

Helix network expands to include the very first Agroecology Farm

This autumn will see the addition of Whitley Manor Farm in Newport, Shropshire to the Hutchinsons national Helix network.

However, this is a Helix farm with a difference - it is the first Helix farm that will focus solely on the principles and practices of Agroecology.

Agroecology or Regenerative Farming is a method or practice of farming that has come increasingly into the limelight as growers look for ways of working with nature on their farms – driven by the need to follow a more holistic, environmentally focussed path,

“As an industry, we are looking for answers as to how many of the practices associated with Agroecology such as reducing cultivations, using cover crops and reintroducing livestock can really make a sustainable and profitable difference to our farms,” explains Ed Bown, Hutchinsons head of Agroecology.

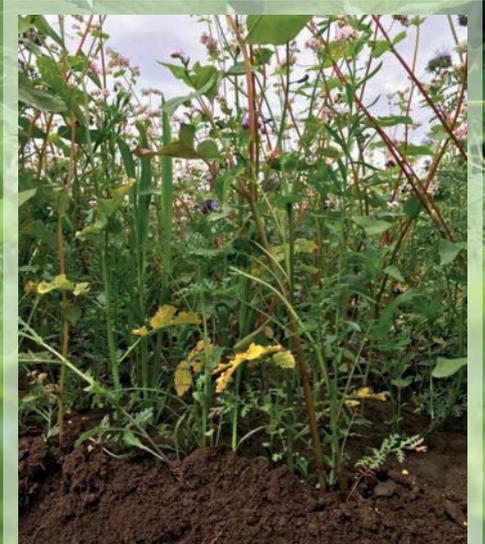
“Our Helix farms were set up to test new technologies and practices in

real farm scenario’s and this is exactly what we are aiming to do with the Agroecology Helix Farm.

“Our objective is not to look at the minutest details and trials but to look to answer some of the bigger picture questions surrounding Agroecology practices.”

“For example we want some clarity on questions such as when moving over to an Agroecological approach, how are yields affected? Do they drop off and then pick up again? What are the direct benefits to soil health, biodiversity and soil nutrient availability? Are they measurable and definable?

To answer these questions, we will take baseline measurements and evaluate the impact of Agroecological technologies or agronomic practices on factors such as soil health, diversity and carbon.





Harry Heath, Whitley Manor Farm



Ed Brown, Head of Agroecology Services



> **For Harry Heath who took over the running of the family farm several years ago, being a Helix Farm provides a valuable opportunity to see how different Agroecological approaches and technologies can potentially not only improve yields but also reduce input costs.**

"Our journey into Agroecology has been driven very much by looking at how we can ensure that we are farming in a positive way for the bottom line and environmentally. We had a legacy of heavy cultivations on the farm which cost money and were not doing very much for soil health - so we needed to look at how we could manage this differently going forward - and this was the real spring board into looking at how Agroecological practices could help us to do this."

"This has taken a real mindset change, so we are taking each step at a time. It is not a rigid and defined approach but one that is about responding to the field or situation that we have in front of us - so we have learnt to be much more flexible."

When Ed Brown took on the agronomy for the farm, we discussed the various options we had that allowed us to address these issues. Since then we have moved to a no till approach, direct drilling, using cover crops where possible and also widening and having more flexibility in our rotations.

"However, every farm has its own set of challenges, and at the end of the day, its important to look at the big picture. For example, whilst we don't have the issue with black-grass that many growers in the east do, rye-grass is proving to be a really niggly invasive and difficult to control weed.

"One field in particular has high rye-grass populations, so after much debate on the various options available to us to get on top of it, the answer was clear, we decided to plough it. Whilst this is not what fits into an Agroecological agenda - it is what the field needed to re-set and now we can move forward and focus on building soil health."

As an industry we understand agroecological farming is more resilient, enhances natural resources and is future proof. It also has the support of government strategy which may create opportunities to access new markets and income streams.

In response to this, Hutchinsons has recently launched its Agroecology service.

Led by **Ed Brown**, this bespoke service is purely focussed on helping growers take these ecological principles and apply them to their own individual farming businesses.

"We recognise the desire for change, but many growers are looking for advice and support to make these changes - whilst remaining profitable," he says.

"We have already invested in training specialists across the business, and are committed to developing and trialling different agroecological approaches and technologies. The launch of the Helix Agroecology farm is just one facet of this, and we look forward to sharing our learnings from this in due course."

To find out more about our Agroecology service, please contact us: information@hlhlt.co.uk



Helix LIVE Seminar Returns this Autumn

The Hutchinsons Helix initiative is about improving farm decision making to increase profitability. The 'how' we do that is by testing, developing and validating technologies that produce data, which are then interpreted by the agronomist and grower to make better informed decisions.

Helix has five main focus areas - data and sustainability, improving soils, optimising nutrition, genetic benefits and integrated crop management.

This last year alone has seen the development and introduction of technologies such as the climate system, TerraMap carbon mapping, BYDV, blight and growth stage prediction models, a field diary / scout app and cost of production mapping. Ultimately these need a central system to work through and that is where the Omnia platform comes in.

This year we are continuing to investigate and develop improved crop imagery, novel crop protection, farm strategy and planning technology, Nitrogen and phosphate use efficiency alongside nutrition technologies, a carbon mapping and management tool, an integrated crop management tool, along with increasingly targeted agronomy and yield prediction.

Join the free online 'Helix Live' seminar

TIME: 8.30 - 9.45am

DATE: Wednesday 10th Nov. 2021

Helix Live will cover the latest developments from these focus areas across the national Helix farm network, and what is being testing going forward. Helix host farmers will share their experiences and explain the benefits of farm scale use of technology to their individual farm businesses.

Agenda

- Update on Helix, how it is expanding and highlighting existing work that will continue, as well as new projects for 2021 and beyond.

Stuart Hill,

Head of technology and Innovation for Hutchinsons.

- Carbon, measurement, improvement and opportunity, is an ever increasing and complex area.

Matt Ward, Services Leader will demonstrate what technology can bring to this and how that can be a benefit.

- Two growers will give us some insight and findings from their own farms and involvement in Helix which they see as a benefit.

Tom Jewers, Helix Suffolk, of G D Jewers near Bury St Edmunds, Suffolk and **Nick Wilson**, Helix Yorkshire, of Nick and Liz Wilson, Marton cum Grafton, near York.

- **David Howard**, Head of Integrated Crop Management will review some of the ICM work carried out this year as well as introduce a new opportunity with farm strategy planning to aid decision making on productivity and integrated crop management.

• Questions & Answers

To join these live discussions and have an opportunity to ask questions, please register now for your chosen Helix Live session by visiting www.helixfarm.co.uk/events/helix-live-registration



Nick and Liz Wilson - Hosts of Helix Yorkshire

Helix farms:

Early farm scale development takes place at our Helix National Development Farm over in Northamptonshire, courtesy of **Andrew Pitts**. Further development and demonstrations are delivered at our emerging Helix regional farms, of which we are expanding to 7 farms this autumn - these are Helix National Farm, Helix Suffolk, Helix Yorkshire, Helix Northumberland, Helix Oxfordshire, Helix Fife and a Helix Agroecology farm.

The first stage on farm is understanding the farm's current strategic position. Therefore, key criteria such as productivity, nutrition status, environment, soils, to name but a few, are key measurements as a start point. Achievable targets can then be agreed and a strategy put in place to accomplish those targets.

Keep up to date with all the latest developments within the Helix project by viewing our dedicated website: www.helixfarm.co.uk

Cover Crop Termination... How do I do it?

Alice Cannon (right) Agronomist & Regional Technical Support Manager **provides some answers.**



The success of cover cropping is well documented now to include correct species choice and establishment timing. Termination management however is of equal importance. Soil type, cover composition, following crops and machinery availability are all key parameters to take into consideration when deciding how to terminate.

How do I terminate my catch/intercrop?

These covers may have been drilled in the early summer and be of good height. Grazing or mowing can be used to manage top growth (see grazing below). The majority will contain soft, lush growth with limited height, termination timing is often driven by soil moisture. Leaving these in the ground for too long can over-dry soils. Most drills will be capable of drilling straight into these covers as the roots anchor the top growth, allowing clean movement through them. Avoid the temptation to incorporate the cover, this can often make it problematic to drill. Treatment with Glyphosate/Kyleo should occur 3-4 days before drilling.

Can I graze my cover?

Yes, this is a fantastic way to manage the biomass, improve nutrient cycling and inoculate soil with bacteria. It will also reduce the potential N lock up from high C:N species such as cereals. Be wary if there are large quantities of buckwheat in the mix.

Grazing management is vital to success, especially on heavy land. The aim is to graze 60% and trample the remaining cover promoting exudate and nutrient release. Covers should be mob grazed (high numbers on a small area of land, moved every few days). Lighter land is more forgiving and will allow a more relaxed approach if that is preferred.

When should I terminate my cover?

Clay based soils are wetter, therefore moisture management is critical. They should be terminated by the end of November. This allows the moisture that will have been drawn around the root ball to dissipate back through the soil while sun and wind dry the surface. Leaving the cover over winter will encourage water to

be drawn to the surface meaning the working zone will be wet when it comes to drilling and the drill may struggle to cover the slot.

Light soils are less problematic and can be terminated at any time so long as following crop issues have been addressed.

How does my following crop affect termination?

This depends on the cover type. Some broadleaved covers (radish and phacelia) have a tolerance to glyphosate and therefore need the use of Kyleo (glyphosate + 24D) for complete control. However, if you are following a broadleaved cover with a cereal crop, you can finish off the broadleaved covers in the following cereal. Where you have used cereal covers preceding cereal commercial crops you will need 40 days to elapse between termination and sowing of a following cereal crop due to allelopathy. Therefore, I would never recommend using cereal covers especially preceding spring cereal crops.

Where the cover is ploughed down, this is obviously less of an issue but arguably negates the value of the cover. However, this may be needed where following crops cannot cope with the residue (sugar beet/potatoes).

Can I drill on the green?

Quite possibly...you do not always need a new strip or direct drill to drill into a cover. The success of direct drilling is down to biomass management and therefore will be down to initial species choice. White mustard for example produces long woody stems post winter that degrade very slowly and therefore wrap around tines. Legume based covers however are usually much easier for most machines to handle. It is always worth trying your drill dry to see how it performs.

Do Crimp rollers work?

Crimping is ideal for protecting soils against moisture loss, erosion, and weeds, but relies on hard frosts to be an effective alternative to glyphosate - which seemingly we very seldom get.

If you have questions about terminating cover crops, please contact us: information@hlhlt.co.uk

Why?

- Under the Sustainable Farming Incentive pilot scheme, the arable and horticultural land standard intermediate level (worth £54/ha) requires claimants to “**improve nutrient use efficiency**”.
- The carbon footprint of cereals (and most non-leguminous crops) is dominated by the impact of nitrogen fertilisers usage. Typically, three quarters of the footprint stems from applications of manufactured nitrogen. Not necessarily how much nitrogen fertiliser we use, but more importantly, how efficiently it is utilised can help reduce greenhouse gas emissions.
- Unfortunately, the cost of fertilisers has increased dramatically over the last few months – with ammonium nitrate currently 50% higher in price than this time last year.

In such case, it should be clear that making the most of nitrogen fertilisers has a **win: win: win outcome**.

Defining Nitrogen Use Efficiency

(We are focussing on nitrogen here, but the same principle can be used for other nutrients)

NUE can be defined as the percentage measurement of applied nitrogen that is removed by the crop.

It is important as a guide to how much of the nitrogen inputs are taken up and removed by the growing crop. Increasing NUE improves productivity per kg of N applied and reduces risk of N losses – which can be harmful to the environment.

Nitrogen Inputs can include mineral fertilisers and organic manures.

As a guide – according to RB209 the average NUE for applied fertilisers is 60%. Therefore, if you apply 200 kg of Nitrogen, the likelihood is that, on average, 120 kg of the 200 is taken up by the crop.

Measuring NUE

To measure Nitrogen Use Efficiency there are a few options.

We recommend this method.

1. Measure the nitrogen in the soil (the Soil Nitrogen Supply) and take account of atmospheric nitrogen fixation.
2. Record the amount of nitrogen applied to the crop (both total N as fertiliser and available N as manures).

*Rob Jewers
explaining NUE*



Nitrogen Use Efficiency (NUE)

The best way to improve NUE is to measure it: Soil N Grain analysis



Tim Kerr
(Hutchinsons Nutrition Manager)

Making the most of NUE

There has never been a better time to get to grips with Nitrogen Use Efficiency (NUE) explain Tim Kerr (Nutrition Manager) and Rob Jewers (Crop Nutrition Specialist).

3. Measure the yield, and the nitrogen content of the harvested crop.
(Grain nutrient analysis)

Example: In this example, poultry manure applied has been calculated to contribute 40 kg/ha of available N, and 180 kg of nitrogen was applied as mineral fertiliser. The Soil N supply was calculated using the N-Min method.

- Soil N Supply = 53kg/ha (N-Min)
- Atmospheric N = 25kg/ha
- Manure N = 40kg/ha
- Fertiliser N = 180kg/ha
- **Total supply = 298 kgs of N**
- Crop yield = 8.8 tonne per ha
- Grain N was measured as 0.21% (21kg/t).
- 8.8 t crop x 21 = 185 kg/ha of Nitrogen utilised
- Dividing crop removal by N supply = 185/298
- Giving an **NUE of 62%**

Improving NUE

These management tips may seem obvious – but all contribute to making the most of nitrogen.

1. Have a robust nutrient management plan in place (including manure management plan where relevant).

2. Calibrate your spreader regularly.
3. Use a fertiliser that can be comfortably and accurately spread at the required application width.
4. As part of the nutrient management plan – ensure that other essential nutrients are not in short supply to the crop.
5. Apply nitrogen in suitable splits to match crop requirement. Minimise volatilisation risk from urea-based applications and manures.

Other tips:

1. Good soil structure and maximised root biomass will help maintain nitrogen uptake.
2. Nitrification inhibitors can improve NUE by reducing the risk of nitrate leaching and urease inhibitors reduce the risk of ammonia volatilisation.
3. Foliar nitrogen products such as Persist-N have very high NUE and can compensate for suboptimal root uptake of nitrogen – particularly in dry conditions.

If you have questions about managing Nitrogen Use Efficiency, please contact us: information@hlhlt.co.uk



Dick Neale (Hutchinsons Technical Manager)

Wet soil

Harvest damage avoidance and rectification

For some crops, like maize, sugar beet and field brassica, the risk of wet soil at harvest and the resultant damage is ever present... but should we accept the risk and resign ourselves to rectifying as required, or think about building resilience into soils to better cope with the risk? Dick Neale (Hutchinsons Technical Manager) discusses.

Regardless of what many of us have been taught over the years regarding moving soil to input air, passage water or encourage root penetration, there is no doubt that understanding how soil functions naturally, significantly questions the wisdom of what we thought we knew. Understanding the wider impacts of our actions allows us to address late harvest issues in more than a reactionary cultivation.

This issues to address:

- Potentially wet soil conditions with later harvested crops
- Heavy machinery in harvesters and trailers on those wet soils
- Rutting and severe surface compaction ahead of following crop
- Poor drying conditions later in the year

Later harvesting is the key challenge

We have limited options for changing the harvest timing of these crops, so later harvesting in potentially wetter periods remains the key challenge.

Harvest output and logistics means the use of large capacity harvesters and trailers will continue. However, field discipline is a key factor that can be influenced - dedicated trailer runs using previous tramlines is an obvious need over random shortest distance trailer field entry and exit, along with use of appropriate low ground pressure tyres, tracks, and offset axles etc.

That said, it remains the case that the biggest impact we can have is in building soil resilience to operations we know are at high risk of being applied in wetter conditions.

This is where we deviate the most from the perceived norms or needs of soil cultivation.

Deeply cultivated soils have had any natural structural strength removed from them. This places them at high risk of structural damage from heavy machinery at any time, but particularly in these late harvested crops. The answer to that is maintaining natural structural integrity whenever possible.

Water management in de-structured soils is compromised, they dry faster and wet up quicker. When wet they are unable to support machinery weight, air content is compromised, and further water movement is halted once damaged.

Ploughing down wet, damaged soil merely hides the fact that we have wet, damaged soil. Ploughing up dryer soils may allow crop establishment, but the roots will reach the cold, wet, anaerobic layer ploughed down sooner or later, and it remains a weak link in soil structural strength.

Planning ahead for later harvested crops is vital so that soil strength and resilience is maintained.

Disrupting soils to the minimum depth required is of paramount importance, this limits natural structure disruption and the potential for re-compaction. Maintaining aspects of natural soil structure like roots from previous crops, deep working worm populations, porosity and surface protection from residues or cover crops is a major step in building structural resilience in soil and is a key step in reducing risk for late harvested crops.

Many late harvested crops are row crops by nature and this opens the door to utilising strip tillage techniques. In simple terms this allows for deeper cultivation and seedbed preparation in the planted row but leaves the intervening areas of soil undisturbed. The undisturbed ridges carry the harvesting machinery far better than the disturbed strips allowing for better field access, reduced soil damage and improved water management late in the season.

However, it is never a simple overnight change that brings results. While strip tillage can work well and rapidly in light soils, in stronger soils a more planned and gradual transition is required. Then, given the damage, cost and frustration late harvesting can bring, a change of approach is well worth consideration.

Questions about this article? Please contact us: information@hlhlt.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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2021/22 CPD Points Allocation reference numbers:
NRoSO NO469780f • BASIS CP/112014/2122/g