

## Providing a window into the soil

*'It all began with wanting to get a handle on our soil variability' is how **Philip Meadley** explains his journey deep down into the soils of his east Yorkshire arable farm.*

*Hutchinsons agronomist, **Ben Jagger** (centre) with the Meadleys*



**North Frodingham Farm is just outside Driffield, and soils range from medium sandy to clay loam, but with some increasing clay content in places. With such variation, Philip Meadley was interested in introducing variable rate applications to help improve and even out establishment across the farm.**

"We have hosted drill demo trials on the farm with Hutchinsons and asked their local agronomist Ben Jagger to come and talk to us about Omnia

and TerraMap to see how we could use the system to produce the most accurate variable rate plans."

Mr Meadley was impressed with Omnia - mostly around the accuracy of the data used to generate application maps, also the simplicity and ease of the system, so he had 50ha's of the most variable fields mapped.

TerraMap is Hutchinsons revolutionary soil scanning service that provides greater definition and more accurate soil maps than any other system. It does this by mapping of all common

soil properties, pH, soil texture, organic matter and Cation Exchange Capacity (CEC) as well as well as elevation and plant available water. It also measures the levels of P, K, Mg, and % of clay, sand, silt and elevation as well as calcium, manganese, boron, copper, molybdenum, iron, zinc, sulphur, plant available water and soil organic carbon.

"This offers a unique understanding of how and why soil performs and behaves the way it does and highlights in-field variations with





clear digital maps. Analysing the data through Omnia allows tailored management plans and variable application maps to be created quickly and easily," says Ben Jagger.

"If you've got variable soils, TerraMap allows you to understand where those variations are and make some really impactful decisions," he explains. "That may include variable rate nutrition, or for applying lime for pH adjustment, or to correct soil structural issues through targeted use of something like gypsum."

"We also know that pH variations are commonly detected by TerraMap scanning, and results can improve the understanding of pH and calcium content, so this is the direction we discussed with Mr Meadley."

"The results were interesting; organic matter levels were better than expected, as were P & K levels so we have been able to give those fields a P & K holiday. We found one field low in Magnesium which we will address in the subsequent crop."

"We have made considerable savings applying variable rate lime rather than going on with a blanket application, and it also means that we are not pushing neutral pH areas into alkaline conditions."

"By dove tailing the data from the TerraMapping into our SFI application, we have also saved ourselves considerable time and money in this way – so we like to think the TerraMapping has paid for itself. We have used the data in Omnia to produce reports for Red Tractor audits, which has also been very straightforward and useful."

## A deeper insight

"Whilst TerraMap gave us an overall view of the soil it made us realise we wanted to know more as we introduced more agroecological farming practices, so alongside the TerraMapping we also had a Hutchinsons Healthy Soils assessment," says Mr Meadley.

Hutchinsons soils expert Dick Neale believes that every grower should have some form of soils assessment to know what is going on beneath their feet. "It's this that really tells you why and how the soil is doing what it's doing. It's effectively the starting point for more effective decision making around cultivation strategy, organic matter management, liming,



*Dick Neale (Technical Manager) conducting a VESS test*

choice of cover crop species mix or even just the amount and type of fertiliser to apply."

"Generally, the soils at North Frodingham were in pretty good order. Where they were high in sand content, and therefore unstable, we addressed this using cover crops with roots that would keep the soil open."

"We trialled various mixes and found that the farm just didn't like growing vetch or crimson clover, but MaxiRooter which contains a mix designed to break up tight soils or bust through shallow compaction, using species with larger root systems, performed well."

"The aim with **MaxiRooter** (more so than with the other mixes) is to save a cultivation pass. Using 'roots not iron' to repair damage and create a friable soil for establishment of the following crop."

"It contains 8 species including linseed, which has a very fibrous root mass which spreads well throughout the upper soil layer. This is used in combination with higher levels of the deeper rooting brassica species,

particularly daikon radish (also known as tillage radish)," he says.

"So rather than fight nature, we are using the cover crop, to break up the soil and introduce more legumes across the farm, for the nitrogen benefits but without being highly reliant on the legume content for effective cover."

However, as Mr Meadley has vining peas in his rotation Mr Neale points out that to ensure that the cover crops going in ahead of vining peas contain minimal legumes, cover crop seed rate was reduced, and oats were added to the mix.

"Oats are very good for soil structure but can leave seedbeds very wet early in the spring. As the vining peas on this farm are sown in June, they can be left well into April before being sprayed off before drilling as the oats will dry the soil again from late March onwards."

**For more information on TerraMap or a Healthy soils assessment, contact us: [information@hlhlt.co.uk](mailto:information@hlhlt.co.uk)**

# Cover crops

## Lessons learnt from recent years

Technical managers, **Dick Neale** and **Alice Cannon** discuss the importance of using the right cover crops, in the right place and at the right time.



**Dick Neale**  
(Hutchinsons  
Technical Manager)



**Alice Cannon** (Hutchinsons  
Agronomist & Regional  
Technical Support Manager)

Growers will now be clearly aware of fields that have not dried sufficiently to establish a spring cash crop. Headlands or wet corners that were either never drilled or never emerged, as well as grass weed populations that may require early termination before any seed return can occur. These problem areas are now too late to have a commercial crop on them but risk degradation if left bare.

It is for good reason that mother nature never leaves soil uncovered. Soil is a living, breathing mix of bacteria, fungi, protozoa, millipedes, earthworms and includes mammals such as the moles and mice. It is a complicated food web that acts as the engine within our soils. Like with any engine it requires fuel to function. This ultimately comes from sugars derived from plants photosynthesising and decaying. Cover crops increase the above ground diversity which in turn increases the soil biota giving greater functional biodiversity.

Diversity is key, particularly when it comes to cover crop mixtures. Cover crops can be utilised to dry soil and provide structural restoration. Structural restoration via the use of roots is a key function of cover crops - a function rarely achieved throughout the soil profile by a single or pair of species.

### The Importance of a mix

We have already mentioned that diversity is fundamental to providing maximum benefit when it comes to soil health and that is one of the main reasons for using mixes - cover crop agronomics is the other.

When mixed, growth is more regulated, robust and the combined plant health is improved with more compact height and greener leaves.

### Summary points

- Use cover crops to help repair soils that are too wet to establish spring cropping as planned to improve them in time for autumn drilling
- Where early drilled spring crops or autumn sown cereals have resulted in grassweed infestation and are being sprayed off or whole cropped, use cover crops to maintain soil structure
- Maxi Intercrop has been specifically designed for early summer sowing to manage soils prior to autumn cropping
- Be patient ...let the seedbed dry and undergo any remedial action before sowing a cover in June.

### Cover crop species and their details

Forb	Linseed	Thin, upright plant that is easy to establish and develops a thin tap root with fine, fibrous branches that condition soils and extract moisture well. Not frost tolerant but will stand through the winter.
	Buckwheat	Very fast growing, upright annual plant that is effective at scavenging phosphate from a fine, fibrous root system. Can reach maturity in eight - ten weeks, providing a pollen and nectar source. Helps suppress weed growth but will die at the first sign of frost. Do not graze pre-frost as it can cause photosensitivity in livestock.
	Phacelia	A fast establishing annual which covers the ground quickly with vigorous top growth and develops a moderately extensive root system. It is also quick to reach maturity and is very frost tolerant. Will need managing to prevent seed return. Good at holding nitrogen.
Brassica	Daikon radish (tillage)	Annual with a very thick, deep tap root which can be effective at breaking through tight or compacted soils. Radish species are excellent nitrogen scavengers. Intermediate top growth which covers the soil well to compete with weeds. Not winter hardy but good persistence, may bolt if drilled too early.
	Fodder radish (oil)	Annual radish with larger top growth than Daikon but a narrower, deep penetrating root.
	Brown mustard	Produces a deep tap root and very short leafy top growth but can be slow to develop. The C:N ratio of brown mustard is much lower than that of white mustard meaning it releases nitrogen much quicker. It is also much more winter hardy than white mustard.
	White mustard	Faster growing mustard, more suitable for shorter term catch crops. Will develop woody stem growth if left for longer periods, increasing the C:N ratio meaning slower nutrient release and residue may block drilling equipment.
Legume	Hairy vetch	Annual legume with a sprawling, creeping growth habit. Vigorous root and top growth with good frost tolerance. Low C:N ratio.
	Crimson clover	Rapidly growing annual clover with broad leaves. Low growing. Limited frost tolerance. Low C:N ratio.
	Berseem clover	Fast establishing clover with a finer vigorous root system and narrower leaves. Very low frost tolerance. Ideal for shorter term catch crops and companion planting.
C4 Annual	Japanese reed millet	Annual C4 warm season grass. Grows rapidly in warm temperatures with less water requirement. Large, thick root mass. Low C:N ratio when terminated early.

The image opposite shows individual species growth (left) compared with mixed species growth (right).

As the approvals or effectiveness of insecticides decline, as well as funding promoting a reduction in use, there is concern over the 'green bridge' impacts and this is again effectively combatted by mixed species covers.

Individual insect species are generally attracted primarily through colour and smell to specific crops. Multispecies cover crops effectively confuse the crop signalling, colour or smell that would specifically attract BYDV or TuYV vectors, weevils or flea beetle significantly reducing their invasion into covers. At the same time the mixed species are proving highly attractive to predator insect species,





*Individual species growth ...*



*... compared with mixed species growth*

particularly spiders by providing excellent web building structures. The interlocking leaves are allowing for fast plant to plant connectivity also favouring grazing predators like ladybirds and protectant cover for slug eating ground beetles. Building populations of carabid beetles is of vital importance as we increasingly look for biological control of a whole range of insect pests, many of whom have a ground/soil dwelling period in their life cycle as eggs, larvae, pupa or adults. This is when carabid beetles can be most effective at delivering predatory biological control.

## Right place – right time

The integration of the right cover crops, in the right place and at the right time means that the usual 'monocrop' rule book does not apply ...this is a key consideration with multispecies covers and means they are far from being the perceived harbinger of pests, but in truth, mixed species covers are highly beneficial.

It is, when you stop to think about it, a frighteningly simple principle ... increase diversity and spread the risk.

The emphasis, and this cannot be overstated, is the need for multiple species within the cover crop. You cannot apply the above outcome to 'cover crops' in general, where only a single or 2-3 species are employed, and for many growers the experience will just have been of 1 or 2 species. The diversity just simply is not there to gain the benefits.

Mixtures need to be carefully chosen with the correct advice to go alongside them in order to achieve

maximum benefits and prevent mismanagement that can often result in doing more harm than good.

The first question you must ask is

**'why I am doing this'?**

- Pumping water out
- Stabilising sands or silts
- Loosening compacted horizons
- Rotational diversity
- Nutrient building, capture and cycling
- Increasing functional organic matter
- Seedbed tilth and quality
- Increasing Carbon
- Feed, build and maintain soil biology
- Drilling on the green
- Provide Grazing
- Weeks or months duration

None of the above are mutually exclusive- a cover crop grown to improve soil structure will also store nutrition, stabilise the soil surface, most likely help suppress weed growth and increase soil carbon and biology. But having an aim is the first step. It helps to ensure the correct mix is chosen and correct management is followed for your soil type for you to achieve your goal.

## Establishment

Best laid plans can of course be impacted by environmental conditions. In recent summers the lack of moisture in August has seen many covers left in the bag, or poor covers have resulted where drills pushed on. Like any crop, catch or cover crops need good seed to soil contact and adequate moisture to establish successfully.

Drilling summer catch crops for eight weeks, or cover crops for over winter, must be done in good time if adequate growth is to be achieved. This means a dedicated drilling operation directly behind the combine in August rather than being a job tackled after harvest is complete. Once September is upon us, only a few species can hope to provide useful levels of cover growth.

Where soil is moist, or rains have fallen from mid-July onward, then the use of sprayer mounted Outcast spreader units can be utilised to apply seed in the standing crop pre-harvest. This is particularly helpful in Northern counties or Scotland where harvest may not actually start until late August. This technique is, however, unreliable in a dry time.

Early summer covers such as maxi Intercrop should not be drilled too early, ideally leave until June. Over eagerness in getting this in the ground before that will land you in a situation of having to manage the biomass and potential seed return later in the year via topping.

In soils of >30% clay it is recommended that the catch or cover is established using a degree of cultivation as this cultivation is effectively the seedbed for the next cash crop. The cover crop is utilised to stabilise, protect and enhance this cultivation over time.

**For advice on selecting and growing a cover crop mix, please speak to your agronomist or contact us: [information@hlhltd.co.uk](mailto:information@hlhltd.co.uk)**



# Planning for harvest 2024

**Gwilym Jenkins**, Farm Business Consultant with Hutchinsons, looks at cropping for next year's harvest and how changes in costs may affect the decisions we make on farm.



**There has been a distinct trend in variable costs and market price over the last two harvest years and both have been on the rise. However, what goes up must come down and although the market has seen a drop in prices achievable, variable costs have also seen a significant decrease when compared to the last two harvest years.**

Prices for arable crops, which have been rising since 2021, reached record heights last year. These were countered by a significant increase in variable and fixed costs, but most producers still benefitted from an increase in output. "Agflation" followed the trend in output prices, with an overall increase in costs, hitting a peak and subsequently falling to correlate directly with the output market.

2023 saw a distinct lack in suitable break crops due to high costs and poor gross margins when compared to the available cash crops.

The outlook for harvest 2024 has changed significantly with some of the biggest winners listed below:

- Sugar Beet
- Spring Beans
- Peas

Including oil seed rape in the rotation remains a difficult decision to make, due to a surplus in supply and an ongoing lack of confidence in the crop's ability to establish and produce a quality yield. However, OSR continues to be a staple break crop in parts of the UK and remains one of the top players if it can be relied upon.

Spring beans have made a strong comeback when compared to the year before, with a modest improvement of 1% in gross margin. However, their nitrogen fixing capabilities have also made them

more attractive over the last few years, significantly decreasing the fertiliser spend when compared to other break crops.

Peas have also earned a mention with an increase of 5% in their gross margin compared to harvest 2023. Still considered a more specialist crop, they have gained popularity over the last few years due to their reduced need for variable costs – also known for their low fertiliser needs.

Lastly, arguably the biggest winner for harvest 2024 must be sugar beet. With a large increase in demand translating into a significant lift in output prices, the crop has become much more lucrative and created a larger gross margin than all standard crops in our gross margin survey. It has recorded a whopping 46% increase in gross margin return compared to the year prior.

The bar chart below provides a visual of the most significant movers for 2024 harvest. Ultimately showing that this may be the year for break crops – except for milling wheat coming back into the fold, with a 6% annual increase in gross margin return.

**If you have questions about this article, contact our team: [farmbusiness@hlhltd.co.uk](mailto:farmbusiness@hlhltd.co.uk)**

## Top tips for 2024 cropping decisions

- Cashflow under less pressure than last year – but equally important to maintain.
- A good year to look at break crops in the rotation.
- Consider rise of fixed costs after gross margin when making cropping decisions.



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**Gross Margin Return (£) 2023 vs 2024**

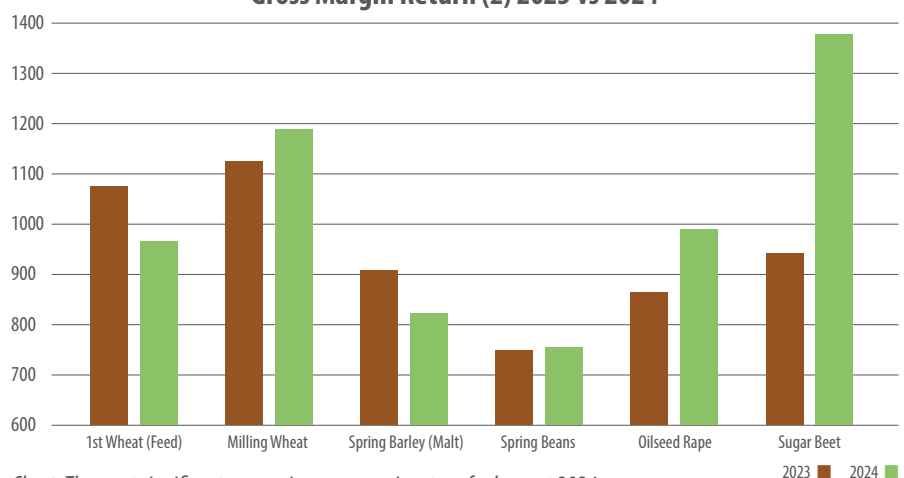


Chart: The most significant movers in gross margin return for harvest 2024

# Autumn Cereal Options

**David Bouch** (Hutchinsons National Seeds Manager) highlights his wheat and barley recommendations for autumn drilling this year.



Looking ahead to the coming autumn, new varieties of both wheat and barley offer potential solutions and management tools to enable us to be ever more efficient in tackling the annual challenges we face as an industry.

## Winter barley

New genetics mean that BYDV tolerant hybrid barley is for the first time commercially available in the guise of **SY Harrier** and **SY Buzzard**; this will be extremely limited for this coming season whilst at the same juncture providing a step change in BYDV management within the hybrid sector.

The Hyvido market share is likely to continue to be circa 30%, although we will see a greater challenge from the conventional 2-row barleys in the shape of both **LG Caravelle** and **LG Capitol**.

**LG Caravelle** has yield to match the best Hyvido varieties, and in the East outperforms both Hyvido and conventional barley. Its grain quality is excellent too. This will be backed up by the candidate variety **LG Capitol** which currently offers similar if not slightly better yield. **KW Tardis** will undoubtedly remain a popular choice, having taken the market by storm in autumn 2022.

## Winter wheat

As far as something new to consider in feed wheat then note should be taken of **RGT Grouse** which offers new genetics to enable significant benefits in BYDV and OWBM management. This should be a very serious consideration. Yield is in the main pack of group 4 wheats. It signals a step forward from previous options in this sector.

## Group 1 and 2

**Crusoe** and **RGT Illustrious** (best untreated yield in the group 1 division) will be millers' preferred quality options in the milling wheat market with both reasonably tight in supply within the market place. **Skyfall** (still the market leader in milling varieties) which offers a very wide drilling window and OWBM resistance and **KWS Zyatt** will remain popular whilst coming under threat from yellow rust in particular.

**KWS Extase** will remain the market leader in the group 2 sector whilst **KWS Ultimatum** from the same breeder offers potential for the North.

## Feed wheats

Whilst there are no outstanding new feed wheat considerations on the back

of the very successful introduction of both **KWS Dawsum** and **Champion** last year, **LG Redwald** sets the new standard for yield as the highest yield potential currently on offer but will need some considered management to utilise its significant potential.

Most of the other new arrivals onto the list offer very little by way of advancement over the previous year and it may be a case of 'better the devil you know'? **Gleam** for one has let nobody down to date with remarkable consistency (although note should be taken of Yellow Rust with Hereford in the parentage) and **Graham** remains a very popular choice in the west.

A candidate worth noting in the current trials is **Bamford** from Elsoms which will potentially have an impact in the autumn of 2024 offering yield, grain quality and sound agronomics.

If you would like advice on autumn cereal choice and supply, please speak to your agronomist or contact our dedicated seed team: seed.orders@hlhlt.co.uk



Our new Seed & Varieties information book has just been published

— look out for your

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## HUTCHINSONS

### Crop Production Specialists

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

**Tel: 01945 461177**

Email: [information@hlhlt.co.uk](mailto:information@hlhlt.co.uk)

@Hutchinsons\_Ag HLHutchinsons

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