



“We want Helix to be seen as the proofing ground for new technology.”

**Innovation
Digital Direction**

It's in its DNA

As technology continues to break down the barriers of modern-day farming, CPM finds out how Hutchinsons' Helix initiative is facilitating the next stage of progress.

By Charlotte Cunningham

Over the past decade, the industry has trodden carefully into the world of digital agriculture, but now it seems we're finally standing on solid ground, with some remarkable progress being made right across the sector.

And as growers continue their journey into this revolutionary way of farming, Hutchinsons is ensuring the next stage of progress can be made within its Helix farming initiative, which has a hard focus on adding value to growers' bottom line through technology.

If you're not familiar with the initiative, Helix has positioned itself as a one-stop shop when it comes to offering guidance and advice on using reliable, worthwhile technology on farm, explains Stuart Hill, head of technology and innovation, who has been a driving force in the project. "Fundamentally, Helix is all about adding value to the bottom line. It's about taking technologies, developing them, gaining an understanding of the information they can

generate and then delivering actions that can add value, pounds, and pence to that bottom line.

Technology with potential
"Essentially it's about answering the "so what" about technology and I spend about 60% of my time looking at, and evaluating, technology with potential that we can bring into the business."

So, what is the "so what?" and why is tech becoming so important?

"Investment in tech and funding has tripled in the past five years, and that's pretty significant in its own right. But what's important to note is that that's upstream investment, at farmgate level, meaning an outlay in things like sensors, software platforms and autonomy."

And with a surge in uptake, Hutchinsons believe that such technology can work to answer some of the key challenges on farm, which include:

- How do we use data to improve farm profitability?
- How do we improve soils and soil health?
- How can genetics have an impact, in terms of resilience?
- How does integrated crop management really tie all of this together?

"From a Helix perspective, we have to look at where we can have an impact, as well as how and where we can bring in technologies to help achieve some further value for growers," explains Stuart.

"If we take the challenge of improving

soil health, for example, the first step is setting out goals — basically, what we're trying to improve in this area.

"This could be organic matter levels, carbon status or improving nutrition, and then we have to match this challenge with what potential technologies are available and could help meet this target."

Based on this, Terramap is a good example of a project launched from Helix about 14 months ago using technology that was first developed in the mining industry, now adopted, and adapted for agricultural use, he adds. "This technology



Helix has positioned itself as a one stop shop when it comes to offering guidance and advice on using reliable, worthwhile technology on farm, explains Stuart Hill.



According to Hutchinsons, Helix is all about helping add value to the bottom line, through technology. Pictured: Andrew Pitts, host farmer.

allows more remote analysis of soils, as well as the monitoring of 21 different parameters.

“Compared to traditional methods, this provides a more remote, efficient analysis and means a lot less movement of soils.”

The approach that the firm has taken is not just about introducing new technologies but also to look at how established technologies can be adapted to help deliver the best on-farm solutions. “We want Helix to be seen as the proofing ground for new technology and advice and we want outside industries, more start-ups, other businesses and growers, to come to us and give us ideas and talk about innovation. We can then look at it and decide whether we can take that forward.”

According to Stuart, inspiration and direction comes from a number of sources, including outside industries such as Microsoft or Google, and research bodies and institutes like Rothamsted Research and leading universities. “Global external forums and conferences are also key to the process, with our attending agronomists bringing those ideas together with the challenges they see on farm,” says Stuart. “There’s a whole range of different options and sources of inspiration, but it’s that collaboration that we really need. We’re not software developers and while we can take the technology and work with it, we’re not here to reinvent

the wheel.”

However, sourcing the technology is just the start of the process, and where Helix really comes into its own is through its on-farm analysis work.

“Technology generally doesn’t deliver an answer straight away — it delivers data or information, which has to be interpreted,” says Stuart.

Practical actions

“That’s the next stage of the process and involves the agronomist coming in to work with the grower to understand this data and decide what practical actions can be taken to make best use of the information, and really that’s the ethos behind the project.”

Everything within the Helix project is tried and tested at the Helix national farm in Northants — owned by Andrew and William Pitts — before being demonstrated at the recently-launched regional sites.

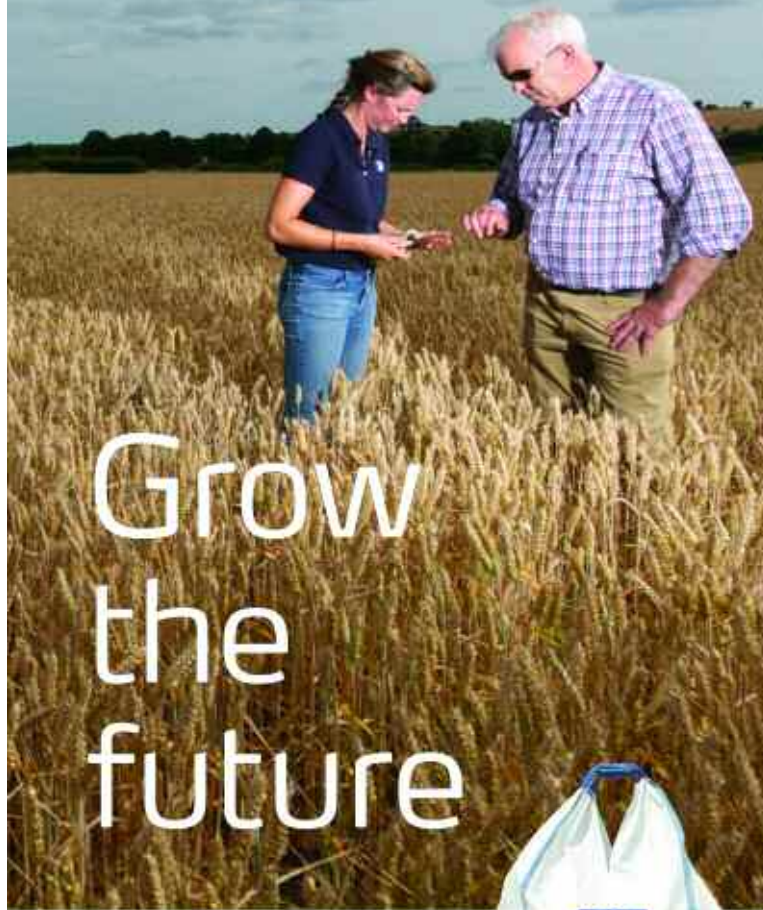
“The initiative focuses on farm-scale technology, rather than small plot, meaning that we’re able to take a really strategic, workable approach,” continues Stuart.

“As we build up our regional Helix farms and growers, there will also be a group that comes together to drive what the challenges are and what technology and innovation we can bring in to help.”

The next step for the project is to take more of this nationally proven tech to the regional ▶



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► sites, adds Stuart. “Over the past four months, we have initiated two regional demonstration farms — in the North and the East with more planned for the spring

and summer of next year. This allows us to test in different scenarios and situations and really demonstrate the relevance of a certain technology to particular regions.”

Helix North is headed up by Nick and Liz Wilson, the East is hosted by Tom Jewers.

As with any long-term project,

Innovation in practice



The tangible benefits of introducing any kind of technology has to be to reduce risk and increase profit, says Andrew Pitts.

Heading up the Helix national farm is Andrew and William Pitts who farm 2500ha in Whiston, Northants.

Known for their forward-thinking approach, the Pitts brothers have made some huge changes to the farm in recent years, with a sharp focus on minimising their cost of production. “Five years ago, the farm was based around a continuous wheat-wheat-rape rotation,” explains Andrew. “But since then, things have changed dramatically, and we now have a very varied cropping system that includes crops such as rye and peas.

“Farming is all about change, but we want to keep it as simple as possible, which is why we’ve been focusing on making better use of the most unproductive areas of the farm within the Helix initiative.”

One particular part of the farm that’s come under scrutiny is a 13ha field known as Bush Close field, and by using technology they’ve been able to make vast improvements, explains Andrew. “We looked at the five-year average of the field and quickly realised how truly unproductive the headlands were. They weren’t worth farming, and from a cost of production point of view, needed to be taken out of production.”

Following the washout of last autumn, the decision was made not to combine these areas. “Rather than putting metal through wet soil, we decided to do some headland management and try something different.”

Instead, the farm planted a cover crop mix, designed to relieve compaction. “We opted for

Hutchinsons’ MaxiRooter, which contains a large mix of plant species, the most important being the tillage radish,” explains Andrew.

The result was hugely improved ground root structure. “We planted it in May 2019 having sprayed off the damaged headland, and the crop was huge by the time it came to planting spring beans.”

As well as improving the ground structure, taking the headland out of production proved favourable on the yield map. “It meant the lowest yielding area of the field was 4t/ha and the highest was almost 7t/ha — we were really chuffed with that and it’s put us in a really good place for harvest 2021.”

“It was simple, to do, but managing this data has helped us make much better decisions.”

According to Andrew, the upshot of all of this, and the really important thing, is that it’s all about adding profit. “Technology can just cost you money. A lot of things we’ve tried in the past have all been about adding profit to the supplier — not the farmer — and we’re not interested in that. We’ve been bitten by that before.

“The tangible benefits of introducing any kind of technology has to be to reduce risk and increase profit.”

In the case of Bush Close field, the decision to take the headlands out of production has proven to be a financially savvy move, too. “We did the maths and a 13ha with the whole field cropped had a gross margin of £9808, which is not bad, but isn’t great either.

“But when we change this to 10ha of cropping and 3ha of stewardship, this gross margin increases to £10,860 — including 3ha of stewardship factored in at £540/ha.

“This means that there’s a tangible benefit of over £1000 and I don’t know about you, but I need that £1000, particularly as we move towards life without the single farm payment.”

Though the ELM Scheme is likely to offer some kind of support to growers, Andrew warns of not getting too reliant on what may — or may not — be to come. “Don’t be fooled for one minute that ELM is going to fulfil all of what we’ve seen within BPS. So we’re going to have to become more efficient, use more technology, and manage carefully — particularly by identifying areas not worth cropping.

“We’re really pleased with the results we’ve seen in this field, it’s a win-win all round, but it only works if you pay close attention to the detail and make use of the technology out there to



Technology enhances the work of agronomists, says Michael Shemilt.

measure, monitor and manage.”

Of course, without proper guidance and management, even the best technology can be rendered useless, which is where the role of the agronomist comes into play.

Andrew’s agronomist, Michael Shemilt, has been working alongside the farm to ensure what they’re doing can bring profitable benefits.

“Technology enhances the work of agronomists and in the future, I think there will be a requirement to do more with it — whether that’s due to financial, legislative or environmental pressures.

“The integrated farming approach is becoming more and more important and we’re going to rely on that more to influence the decision-making process, as well as measuring the success — or failure — of those decisions.

As well as the work done to improve headland profitability, Andrew and Michael have also been using the data from Terramap to create more accurate variable mapping on farm.

“An example of this is variable rate lime application. We were finding inconsistencies within some of the fields and we knew we could iron out these creases with technology that we already had.

“So we looked through the Terramap data and found that pH was the limiting factor in these areas. This could have traditionally been missed, or worse, a blanket application of lime could have been applied based on the results in that area.

“We’ve now aimed lime application on just the areas that need it and expect to see the results come harvest.”

challenges are expected, and in the case of Helix, this comes in the form of the sheer speed of development of farm technology. "With traditional inputs, as they come to market, the product doesn't change too much for the following five to 10 years. There may be some small tweaks or developments with labels, but that's usually it.

"However, with technology, as soon as you bring something to farm it can change almost immediately, and this is something we have to be very mindful of. So it's this that will drive the pace of change in terms of how we work on farm over the coming years."

On top of this, there's also a shift in growers' priorities and pressures to factor in, adds Stuart. "From a farmer perspective, the changing pressures over the past five years have been huge — particularly with regards to the climate, soils and improving the wider environment.

"We then add in modifications to regulations and resistance, as well as societal changes and evolving end markets as buying habits alter, and there's a lot to think about on a day-to-day basis."

"As growers in the farming industry, we're here to produce food, and if

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we're not doing that in a profitable and sustainable way, it has massive effects.

The cherry on the challenge cake is the future of government policy, particularly with the onset of ELMs on the horizon, adds Stuart. "All of this means that from a farm perspective, we're really having to look further at the strategic end of the farm and advice, in terms of what are the objects and grower motivations and where emerging technology can have an impact." ■



Digital Direction

As arable farms progress towards a digital future, it can be difficult to know which forms of data generation, capture and analysis provide a really worthwhile benefit to the business, and which are costly and time-wasting distractions. CPM is working with some of the industry's leading companies in this area to bring growers some Digital Direction. These articles track the significant steps on the journey towards the data-enabled farm, and also explain and profile the

technologies involved.

CPM would like to thank Hutchinsons for sponsoring this Digital Direction article and for providing privileged access to staff and material used to help bring it together.



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