



Farm sustainability and technology



Stuart Hill, Hutchinsons Head of Technology and Innovation, reviews the main aims and progress made so far in Project Helix.

The future - new technology, prediction, autonomy, big data, robotics, sensors, ICM, Regen Ag, Carbon, ELMs, sustainability. These words are becoming a regular part of our everyday vocabulary and they do actually fit together, as we head into a new era where agronomy linking integrated farm and crop management will be critical in supporting grower sustainability. This is also why Hutchinsons embarked on **Project Helix**. Linking technology, knowledge and advice to deliver sustainable farming.

We also have to be mindful that each year our climate seems to present another extreme, which is becoming normal, and coupled with Brexit and policy changes over the next few years, on-farm financial pressures are significant.

So how does Helix address these challenges?

To begin with, we have to **understand what the aims and objectives are of the grower** and their farm business. Understanding motivations and those objectives is key to making progress. These are often separated as business and emotional criteria, but often these are one and the same when you look more deeply.

Many growers are now looking to leave a longer term positive environmental legacy to support sustainability. That is a sustainable environment, community and business - they are all inextricably linked. A sustainable all-round business is generally a profitable one.



Stuart Hill - Head of Technology & Innovation Hutchinsons

With Helix, any technology has to provide a benefit in sustainability, productivity or profitability for a given farm situation. Productivity is essentially less time or resource spent producing the same or more, which of course would increase profitability and this is where technology supporting ICM and sustainability plays a pivotal role.



➤ The majority of development takes place at our Helix national farm with Andrew Pitts in Northamptonshire. These projects are then cascaded out to regional farms such as Tom Jewers who hosts Helix East. These regional farms may also develop specific localised research areas, such as specialist crop projects.

Justification is another key focus. Current and future policy and food chain expectation will be to ensure that the advice and actions delivered on farm are integrated, evidenced and justified - this will simply be a requirement.

So, what is Helix already delivering?

Strategically, **cost of production mapping** is a first beneficial technology. By overlaying **yield maps** with costs of production maps in our **Omnia system** it is possible to identify consistent low and high productivity areas in and across fields. We can investigate areas of low production and either advise remedial action, such as soils assessments, or, if production is unlikely to be improved, then advise environmental options (ELMs in future) in those areas. Either way, this has to be a measurable, positive financial impact on profitability, something we have demonstrated on the Helix farm in Northamptonshire.

There is the argument that your fixed costs are still the same on less land, but this scenario does give a chance to review the fixed cost base, or increase land area to compensate - another productivity positive.

The **rotational planning tool** launched this year for the agronomists is multi-dimensional and gives a read out of long-term rotational profitability. The tool compares different rotations with associated fixed costs in realistic scenarios, adding in other aspects such as cover crops and environmental schemes. The skill is not just utilising the tool, it is also understanding the farm business, crop marketing strategy, mechanisation and resource strategy and storage implications to build into the equation. This is an integrated approach to deliver long-term rotation, soils and environmental management.

Soils are key to long term sustainability and there are several projects that include technologies that aim to monitor, measure and provide positive benefit at the end. It is well documented that improving soil biology and structure will deliver many tangible benefits, the ultimate being long-term resilience and output.

Terramap, developed through Helix, is an example of using more remote, more efficient and live testing technologies. This has allowed greater accuracy, with nutrient and soils maps being integrated into **Omnia**. When layered with yield maps, it is possible to begin to understand in-field differences and manage bespoke precision nutrient application.



When you couple this with soils knowledge it can be immensely powerful. Building soil biology, to recycle and release its own nutrients more fully, will lead to more efficient nutrient and input use. A tangible benefit.

This year Hutchinsons has also launched the **climate tool**, channelled through **Omnia**. This utilises data modelling to predict growth stages of crops. This in turn supports more targeted monitoring and planning of applications and logistics. Pest models are also being developed to work in conjunction with the climate tool, an example being the **BYDV model** already available, which again targets timing and justification of input use.

So, there will be a record of what has been done and the thresholds and reasoning behind that. Of course, these systems need human input and as more information is put into the system then the more accurate it becomes.

More beneficial tools are in development which you will see in the coming months.

The **Helix project** was launched a year ago and is already delivering beneficial technologies. But we must be very clear that technology is not the sole focus. Developing knowledge and advice are key to make the most of the information and ultimately to deliver greater financial and environmental sustainability for growers.

Find out more – visit www.helixfarm.co.uk

