



PROCAM

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AGRONOMY THAT DELIVERS®

CHALLENGES FAVOUR LATER DRILLING

Septoria, BYDV and blackgrass challenges could all be eased by drilling winter wheat later, visitors to ProCam's Yorkshire open day heard.

The looming ban on chlorothalonil, coupled with the loss of neonicotinoid seed treatment chemistry against BYDV-carrying aphids, will push more people into drilling winter wheat later this autumn. But it is important to approach

it carefully and be aware of the wider implications.

That was the message from ProCam technical experts at the company's flagship trials open day at Stockbridge Technology Centre, Cawood, south of York, this summer.

With around 400 ProCam trial plots, the aim of the site is to identify how to get the best from variety decisions in the face of fresh agronomic challenges, said ProCam northern region technical manager, Nigel Scott.

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CHALLENGES FAVOUR LATER DRILLING

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For farms affected by it, blackgrass now increasingly requires later drilling to reduce populations, Nigel explained, and heightened Septoria and BYDV challenges are set to add to this need.

Nigel said: "Losing chlorothalonil will have a big impact. A variety with low resistance to Septoria tritici drilled here at the site on 27 September already had Septoria on the flag leaf in early June. And any fungicide programmes without chlorothalonil were giving poorer control."

"As well as evaluating how different varieties perform with later drilling, we have also evaluated a whole range of fungicide options, so we can advise on the best management programmes."

ProCam head of crop

production, Mike Thornton, said delaying drilling until after peak aphid activity declines will be a key foundation for reducing BYDV pressure without a neonicotinoid seed treatment this autumn.

Yield impact

Last year at the Cawood site, ProCam examined the impact on yield of drilling 16 different winter wheat varieties progressively later at increasing seed rates: using 200 seeds per metre squared when drilled in September, 300 in October, 400 in November, and 500 in December.

Mike Thornton said: "Even with increasing seed rate, it was clear there was a yield penalty from later drilling. However, what was interesting was the way this yield tail-off varied between different varieties. With some, the drop-off was linear. With others, there was an initial drop, but



Losing chlorothalonil will have a big impact, said ProCam northern region technical manager, Nigel Scott

then they held on to their yield better as drilling moved later.

"This shows the importance of looking beyond a variety's top line yield figure. A variety that looks 1-2% lower yielding on paper, when drilled later, could end up giving you a better crop."

Examining results from the site from the 2018/19 season, ProCam trials officer, Jodie Littleford, said more detailed assessments had revealed further clues as to how delaying drilling impacts on the development of different varieties, and on the progression of fungal disease.



Varieties can vary markedly in how yield declines with later drilling, ProCam head of crop production, Mike Thornton, explained

DRILLING DATE TRIAL CAWOOD 2018





Later drilling resulted in reductions in T1 to T2 intervals, but effects varied between varieties, said ProCam trials officer, Jodie Littleford

Later drilling generally resulted in reductions in plant numbers and tiller numbers and tended to reduce disease, but these effects again varied between varieties, she stressed.

For example, she said it was possible to have a variety that was relatively resilient to reductions in plant stand or tiller numbers with later drilling, but which showed no reduction in disease – ending up with around 2-3 times more disease than other varieties when drilled in December.

“This type of variety may not be one to go for if you’re looking to reduce your fungicide spend,” commented Mike Thornton, “or one to put your whole farm into if concerned about getting round to spray your whole wheat area on time.

“Further north, the impact that later drilling has in delaying harvest also becomes more of an issue.

“For example, the feed wheat Graham has a maturity rating of zero on the AHDB Recommended List, which suggests it is average. In reality, its growth speeds up compared with other varieties, so it’s not that late maturing. Also, because it’s got a good Septoria tritici resistance rating, it’s one to consider.”

Fungicide interval

Further ProCam monitoring had examined the impact of later drilling on the interval between T1 and T2 fungicide spray timings, and had again shown variation between varieties, Jodie added.

Variety Lili started off with an

interval at 20 days if drilled in September, reducing to 15 days if drilled in December, she pointed out, while Gleam’s T1 to T2 interval was two days shorter than Lili’s for September, October and November drillings, but the same when drilled in December.

Mike Thornton explained:

“As drilling shifts later, the interval between growth stages gets compressed.

“A longer T1 to T2 interval may require a higher fungicide spend at T1 to maintain protection to the T2 timing. A variety with a shorter interval means the T1 fungicide is less likely to run out of steam by T2. That’s useful for staying on top of Septoria tritici, given the lack of curative activity we have with fungicides nowadays. The proviso is that you don’t let the shorter interval lull you into thinking it’s okay to delay the T2.

Seed rates

“The other thing to consider is the cost of higher seed rates when drilling later. This may actually be less than having to spend more on fungicides to control higher levels of disease when drilling early,” he added.

“There are other practical implications of later drilling, of course, such as still being able to get on your land if you have heavy soils that hold moisture. But there’s no doubt there are now more reasons to do it.”

Hybrid alternative

The feasibility of growing hybrid barley rather than a conventional variety as a way of pushing winter barley drilling slightly later in response to BYDV and blackgrass issues, was also being investigated by ProCam at the site.

“Hybrids have strong rooting, so we wondered whether we could push drilling date later than with a conventional variety,” Mike Thornton explained.

“Observations suggested hybrid drilling could be pushed into early November in suitable conditions at this site. You also get greater crop competition against blackgrass from hybrid barley than from second wheat,” he said.

Later drilling

Potential benefits

- Less blackgrass
- Lower fungal disease pressure
- Reduced aphid / BYDV risk

Implications

- Reductions in plant stand, tiller numbers, disease, T1 to T2 intervals, and yield can vary between varieties
- Potential for later harvest
- Potential issues getting on the land

Source: ProCam

Future-proofing farming

As crop production faces a number of challenges – such as chemicals being withdrawn, legislation and environmental pressures – ProCam is developing a new initiative to help.

ProCam has long-believed that good agronomy doesn't just come in a pesticide bottle, says the company's regional technical manager in the south, Paul Gruber.

Accordingly, as the latest challenges that make crop growing more difficult start to bite, the company is well placed to offer alternative strategies, he believes.

"A new initiative that we are developing – ProCam Future Solutions – looks not just at utilising crop protection inputs, but also how the crop protection treatments that remain can be integrated with wider cultural techniques," explains Paul. "These include

such things as sowing date decisions, cultivation methods, crop and variety choices, and effective use of nutrition and bio-stimulants, to provide a more holistic approach.

"The concept draws on wide practical experience gained with commercial crops, as well as findings from trials."

Flea beetle example

As an example, Paul says a key challenge faced by many growers again for the harvest 2020 season is managing cabbage stem flea beetle (CSFB) in oilseed rape without a neonicotinoid insecticide seed treatment.

Problems with CSFB were widespread during the 2018/19 season – made worse by slow crop growth over the dry autumn. The problem



Cabbage stem flea beetle is just one example where the ProCam Future Solutions initiative is being developed to help, says Paul Gruber

would have been further compounded, he says, if there were other factors in the field that had a detrimental effect on WOSR growth.

"There's no single solution to flea beetle," Paul continues. "It requires multiple steps. Evidence is also still in its

PRIORITISE YOUR RISKS

If facing multiple problems from flea beetles, slugs and clubroot, it is important to begin by identifying which is your biggest risk, says Paul Gruber.

This is because some practices that help against one problem may exacerbate others. For example, drilling early against slugs can increase CSFB pressures as well as clubroot risk, he adds.

infancy and often based on field observation. What works one year may not be ideal the next. Cultivations, for instance, can exacerbate flea beetle problems but may sometimes be necessary to break up compaction. So you need to know which is your biggest establishment risk.

“As a rule of thumb, however, creating conditions that are unfavourable to flea beetles but which aid rapid crop growth and establishment will help.

“Ideally, aim to get the crop to two true leaves as soon as possible. At this stage, it becomes more resilient to

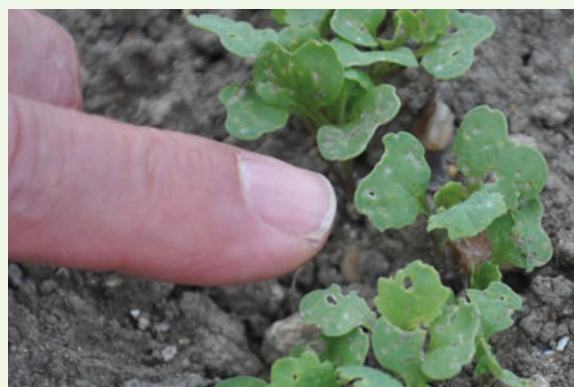
adult flea beetle damage. By five leaves, crops are also building a good root mass, and healthy plant stands with thicker root collars are more resilient to flea beetle larval invasion,” he adds.

In line with these overall principles, Paul suggests the following approach:

Creating unfavourable conditions for CSFB

- ✓ Consider leaving trash – since higher trash levels seem to reduce CSFB
- ✓ Drill at the optimum number of seeds per metre squared. Thinner stems created in denser canopies are easier for larvae to penetrate, compared with thicker-stemmed plants produced with lower seed rates. Note, lower plant densities need careful management as there is less margin for plant loss
- ✓ Choose varieties carefully (also see below). Field observations suggest CSFB is less attracted to certain varieties, which in turn suffer less damage
- ✓ Spraying – it is unrealistic to expect 100% flea beetle control with insecticide sprays.

Also, a lot of the effect may be down to repellence, rather than control of beetles – e.g. there is evidence suggesting lambda-cyhalothrin has a repellent effect. Consider also adding an adjuvant to the insecticide (including a water conditioning agent to maximise active ingredient availability)



Early signs of cabbage stem flea beetle attack

Achieving rapid crop establishment

- ✓ Where possible, use minimal cultivations to conserve soil moisture for germination. For the same reason consider rolling. Field observations consistently demonstrate that establishment on headlands, where consolidation is greatest, is significantly better
- ✓ Look at drilling techniques (e.g. precision drilling) to boost germination by minimising soil moisture loss and by achieving good seed to soil contact for moisture and nutrient uptake
- ✓ Choose the optimum drilling date: late enough for adult beetle numbers to decline but early enough that soil temperature is sufficient for rapid establishment. In some situations this may be mid-September. There is a clear correlation between early drilling and increased CSFB larval invasion, but (as stated above) if the stem is thick enough it

seems better placed to withstand it. Late plantings (from mid-September) can get away from the main adult migration but may have compromised establishment

- ✓ Consider a fast-establishing variety, such as a hybrid, which also facilitates planting at lower seed rates. A Clearfield hybrid also provides a way of controlling high erucic acid volunteers and brassica weeds, as well as removing risk from sulfonyl urea herbicide residues
- ✓ Consider early nutrition – such as the phosphate + trace element treatment Umotart in the seedbed, or utilising the biostimulant activity of Canola Bio following emergence, both of which will help rooting so the crop gets away faster. The benefit of the seedbed application is that nutrients get straight into the plant. ProCam data also shows early sprays of boron and molybdenum act like an antifreeze, so crop growth doesn't shut down as sharply during winter

Small gains can add up to big results

Many of today's agronomic challenges have no single solution. But combining the right variety with other measures can help.

That is the message from Will Miller, seeds manager for Geoff Williams Seeds.

By 'stacking' together multiple small gains – for example from careful management of rotation, cultivation, crop protection, nutrition, and plant genetics – he says they can all add up to help against key challenges. He highlights three examples where modern genetic traits have a role.

Septoria tritici resistance

"The withdrawal of chlorothalonil will clearly increase the risk of severe Septoria tritici infections," says Will. "It will also increase the risk of alternative fungicide chemistry becoming less effective against the disease.

"Growing varieties with greater resistance to Septoria tritici will reduce these risks. It will also offer growers some leeway with fungicide spray timings in certain circumstances. This is particularly relevant given increasingly unpredictable weather," he adds.

To help with this decision-making, Will has plotted the

treated yields of a selection of key winter wheat varieties on the 2019/20 AHDB

Recommended List against their rating for Septoria tritici resistance (see chart).

For this autumn, he says there are now varieties within the upper right quadrant of this chart – i.e. varieties offering a strong balance of Septoria tritici resistance and yield potential – to cover all the major end markets.

"They also include a range of different strengths on light or heavy soils and as first or second cereals. Two of these varieties also have orange wheat blossom midge resistance," he adds.

TuYV resistance in OSR

A persistent mode of transmission, coupled with a range of host plants and the absence of very low winter temperatures, have all contributed to an increase in turnip yellows virus (TuYV) in oilseed rape, believes Will.

In addition, the absence of neonicotinoid seed treatments plus increasing resistance to pyrethroids and the imminent

withdrawal of pymetrozine, all mean that control of aphid vectors of TuYV will become increasingly difficult, he notes.

"New varieties with resistance to TuYV are now demonstrating significant yield advantages over non-resistant counterparts. In the UK's National List 2 trials last year, the average gross output of all hybrids with TuYV resistance was over 5.5% higher than the average of all non TuYV resistant hybrids. Some of these varieties now also include top levels of light leaf spot and phoma resistance," he says.

Clearfield establishment boost

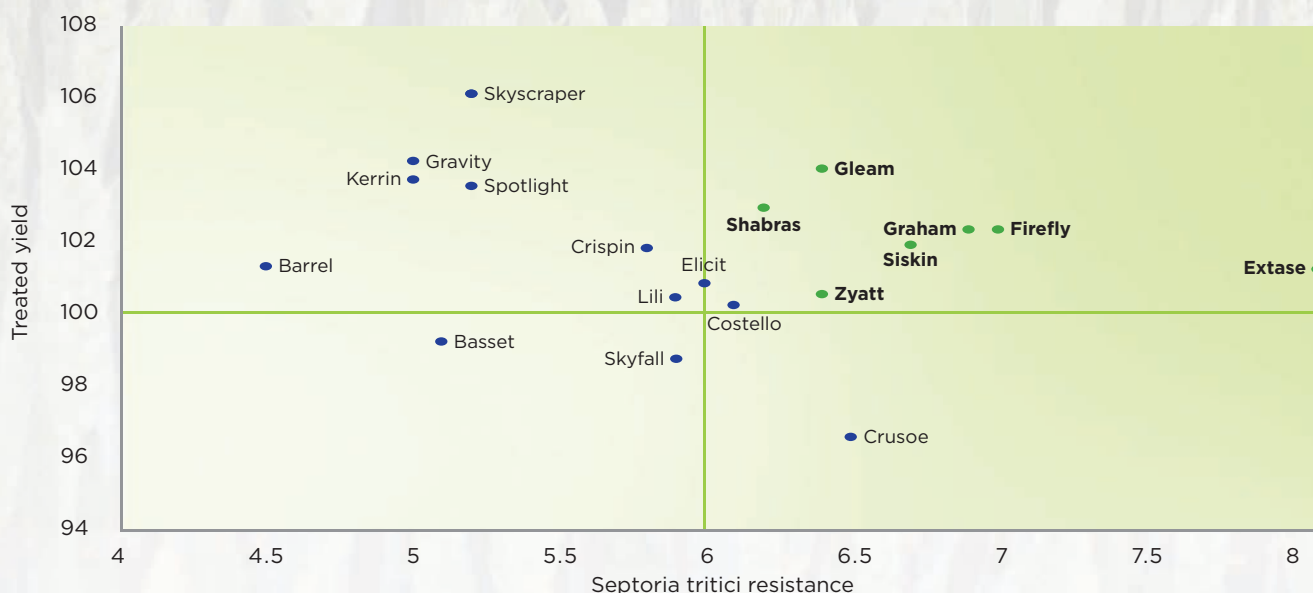
The headline benefit of the Clearfield oilseed rape system is control of cruciferous weeds and non-Clearfield volunteer OSR, says Will.

Indeed, while cruciferous weeds are the main cause of high erucic acid levels, even if these weeds are not present, then historical 'OO' volunteer OSR plants could still push erucic acid levels above the 2% maximum limit predicted to come into force ahead of the 2020 harvest, he believes.

"However, another benefit of the Clearfield system is the vigorous OSR establishment that can be achieved even if some sulfonylurea herbicide residues remain from the previous cereal crop. Quick establishment is obviously crucial to give the crop the best chance against cabbage stem flea beetle," he adds.

Figure: Plot of treated yield versus Septoria tritici resistance

(extract from AHDB Recommended List 2019/20)



Collaborative approach 'treats forage as a crop'

Treating forage as a crop is often cited as an important step in improving returns on mixed and livestock farms. Through collaboration, Field Options agronomist Gareth Williams and grassland consultant Nigel Howells are demonstrating the value of this.

From soil analyses through to weed control, the pair are helping farmers across south and west Wales maximise production from grassland and an increasing range of fodder crops, including fodder beet, brassicas and legumes.

One unit where their input is proving beneficial is Frowen Farm, Whitland, Pembrokeshire, where sheep farmers Ben Anthony and Diana Fairclough have overhauled operations in recent years to significantly increase their output per hectare.

A fresh approach from the couple, who took over the unit from Diana's parents in 2010, has included a shift to Innovis sheep genetics and a real focus on forage crops, but it all started with a good look at the soil. The whole farm is routinely tested, and a nutrient management plan is in place, with issues such as low pH and compaction having been addressed from the outset.



Gareth Williams (right) and Nigel Howells combine their expertise and have drawn on Farming Connect pasture improvement project resources to provide forage crop solutions

"Soil sampling is one of the best investments many farmers will make, as problems such as low pH or trace element imbalances are relatively common and often easily rectified," says Gareth. "Even the most detailed sampling and analysis, which I'd recommend in most cases, will cost only a fraction of what would be invested in grassland reseeding, so it makes absolute sense for soil testing to be the first step."

At Frowen, soil testing was followed by grassland improvement, with modern productive grass and white clover mixtures supplied by Field Options now forming the basis of a rotational grazing platform. Other forage crops are also playing a part, with swedes providing cost-effective winter fodder for in-lamb ewes and hybrid brassicas, forage rape and stubble turnips providing seasonal fodder and performing as effective break crops between grassland reseeds.

This intensification of

forage production, including the use of rotational grazing, has allowed flock size to increase from 550 up to 750 in the past two years, boosting overall productivity significantly.

"Whether its grassland, swedes or a leafy brassica, the key is to treat everything as a crop, firstly ensuring soil conditions are right and then managing the nutrition, pest threats and weed control as you would a cereal, for example," adds Gareth.

With Nigel taking plate meter recordings across the rotational grazing platform on a fortnightly basis, to provide the necessary data for effective grazing management, he is ideally placed to assess other issues and access agronomy expertise from Gareth.

"By taking pictures on my phone and sending these across to Gareth, we can quickly assess a problem and take prompt and effective action," explains Nigel. "It might be a heavy burden of docks in a silage ley, or signs of nutrient deficiency in a swede crop. Quick and decisive action, made possible by regular monitoring and information sharing, is often essential in order to maximise the crop's performance and the returns achievable from forage."

As a Farming Connect demonstration farm, Ben Anthony and Diana Fairclough initially worked with Charlie Morgan to increase productivity with an overhaul of sheep genetics and a focus on forage

Staying afloat against a tide of blackgrass

Sunk Island grower Matthew Wright is leaving nothing to chance to stay afloat in his battle against blackgrass.

Farming on heavy land at Whitehouse Farm on Sunk Island, East of Hull, is by no means easy when it comes to blackgrass.

The farm's silty clay soils, originally reclaimed from the River Humber, provide ideal conditions for this formerly marshland weed.

Add in estimated populations of 500-700 blackgrass plants/square metre, double R target site resistance and triple R enhanced metabolism resistance, and things get even tougher.

It was against this background, plus declining control from post-emergence sulfonylurea chemistry, that Matthew Wright and his ProCam agronomist, John Sissons, decided to take a serious stand against the weed five years ago.

Making changes in key areas of cultivations, drilling date, cropping and herbicides, the efforts are paying off. But it's taking determination.

As well as straightforward steps, such as blowing out the combine to minimise seed spread between fields, it has

also involved brave steps – including pushing winter wheat drilling to the absolute latest on land that becomes virtually unworkable after autumn rains.

“We’re fighting blackgrass and the weather,” explains Matthew, who farms with his father, Michael.

“We have to get land worked straight after harvest, otherwise we spend a fortune trying to create a seedbed once it gets wet. We prepare stale seedbeds and spray off as much blackgrass as possible, but then drill as late as we dare.

Month's delay

“Previously, we used to start drilling winter wheat by 15 September. At first, we delayed until 25 September, but that didn't make much difference, so we pushed into October. Three years ago we started on 26 October. We daren't go later, but that month's delay resulted in a lot less blackgrass,” he adds.

In tandem with later drilling, attention has also been put into suppressing blackgrass



Spring wheat has been dropped from the rotation in favour of peas, but Matthew Wright pushes winter wheat drilling as late as he dares

through crop competition. This has included growing more winter oilseed rape and introducing vigorous-growing hybrid barley, as well as tripling winter wheat seed rates from those used when planting in September to now drilling at 400-450 seeds/square metre.

“We put extra seed in for the smothering effect,” explains ProCam's John Sissons, “accepting that we may need more PGR to cope with increased lodging.

“Winter wheat varieties are supposed to vary in their competitiveness against blackgrass, but I've found a bigger effect from seed rate and drilling date. Oilseed rape also allows different herbicide chemistry to be used than in



High populations of resistant blackgrass prompted serious action to be taken at Whitehouse Farm

cereals, and Matthew has found OSR outcompetes blackgrass better when it's thickly sown."

However, while OSR does help, it has been the results from hybrid barley that have been particularly impressive – not just its ability to out-compete blackgrass, but also its yield.

"We've had hardly any blackgrass in the hybrid," explains Matthew. "We've also had 0.75 t/ha more yield from the hybrid than conventional barley. The hybrid's seed rate was also about half that of the conventional, so its seed cost per hectare has been lower."

Spring cropping

As well as winter cropping changes, spring cropping has also been introduced to break the cycle of autumn-germinating blackgrass. Originally trying spring wheat, this has now been superseded with peas.

Cropping is now either a three or four-year rotation of winter oilseed rape, followed by one or two winter wheats, then winter barley or peas.

Winter wheat varieties chosen also include earlier-maturing types, such as Graham, Gleam and Shabras, to allow a longer period after harvest for stale seedbeds. "We usually get two kills with glyphosate in stale seedbeds after winter wheat," Matthew explains.

Reviewing the farm's herbicide strategies, John Sissons says post-emergence

sulfonylurea use has been stopped in winter wheat against blackgrass, and replaced entirely with a residual herbicide stack.

"A trial revealed that post-emergence sulfonylurea chemistry was giving very little control on this farm," says John, "and residuals were giving the most."

"The majority of that residual control comes from an



Compared with conventional winter barley, hybrid barley has given improved blackgrass suppression, says grower Matthew Wright, as well as yielding an extra 0.75 t/ha and working out at a lower seed cost per hectare

application within two to three days of drilling. However, because some blackgrass germinates in spring, we also go back with more residual in February. This tops up the autumn programme and

extends the longevity. Money is better spent doing this than on applying a contact herbicide on this farm."

Even though the spray target for residual herbicides is the soil surface, attention is still paid to achieving good coverage, which is prioritised over faster spraying. This has included increasing water volumes from 100 to 200 l/ha, spraying at 8 rather than 14 kph, and using Defy 3D nozzles. All this adds up to less turbulence and less drift and more even application, Matthew believes.

Final step

But while herbicides provide the final step in the farm's blackgrass management strategy, cultivations provide a foundation. Cultivations have been planned to bury shed blackgrass seed and then keep it buried. Focus is also put on achieving good drainage to avoid the soggy conditions that blackgrass thrives in, and any disturbance of the final seedbed, once prepared, is kept to a minimum to reduce blackgrass germination in the crop.

"Having moved away from ploughing every year to ploughing one year in four, we're now going back to ploughing a bit more often," says Matthew. "It seems to give better results. However, we're reducing the depth of ploughing, so that we don't simply bring blackgrass seed back to the surface that we've buried before."

"We also check the drains every year to make sure they are free-flowing. And subsoiling helps with the drainage: we subsoil whenever we prepare stale seedbeds."

"Drilling is then with a 6-metre Vaderstad. But apart from autumn 2018 when it was dry, we've stopped rolling after drilling because we found it made blackgrass worse. I think it was increasing the seed to soil contact to the benefit of the blackgrass," Matthew concludes.



ProCam's Ian Jackson (right) has worked closely with Stephen (centre) and Jon Eayrs to find an effective oilseed rape drilling solution

Drill adaptation aids rape establishment

Establishing oilseed rape can be challenging under any circumstances, but to achieve consistent results on heavy land where blackgrass is a perpetual menace requires extra dedication.

That's certainly the position for Cambridgeshire farmers Robert Eayrs & Partners who are on a mission to perfect a drilling method that will deliver even plant populations – season after season – and give an important crop the start it needs to hold its own in the rotation.

Working with their ProCam agronomist Ian Jackson, the Eayrs have settled on a drill type and carried out their own adaptations to create the best possible seedbed conditions and row spacing for oilseed rape whilst minimising overall soil disturbance.

"I'd seen tines used in the potato industry that were along the lines of what we required but the options available for establishing rape were disappointing," explains Ian.

"Having achieved excellent results with the tines on a Horsch drill, the challenge was to find a drill on the second-hand market that the Eayrs

would be happy to buy. I found a 4m Simba Freeflow that had the potential to work as we wanted so then it was over to Stephen Eayrs, son Jon and some friends to make the adaptations in the workshop."

With drilling results from 2017 comparing favourably with two other comparative systems, and the crop from 2018 drilling being 'better than the majority', they are confident they have found a solution to a perennial problem.

"Our aim is to create the ideal conditions for the rape plant to flourish whilst at the same time avoiding the excessive soil disturbance that encourages blackgrass to chit," explains Stephen Eayrs.

"Oilseed rape is deep rooting and will put a tap root down to a metre given the chance – so can be a very effective natural sub-soiler – but it is a lazy rooter, taking the path of least resistance, and will grow

sideways if it can.

"The other considerations are speed of operation and horsepower, but ultimately we need strong establishment of a good even crop, year after year."

Based at Home Farm, Graveley, near St Neots, the Eayrs family run a 365ha (900 acre) combinable crop business on their own land and farm a further 200ha (500 acres) on a contract farming basis with a business partner. The rotation on the home farm includes first and second wheats, oilseed rape, and winter barley. More recently, spring barley has also been introduced.

"We grow around 120ha (300 acres) of conventional oilseed rape, so it's an important part of our rotation," adds Stephen. "We're battling blackgrass continually, so have moved away from direct drilling in the past four years and now plough ahead of first wheats and use a Sumo Trio for minimum tillage ahead of our second wheats. We're also delaying drilling, to allow more time to control blackgrass, and have introduced spring barley to the rotation to good effect."

Many of these recent actions to combat blackgrass will be familiar to other arable farmers facing similar challenges, as will farm workshop experimentation to find a bespoke cultivation and drilling solution not available 'off the peg'.

"The Simba drill that Ian sourced has a front cultivation bar that is suitable for adapting, with a rubber roller before and after the drill coulters," explains Jon Eayrs.

"We have bolted on longer cultivation legs and reformatted the drilling rows to 420mm so now have ten coulters across the width instead of 32. These are aligned directly behind the cultivation legs, to minimise the overall soil disturbance. In addition, we've split the hopper to create the ability to apply slug pellets at the same time.

"The unit will operate



Longer tines designed to minimise soil disturbance between rows initially replaced the standard tines on the Simba drill, as shown by Jon Eayrs. In addition, row spacing on the adapted drill has been set at 420mm, with just 10 cultivation tines replacing 32 on the standard 4m machine. In the most recent adaptation (above), a more upright tine has been fitted; this causes less lift and leaves the soil surface more intact. The tine is also thicker and more robust

comfortably on a 200 – 220hp tractor and copes perfectly well in stubbles and even chopped straw. We estimate it to be 25% quicker than the Sumo Trio drill and uses about 45% of the diesel.”

The ultimate test was to compare establishment in the same season with that achieved by other drills working under the same conditions. The Eayrs therefore drilled 50ha of oilseed rape in 2017 with their adapted Simba Freeflow and drilled a further 50ha with a Vaderstad Rapid disc drill and 18ha with an Amazone Cayena tine seeder. Drilling was intentionally later at around the end of August, and at a standard seed rate of 5kg/ha.

Crops compared two months after drilling showed a significantly more even and consistent establishment from the adapted drill, as ProCam’s Ian Jackson explains.

“The drill worked well from the start, with the optimum row spacing allowing the straw residues to flow through,” he says. “It was clear to see from very early on from the rapid and even emergence of seedlings that there had been good soil-to-seed contact. This early development has been followed through to the establishment of a good crop canopy.

“There was certainly no problem with the speed of operation and, with a relatively small power unit required, fuel use will have been lower than

many alternative options. Apart from a following pass with the Cambridge rolls, the pass with the adapted drill was the only operation required. The adapted tines had a relatively low wear-rate, covering 80ha before they needed replacing, so overall establishment costs are well under control with this system.”

Good results from the 2018 harvest encouraged the Eayrs to persevere with their approach, making further adjustments to make the tines more robust and creating even less soil disturbance. Whilst establishment from 2018 drilling was not perfect, it has proven to be significantly better than many have achieved, so oilseed rape remains part of the future at Home Farm.



A more even and consistent establishment is being achieved with the adapted drill (far right) than with comparative systems

Forging agronomy services fit for the future

It is now over forty years since ProCam founder Tony White first put into practice his vision of a business providing independent agronomic expertise to help arable farmers maximise the performance of their crops.

Back in 1979, the business operated primarily in and around Cambridgeshire, gaining early success through a combination of high standards of professional practice, thorough local knowledge and a customer-first philosophy.

Four decades on, the business has grown to become Europe's largest privately owned agronomy company, employing around 100 full time agronomists and covering the length and breadth of the UK.

With sights firmly set on the next decade and beyond, managing director Diane Heath believes remaining true to Tony White's founding principles will be a vital part of ProCam's future progression:

"Over the period of ProCam's history, the agronomist has become a trusted partner for many of the nation's progressive arable farming businesses. The close relationship with a professional local agronomist has helped arable farmers chart a path through challenging times and significant changes, such as the ban on straw burning, the advent of minimum tillage and diminishing agrochemical control options.

"Going forward, the need for new solutions to keep businesses on track will become more and more important. ProCam will therefore continue to invest in the best quality practical research and investigate alternative approaches, aligning this with the best logistical back-up to ensure swift and efficient delivery of product onto farm.

"UK agriculture will continue to face challenges, but there will also be opportunities for businesses to thrive, whether through using bio-stimulants or bio-pesticides, a better understanding of soil health or the application of precision farming techniques. ProCam's aim is to remain as the trusted agronomy partner, combining local knowledge with the latest crop production technology to provide customer-focused whole-farm solutions."



Managing director Diane Heath

40 YEARS

of agronomy, and still growing

The Growth of ProCam

2019

2017 Field Options

2012 ProCam SW

2004 ProCam Polska

2003 ProChem

2001 BCS Agriculture

2000 Chemega

1999 County Crops

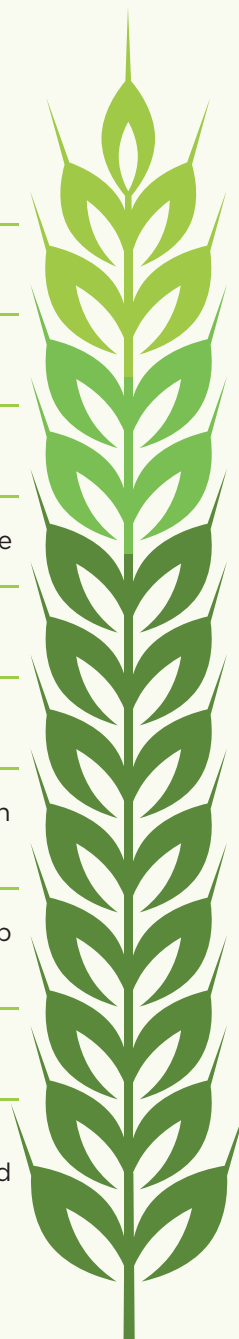
1998 FieldCare North and South

1995 Robertson Crop Services

1990 Rutherfords

1979 Protectacrop Cambs founded

1979



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