



Fieldwise

AGRONOMY NEWS FROM

HUTCHINSONS

Crop Production Specialists

AUGUST 2021

The *real* value of carbon



“TerraMap Carbon offers a ground breaking way of measuring soil carbon without actually having to break ground”

Andrew Pitts, host farmer of the Helix National Helix Farm, J W Pitts & Sons, Northamptonshire.

Andrew’s farm is one of the network of Hutchinsons Helix farms where TerraMap Carbon has been developed and trialled. TerraMap Carbon, launched in May of this year, is the UK’s first ever soil mapping service that is capable of measuring both active and organic carbon in the soil.

Andrew’s interest in Carbon mapping is twofold. “Fundamentally anything that is going to improve the resilience and profitability of my business is going to get me to sit up and listen.”

“We know that having soils that are in good condition and are resilient so that they are better able to withstand periods of drought and wet and are also better able to withstand machinery passes, are going to be more profitable.

“More resilient soils will by their very nature contain higher levels of carbon.”

“Secondly if there is a business opportunity to be gleaned from

marketing the carbon from the more resilient soils, it’s an additional bonus.”

However as Andrew points out none of this is possible without a starting point and knowing what the levels of carbon are in the soil. “As far as I am aware TerraMap Carbon is the only system available in the UK that can actually map both active and organic carbon, so it has been a very exciting and interesting project to have some of our fields mapped.”



“it’s a win-win on all levels, by mapping and measuring soil carbon”



➤ “TerraMap has proved itself to be a very straightforward means of measuring and verifying carbon - providing a baseline or benchmark to work from. It’s repeatable so therefore it is verifiable which means we can trust the results and use them to see how and where we need to improve the resilience of our soils.”

Andrew notes that the results from the mapping very much reflect the changing practices he has taken with his soils over the years. “The plough was abandoned in 2006, and replaced with min till and shallow cultivations, then in 2016 we moved over to direct drilling.”

“With a strong view to constantly improving soil health, over the years we have left crop residue on fields, used cover crops in different scenarios and introduced livestock into the rotation. The consequence of all of this is that TerraMap has confirmed we have decent amounts of organic carbon in the soil.”

So, what do we do with our carbon measurements?

“Having a baseline carbon measurement means we are now in a position to monitor changes to carbon levels as a result of different management approaches to get an idea of what actually make a difference. We hope to do this over fields and even split fields.”

“We know for example that a two-year grass ley is beneficial for improving soil carbon reserves, but once the carbon is in the soil we don’t know if it stays there, and if it does how long for. However using TerraMap Carbon we will be able to measure this on a regular basis to provide some insight.”

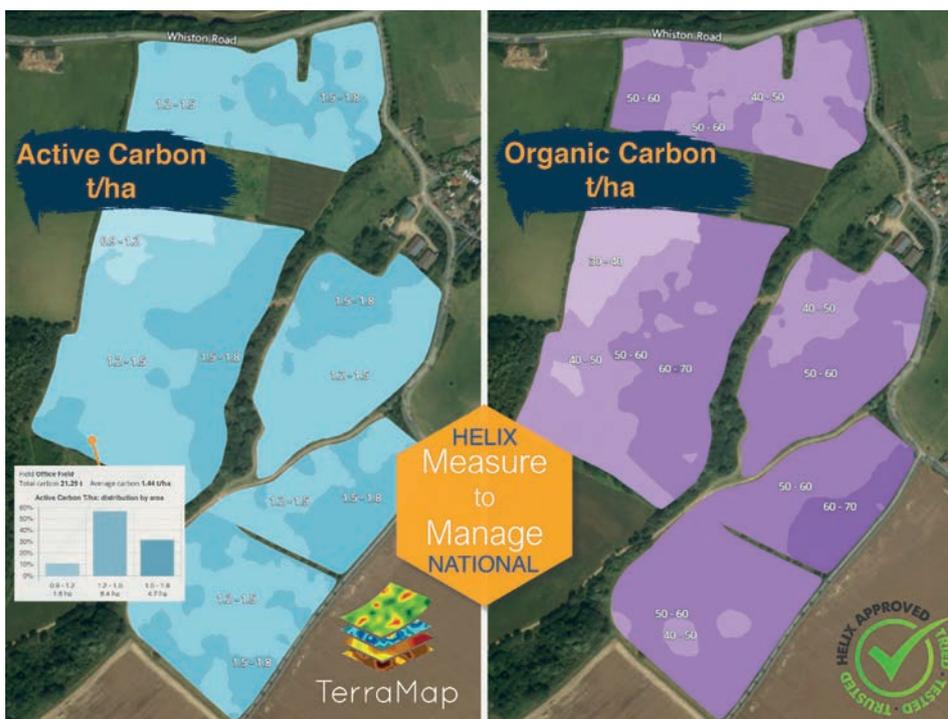
“The impact of cover crops on soil carbon is an area of much interest, he adds. “Healthy and resilient soils have higher carbon reserves so if cover crops help to improve soil structure then in theory carbon levels should also increase. Again this is something that we can now test.”

“We have trialled Hutchinsons Maxi Rooter mix on the headlands of spring crops this year with visible improvements to soils, so we now want to look further into this to find out if it’s just the rooting that has benefitted or is there also a soil carbon benefit to using cover crops on these generally less productive areas?”

Andrew hopes to explore the benefits of using Maxi Rooter around the edge of the field and introducing a different mix, say Maxi Cover in the middle of the field? He is keen to know what the impact of stubble turnips would be in the middle of the field?

“To do this we will use TerraMap Carbon after the cover crops have come out and the crops harvested, and compare the readings.”

“So it’s a win-win on all levels, by mapping and measuring soil carbon, a picture is created of the health and resilience of the soils – that’s directly linked to profitability- and that’s key. Secondly knowing what carbon is available in the soils opens up a potential additional income stream through trading.”



The advantage of trialling TerraMap across all of the Helix farms means that it is possible to collect and analyse a greater amount of data - which may lead to something that is really beneficial and can be fed into ELMs.

If you would like to learn more about Omnia Carbon Management or TerraMap Carbon mapping, please contact the Omnia team - visit:

www.omniaprecision.co.uk
or email: consultancy@omniaprecision.co.uk

Active carbon and organic carbon maps from the Helix National farm

Take an integrated approach to managing disease risk



David Ellerton
(Technical Development Director)



Neil Watson
(Technical Manager)

This season has clearly shown how early drilling can increase pressure from Septoria and other wheat diseases. Hutchinsons **Dr David Ellerton** and **Neil Watson** examine how to manage such risks this autumn.

The variation in drilling dates caused by rain interruptions last October have highlighted some clear differences in disease development between early and late-sown crops this year.

Many early-sown wheats came under significant Septoria pressure in June, even where robust flag leaf sprays were applied, proving that underlying infection risk never really disappears. Warm, wet conditions in May triggered this late surge, however it may have been exacerbated where T0 and T1 fungicides were scaled back during the cool, dry conditions earlier in spring. The loss of chlorothalonil from programmes, and any extended gap between T1 and T2 sprays could also have played a part.

Whatever the reason, it reinforces the threat Septoria poses when drilling early, alongside eyespot, Barley Yellow Dwarf Virus and take-all, albeit to lesser extents. Mildew and yellow rust are typically more problematic in later-sown crops, although the appearance of new, aggressive yellow rust races continues to make it less predictable and harder to control.

Tailoring sowing dates

Drilling later is a very effective way of reducing Septoria risk, as moving from mid-September sowing to mid-October can be equivalent to gaining an extra point on a variety's resistance rating.

For example, a crop of early-September sown KWS Extase (rated 8) may be at similar Septoria risk to November-drilled KWS Kinetic (5.3).

But with recent wash-out autumns still fresh in mind, this must be balanced against the need to get crops in before the weather breaks. The key is to tailor variety choices to drilling date and the subsequent risks crops will face throughout the season, from disease to lodging, so protectant programmes can be planned and fields prioritised for treatment well in advance.

Variety ratings are a good starting point to indicate inherent susceptibility, and generally it is best to opt for those rated 6+ for Septoria if drilling early.

BYDV

This season has also been challenging for **BYDV**, as early-sown crops met prolonged flights of more virus-carrying aphids, combined with wet weather in October that prevented spraying.

This reinforces the importance of controlling the green bridge that weeds and volunteers can provide to prevent aphids and disease transferring into newly-sown crops.

Variety tolerance is also becoming increasingly important, especially in barley, but also in wheat given the loss of clothianidin-based seed treatments. The arrival of RGT Wolverine as the first variety with **BYDV** resistance was a big step forward, although other resistant/tolerant varieties that are better suited to early sowing would be welcome additions to the toolbox.

➤ But consider other factors too, such as treated and untreated yields, lodging susceptibility, eyespot rating, speed of development and rust scores. We have seen how quickly new rust races can overcome varietal resistance, so RL ratings should be treated with caution.

Aim for a balanced portfolio of varieties and drilling dates to spread risks, supported by attention to detail in every aspect of rotation planning, seedbed preparation and agronomy.

Omnia's disease modelling function is a valuable tool for assessing disease risk and planning for the season ahead [see screenshot]. It uses accurate data from various sources to give a clear colour-coded indication of risk, based on three main factors; the responsiveness of varieties to fungicides, the impact of drilling date on disease risk and the influence of weather on inoculum build-up.



Omnia's disease risk analysis tool

If you have questions about managing disease risks in your own crops, contact us: information@hlhlt.co.uk



Darryl Shailes
(Root Crop Technical Manager)

Focus on sugar beet disease control

Disease control in sugar beet has long been a requirement for good yields, as Darryl Shailes (Hutchinsons Root Crop Technical Manager) **reminds us.**

All the recent winners and finalists in the Beet Yield Challenge have had a strong focus on disease control and most crops would receive 2 or 3 fungicides in a normal season.

Powdery mildew (*Erysiphe betae*) has been the main target for many years and sulphur was the active used to control this yield robbing disease.



A disease model was developed by BBRO which focuses on ground frosts in February and March similar to the Virus yellows models. For 2021 the forecast is predicting that mildew will be present in untreated crops by the end of July into early August.

In recent years, **rust** (*Uromyces betae*) has become an increasing issue and in many seasons is the main driver for disease control in sugar beet.



Rust can sometimes come into the crop earlier than mildew and should be targeted as soon as pustules are seen or reported locally.

We now have strong products based on strobilurins and triazoles which control mildew and rust well if applied at the correct timing.

Mildew and rust are established as diseases of sugar beet and consequently are monitored in the RL trials and the RL provides scores on the variety's susceptibility.

Check your varieties against the BBRO list published on their website.

2020 saw a huge shift in disease in sugar beet with widespread and often severe infections of **Cercospora leaf spot** (*Cercospora beticola*).



Cercospora has fortunately not been highly active in the UK crop apart from a few isolated incidences. Hence, we have little experience in managing the disease and the RL list has limited guidance in varietal susceptibility apart from the one trial published in the supplementary data.

Why was *Cercospora* so severe in 2020?

Cercospora needs hot, wet, and humid weather to become a real issue. Over the last few seasons with *Cercospora* leaf spot, whilst we often had hot weather or wet weather, the two have not coincided.

Last August we saw extended periods of temperatures in the region of 26-35 C, accompanied by thunderstorms and high humidity. The temperature did not drop below 20°C for several nights, hence we had weather very suitable for *Cercospora* infection.

Another factor is our fungicide practice. In the UK our principle broad spectrum fungicides are based on mixtures of strobilurins and triazoles.

Cercospora is resistant to strobilurins, and triazoles whilst offering some control are only partially effective. The "normal" practice of applying

one broad spectrum fungicide as soon as disease is seen or reported locally then another 3-4 weeks later meant that the *Cercospora* infection risk was at its greatest when one fungicide was running out of steam and the other had not yet been applied. When the risk was recognized, it was already too late for some crops as *Cercospora* had already badly infected the crop and control was limited.

Also, much of the crop was weakened as it was infected with virus further reducing the plants' natural ability to fight disease. A strong crop supported by a robust foliar nutrition program can help fight disease.

So, what must we do in 2021?

First recognize the risk of *Cercospora*, or "**Be Prepared**" as the old Scout mantra goes.

When you are reading this, the first fungicide may well have been applied, so do not wait for a problem to appear.

The BBRO will be issuing weekly warnings based on a disease model, so **Be Prepared** to react quickly if the last fungicide went on over 2 weeks ago and apply a strong triazole based fungicide.

In other countries broad spectrum fungicides are also included to support triazoles, so **Be Prepared** to use Sulphur (as it is the only broad-spectrum fungicide we have in sugar beet) shown to support a triazole based program in trials.

Talk to your agronomist about appropriate fungicide programmes or contact us: information@hlhlt.co.uk

Catch and cover crop choices

When any new technique is employed, its initial benchmark for success is a measure of the financial return it provides, over the technique it replaces or enhances.



Dick Neale
(Hutchinsons Technical Manager)



In that respect cover crops have had a rocky start in their introduction to UK agriculture, explains **Dick Neale**. Largely because the financial positives or negatives a cover crop brings in the initial stages of introduction are marginal, with the potential for a negative financial impact often overriding the positive. However, measuring catch or cover crops' success or value based purely on one year's yield impact fails to recognise the significant improvements in soil structural health, biology, nutrient flow and water management their use imparts over time.

Research is increasingly demonstrating the importance of below ground biomass, in the building of soil organic matter, with figures recording over 40% of root matter being retained as SOM, while top growth contributes only 8% to SOM.

Cash crops must not be forgotten in the process of building SOM but

catch and cover crops play a vital role in filling the gaps in rotational cropping. In particular being present during the August to November period when UK soils are traditionally bare from post-harvest cultivation.

The value of catch and cover crops is immense when sown in August to intercept those longer days of sunlight energy and recharge the soils biological battery.

Choose a cover that works for your situation

Choice of cover is crucial to optimise performance, address identified issues on individual fields and match the farms management approach out of the cover period, be that grazing, rolling, spray and direct drilling or cultivation.

Covers can be used to address carbon:nitrogen ratios within the soil which can impact the soils' ability to 'digest' high lignin residue like wheat

straw, equally they can be used to slow the 'burn rate' of SOM in lighter soil fractions. The focus is knowing what the soil's state and needs are.

Cover crops can be used to add significant diversity into rotations, and are an ideal opportunity to get legumes into the cropping cycles and reduce reliance on applied artificial nitrogen.

The following crop must be considered as there is significant risk of yield reduction, where oats or rye are a high proportion of the cover crop mix prior to spring barley or wheat. Where cereals dominate the rotation, utilising oats as the cover adds little in diversification terms.

Consistently successful cover crops are made up of multiple species. The species mix should be optimised to the targeted impact required whilst bringing diversity, nutrient fixation, storage and release.

Ease of use like seed flow characteristics through air seeders and overall rates of use to fit with smaller air seeder hoppers is a further consideration, along with reliability of species with the UK climate.

Hutchinsons mixtures have been optimised for reliability and performance. Typically, our mixtures contain 8 species with the previous crop volunteers, making it a 9 species population.

Ratios in the mixtures are adjusted to optimise the area of performance, be that soil structural impact, nutrient release and fixation, water pumping or surface protection.

As details of the Sustainable Farming Initiative become clearer, it leaves little doubt that cover crops, reduced cultivation practices and soil assessment and improvement will be central to accessing support funds in the future. Transition from one cultivation system to another takes time for growers to gain confidence in the new approach, and for soil to react and improve. Now is an ideal time to make the change while support payments remain, to help counter the risks and tweaks required for any system as it establishes itself on farm.

If you have any questions or would like more information on Hutchinsons catch and cover crop mixes, contact us: information@hlhlt.co.uk

Can you really afford a phosphate holiday?

Whilst most of us are struggling to get away this summer - phosphate holidays are back on some peoples' agendas.

Tim Kerr (Hutchinsons Nutrition Manager) questions the decision.



Why are some contemplating a phosphate holiday? We are experiencing the highest costs for phosphate fertilisers in a decade – a result of increasing global demand for a finite resource.

If we look back to the last time the cost of phosphates was this high, the arable area that received an application of P fell by a quarter. Within that reduction there were undoubtedly fields with a P index at target index (2) or below that had no P applied that year (when the price fell the area receiving P returned to the previous level – so it was clearly a cost issue).

Can you afford to take a phosphate holiday?

The latest industry-wide survey summarising soil results showed 1 in 4 arable fields to below target index 2, whilst another 30% are at target index. Phosphate is crucial to getting a crop established and any soil at or below index 2 is likely to suffer a yield penalty unless P is applied.

Phosphate helps to maximise root development, making for more resilient crops that can better cope with inconsistent weather, and access more nutrients from the soil.

Higher costs provide a good reason to review overall fertiliser policy. However, it is important to look at overall crop nutrition management rather than individual nutrients in isolation.

Last time that there was a significant reduction in phosphate applied, nitrogen rates remained unchanged, suggesting a dissociation between the two. However, phosphate is key

to nitrogen use efficiency and one of the functions of P is to provide the energy required by the plant to take up nitrogen.

Phosphate availability is directly linked to soil pH – and the same industry survey shows a steady decline in our arable soil pHs – coinciding with a reduction in the amount of lime applied in the UK.

Our advice is not just to look at the soil P index – but to check your soil pH is in the right range to provide maximum nutrient availability (ideally 6.5-7). Lime can often be your cheapest method of freeing up phosphate for the crop.

Why are placement fertilisers such a good idea?

By placing P next to the seed, you can use less and be more targeted. Applying no Phosphate is rarely a good idea, unless you are above target index and crucially, are drilling into a good seedbed. P uptake is easily compromised in poor seedbed conditions as uptake relies on roots having direct contact with the soil. In the establishment phase, crop roots only explore around 5% of the total topsoil.

The amount of P in soil solution at any given time is a tiny fraction of the total P in soil – a crop can easily drain the available P within 24 hours – so if the crop is growing, the localised soil must be able to buffer the soil solution P daily to keep up with demand – which is why placement fertilisers make sense.

Most new drills now have the capacity to apply fertiliser alongside

the seed, and most existing drills are adaptable to carry some form of fertiliser. Whether it is conventional fertiliser, microgranular or liquid fertiliser, there are suitable options.

Microgranular and liquid fertilisers do have the advantage of maximising the phosphate buffering capacity around the rhizosphere, which in turn means lower application rates can meet crop demand. This does not mean conventional fertiliser cannot be used successfully, but it is worth looking beyond the standards (TSP, DAP) as there are products specifically formulated as placement fertilisers.

If you are keen to find out more about placement fertilisers or would like to review your fertiliser policy – please contact your local Hutchinsons agronomist or email us: information@hlh ltd.co.uk

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

HUTCHINSONS

Crop Production Specialists

H L Hutchinson Limited • Weasenham Lane
Wisbech • Cambridgeshire PE13 2RN

Tel: 01945 461177

Fax: 01945 474837

Email: information@hlh ltd.co.uk

 @Hutchinsons_Ag  HLHutchinsons

www.hlh ltd.co.uk

2020/21 CPD Points Allocation reference numbers:
NROSO NO468211f • BASIS CP/100416/2021/g