from the time of drilling date. With Deter one foliar insecticide application was likely to be needed by mid-November. With a warm winter subsequent application may have been necessary.

The **170-day degree threshold trigger** (as illustrated by the red dotted line), is a rolling accumulated temperature threshold aimed at preventing the spread of infection from the primary infection foci to the rest of the field.

WITHOUT DETER



Graph 2. The implication of timings of insecticide follow up treatments in the absence of Deter using the same weather data. In a worst-case scenario, it could require upwards of three autumn sprays!

The potential risk of infection is associated with an extended season

In most cases, the extended period of risk is associated with earlier drilling (as might be the case this autumn if crops are drilled early). Yet last year's warm autumn just highlighted how late the infection could occur, aphids were still being picked up in suction traps as late as the first week in November (this extended into early December in 2018). The mild winter of 2019 for most will not have killed aphids over wintering in crops, we had reports of many late infection events where it is just the flag leaf showing symptoms.

It is not just a numbers game

The other surprising factor, highlighted by some recent monitoring, was the potential number of aphids carrying virus, numbers were considerably higher in some sites than the traditional 5% considered the norm.

Hutchinson's Omnia precision farming tools take some of the guesswork out of critical product timings

Earlier this year we introduced a new Climate module into our Omnia Precision web-based software.

One tool available to growers as part of this module is our BYDV risk tool. This tool combines 1km accurate weather data, with the drilling date of the crop (entered by the user). With this information Omnia can give a field by field risk level using a traffic light system as shown in the example below. When a field reaches an amber status, it will act as a warning to start considering treatment. Automatic email notifications can be set up to ensure that users are alerted of upcoming risks. Any treatment dates can also be entered into the system on a field by field basis to ensure the data is accurate throughout the autumn and winter period to give an informed decision-making tool.



Graph 3. Omnia BYDV predictive tool generating customised predictive spray timings

As we adapt to the new norm, let us not be complacent in underestimating the potential impact of BYDV. Missed timings in high risk situations can cause almost complete loss of crop!

Once infected we cannot cure the situations (as with foliar diseases). It is therefore imperative to follow best advice and remove green stubbles, a primary source of infection, and time BYDV sprays when required – this means not delaying application to suit other applications to the crop.

If you have questions about this article, please contact us: information@hlhlt.co.uk

Is your farm performing? Find out with Omnia

The legacy of the very difficult 2019-20 cropping year means that many growers are looking at ways to get farm rotations back on track, while continuing to bring costs down, without any detriment to overall profitability.

For example, many growers will be looking at the viability of keeping oilseed rape in the rotation, if and how cover crops can play a role in improving soil conditions, how cultivations will impact establishment and the associated costs of these actions within the whole farm gross margin, points out Oliver Wood, Hutchinsons precision technology manager.

He believes that having comparable, quality data is key to making these decisions and as a result, begin to take specific actions that are crucial to long-term success.

"After a very challenging season, relentless benchmarking and budgeting are vital for any arable grower to be in a position to identify opportunities to improve individual farm's financial position, efficiency and profitability."

"Unless you measure it, you can't manage it, there's little we can do about the big economic factors, so the focus needs to be on those things farmers do have control of or can influence."

"It's important to know what each area of the field actually produces, and if these results are the same year in year out. Omnia allows users to analyse multiple layers of field data – including yield maps – to pin down under-performing areas."

"Through the Omnia yield performance mapping capability, it's possible to identify and map areas of fields by categorising them in terms of the consistency of performance such as poorly consistent yield, good consistent yield and so on."

"In this way, decisions can be made based on this sub-field information; it could be that a higher yielding area of the field has shown up to be potentially inconsistent, so it may not be worth pushing this area whereas if another area delivers an average yield and is potentially consistent, it could be worth investing in this."

Combining this yield map analysis with what it actually cost to produce, is an excellent way to start assessing overall productivity at field level, he explains.

Within Omnia, growers are able to create average cost of production information by crop, market outlet, variety or by field using known or predicted costs, with known or predicted yields.

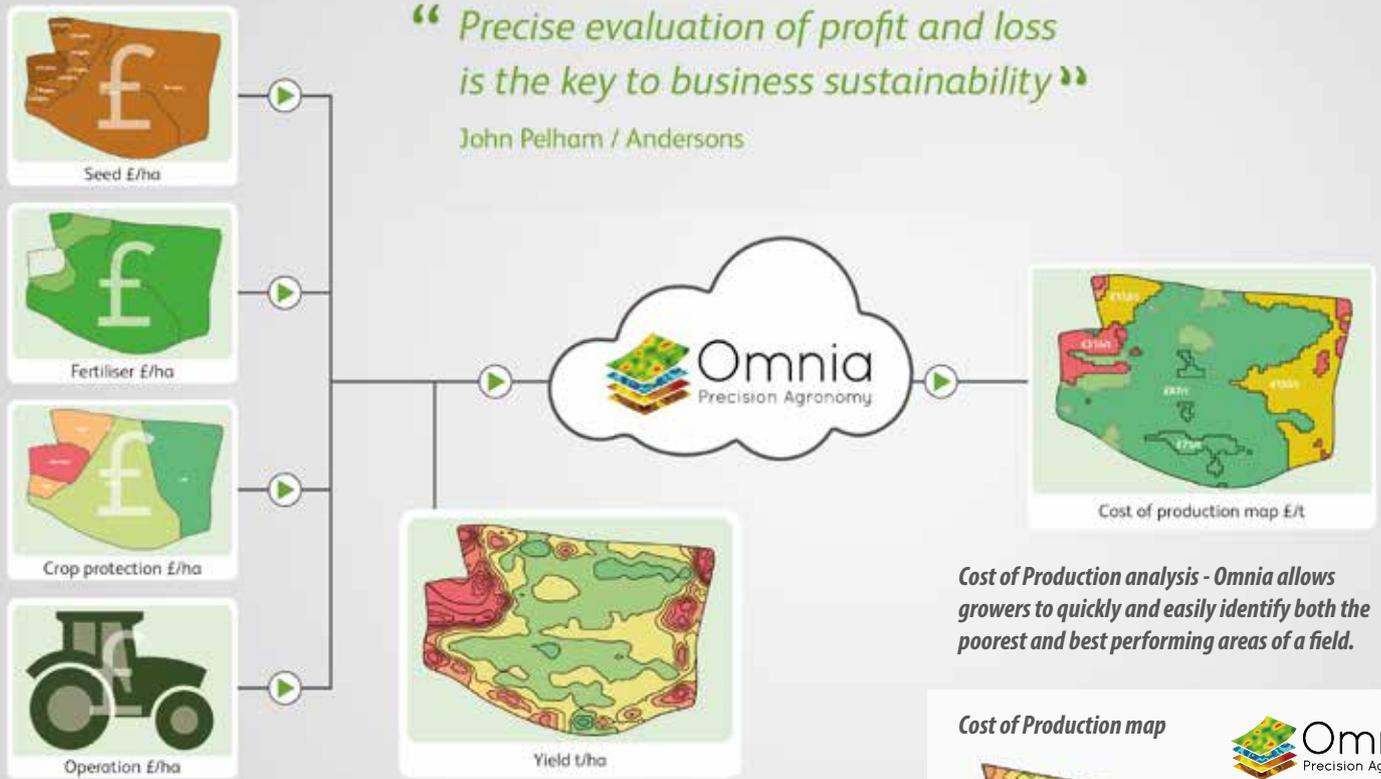
"The importance of properly calculating the cost of crop production might seem obvious, but the variation in output across a field and the increasing use of variable input applications mean that some elements of cost of production may be misleading when done on a field scale."

"There can be significant variations in actual production costs within fields when examined on a tonnage basis and we need to understand why areas are costing more than the cost of production - and make a plan as to how this needs to be managed going forward."



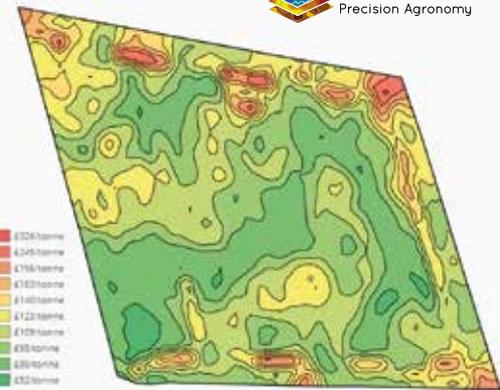
“ Precise evaluation of profit and loss is the key to business sustainability ”

John Pelham / Andersons



Cost of Production analysis - Omnia allows growers to quickly and easily identify both the poorest and best performing areas of a field.

Cost of Production map



matter, that struggled during the drought,” says Tom.

“But putting the figures into the tool it’s possible to see the actual differences in what it has cost to grow crops between these soil types within sub zones of fields.”

“Where headlands have not performed as well, I can very easily calculate what the effect of running a cultivator through will have on my costs of production, and then I can decide if it’s worth doing or not.”

Tom plans to use the tool to decide how he will enter ELMS, as it will allow him to look at several rotational options and play around with potential areas to put into the scheme. “In this way we know we are making the most financially astute decisions for the farm business.”

“Once you know the exact costs of producing the crop, it also helps to know when to sell it!” he adds.



> **Host farmer of the Helix East Farm in Suffolk, Tom Jewers, has just started to use the Yield Performance and Cost of Production mapping tools in Omnia to look at how different areas of his farm have performed and what it has cost to produce that yield.**

“The Cost of Production mapping tool includes all of the possible costs involved with growing a crop, so it’s helpful to work through this and then you know the figures you have are as accurate as possible. It’s detailed enough to contain costs such as lime spreading and mole draining, and also costs such as loading the grain – which I had forgotten to include in my initial costings,” he points out.

“Fundamentally it’s a measured way of doing what we would normally do.”

“It’s definitely a tool that will become increasingly valuable as more years data goes



Tom Jewers - Helix East host

into it, particularly with regards to the Yield Performance mapping.”

“This year has been an eye opener – it has really showed up some clear differences – in terms of the effect of soil type and more so the organic matter levels in the soil, on yields, following on from the very wet and then very dry winter and spring.

As you would expect, crops in heavier soils, rich in organic matter, have done better than those on the lighter soils with less organic

Find out more about yield performance and cost of production mapping, visit: www.omniaprecision.co.uk or email us: consultancy@omniaprecision.co.uk

“Early Autumn Nutrition”

Tim Kerr, Hutchinsons Nutrition manager responds to some recent queries...

“I have the capability of placing fertiliser with my seed drill – is it worthwhile with winter cereals?”

The benefits of placing fertiliser close to the seed are not limited by the crop – the principle remains the same and the advantages are equally valuable to cereals.

It is particularly important to consider the timing and application method of phosphate fertilisers to get the most from them. Phosphate is relatively immobile in the soil, and has a propensity to become less available once applied to the soil, so placing fertiliser along with seed means that the P will be concentrated in the soil zone that the emerging roots inhabit first. Doing this helps to ensure P is not a limiting factor in the establishment phase. Simply, maintaining a supply of phosphate through this decisive period helps to maintain crop yield potential. A concentration of P using placement methods can also reduce the overall amount of fertiliser required - by making what is applied more efficient. Placing rather than broadcasting P all but removes the risk of P run off from fertiliser applications, so all in all it is absolutely worthy of consideration.

There are a number of phosphate-based fertilisers than can be used in cereals – both conventional sized granular fertiliser and microgranular options – please do investigate the options.

“I am establishing my winter wheat using minimal disturbance technique and also leaving the straw residue of the previous crop – should that change my approach to crop nutrition?”

There are a host of potential upsides to reduced inversion and leaving the straw alongside residues from a previous crop. Increasing the soil’s resilience to moisture deficit, building organic matter and improving the soil’s biological activity are just a few.

How might it affect crop nutrition? We tend to focus on the straw – whether we remove it or not, but there is valuable biomass from the roots and stubble also. All of which contains many essential nutrients. Some of these will become available quicker than others – as the nutrients that are involved in the structural parts of the plant will take longer to break down. Nevertheless, most of the potash and useful quantities of phosphate, calcium, magnesium and many trace elements will become available to the following crop. Certainly, returning crop residues has a significant impact on crop removal of Potash in particular.

Nitrogen is one to be aware of because of potential short-term nitrogen immobilisation. Some of the soil mineral N will be used as a feedstock for bacteria that will break down residues. There is a chance that the autumn N supply for cereals may be tight as a result – but you should take advice from a FACTS qualified adviser on dealing with this situation.

“My neighbour swears by an autumn application of phosphite – is there any evidence to show this works?”

Phosphites have been widely used for many years now. However, sometimes there has been a lack of clarity on what they can do and how consistently they perform. Probably as a result of this, a large piece of independent research work was undertaken at Nottingham University. The outcome was a clear demonstration that the use of phosphites at GS 12/13 can improve root biomass by up to 30% - in turn increasing the root’s ability to access nutrients (particularly immobile ones like phosphate) and water.

That improvement can assist cereals in overcoming the impact of dry autumn conditions. The amount of Phosphite being applied does not supply any significant amount of phosphate, but does help the crop get easier access to soil P. We also know that availability of P reduces as soil temperatures reduce – as well as the effects that a lack of soil moisture can have.

Therefore, phosphites can potentially be targeted to meet the growing conditions – including establishment technique – where low disturbance can reduce the concentration of available nutrients in the rooting zone – and an increase in root biomass will improve the resilience of the young plants.

If you have a question or challenge about crop production issues you are facing on your own farm, please email us: information@hlhlt.co.uk and put ‘Fieldwise Answers’ in the title.

Weed control early sowing considerations

A significant area of earlier drilling is expected this autumn in reaction to the impossible conditions experienced in autumn 2019. So how is this scenario likely to impact weed emergence, competitiveness and the application of both cultural and chemical control measures?

Dick Neale (Hutchinsons Technical Manager) shares his thoughts.

The consequence of the extremely wet establishment period in 2019 means that many were forced to abandon winter crop plantings and revert to spring options, the majority of which were sown in March or early April, and this has seen a significant reduction in grassweed seed return. Even where black-grass is present, the very fact that it was restricted to spring establishment will have seen seed return reduced by a factor of 10 compared to autumn established situations.

Earlier sowing obviously has a consequence of reduced germination time for treatment of weeds prior to autumn sowing. Earlier harvesting and a reasonable degree of soil moisture may encourage many into producing stale seedbeds immediately post combining in the hope of encouraging significant germination during August and early September, however, it has been clearly established that the majority of black-grass does not germinate until late September, with the first 10 days of October being the optimum germination period and we can expect the same in 2020.

Optimum use of residual herbicides

The intention to sow earlier is likely to mean commencement from mid-September. Drier seedbeds clearly give the potential for better and more rapid establishment - not only of the sown crop, but equally, that of grassweeds. Drier seedbeds reduce the efficacy of residual herbicides, so the optimum utilisation of these

must be given serious consideration to counter emergence periods of grassweeds this autumn.

Avadex 15G, Avadex Factor and Proclus, the recent aclonifen option introduced by Bayer, all have pre-em only approvals - these are key products for successful control of black-grass, ryegrass and bromes, so dry seedbeds will see these options compromised from the off. Avadex 15G is well known to be amongst the most effective in drier seedbeds, but as a liquid formulation - dry seedbeds are a serious hindrance to the efficacy of Avadex Factor. Like diflufenican, Aclonifen is predominantly a broadleaved weed killer, but is synergistic to grassweed herbicides offering in excess of 10% improvements in control when partnered with flufenacet - but that efficacy improvement can only be utilised in damp and cooling seedbeds. Increasing the elements of the pre-em stack will have little impact in dry seedbeds, so spreading applications through late September and October to maintain active dose as emergence occurs will be far more effective.

Early sowing opportunities

Earlier sowings will drive a requirement for more frequent entry into crops for BYDV control, so the opportunity is there to combine aphid and weed control treatments over an extended period, increasing the applied herbicide dose as soils cool and wet to maintain optimum performance.

We are now several years into a focussed approach to grassweed control for many, and as mentioned earlier, seed return

prior to winter wheat will be significantly reduced compared to other years. Crop competition is a key tool in suppressing both grass and broadleaved weeds, so should we consider significantly earlier sowing this season?

BYDV, Septoria infection and increased growing costs would need serious consideration, but wrong footing a lower population of grassweeds emerging into a competitive wheat crop, coupled with a spread of herbicide applications, could be a real option to consider.

It is likely to be no less effective than sowing in early October with a crop then finding itself emerging into the optimum period of grassweed emergence, with little chance of offering a robust competitive defence ...certainly food for thought.

If you have questions about grassweed control, please contact us: information@hlhlt.co.uk

For more information on any of our products or services, please contact your local Hutchinsons agronomist, or contact us at:

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