

THE GUIDE TO EARLY OSR DRILLING

Practical guidance
on sowing oilseed
rape in the first two
weeks of August



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INTRODUCTION

Sowing in the first two weeks of August has helped many crops survive cabbage stem flea beetle grazing in recent years.

But moving drilling forward from its main mid-late August window brings with it a number of challenges that need to be addressed to make the most of this change.

We have brought together the best intelligence from leading industry specialists to help growers make earlier drilling work as well as it possibly can.

Our particular thanks goes to:



DR SARAH KENDALL
Plant physiologist,



COLIN PETERS
Break crop specialist,



PHILLIP WRIGHT
Soil management expert,



MATTHEW CLARKE
OSR breeder,



Profit from our knowledge



GLENN BOOTMAN
Cultivations adviser,

THE OPPORTUNITIES

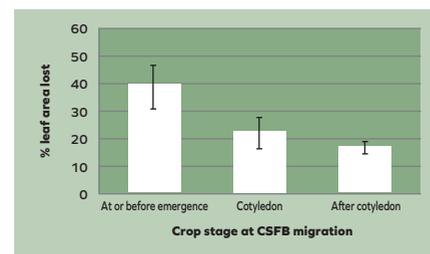
The absence of effective insecticide seed dressings and growing resistance to pyrethroid sprays makes reliable cultural control of CSFB essential in OSR-growing today.



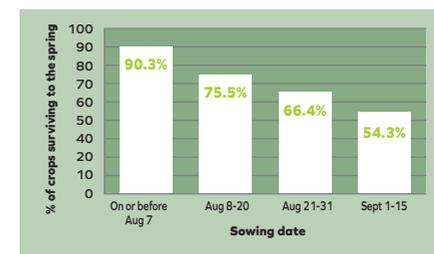
- Well-enough established oilseed rape crops can survive an incredible amount of autumn stress and damage.
- They are, however, acutely vulnerable to both the weather and pests from germination through the cotyledon stage to two true leaves.
- Sowing in the first half of August aims to ensure crops are securely beyond their most vulnerable stage before the peak of flea beetle migration.
- Providing there is sufficient moisture, this has been found to be very valuable in enabling crops to tolerate levels of flea beetle grazing that might otherwise devastate them.
- Rapid, minimum disturbance OSR sowing immediately after combining can take advantage of surprisingly high levels of soil moisture beneath most cereal canopies.

- Early August-sown crops also benefit from substantially more thermal time to establish themselves ahead of winter than those sown later.
- Sowing four weeks earlier can, indeed, result in an additional 4-5 leaves ahead of winter as well as significantly increased rooting.
- This leaves developing OSR better placed to tolerate winter water-logging and pigeon grazing, in particular.
- The higher early spring Green Area Indices (GAIs) that result can significantly reduce the amount of nitrogen fertiliser required for the most productive canopies.
- Earlier-drilled crops are generally at less risk from phoma and subsequent stem cankering, and have a higher infection threshold for spraying.

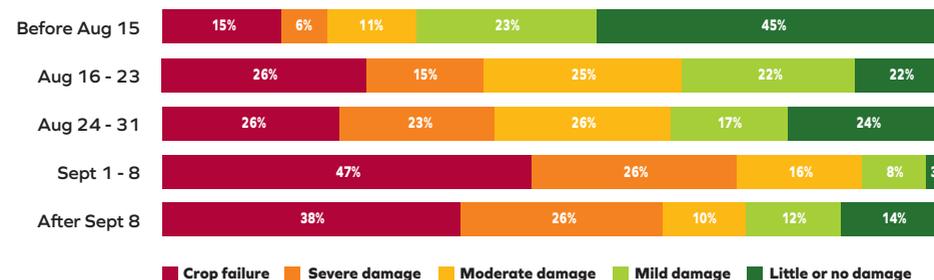
Less damage is caused when CSFB migration starts when crops are at or beyond the cotyledon stage (ADAS)



Earlier sowing in 2019 led to noticeably greater crop survival in 2020 (Bayer)



Adult CSFB damage increased markedly with later sowing in 2019 (NIAB)



THE CHALLENGES

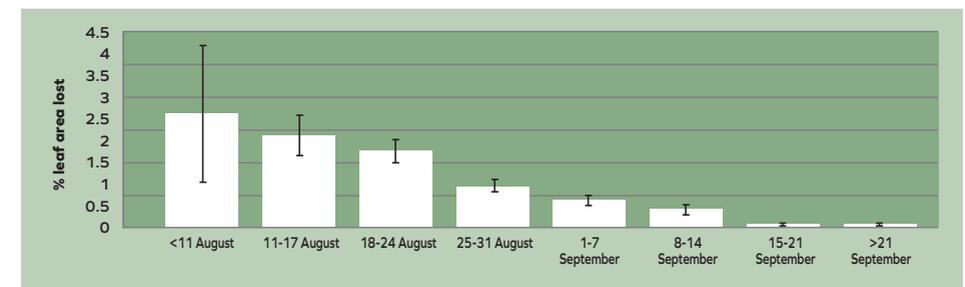
While early drilling can markedly reduce the impact of adult CSFB grazing, it brings with it a number of significant challenges



- More plant growth available to support adult flea beetle feeding and egg-laying over a longer period tends to mean greater spring pressure from highly-damaging larvae.
- Even though bringing drilling forward may help crops establish, this makes it crucial to do everything possible to minimise their attractiveness to migrating flea beetles.
- Earlier drilling can also play into the hands of cabbage root fly and turnip saw fly which are known to cause serious young brassica losses and be as difficult to control as CSFB.
- As well as favouring crop growth, longer periods of higher temperatures ahead of winter may increase the risk from aphids carrying turnip yellows virus (TuYV).
- At the same time, they definitely add to the threat from both light leaf spot and clubroot and could also increase the pressure from verticillium.
- Excessive pre-winter growth can present serious canopy management challenges, premature stem extension and particular susceptibility to damage from frost and snow.
- Higher lodging risk is a further consideration that must be taken into account in managing earlier sowings.
- Sulfonyl urea herbicide residues from preceding cereal crops may be more problematic the earlier the crop is drilled, particularly when combined with the least tillage.
- Sowing in early August means very little time after harvesting the previous crop for managing straw, controlling grass weeds and correcting any soil structural problems.
- Earlier drilling can coincide with the peak of cereal harvesting – not to mention cover crop sowing – adding to machinery and workload issues.



Larval burdens are higher in earlier-drilled crops (ADAS)



ESTABLISHMENT ESSENTIALS

Regardless of when oilseed rape is sown, there are a number of essentials to achieving the reliable and even establishment critical to success.



- Well-structured, biologically-active soils without compaction are fundamental, together with sufficient moisture in the sowing zone for rapid and robust establishment.
- Fine, well-firmed soil in the immediate vicinity of the small seed is particularly important for the best seed-to-soil contact.
- Vital too is preserving seedbed moisture with the least surface disturbance at drilling rapidly followed by effective consolidation – which also restricts slug activity.
- If not removed, cereal straw needs to be thoroughly chopped and evenly spread to avoid interference with drilling and reduce slug shelter.
- As well as being vigorously establishing, varieties should be matched to drilling date and conditions for a number of key characteristics, including speed of early development.
- Seed rates leading to higher-than-ideal plant populations should be avoided to ensure the most productive canopies and stems with the least susceptibility to CSFB larval damage.
- Because increasing the plant population has not been found to reduce the number of larvae/plant it only serves to increase larval numbers/m² and future pest pressures.
- Seed rates also need to be carefully matched to row widths to minimise the inter-row competition known to negatively affect performance.
- A consistently shallow sowing depth is important to ensure the rapid and even crop emergence that provides the best defence against early CSFB attack.
- Seedbed nitrogen and phosphate are especially valuable where minimal soil disturbance and previous crop residues temporarily restrict available nitrogen.

ROTATIONAL PRIORITIES

Early OSR sowing needs to be carefully planned into the rotation for the greatest effectiveness and least impact on other operations.



- Irrespective of date, OSR should not be sown if there is insufficient moisture in the seeding zone for reliable establishment or soil structure is seriously compromised.
- Lack of time ahead of early drilling means soil structural issues should be corrected ahead of the crop in the rotation wherever possible.
- The much higher infection risk from early sowing means that ground with a history of clubroot problems should be sown as late as possible, even with resistant varieties.
- Other than a summer fallow, its early harvest makes winter barley the preferred crop to grow ahead of early August-drilled OSR, especially if straw is to be baled.
- Winter oats, winter wheat and spring barley can also provide reasonably good entries, providing their maturity is not unduly delayed by genetics or management.
- With the possible exception of winter barley, in most cases there is unlikely to be sufficient time ahead of drilling for cereal straw to be baled and removed.
- As well as helping OSR establishment, leaving longer cereal stubbles will ensure the most rapid combining and effective residue management.
- Sowing into nurse or with companion crops can improve establishment by providing more favourable growing conditions and reducing adult flea beetle damage.
- Brassica-containing cover or catch crops sown in nearby fields a week or so later than the OSR may be useful in 'trapping' migrating CSFB with the young foliage they prefer.
- Careful management of combining and grain carting is particularly important ahead of early sowing to limit soil damage from trafficking.

VARIETY PRIORITIES

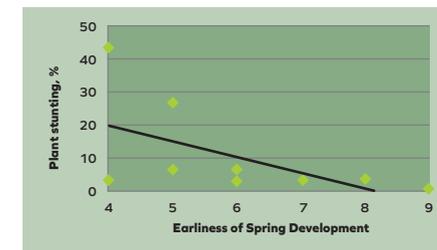
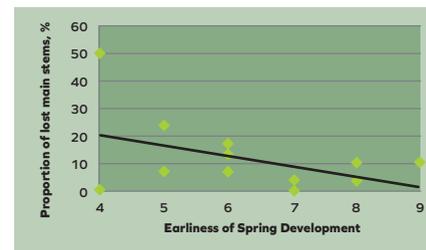
Matching variety characteristics to the specific requirements of the slot is also crucial in making the most of early OSR drilling



- Some OSR varieties are far better placed than others to take advantage of the opportunities early drilling offers and deal with its particular challenges.
- Vigorous establishment ability is particularly important to get the crop through its most vulnerable stage ahead of the peak of flea beetle migration.
- Avoiding the ultra-rapid autumn development trait so valuable in later sowings will reduce the risk of excessively-forward crops going into the winter.
- Faster-than-average autumn development, however, remains important for the most rapid growth away from flea beetle, especially in challenging establishment conditions.
- This trait is important too in case unplanned harvesting delays or very dry soils mean drilling has to be delayed beyond mid-August.

- Varieties earlier or faster to grow in the spring may provide valuable extra tolerance to the higher levels of CSFB larvae that can be expected from earlier drilling.
- The inevitability of more forward crops makes first class standing power based on the best combination of stem stiffness and lodging resistance vital.
- Strong light leaf spot resistance is also crucial to help offset the increased risk from the disease, and good resistance to verticillium may also be valuable.
- High levels of phoma resistance can make the most of generally lower pressures from this disease from early sowing to significantly increase autumn fungicide flexibility.
- Turnip Yellow Virus resistance can be a useful extra safeguard here too, although only in addition to the more important priorities.

Earlier developing varieties in the spring showed less damage from CSFB in badly affected DEKALB breeding trials (Bayer)



Some DEKALB varieties are especially well suited to early drilling

	DK Exstar	DK Extremus	DK Excited
Vigorous establishment	Yes	Yes	Yes
Autumn development	Rapid	Rapid	Rapid
Spring development	Fast	Early	Fast
Lodging resistance	9	9	8
Stem stiffness	8	8	7
Light leaf spot resistance	8	6	6
Phoma resistance	8	9	8
TuYV resistance	No	No	Yes
Verticillium resistance	Good	Not known	Good

MACHINERY PRIORITIES

The right equipment, set-up and operation is equally important to ensure effective OSR establishment within a tight window at a time of particular workload pressures



- Single pass establishment is the priority, with speed balanced by sufficient care and precision in seed placement in particular.
- Where the soil is in good enough condition with an unrestricted structure for root penetration and drainage, no-till drilling can be adopted.
- This will minimise soil movement and maximise sowing precision for the greatest moisture preservation, most even depth control and best seed-to-soil contact.
- Significant structural concerns and any harvest trafficking damage need to be tackled with low disturbance subsoiling as part of a tailored seeding regime.
- Narrow legs and appropriately-winged points that lift and stretch rather than 'boil' the soil should be employed for good vertical fracturing with minimal surface movement.

- Seed should always be sown through coulters into soil re-consolidated after any disturbance to provide sufficient depth control and seed-to-soil contact.
- Whether no-till drilling or tailored seeding, machines should be able to cope with and set-up to work efficiently in both long stubbles and significant levels of trash.
- Wherever possible, they should also allow solid or liquid fertiliser to be accurately applied in the seeding zone, ahead of, with or behind the seed.
- The flexibility to sow a companion crop and apply slug pellets in a targeted way in the same single operation can be very valuable too.
- Slug pellets can, of course, be applied from the Cambridge rolls which should ideally be employed within 24-48 hours of sowing – twice where necessary.

The best machinery choice for early drilling depends on soil condition

SOIL CONDITION	Well-structured with no compaction concerns	Some compaction or harvest trafficking concerns
BEST APPROACH	No-Till Drilling	Tailored Seeding
OPICO OPTION	 EasyDrill	 HE-VA Evolution
KEY FEATURES	<ul style="list-style-type: none"> ▪ Disc coulters for accurate depth control ▪ Rubber front wheel to roll down stubble or cover crops ▪ Notched 3.5° seeding coulters giving minimal soil disturbance ▪ Tapered steel bogie-style press wheel for consistent slot closure ▪ Two distribution lines/coulter enabling different depths of seed & fertilizer placement ▪ Additional mini-hoppers, allowing up to four products ▪ Flexibility to vary row widths from 16.6 to 33.2 or 49.8 cm ▪ Automatic set-up to cater for any tramline width 	<ul style="list-style-type: none"> ▪ Serrated disc openers to create slot, deal with trash & reduce soil burst ▪ 15mm wide low disturbance Stealth legs at 43-46cm spacing ▪ Shallow wing angle & short nose for subtle soil lifting ▪ V-profile roller to reconsolidate soil ahead of seeding couler ▪ Double disc coulters with press wheel for accurate depth control ▪ Hydraulic leg depth adjustment independent of seeding unit ▪ Solid or liquid fertiliser placement behind each leg ▪ Twin hopper multi-seeder for companion crop or slug pelleting at the same time as seeding
SPECIFICATIONS	<ul style="list-style-type: none"> ▪ 3-8 m working widths ▪ 18-48 seeding coulters ▪ 75-210hp min requirement 	<ul style="list-style-type: none"> ▪ 3-5 m working widths ▪ 7 - 11 legs & seeding coulters ▪ 170-300hp min requirement
ROLLING	Tip, TipXL or Cambridge Rolls	

MANAGEMENT PRIORITIES

Alongside the key rotational, variety and machinery priorities there are a number of particular agronomic considerations that need to be born in mind with early drilling



- To minimise OSR establishment concerns from sulfonyl urea residues, late spring use of these herbicides should be avoided in preceding crops wherever possible.
- The higher establishment rates likely from earlier sowing make it especially important to avoid seed rates that might lead to OSR populations of more than 40 plants/m².
- Organic manures can be surface-applied after OSR sowing in accordance with NVZ rules and Farming Rules for Water, offering an extra opportunity to support establishment.
- More competitive crops in the early autumn may reduce the need for pre-em herbicides, relieving workload pressures as well as limiting pre-establishment investment.
- Early sowing should all but eliminate the need for autumn insecticide spraying, helping to support the most active populations of key beneficials valuable in natural CSFB control.
- The reduced threat from phoma may give more flexibility to delay autumn fungicide treatment, targeting it more effectively against the higher light leaf spot risk.
- Light leaf spot treatment can best be planned and targeted using the free ADAS/Bayer SpotCheck service to identify infections before they become visible.
- An early autumn application of metconazole may be needed to regulate the growth of crops that are particularly forward – especially if they are also very thick.
- Relatively large canopies coming out of the winter put the onus on careful spring N management to Green Area Index (GAI) and effective plant growth regulation.
- Levels of CSFB larvae may be reduced by sheep grazing or mechanical defoliation but this must be neither too intense nor too close to stem extension to avoid compromising yields.

KEYS TO SUCCESS

Early August drilling needs to be undertaken with particular care if its benefits in reducing adult CSFB grazing damage are not to be offset by subsequent management problems



- Fundamental to success are well-structured, biologically-active soils without compaction, seedbeds with sufficient moisture and the best seed-to-soil contact.
- Seed rates should be constrained to reduce spring problems; seed sown at a consistent 2-3cm for the most even emergence; and, seedbed fertiliser applied where possible.
- Any soil structural issues are best corrected ahead of the previous crop, which needs to be chosen with care to give the most-timely entry for early sowing.
- Nurse or companion crops may reduce CSFB attractiveness and freshly emerged brassicas in cover or catch crops sown 1-2 weeks after the OSR can act as useful 'trap crops'.
- Vigorous establishment is essential in varieties for early drilling, together with faster-than-average but not excessively rapid autumn development, and early or fast spring growth.
- First class standing power and strong light leaf spot resistance should also be prioritised in variety choice while good verticillium and TuYV resistance may be valuable.
- Single pass, minimal disturbance establishment is essential, with seed 'drilled' rather than just dropped behind a leg or scattered on the ground.
- No-till drilling can be adopted where the soil is in good enough condition or tailored seeding with low disturbance subsoiling employed if there are any structural concerns.
- Light leaf spot control should be a particular priority, with leaf infections identified by incubation before they become visible.
- Autumn plant growth regulation may be needed and particular canopy management care is advisable based on Green Area Index (GAI) and judicious use of spring PGRs.



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