

Pushing the drilling window

“It's a bit of a balancing act.”

Technical OSR establishment

Oilseed rape establishment continues to be a tricky time in the crop's life. CPM investigates the impact time of drilling has on the pests and diseases that may lead to poor establishment.

*By Lucy de la Pasture
and Rob Jones*

At a recent field day, the idea of drilling conventional oilseed rape at the beginning of Aug was proposed by Frontier agronomist, Marcus Mann, as a potential strategy to limit cabbage stem flea beetle (CSFB) damage. Based in Essex, he says his growers in flea beetle hotspots are looking for radical ways to keep OSR within the rotation.

“Providing there's adequate soil moisture, there's some evidence that drilling in early Aug helps to establish the crop before the CSFB become most active, generally from the third week of Aug to the start of Sept,” he says.

Drilling OSR this early has implications for the rotation as a whole, requiring a reliance on early-to-harvest crops, such as winter barley. But what are the wider implications for the OSR crop from manipulating drilling dates beyond the normal window when it comes to pests and disease?

ADAS plant pathologist, Julie Smith, says

very early sown trials aren't commonplace but certain diseases might benefit from early sowing and, for other diseases, sowing later might be a better option.

“It's a bit of a balancing act. Light leaf spot (LLS) is often referred to as the 'septoria' of OSR because there's a parallel with the disease in wheat. If you drill OSR early, you'll have more problems with LLS because the crop is exposed to ascospores for a longer period of time.

Increase in clubroot

“Similarly, there would be a likely increase in clubroot if growers were to drill earlier. We're currently running an experiment which shows that a delay in drilling of two weeks (in autumn 2016) resulted in an 80% reduction in clubroot, compared with the earlier timing.

“Soil temperature needs to be above 16°C for clubroot infection to occur and it tends to fall below this temperature threshold when crops are sown a little later. It's a very simple but effective disease avoidance strategy if clubroot is a problem on your land, but not all varieties are suited to late sowing so careful selection is a must.”

Julie Smith adds that although alternaria and powdery mildew are less common now, sowing early is likely to increase their prevalence. She also warns that there is some evidence that earlier sowing favours verticillium wilt infection.

That's a view Andrew Blazey, agronomist at Prime Agriculture, agrees with. He says the threat of verticillium is something to



Marcus Mann says his growers are looking at radical ways of keeping OSR in the rotation in CSFB hotspots.

be cautious about if considering an early drilling strategy.

“Earlier drilled crops in tight rotations often exhibit more symptoms. Chemical control is not proven and data about varietal susceptibility is often only available a year or two after new varieties hit the market.”

Possibly the biggest advantage of early drilling for him in his area — Cambs, west Suffolk and north Essex — would be to help plants grow away from phoma stem canker.

“The bigger, stronger plants cope with the disease better. The larger the plant, the less vulnerable it is to phoma, which spreads from leaf to petiole and then to the stem. Of course, a variety with good resistance to phoma and LLS will also help with disease control,” he adds. ▶

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Julie Smith points out that some diseases will be more problematic when drilling earlier.

▶ Julie Smith agrees that by drilling earlier, plants have larger leaves and are more robust and better able to withstand phoma. "If you have a variety with a good disease-resistance rating, you may get away with drilling later and won't have issues.

But if you're sowing a weaker-rated variety, then avoid late drilling because it's the small backward crops that are most at risk from high yield losses due to phoma."

Downy mildew and damping-off diseases can also take hold more easily if the crop has been sown late and is a little more backwards, she adds.

"So from a disease perspective, sow late to avoid LLS, Verticillium and clubroot, but sow early to avoid downy mildew, damping-off diseases and yield losses from phoma stem canker."

ADAS entomologist, Steve Ellis, is familiar with the notion of drilling early as a management strategy for CSFB, but has concerns over its practicality.

"While, on the face of it, drilling early might seem like a simple solution, you need to be able to confidently predict when the beetle migration will happen and change your sowing timing accordingly. It's plausible that you could drill early, encounter an early migration and be no better off," he points out.

"There've been attempts to predict when the CSFB migration will occur, but just a few days warning isn't enough time to change drilling plans. The other consideration is that crops may go into the winter too advanced and then there'll be knock-on problems for the rest of the season, primarily with lodging.

"In Germany, they have a significant problem with cabbage root fly. Large plants can probably tolerate some larval feeding ▶



The effects of clubroot can be reduced by delayed drilling.

Night spraying may give an edge in flea beetle fight

OSR growers should consider spraying in the evening or at night as an extra weapon in the fight against CSFB, according to one Herts agronomist.

Farmacy's Jason Noy recommends the approach to all of his clients as a way of boosting control from the limited spray options, but stresses that it's by no means the answer to tackling CSFB in "hotspot" areas and must be used as part of an integrated strategy.

There are many factors to get right if OSR crops are to have the best chance of establishing successfully in the presence of flea beetles or any other pests. Night spraying pyrethroids should only be regarded as one option in this armoury, he says.

The theory behind the approach is that ground beetles, such as CSFB, are largely nocturnal. This means they're generally easier to find as night approaches, especially when temperatures are warm (above 8-9°C).

"There's no set time that's best, but there's definitely a correlation between increased beetle activity, fading light and warmer temperatures. We've also found beetles tend to be more active after a light shower or when there is dampness in the crop," says Jason Noy

"We've had some really good success with spraying at night in areas where the response from daytime sprays can be negligible."

He acknowledges it's hard to quantify how much additional control can be achieved with

night spraying, but believes that if many more beetles are active at night than during the day, there's ultimately a greater probability of hitting the target.

Most of his growers use standard sprayers and work lights rather than novel LED systems and typically begin treatments from emergence onwards, when adults migrate into crops and feed on young leaves. But flea beetle activity must be monitored before the crop is drilled, he says.

"You often find flea beetle on trash, volunteers or stems of harvested crops, which provides a useful indication of the underlying pest pressure. It's all about doing everything possible to give crops an edge and make the most of available products.

"The key with oilseed rape is to get plants through to four or five true leaves and in most cases we have been able to do that by focussing on the whole range of factors, including night spraying."

Recognising the issues with pyrethroid resistance, Jason Noy says where repeat insecticide applications are required, it's worth varying active ingredients to minimise selection pressure against any one mode of action.

Deciding whether repeat sprays are necessary is specific to individual situations, he adds. "If you see a response from spraying and the crop is still viable, then most growers will be loathe to write it off given the investment required to get to that stage. Equally, if you've applied two



Spraying for CSFB when they become more active at night makes sense to Jason Noy.

or three sprays and seeing little benefit, then questions must be asked about what to do next."

AHDB crop protection scientist, Caroline Nicholls, warns that natural predators to CSFB, such as carabid beetles, may also be more active at night and will be vulnerable to pyrethroid sprays.

This must be considered when deciding whether to spray, especially where resistance is present, she says.

"If resistant flea beetles are present, it doesn't matter whether you're spraying during the day or night; even if you get some level of control you'll still be creating selection pressure for resistant populations."

Natural predators generally eat eggs and larvae not adult beetles, so their overall impact on CSFB populations is often not seen until later in the season when new eggs hatch, she notes.

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Predicting CSFB migration is the major flaw in drilling early as a strategy to avoid damage, believes Steve Ellis.

▶ but young seedlings can be killed. As a rule of thumb, this pest isn't usually a problem unless crops emerge before the end of Aug. If UK growers were to drill much earlier, it may become more of an issue here too."

For Steve Ellis, the best approach for combatting CSFB is integrated pest management. He says that ADAS are currently undertaking analysis of datasets to understand the relationship between sowing date, larval and adult populations. The good news is that he's confident that soon they'll have a clearer picture of how important drilling date is in terms of adult and larval populations.

"Another strategy against CSFB is to drill later to avoid the main period of migration. The downside is this could create problems if the ground isn't workable or conditions aren't right. That's where a resilient variety really comes into its own."

Late drilling varieties is more commonplace than early drilling. OSR



Choosing a variety that will establish quickly if drilling is delayed is a good idea, says Philip Marr.

specialist, Philip Marr, says it's important to remember sowing shouldn't always be dictated by calendar date.

"Over the years I've seen many growers doing what we call 'mauling the seed in' so they can say they've got it all done by 20 Aug, or whatever their deadline is. You've got to drill when the conditions are right. That's when you have the right soil temperature and a seedbed that will give good seed-soil contact. This will give the seed the best opportunity to germinate and get quickly up and away."

Some growers may be concerned with drilling later, but Philip Marr reassures growers that this is a viable option.

Adapt your plans

"It's okay to drill in late Sept, but you have to adapt your plans accordingly. That means ensuring you have a good quality seedbed in place, with adequate nutrition, especially nitrogen to support the crop."

He adds that variety decision-making is a critical factor in successful late drilling too. He points to the speed in leaf development as a way to understand how a variety performs during establishment.

"Several of the popular conventionals are slow to develop. If you'd selected a variety like this but couldn't drill because the conditions weren't right, you're then forced to drill the slow variety late. Instead, I'd recommend selecting a variety with either the flexibility to be sown in the 'normal' window or with enough resilience to be sown late as well. For me that usually means drilling a fast-developing hybrid."

Sarah Middleton, seeds and traits campaign manager at Bayer, agrees with Philip Marr. She says it's in the challenging conditions, such as a late drilled scenario, that hybrids really come into their own.

Bayer has been running trials for several years to compare the differences between



Hybrids are the best option when conditions become challenging, says Sarah Middleton.

hybrids and conventionals to better understand where hybrids fit within the market.

"It's clear hybrids come into their own in challenging conditions. Previously growers may have planted hybrids on their best land to get the most out of them, but increasingly we're seeing the best results when hybrids are exposed to difficult conditions such as drought, pest and disease pressure, as well as late drilling.

"In all the years we've been comparing hybrids and conventionals, this season the differences have been the most profound. At our trials site in Callow, Herefords, we drilled hybrids and conventionals side by side on 29 Sept 2016. We saw that the hybrids were still able to grow away quickly, with our most vigorous variety, InVigor 1035, well established less than 10 weeks after drilling. By contrast, the market-leading conventional varieties had much lower green leaf areas."

Philip Marr concludes that above all else, carefully monitor the conditions and ask yourself 'what will I do if I'm late?' ■

Tips for getting crops ahead of CSFB

- Select correct field and soil type to grow OSR
- Ensure rotational position does not compromise crop e.g. sulfonyleurea residues from preceding wheat crops can inhibit OSR establishment
- Check macro and micro soil nutrition is sufficient
- Tailor variety choice to individual fields
- Consider Clearfield varieties where SU residues are present, or weed pressure is particularly high (may remove need for pre-emergence herbicide)
- Drill early into moist, fine seedbeds and consolidate well
- Be prepared to switch to an alternative crop if suitable conditions do not occur before cut-off for OSR drilling (typically first or second week in Sept)
- Monitor pest pressure closely
- Spray pyrethroids at night if treatment threshold reached
- Increase seeding rates to allow for feeding losses (CSFB can account for 50% loss).

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