

Agri intelligence



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## STOW LONGA DELIVERS VITAL INSIGHTS INTO CARBON AND NITROGEN EFFICIENCY

With its current trials programme now entering its tenth year, Agrii's Stow Longa site, near Huntingdon, continues to provide new crop production insights.

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## STOW LONGA DELVE VITAL INSIGHTS INTO **CARBON AND NITROGEN** EFFICIENCY

With its current trials programme now entering its tenth year, Aarii's Stow Longa site, near Huntingdon, continues to provide new crop production insights with some of the latest being the carbon footprint implications of different cultivation methods and just how much blackgrass can reduce the efficiency of nitrogen applications.

With the need to use inputs as effectively as possible in modern crop production, the impact of cultivation choice and blackgrass control method can have a major effect not just on the profitability of a farming business, but also its carbon footprint.

"Over the years at Stow Longa, we've learned a huge amount about rotations, crop establishment and blackgrass control, with the sustainability agenda increasingly affecting the way we look at our cropping," says Agrii seed technical manager John Miles.

"But one thing it is impossible to get away from is the importance of yield in the equation and this is very much the case when looking at nitrogen use efficiency (NUE) and carbon.

"While it's often assumed reduced cultivations will result in less fuel consumed and a correspondingly lower carbon footprint than a plough-based approach, making a direct drill system work effectively means this is not always the case

"They can be much closer than many think and this was certainly the case on Stow Longa's heavy soils when several passes of a straw rake, combined with a low-disturbance sub soiler. were factored in.

"Using information supplied by equipment manufacturers, diesel use estimates were 25 litres/ha for ploughing and 17 litres/ha for direct drilling using an LD leg and straw rake. with fuel for drilling on top of this."

#### Importance of yield

The results become more interesting when looking at yields and CO2e per tonne of production, he points out.

"We used greenhouse gas figures from ADAS Yen Zero, which pitches the ploughing option as the worst in terms of greenhouse gases/ha at around 1350 kg/ha compared to direct drilling at 372 kg/ha – which is a big difference.

"But with a spring barley yield of 9t/ha for ploughing, for example, the carbon is 155 kg/t whilst it is 176 kg/t for the direct drilling approach with its lower yield of 6.5t/ha - much closer and much more relevant when it comes to grain marketing options.

"Early results from 2024, however, suggest use of the low disturbance subsoiler, used in good conditions, with a stubble rake and a more successful cover crop, have reduced the yield difference between ploughing and direct drill approaches to around 0.4t/ha.

"So, it will be interesting to see how this affects the carbon footprints – we've closed the yield gap but we've used more diesel, too." There are many lessons still to be learned from Stow

Longa and it remains an invaluable tool in the company's R&D armoury for the future, John Miles believes.

"With nitrogen being such a large component of both the cost and carbon footprint of crop production, Stow Longa's findings of the effects of blackgrass on NUE, for example, are extremely compelling.



"We know every 100 ears/sq m of blackgrass results in a yield loss of 1t/ha, so it's a double whammy to realise your costly nitrogen applications are feeding this, too.

"In spring barley crops with little blackgrass we've seen yields at Stow Longa of 9t/ha from about 120kg N/ha which equates to an NUE of over 90%.

"Others with higher blackgrass levels, but the same level of nitrogen application, have produced a yield of 6t/ha resulting in an NUE of little over 60%.

"So, the bottom line is whether it is optimising profitability, carbon footprint or NUE, achieving high yields is still an incredibly important objective."

## SUSTAINABLE FARMING **INCENTIVE BEST PRACTICE**

With 102 actions set to be rolled out as part of the 2024 expanded and improved SFI, it is more important than ever to ensure we are following the right guidance and keeping the correct evidence.

Our environmental advisors are encouraging farmers to follow voluntary guidance where possible, to ensure the aims of the scheme are met and sustainability benefits maximised. We have seen some significant changes to actions and their guidance since the launch of SFI, so it is important to know the parameters you have signed up for and what voluntary guidance was in place at the time.

An example of this includes SAM3 herbal leys, which as of July occupied 292,000 hectares in England. Under the latest 2023 guidance. the SAM3 voluntary guidance was to include

#### Yet to apply for SFI?

It can be daunting looking at the long list of different codes and numbers. If you are looking to apply for SFI for the first time, we recommend a 3 step process:

Our team of environmental advisors and crop input specialists are here to offer support through the planning and application process.

The purpose of this is to help improve and maintain the soil's structure, carbon, biology and fertility. The guidance so far for 2024 CSAM3 has lowered this to a minimum of 1 grass, 2 legume and 2 herb species, and you must minimise use of inorganic fertilisers containing nitrogen. Usually, this will be no more than around 40 kilograms of nitrogen per hectare per year. Alongside the 2023

varied root structures.

Focus on the easy wins first, which are likely already being done on the farm. This way, you aren't taking any land out of production nor implementing something new. An example of an easy win would be to create a soil management plan (CSAM1), or a nutrient management plan (CNUM1).

Take advantage of the obvious areas. Examples of these would be no till farming (SOH1) or cover cropping (CSAM2) which for those farmers already practising, feels feasible. Yet if these practices are new, consideration needs to be given to the impact on yield and gross margins.

**Time to do some homework.** Look for where there are opportunities to earn more money from an SFI action than producing a crop. This is usually on headlands or shaded areas of the farm which tend to produce a lower yield. Here, you will be looking at actions like flower rich grass margins (CIPM2) or pollen and nectar flower mixtures (CAHL1). These can sometimes include static options meaning you are allocating land to them for 3 years.

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5 grasses, 3 legumes and 5 herb species. Although not mandatory, you did have to meet the aims of the scheme which was to provide

voluntary guidance, the 2024 scheme has also introduced the word 'must' into the handbook, meaning there are now more mandatory requirements to be aware of.

The scheme is in its early days, and inspections are always likely for any farm. Many actions require a paper trail of invoices and photographic evidence to prove the actions have been undertaken. Contour has been providing a great place for organising and storing evidence like this, by tagging photographic evidence and PDF invoices to the appropriate fields.



#### **VR N**

In addition, satellite imagery was also used to create VR Nitrogen plans in the Contour platform to further even crop growth in the winter wheat and winter barley fields. This year, Hugh used ClearSky imagery and groundtruthed it to ensure that the imagery displayed in the platform matched conditions on the ground – he was satisfied that the imagery was a true representation of the progress in the fields.

## WILTSHIRE FARM LEVELS UP ESTABLISHMENT WITH RHIZA TOOLS

Hugh Bland farms Manor Farm Foxhill and Warren Farm Aldbourne in North Wiltshire, growing over 450ha of a variety of crops, including wheat, spring barley and oats.

Hugh works closely with Agrii agronomist Russell Frost and RHIZA CIS Lily Butters. The farm covers varying soil types including over chalk, with some areas of steep hills, bringing with it some challenges to address.

Ø

VR P&K

Plans used:









## Results

- The variable rate seed plan was delivered swiftly via Contour and was easily accessible to Hugh.
- + Clear establishment improvements with poorer areas visibly levelled.
- Significant reduction of inputs used, mainly P and K and more efficient use of inputs overall.

Overall, Hugh is satisfied by the improvements seen across the farm. He plans to continue using variable-rate applications to improve the efficiency of input use. The data stored in the Contour platform will continue to inform how best to use the land on Hugh's farm. Going forward, Hugh intends to create a Nutrient Management Plan in Contour to support his SFI application.

#### VR Seed

Hugh has been working with RHIZA for a number of years and wanted to optimise some of the more challenging areas of his farm. The whole farm was zoned and variably sampled, and gets re-tested on a three year cycle. Historically, the areas over chalk have seen crops struggle to establish, and Hugh wanted to use VR Seed to help.

Lily works with Hugh to produce autumn and spring variable rate (VR) seed maps annually by using rulesets based on physical soil properties to address the farm's varying soil types and topography.



#### VR P&K

A standard VR approach was taken, with the first two nitrogen applications targeting crop levelling by applying increased levels in the poorer areas and the final third application applying more to the higher green chlorophyll vegetation index (GCVI) areas to boost optimum yield.

VR P and K plans were also completed, created from the zonal soil sampling completed earlier in the year.

To find out how your farm could benefit from planning tools in Contour, contact RHIZA today:

🖂 info@rhizadigital.co.uk

**\$** 03300 949150

www.rhizadigital.co.uk



# RHIZA REVIEW



Technology never stands still, and this could not be truer than with agriculture. Ag Tech has been rapidly evolving over the past 10 years, and this progress shows no signs of slowing down.

As the industry adapts to new challenges and opportunities, software platforms are becoming increasingly central to not only suppliers, but the farm businesses themselves, serving as the touchpoint between technology, advice and farmers. A clear demonstration of this can be seen in the way that machinery manufacturers have taken telematics from a 'nice-to-have' to an integral part of the machinery sale. Furthermore, we now see the AgChem market coming to the fore, as they embrace innovative solutions that enhance efficiency and productivity on farm.

Within RHIZA, a significant milestone has now been reached as we transition away from our legacy software platform, Toolbox (APS). This migration is not just a technical upgrade; it opens the door to RHIZA's continued development of the Contour platform into the next phases which include providing greater farm insights and land management tools. With more robust and flexible systems in place, we will better be equipped to analyse, interpret and integrate with others and provide answers to the data generated by farming businesses.

The end goal of this migration is to deliver a better service to farmers, empowering them with actionable insights and tools, which is often found lacking in farm management platforms. We aim to enable farmers to not only optimise inputs and make informed decisions but also to deliver a platform that allows farmers/

advisers to react in real time to the challenges agriculture brings.

Over the next 12 to 18 months, RHIZA will focus on enhancing its land management tools to support growers in planning and implementing Sustainable Farming Incentive (SFI) practices at every level. SFI (and other environmental schemes throughout the UK) can become a significant part of a farm's income stream and therefore needs to be planned in conjunction with the rest of the farm's operations, not in isolation. The development of tools within Contour will not only assist in planning and evidencing SFI but also provide access to Agrii's extensive knowledge base, offering farmers access to the advice and resources Agrii can bring beyond planning for the SFI application itself.

Alongside the land management module, we will continue to develop our BETA products such as Disease Forecaster and our cloud free imagery service, ClearSky. ClearSky has certainly proved its worth this spring with significant parts of the country suffering from lack of clear imagery to make Variable Rate Nitrogen plans. Not needing to rely on clear optical imagery, ClearSky stands out in the industry as a go-to option in a tricky season. With the new PRF1 (variable rate nutrient applications) SFI action seeing areat interest from our customers, ensuring the capability of VR Nitrogen for a farm will be key to securing that payment.

Our disease forecasting tool will enter its second year of farm scale testing this year. With some positive results and plenty of learning from last season we hope to improve the service again. With the increasing focus on IPM and application justification tools like disease forecaster, this shows RHIZA's commitment to providing tools to farmers that solve a problem rather than find a problem to solve.

#### We look forward to the next 12 months with RHIZA and bringing you regular updates on the platform and service.

## **Future functionality**

- Multiple crops per field/ dual cropping

- Flexible land management

- Integrated Pest
- Soil management plans

## DOMINATE 2024

FROM CARNOUSTIE IN THE NORTH TO KENT IN THE SOUTH, THE AGRII VARIETY TRIALS TELL THE SAME STORY. JOHN MILES, AGRII SEED TECHNICAL MANAGER, DISSECTS THE RESULTS

Growers still contemplating variety choices for this autumn or perhaps already thinking of a change next autumn have plenty to choose from, but intended market, rotational position and disease pressures should all be considered before finalising plans.

Possibly because everywhere had intense disease pressure, everywhere was wet, or everywhere had less sunshine - there were minimal regional differences between trials. It is perhaps not surprising that it is the same varieties topping the performance table. This is not to suggest there is a group of varieties that are simply superior to everything else, but more a case that a small selection suited the season better than everything else. In another year, the results may well be different. All of which serves to endorse the message that risk is best managed by having a good spread of varieties.

There is of course more to the story. Septoria and vellow rust continue to dominate, especially in relation to brown rust, and it is notable that many of the varieties showing the greatest weakness share the same genetics.

Of the quality wheats, the varieties notable for their impressive performance include KWS Zvatt and its crosses, KWS Ultimatum and KWS Palladium, all of which have demonstrated good Septoria resistance. News that SY Cheer is now fully approved as a Group 1 is welcome news, but it has been well-beaten this year by KWS Zyatt.

Of the biscuit and feed varieties, Champion, Fitzroy, Graham and RGT Hexton have done well. Those that have underperformed include LG Skyscraper, Costello and its crosses, KWS

Dawsum and LG Beowulf, and the Cougar crosses, RGT Bairstow and RGT Stokes.

It is also notable that drilling date and seedbed conditions at sowing were also contributory factors to performance - more so than drilling date. Crops that went into good seedbeds in December, January or even February have tended to outperform those that went into less than decent ground in late October or November.

Of the soft wheats to consider next season, Bamford and Blackstone are worth a look. Bamford, a Group 3, is the highest yielding soft wheat, has stiffer straw than LG Skyscraper, has better Septoria resistance, which will appeal to those wanting to drill from mid-September, has high bushel weights of 78.5 kg/hl and has produced good spirit yields. Its lack of orange wheat blossom midge (OWBM) is its most significant omission on an otherwise strong CV.

Blackstone is a soft feed also with OWBM resistance, higher yields and better disease resistance than LG Skyscraper. It's best suited to the north and suitable for all soil types, including sites of higher sterility.

For those who prefer hard feeds there is perhaps greater variety choice. Champion and Graham are established varieties that growers know well. Their 2024 performance suggests both varieties will continue to do well for growers, especially those outside the south and southeast where brown rust is less concerning.

Fitzroy continues to outperform its peers and deserves consideration. Its late maturity makes it better suited to the central and southern regions of England where it has consistently been one of the strongest performers, perhaps due to its outstanding Septoria resistance. Not suited to early drilling, it can be sown until the end of October, does well on all soil types and as a



second wheat. It's reasonably tall so benefits from a robust PGR programme. Like Bamford, the lack of OWBM resistance is the most notable omission from an otherwise strong set of credentials.

RGT Hexton, a soft feed Graham cross, is one for autumn 2025. It has impressed this season, especially north of the Forth, and has a reasonable set of agronomic scores. Its progression to the Recommended List seems guaranteed.

Lastly, and although not one of the highest yielding varieties, RGT Goldfinch offers something different. Like its stablemate RGT Grouse, it offers BYDV resistance. Although never in the top half of the table for yield, RGT Goldfinch has impressed. For those whom BYDV is a concern, RGT Goldfinch is a notable improvement over RGT Grouse and worthy of consideration, but only where there is significant BYDV risk to crops.

The benefits of seed treatments are often overlooked, but trials have consistently demonstrated their value. The primary purpose is to support plant health ahead of the winter and this often leads to more consistent crops in the spring. As a minimum a base treatment such as Beret Gold (fludioxonil) is advisable. The upgrade to a bio-stimulant such as Vibrance Duo (fludioxonil + sedaxane) greatly improves establishment rates especially in later-sown crops. For this reason, it has become the standard treatment for those with high workloads or a preference for delayed drilling.

Nutrient coatings such as i-Man (manganese), Zax (zinc) or Fielder Copper (copper) should be considered where there is a history of deficiency or where typically high phosphate levels can interfere with their availability from soil

## VIBRANCE DUO FOR LATE DRILLING

Agrii's R&D site at Stow Longa has produced invaluable information on the impact of tillage, rotations, and drilling dates on blackgrass infestations and gross margins.

The site has improved our understanding of the competitiveness of different crop species. Winter wheat has been shown to be consistently less competitive than other species, and differences exist in the relative competitiveness between varieties. LG Tapestry, LG Astronomer, RGT Bairstow, and Skyfall have been picked out as more competitive varieties, with SY Gleam and KWS Cranium being less competitive than the rest.

In addition, early work showed that 300 to 350 plants/m2 was needed in the spring to optimise crop competition against blackgrass in later drilled crops (Figure 1).

Vibrance Duo (fludioxonil and sedaxane) is known to improve crop establishment, rooting, and above-ground biomass. A trial was carried out to see if it could contribute to the crop's competitiveness against blackgrass.

Vibrance Duo was applied at a range of seed rates and compared with a base treatment alone and different row spacings and drilling dates. The results showed a significant improvement in establishment (Figure 2).

Interestingly, the trial also revealed that as you increase the seed rate, the percentage establishment falls away due to the increased plant-to-plant competition between wheat plants in the autumn (Figure 3). Vibrance Duo achieved this by producing more resilient plants at these elevated seed rates.

The trial showed that Vibrance Duo could save up to 6% of seed costs by improving crop establishment in the spring compared with the base treatment alone. In late drilling situations, Vibrance Duo, therefore, becomes a very cost-effective treatment.











Figure 3: Comparison of seed treatments and seed rates, measuring the percentage of crop establishment.



To meet growing interest in home-saved seed, Agrii is expanding its fleet of mobile processing units. The investment is considerable with the fleet comprising 28 mobile seed processing units, two colour separators, bulk grain cleaning equipment and further expansion planned.

The fleet is central to Agrii's desire to meet customer demand for a timely and efficient service. Most growers use a combination of certified and home-saved seed. Certified seed provides access to the latest varieties and is preferred by those wanting to buy-in seed. Home-saved seed ensures you have full control of your seed production process including the volumes required and the choice of seed treatments to be applied. It is also an opportunity to reduce input costs. Quality is preserved too as weed seeds can be removed, as can smaller grains to increase the average thousand grain weight of the sample. The capability of our mobile units, which are designed in-house, means cleaning and the application of any treatments is just as good as achieved by the static units at our processing plants.

## Designed, built and operated by 'AK'

I'm Andi Karthauser but, to most of my colleagues and some customers, I'm best known as 'AK'. Within Agrii I have a unique position: as a member of the farm saved seed team, I have been operating the mobile units for more than 10 years, and as lead engineer, I am

## AGRII COLOUR SEPARATORS BUSY REMOVING ERGOT

Harvest 2024 has seen some of the highest levels of ergot ever experienced with merchants and stores struggling to cope with volume of contaminated samples.

Unfortunately, there are few homes for ergot-contaminated grain, so for those affected, the cost and inconvenience of cleaning and segregating contaminated samples has been significant.

Removing ergot from contaminated grain requires specialist colour separation equipment. This is a service that Agrii undertakes most years but demand this season has been exceptional. While we endeavour to satisfy all enquiries, capacity is limited, and we are working with customers to clean grain based on the expected date of movement.



responsible for the design, construction and maintenance of the fleet. It is a privilege to combine the two roles and I strive to ensure the units are built with ease of operation in mind without compromising reliability or the standard of service.

> The Agrii fleet of mobile colour separators represents a cost-effective and convenient means of removing ergot and while the team is busy, there is spare capacity through the spring period. For more information or to schedule a visit, please email Mark Taylor, Agrii National Farm Saved Seed Business Manager, at mark.s.taylor@agrii.co.uk.

See 'Dealing with ergot' on the next page for practical steps to reduce the risk to your crops.

## DEALING WITH ERGOT

Ergot is a significant problem, especially in wheat and rye, but it also affects barley and oats. The disease is influenced by changes in agricultural practice and weather conditions, including:

- + A preference for low- or no-tillage systems
- The prevalence of secondary hosts in crops, including black grass and flowering grasses in field margins
- + The increasing area of rye for grain (rather than forage)
- + Cool, dull, and wet weather during flowering
- + The limited chemical control options

The toxic alkaloids in ergot pose a risk to human and animal health, so there is little or zero tolerance from either food or feed buyers. Growers face fall-back costs for removing ergot samples or, worse, complete crop rejection.

Certified seed offers some reassurance to reduce risk, as does applying a suitable seed treatment, but there is no guarantee that crops will not be affected.

There is no varietal resistance, and some crops are more at risk than others; for example, spring wheat is more at risk than winter wheat due to its more open flowering habit.

The Agrii Masterseed standard has a limit of one ergot piece in a 2kg sample for wheat, barley and oats and four pieces for hybrid barley and rye. This standard is higher than the legal limits followed by other seed merchants. It is, perhaps understandably, a source of frustration among growers that there is an allowance for ergot in seed, but not in arain.

Seed treatments reduce the germination of ergot particles in contaminated seed and help to reduce the spread of spores. Products offering activity against ergot typically feature fludioxonil like Beret Gold (fludioxonil) and Vibrance Duo (fludioxonil and sedaxane) or triazoles Redigo Pro (prothioconazole + tebuconazole) and Rancona iMix (ipconazole + imazalil).

Figures 1 and 2 show the results from Syngenta-funded trials in 2003 and 2004, respectively. Contaminated seed was treated, sown in the autumn and observed in the spring for the number of stromata (spore-bearing structures) produced per week.

The trial found that applying suitable seed treatment significantly reduced the occurrence of ergot in treated crops with Raxil Star



rothioconazole + tebuconazole + tluopyram) arginally outperforming Beret Gold.

Cultural measures are also effective at reducing he risk to the following crop. The ergot pieces have a relatively short life, remaining viable in he soil for just one season, so the sowing of a non-cereal crop, cultivating to a depth of at east 5cm, and good control of grassweeds will all reduce the amount of inoculum able to infect crops. Maintaining accurate records of where has been most prevalent will also help

The mobile colour sorters operated by Agrii offer the opportunity to remove ergot sclerotia from stored grain. Demand for this technology is often high, so processing is conducted over the autumn, winter, and spring periods. The number of machines equipped with this technology is limited, so the opportunity to use colour sorters to clean farm-saved seed is also limited.

ST Effect on Production of Stromata 2003



Figure 1: The impact of seed treatments on ergot stromata production (2003



gure 2: The impact of seed treatments on ergot stromata production (2004)

# A POTENTIAL WORLD RECORD OAT YIELD

Happy Days Farming in Lincolnshire has achieved a remarkable oat yield that is double the national average.

Supported by Agrii agronomist Stuart McDowall and top-quality seed from Cope Seeds, this incredible harvest results from the perfect combination of seed variety, nutrition, and some unusually heavy rainfall.

The total area harvested for Spring Oats on the farm was 320.69 hectares, with an impressive average yield of 9.752 t/ha. The recorded yield submitted for this year's YEN awards stands at an outstanding 11.23 t/ha. While we eagerly await confirmation on whether a new world record has been achieved, a big congratulations to Mark Popplewell and the entire team at Happy Days Farming for this outstanding achievement.



You can watch the full story on ITV News.



SECOBRA Research is a specialist plant breeding company established over 120 years ago by the French Brewers and Maltsters Association.

The name SECOBRA stands for Société d'Encouragement à la Culture d'Orges BRAssicoles (Company for the Promotion of Malting Barley). SECOBRA operates breeding programmes in France, Germany, Scandinavia, Australia and the UK, focusing on barley, wheat and triticale. What sets SECOBRA apart from other breeding companies is its unique ownership model. SECOBRA Research is owned by the industry it serves, with major shareholders including Soufflet, Malteurop, the Carlsberg Group, and the Maltsters & Brewers Associations of France – all of whom have a vested interest in malting barley.

The partnership between Agrii and SECOBRA Research dates back to the 1990s, leading to the successful development of varieties like Dickens, Memento, and Explorer. This collaboration extends beyond variety development to include joint efforts in trials and equipment, reflecting a strong alignment in values and goals. In 2017, SECOBRA Research launched its UK spring barley programme in Lincolnshire, emphasising scientific approaches and pure plant breeding. This programme has already yielded promising varieties such as Soccer, Hurler, and Spinner, with newer varieties like Belter and Diviner currently undergoing macro-scale testing by some of the UK's leading maltsters for brewing and distilling. Additionally, there is a strong pipeline of varieties progressing through UK national listing trials and beyond.

We are enthusiastic about the future of malting barley in the UK and are proud to be part of a growing market that benefits farmers, distributors, maltsters, brewers, distillers, and consumers alike.

## POLYSULPHATE, THE ALL-YEAR-ROUND FERTILISER WITH A LOW **CARBON FOOTPRINT**

#### **Polysulphate**

ICL polysulphate is primarily a sulphate fertiliser that derived directly from the natural mineral polyhalite. North Yorkshire and then distributed around the world.

Independent trials show the benefits of autumn-applied Polysulphate.

New trials suggest that an autumn application of ICL Polysulphate multi-nutrient fertiliser to supplement ntional spring timings can increase wheat yields by 0.3t/ha and significantly decrease leaching of N and P over the winter months.

Polysulphate® had the lowest carbon footprint at 0.034kg CO<sub>2</sub>e/kg. Polysulphate Potassium Sulphate Potassium Chloride **Triple Superphosphate** Ammonium Sulphate Calcium Nitrate Ammonium Phosphates NPK 15 - 15 - 15 Urea Ammonium Nitrate Ilrea Calcium Ammonium Nitrate Ammonium Nitrate 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4

## SULPHUR (S) AWARENESS

y. Farm: Roy Ward Farm. Phot

The trend of using sulphur has recently declined for both arable and grassland farmers. Whilst product availability has changed, it is essential that we do not neglect the importance of sulphur.

Historically ignored, as it was expected that requirements would be met with atmospheric S in the rain. However, the risk of S deficiency is increasing due to the 82% reduction of

+ Sulphur has a strong co-dependent

- + Sulphur deficiency shows itself in cereals and oilseed rape with stunted growth and yellowing (chlorosis) of the leaves, first showing on the younger leaves due to sulphur's immobility within the plant. This is opposed to N deficiency, which will show in
- + RB209 recommends that where an S

## "

Sulphur has a strong co-dependent relationship with nitrogen. Along with nitrogen, sulphur forms amino acids necessary for protein synthesis, which then also *improves nitrogen* use efficiency."

PolyPower: Combining the unique benefits of Polysulphate & Micro-Match molybdenum

- An even coating of molybdenum on every granule of Polysulphate for optimum distribution in the soil
- Dual-acting forms of molybdenum for immediate and sustained nutrient release
- Stimulates nitrogen uptake, which optimise grain prote crop yield and nitrogen use efficiency



Figure 1: A 2021 trial in Yorkshire on soil with low levels of molybdenum (< 0.01 mg/l (guide 0.4 mg/l)) comparing a standard fertiliser programme with and without a MICRO-MATCH coating on the spring NS compound fertiliser



kg/CO2e (subscript 2) per kg/product

## Trial work in molybdenum: Evaluating the effect of molybdenum as a fertiliser coating on yield and NUE

Crop: Winter wheat Location: Yorkshire Date: 2021 Site: Clay loam, pH 6.8, soil Mo < 0.01 mg/l (guide 0.4 mg/l) Soil Mo level is low

#### **Treatments:**

1. Standard fertiliser programme (seedbed P f/b NS top-dressing), zero molybdenum

2. Standard fertiliser programme plus MICRO-MATCH molybdenum coating on spring NS compound

### Key points:

- + MICRO-MATCH
- MICRO-MATCH NUE by 5.4%
- + MICRO-MATCH molybdenum gave a

## RAPIDAIM TO DELIVER **REAL-TIME CODLING MOTH MONITORING**

with a RapidAim unit

Apple growers will soon be able to monitor codling moth numbers remotely and in real-time with the introduction of RapidAim, a pheromonebased detection system developed in Australia.

The system will improve crop protection by enabling more targeted use of insecticides, which is considered especially important to support the performance of biologicals, as these often require precise timing to optimise efficacy.

The system is being brought to the UK by UPL but will be available exclusively through Agrii. Following its assessment in orchards across Kent and East Sussex during 2023 and 2024, it will be available nationally from 2025 following a formal launch to growers this autumn.

RapidAim differs from the pheromone-traps growers are likely to be more familiar with as it is not a trap but a monitoring station

arranged as a connected network. Data on moth numbers is collected as the insect passes through the device. The data is then transmitted to the user's account every 30 minutes. The account holder will be able to view the data via a dashboard on a smart device such as a smartphone or tablet. The grower will have oversight across their own network of devices with the data enabling them to fine-tune insecticide timings for optimal performance.

RapidAim offers a more accurate and reliable form of monitoring codling moth populations, says Don Pendergrast, Agrii technical manager for non-combinable crops.

"Unlike other systems, RapidAim does not rely on images captured on a semi-regular basis during the day. Nor does it require datahungry services such as the 4G mobile phone network. Instead, it uses an algorithm to identify the pest being monitored before relaying the information via the narrow-band mobile network. This supports excellent connectivity and means RapidAim does not suffer the connectivity issues often experienced in rural areas," Mr Pendergrast says.





Users can monitor pest data in real time via a smart device or a desktop computer with the data being displayed set to the user's preferences



The RapidAim stations should be arranged on a arid system and located on the outer boundary of the orchard with one device for every 3ha of trees.

In 2023, the first year of trials, RapidAim units were situated in orchards across Kent. The trial expanded in 2024 to include Sussex. Brendan Rhodes, Agrii fruit agronomist who has overseen the field trials of the past two seasons, says there are now more than 60 units in place with some of the leading commercial growers in the region.

traps," Mr Rhodes says.

As part of the evaluation process, the RapidAim units were matched with Delta Traps located as per industry standards.

"The results have been highly encouraging It quickly gained the trust of the growers involved who recognised the value of real-time data in supporting crop protection strategies," Mr Rhodes adds.

For Stuart Jackson, UPL's head of technical

## Fruit Podcast: Branching Out With **Top Fruit Nutrition**

In our August episode, Tramlines spoke with Agrii fruit agronomists Matt Greep, Emma Smith and Ryan Williams. The episode focused on top fruit and specifically the nutritional requirements of top fruit; why is it so important to get the balance right, what role does tissue analysis play in top fruit production and how can growers correct deficiencies?

"We have spent the past two seasons assessing and validating its capabilities with a network of growers across Kent and Sussex. Those users who trialled it reported that the data presented was consistent with the pest numbers they were seeing in orchards and, perhaps reassuringly, more accurate than indicated by pheromone

services, the introduction of RapidAim represents a decision support system fit for the digital era.

"RapidAim is not a direct form of control, but a risk-management tool. It enables control measures to be highly targeted while enabling growers to demonstrate the justified use of insecticide products," Mr Jackson says.

"It can also be used as a validation tool. Post-application populations can be monitored to determine if further applications are required or if the activity so far has been sufficient." he adds.

#### About RapidAim

RapidAim uses technology initially developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia's national science agency, to improve targeted control of fruit fly. Following its commercial success, the model was adapted for codling moth at the request of growers. It has since been adopted in the major apple growing regions of the world, including New Zealand and Washington State in the USA

The codling moth algorithm is now a well-defined capability. An algorithm for vine moth is being trialled with Agrii this season and an algorithm for diamond backed moth is expected for assessment in 2025.

## **Vineyard Show** 20<sup>th</sup> November 2024 | Stand M59

Agrii will be attending the Vineyard Show at Kent County Showground later this year, visit us on stand to:

 Meet experienced vine specialists providing advice, information and resources on how Agrii can support your vineyard business

 Chat to us about ancillary products, agronomy, nutrient management programmes, cover crop selections, variety choices and much more

# EXAMINING NEW SOLUTIONS FOR VEGETABLE CROPS

WITH AN EVER-DIMINISHING NUMBER OF CROP PROTECTION PRODUCTS AVAILABLE TO VEGETABLE GROWERS, AGRII HAS BEEN SCREENING POTENTIAL ALTERNATIVES.

## Trials demonstrate the potential of Botector against **Botrytis on stored Cabbage**

Application Timing	% of cabbages with Botrytis
-	20
14 days pre harvest	15
14 days pre harvest	5
Post harvest	0
Post harvest	0
	- 14 days pre harvest 14 days pre harvest Post harvest Post harvest





## Screen of fungicides for control of carrot crown rot shows promising results

modes of action. The trial was applied with

Cultural controls were also examined,

The trial was harvested on 18th April 2024



SCAN TO SIGN UP

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the current standard for control. The other

a potential proved beneficial in supporting th current control strategy and in identifying a potential product that could be used to support crown rot control in carrots. Discussions regarding the application for an EAMU for Boni-protect are ongoing



Agrii's Don Pendergrast (far left) talks through the treatment combinations in the PCN treatments trial

## **POTATO TRIALS SHOW** IMPROVED PCN CONTROL

Field trials by the Potato Partnership have identified new treatments with the potential to improve control of a range of pest threats, notably potato cyst nematodes (PCN).

The Potato Partnership is a collaborative project involving Agrii, independent agronomist Graham Tomalin, James Wrinch of East Suffolk Growers and James Foskett Farms. The partnership benefits from market development trials performed by Agrii on behalf of manufacturers, while sponsorship from other interested partners such as breeders, CUPGRA and Produce Solutions means the trials can be expanded to include novel methods and treatments outside the scope of a standard trial.

Preliminary findings from regular crop inspections suggest this year's trials will build on the success of previous years with an especially strong data set. For PCN specifically, the trials have identified new varieties with appeal.

Varieties with acod resistance and tolerance are widely regarded as the most effective means of overcoming the challenge posed by PCN. Unfortunately, such varieties are rare and may not be commercially viable or fail to possess the characteristics desired by the multiple retailers. In most cases, nematicides are an essential means of protecting yields.

Much of the focus is on identifying and assessing new varieties in comparison to current market standards.

The new varieties in trial cover all market segments and several have attracted attention, although more end-market assessment will be needed before they are promoted to growers. In contrast, others have clearly defined endmarkets, including several French-bred salad types showing promise.

The observations gleaned from these trials is often invaluable to the grower and considers length of growing season, determinacy group through to PCN resistance and tolerance.

Gathering data of this nature will undoubtedly help support more informed decisions but it is of limited value if the grower has not developed a clear understanding of the pest situation on their farm or the land they rent.

Among the PCN trials are a range of treatments intent on identifying those products that deliver the greatest yield protection in combination with established products such as Velum Prime (fluopyram) and Nemathorin (fosthiazate). Crop foliage assessments suggest several biological products have the potential to make a meaningful contribution to control, explained Don Pendergrast, Agrii technical manager for non-combinable crops.

"One of the novel treatments we have in trial is a synthesised peptide product that has shown good activity against FLN in other regions. Our observations so far suggest moderate activity (against PCN) but it appears to be a nemastatic, rather than a true nematicide. Nonetheless, this is a useful addition to the available means of control and will have a place as part of an integrated suite of actions," says Mr Pendergrast.

Also in the trials is a plant extract based on soap bark that is currently unauthorised. Initial assessments suggest it has true nematicidal activity, but the extent of its potential is still to be determined

"Both the peptide and plant extract are being investigated in combination or sequence with other treatments, which is perhaps where their value lies." he added.

The better control delivered by Velum Prime in sequence with half-rate Nemathorin has been demonstrated in previous years. This appears to be the case in 2024, with the two products applied in sequence again appearing to outperform the full-rate Nemathorin applied alone. The 2024 trials, however, have sought to build on this understanding through the addition of other elements.

"We have seen that half-rate Nemathorin in sequence with Velum Prime has outperformed the majority of treatments. The best performance appears to have <u>come from</u> Velum Prime plus the plant extract applied as a surface spray and incorporated ahead of planting with half-rate Nemathorin applied in-furrow. This was then followed by three applications of a synthesised peptide with the first at plant emergence and then every two weeks thereafter," said Mr Pendergrast.

In addition to PCN. TPP has trials investigating how crops might be better protected from the threat posed by aphid-borne viruses. There is good evidence to support the benefits of straw mulch, but there is concern over the possible introduction of weed seeds. especially black grass, which means growers are often reluctant to adopt this tactic. For this reason, the TPP trial is focused on exploring the potential of companion crops.

"We had success with oats as a companion crop last year, especially in reducing the incidence of non-persistent viruses such as potato virus Y (PVY), so we hope to build on this result," Mr Tomalin said.

# we have in trial is a



"We also have a trial investigating the merits of a soil-applied blue dye. We know most virus transmission occurs during the rosette stage, so the theory is that the use of a blue dye will make it difficult for the aphids to identify the young plants against the background of the soil," he added.

In 2023, weekly applications of mineral oil gave the greatest protection while oats as a

## THE **POTATO** PARTNERSHIP

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One of the novel treatments synthesised peptide product that has shown good activity against FLN in other regions. Our observations so far suggest moderate activity (against PCN) but it appears to be a nemastatic, rather than a true nematicide. Nonetheless, this is a useful addition to the available means of control and will have a place as part of an integrated suite of actions," says Mr Pendergrast.

> companion crop achieved a similar reduction in the incidence of PVY compared with the untreated. It remains to be seen whether the different conditions this season will result in a different outcome.

> There are also two as-yet unapproved insecticides in trial, which along with the data gathered on mineral oils, will be of value in future seasons



## **AGRII-START RELEASE NEWS**

## **Agrii-Start Release cuts P** use and improves carbon footprint

Huntapac Produce, one of Britain's biggest arowers of root crops with activities from Suffolk to Scotland, first used Agrii-Start Release in 2021 on roughly 200 hectares of carrots across North Yorkshire. Following a positive experience, this has been extended to include parsnips and is now applied to the entire carrot and parsnip crop area across Yorkshire and Shropshire.

The phosphate indices of the land used vary but are rarely deficient. Using Agrii-Start Release has removed the need for a maintenance dressing before sowing by increasing the quantity of available phosphorus in the root zone.

In a typical soil, roughly 80% of the phosphorus is unavailable for plant uptake despite many soils having a healthy reserve. This is largely due to the low solubility of the calcium or aluminium salts to which the phosphate molecules are bound.

"Before adopting Agrii-Start Release, we would apply roughly 50kg P/ha prior to sowing," Gabe Mellor, company agronomist, explains.

"Applying Agrii-Start Release at a rate of 4 I/ha in 2-300 litres of water shortly before being incorporated to a depth of 3 to 4cm serves to increase the available portion in the soil and therefore remove the need for an application of granular phosphate. This is a far more cost-effective solution to meeting crop requirements and supports our efforts to reduce the carbon footprint of the crop," he adds.

## 66

The phosphate indices of the land used vary but are rarely deficient. Using Agrii-Start Release has removed the need for a maintenance dressing before sowing by increasing the quantity of available phosphorus in the root zone." says Mr Mellor.



## Aarii-Start Release increases the marketable fraction of potato crop

Spearhead Group has been working with Agrii for several years, with Agrii providing support to the company's in-house crop trials. It was through this relationship that Spearhead was introduced to Agrii-Start Release.

For Nick Goff, trials manager with Greenseed International, a division of Spearhead International focused on seed and table potatoes, admits to being won over by Agrii-Start Release's performance.

"I was sceptical, but the theory made sense, so I was willing to give it a go. As is often the case, it was a case of seeing is believing. The results have been impressive, and we will be using it on future crops," Mr Goff says.

Many of Greenseed's crops are grown on chalky land, so the potential for phosphate to be rendered unavailable by the calcium ions in the soil, especially as the soil warms, presents a nutrient management challenge. In past seasons, the effects of this chemical reaction have been mitigated through large applications of solid fertiliser products, but this has also come at a significant cost.

"A soil-applied phosphorus activator has great appeal given the role of phosphate in increasing early crop development, haulm growth, tuber initiation and early bulking.

"As salad and seed growers, our potato crops are in the ground for a relatively short duration compared with main crop potatoes, so the phosphate needs to be available early and in sufficient quantity to meet demand if crops are to meet size and quality requirements," he adds.

As phosphate is relatively immobile, it is important that it is incorporated or placed in the seedbed at planting to maximise its value.

"When we studied the trials data for Agrii-Start Release, we quickly realised its potential. We were especially interested in the immediacy of its effect in increasing phosphate availability post-application but wanted to see this benefit delivered at scale.

"The trials we have seen involving Agrii-Start Release have been at a commercial scale. and this gave us the confidence to apply it to our seed and salad crops across East Anglia, which is roughly 650 ha," Mr Goff says.

66

The effect has been evident. "Through the spring period, crops appeared visibly healthier. We validated this with tissue testing, and where we would have expected crops to be deficient in phosphate based on past experience, we found them to be at the required levels. We have also seen that tuber numbers are at the higher end of our expected range.





I was sceptical, but the theory made sense, so I was willing to give it a go. As is often the case, it was a case of seeing is believing. The results have been impressive, and we will be using it on future crops," Mr Goff says.

> "This observation has been supported by root digs in the split-field trial, where we have seen more tubers per plant and greater uniformity in the treated crop. In the world of salad potatoes, uniformity is essential. Under 28mm is too small, and more than 45mm is too big. The use of Agrii-Start Release has significantly increased the marketable fraction," Mr Goff says.

## OUT AND ABOUT WITH THE WEGTEAM

THE AGRII TEAM HAS BEEN BUSY SUPPORTING INDUSTRY EVENTS THIS SUMMER AND AUTUMN

## **Carrot Open Day**

Agrii was present at the Carrot Growers open day on 3rd October. This spring, Agrii set up four herbicide trials at the demonstration site to examine the options for pre-emergence residual herbicides for use in carrots and parsnips.

The trials looked at both efficacy and crop safety and included a number of actives not currently registered on either crop.

With several of the current herbicides available to growers under threat in the next few years, it is important to look for new options to help maintain good weed control that can be confidently used on the crops without impacting crop safety.





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## **Elsoms Open Day**

focused on vegetable production. This year, Agrii is examining some of the

pre and post-emergence, on a range of drilled brassica and root crops. This work in previous years has led to planning future EAMU submissions for herbicides in vegetable crops.

## **Eurofins Blight Open Day**

Agrii attended the Eurofins Blight Open Day on 21st August. The day was an opportunity to demonstrate some of the technologies that may be important to consider in the future with the loss of important late blight fungicides such as mancozeb.

Agrii trials had a strong integrated pest management (IPM) focus, demonstrating the potential to use integrated approaches, including resistant varieties, alongside the use of biostimulants and nutritional products to help stimulate and support the plants' health at different stages of crop development.

The trials also used drift retardants to extract the maximum potential from the foliar late blight















Melody plots treated with the biostimulant Innocul8 at Eurofins

Variety resistance: on the left is untreated Melody (rating 4), and on the right is untreated Jacky (rating 9).

## **Potato Crop Production**

The future of potato crop production was a hot topic at Potatoes in Practice (PiP), the UK's largest field-based potato event that ran on Thursday 8th August in Dundee, Hosted by the James Hutton Institute, in partnership with the SRUC (Scotland's Rural College) and Agrii, the event showcased a variety of demonstrations, cutting-edge research, trade exhibits, and a wealth of knowledge from experts in the field – making it a must-visit event for those in the potato industry.



## MILESTONE MOMENT: TRAMLINES PODCAST HITS 40,000 DOWNLOADS

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- Seed & varieties
- + Nutrition
- SFI and Environmental Schemes
- + Sustainability
- + Trials
- Technology
- Machinery
- Livestock and forage
- Speciality and ornamental crops
- Biosolutions & IPM
- Mental health
- + Farm safety

We're excited to announce that Tramlines, Agrii's go-to podcast for growers looking to enhance environmental performance and maximise farm profitability, has reached an incredible milestone of 40,000 downloads!

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15 EXTERNAL INDUSTRY EXPERTS FEATURED

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- + The Reality of SFI
- + Why Less Is More for Nutrient Planning this Autumn
- Taking Action with the Latest Updates to SFI 2024
- + Should I Grow OSR This Autumn?
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**10 LIVE** 

**EPISODES** 

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