

Spotting the spot

“ Sugar-like spores can be found on either side of the leaf, but are tiny, and often hard to spot. ”

Technical OSR

With no shortage of soil moisture, new oilseed rape seedlings have at least had something in their favour in the early part of the season.

CPM takes a look at some of the agronomy decisions to ponder as autumn progresses.

By Lucy de la Pasture

Light leaf spot has a reputation for being hard to keep on top of in a season that favours it. With all the woes the oilseed rape crop has experienced over the past few seasons with cabbage stem flea beetle at large, disease has been a secondary worry for many growers. But the risk hasn't gone away.

For growers planting early, light leaf spot is the foliar disease that poses the most risk to crops. Ascospores are released as soon as the previous OSR crop is harvested, which means early planted OSR is exposed to inoculum over a longer period of time than later plantings

— which can lead to higher levels of disease if weather conditions are favourable for disease development.

Lesions can form as early as two weeks after infection when average temperatures are 15°C, although symptoms aren't usually noticed in the field until November. Its incidence varies from year to year, mainly according to the weather conditions — with development possible from 4-20°C and wet conditions ideal for disease infection and spread.

Small foci

The tricky thing about light leaf spot is that, even though infection can happen early, it's not usually visible because it occurs in small foci within fields. That's where Bayer's SpotCheck service (in partnership with ADAS and the AICC) can be useful to help get a picture of what's actually going on.

Last autumn, many growers put OSR into the ground earlier than used to be the norm — some even behind the combine in late July. So was light leaf spot playing sniper for weeks before it showed its hand or was it a no-show last season?

The SpotCheck results showed light leaf spot was present in the majority of OSR-growing counties across the UK in leaf samples sent to the SpotCheck

service from October 2020 to March 2021, says Philip Walker, plant pathologist at ADAS.

He explains that the wet conditions in the autumn and winter drove early light leaf spot infections and despite the extended period of cold weather during late winter and early spring, disease was evident in a significant number of samples. Continuing the trend seen in recent years, positive samples were ▶



Philip Walker says that the wet conditions in the autumn and winter drove early light leaf spot infections, which spreads by rain splash in a similar way to septoria.

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► received from crops all over the country, not just northern areas where the disease was historically more prevalent.

“We assessed 644 samples in total and percentage of positive samples after incubation increased over the winter and spring, with results in December showing 76% incidence, 68% in January, and 92%

in February.

“By March, when ADAS assessed 163 samples, 97% of them were showing positive signs of light leaf spot, despite the colder winter weather and the fact that many of these crops had received an autumn fungicide application.”

The polycyclic nature of light leaf spot

means that control from fungicides is never absolute — the fungus is present in all stages of its lifecycle at any one time, which means there’s always disease present beyond the stage when fungicides have activity.

“Last season the very wet late-autumn and winter encouraged early infections, ►

Micronutrients can have major impacts

In a change of fortunes, OSR had a stellar season in 2021 — crops developed well throughout the country and there have been some of the highest market prices on offer in recent years.

“Whether you’re looking to repeat the successes of this year by growing OSR again or getting back into the crop after a break following establishment or flea beetle issues, micronutrition may be the key to achieving a high yield next year,” believes Chris Bond, commercial technical manager at FMC.

The micronutrients Chris highlights as vital for OSR success are boron and molybdenum. “The benefits of molybdenum and boron in plants are not as well-known as other major nutrients, such as nitrogen, calcium and phosphorus,” he says. “But these micronutrients are important production drivers for macronutrients to work effectively.”

Even though it’s one of the most overlooked nutrients in crop nutrition, says Chris, molybdenum has a number of key roles in OSR, including supporting crop establishment, improving flowering, and boosting yield and oil content. Molybdenum is particularly important for nitrogen assimilation in plants.

“When nitrogen is applied in nitrate form, it needs to be reduced to nitrite by the enzyme nitrate reductase, so it can be utilised by the plant. Crucially, nitrate reductase requires molybdenum because it helps to bind nitrate molecules to the enzyme,” he explains.

“Without molybdenum, nitrate reductase has reduced activity, which has a knock-on effect on the nitrogen cycle in plants, effectively meaning

As many as 40% of OSR samples from across the UK have been found to be deficient in boron in FMC testing.



applied nitrogen could be wasted.

“Only a very small amount of molybdenum is needed, as little as a teaspoon (5ml) per ha. It’s been calculated that for every 1M nitrogen atoms in the plant, there’s only one molybdenum atom. Because it’s only needed in such tiny quantities, its relevance is so often underestimated,” he adds.

Despite its importance, analysis of soil samples frequently shows molybdenum to be low in soils, meaning much of the OSR in the UK is likely to also be deficient, he claims.

“Molybdenum is held in organic matter so this could be a reason for seeing these deficiencies, as organic matter levels in soils become more and more depleted. This could mean there’s a knock-on effect on OSR crops and many growers could be unintentionally wasting applied nitrogen due to a lack of available molybdenum.

“The good news is that this can be rectified if molybdenum deficiencies are addressed.”

Similar to molybdenum, boron is also essential in OSR but is again often found to be deficient and overlooked, says Chris.

“As part of FMC’s widespread tissue testing, results in the past year have shown 40% of OSR samples from across the UK to be deficient in boron.”

Boron is important for disease resistance, as it has a role in the formation and structure of cell walls and is also vital for pollen production later in the life of the OSR crop.

“Boron plays a role in the correct functioning of cell membranes, along with the development of reproductive tissues,” he adds.

Just like molybdenum, boron is also needed in very small amounts because there’s an incredibly narrow window between a nutritional deficiency and toxicity.

Heavy and medium soils often have the best supply of boron but in light soils it’s easily leached during heavy rainfall, he explains.

“Because boron moves to plant roots via mass flow, it has a high dependency on water. If dry conditions are present around establishment, this can affect the supply of boron to the plant.”

He explains that if visual signs of boron deficiency are seen, it’s often too late to effectively intervene. FMC’s product Bo-La is an inorganic liquid formulation of boron and molybdenum which can be applied at the four to six leaf stage in



The enzyme which reduces nitrate to nitrite – the form taken up by plants – requires molybdenum, explains Chris Bond.

autumn, or early stem extension in spring to combat deficiencies.

Its formulation is designed to optimise plant uptake due to the difficulties that arise with the uptake of both boron and molybdenum, he says.

“Regardless of the crop nutrition challenge, I would always recommend soil and tissue testing as this can give a great snapshot about the nutritional status of crops in real time. With this information you can figure out which nutritional deficiencies crops may be suffering from and decide the next steps for applying nutrients,” adds Chris.

“Remember to look closely at soil test results — even if you have high absolute boron levels, soil makeup and other nutrients could be interacting to reduce uptake. For example, calcium content and pH level will have an effect.

“The 2021 OSR season was a rollercoaster despite its positive end, but by paying attention to micronutrients such as molybdenum and boron through foliar applications, OSR can establish well and follow this through to a high yield,” he concludes.

Applications of foliar boron and molybdenum can help OSR crops thrive.



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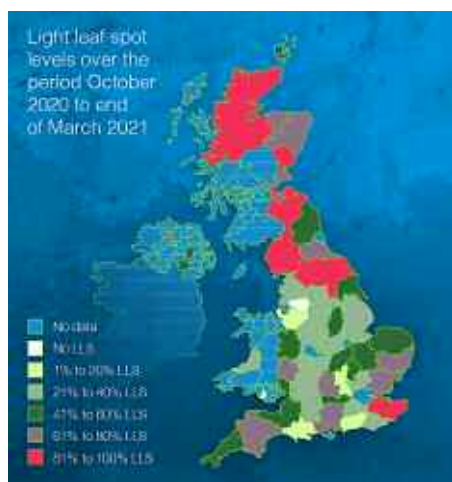


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Spotcheck results show the incidence of light leaf spot infection by county from October 2020 to the end of March 2021.

► which drove disease levels. And despite the extended cool weather — which included snow and hard frosts in February and March — infections remained high into April,” explains Bayer’s Ella Crawford.

“During March we saw a general trend for a high percentage of samples showing light leaf spot infection, and an increasing percentage of infection within fields. Out of the samples showing infection, 60% had levels of light leaf spot incidence above 50%.

“Thanks to slow crop growth this spring and late stem-extension, we were still seeing infections in crops in May as

crops came into flower.”

According to Ella, plant genetics remains one of the best ways to reduce the risk of light leaf spot developing in the crop, as infection is most evident in susceptible varieties.

Hard to spot

“Varieties with a resistance score of seven or higher, will afford some protection and lessen the reliance on chemistry alone. This is particularly important where drilling early, when extended exposure to the disease may require more robust fungicide programmes.”

Monitoring weather conditions can indicate when there is a high risk of disease, and alongside sampling of leaves, can support and justify fungicide decisions, suggests Philip.

“As fungicides only provide protectant activity, regularly crop walking is advisable during risk periods to look for signs of disease. Sugar-like spores can be found on either side of the leaf, but are tiny, and often hard to spot. Incubating leaf samples at room temperature in a plastic bag for three days can encourage disease expression on the leaf surface, making identification easier,” he says.

Many agronomists will already have an airing cupboard full of plastic bags containing OSR leaves as the autumn progresses into winter, but the SpotCheck service can provide an alternative or



Light leaf spot symptoms are often not visible in fields until November but disease can start cycling right from the get-go.

additional help in identifying the disease, he says.

Where growers adopt a one-spray strategy for autumn disease control, there may well be both phoma and light leaf spot infections to manage. Using a fungicide such as Aviator (bixafen+ prothioconazole) or Proline (prothioconazole) at the first sign of disease will provide activity against both diseases and protect the crop for up to three weeks, says Ella.

In the spring, stem-extension is a key timing for light leaf spot infection and control, with the aim of preventing spores moving up the canopy to the pods via rain-splash, she adds. ■

Switch to reactive weed control

Corteva is urging farmers to consider strategies which minimise risk because of the unpredictable nature of the weather and the threat of CSFB damage.

John Sellars, OSR herbicides manager says: “Research has helped improve knowledge around how to successfully establish a resilient crop, and new thinking has developed in the face of pest and weather challenges seen in recent years.

“But OSR growers will still be determined to minimise risk as much as possible, through variety choice, drilling dates, targeting soil moisture and an effective herbicide programme.”

One tactic which has proven extremely effective in the UK over the past two seasons is to switch away from a broad acre pre-emergence approach to weed control. Belkar (halaxifen-methyl+ picloram) has become an intrinsic part of these integrated strategies, he says.

“The post-emergence herbicide deals with key weeds such as poppy, cleavers, shepherd’s purse, fumitory and cranesbill without the need to invest up-front in residual chemistry. It allows growers to

wait until a crop has established and weeds have germinated before deciding on their herbicide investment.

“Demand for quality British rapeseed is unrelenting and the associated gross margins remain unrivalled, still making it the break crop of choice for a huge number of farms,” adds John.

“However, those who grow it want to employ an establishment strategy that puts less investment up front in the programme, allowing them to see how the crop and weeds are emerging before making their next important decision on inputs.

“Drilling dates are being altered and pest management plans are being revisited, and the same can be said for herbicides.”

John believes that Belkar paves the way for growers to switch from higher-risk preventative to reactive autumn weed control strategies. “Growers can wait until the crop is out the ground — giving themselves time to assess the visible weed pressure plus the impact of pests such as CSFB and slugs.”

There are three treatment options available



Cranesbill is just one of the broadleaf weeds that Belkar has good activity on.

when using Belkar.

At two true leaves an application at 0.25 l/ha will take out the weeds which have germinated alongside the crop and, in some circumstances, that may be enough before an application of AstroKerb (propyzamide+ aminopyralid) or Kerb Flo 500 later on.

In high weed pressure situations where there is a further flush of weeds, a second dose at 0.25 l/ha can go on 2-4 weeks after the first.

A third option is to wait until six true leaves of the crop, when most weeds have emerged, and apply 0.5 l/ha.