



Innovation insight

Stick or twist?

Data from Europe has revealed climatic changes could be affecting crop growth and limiting oilseed rape yields, leaving experts debating whether growers should stick or twist when it comes to drilling dates. CPM finds out more...

By Charlotte Cunningham

The past few years have been a rough old ride for oilseed rape — a crop which has kept itself firmly in the headlines due to ongoing challenges with the mighty mouth of the cabbage stem flea beetle and the limited options to protect both crops and growers.

But where there is challenge, there's often opportunity, and farmers have become resilient in their approaches to keep the valuable break crop in the rotation.

However, despite best efforts, growers were met with another challenge this autumn, with many experiencing the wettest since the washout of 2019. This is in tandem with monitoring data showing a

downward trend in yields over the past five years, undoubtedly leaving many scratching their heads about the best way to approach the crop.

The state of play for OSR, and how to tackle it in a changing climate, was the topic of discussion in a recent webinar hosted by LSPB.

Unrealised potential

"Looking at OSR during the past 30 years, there has been both evolution of the crop and — over more recent times — a struggle and decline in crop area," says Chris Guest, managing director at LSPB. "Despite that, genetic gain and yield potential has still continued to improve over this time."

Looking at this timeframe in more detail, developments have included the introduction of F1 hybrid types in the 90s, and a significant increase in market area — peaking at just shy of 750,000ha in 2012, he explains. "Obviously, the crop has had its fair share of challenges over this time too, with the neonicotinoid ban in 2014 and then further loss of chemistry to help growers protect crops from flea beetle damage."

The increasing frequency of extreme weather patterns at key timings has also been a major challenge, and the combination of these factors have undoubtedly impacted yields, notes Chris. "On farm, we've noticed a sort of flatlining

“The secret to high yields is to get more seeds per square metre from the plants.”



On farm OSR yields have dipped significantly over recent years, despite genetic improvements, says Chris Guest.

of on-farm yield, which goes against what we've seen in terms of the development and improvement of genetics in trials.

"So essentially, I think many growers have found themselves in the position that the genetic improvement is there, but they're not seeing that realisation into farm situations due to multiple external challenges.

"The problem with this is that with the total crop area down, we have a position where the UK becomes a net importer of rapeseed, having been a net exporter, and there's some challenges and questions on food security there."

So is there a solution to this? And how best can growers approach OSR in a changing climate?

Sowing dates

Chris says although there are no clear-cut answers as such, looking at crop management strategies — in particular, sowing dates — could help to put growers in a better position. "We've been doing a lot of work on later sowing recently, and also considering whether the increase of growers targeting that really early window is a reason for limited yields," explains Chris. "If we think about the on-farm situation,



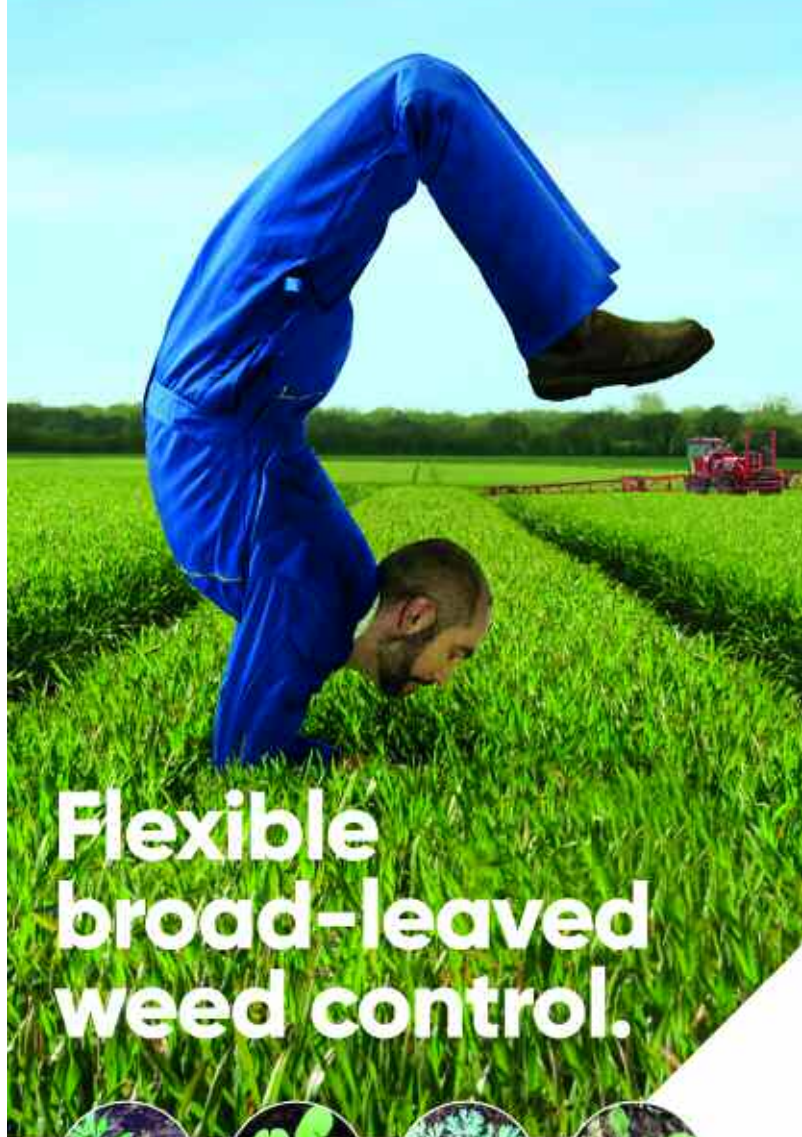
It's really important to understand the 'developmental rhythm' of the crop to better understand how yield is determined, says Ute Kropf.

most rape is now drilled in early August with some growers now even getting crops in at the end of July if they can, in a bid to get crops up and away to avoid the worst of any flea beetle damage.

"However, when we look at trials data, the average drilling date for crops tends to be around 30 August, so it could be that this contributes to the great disparity between performance in fields and performance in trials."

As such, turning to our European colleagues could provide some good evidence for altering the approach, says Chris.

With more than 40 years' experience in OSR, ►



Flexible broad-leaved weed control.



Cleavers



Cranesbill



Fumitory



Poppies

Zypar® provides outstanding control of broad-leaved weeds in winter and spring cereals.

The combination of Arylex™ active and florasulam sets the benchmark for season-long weed control, plus Zypar works whatever the weather, allowing you complete application flexibility.

Keep your cereals in great shape, talk to your advisor or find out more at www.corteva.co.uk/zypar

Zypar®
Arylex™ active

HERBICIDE

Keep in the know
www.corteva.uk/signup
f X @CortevaUK



Based on European data, the 'ideal' drilling date for OSR in the East of England is around 18/19 September to ensure OSR plants are at the optimum growth stage by the end of the year.



Discover more at corteva.co.uk
Technical Hotline: 0800 689 8899 E-mail: ukhotline@corteva.com

USE PLANT PROTECTION PRODUCTS SAFELY.
Always read the label and product information before use.
For further information including warning phrases and symbols refer to label.
Corteva Agriscience UK Limited, CPC2 Capital Park, Fulbourn, Cambridge CB21 5XE.
Tel: 01462 457272. * Trademarks of Corteva Agriscience and its affiliated companies.
© 2024 Corteva. Zypar® contains haloxyfen-methyl (Arylex™ active) and florasulam.



With warmer winters becoming the norm across Europe and the UK, experts believe OSR crop yields could be suffering as a result.

► Dr Ute Kropf from the University of Applied Sciences in Kiel, Germany has been working on the University's trial station since 2000, and during that time has collated some interesting data on sowing dates and crop performance, which could be applied to UK farms due to the climatic similarities.

Since 2008, Ute has been looking at OSR yields and says that up until 2014, yields were consistently around 5-6t/ha. Since then, they've dipped considerably. "In our experience, we believe that one of the main reasons for this is the difference in winter vegetation between the pre- and post-2014 periods," she explains.

This change in performance has led

Tapping into yield potential

Though changes in temperature is out of the hands of growers, Ute says there are a number of practical measures that can be taken to access as much yield potential as possible:

- Don't drill too early
- Using PGRs can help to slow down crop development if it's a particularly warm autumn/winter
- Apply nitrogen as early as possible; elongation begins much earlier as a result of climatic changes but the soil is too cold to mineralise any of the soil nitrogen in the late winter/early spring so applying to the crop can help to boost uptake
- Consider a PGR again in the spring which can help to shorten the upper third of the plant so that lower tillers/flowers get more light
- There is always going to be a compromise with optimum yield and crop development and likelihood of flea beetle damage; weigh up the risk carefully

Dr Kropf to look deeper into the causes of this difference in winter vegetation, and it all comes down to climatic changes.

The trials site at Lindenhof historically has experienced very cold winters, with temperatures plummeting to -15°C . At this temperature, OSR plants typically experience 2-3 months of dormancy. However, due to the rising temperatures since 2014, this dormancy period has been as short as 4-5 weeks — meaning crops keep growing for much longer during the autumn and winter and get going again much quicker in the spring, explains Ute.

So what does all of this mean for yield? "The secret to high yields is to get more seeds per square metre from the plants, and this is in part determined by the number of buds set in the spring," she explains.

Developmental rhythm

"Therefore, it's really important to understand the 'developmental rhythm' of the crop. Yield is determined early on in the crop's life cycle and with the back end of the year now tending to be warmer than usual, this yield is now being set in the winter rather than the spring."

Delving deeper into the development of the crop, it all comes down to the accumulated thermal temperature, she explains. "Each pair of leaves requires between $120\text{-}150^{\circ}\text{C}$ of thermal heat, plus 150°C for emergence, meaning about 600°C is required to get to the six-leaf stage."

At this point in the growth cycle, OSR moves into bud differentiation, which continues until the plants reach the beginning of stem elongation at around the 10-12-leaf stage. "When the total thermal temperature reaches around 1200°C , the plant reaches maximum bud density. After this point, the plant starts to reduce weak side tillers and flower buds to get enough food for stem elongation — which begins after this point — and growth in spring," explains Ute.

Applying the physiology to the data, during the traditional, colder winters, crops would have typically reached this stage at around mid-late March. However now, this is happening a whole two months earlier in January. "Some of the early sown rape can elongate as early as November/December," she adds.

The impact of this is that crops have a shorter differentiation period and begin stem elongation with maximum bud



To explore the relationship between sowing date and yield further, LSPB has trials in the ground at present with results expected this summer.

density having already been reached due to the higher temperatures. "What's more, buds are being formed in poorer conditions than they would be if they were forming in the spring, and all of this has a direct impact on yield."

As a result, the optimum sowing date at the trials site is now somewhere in the last week of August, she adds.

So what does this mean for farmers? Ute and her team have modelled the data seen at Lindenhof on average temperatures in Cambridge, to help UK growers to get a better understanding of how changes to sowing date could benefit yield.

Comparing the temperature data between the two locations, Ute says Cambridge has seen 230°C more thermal



Researchers have also found that TuYV varieties tend to start stem elongation earlier as they need less thermal time.



The University of Applied Sciences' trials site in Lindenhof, Germany has shown a correlation between warmer winters and diminished OSR yields.

time in the autumn/winter (September to December) and 200°C more in the later winter/early spring (January to March) during the past two years.

In terms of what this means for drilling date, based on the data this equates to an 'ideal' drilling date in Cambridge of around 18/19 September to ensure OSR plants are at the optimum growth stage by the end of the year — considerably later than the 'normal' OSR sowing date for a lot of growers, she notes.

Of course, it's not just a case of simply switching drilling dates. There are a number of risk factors to consider, including what later drilling means for potential flea beetle damage as well as the potential that a wet autumn could significantly impact drilling days. There are also important varietal considerations too, adds Chris.

While the reason why is unknown, something Ute has discovered is that TuYV varieties tend to start stem elongation earlier as they need less thermal time, so this is something worth noting and taking into consideration when selecting and managing varieties, says Chris. "We know in the UK there's a large percentage of varieties with TuYV resistance being grown.

So we're going to look more at what the influence of that genetic tool is in terms of giving crops even larger canopies into the winter."

LSPB has a number of trials in the ground this year, sown in both early and later slots, with results ready for further discussion this harvest.

"Our aim at the moment is to find out whether or not this really is a viable alternative option and not just a marketing story," says Chris. "But what we can say for now is that delaying sowing into September and utilising historic farm climatic data to enable this could be part of the strategy moving forward.

"This isn't the end story — we don't have the answers yet. But we're on a journey to find them," he concludes. ■

Innovation Insight

CPM would like to thank LSPB for kindly sponsoring this article and for providing privileged access to staff and material used to help put the article together.



Knowledge grows

Grow the Future

YaraBela™ AXAN™

Strength

- Confidence across the bout width
- Shatter resistant



Uniformity

- Zero segregation
- Even spread for even growth



Accuracy

- Unrivalled accuracy up to 54m
- Increased resistance to wind



Environment

- Half the ammonia emissions of urea + inhibitor*



*DEFRA, NT2605

agronomy.uk@yara.com

Yara UK

@Yara_UK

www.yara.co.uk

