

An evidence-based approach

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Technical Forward-thinking farmers

Planning becomes very difficult when you’re not quite sure what it is you’re planning for. Like many other farmers, Alex Borthwick is on a steep learning curve to discover how he can farm more efficiently for a sustainable future and he’s using digital tools to help him. CPM takes a closer look.

By Lucy de la Pasture

It takes a cool head to keep on track when the world hasn’t yet found its balance in the wake of a global pandemic and, as a result, commodity prices are on an upward trend. Then there’s added complications from Brexit, with movement of goods proving to be awkward at times. Yet all seems calm in Alex Borthwick’s office at R M Cottingham farm in Lincolnshire.

The news has just broken that CF Fertilisers has stopped producing ammonium nitrate at plants in the UK due to rising gas prices. At the same time glyphosate supplies have all but dried up at precisely when it’s most needed by farmers with blackgrass who are trying to create stale seed beds before planting their wheat. Luckily Alex is ahead of the game on both counts.

“We’re trying to forward-plan more as

product availability and commodity prices fluctuate. This year we’ve seen the benefits as we have a supply of glyphosate and we’ve forward-bought fertiliser.”

Add in the lack of clarity on precisely what ELMs will deliver when the BPS disappears, there’s a cloud of uncertainty overhanging British agriculture.

Illuminating data

Alex is looking towards data to help him plan on his 880ha arable farm at Swinhope in the Wolds. He sees shining light on the detail behind his crop production practices as the route to sustainably enhance his yields and becoming a fitter business in the process.

In an effort to get an inside track on the shape of future farm support, the farm has entered into a pilot for the in-coming Sustainable Farm Incentive (SFI). “There’s no clear vision on how to adapt the farm without BPS and we could do with more clarity on this from decision-makers. We’ve gone into the pilot in a small way to gain more knowledge. The intention is to tread lightly into SFI and evaluate it from the inside.

“The frustration to me is that a lot of the good we’ve already done on the farm won’t be recognised within SFI’s current framework. Our biodiversity is one point in case, we have a thriving population of brown hares on the farm which are a scarce species in other parts of the country,” he explains.

To meet these challenges of farming more efficiently and in an increasingly sustainable way, Alex views data capture as an essential tool to help him see where he can change the way things are done, justify his inputs and prove his environmental credentials —

all of which will become necessary in the future, with both government support and the supply chain driving the change.

To this end he’s opted to use Bayer’s Climate FieldView and it’s helping him build up a dataset to inform his farming. “It gives us the ability to assess ourselves, monitor our decision-making and justify what we’re doing,” he explains.

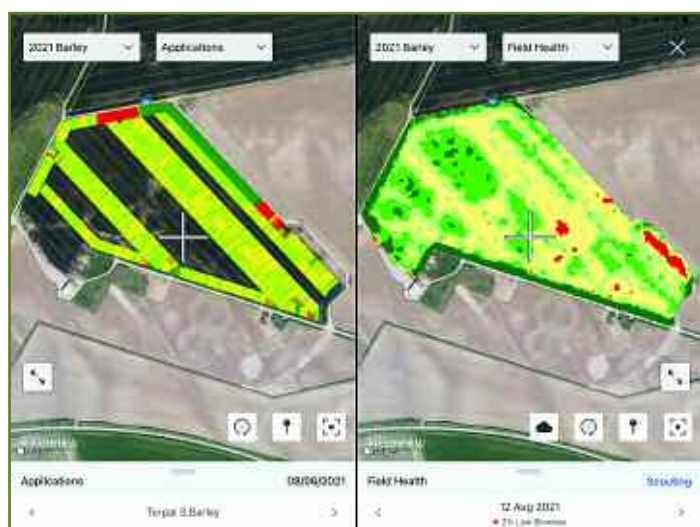
The farming system is predominantly plough-based at Hoe Hill Farm, though Alex uses his one-pass Grégoire Besson Discordon selectively on some fields. It’s a system which seems to work on the free-draining, calcareous silty clay loams overlying chalk which predominate on the farm.

“Yield is still vital in our business. Higher yielding crops will capture and store more carbon than a lower yielding one,” he says.

Soil health is an important consideration ▶



Alex Borthwick says Climate FieldView gives the farm the ability to assess itself, monitor decision-making and justify what it’s doing.



FieldView has recorded where Terpal was applied to the spring barley (left) and the resulting differences in biomass (right) just before harvest.

► and is carefully monitored, with regular testing at three-year intervals on most field, reducing to every two years if any problems are identified. “We use the NRM soil health test which gives us insight into the biological, chemical and physical properties for the bigger picture. It’s all part of our evidence-based farming approach.”

Alex says soil organic matter is good across the farm and, although he doesn’t have access to organic manures, the farm uses Fibrophos — derived from the incineration of deep litter poultry manure — as the main source of P and K.

On-farm trials also play a vital role on the farm — helping to

inform how some of the big issues, such as blackgrass, are best tackled. He is BASIS qualified and makes most of the agronomy decisions, preferring the flexibility to use products he feels are best suited to the job in hand.

“We have a good relationship with the manufacturers and host some of their trials, which gives us an insight into the performance of different blackgrass programmes and new products. It’s helped us fine-tune our herbicide programmes, particularly on the different soil types across the farm,” he adds.

Cultural controls, such as delayed drilling and spring

cropping, have helped keep blackgrass at manageable populations by mostly achieving the target of 95% control.

Alex loads his herbicide programme in the autumn. “We use Crystal (flufenacet+ pendimethalin) as a pre-emergence and follow with Liberator (flufenacet+ DFF), primarily to top up the flufenacet. One of the learning points from the herbicide trials here has been that formulation has an impact on flufenacet performance, so we’re careful about which products we use.”



Alex has a FieldView Drive fitted to his drill which enables him to vary the seed rate across the field.

Refining strategies

Alex may apply a third herbicide application later in the autumn using Atlantis-type (iodosulfuron+ mesosulfuron) products with added pendimethalin, but only if blackgrass is still present at levels of 10 plants/m² or more.

FieldView has been in use on the farm since April 2020 and it’s already proving to be helping refine strategies for dealing with the blackgrass on the farm.

“We’re using FieldView to vary seed rates through our Väderstad drill. We know we need a good crop cover going into the spring so that the crop is competitive with any remaining blackgrass. By using FieldView to work out a variable seed rate, we’re aiming for more even establishment by allowing for areas where we know

establishment tends to not be as good,” he explains.

One of the advantages to the FieldView system is its ease of operation, believes Alex.

“FieldView is unique in that I don’t have to spend a lot of time inputting information, which is something I really don’t have the time to do. It provides such an easy way of gathering information — it’s unique in capturing what we’re actually doing — as well as analysing data we can use for decision-making.”

He’s also found that his operators are on-board with FieldView. “I’ve tried not to push digital systems on them but there doesn’t seem to be an issue with using FieldView. All you have to do is ensure you have the Drive connected to the iPad and remember to engage it when you



FieldView has recorded where Terpal was applied to the spring barley (left) and the resulting differences in biomass (right) just before harvest. FieldView yield output for untreated (left) and treated (right) in Alex’s spring barley trial where he applied Terpal to some of the field to prevent brackling.

enter a new field. The yield meter on the combine was never really used much but it's much easier to get this information now we have FieldView," he laughs.

The first FieldView Drive was installed on the farm's Bateman sprayer in 2020 but Alex soon had another one added to his combine and more recently the drill. "Using the system, we can select passes made with the drill, sprayer and combine so if there's variability in the crop, we have a high level of data, including the speed at each moment during application, which helps us try and understand what has happened.

"I'd like to install a Drive on the fertiliser spreader too. We don't use variable rates for fertiliser applications at the moment, but it would give me another layer of data to analyse variability in the field," he says.

"We've already gone down the road of the usual precision approaches — we're using autosteer, RTK and GPS — but FieldView is a real step forward. It has helped us utilise yield maps and it's much easier to pick up on the differences now."

Alex cites the integration between manufacturer's systems as one of the biggest issues on his farm and finds that using FieldView, which just means moving the iPad from one set of machinery to another, bypasses the issue — giving him just one set of IT to worry about. When he has had a problem, he's found the support behind the system to be fantastic.

FieldView has also opened up possibilities that weren't possible before, particularly by giving Alex the capability to look closely at the results when he tries something new. One of the things he's looked at this year is PGR application in spring barley.

"We've had issues with brackling in the spring barley so this year I looked at whether we could manage this using Terpal (mepiquat chloride+ 2-chloroethylphosphonic acid) at GS39. We applied 0.5 l/ha in split field trials and analysed

it using FieldView.

"Visually there was only a slight difference in crop height and I was petrified the Terpal would knock the yield. But when it came to combining the straw was a better colour and the ears didn't brackle at all, and the Terpal application equated to an increase in yield. It made a noticeable difference to the speed of combining too, according to FieldView," says Alex.

Fungicide insights

Other trials on the farm have looked at fungicide treatments in winter wheat, with Bayer's new pipeline fungicide Iblon (isoflucypram) looking on a par with Revystar (mefentrifluconazole+ fluxapyroxad) in terms of disease control. Alex says he couldn't see a difference. He's also been using Bayer's Rapid Disease Detection testing to provide an insight into the levels of latent septoria which the eye can't see.

"It's good technology and we certainly adapted fungicide programmes according to the level of risk. But again, interpreting the results is still a learning curve and the low levels of septoria detected in the upper leaf levels perhaps gave a false level of security because I felt there was probably septoria in the base of the canopy."

The FieldView system has also brought to light some interesting differences in water utilisation in oilseed rape trials, which were set up to investigate Aviator (prothioconazole+ bixafen) as a mid-flowering spray for sclerotinia control. Alex couldn't see any differences in biomass but the treated plot had a reduced transpiration rate despite dry conditions, and gave a 0.2t/ha yield difference at harvest.

Alex admits that getting his head around the soil health maps within FieldView has been one of his main difficulties. "Working out exactly what they mean is part of the learning curve and this year, some of the crops with the

bigger biomasses in the spring haven't yielded as well as some of the lesser biomass crops.

"When looking at different varieties, particularly in OSR, the level of senescence can make a variety look like it has a lower biomass than others, but it's actually because it's at a slightly different growth stage. I'm definitely still learning how to interpret the data."

One of the things Alex would like to see in the future is the ability to overlay maps in FieldView, together with the functionality to enter his own data. But as things stand, he believes it gives him valuable information without the complexity of having too many digital platforms, which is something he's tried to avoid.

"We still use Gatekeeper for our recording and are rather stuck with it, having been invested in it for many years it holds valuable data, but I hope it



An additional FieldView Drive fitted to the sprayer records the speed and time of operations which means Alex can dig into the data to analyse any variation in field.

will become more integrable in the future. One of the things I really appreciate about FieldView is that all the data is my own and can't be viewed without my consent."

As Alex steers the farm through an era of uncertainty, data is certainly helping him look at the things he can control to have a business fit for the future. ■



A third Drive on the combine has been well received by operators and means the farm is getting more out of yield mapping.

Forward-thinking farmers

With robotics, gene mapping and molecular markers, digital technology and bio-chemistry it is a dynamic time for anyone involved in agriculture.

Challenges lie ahead for UK agriculture, such as improving productivity while minimising its environmental footprint. But farmers have always had to deal with change and adopt new ideas and technology.

Bayer is at the core of these agricultural advances, working with farmers throughout the UK and further afield to trial and develop new diagnostic tools and

evaluate different farming strategies, coupled with exciting plant breeding and product development programmes. It will help us develop innovative solutions and services to assist farmers achieve profitable and sustainable agronomic practices.

Despite the challenges facing UK agriculture there is much to look forward to. This series of articles focuses on how innovation and partnership between farmer and industry will help us face the future together.

