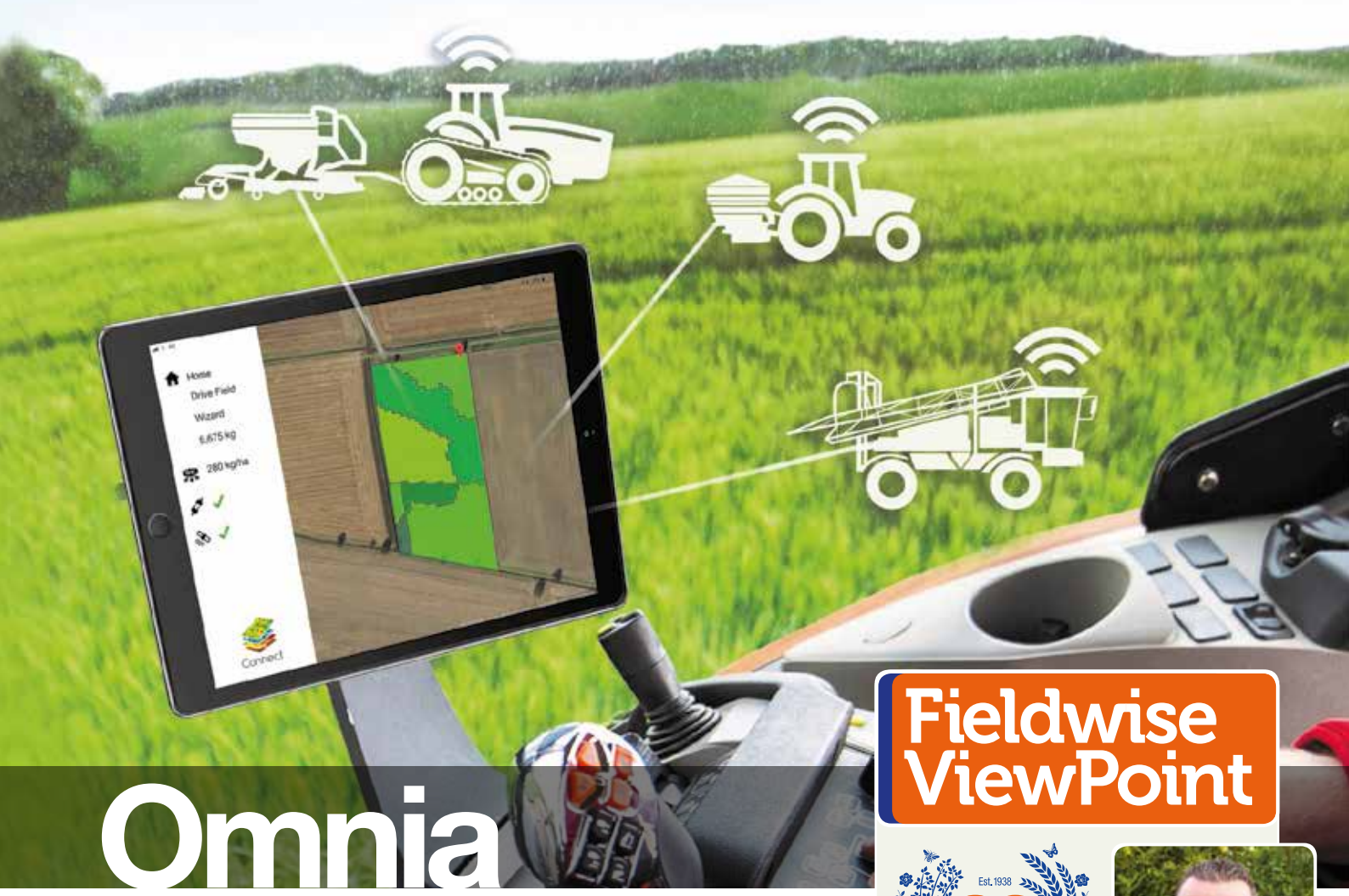
Connect

Fieldwise

AGRONOMY NEWS FROM HUTCHINSONS
Crop Production Specialists

JULY 2018



Omnia Connect & Go

Over the last decade, interest in precision technology for more accurate machine steering, controlling how we apply products to the fields, field mapping and recording has undoubtedly increased.

Farmers are now looking for the most efficient means to join up the plans that they develop in the office to the machinery that will apply the products in the field.

Hutchinsons brand new Omnia precision agronomy app "Connect' does just this and was launched at this year's Cereals Event.

Connect is a cost-effective solution that has been designed to simplify and streamline precision farming by connecting growers to their machines to enable variable rate control.

"The advantage of this process is that it rationalises precision farming operations, giving you greater control and improving your efficiency," says Oliver Wood, Hutchinsons Precision Technology Manager.

Continue overleaf >>>

Fieldwise ViewPoint

Est. 1938 80 YEARS HUTCHINSONS Crop Production Specialists

David Bouch
HUTCHINSONS SEED MANAGER

Evolving crop genetics

Plant breeding continues to evolve to assist both the grower and the consumer and also more regulations are being applied which in turn provide more legislative red tape.

We have seen neonicotinoids removed from the seed treatment portfolio and it is becoming increasingly difficult to find seed treatments with spring approval - this situation will not become any easier in the seasons ahead.

Continue overleaf >>>

>>>The iPad app allows you to seamlessly and instantly receive variable application maps created in Omnia in the field, and also controls the spreader, sprayer or drill.

Adopting variable rate drilling using Omnia Precision Agronomy has been a profitable and worthwhile transition for Michael Baker of P & A Services Farming in Bourne, Lincolnshire.

"Never having previously used precision technology, I wanted to look at how variable drilling would work on the wide range of soils types here, which can often run across a single field, "says Mr Baker.

High black grass populations and poorer performing low-lying parts of fields, as well as some pretty serious slug pressure added to the reasoning to try variable drilling, he adds.

Working closely with his agronomist Andrew Buckberry, maps for each field were created. "These were done simply by incorporating operators' view point and areas from satellite imagery that followed the exact contours of the fields. On top of this maps of soil type, weed and slug pressure were overlaid and used to create a variable drilling plan."

"The first crop we variably drilled was a crop of Propino, last spring. Initially I was quite surprised by how high the seed rate was in some areas and I really needed to feel that the end result would be worth it– and it was - the crop established evenly, looked great season-long, with the end result of our highest yielding crop of spring barley ever at 7.6t/ha. "

"Using Omnia has allowed us to approach every field individually, tackling its own particular set of issues to get the best crop establishment and this obviously paid off. It's also possible to see other trends developing across fields. For example, we are starting to see clear correlations between cabbage stem flea beetle in the oilseed rape and soil types, which means we can map that and accommodate for it in the variable drilling plan," says Andrew.

"Omnia has been used to variably drill all of this spring's barley and beans, and we have also trialed the new Connect app."

It's been so simple to use, says Michael. "I just have the iPad in the cab with me and away I go – there's no additional complicated machinery to buy in or to worry about leaving in the tractor. Andrew can send me the maps straight to the iPad, I get into the cab and that's it!"

"It has completely transformed how we use the application plans."

"We will continue to look at other ways we can optimize variable inputs, and also look at how we can use this to develop a variable fertiliser plan. At the end of the day, it's very easy to change or over-ride anything within the system so I don't need to worry that the decisions are being taken out of my hands."

***Nick Wilson** of Hunday Field Farm, near Grafton, York, believes that precision farming is the way forward for UK farming.*

"There is no doubt that the current government agenda is focused around precision farming and if we want to stay in the game we need to be current and ahead of the curve", he says.

Based on this, Mr Wilson agreed to trial the Omnia precision system this spring to variably drill his spring crops, on the advice of his agronomist Sam Hugill, and was very interested to see if the Connect app would indeed deliver its promise of streamlined data transfer from desk to field.

"I am constantly looking at ways to fine tune and refine efficiencies of operations. The soils on Hunday Field are very variable, so it made sense to look at variable drilling," he explains.

Sam populated Omnia with the information required to create a variable drilling plan; once field maps were created, he added in soil type and there is also the option to create maps of weed pressure or slugs or any other factors which may impact on drilling rate. Once the variety and date of drilling is inputted, a bespoke variable plan for that particular field is created.

"Using Connect, the plans were downloaded straight onto an iPad in the tractor cab - and then it's all systems go."

"It really is as simple and easy as that!"says Nick. "I don't have to worry about downloading the plans onto a memory stick and then doing the same again in the cab. The whole process is very intuitive, logical and very simple to use."

Omnia
Precision Agronomy

Omniaprecision.co.uk

consultancy@omniaprecision.co.uk

Fieldwise ViewPoint

>>> All the major plant breeders are starting to provide varieties across the crop portfolio with genetic traits that will assist with the challenges of crop production. We see most new winter wheat varieties are now resistant to OWBM, one recommended Oilseed rape variety has TuYV resistance and there are more varieties in the pipeline. The benefit of seedpod shatter resistance has become available in many widely grown varieties and again this is becoming a popular trait with the breeders.

With the loss of 'Deter', the latest threat to aphid control in the autumn, we are now seeing the breeders turning their attention to BYDV tolerant varieties with a goal of BYDV resistance. How soon this might appear is open to conjecture, but it is certainly under the microscope.

We are also very aware that Hybrid wheat is on the horizon and this in turn will change the way that we farm in future.

There are testing times ahead and the goalposts will no doubt continue to move, but Hutchinsons as a business is working closely with our plant breeding partners to ensure that we are able to evolve and adapt and in turn support our growers in such a challenging environment.

David Bouch

Grass Leys in arable rotations

There is a great deal of discussion on the benefits of introducing short term grass leys into arable rotations – Dr Bob Bulmer (Trials and Research Manager) **looks at the subject in more detail.**

The main advantages of short term grass leys are reported to be cultural control of herbicide resistant black grass and also improvements in soil structure, nutrient availability and organic matter. There is also an option in the Countryside Stewardship scheme for the introduction of a two-year grass legume fallow for the control of black grass and to provide pollen and nectar for pollinators.

Black grass control

Black grass is an annual grass weed adapted to arable situations where the soil is disturbed annually. It is less likely to thrive in a grassland situation where the soil is not disturbed and where competition from the sward and cutting or grazing reduces seed return.

Observations of the impact of this approach on black grass numbers are largely positive, with good reductions in black grass numbers from three to four-year grass leys.

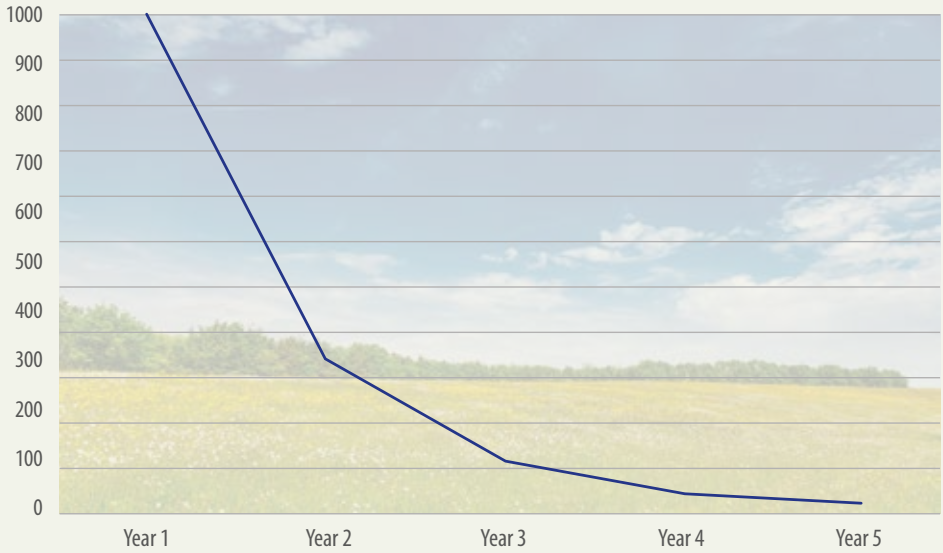
Black grass seed in the soil seedbank loses viability at a rate of approximately 70% per year. The chart showing seed viability decline over time would indicate that medium term leys will be more effective at reducing black grass numbers than short term leys. Cutting or grazing regimes also need to be effectively managed to prevent black grass seeding during the grass ley period.

The best time to establish a new ley for black grass control is early August which coincides with a time period when black grass is less likely to germinate. This gives the sward the best chance to establish and makes it more competitive with the black grass. I have seen early September drilled swards swamped by black grass.

Hybrid rye-grass is an ideal species to choose for these short to medium term leys - Italian rye-grass should be avoided because like black grass it can exhibit weedy properties. Cutting and grazing systems should be managed to prevent any black grass that does establish from setting seed.

When it is time to destroy the grass ley, use glyphosate and direct drill the next crop to avoid bringing viable black grass seed back to the surface. It is important to assess soil structure at this time to check for any shallow compaction caused by animal grazing. This can often be removed by shallow subsoiling. There is often a delay of a year before the nitrogen sequestered in the sward becomes available to the following crop, so winter or spring bean crops that fix nitrogen would be better choices than winter wheat because of this. Where you intend to drill winter wheat, take advice from a FACTs qualified advisor on autumn nitrogen, especially when direct drilling.

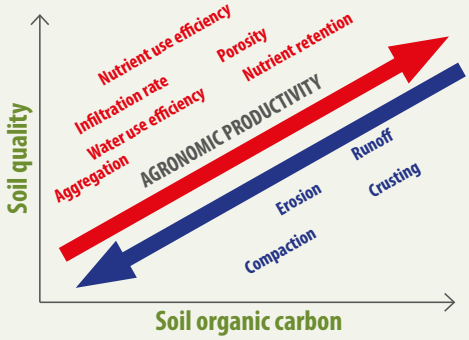
Black grass seed bank decline



Soil Quality

Continuous arable cropping with annual soil cultivations and little or no inputs of organic materials have lead to reductions in soil organic matter. Soil organic matter is closely linked to soil properties that are important in the maintenance of soil quality and fertility and long-term sustainability of production. Temporary grass leys have the potential to stabilise or improve soil organic matter levels, leading to increased water retention, better nutrient cycling and a lower risk of soil erosion.

Nitrogen fixing species, including red and white clover sown with the grass ley will raise soil nitrogen levels. There is also interest in Lucerne, a very deep rooting species, which can improve soil structure and open up deep root channels that enable the following crop to access the subsoil more easily.



Relationship between soil quality and Soil Organic Carbon (Rothamsted Research)

Countryside Stewardship

There is an option in the Mid-Tier scheme (AB15) for a two-year legume fallow, which has the multiple aims of reducing black grass, providing pollen and nectar for pollinators and also an insect rich foraging area for farmland birds. The ley needs to contain perennial rye-grass, red clover, common vetch, birds-foot trefoil and black-knapweed. Payment is £522/ha. See mid-tier options supplement at Gov.uk for further details.

I am grateful to Jim Egan and Phil Jarvis from the Allerton project for their invaluable insights into this topic.

Your Hutchinsons agronomist will be happy to discuss short term grass leys for your own situation.

Contact us:
information@hlhltd.co.uk

Establishment considerations for Winter Oilseed Rape

Dick Neale (Technical Manager) **outlines the main considerations in successfully establishing your next crop of winter oilseed rape.**

In the majority of situations seedbeds destined for autumn sown cereals are weathered, preened and pampered with seed rate assessed and all seed sown to an accurate depth. For winter oilseed rape however, conditions are often 'hostile' with anything from a light scratch to a full blown subsoiler soil movement, in predominantly dry conditions, coupled with high levels of nutrient hungry residues and the increasing threat from cabbage stem flea beetle if dry, or slugs if we get significant rain around August back holiday weekend.

In spite of all that, we sprinkle this tiny seed on, work it in and hope that despite the inconsistent approaches taken to establishing this crop, the result is a consistent crop.

Seedbed and available moisture

Moisture in the seedbed is a key consideration and consistent availability of moisture is a frequent problem during August. Soil Moisture deficient averages around 80mm in August with rainfall average at 100mm - this is frequently cancelled out though by evaporation rates of 90mm/month at that time of year.

It is the evaporation rate that can cause significant variation in establishment, as once germination occurs the seed/seedling cannot run short of moisture prior to expanded cotyledon, or it will die.

Moisture for germination and establishment is influenced strongly by seed to soil contact and aggregate or 'clod' size should be no bigger than a key on a computer keyboard, any bigger and the percentage of seed establishment declines significantly.

Drilling depth is also a key consideration. Germination declines sharply in seed sown deeper than 50mm and establishment vigour is impacted from 25-50mm depth.

Cabbage stem flea beetle

While seedbed quality and adequate moisture can be managed to some degree, for many in recent seasons, the decision on whether to continue with the crop or not has been influenced by negative experiences with cabbage stem flea beetle, as foliar insecticide applications prove increasingly ineffective.

Hutchinsons have investigated issues that impact the crop's ability to survive CSFB attack during the past season and there are a number of practises that stack the odds in the crop's favour.

- Avoid sowing the crop into drying seedbeds with a continued dry and warm forecast
- Do not sow deeper than 50mm to access moisture
- Minimal soil movement reduces adult feeding
- The presence of chopped straw, applications of FYM, digestate or slurries can eliminate adult feeding
- Placement fertiliser, preferably phosphate based like micro granular 'Primary P' offers significant improvements in establishment and growth away from feeding pressure
- The presence of volunteer cereals reduces feeding pressure - but this only works in strip sown situations where the seeded strip is clear of volunteers and moisture is not limiting.
- Variety choice can have a significant impact.
  - The new hybrid variety **LG Arrow** has proved particularly resilient to adult feeding and larval invasion
  - **Clearfield®** varieties have proven particularly resilient to adult feeding
- Seeding rate should be increased by 50% i.e. 75 seeds/m^2 for hybrids, 100 for conventionals
- There is no advantage to sowing more than 100 seeds/m^2 (5kg/ha@5g TSW) when seed is accurately sown within the top 25mm of soil.
- Companion species focussed on 'pulling' CSFB from the crop have proved inconsistent
- The zinc ammonium complex seed treatment 'Radiate', offers rapid emergence and vigour improvements and should be used in conjunction with a foliar phosphite application from 4 leaves.

- Mixing 10kg/ha of technical grade urea with seed (to apply a total of 13-15kg/ha) has proven very effective, but only in the presence of adequate available phosphate.

Stacking variety choice, seed rate, accurate sowing depth, soil cover and minimal soil movement coupled with placement phosphate-based fertiliser has proved highly effective in the highest-pressure situations.

Date of sowing

Earlier sowing during the first half of August has proved effective for many in autumn 2017, but moisture was not limiting during that period and the subsequent hard frosts in early 2018 and a cold late spring held these potentially very large crops back. If conditions favoured strong early spring growth, very early sowing of winter oilseed rape does present agronomic challenges and is not a viable long-term strategy for the crop.

Very early August sowing to get the crop past CSFB adult feeding should be tempered against the complications it can present in way of enhanced disease pressure from phoma, light leaf spot and club root, but also increased duration of pest pressure from peach potato aphid and the resulting TuYV and cabbage root fly.

TuYV

Turnip yellows virus can be tackled by utilising varieties with tolerance or resistance to the virus like **LG Architect**. This variety has proven resilient to CSFB also. While variety choice is often based on gross output figures, depending on the planned sowing date, frequency in rotation and local experience, the TuYV tolerant variety **Amalie** performed above expectation in the southern half of the UK from a line south of the Wash, so the value of virus resistance in earlier sown crops should not be underestimated, with a 10% yield advantage quite possible. LG Architect offers higher yield, pod shatter resistance and improved LLs and phoma scores compared to Amalie bringing it to within a few % points of the top performing hybrids if TuYV is not at high levels.

Nutrition

Winter oilseed rape is nutrient hungry during the establishment phase, but the nutrient that underpins all others during establishment is phosphorous. Applications of nitrogen have proven ineffective without adequate phosphorous and a small root system in dry soil, where much of the upper horizon phosphorous still resides in the residue from the previous cereal crop, will struggle to access adequate available phosphorous, even where soil indexes are adequate.

Recent research suggests that P soil Index can be dropped to 1 provided that P applications are placed during the seeding process. P availability declines rapidly as soil temperatures decline so placement close to the seed is important, but for that, the salt index of the product must be taken into account to prevent uptake of moisture away from the seed in dry conditions and also to avoid root burning of the new seedling. High availability and efficiency of uptake are paramount and micro-granular Primary P applied at 10-15kg/ha has proven highly effective.

Adequate P changes the growth habit of the plant, producing a bushy growth habit both above and below ground. WOSR is often referred to as a 'lazy rooter' but our work with Primary P has demonstrated no reluctance or ability for the crop to root strongly when Phosphorous is readily available. The key is balanced nutrition during establishment and Primary P provides a formulated compound of N:P:S:Mg:Zn coupled with Phosphate Protection Technology that provides long term P availability, robust bushy top growth, strong and vigorous root systems and a compact flowering period.

Attention to detail

Returning to my opening statement, it is vital that full attention to detail is applied to the establishment of winter oilseed rape, as we do for cereal production.

Gross output might be the starting point for variety choice, but resilience against CSFB grazing and larval infestation, resistance to virus, disease, lodging and pod shatter all need equal consideration.

Pyrethroid insecticides are becoming increasingly ineffective against CSFB and Peach potato aphid. Cultural controls with variety, seed rate, establishment technique, seed bed quality and placement nutrition must therefore be brought into sharp focus.

We must step back and review all the issues and adjust the whole system to respond and cope, we must not fall into the trap of treating individual issues in isolation as and when they arise, without consideration of impacts later in the crop's life or within the rotation.

Questions about this article?
Email us: information@hlhltd.co.uk

Fieldwise Answers

What's the best approach to minimising my erucic acid levels in OSR for 2019?

Dave Howard outlines his thoughts...

It is essential growers are proactive, right through the lifecycle of the crop in order to limit the potential effect of Erucic acid levels. The following methods will help reduce the risk of high erucic acid levels being found in OSR crops.

FIELD & FARM HISTORY

Ensure you know the field history before drilling, particularly any previous OSR crops and especially any HEAR rape that has been grown on the farm. Where there's a history of HEAR rape, monitoring for volunteers and effective stubble management become very important. Leave seed on the surface for a minimum 4 weeks to maximise control with total herbicides and reduce HEAR seed return to soil.

SEED

Traceability is important, keep samples and labels of all varieties drilled on the farm. Where possible, use of certified seed will reduce the risk of HEAR contamination. Double zero varieties should come with a certificate of analysis for erucic acid levels and should always be < 2% required standard. Where farm saved seed is to be used, ensure it is tested for erucic acid levels prior to drilling. If you are planning to save any seed for drilling the following year ensure you test the crop prior to harvest to assess its suitability.

WEED CONTROL

Certain weeds can have very high erucic acid levels and where they are not controlled they will contribute to the erucic acid levels in samples. Charlock is the most common culprit, as the weed has similar levels of erucic acid to HEAR rape varieties. Ensure this weed is managed out of the crop at every opportunity. Use of Clearfield® herbicide tolerant OSR can also help in this situation, as it will allow control of both volunteer OSR and charlock within the growing crop. Increased breeding focus means that Clearfield varieties are now highly vigorous and much more in line with higher yielding OSR varieties. But do consider how you will control Clearfield volunteers within your rotation.

POTENTIAL SOURCES OF CONTAMINATION OUTSIDE THE FIELD

There is a potential for contamination in both storage and transportation of the harvested crop. Ensure storage structures and trailers are as hygienic as possible. Keep samples of each variety and ideally which fields it came from. Also, a sample from each lorry leaving the farm would be advisable.

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

Fieldwise Answers

How do I achieve the most appropriate and effective desiccation in OSR?

Neil Watson responds...

Neil Watson
REGIONAL TECHNICAL MANAGER

When it comes to desiccation timing is critical. It is not just about ensuring a smooth and efficient harvest, it is also about maintaining the crop's true yield potential. Desiccating too early not only curtails seed growth prematurely, it also adversely impacts the crop's oil content (the accumulation of oil within the seed, being the last process to occur before ripening). Finally, you also risk having a higher percentage of immature "red seed" within the sample, potentially leading to rejection if this exceeds 5% of the sample.

Choosing the correct timing for desiccation

It is not the pod colour but the **seed colour that is the best indicator of maturity.** During periods of high temperatures, pod colour can often overestimate the crop's maturity (from a sun burn/bleaching effect on the exposed upper canopy), whilst during periods of slow senescence it can underestimate the crop's maturity.

Where to take the representative sample from on the plant:

- **Choose areas of the field that are representative of the crop itself.**
  - **In most crops,** take pods from the main raceme (primarily as most of the yield will come from here)
  - **In thin crops** or where growth regulators have been used, a higher proportion of the yield is likely to come from the side branches, consequently, sampling needs to be adjusted to take this into account.
- If there is some **minor variability** in the crop's maturity, target the timing to the more backward section of the field.
- If there are **major variations** in the field, the different parts of the field will need to be treated as separate fields and time the desiccant appropriately.

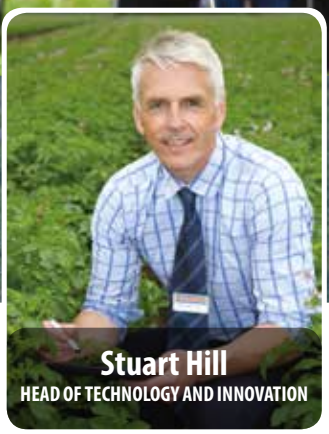
Guide to the correct growth stage for desiccation:

	GLYPHOSATE	SWATHING	DIQUAT
Top pods		Turning from green to brown	More than half of the seed will be green, firm, and pliable with a few early ripening seeds brown to black in colour.
Middle pods	2/3rd some colour change from green to brown	Seed reddish-brown	90% of the seed will be reddish brown to dark brown, with a few seeds black. The remaining 10% will be green, but must be firm and pliable.
Bottom pods		Seed brown	All the seed will be dark brown to black.

Expertise & development in Potato & Vegetable production:

Demonstration days 2018

Stuart Hill (Head of Technology and Innovation) **looks forward to two Hutchinsons specialist demonstration events in July.**



Stuart Hill
HEAD OF TECHNOLOGY AND INNOVATION

The vegetable, root crop and fruit sectors are a very strong element to the Hutchinsons crop production business. In fact, it is in our DNA – 80 years ago 'Herbert Hutchinson' first opened the crop protection business in Wisbech, the centre of the largest vegetable and root growing region of the country and this has since expanded UK wide to Scotland, Lancashire, the South East and South West covering all the growing regions. Clearly soils and moisture capacity play a large part in this and so the peats and silts are at the core of these crop's growing systems.

These sectors have rationalised very significantly in the last two decades and they have an inextricable direct link within the supply chain and end user so they are very much at the sharp end with a very strong business focus. This has led to more attention to efficiencies and consequently a hunger for technology and innovation that can benefit the grower, decision support and the end user. This focus is constantly being reinforced by crop protection product losses and hence it is our goal to find and develop solutions for growers.

Hutchinsons commitment and investment in these sectors has continued with the recent introduction of the Allium and Brassica Centre business which remains independent in its own right, but it brings significant expertise to vegetable agronomy and innovation.

This is very much reflected in our determination to demonstrate new techniques and technologies in both sectors and in often combined production systems.

The Fen Potato Demonstration site is based in the heart of the Fens and kindly supported by **A L Lee Farming** company on **Wednesday 11th July 1pm – 6pm.** The open day is in its second year, after a very successful 2017 launch saw representation from significant potato growers from across the region and beyond.

Here we will have potato specialists John Keer, Darryl Shailes and Stefan Williams discussing:

- challenges and best practice in managing seed diseases
- continued work on how seed age can impact stem and tuber numbers
- reviewing weed control approaches in the light of product losses and potential new options
- reducing the pressure of PCN in soils and on potato yield output.

Demonstrating new partner technologies, we have the support of FungiAlert disease prediction tool, KisanHub and CUPGRA with the yield prediction model, Richard Austin Associates and their soil analysis with PCN and nutrition, Omnia precision and decision support hub and finally crop protection suppliers BASF, Bayer and Corteva highlighting new products.

Thursday 12th July 12 noon – 4pm 2018 also sees the opening of our new **Brassica Demonstration site**, courtesy of **F Daubney and Sons** (R. Daubney) at Old Leake, near Boston, Lincolnshire.

This is run in conjunction with the **Allium & Brassica Agronomy** and will be an exciting opportunity to explore:

- maximising the efficacy of existing and new crop protection options for weed control
- comparing programmes of pest control
- disease monitoring and management
- supporting plant health and creating an environment for the plant to maximise its own defences via alternative bio-stimulants.

Alongside the trial work and supporting crop protection manufacturers, there will be discussion and demonstration of disease prediction with new technology developers FungiAlert, key aspects of decisions in soil management with Healthy Soils and managing information and precision agronomy with Omnia.

Ultimately these demonstrations are driven by the need for knowledge and innovation that benefits your business. This is a very exciting time of change and revolution in agriculture and Hutchinsons will be pleased to welcome you to these events.

For further details and to book places at these events, please check 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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