

# Care creates a yield gap

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“Overall, more than anything else, success seems to come down to an attitude of mind. Those achieving the best performance treat their OSR with greater care, attention and flexibility. They set out to produce well beyond 4t/ha and don't shy away from giving the crop what it needs to do so at every stage in the production cycle. Our latest OSR Big Picture shows this very clearly.”

While only just over 10% of the lower yielding farms in the study grow mostly mainstream double low hybrids, this rises to nearly 40% amongst the higher yielding units, with proportionately less growing mostly conventional varieties.

What's more, over 80% of the higher yielders select varieties for the key traits of autumn vigour, spring vigour, disease resistance and pod shatter resistance as well as yield. This compares with around 70% of the lower yielders.

Although the majority in both performance groups establish their crops with minimum tillage or subsoiler seeding, noticeably more higher yielding growers use the plough and fewer direct drill. More higher yield growers base their drilling decisions on conditions and fewer on calendar date too, while more also use a starter fertiliser.

In cabbage stem flea beetle affected areas, drilling when the conditions are best suited to quick establishment or using vigorous varieties that get out of the ground quicker are the main defence used by the higher yielding growers, in particular, against the pest.

“Getting OSR establishment right is a balancing act,” points out Dekalb technical specialist, Will Vaughan-France. “Specifically, it's about balancing what, when and how you sow with the soil conditions you have, the pest pressures you're likely to have and the vagaries of the weather, not to mention



*Those achieving the best performance treat their OSR with greater care, attention and flexibility, notes Gareth Bubb.*

## Technical OSR improvement

Despite the crop's notorious variability, a number of key differences set higher yielding winter OSR growers apart, according to the latest industry study. *CPM* looks into them in the first of a new series dedicated to performance improvement.

*By Rob Jones*

**Oilseed rape can be one of the most frustrating crops to grow. Just when you think you have a production recipe reasonably well cracked it seems to delight in kicking you firmly in the teeth.**

Just as with any other combinable crop, there's no single recipe considered to deliver success with winter OSR. What may make it harder is that our understanding of the way the crop works is arguably less complete than the cereals that are for many growers their first priority. There are, however, a number of important ingredients which characterise the management of those achieving the highest levels of performance from their crops.

These have been drawn from a

comprehensive national study of modern OSR growing undertaken over the past autumn and winter by Bayer. The OSR Big Picture Quiz involved almost 300 growers from across the country with average yields ranging from less than 2.5t/ha to more than 5t/ha. They provided a wealth of information on how they manage their crops and make their decisions from variety choice and establishment through to spring and summer management.

### Key differences

Detailed analysis of these data has highlighted the key differences between farms averaging more than 4.5t/ha on the one hand and those doing less than 3.5t/ha on the other (see chart on p39).

In many cases individual crop yields clearly reflect factors like soil type and weather outside the control of even the best of managers. However, taken together, the results from these growers provide some valuable pointers for anyone looking to improve their own OSR performance.

“Unsurprisingly perhaps, some of the greatest differences we see between the two groups of growers involves management around establishment,” reports Bayer commercial technical manager, Gareth Bubb. “But we also see noticeable differences in what they're doing through the autumn and winter and well into the spring,

workload pressures.

“The OSR Big Picture findings echo our long-standing experience that selecting the right variety and drilling into conditions that favour rapid germination and growth is fundamental to success.

“A recent independent study of the establishment success of more than 60 varieties with 400 growers across the country over the two contrasting autumns of 2016 and 2017, showed Dekalb Ex varieties consistently establishing better than either other hybrids or conventional open pollinated varieties. What’s more, their advantage was most marked under non-plough regimes and later sowings which tend to present the greatest establishment challenges.

“As well as one of the best defences against cabbage stem flea beetle, combinations of variety and agronomy that give the most consistent establishment are equally valuable in managing other early OSR pest problems like slugs and pigeons,” Will notes.

Variety choice may also be a factor in the generally lower reliance higher yielding growers place on both autumn and spring disease spraying, according to the Bayer study.

Single autumn and spring sprays are highlighted as the norm for most growers in both performance groups. However, fewer of those averaging 4.5t/ha or more use two sprays in the autumn, with more also employing a single spring disease/PGR spray.

“Varieties with strong phoma resistance are almost certainly more important in giving growers the leeway to delay their autumn spraying than to save a spray,” maintains Gareth. “This allows them to really get on top of light leaf spot early if they need to.

“Just like Septoria in wheat, once you see the lesions the disease is already cycling. So using our Spot Check service to identify infections before they become obvious — as more higher yielding growers do — and hitting any ahead of Christmas is really

valuable in giving greater spring spraying flexibility. As are varieties with a high level of LLS resistance.

“The fact that more higher yielding growers match their spring nitrogen and PGR applications more closely to Green Area Index (GAI) than lower yielders is yet another indication of the value of being a bit more ‘savvy’ with the crop,” he adds.

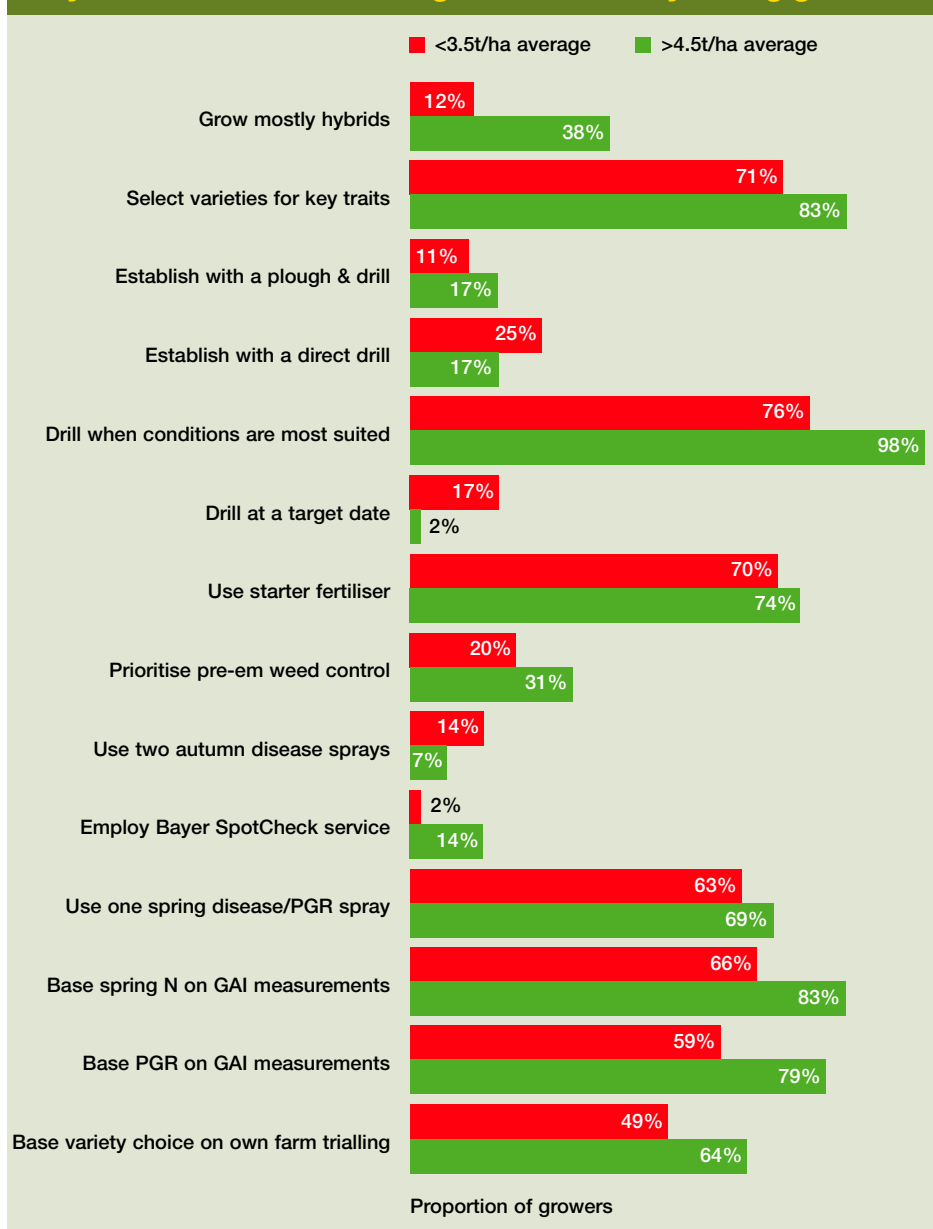
“They also tend to be more disciplined in their weed control; use more than one flowering spray if required; base spring and summer pest management on field-walking rather the predictor tools; and, trial new varieties for themselves before growing them widely.”

Gareth and Will agree that OSR’s ability to compensate, seen particularly in hybrids, is another aspect that may go ▶



*Will Vaughan-France believes combinations of variety and agronomy that give the most consistent establishment are equally valuable.*

## Key differences between higher and lower-yielding growers



Source: Bayer OSR Big picture quiz – autumn/winter 2018

### OSR Improvement – three key points:

- Use the traits available in the best varieties to give you the greatest management edge and flexibility.
- Keep a close and continuous eye on how your crops and the key threats they face are developing.
- Above all, be willing and able to give them the inputs they need to perform as well as each season allows.

► unappreciated by many growers.

Too often, they say, growers give up too early on crops that will, in all likelihood, deliver a decent performance. Holding off on the agronomy essential to help them compensate then becomes a self-fulfilling prophecy.

"Either that or they base seed rates on the assumption they'll lose a lot of the crop to flea beetle, slugs or pigeons rather than concentrating on giving the crop the sort of start that will avoid much of these losses. This means a far less efficient and harder-to-manage canopy wherever losses are less than feared," notes Will. ■

## OSR Improvement

In this latest series, Dekalb is once again working with *CPM* to share the widest possible experience of growers and their agronomists across the country in improving winter oilseed rape performance.

This is part of Dekalb's role in providing trusted support to OSR growers and their agronomists that goes well beyond the most robust and dependable varieties that have always been the company's trademark.

We very much hope you'll find this

series valuable in fine-tuning your OSR improvement efforts to secure the most consistent returns from the crop both financially and rotationally.



## Learning from YEN

Results from the first two years of Oilseed YEN are highlighting a number of potentially fruitful avenues for performance improvement, believes ADAS crop physiologist, Dr Sarah Kendall who leads the programme.

"It's early days yet," she stresses. "With around 110 crop entries over the two seasons, we don't have enough data to establish with real confidence the key environmental and management factors responsible for OSR performance differences. But we're getting some strong indications to guide future investigations and recommendations."

Last season's YEN crops had a considerably better start than those in 2016/17 and were arguably better set up to deliver, with average seed numbers of 106,000/m<sup>2</sup> compared with 95,400/m<sup>2</sup>. But the long, hot summer meant thousand seed weights of only 4.4g against 5.2g the previous year. So 2018 yields at 4.65t/ha were noticeably back on the 4.90t/ha of 2017.

"In both seasons we've seen a good correlation between average seed number and performance," Sarah explains. "On average, 2018 crops with 100,000 seeds/m<sup>2</sup> out-yielded those with less than 100,000 seeds/m<sup>2</sup> by 1.0t/ha. In 2017 the difference was 0.8t/ha."

*Growers should seek to maximise seed setting through the flowering period then hold off on desiccation for as long as possible.*



"In contrast, yield continues to appear relatively unaffected by crop biomass — reinforcing the experience of many that good-looking crops often disappoint. It's the efficiency of the canopy that really matters, not its size.

"We've found little, if any, correlation between performance and establishment system, drilling time, seed rate or levels of either nitrogen or sulphur fertilisation," she notes. "Although the latter isn't surprising as the growers involved are probably already employing best practice here."

"There's some indication that the best performing half of crops (averaging 5.3t/ha in 2018 and 5.4t/ha in 2017) are receiving their nitrogen, as well as fungicides and PGRs, in more applications than the lower performing half (averaging 4t/ha and 4.5t/ha respectively). The timing of applications, in particular, is something we definitely need to look into more."

The YEN results suggest a positive association between soil health — as assessed by both soil organic matter content and soil respiration — and OSR performance. Far more marked, though, is an apparent link with magnesium nutrition; the better-performing crops in both 2017 and 2018 coming from soils with a noticeably higher Mg content. This is despite the average Mg content of soils supporting the less well-performing crops being perfectly adequate by accepted standards.

"This and the clear relationship we saw between seed magnesium content and yield in 2017 and 2018 may reflect the central role the mineral plays in chlorophyll and photosynthesis," Sarah reasons. "It's also something that deserves a much closer look. There may be a good case for foliar magnesium if we can establish a causal effect. In which case, the timing of this feeding may also be an important consideration."

Where timing very definitely appears to be important, the YEN results indicate, is in the period between flowering and desiccation. In both



*The long, hot summer last year meant thousand seed weights of only 4.4g against 5.2g the previous year.*

seasons, the highest yielding 50% of crops started flowering earlier and were desiccated later — on average this meant an extra 9-10 days of seed setting and pod filling.

Taking the accepted figure of a 1-2% yield reduction for each day of seed filling lost, a five-day difference would represent 0.25-0.5t/ha — or a good slice of the 1.3t/ha yield difference recorded in 2018.

"This strongly suggests we should be seeking to maximise seed setting through the flowering period then holding off on desiccation for as long as possible," suggests Sarah. "After all, there's no sense in working hard to secure the most efficient canopies and those that stay green for as long as possible only to kill them off too early. Instead, more patience would certainly seem to be a virtue here — supported perhaps by pod shatter resistance and pod sealants to limit the risk of seed losses."

"Improving how and when we do things — rather than what we do — look to be the most important ways we can improve both the level and consistency of OSR performance. We look forward to providing increasingly accurate guidance on the most critical considerations in these respects as the YEN programme develops," concludes Sarah.

YEN registrations for the 2019 season are now open at [www.yen.adas.co.uk](http://www.yen.adas.co.uk)