

IN FIELD FOCUS

— AGRONOMY THAT DELIVERS —



BALANCING INPUTS WITH OUTPUT POTENTIAL

Wide variations in winter crop growth and potential will make carefully tailored agronomy essential this season, say agronomists.

Depressed grain prices and fields of winter cereals and winter oilseed rape (WOSR) ranging from 'normal' to 'backward' mean that managing crops for the best economic return will be a fine balance this season, says Yorkshire-based ProCam agronomist, Gary Webster.

Fields will need assessing on a case-by-case basis, he says, and inputs tailored with a sharp focus. And with diseases having such a big impact on yield, he says creating healthy canopies will be key.

(Continued on page 2)

IN THIS ISSUE:

[Stressless spring barley](#) | [Delivering agronomy](#) | [Better beet](#)



PROCAM
AGRONOMY THAT DELIVERS™

“Ukrainian wheat has knocked about £30/t off wheat prices since Christmas,” says Gary, “and barley prices have also fallen.

“We’re finding yellow rust in later-drilled wheat varieties, and the majority of wheat is stuffed with Septoria – all in a year when there’s pressure on expenditure. A healthier crop can fight off disease better. So as well as tailored fungicide use, I think nutrition is going to be key.”

One upside of the current time, believes Gary, is that there are several new and innovative nutrition-type treatments now available to help crops.

“It’s possible to pull a crop around that’s on its knees,” he says. “Besides inputs such as trace elements and biostimulants, we have biological treatments. The endophyte treatment, Encera for example, contains nitrogen-fixing bacteria, which take atmospheric nitrogen (N) and make it directly available to the plant.

“We’re looking to replace some granular N with Encera. This is partly to reduce the carbon footprint of manufactured N use. But also, by having an N supply inside the plant, it helps to mitigate the risk of slow N uptake if we enter a dry period. It needs to be in the plant early. I’ll then do tissue testing pre-T2 and top up with what the plant needs.”



Northern England agronomist, Gary Webster, believes effective crop nutrition is going to be key this spring, with a healthier plant able to better fight off disease

Fungicide strategy

When it comes to fungicide strategies, Gary says for higher potential crops that will give better returns he will be focusing on newer fungicide chemistry, while lower potential crops will be targeted with more established, tried and tested fungicides.

Where Septoria pressure is a concern, after including a multi-site such as folpet or sulphur to reduce pressure at T0, or using Laminone which stimulates the plant’s own defences, his strategy will be to hit the disease hard with the T1 fungicide, with the aim of easing the pressure for the flag leaf (T2) spray. “Clearly, it depends on the weather.

“Where yellow rust is a concern in wheat, this will need tackling at T0 and T1. You still need to keep a watch for it at T2 but hopefully it should have been controlled by then.

“In winter barley, we mainly suffer from Rhynchosporium and net blotch in my area. The standard programme will focus on these at T1. Depending on the season, the T2 spray will be when we assess if we can ease back, although we do have to manage brackling,” he adds.

In contrast, Gary reckons WOSR management will be far less straightforward. Devastating attacks of cabbage stem flea beetle since Christmas have left wide variations in canopy size in some fields, he says, so these may end up being split treated.

“Trace elements such as boron and sulphur are a no-brainer in OSR, but lack of molybdenum can also be a real problem. A sclerotinia spray is a must-do because the disease has the potential to decimate yield. Where appropriate, an early application of a fungicide with strong plant growth regulation (PGR) properties (such as Toprex) will even the crop up and consolidates the flowering period, which can subsequently reduce sclerotinia risk.”



Controlling sclerotinia is a must-do in oilseed rape because it decimates yield, says Gary Webster

Southern perspective

Severe delays in applying early spring inputs due to the weather, and the downturn in farm gate prices, has brought added challenges this year, says ProCam Southern region technical manager, Paul Gruber. But all is not lost.

“It’s going to require a clear focus on apportioning inputs to crop output potential,” says Paul. “If there’s one thing that wheat is capable of, it’s setting grain sites fairly late into its development. Even if it has sub-optimal tiller numbers, below 600-800 per square metre, winter wheat can compensate for that to a certain extent. But to facilitate this, the most important thing to avoid is under-dosing N.

“Clearly, if a crop has low potential across the field you don’t want to apply the quantity of fertiliser that you ordinarily would. But what you can do is try to work out its yield potential, then calculate how much fertiliser you need to achieve that, because we know how much it’s going to take-off in terms of nitrogen, phosphate and potash.

“The other thing to note is that where soil testing has been done, results are showing soil N levels are 20-30kg/ha lower than usual after all the rains. So that also needs factoring into calculations. We’ll either have to apply an extra 20-30kg/ha of bagged N or look to

a product such as Encera to fix N and redress the balance, especially where people have already bought their bagged N requirement.

“If ever there was a year for Encera this is it – it’s a perfect storm because soils don’t have the reserves of N and plants don’t have the root structures to search it out.”

Fungicide investment

From a disease control viewpoint, Paul agrees with Gary in using newer fungicides on higher yield potential crops and more established materials on crops with lower potential.

“It’s tempting for crops to not receive their normal fungicide investment, but there are important nuances that need taking into account. A lot of stressed crops have yellow rust, so something is going to have to be done about that.

“There’s also a lot more mildew about than in recent seasons, which is going to need specialist attention. And Septoria is widespread, especially in early-drilled crops, irrespective of variety, so that will certainly need managing.

“To get the best from fungicide investments, it’s also going to be crucial to achieve accurate spray timings. With a wide range of drilling dates, leaf three might be emerging at GS32-33 in a



Observations at ProCam’s main trials hub in Yorkshire last season underlined the impact that drilling date has on Septoria levels. Pictured left to right: untreated Septoria on leaf 2 in September, October and December-drilled winter wheat

September-drilled wheat, but GS31 in a late-drilled one. Therefore don’t be dictated by calendar date or node stages. You’ve got to dissect plants to identify the correct leaf layers.”

Paul points out that while wheat can compensate for reduced tiller numbers fairly late into the season, winter barley cannot. “If winter barley crops haven’t developed enough tillers, yields could be disappointing. When they do take up N, it will lead to leggy growth and thin stems, so attention to detail with plant growth regulators will be key.”

Conversely, he says WOSR is one crop that looks okay in his region, although weed numbers are high where people have not been able to apply herbicides. “There doesn’t seem to be a lot of cabbage stem flea beetle damage, but in patchy crops I’m using NDVI to tailor N applications.”



ProCam agronomists agree on a strategy of focusing newer fungicides on higher potential wheat crops and more established, tried and tested materials on crops with lower potential



If ever there was a year for the endophyte treatment, Encera, this is it, says Paul Gruber, because soils don’t have the N reserves and plants don’t have the root structures to search it out

Minimise crop stress for spring barley success

Safeguarding yield and quality will be pivotal for profitability in what could be a competitive spring barley grain market this harvest.



Spring barley crops on wet, heavy land originally destined for winter wheat could be particularly susceptible to early stress, said Justin Smith

In particular, proactively minimising stress on the crop after the wet winter could be key.

That was the message from an industry briefing organised by ProCam recently, and featuring the company's agronomy experts from England and Scotland.

"Spring barley needs to hit the ground running," explained ProCam regional technical manager for East and South East England, Justin Smith. "But it's also a crop that's very sensitive to stress. Soils and seedbeds compromised by wet weather aren't the perfect entry for it, and crops on heavy land originally destined for winter wheat could be hardest hit.

"Minimising nutrient stress and stress caused by poor rooting will be key."

Soil testing

To minimise nutrient stresses, ProCam regional technical manager in Scotland, Alistair Gordon, urged growers to begin with soil testing that gives information on the levels of soil nutrients actually available to the plant.

"Manganese, copper and zinc are typical trace elements that need addressing in spring barley," said

Alistair. "Lack of copper and zinc can reduce yield by restricting grain numbers in ears. I've had situations where good doses of these have been applied, but harvest grain analysis still showed they were lacking.

"I normally add nutrition products twice – with the post-emergence herbicide and with the first fungicides – as two lower doses are better than one hit. As well as applying nutrients, I think it's a good idea to stimulate rooting so the plant can better access nutrients and moisture from the soil."

To boost rooting and help early utilisation of nitrogen, Alistair said he has had success with an early dose of the foliar-applied phosphite and pidolic acid treatment, Incite, with independent evaluation showing lateral root length boosted by over 40%.

"We've also been looking at the seaweed and amino acid-based biostimulant, Zodiac, with results showing similar root length benefits, but with amino acids providing good stress mitigation properties.

"If you find yourself with a thin spring barley crop with a poor plant stand, either from difficult seedbed conditions or a low seed rate, a biostimulant can also improve

tillering, helping to fill in the gaps.

"By alleviating stress, you also aid the plant's natural disease defences. Ramularia symptoms, for example, are triggered by stress."

Shallow rooted

After the winter rains, Alistair said crops could be shallow rooted – disastrous if the summer turns excessively dry. "That's when improved rooting to scavenge soil moisture becomes important. Too often, biostimulants are applied after crops are already suffering drought stress, but they need applying before then to see a benefit," he added.

Justin Smith said applying a suitable plant growth regulator (PGR) can also improve rooting plus stem strength, although PGRs need tailoring to individual fields.

"As well as the variety's lodging risk, factors such as fertile sites,



As well as applying nutrients, it's a good idea to stimulate rooting, said Alistair Gordon, so spring barley can better access soil nutrients and moisture

exposed sites, and higher nitrogen (N) rates also increase lodging pressures. If applying less N for lower grain N malting markets, lodging pressure should be lower. However, later-planted spring barley can be at greater lodging risk because it races through its growth stages, creating weaker stems. Because it's harvested later, it's also exposed to later adverse weather," Justin said.

Collaboration key for on-farm results

Partnership

Trusted advisor

Responsive

Mutual decisions

Holistic approach

Sharing knowledge

Moral support

These are some of the phrases that come up in conversation with County Durham farmer, William Maughan, and his ProCam agronomist, Nigel Scott, when asked how they work together.



County Durham farmer William Maughan says he appreciates the holistic approach that Nigel and ProCam are able to bring

Farming a total of 200ha (500 acres) at Denton Grange near Darlington, as well as arable cropping, William's business includes a large laying hen enterprise and beef cattle.

Nigel has been servicing the business for 25 years, previously working with William's father, before William returned from college.

William says he appreciates the holistic approach that Nigel and ProCam are able to bring.

"The biggest turn off is if you have someone who's just coming to sell you something," William explains. "It's having that trusted advisor that's important, but also moral support.

"It's awkward trying to do your own agronomy because you only look at your own acres. We're also having to make decisions faster."

Visiting the farm regularly, Nigel sees it as a partnership approach

and is focused on helping the business both short and long-term. ProCam agronomists bring a people-based philosophy, he says, while being able to share knowledge from trials and experience on other farms.

"We have to be responsive to what's topical," Nigel explains. "Agronomy is the science of crop production, so the role is extremely varied. It can range from interpreting and explaining the science around a new product and how to use it, to strategies to keep erucic acid levels low in oilseed rape to help with end market planning.

"You've got to push gently sometimes, but we make mutual decisions. We work closely. The farmer knows the farm better than anyone; we're here to give guidance."



We have to be responsive to what's topical; agronomy is an extremely varied role, says ProCam agronomist, Nigel Scott (left) who has been servicing William's farm business for 25 years

Fit for the future

As well as day-to-day and field-to-field technical recommendations on agronomy, crop protection and nutrition, Nigel helps William in areas such as rotation planning, variety choice and seed rates. But he also takes a keen interest in wider strategies to help the business remain fit for the future, and has worked with William and his business to evaluate new technologies and techniques that can benefit the farm.

These have included field testing of ProCam's advanced soil analysis and nutrient planning service, SoilSense, which has allowed more targeted nutrient use, and a large-scale wheat trial evaluating solutions to improve nitrogen (N) use efficiency – for example by using nitrogen-fixing bacteria.

William says: "This is big picture stuff. I'm interested to see if we can add more yield if we use full rate N, and if we can plug the gap if we reduce N use. If fertiliser prices increase, I'll be looking to cut back N and find alternatives.

"We're not trying to be an early adopter, but we do want to improve. Our carbon footprint is also important."

Nigel agrees: "Farming faces challenges – for example environmental issues and market volatility – but also opportunities. As we learn from this trial we'll develop even better nitrogen use strategies. It's an example of agronomist knowledge and farmer knowledge working together."

Experience underlines early foliar nutrition in sugar beet establishment



Early applications of foliar nutrition could be key to helping this year's sugar beet crops establish after the effects of the difficult winter.

That is the message from experienced Eastern counties agronomist, Ian Jackson of ProCam, who says slumped soils caused by heavy rainfall have caused havoc for creating good seedbeds, with poorer seedbeds, in turn, potentially delaying sugar beet emergence.

And even though emergency authorisation for neonicotinoid seed treatment use on sugar beet seed has been granted this season, early foliar nutrition could still be an important agronomic tool to help crops grow past their most vulnerable 12-leaf stage for aphid-borne virus transmission, he adds.

"It's important that sugar beet achieves full ground cover as quickly as possible," explains Mr Jackson, "not least to allow it to

intercept maximum sunlight. But in many ways, sugar beet starts with a problem - in that it is drilled into cooler soils, which are unable to supply sufficient nutrients in its seedling stage.

"Even after an autumn maintenance application of phosphate (P) and potash (K), spring applications of these macronutrients are still required to counter the soil's inability to supply adequate levels. However, soil-applied P can become locked onto the soil before it has achieved its goals, and K needs to be applied ahead of drilling to avoid seedling scorch, but the compaction from an extra set of wheelings can cause up to a 30% reduction in yield."

In response, to give sugar beet

crops an early boost, Mr Jackson suggests applying a multi-nutrient foliar treatment with the first two herbicide sprays, such as Pro+ NutriBio. This provides a balanced range of macro and micronutrients complimented with brown seaweed extract, he says, before switching to a polymer urea treatment, Pro+ N-Viron PCA, plus boron with the third herbicide spray, to supply a sustained release of nitrogen (N) to help expand the leaves across the rows.

"In farm observations, this approach has significantly increased the speed of ground cover over the last three years," says Mr Jackson. "Last year, treated crops grew through the early 30 degree heat which stopped most crops in their



Sugar beet needs to achieve full ground cover quickly to allow it to intercept maximum sunlight, says ProCam agronomist, Ian Jackson, and at the 12-leaf stage it starts to become less vulnerable to aphid-borne virus transmission

tracks for three weeks. Other crops give very good responses to foliar urea polymers, but sugar beet seems to be in a different league.

“Indeed, two growers used no solid N for a second year as they were impressed with how Pro⁺ N-Viron had performed previously when N was uneconomical to purchase. These crops also performed slightly better than most crops in their areas with a much reduced cost and prospects of carbon reduction income in future.

“Including boron at this stage is a very pertinent consideration this season after the wet winter because it’s very leachable. Boron is needed during rapid cell division and deficiencies result in heart rot

in sugar beet, something which is critical to avoid.”

Where aphicides are being applied to target virus transmission, Mr Jackson says these must be applied according to when aphid thresholds have been reached.

To maximise spray coverage, water volumes should be kept up and angled nozzles used, he notes. “Good spray coverage is needed on each leaf in order to get the best protection, and consider taking the opportunity to also apply manganese.

“Sugar beet is very sensitive to manganese deficiency. It’s a nutrient heavily involved in photosynthesis, so deficiency is a real issue in a crop that’s harvesting light to produce sugar.”



Ian Jackson has had successful results with early applications of foliar nutrients for accelerating sugar beet ground cover

Investment in fodder beet can maximise returns

Fodder beet should be a serious consideration for livestock farmers this spring, given its potential to be the highest yielding of UK-grown forage crops and the cheapest per unit of energy produced.

So says ProCam’s Rhys Owen, who outlines a number of key management points and recent advances in agronomy that will help to ensure success.

“Achieving its typical potential of around 25 tonnes of dry matter (DM) per hectare, fodder beet can work out at as little as 5-6.5p/kg DM, which can be about a third to half of the cost of grass silage, or compares with about 8-10p/kg DM for kale,” Rhys explains. “Fodder beet is a crop that requires investment and attention to detail. However, done right, it can be the most cost effective forage crop available.

“It is a multi-purpose crop, in that it can be grazed in situ or lifted. Fed in situ, it has the potential to extend grazing seasons, or to be utilised as part of an out-wintering system for cattle or sheep.”

Fodder beet is drilled earlier than most other forage crop options, with the optimum sowing period

being mid-March to the end of April, says Rhys, so should therefore be established before the greatest risk of dry periods that can hamper later-drilled crops. In all cases, site selection is the first consideration, he says, then it’s important to prepare

the right seedbed.

“Light and medium bodied soils that are free draining are best, with a pH of 6.5 or higher. For optimum establishment and crop growth, create a seedbed that’s fine and firm in the upper 5-7cm, with a more



For grazing cows, use a proven medium dry matter variety like Geronimo, says Rhys Owen of ProCam

open structure below to allow root development.

“If you are intending to graze the crop in situ, it’s important to plan ahead of drilling in order to optimise the layout. If planning to transition cattle on to beet, leave a 6m headland to allow them space. Also, drill in a direction that enables the fence to be positioned along the rows, which simplifies allocation of the crop to all stock. If the field is sloping, always aim to



Where a crop is destined for grazing, fertiliser application and disease control should be geared towards maintaining green leaf growth longer into the season, says Rhys Owen

graze downhill.”

Maximising returns from fodder beet also depends on choosing varieties based on trials performance and their suitability for the required end use, adds Rhys.

“For grazing cattle, use a proven medium DM variety like Geronimo, whereas if it’s for sheep or young cattle you’ll achieve better utilisation by going for a variety that sits out of the ground more, with a lower DM, such as Lactimo. In all cases, I’d recommend using primed (pre-germinated) seed, as this will result in a faster and more even establishment, with the crop reaching canopy closure more quickly.

“Primed seed is an important advance in fodder beet growing. It should be used alongside a number of other significant agronomic improvements in order to achieve full potential.

“For example, where a crop is destined for grazing, fertiliser application and disease control should be geared towards maintaining green leaf growth longer into the season, boosting overall yield and protein content,” he says.

“Fodder beet has a total nitrogen

(N) requirement of about 200-240kg N/ha, compared with 120-150kg N/ha for traditional beet. But with the right inputs at the right time, fodder beet can out-perform any other forage crop and be your most cost effective autumn and winter forage.”

Five steps to success with fodder beet

- Suitable site and seedbed
- Plan field layout ahead of drilling
- Grow proven varieties compatible with end use
- Primed seed
- Tailored agronomy

Comprehensive guidelines on growing and feeding fodder beet are available through ProCam’s Field Options website:

[www.field-options.co.uk/
technical-information/
category/growers-guidelines](http://www.field-options.co.uk/technical-information/category/growers-guidelines)

Find out more

For more information about any of the products or services mentioned in this edition of In Field Focus, please visit the ProCam website at www.procam.co.uk or contact our Customer Services Team on 01954 712150.

In addition to a UK-wide team of on-the-ground agronomists who can help you get the most from your cropping enterprise, ProCam also offers the following products and services, backed-up by a UK trials and research programme:

- Crop protection advice and solutions
- Biological products and biostimulants
- Rotation planning, seed selection and variety analysis
- Crop financing
- Nutrient management advice and solutions
- Soil health, variety selection and establishment advice
- Precision farming services including field mapping, farm data collection, soil and crop analysis and business benchmarking



PROCAM

AGRONOMY THAT DELIVERS™

ProCam UK Limited

2020 Cambourne Business Park, Cambourne, Cambridge, CB23 6DW

Tel: 01954 712150

www.procam.co.uk



@ProCamUK

The ProCam orb and ‘Agronomy that Delivers’ are trademarks of ProCam Europe Ltd.