

AGRONOMY

IN THIS ISSUE

Dealing with BYDV
through IPM

One year of
CONVISO®

Practical guide to
adjuvants

Expert focus:
Steph Melrose

News and agronomy advice for arable farmers



Building plant resilience with biostimulants this season

This autumn, Frontier agronomists are offering their farmer customers a bespoke service to create a sequenced programme of biostimulants which, when used throughout the growing season, will enhance plant vigour.

Frontier soil and plant health specialist, Jamie Stotzka, says this is a very exciting addition to the support Frontier can offer growers.

“We’re now able to create a flexible, sequenced approach to crop protection and nutrition using biostimulants, which can be integrated into current fertiliser and crop input plans,” he says.

“This will support natural plant health and vigour and build plant resilience for more effective crop production.

“Taking this approach will mean growers can begin to incorporate biostimulants throughout the season, to become part of a wider programme, with each active targeting specific effects through a known mode of action.”

Continue to next page...



Continued from previous page...



Image: Changes in root and shoot biomass were seen following applications of phosphite at a Nottingham University trial

Using biostimulants this autumn

Jamie explains phosphite should be one of the first applications, playing a key role in crop establishment.

“Early applications of phosphite help with root development and formation and can support the start of the nitrogen assimilation cycle, so you’re increasing efficiency from the beginning of plant development.”

He says this should then be followed by further applications throughout the season.

“This is where there’s a change in mindset of using biostimulants – they’re most effective when utilised as a sequence throughout the year, not just in sole applications.

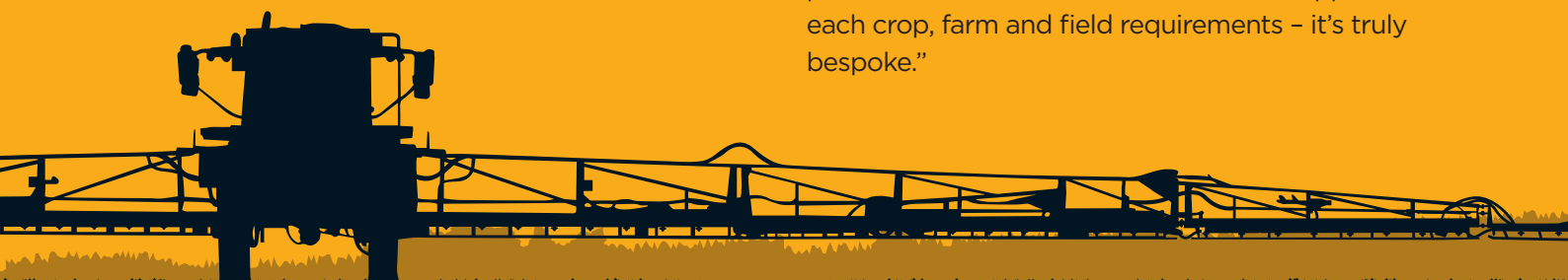
“

Biostimulants are most effective when utilised as a sequence

”

“For example, applying phosphite in the spring up to GS30 on cereals and up to stem extension on OSR can further enhance nutrient uptake and nitrogen assimilation. We can also combine it with applications of pidolic acid, which has been shown to enhance the work of phosphite as well as being influential in aiding stress tolerance and recovery.

“If growing legumes, the applications won’t include additional nitrogen for example, so we have a large portfolio which enables us to tailor the support to each crop, farm and field requirements – it’s truly bespoke.”



Dealing with BYDV through IPM

In the absence of available seed treatments, with aphid activity and increasing resistance to pyrethroids, Frontier crop production technical lead Paul Fogg suggests growers need to adopt an IPM approach to deal with barley yellow dwarf virus (BYDV).



Image: BYDV is a persistent virus, requiring an integrated approach to control

Paul Fogg says it is widely understood that BYDV infection causes yield losses and reduced crop quality.

“The disease affects all cereals and grasses, with the AHDB stating yield losses on untreated wheat crops average at 8% and, in some cases, are as high as 60%. It’s estimated that each year 82% of the crop area could be affected by BYDV if left untreated, which would cost the industry an average of £136 million per year, and that’s just for wheat. Meanwhile, in a barley crop, losses can be even more significant in untreated crops.

“On the back of autumn 2019, the likelihood is that growers will want to drill earlier, increasing the risk of early BYDV infection and therefore the potential impact on the crop. Without any effective seed treatments and resistance in grain aphids reported, an integrated approach to pest management is vital.”



Image: The disease affects all cereals and grasses

“

It’s estimated that each year 82% of the crop area could be affected by BYDV if left untreated

”

IPM approach to tackle BYDV

Paul explains there are several stages to an aphid infection.

“BYDV is a ‘persistent’ virus, taking 16-24 hours for aphids to pick up the virus, and four to eight hours to transmit to uninfected plants. Crop-to-crop transmission is via winged aphids migrating from infected source plants. Within-crop transmission then follows as wingless aphids reproduce, with their progeny migrating to adjoining plants.”

He notes only a small proportion of aphids entering cereals are likely to be carrying BYDV.

“Problems with spread arise when the second-generation offspring of the original winged colonisers are produced, with temperature governing the aphids’ reproduction speed and growth. It takes several weeks for the first generation of wingless aphids to mature and start to reproduce.”

To tackle this, he notes four key stages of an IPM programme.

Key stages of an IPM programme

Utilise genetics

Drill a tolerant or resistant variety – this is one of the latest advancements in combatting BYDV.

For barley growers, genetic tolerance is available in the form of KWS Amistar. This variety has tolerance to BYDV, meaning the crop doesn't display any symptoms of infection, but the virus is present within the plant without yield loss due to infection. If growing wheat, RGT Wolverine is a group 4 hard winter wheat which offers resistance to BYDV. Combined with a comprehensive agronomic package, RGT Wolverine will deliver similar yields to existing high-yielding feed varieties.

Manage the green bridge

Volunteer cereals, cultivated and weed grasses generally act as the source of infection, often known as a 'green bridge' – removing this can help prevent transmission.

Favourable conditions for aphids are where we have early-emerging autumn sown cereals, with a particularly high risk in years with mild autumn/winter weather. Early drilling can add to this risk due to a shorter window from harvest to drilling - where possible, consider delayed drilling.

Monitor crops

Inspect crops closely, use aphid monitoring reports to track initial migration and support tools to help predict when second-generation offspring are likely to appear; for example, the AHDB BYDV management tool for cereals

www.ahdb.org.uk/bydv

Treat with insecticides

Spraying should be a last resort to prevent the second-generation infection risk, using the right product, full rate and at the right time. This then allows for a reset to monitor for further risk later in the season.

One year of CONVISO®



Sugar beet growers have been able to utilise the new CONVISO® SMART technology for the first time. With over 1,800ha grown across the UK and a large proportion managed by Frontier, agronomist Rob Norman details how the programme performed.

"There were some doubts over what weed control could be like this year due to the dry spring causing some of the most delayed and protracted germination in sugar beet crops we've ever seen. These soil conditions continued, and we had an interlude of bad frost in May, which further set the crop back. So, for the introduction of a new herbicide programme, it appeared it couldn't have been a trickier year to start.

"However, Conviso did perform and we've been incredibly impressed with how the programme has dealt with the 2020 conditions. With a combined programme of pre-emergence and early post-emergence herbicides using conventional products, followed by an application of Conviso as late as possible, we saw control of large populations of weed beet.

"Growers were also impressed with how it controlled many tricky large weeds, including knotgrass and bindweed. This now gives us the confidence that the technology is strong enough to control weeds at greater sizes and, with the added spraying of insecticides, could allow us greater flexibility with our weed control programmes in the future.

"2020 was the last season for mainstay beet herbicide desmedipham; however, experience of Conviso programmes has given me confidence in this new herbicide as a capable replacement."



Practical guide to adjuvants

With 100% control of target pests, weeds and diseases rarely achieved, as well as an increasing focus on reducing any non-target effects when applying crop protection products, Frontier believes adjuvants and additives have an increasingly important role to play.

“Adjuvants are products which require approval by the Chemical Regulation Division (CRD) and are intended to enhance the efficacy when mixed with other plant protection products (PPP),” says Stuart Maltby, Frontier contracting sales manager.

“Often, this means they have timing restrictions placed on them when being used with fullrate PPPs, unless supporting residue data has been supplied.

“Additives, on the other hand, do not require authorisation and reduce the negative effects of hard water, for example. They include products such as pH buffers, water conditioners, anti-foam and drift.”

Using adjuvants

Stuart notes there are four main groups of adjuvants, with over 250 products, which are used to enhance PPP efficacy: ‘oils’, ‘surfactants’, ‘stickers’ and ‘miscellaneous’.

“However, they’re rarely formulated on their own,” he adds. “For the best impact, they’re blended using different effective adjuvant components (EACs) into a single formulation to deliver multiple modes of action (MOA), and we can build in/bolt on additive benefits.”

This autumn, adjuvants can be used with residual herbicides to optimise PPP performance.

“Oil-based adjuvants will help keep herbicides in the surface layer to avoid leaching, which in turn improves crop safety and product efficacy. They can also be combined with an additive to help mitigate drift and improve soil coverage, resulting in more germinating weeds coming into contact with the pre-emergence, therefore improving efficacy.”



Image: Sprayers treating crops at a Frontier site in Ingham

“

This autumn, adjuvants can be used with residual herbicides to optimise PPP performance

”

Oils

Oils enhance contact concentration, reduce evaporation rate which leads to increased contact time, and help reduce re-aggregation, beading and run-off. They also improve penetration through the leaf or soil and help increase soil spray coverage and binding.

Surfactants

Surfactants improve pesticide dispersion, reduce ‘bounce’ and increase retention. They boost spread and penetration through hairs/scales/waxes, and can help with slow drying and increase water retention in the spray droplet by having moisture preserving properties.

Sticklers

Use of sticklers helps increase the adhesion, or sticking, of PPP on a target surface, as well as reducing evaporation of pesticide and UV degradation, and can provide a waterproof coating.

Expert focus: Steph Melrose, BASIS compliance manager



“

For the last 15 years my role at Frontier has focused on training and compliance. The job has two distinct elements – ensuring our network of 21 crop protection stores are BASIS compliant, and coordinating training for our agronomists and storekeepers. To effectively do this role, I therefore hold the BASIS Certificate in Crop Protection and the BASIS Nominated Storekeeper Certificate.

Health and safety is of the utmost importance at Frontier and our crop protection stores are run to the highest professional standards. All our storekeepers are BASIS trained, and my role is to support them to employ best practice and comply with the legislation that governs UK pesticide storage. Customer focus and expertise are two of Frontier's core values, which we emphasise during

all agronomy training to ensure customers benefit first hand from our agronomists' expertise. We have 130 trained agronomists at Frontier with 44 of the team holding the prestigious BASIS Diploma in Agronomy. My role is also to advise on the BASIS training courses available, and I have direct involvement in mentoring and internal training for our trainee agronomists. I'm also an elected member for Health and Safety on the BASIS Board representing the distributor sector.

I thoroughly enjoy my work - no two days are the same and I get immense satisfaction from being able to support our storekeepers and agronomists. Our work enables them to reach their potential and be the best they can be, so this can be passed on to our customers in the service and advice they receive.

”

Make 2021 decisions 'in your pocket'

It's a busy time of year, with next season cropping decisions to be made while the combines are still rolling. MyFarm is a digital end-to-end farm management platform filled with market-leading precision software and insight tools to aid rotation planning and crop recording year-on-year. Customers can also monitor grain markets with future pricing automation, ensuring you'll never miss an opportunity. **Call 03330 141 141, or visit www.frontierag.co.uk/myfarminfo**



Frontier has a UK-wide team of 130 BASIS qualified agronomists, including 44 Diploma holders, working with growers to deliver fully integrated agronomy advice on all aspects of profitable and sustainable crop production. To find out more about Frontier's agronomy services in your area email agronomy@frontier.co.uk, call 0800 227 445 or visit www.frontierag.co.uk

For more advice and technical news sign up to our blog www.frontierag.co.uk/blog/subscribe

frontier

🐦 @frontierag



Talk to the people **that work for the company** that makes a difference.