



Andrew Pitts and Sarah Barnsley focus on maximizing pollinator resources

Helix: Maximising pollinator resources at the whole farm scale

An understanding of just how significant insect declines could be is gaining traction within the media and public eye. Pollinators, which include hoverflies, moths, butterflies, certain wasps and of course bees, are included within this group. For this reason, Hutchinsons in collaboration with the University of East Anglia is sponsoring PhD student Sarah Barnsley to look at how we can increase pollinator resources across UK farms. Sarah briefly explains her research at the Helix farm.

The research aims to identify a method for mapping pollinator resources that are already on-farm. This way, we can see what is already available so that we know where to target improvements. Furthermore, as we put effort into increasing pollinator resources, we can monitor these as we go along. While traditionally vegetation mapping has been done manually, the project will be investigating the applicability of using remotely sensed aerial imagery to do the same job, but much more quickly and covering greater areas.

At a later stage, the methods developed for detecting different pollinator-suitable flower species can be integrated into the Omnia Precision farming system. From there, potential exists to combine the pollinator and wildlife resource layers with Omnia's field performance maps. This could identify the most sensible areas to convert to habitat consisting for example, of those areas of poor crop productivity and where there are large gaps in the resources needed to support a whole pollinator community.

The initial rounds of aerial imagery have already been obtained, then within a few days on either side of the imagery being captured, the "ground-truthing" of the different flower species was carried out within the margins. This involved assessing what individual flowers or groups of flowers were on the ground at precise locations so that they could be matched up to the images.

Once all of the data is gathered, analysis will begin this autumn. This will rely on the fact that everything that we see around us reflects or absorbs different wavelengths of electromagnetic radiation.



> The unique pattern of reflected wavelengths for each object is known as its 'spectral signature'. It is this unique spectral signature for different flower species that we hope to identify within the aerial imagery and use to precisely map out their locations over a large area. Ultimately, the aim is to determine whether high resolution aerial imagery can be used to accurately detect flowering species across the season that are rich in the pollen and nectar rewards needed by a pollinator community. We would be able to monitor what is flowering at different times of year and subsequently know whether we could grow additional species to fill any gaps. Key times of year which have already been identified by researchers, are the equivalent of a 'hungry gap' for pollinators: March, August and September. Accurate flower species mapping could help us to avoid this situation.

Follow future developments at the Helix National Technology Development Farm via the website: www.helixfarm.co.uk or contact us for more information: information@hlh ltd.co.uk.



An integrated farm management approach has been advocated by Hutchinsons for many years. This research forms a good backdrop for Hutchinsons Helix Sustainability Project. A sustainable approach to agriculture is crucial, given the growing pressures facing the natural world which are reflected in the changing political sphere. The incorporation of management for the benefit of the environment and biodiversity into all agricultural domains could be a key step towards addressing the challenges. Matt Ward Lead for Helix Sustainability Project.

The Helix Project Website

Stay ahead of the curve with the brand-new Helix website. HelixFarm.co.uk

As Helix continues its progressive work of testing exciting technologies and innovations to determine their real-world benefits, the new Helix website provides a central resource for keeping up-to-date with the latest developments as they happen and an insight into the significance of Helix as a whole.

On the website discover the variety of **Helix Projects** currently being explored and the benefits they have for growers in improving crop management decisions. Current project focus areas include nutrition, risk prediction and sustainability. The pages are updated as existing projects evolve and new projects emerge.

Another key area to explore on the website is the **Helix Technology Development Farm** which explores how Helix is testing and integrating technologies and knowledge (and its own findings) at farm-scale. It also looks at how different technologies can be integrated together with Omnia, the technology hub of the project.

The Helix **Resources** and **News** pages are an online catalogue of engaging videos that showcase in-field progression of Helix and the latest article content featured in the press.

Looking to the future, we have plans to innovate how we deliver information on the website – with one of the options being to add an immersive virtual reality tour of the projects on Helix Farm.

Overall, the Helix website opens a lot of possibilities to spread awareness of the great work being done and is a resource that we plan to develop continuously alongside the Helix Project.

Stay in the know: all new content is promoted through Hutchinsons' Social Media profiles.

 [@Hutchinsons_Ag](https://twitter.com/Hutchinsons_Ag)
 [@HLHutchinsons](https://www.facebook.com/HLHutchinsons)



Expertise and development in Potato and Vegetable production: Demonstration days 2019

We preview two open days in July, demonstrating our ongoing Brassica and Potato trials work



In 2018 we had a similar range of treatments but looked at fungicidal seed treatments and in-furrow treatments in place of the nitrogen work. 2018 was dominated by the drought and subsequently many of the treatments were over shadowed by the weather, although we were still able to see good effects from the post-emergent herbicide work on the day.

Another very demonstrable effect was the seed lot that was deliberately de-sprouted before planting and the effect this had on canopy development and yield.

Over the 2 years the PCN management by the use of resistant and tolerant varieties has been consistent with what we would expect. The seed spacing work looking at different seed source and chronological age has been more challenging to understand.

2019 will again be hosted by A. L. Lee with a similar range of treatments on show, with an additional late season site looking at haulm management without the use of Diquat, which has lost its approval.

We look forward to seeing you on the 17th July between 13.00 and 17.00 and at the follow up meetings later in the season.

For more information on our summer events and to reserve your place, go to the 'events' tab on our website: www.hlhltd.co.uk

Brassica Demonstration site

Following the success of the first open day last year, Hutchinsons' Brassica Demonstration site day will be held at Bayholme Farm, Old Leake, Boston, courtesy of F Daubney and Sons (R. Daubney), on 11th July, in conjunction with the Allium & Brassica Centre.

From 12.00 to 16.00 on 11th July, visitors will have the opportunity to view the performance of new near-market brassica-related herbicides, insecticides, and fungicides, while comparing them with current commercial practice, explains Hutchinsons Vegetable Technical Support Peter Waldock.

"For example, many of the new fungicides coming on the market are predominantly protectant rather than having a kick-back effect, so applications have to be better targeted to optimise efficacy," says Mr Waldock.

"There will also be plots looking at biostimulants, crop elicitors and foliar nutrition products."

In addition, work on better understanding of soil management will be highlighted, and the Healthy Soils team will be present to discuss how to get the most from soil. This will be accompanied by demonstrations of strip tilling and Omnia Precision Agronomy.

"These can offer an exciting insight into the ways farm yields can be improved through agronomy.

Our trials explore maximising efficacy in kale and Brussels sprouts, and the knowledge gained can then be related to all brassica crops."

Visitors will also have the opportunity to discuss their needs with the Hutchinsons team and also the leading manufacturers involved in the vegetable sector, including Bayer, BASF, Syngenta, Certis, Corteva, Adama, Belchim and FMC.

The Fen Potato Demonstration site

This will be the 3rd year of our demonstration days, courtesy of A. L. Lee Farming Company. The trial site was initially set up to look at some of the issues with farming potatoes on peaty soils.

In 2017 we looked at nitrogen response, post-emergent herbicides across a range of varieties, seed spacing of Maris Piper and PCN management using nematicides and resistant varieties. The biggest surprise in 2017 was the effect of placed nitrogen which was unexpected in such a high organic matter peat.

I did everything right, but my grassweed burden is still at disappointing levels – what now?

Dick Neale (Technical Manager) replies...



This question just about sums up the situation that revealed itself at the end of May this year. Black grass, as usual is the dominant issue but bromes and ryegrass are creeping in.

For the vast majority of growers, who have recognised their issues, and have applied all the possible cultural measures in recent seasons, the overall levels of grassweed control this season have been very pleasing, but almost everyone has some that has escaped.

Carry out an annual review of what has worked best and what has not worked as expected. Why has a particular cultural control sequence worked in these fields, but not in those?

With mixed populations of grassweeds, it is vitally important to understand the agroecology of each species - what may be culturally right for black grass or sterile brome, may be equally ineffective for rye or soft brome.

- > Black grass germination is impacted by weather induced dormancy during seed maturity.
- > Ryegrass is not impacted by seasonal dormancy so will germinate readily after harvest.
- > Sterile brome will germinate readily post-harvest but will set dormancy if left in sunlight.
- > Soft, rye and meadow brome are dormant post-harvest and require several weeks being left in sunlight to 'mature' before germination commences.
- > When buried deeper than 50mm in the soil all of these species will set longer term, secondary dormancy, while a significant proportion of this buried seed will also simply die, decay or be eaten.

Obviously, with this level of variables, one cultivation regime, timing or frequency, cannot be suitable for all plants. Identification, planning and implementation is a key part of the process, and nature also has to play its part.

No seedbed will achieve your objectives without moisture. Lack of moisture last autumn delayed germination in all seedbeds pre drilling and moisture levels post drilling were insufficient to get optimum performance from residual herbicides. Mild conditions overwinter allowed partially effected plants to recover and clear survivors to tiller out profusely.

Winter oilseed rape as the previous crop is also a clear driver of increased grassweed levels in cereals this summer. The dryer, warmer conditions overwinter will again have impacted the performance of propyzamide and this, coupled with the impact in crop vigour from the increased problem of CSFB larval infestation, will again allow a higher level of seed return within these crops in 2019.

Dissuade yourself from planting winter wheat, however late drilled, behind wosr with significant seed return from grassweeds. An early harvest and an early start to stale seedbed production is no saviour in this case. Black grass is extremely reluctant to flush early post wosr and however hard you may try, the bulk of black grass will not commence germination until the last week of September, provided adequate moisture is available.

Early assessment after wosr and a decision not to drill winter cereals is key to the whole rotational success of grassweed control - you will regret any indecision here.

Options for a mix of black grass, ryegrass, sterile and meadow brome grassweed species:

> Option 1

Plough immediately post-harvest to bury all seeds and maximise period for germination of seeds brought back to surface. Plough as shallow as possible with 14" furrows and ensure seed burial. Press ploughed work straight behind to reduce moisture loss, stabilise structure and induce germination of ploughed up weeds. Cultivate to level and flush weeds early October. Glyphosate pre drill.

> Option 2

Bale off straw or rake wosr stubble to expose meadow brome to light. Leave undisturbed for a month.

If damp some black grass, ryegrass and sterile brome will grow. Majority of seed will be in chaff rows. Much of the brome and ryegrass seed will have been baled off. Cultivate to 50mm depth in mid-September to encourage seed germination and start seedbed process (for October or spring drilling).

Re-cultivate in early October, again to 50mm.

Glyphosate pre drill.

Severe grassweed infestation should be cropped in the spring with spring barley, allowing time for optimum flushing of weed seed overwinter. Glyphosate should be applied in late November to prevent over-wintering of significant grassweed populations.

If you have a question or challenge about crop production issues you are facing on your own farm, please email us: information@hlhld.co.uk and put 'Fieldwise Answers' in the title.

Fertiliser for the next year's crops

At this time of year thoughts inevitably turn to the purchase of nitrogen for next spring application, with fertiliser on offer to attract early delivery onto farm. Ian Lingham, our Crop Nutrition Specialist in the West of England asks "Is purchasing straight nitrogen the best option and value though?"



Ian Lingham
CROP NUTRITION SPECIALIST



Spring tissue analysis results over the last few years are showing that a large percentage of crops, (over 80% this year), are potash deficient. Application of potash in the spring will help to ensure there is available product in the soil for crop uptake when required, little potash is required by the plant in the autumn so there is no reason to apply it when it is not required and could be prone to leaching, especially on light soils.

To address all the above, one practical approach would be to apply all the major nutrients at each application window, and using an NPKS fertiliser throughout the spring would address this. As an example, Yara 'Extra Grass' 27-5-5 + 6% SO₃ applied in a 3-way split will give the crop all the major nutrients required for growth and yield in a balanced way throughout the growing season, ensuring fresh nutrient is always readily available.

A 10 tonne winter wheat crop requires around 240Kg / ha N, depending on soil type and previous cropping. Using 'Extra Grass' to apply this quantity of nitrogen also supplies the required amounts of P and K for index 2 soils. Sulphur requirements are also met with this programme. Although – as the name suggests – this analysis was originally formulated for use in grassland – it fits the bill particularly well in these circumstances. Extra Grass is a granulated compound suitable for spreading up to 36 metres.

Replicated trials conducted by Yara and Hutchinsons last year showed the greatest yield in winter wheat was achieved using an NPKS product at each application, which backs up the above programme.

This approach works for all winter cereals and OSR, adjusting application rates of the Extra Grass to the required N rate gives sufficient levels of P, K and S for all crops.

An extra benefit from this approach is a much-simplified fertiliser programme, only one standard product to buy and use throughout. Potentially saving on a P or K application and no requirement to recalibrate the fertiliser spreader through the spring.

Whatever the circumstances, we always recommend an annual review of fertiliser policy to ensure that the most is being made out of the biggest variable input cost.

Please speak to your Hutchinsons agronomist if you would like any more information, or email us: information@hlhlt.co.uk

Should growers consider a slightly different approach to spring fertilisation, before rushing in to purchase the early 'bargain' nitrogen offer, with the potential to improve yield by doing so?

From our involvement in YEN projects, we are learning that timely nutritional inputs are helping to achieve the best yielding crops. Applying greater quantities of straight nitrogen though is not the solution to higher yields.

The trends show that applications of fresh fertiliser phosphate and spring applications of potash are part of the key to unlock further potential. Always remembering that sulphur is a major nutrient required to achieve maximum output. Sulphur is prone to leaching in a similar way to nitrogen, so applying it all in one application should be avoided if possible - results show that applying sulphur in fertiliser little and often will give the greatest effect.

Soil data evolution brings unexpected potential

*"It's all about the **next evolution of data**; being in a position to find out in more detail what's going on in our soils."*

This was the driving force behind Jorin Grimsdale of Mountfair Farming's decision to trial the new TerraMap soil scanning service, launched by Hutchinsons at Cereals.



Jorin Grimsdale
of Mountfair Farming

Mountfair Farming

Near Berwick, Scottish Borders

2200ha arable cropping

Rotation includes: winter wheat, oilseed rape, spring oats, spring vining peas, beans and cover crops

happening in the soil – and TerraMap offered us the opportunity to do this."

Having trialled TerraMap on 125ha Mr Grimsdale was extremely impressed with the results.

"TerraMap has created a level of detail of our soils that we have never seen before; as well as the standard P&K and lime, we have the measurements of many nutrients such as Cation exchange capacity, water availability, organic matter, molybdenum, boron and zinc."

"All the layers produced by TerraMap go into Omnia where they can be combined with other data such as yield maps or biomass layers. Once all this information is brought together, it allows Omnia to do what it does best which is multi layered decision



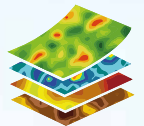
Lewis McKerrow
Hutchinsons Digital
Farming Manager

this process with the new higher level of detail TerraMap collects is a great step-forward."

"We will use the standard layers to inform the P&K variable applications, whilst additional information on soil texture is used within Omnia to create variable rate seed plans."

"Fundamentally what I like about TerraMap is that its integrated within Omnia and provides a higher level of detailed information from a one pass nutritional collection system."

For further information, go to www.omniaprecision.co.uk/terramap



TerraMap



TerraMap is the highest resolution soil scanning and mapping system available to UK growers that is unaffected by compaction, moisture, crop cover or cultivations.

This means that there are very few limitations to when TerraMap can be used – offering a much wider operating window compared to other soil scanning systems and the consistency and reliability of the results from TerraMap are proven across many years and hectares.

"We have been using zonal testing for some years, along with EMI scanning to assess different soils, and whilst this has worked reasonably well we were looking for the next evolution of data to try and gain a much clearer picture of what was

making," explains Lewis McKerrow, Hutchinsons Digital Farming Manager.

How is the data used?

"Using TerraMap, we have been able to pull together a massive amount of information about our soils and create maps for them with Omnia, and the intention is to learn and adapt the farm systems to this," says Mr Grimsdale.

"Our strategy here is to incorporate organic manures throughout and Omnia's ability to assist in managing

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

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