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Data drives the field view

Forward-thinking farmers

Across its two sites in Berkshire and Lincolnshire, the emphasis for Sir Richard Sutton Limited is to gather reliable in-field data that builds into a picture and guides the way forward for the whole business. *CPM* takes a tour.

By Tom Allen-Stevens

The ridge of red chalk in the field opposite puts on a striking display against the backdrop of the Lincolnshire Wold soil now ready to accept its spring crop.

For Chris Baylis, there are mixed emotions as he looks on, however. “We struggle to get a 7t/ha wheat crop out of that soil,” he says. “The question is what to do with it — do we take out of production altogether, tailor inputs more precisely to the output we know we can achieve, or look more closely at trying to push the output?”

This is the decision Chris faces across every ha, every field and across the full 6000ha he oversees across two sites in the UK as farm business estate manager for Richard Sutton Limited. Based at Stainton le Vale, southwest of Caistor, with four satellite farms on heavier soils closer to Grimsby, there’s another 2400ha at the Benham Estate in Berkshire.

Carefully stewarded

Both estates are blessed with a rich array of wildlife areas, woodland and field margins that frame the deeply folded, mainly chalk downland each are set in. These have been carefully stewarded alongside productive arable soils with complementary livestock. But Chris freely admits the business faces tough choices ahead. “Farming profitably without subsidy is a core objective and we’re keen to build on progress made to date,” he says.

So with the help of assistant manager Matthew Addison, he’s in the process of drawing up a series of five-year performance maps. “About 10% of the land has already been taken out of production and is currently in Countryside Stewardship,” says Chris. “We want to identify about another 10-15% of the lowest performing areas, suitable to remove from mainstream production, and put these into biodiversity and conservation.

“But this is a business, and our main output is food. We have to maintain our level of production. So we’re not just looking at physical performance, we’re assessing gross margin within fields and focusing on cost of production.”

Chris is keen to ensure he has reliable data to inform the important decisions he has to make. One platform he puts to good use is Bayer’s FieldView (see panel on p22). He uses this in conjunction with other software, such as Gatekeeper, to ensure the changes made to the estate ensure its long-term sustainability. “That’s not just the financial consideration — we want to take in biodiversity, carbon and conservation value, too.”

He makes the comment as he passes one of the wide field margins that make ▸

The choice with this low-yielding area of red chalk is whether to take it out of production, tailor inputs more precisely, or try to push the output.

Forward-thinking farmers

The 200ha of field margins have a rich array of wildlife, carefully stewarded alongside productive arable soils.

▸ up 200ha of the land now taken out of production. As if to underline the statement, a hare scampers out from near the bird feeder at the edge of the margin and into the wild bird cover next door.

Chris comes to an area that went into arable reversion around ten years ago. He explains it was previously old parkland that was lost long before the Sutton family purchased the estate and subsequently restored it. It provides grazing for the farm's 150 Lincoln Red crossed with Aberdeen Angus suckler cows, and the 1200 gimmer lambs from Northumberland ewes, some of which supply the flock at Benham.

"This area has high local value for the rare species we're reintroducing. But the question is what next?" He gestures to some recent hedgerow restoration work. "We manage it carefully, and we're keen to improve its biodiversity value as long as that's sustainable. One option we're considering is to fence off an area for deer and to sell the venison locally."

Leaving the pasture behind, Chris returns to the arable land, explaining this has been arranged as much as possible into 120ha blocks on a six-year rotation. The aim is a block that can be covered in a day with the combine or drill to maximise efficiency, but in a rotation that builds soil health.

There's considerable value both in the bean crop and in what can be captured in the cover crops.

"When I arrived ten years ago, much of the cropping revolved around two wheats and oilseed rape, or a tight rotation with barley. The main changes are more spring cropping, preceded by cover crops," he says. ▸

Easy route to open a FieldView of farm performance

For Chris Baylis, getting the balance right in the field relies heavily on good data coming into the estate office. Opening up his laptop, he brings up maps of some of the information he's captured with Bayer's FieldView.

"I saw it first in the US about four years ago. The way you can visualise the data is very impressive," he notes.

"What I like about this is that I can look at the yield map coming through live from the combine in Benham while sitting here in the office in Lincolnshire. It means that myself, Joe Dilibero — our farm manager at Benham — and anyone else in the team at either of our sites are reading the same information, so can make better day-to-day decisions.

"But the real beauty of FieldView for me is that it also captures the actual, as-applied variable-rate input data. I feed that back into Gatekeeper and can draw up variable-cost maps against the yield data, which gives a true picture of in-field performance."

Chris joins a Zoom meeting with Max Dafforn, digital activation manager for Bayer, to discuss how the business is getting on with the software and how it's integrating with other data platforms. The business has a number of FieldView Drive units that plug into the controller area network (CAN) port of the sprayers or combine to ease set up and feed data through to a nearby iPad. "Joe says it was easier to set up than he thought it was going to be," reports Chris.

Max points out the benchmarking capabilities within FieldView. "We find most farmers are more interested in field performance, rather than straight yield. Within the software you can rank fields or varieties by their performance, and benchmark them against the farm average. A nice feature is the ability to compare the Benham fields with those in Linolnshire and see where each ranks in the overall busines," he suggests

He also points out the field region reports. "You can draw round an area of a field and look in more detail at its performance, separate from the field as a whole. This would come in handy for analysing the results of your field trials. You can also use it to identify a problem area, such as a weed patch, and make a spot application to it, and then monitor its performance thereafter."

Max is keen to get feedback on the Gatekeeper link. This went live in November 2021 and allows users to bring field boundaries through to FieldView. Yield and as-applied input data can then be pulled back into Gatekeeper for further analysis, with costings, for example. "The idea is that you keep the single source of truth for basic farm data on field boundaries and sizes, etc, but can easily layer in additional data you gather from FieldView."

Chris reports the link is working well and he's also used the satellite-generated biomass maps to target PGR use. "What would be useful is to get an idea of fuel use across a field to give us some idea of how our soils are performing."

Max reveals that trials are already underway to capture more information into FieldView to help growers evaluate their emissions. "We're keen for FieldView to be used to record and assess more carbon friendly field practices. FieldView's fuctionality would lend itself very well to this, so I'd hope we be able to help the business on its journey to net zero, as well as increasing productivity," he notes.

You can draw round an area of a field and look in more detail at its performance, which comes in handy for analysing the results of field trials.

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Once a year, everyone on the arable side gets involved in inspection holes dug in various places and discussions with soil specialist Philip Wright.

▸ He stops to inspect some Lynx spring beans. "We graze the vetch and phacelia-based cover crop, but are careful not to overgraze, leaving about 30% of the biomass. This is sprayed off shortly before drilling the beans with the 12m Horsch Sprinter," he explains.

Chris admits the grazing regime takes a fair bit of management but digs up some soil to confirm the benefits the cover-crop biomass is bringing down below. "With current fertiliser prices, there's considerable value both in the bean crop and in what we can capture in the cover crops. We have a long-term aim to reduce synthetic inputs by around 30%," he adds, and nods towards two new buildings taking shape at the edge of the field. Extra storage space, not just for grain, but also input supplies, are another part of the estate's plans to future proof the business against market volatility and supply-chain shocks.

Moving on to the next block, he grabs the spade again to dig up and inspect below the canopy of some KWS Extase winter wheat and seems pleased with how the soil falls away from the fresh white roots he exposes.

"Philip Wright of Wright Solutions comes once a year, and everyone on the arable side gets involved in the inspection holes we dig in various places and discussions around what we can do to further improve the soils," says Chris.

"We'll use the plough for vining peas, sugar beet or if a reset's needed, although we're moving away from sugar beet altogether — the damage to soils on Wold land concerns me, so I think our current British Sugar contract will be our last.

"When I arrived here, the estate had moved to 100% direct drilling for non-root crops. But the figures suggested a 3% yield hit, and then the difficult autumn in 2012 forced a rethink, so we switched back to a system based around a Väderstad Rapid. We also now have the Horsch Sprinter, and we use both to bring together a system that gradually reduces cultivations and moves towards direct drilling — it's too much to just flick a switch."

Currently cover crops and beans are direct drilled. OSR is given more of a strip-till approach, with liquid fertiliser passed down the back of Tillso Sabre tines, mounted 50cm apart on the Rapid, with a pair of coulters offset either side of each of the 16 legs. While a Simba Solo remains the primary cultivation tool, an 8.5m Farmet Fantom is easing the way to a less invasive approach. "The aim is to move to a 6-12-36m controlled traffic farming system," says Chris.

Targeting inputs

Above ground, his priority is data capture and analysis to refine the system. "There's been an emphasis in precision farming to use it to even out yields. I'd question whether that's the right approach, so we've been looking much more towards targeting inputs according to what fields and areas within fields can achieve."

There's an impressive potential here, with wheat yields averaging 9.8t/ha. Good data provision lies at the heart of making improvements, he explains as he heads back towards the estate office. "We gather a lot of information through the season about the crops, with reference points we return to as a barometer on performance. We've tried drones, but they don't really read the slopes. So a lot of it comes down to N Tester results and sap analysis."

The results are suggesting the farm can be bolder about how it varies inputs above the ±10% usually advised by the standard precision-application packages. Chris says a variance of 30kgN/ha at each application is more usual. "The N Tester the other day suggested levels in the wheat at Benham were fine, so we stood the sprayer down. We're applying earlier these days, with three to four applications to a winter crop, following a little-and-often approach, and that's improved our nutrient-use efficiency from 65% to nearly 85%," he adds.

"Last harvest we also carried out grain nutrient analyses for each soil type. These have given us really comprehensive data we can overlay with other in-field information and make true data-driven decisions about how to treat different soil zones, and other specific in-field areas."

With that, Chris stops opposite a sloping field in which you can just make out various shades of green. "These are our nitrogen trials, with rates on each tramline 30kgN/ha less than the previous, down to 120kgN/ha below farm standard. Across that at right angles we're applying different biological treatments and molasses. We'll capture all of the yield data through FieldView, which will feed into our five-year performance maps," he explains.

"Getting results from inputs in the past has always been pretty clear cut, but now we need to apply a new mindset, using different products applied within a changed set of parameters. The tools we now have will give us a really rich dataset on which to base our options going forward." ■

Layers of data about how the crop has been treated and how it's performed build a picture on how best the farming system should progress.