

IN FIELD FOCUS

— AGRONOMY THAT DELIVERS —

WINTER OILSEED RAPE – DRILL IT OR DITCH IT?

With strong prices but problems with cabbage stem flea beetle, is the sun finally going down on oilseed rape for some growers?

Or is it worth persevering?

ProCam agronomists around the country share their experiences of what has helped against this devastating pest and what hasn't.

(Continued on page 4)

IN THIS ISSUE:

BYDV breakthrough? | **Barley benefits** | **Cover crop knowledge**



PROCAM

Agronomy answers

Gearing up against grass weeds

Plagued with black-grass or other aggressive grass weeds? ProCam is putting new herbicides to the test.

There have been some new grass weed herbicide introductions recently, and others are being developed – all residuals. So we are evaluating these across the multiple grass weed trials we conduct annually, ProCam trials officer, Rebecca Tunnicliffe, points out.

“The aims are to test the efficacy of the new treatments, and to identify the situations where they fit best,” Rebecca explains.

“We conduct grass weed trials at sites around the UK, including in the hotspots of Kent, Essex and Oxfordshire, and at sites near Leeds and Doncaster. Chiefly, these are focused on black-grass and ryegrass. But the important points are that we have a good geographical spread and they are conducted on real farms.”

This means herbicides are put to the test against types of grass weed resistance faced on-farm, and when used in conjunction with real farm cultivations and cultural methods.

“With any new herbicide, it is doubtful they will provide a magic bullet. So we’re not just looking at new treatments in isolation but also in mixtures and sequences with existing herbicides, and we evaluate both pre- and peri-emergence applications.

“Speak to your agronomist for up-to-date information. But one thing we have repeatedly seen with residual herbicides in trials is that the best results come from applying them as soon as possible after drilling, rather than delaying. The caveat, of course, is that there must be sufficient soil moisture.”



We put new herbicides to the test against resistance issues faced on-farm, and when used in conjunction with real farm cultural methods, says Rebecca Tunnicliffe



Gout fly, which causes stem bases to swell up, can be found in most cereal fields since the neonic loss, says Nigel Scott, but there are things that can be done

Gaining an upper hand against gout fly

With gout fly another pest that seems to have worsened since the loss of neonicotinoid chemistry, what can be done?

Gout fly can be found in most cereal fields nowadays, reports ProCam northern region technical manager, Nigel Scott.

It used to be quite common prior to neonic chemistry, he says. Now it is increasing again.

“Adult gout flies are about 0.5cm long with black and yellow backs,” explains Nigel. “Eggs are laid on cereal plants. The resulting maggots then invade winter cereals in autumn. They burrow into the stem so it swells up like an onion. It’s often a problem in early-drilled crops.

“An application of a suitable insecticide can give some control. But the correct spray timing to coincide with egg laying and before most eggs hatch is crucial. Regular crop monitoring is therefore essential.

“Important cultural methods include adjusting seed rates to take account of the pest, and encouraging tillering through appropriate use of spring nitrogen to compensate for any affected stems.”

Gout fly attacks on spring cereals are even more devastating, Nigel adds.

BYDV breakthrough?

With the ban on neonicotinoids leaving wheat crops susceptible to barley yellow dwarf virus (BYDV), what role is there for RGT Wolverine – the new hard Group 4 winter wheat with BYDV resistance?

“The loss of ‘neonic’ seed treatments has made it substantially more complicated to control a number of vector-borne cereal diseases, not least BYDV,” explains Paul Gruber, ProCam regional technical manager. “Growers are no longer able to rely on chemical control measures alone to reduce the threat of this and other pest problems, so must look to other methods for effective protection.”

Key to protecting crops going forward is the adoption of proven cultural measures, says Paul, with green bridge destruction between successive crops the first point of call.

“Any green material left after harvest can harbour aphids, so it’s essential to completely destroy this in order to interrupt the cycle. That’s best done by spraying off with glyphosate to create a completely stale seedbed after any weeds have chitted. This also provides the added advantage of reducing the threat from subsequent frit fly hatches where oats were the preceding crop.

“In situations where this early destruction of cereal volunteers is not an option, and it is feared they are harbouring high numbers of aphids, applying an insecticide

earlier than typical migration patterns might suggest, should be considered. Unfortunately, this means an additional sprayer pass, but where BYDV pressure is high it could be time and money well spent.”

Paul adds that factors such as delaying drilling until after aphid migration and using accumulated temperatures to time aphicide sprays accurately are also key to successful BYDV management. But for those growers where BYDV is a major driver for yield loss, he says selecting RGT Wolverine could give additional peace of mind.

“As the only variety with proven resistance to BYDV, RGT Wolverine is certainly a useful addition to the Recommended List,” Paul explains. “It sold out as a candidate variety last year and is likely to prove popular again this year. But just because it provides season-long protection against BYDV, growers shouldn’t think of it as a magic remedy.”

Lee Harker, ProCam’s seed manager agrees: “The effectiveness of the Bdv2 resistance trait in RGT Wolverine has been clearly demonstrated in laboratory and field trials, but it may not be right

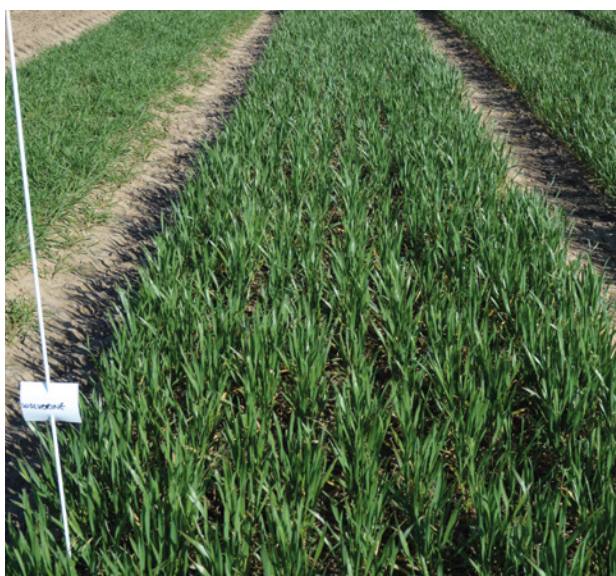


BYDV resistance can be used to offset the loss of a neonic seed treatment, explains Lee Harker

for every situation.

“Despite having a solid agronomic package, including good straw height and lodging resistance, it does have a slight yield penalty, scoring a 102% for UK treated grain yield compared to 104 or 105% for other Group 4 varieties. It’s also a little compromised in terms of resistance to diseases such as mildew, yellow rust and Septoria tritici.

“That said, its BYDV resistance can be used to offset the loss of a neonic seed treatment. But it will need to be managed carefully to get the best results and growers should think about how it will perform if, as in recent seasons, the weather takes a turn for the worst and spray applications are delayed. The best advice is to consult your agronomist to discuss if, where and when it should be used in your own rotation,” Lee concludes.



For growers where BYDV is a major driver for yield loss, RGT Wolverine’s disease resistance could give additional peace of mind

	RGT Wolverine
UK fungicide treated grain yield (% treated control)	102
UK untreated grain yield (% treated control)	72
Resistance to lodging without PGR	[7]
Resistance to lodging with PGR	8
Height without PGR (cm)	86
Ripening (days +/- Skyfall, -ve = earlier)	+2
Resistance to sprouting	[6]
Mildew resistance	5
Yellow rust resistance	5
Brown rust resistance	8
Septoria tritici resistance	5.3
Eyespot resistance	[5]
Fusarium ear blight resistance	6
Orange wheat blossom midge resistance	-

Source: extract from AHDB RL Winter Wheat 2021/22

Winter oilseed rape – drill it or ditch it?

Continued from page 1

Calculated decisions in the East

Advising in hard-hit counties of Essex, Hertfordshire, Buckinghamshire and in Gloucestershire, Kevin Percy believes the neonicotinoid loss isn't the only reason cabbage stem flea beetle (CSFB) has worsened.

Mild winters plus increased pyrethroid resistance are also culprits, he says. The neonic loss just happened to coincide with these.

"Flea beetle has been bad in Essex for 4-5 years," says Kevin. "I've got growers who have quit the crop and others soldiering on. Financially, it's a valuable crop. It doesn't have to yield that high to be worthwhile. So if you can get it right, it's worth pursuing."

In his areas, where growers want to persist with WOSR, Kevin favours a 'try it and see' strategy.

This involves planting inexpensive seed, such as a home-saved non-hybrid; drilling



Kevin Percy suggests making a judgement of whether to keep WOSR if it survives initial CSFB damage, or to replace it with winter beans

early into fine, firm seedbeds to maximise seed to soil contact for

moisture uptake to aid rapid crop establishment against adult beetles; and delaying herbicides.

A judgement is then made whether to keep the crop if it survives adult beetle damage – though Kevin admits it can still succumb to larvae later. Or, if it doesn't survive, then to replace it with late October or early November-drilled winter beans.

Using this approach in 2020/21, he estimates about 1 in 5 or 1 in 6 WOSR fields had to be ripped up among farmers still growing the crop, although other seasons may be different.

"If you can't drill WOSR early, I wouldn't bother trying this strategy," he stresses. "But if the WOSR survives, we have OSR herbicides that can then be applied quite late."

"An exception to this approach is on farms with brassica weeds. Here, a Clearfield hybrid is needed so the brassica weeds can be controlled."

Working hard in the West

Paul Fisher who operates primarily in Herefordshire and Worcestershire also believes CSFB problems were building before the neonicotinoid loss.

Widespread growing of the crop and repeated spraying had led to pyrethroid resistance, he says, so when neonic chemistry went, the floodgates were opened.

"Three years ago CSFB was mainly a problem in the south-east of my area. The north-west part was relatively free. But it's everywhere now. I'm not saying ditch it. It's a valuable crop. But it needs precise agronomy and management," he stresses.

"If you can get the crop to 2-3 leaves with a decent root structure, you stand a chance of coping with the adult chewing. But if larvae then get into the main stem, you've lost the battle."

Paul's approach is to drill into well-prepared, fertile, moist seedbeds between the middle and 25 August. "If you drill into September and the crop is slow to get away you've got no chance if adults arrive then. Soils are cooling, becoming wet and phosphate availability is reduced, so OSR growth slows down."

"Good soil fertility helps WOSR get away quickly, so manures plus micronutrients and bio-stimulants have a



Soil fertility helps WOSR get away quickly, says Paul Fisher, so manures plus micronutrients and bio-stimulants have a role

role. Also, ensure seed is drilled to the correct depth."

When spraying, Paul finds that tank-mixing a latex sticker with the insecticide slightly improves the reliability of control. He says planting imported seed treated with the insecticide seed treatment cyantraniliprole (Lumiposa) has also helped. "Certain varieties come with this as an option. But also look for high vigour," he adds.

Southern struggles

Southern region technical manager, Paul Gruber, who has particular experience in and around Oxfordshire, has seen major problems with CSFB.

He agrees that drilling early, provided there is moisture, to get WOSR to 4-5 leaves before adult beetle migration can help the crop's resilience, with larvae then potentially

primarily invading the leaf petioles, rather than taking out the main stem.

However, drilling early is no guarantee of success, he says, and in his area at least, what works on one farm may not work on another, so it is trial and error. That said, he says growing WOSR on stone-free ground that leaves adult beetles no hiding places can help, as can the 'tight' surface of heavy land.

"On stony soil, if you drill early, you might alleviate some adult pressure, but they can hide around the stones, so the damage can show up from January onwards with the larvae.

"Historically, drilling early wasn't the best way to grow WOSR for fear of the canopy becoming more difficult to manage. But with CSFB pressures, this may be a necessary sacrifice," he adds.



Companion cropping and vigorous WOSR hybrids are all part of managing CSFB for Kathryn Richards

Lucky in North-west

"We do have CSFB, although nothing like in the south of England," says Kathryn Richards, who covers mainly north Cheshire and south Lancashire. "But it is moving northwards."

Despite the low pressure, Kathryn has found that early drilling into moist seedbeds to get the crop up and away quickly is key. After the August Bank Holiday, CSFB damage increases, she notes.

"This last season we got a lot of crops in between 8 and 18 August and they got a flying start. Later-sown OSR did get some damage, but we still had full crops."

Boosting early growth by improving soil fertility using digestate or pig or poultry manure, also helps, Kathryn has found. These manures

may mask OSR's brassica odour from attracting CSFB, she suggests.

She has also been encouraged by companion cropping – using berseem clover, which fixes nitrogen to improve soil fertility; and fenugreek, the smell of which may also deter CSFB – planted along with a vigorous WOSR hybrid. "The caveat is the WOSR still has to go in early. If you plant the clover first and drill the WOSR into it you risk the WOSR going in too late.

"About 80% of my WOSR area is in hybrids to get away from pigeons, but their vigour also helps against flea beetle. If we can establish a good crop, we can invest more getting the best out of it, because it's an exceptional market for WOSR at the moment," Kathryn adds.

Managing later in the Midlands

Jim Nutting, who operates in Nottinghamshire and South Yorkshire, favours a different approach.

Rather than drilling in August, he has seen better results from planting in the second or even third week of September. He puts this down to cooler temperatures being less favourable to adult migration, and possibly the smaller OSR plants being a poorer host for larvae.

"In many seasons we have seen significant migration in the first week of September, so I advise my growers to plant after this date, if practical. You still need moist seedbeds and

good soil structure is crucial. Selecting vigorous hybrids to get crops up and away quickly is useful," he says.

"But drilling later does not guarantee escape from adult damage, so attention to detail remains crucial. This includes being prepared to plan insecticide sprays to the precise time in the evening when adults are most active, and then checking for adult activity again a few days later.

"Clearly, the later you plant, the more exposed the crop is to colder or wetter winters. However, the trend in the last ten years is towards milder winters, with only this year being the exception. However, despite the harsh winter, all the crops drilled 15-20 September came through. And crucially, I have never had problems



Planting WOSR later can leave it more exposed to pollen beetle in spring because it flowers later, but it can reduce flea beetle problems, Jim Nutting has found

with larvae in the main stem in mid-September drilled crops."

Safety in Scotland

"Sometimes we have to spray for CSFB. Normally we don't," says regional technical manager for Scotland, Alistair Gordon.

"Flea beetle tends to be more of a problem where OSR emerges but then growth stalls because the weather is hot and dry. But normally we have enough moisture to avoid this.

"We also grow hybrids, so these help, and we don't have the same amount of OSR in rotations as in England. But where it can occur is where OSR is grown in adjacent fields in consecutive years."

Benefits from barley hybrids

Including hybrid barley in rotations can bring more benefits than just yield.



ProCam trials have examined the optimum nitrogen timings to get the best from hybrid barley

Hybrid barley has become a popular choice thanks to its ability to deliver high yields. But with rotations under pressure from difficult grass weeds and pests such as cabbage stem flea beetle, their yield benefit is just the starting point, regional technical manager, Paul Gruber, explains.

“With extensive CSFB damage resulting in significant rapeseed losses, many growers are drilling oilseed rape earlier to enable it to better withstand subsequent pest pressures. Because hybrid barley typically matures 5-7 days ahead of a conventional crop, growers using hybrids can get the following rapeseed crop in the ground that little bit earlier. And of course, those few saved days will help to spread labour and machinery pressures over a wider period and can reduce soil moisture losses which, during

a drought year, could spell the difference between the success and failure of the following crop.”

Black-grass bonus

Hybrids are also popular amongst growers who continue to face significant black-grass pressure. “Their ability to out-compete and grow away from certain grass weeds is one thing, but the ability to plant hybrids beyond the normal drilling window for conventional varieties also gives growers greater scope to tackle early flushes of autumn weed growth in stale seedbeds,” Paul adds.

“This also comes into its own if the autumn turns out to be excessively wet, as it did last year when some crops were still being drilled into December. There aren’t many growers who would purposely set out to drill quite that late, but

it’s good to know that hybrid barley gives some extra leeway if planting is delayed.”

Canyon candidate

Lee Harker, ProCam’s seed manager, echoes Paul’s sentiments about the wider benefits of hybrid barley, adding that growers shouldn’t put the current crop of hybrids in the same class as previous generations. “Unlike earlier incarnations, the latest hybrids are vastly improved, especially in terms of specific weight,” Lee explains.

“Hybrids such as last year’s favourite, Libra, will consistently out-perform many conventional rivals, not only in terms of bushel weight, but also thanks to their strong disease resistance.

“Libra is proving popular again this year, but the next swathe of varieties promises even greater advantages, with candidate hybrid SY Canyon offering an excellent specific weight of 70.3 kg/hl and yield potential of 106%, putting it on par with the best conventional two and six-row varieties.

“Libra is still an excellent option, but it is out-scored by SY Canyon in terms of performance and disease resistance. With a score of eight for mildew resistance and sevens for brown rust, rhynchosporium and net blotch, SY Canyon takes wet weather disease tolerance to the next level and is certainly one to consider in the future.”



Hybrid barley brings an extra level of flexibility to rotations, according to Paul Gruber

Libra and SY Canyon compared

	Libra	SY Canyon
UK fungicide-treated grain yield (% treated control)	103	106
UK untreated grain yield (% treated control)	81	90
Specific weight (kg/hl)	70.8	70.3
Straw height without PGR (cm)	110	106
Ripening	0	-1
Mildew resistance	4	8
Brown rust resistance	6	7
Rhynchosporium resistance	6	7
Net blotch resistance	6	7
BaYMV resistance	R	R
Lodging with PGR (%)	4	[7]
Brackling (%)	23 (without PGR)	8 (with PGR)

Source: Extract from AHDB Winter barley RL 2021-22 for Libra and AHDB Winter barley Candidate List for SY Canyon

Growing knowledge on cover crops

With a comprehensive trials programme underway at the Stockbridge Technology Centre, Cawood, ProCam is collating valuable information on cover crops.

More and more farmers are growing cover crops or considering it, not least because of their potential role within a more environmentally focussed future.

The rationale for cover crops includes improving soil structure, building soil organic matter, weed suppression, and increasing species diversity. In general terms these merits are unquestioned, but the term 'cover crops' is broad, incorporating a spectrum of plant types, and both single species and mixtures.

With this in mind, ProCam has been scrutinising a range of different cover crops, not just to assess their performance, but also their management and benefits, and the potential gains they offer for the cereal that follows.

"We have seventeen different cover crops in the current trial, with two different drill timings for each – May and July," explains Jodie Littleford, trials officer responsible for ProCam's farmer-focused research. "We're also splitting each plot to compare the impact of applying 50 kg N/ha to the cover crop over the season versus leaving it untreated.

"In addition to gathering establishment data, crop yields

and the impact on weed ground cover, we've also been assessing any effects on soil structure. This is valuable information and is allowing comparisons to be made between the different cover crops, but perhaps most valuable will be information that we gather from the following cereals."

The table provides a summary of seed rates and yields for all the cover crops in the trial, with figures shown for the July drilling dates and for crops with and without nitrogen. Whilst most crops yielded better with nitrogen, there were several that consistently yielded better without. It was also noted how well certain nitrogen-fixing crops yielded with the addition of N - possibly due to energy that would otherwise have been used in nitrogen fixation being diverted into plant growth and development.

Establishment data compares all cover crops in the trial against each other, and each crop according to its drilling date. Of the crops with sizeable differences between drilling date, the stand-out result was yellow trefoil, which had 50% establishment in May compared with 85% in July, this suggesting a vulnerability to the dry conditions that prevailed at the earlier time.

Following crop study

The next stage of the trial will be to evaluate any differences in establishment and yields of the following crops. In the case of the May drilled cover crops, winter wheat was established at the earliest opportunity using a strip-till drill. In the July drilled plots, the stubbles were left to over-winter



Jodie Littleford

and then spring barley was drilled conventionally.

Whilst it is too early to make concrete judgements, there was a clear visual difference in vigour and plant density in the winter wheat at tillering, in the plots where cover crops had received 50kgN/ha. Conclusions will be interesting once all the following crops have been harvested in summer 2021.

ProCam cover crop trials: relative dry matter yields from July drilling

Cover Crop	Seed rate (kg/ha)	Dry Matter Yield (t/ha)	
		July drilled without N	July drilled with 50kg of N
Berseem Clover	16	3.2	7.8
Crimson Clover	14	2.4	10.1
Common Vetch	65	2.7	4.4
Yellow Trefoil	10	1.6	4.9
Standard Mustard	12	1.6	1.2
Verte Mustard	12	3	4.5
Tillage Radish	9	2.3	4.4
Smart Radish	9	2.3	2
Carlinda Turnip Rape	9	2.7	3
Greenland Rape	5	8.8	9.4
Phacelia	9	5.3	8.8
Buckwheat	50	4.6	5.9
Linseed	65	5	4.8
Brassica Break	22	4	3.7
Clamp Saver II	24	4.3	1.9
Clover Cover	12	2.6	3.4
Hurricane Pro-Nitro	32	2.2	3.5



Winter wheat in the plots on the right, which followed cover crops that received 50 kg N/ha, compare well with the winter wheat plots on the left (cover crops received no nitrogen)

Maleic hydrazide offers effective short-term sprout suppression

As the first anniversary of the use-up of CIPC approaches, an increasing number of potato growers are turning to maleic hydrazide (MH) as their primary sprout suppressant.

"Maleic hydrazide was first used in the UK as a plant growth regulator in 1985," explains ProCam County Crops agronomist, Phil Garton-Pope. "Since then, it has also been utilised as a useful sprout suppressant in potatoes but has always played second fiddle to the more widely used CIPC."

With the latter no longer available, the use of MH has increased significantly, and is now regarded as a key sprout suppressant alongside ethylene and spearmint oil.

"MH is applied as an in-field foliar treatment and offers good short-term suppression in potatoes ear-marked for processing," Phil continues. "However, for crops being stored for any longer than two or three months, it should be used in series with other store-applied treatments."

According to the AHDB, the use of sprout suppressants can be avoided if storage temperatures are kept below 3°C. However, it warns that potatoes held at such cold temperatures will be affected by low-temperature sweetening which can adversely affect taste, texture and colour on roasting or frying.

"As a result, potatoes stored for even the shortest duration will need to be treated with a suitable maleic hydrazide suppressant such as Fazor," Phil adds.

"Application should take place a minimum of three weeks prior to harvesting, but in reality, should happen as soon as tuber cell division has ceased."

Phil warns that this timing often arrives sooner than growers might think: "For the best results, products

such as such as Crown MH or Fazor should go on as soon as tubers have reached 25mm in size. At this point all primary cell division will have ceased, with any subsequent growth due to tuber swelling.

"The ideal window for applying MH is typically five weeks prior to desiccation or just as the final few flowers drop off. However, as no two seasons or crops are ever the same, there's no substitute for field monitoring to determine when the tubers have reached that critical 25mm size."

To ensure maximum efficacy Phil recommends using plenty of water (ideally 350-500 litres of water per hectare for maximum uptake) and applying at a time when no rain is forecast for the following 48 hours.

"Excessively warm conditions should also be avoided," he adds. "Officially products such as Fazor and Crown MH shouldn't be applied when the air temperature exceeds 25 to 26°C, but even that's too hot in my opinion. Early



Maleic hydrazide provides effective short-term sprout suppression, but will need to be used in sequence with store-applied products to achieve longer-term protection

morning applications are therefore recommended, not only to avoid the hottest part of the day, but also to maximise uptake by ensuring there are plenty of daylight hours remaining for the product to be absorbed while the crop is photosynthesising."

Maleic hydrazide also offers the additional benefit of being an effective controller of volunteers Phil adds: "Fields treated with MH will therefore have a reduced potato cyst nematode loading in the next cropping cycle and will provide a cleaner seedbed for subsequent arable crops."



A maleic hydrazide sprout suppressant should be applied as soon as tubers have reached 25mm in size, according to Phil Garton-Pope



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.