



One step ahead of the game the Helix Farm network expands

*Helix East host
Tom Jewers (right)
with agronomist
Mike Greener*

Change is inevitable - over the next decade farming faces many new challenges and opportunities. During this period, farm businesses need to remain financially profitable and sustainable. Helix will help them do so.

In order to move with the times, agronomists and growers will require new technologies and practices that allow them to become increasingly more efficient and adaptable, believes Hutchinsons Head of Technology & Innovation, Stuart Hill, who oversees the Helix project.

The most important question is whether these technologies have a benefit at farm level – are they affordable and practical and do they improve productivity and profitability?

This is exactly what Hutchinsons has set out to answer; testing the value and benefits of new technologies

on a farm scale level is the premise for Hutchinsons Helix Technology Farms. The National site, which was launched last summer, is hosted by Andrew and William Pitts of J W Pitts & Sons, located at Whiston in Northamptonshire.

At the very core of the Helix Farms approach is a proofing process to ensure that technologies offering this added value, are tested thoroughly on farm. This includes looking at any potential further development to simplify and integrate them into practical everyday use.



*Helix East
Co-ordinator
Rob Jewers*

2020 Helix Focus Areas: Testing Financial and Environmental value

How can using data improve profitability?

Measurement and monitoring to set targets for improvement and adaptation.

For example, using yield map layers with soil maps through the Omnia platform to realise different areas of productivity and subsequent actions.

How can we improve soils and soil health?

Soils are fundamental to deliver improvement in managing output, the environment and costs. For example, practices that increase soil carbon sequestration and options to measure change.

How can we deliver more benefits from nutrition (and soil) management?

Soils and nutrition are inextricably linked. Live and accurate measurement of soil and plant nutrition is critical to manage costs and output in season and long term. For example, TerraMap is a soils mapping technology already delivered through Helix that indicates more accurately areas of difference and consequent management and cost changes.

How can we further optimise crop health and protection?

Prediction is increasingly important alongside justification of decision making. For example, climate and pest models in the Omnia platform.

What benefit do genetics offer?

Improved genetics will support crop health and input management. For example, hybrid wheat development and tailoring management according to trait and farm situation.

Can integrated crop management deliver in terms of profitability and sustainability?

ICM covers all crop production activities and defined recording and output is necessary to demonstrate best practice. For example, rotational management and biodiversity tools.

"Everything that we are doing on the Helix sites will link closely to Integrated Crop Management (ICM) as we know that this will be a key requirement for future farming systems, and we are able to trial and test them within this context, which is a really valuable output," he explains.

He highlights the pest and disease forecasting tools being developed through the **Omnia Climate module** that brings together crop modelling, weather forecasting tools and historical data to ensure that spray timings are applied as accurately as possible and linked to the variety, yield prediction and threat.

Tom is particularly interested in how he can use technology such as Omnia's yield performance and cost of production mapping to allow him to be ahead of the game when the ELM scheme comes into force.

*"As we move to public money for public goods, I need to know what my best options are - so now is the time to test these. If I know what works for me, we will be **"match fit"** by the time ELM is rolled out"*



Working with his Hutchinsons agronomist Mike Greener, Tom plans to explore variety blends as a way of managing disease and if foliar nutrition can be used to replace certain inputs or improve nitrogen use efficiency.

Learn more about the Helix project via our dedicated website: www.helixfarm.co.uk

> Work conducted at the national site, has already facilitated the launch of exciting tools such as **TerraMap**, the highest resolution soil mapping system available, the **Omnia Precision** climate module, a BYDV prediction model, and later this year a rotational planning tool.

Now, Hutchinsons is rolling out the Helix Farm concept to regional centres and the first of these is the Helix East Farm, near Bury St Edmunds in Suffolk. Additional sites in north and central England will be launched later this year.

Helix East is Hosted by Tom Jewers of G D Jewers & Son at Wood Hall Farm in Rattlesden. Mr Jewers believes that by hosting the Helix Farm it provides him with an excellent opportunity to test new technologies and approaches on his own farm - at no risk to him.

Hutchinsons Helix East co-ordinator and crop nutrition specialist, Rob Jewers, will work closely with Tom across all of the focus areas and explains that these will be run on an improve or remove basis, ensuring that improving farm performance and therefore profitability remain the focus.

Direct Drilling

the good, the bad and the ugly



Dick Neale (Hutchinsons Technical Manager) explores potential pitfalls and offers practical solutions for growers seeking a successful direct drilling system.

I personally have issues with what is meant by 'direct' when it comes to the sowing of crops.

The dictionary definition is, I think, spot on in relation to how we should apply the meaning:

Direct: 'a system which only involves the people, actions or things that are necessary to make it happen'. At no point does this definition suggest that only one thing is involved, i.e. a drill.

Direct drilling is a system requiring some key steps to be taken in exactly the same way as any plough-based cultivation system. In both systems the end objective is the same, the successful establishment of a crop.

Moving from deeper tillage

Most direct drilling situations have moved, or are moving, from a deeper tillage regime. The negative impacts of aggressive tillage are becoming more widely discussed and recognised and the unstable soil structures created, loss of organic matter and poor water management are never successfully addressed by simply not cultivating and changing the drill.

Direct drilling must be recognised as a series of management steps to achieve the best possible interface between grower and soil. It is also understanding that a third element is at play here, and must be embraced if the system is to be successful - the element of **soil biology**.

The biological profile is a product of the environment in which it resides. Do not expect the deep tillage biology to be ready or equipped to deal with zero tillage suddenly being imposed upon it - it will need help.

Attention to detail with the combine and residue management is a critical factor in being successful with direct drilling. The option to sort laid crop, un-chopped straw and that 'poor chop' from a 2am stint on the combine, is lost where tillage is being dropped. Uneven chop and spread leads to inconsistent moisture retention, nutritional banding and an impossible situation in which to set consistent drilling depth. The wider the combine gets, the greater the risks.

Straw rakes can be key tools in rectifying these issues and the focus in use must be straw and chaff management. Straw rakes are a really flexible tool for the direct driller, in management of residue, removal of

young weeds and movement of tillth both before and after drilling.

A flexible approach to the system is vitally important - if a rake post drilling would help close the slot, or level the final work, then do it. There is no rule book that says you can't.

Always be prepared to compromise in the early years of direct drilling. Dense layers of high Carbon:Nitrogen ratio cereal straw can be problematic on and in soil lacking the appropriate biology and worm populations. Baling off should be considered for replacement with a low C:N ratio catch or cover crop, or cut the stubble higher to reduce the bulk of straw lying on the soil surface.

Some cultivation can be considered ... it is not a sin, but think about how that cultivation is applied.

A tine drill used to sow a catch or cover crop is, in essence, cultivating the soil like any other cultivator, but as a drill, it is not thought of in that way. Equally a shallow cultivator fitted with an air seeder is having the same impact.

Catch or cover crops are a further important management tool in the direct drilling system, and in my view should be built into the process at the earliest possible opportunity. >



Tailor seed rate for maximum yield and crop competition



As the autumn wheat drilling window approaches, Hutchinsons is urging growers to ensure they optimise seed rates for maximum yield potential and crop competition against grassweeds.

> Multi species mixtures, focussed on the needs of individual soils, are fundamental to accelerating the success of the system.

'What drill do I recommend?', is one of the most regular questions I am asked, and the simple answer is, you need two drills - a disc and a tine, with the tine machine being a cultivation option, ideal for establishing cover crops into chopped straw or sowing crops direct through chopped cereal straw.

Chopped cereal straw is where disc drills suffer with hair pinning, but they score highly drilling into cover crops or pulse crop residues. Again, it is a case of changing the way you view things, plenty of farming businesses have a drill and a yard full of cultivation options. With a direct drilling approach your cultivation and drilling options are the two drills, a rake, a roll, cover crops and the all-important cash crops that you grow.

If you have any questions about successfully moving into direct drilling, please contact us: information@hlh ltd.co.uk

Deciding on the appropriate seed rate requires an honest assessment of the likely crop establishment that can be achieved given the many influencing factors, such as the weather, seedbed conditions, and variety characteristics.

Over-estimating crop establishment risks leading to more open, less competitive crops that ultimately have lower yield potential.

"After the weather-related issues many farms experienced with establishment last autumn, we've seen how black-grass can come through in open crops," says Hutchinsons agronomist Toby Kellie. **"Every season is different, but in any year, it is vital enough plants are established from the outset to create a solid platform to build from."**

Yield Enhancement Network (YEN) research, for example, suggests the best performing crops have around 600-700 ears/m² at harvest (up to 800/m²), which can be well above many typical commercial crops.

Of course, not all land is capable of supporting such high-biomass crops, so the starting point for planning seed rates is to assess the realistic yield potential for individual fields and soil types, then work back to calculate how many seeds are required to achieve this, Mr Kellie says.

Factors to consider include:

- **Establishment percentage** - can vary significantly depending on the weather, soil type, seedbed conditions, drilling date, pests and weed competition, and seed quality (germination)
- **Tillering capacity** - wheat can typically produce up to 6-7 tillers depending on the variety, sowing date and growing conditions, but not all will survive. Drilling date is the main determining factor for tiller production, with earlier-sown crops producing more tillers
- **Tiller survival** - around 50% of all tillers produced typically survive through to harvest, with most wheat plants supporting 1.5 to 3 tillers per plant. Tiller survival is influenced by many factors, including soil type, nutrition and general crop health
- **Grains per ear/thousand grain weight** - a key factor in calculating final yield in tonnes/ha.

Mr Kellie advises growers to always work on a seeds/m² basis when calculating seed rates, rather than the traditional kilograms/ha, as thousand grain weight can vary significantly, which makes a big difference to the number of seeds actually sown. Hutchinsons trials at Mollington in



"You've always got to look at the potential consequences of any actions you take and do what you can to mitigate the impact."



> Oxfordshire, for example, found a 20% difference in TGW between two varieties, Crispin and Costello.

Equally important is to test the germination percentage of seed, especially when planning to sow over-year-old, or farm-saved seed.

"You've got to know what you're sowing before you plant it."

Using precision farming systems such as Omnia to create variable seed rate plans can be a useful way of managing in-field variability, however such plans should ideally be based on a variety of factors, not just soil type. Omnia allows users to combine multiple 'layers' of information, such as weed pressure, nutrient availability, or other soil characteristics. Analysis of multiple years of yield maps is also possible, providing a straightforward way of assessing long-term yield potential and identifying consistently high, or low, performing areas.

Trials target more competitive crops

Maximising crop competition to help manage black-grass in winter wheat is the focus of this autumn's trials at the Hutchinsons Regional Black-grass

Centre at Mollington near Banbury, kindly hosted by C.A & A Hall and Son. Several trials are planned on the silty clay loam site, all designed to find ways of boosting crop competitiveness against black-grass, building on work carried out at the site in previous years.

"Crop competition is not a silver bullet for black-grass control, but it is something that can sometimes get overlooked given the focus on other aspects such as delayed drilling and cultivation strategy," says Mr Kellie.

Reducing soil disturbance is rightly a key tool in the armoury, but growers must remain flexible and ensure that any actions aimed at preventing black-grass emergence do not have unintended consequences on crop establishment, he notes.

For example, previous trials at Mollington have shown how some shallow (50mm max) cultivation can be more effective for overall black-grass control than direct drilling, at that specific site. The resulting flush of weeds was greater with more soil disturbance, but favourable conditions allowed effective chemical control, while the extra soil tillage helped crops establish better, resulting in a denser plant stand that was more competitive against later emerging weeds.

"You've always got to look at the potential consequences of any actions you take and do what you can to mitigate the impact."

The 2020/21 trials are all in Crispin winter wheat following spring barley. "Spring barley is not the ideal entry for winter wheat, but that's entirely due to the weather last autumn forcing a change in cropping plans, and it probably reflects the situation many other farms found themselves in this year," says Mr Kellie.

Crispin has been chosen as the standard variety, as it proved most competitive against black-grass in a previous variety and seed rate trial conducted at Mollington in 2018/19. This is largely due to its strong, early tillering capacity in the autumn, which has a "smothering effect" on black-grass.

Key areas being investigated this coming season include:

- **Establishment method and row spacing:** four drills, including disc and tine-based machines, will be compared to examine how crop establishment and black-grass emergence is influenced by differences in soil disturbance from each machine. The drills also allow the effect of different row spacings to be investigated (12.5cm, 25cm and 33cm spacing) to better understand how intra- and inter-row competition impacts on weed pressure and yield potential.
- **Seed dressings:** five trials will examine the potential benefits of alternative seed dressings over a traditional single purpose fungicide dressing. This includes phosphite or zinc ammonium acetate-based nutrient dressings, and a look at whether there is any physiological benefit on speed of vigour from the SDHI-based seed treatment Vibrance Duo (Fludioxonil + Sedaxane).
- **Hybrid wheat:** as interest in hybrid wheats increases, one trial will examine how the extra vigour of these new varieties can be managed for yield optimisation and black-grass control. This includes a cost-benefit analysis of hybrids sown with different seed rates (100 seeds/m² and 200 seeds/m²).

You can follow progress at all our regional trial sites, by viewing the latest information online: www.hlhlt.co.uk/fieldwiseive



2020 New Entrant Agronomists L-R
James Whatty, Sam Brand, Louis Williams,
Daniel Baron, Oliver Thomas, Ben Jagger

HUTCHINSONS FOUNDATION

Celebrating 10 years OF THE HUTCHINSONS FOUNDATION

Established ten years ago to attract dynamic young people into a career in agronomy, the Hutchinsons Foundation Academy continues to go from strength to strength.

The Hutchinsons Foundation programme is recognised to be the most professional and comprehensive agronomy training programme within the UK. The three-year programme offers the unique opportunity to develop the specialist technical, service and interpersonal skills needed by today's agronomists. Since its launch, there have been over 85 agronomists through the programme, establishing Hutchinsons as one of the foremost employers of agronomists in the UK.

New entrants to the Foundation are selected each year as post-graduates from a range of Universities and Colleges, as well as from positions within farm management and other industry related backgrounds – these candidates will be selected by their ability to develop their necessary skills to the highest levels within the profession.

On graduation from the Foundation, agronomists will have achieved BASIS, FACTS, BETA Conservation Management and SWM qualifications, as a minimum standard.

"The significant investment and resource that we have devoted to the Foundation programme over the last decade, and will continue to do so in the future, is a reflection of the importance that we place on attracting the very brightest young people into the industry," explains Mike Young, Foundation Chairman.

"Our vigorous selection, in conjunction with the professional

training programme, ensures that our agronomists are best placed to build long term technical and service support relationships with farmer clients, in the ever-changing landscape of British agriculture."

Experiences of the Foundation

Rory Kissock joined the Foundation last year from a background in farm management, where he was responsible for managing over 480 hectares of combinable crops including wheat, rape, barley, peas, beans and pumpkins. Rory regularly walked the farm with the agronomist, which ignited his interest in agronomy. He believes the Hutchinsons Foundation Training Scheme is a brilliant programme which gives all new entrant agronomists the tools and knowledge to be successful.

"On joining the Foundation, I was welcomed into a fantastic group of established agronomists with a wealth of knowledge ready to share with me. Being part of such a successful team is invaluable, and it's very easy to approach anyone for help or advice."



Fellow 2019 trainee **Morven Anderson** followed a less obvious route into the Foundation programme.



With a distinction in a Biology degree from Aberdeen University, she developed a strong interest in sustainable agriculture, and went on to conduct research on the impact of nitrogenous fertiliser applications on greenhouse gas emissions in an oil palm plantation of Sarawak, Malaysia.

She decided to study further for an MSc in Integrated Pest Management at Harper Adams University – graduating with distinction- and winning the BCPC for the top student.

"The time that I spent conducting my research confirmed my interest in agronomy as a career – a role that allows me to engage with a wide range of people, leading crop management practices and environmental sustainability," she explains.

"Hutchinsons are unique in their standpoint as a family owned business – and this emphasised to me the importance of long-term grower commitment whilst also investing in a range of innovative technologies to keep our clients at the forefront of the industry."

"The Foundation training programme came highly recommended and all I can say from my first year of training is that it does not disappoint."

"Through a rather challenging autumn 2019, my mentor and technical trainers were an incredible source of knowledge and support; allowing me to experience a diverse range of farm and cropping situations."

For more information on the Foundation and applying for 2021, visit our website: www.hlhltd.co.uk

For more information on any of our products or services, please contact your local Hutchinsons agronomist, or contact us at:

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