



Hidden in plain sight

OSR pests

Could an emerging pest be responsible for many of the oilseed rape losses often attributed to cabbage stem flea beetle? *CPM* takes a closer look at rape winter stem weevil, what's known of this pest and what can be done to tackle it.

By Melanie Jenkins

Rape winter stem weevil (RWSW) doesn't seek to disguise itself but for years this pest has been hidden in plain sight, often misidentified as cabbage stem flea beetle (CSFB) and yet its impact can be devastating, causing total crop loss.

Regular Twitter users may have observed oilseed rape losses attributed to a range of causes over the past few months, with a few recognising the presence of RWSW. But Tom Pope, entomologist at Harper Adams University, says he has often had to correct people

who assume the pest is CSFB. "Growers often think they have CSFB and it's actually RWSW, so there's a degree of confusion out there," he says.

Wrong identity?

Nottinghamshire-based independent agronomist Andrew Wells feels that farmers are very good at identifying CSFB, but, like Tom, every year he sees photos on social media of mislabeled CSFB larvae that are actually RWSW. "There's a lot of misidentification and it's important for growers to understand that this is a different pest which requires a different approach and control strategy."

Further confusion can occur between RWSW and cabbage stem weevil, highlights Tom. "Cabbage stem weevil enters OSR crops from around April time, after RWSW have left the crop. If growers were to cut stems open after stem elongation, they may see several larvae inside but these will be cabbage stem weevil. Importantly, cabbage stem weevil is far less damaging than RWSW and the two species of weevil don't coexist in plants but do look almost identical."

Tom has been aware of anecdotal reports of RWSW becoming an increasingly important pest over the

“ Growers often think they have CSFB and it's actually RWSW. ”

past 15 years. However, this trend is not currently reflected in the annual Defra Survey of Crop Pests and Diseases, although this may reflect the patchy distribution of the pest, he says.

Andrew has had experience with RWSW over a much longer period. "I've been working in Lincolnshire and Nottinghamshire for over 30 years and back in the late 1980s, I became aware of some areas suffering from RWSW damage, and some more than others, but it tended not to cause a lot of crop damage.

"There's definitely a geographic element to where it's seen, with crops on lighter soils seeming to attract the pest more. But growing OSR on clay doesn't mean there won't be a problem," he says.

Moving into the 1990s and 2000s, for economic reasons OSR rotations were reduced to around two years, says Andrew. "We lost a lot of aggressive insecticides for safety reasons, and we started to see a lot more pest pressure in OSR because of the tight rotations. But the whole time we still had neonicotinoids to help us grow crops pretty successfully. Despite this, the insecticides weren't providing long enough protection throughout the autumn period to entirely stop RWSW."

Incidental control

Tom's impression is that RWSW has been more of a problem in the East and through the central spine of the country and into the North of England and Scotland. "In these areas growers were previously relying on neonicotinoids and there may have been incidental control of the pest then, but this has all changed now. Today, many farmers may also have stopped using pyrethroids to manage CSFB, which, if correctly timed may have given some control of RWSW."

Andrew agrees. "Once we lost neonicotinoids, pest pressures got a lot worse. And this certainly became more of an issue when the number of pyrethroid applications in September and October were reduced. But what I don't know, and no research can tell me, is whether adult RWSW are resistant to pyrethroids. I suspect there must be some resistance because the pest has been exposed to them for decades."

As far as Tom's aware, there's no confirmed insecticide resistance but he accepts that this could have built up. "There's a knowledge gap here in terms of

insecticide resistance specifically and effective management of this pest in general."

A key way to differentiate the pest from CSFB is through the specific markings on the bodies of the larvae, says Tom. "CSFB larvae have a dark head capsule and a body covered in dark spots with a characteristic tail plate and, crucially, three pairs of legs.

"RWSW larvae, on the other hand, have a chestnut brown head and a creamy white body with no legs. Growers often have one pest or the other so there's not the opportunity to compare and contrast, however, they can occur simultaneously and coexist in plants," he explains.

Andrew believes that by understanding the life cycle of RWSW, growers will be better able to do something to disrupt this ▶



Tom Pope has been aware of anecdotal reports of RWSW becoming an increasingly important pest over the past 15 years.



RWSW larvae can kill plants or cause them to produce lots of lateral shoots.

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► and prevent some of the damage the pest can cause. "Farmers are obviously trying to do things to control CSFB and then are finding larvae in their crops in winter and spring and misidentifying RWSW for the more familiar pest."

One of the difficulties in

recognising the pest isn't just because it isn't talked about that much, but because RWSW and CSFB move into OSR crops around the same time, explains Tom. "This happens as crops establish in the autumn. And whereas CSFB lay their eggs in the soil and larvae

New pest on the block



Toby Simpson lost half his OSR area to a combination of factors, including RWSW, this year.

Over the past five years, he's noticed CSFB damage in the spring as larvae work their way into plants. "This has really been capping the yield and we've been using companion cropping but I don't think it helps hide the OSR."

This season he grew the smallest area of OSR since the crop had first been grown on the farm, at a total of 65ha across two different locations.

"Over the past few years, we've tried to get the crop in early so it can get away from CSFB in the early autumn," he details. "The goal has been to get it established and up and away, something we've managed to do fairly well with a few instances of poor establishment."

OSR crops usually have a starter fertiliser applied but last autumn this didn't happen. "Despite this the crop got up and away and was looking great. We noticed CSFB in the crop, but it also transpired that there was RWSW present. I'd never heard of this pest before, let alone thinking it might cause us problems and require spraying for."

Although Toby first noticed RWSW in the autumn, he felt the plants looked strong and thought they might grow away from the pest. "But the RWSW, combined with the frosts and the usual pigeon grazing, was the nail in the coffin and we've lost half the area we planted. We didn't have to spray it off because it was dead on its feet. I can't pin the blame solely on RWSW but I'm pretty relieved to see the back of the crop as it can be expensive to keep clean. Our second field of OSR also has the pest in it, but there's enough crop left to put through the combine."

Toby has a positive attitude to the

RWSW has been one of the nails in OSR's proverbial coffin for farmer, Toby Simpson. Farming around 650ha at Denton Lodge Farm, near Stilton in Cambridgeshire alongside his father, Toby lost half his OSR area to a combination of factors, including RWSW, this year, and has decided to stop growing it as a result.

Growing a range of crops including wheat, spring barley, spring oats and beans, OSR has fulfilled the role of a break crop. "I came back to the farm about nine years ago, but the farm has been growing OSR very successfully since the 1980s/90s," says Toby.

"At its peak, about 10 years ago, OSR was grown every third year. The local area is quite dry, which is a limiting factor, but we could guarantee a good yield of 3.5-4t/ha across the whole farm. However, we've slowly noticed a reduction in yield over the past five years. We adjusted cropping so OSR was only grown every sixth year and have more recently extended this to one in eight because it was becoming riskier to grow."

invade plants once they've hatched, RWSW lay their eggs in the junction between leaf petiole and stem over a period of several weeks or months, depending on conditions."

In Andrew's experience, adult RWSW move into crops from mid-September onwards.

"I think it's unlikely you'll find them in the crop in August or early September. And according to the published biology of the pest, RWSW can be in the crop but may not have started to lay eggs until late September/early October. So, this is the only window ▶



The OSR crop got up and away and was looking good but had CSFB and RWSW present.



The combination of RWSW, frosts and pigeon grazing, completely destroyed half the OSR crop at Denton Lodge Farm.

loss, having grown OSR with a low-risk approach this season. "I used home-saved seed, included a companion crop and in total it cost around £30/ha to establish. I approached it as a cover crop until I could decide whether it was worth spending more money on or not.

"If I grow OSR again, it'll be in a low-risk situation. But I won't plant the crop next season as there are just too many unknowns that are out of my control," he says. "This shouldn't impact the rotation too negatively and I might grow oats or spring wheat instead."

Toby's future OSR crops are likely to be grown as an intercrop and he wants to rely on more

natural ways of keeping it alive. "We're looking to change what we do on the farm and I don't think the answer comes in a can. I think OSR can be grown, but we just have to think smarter about how we do it. The high price probably kept us growing it longer than we should have."

And although Toby recognises there might be a lack of research into RWSW, he believes that as a farmer he can help push boundaries without just relying on the industry to investigate. "At the end of the day, it's what happens on the ground that matters, and the solutions may well be found through working out the right companion crop or through intercropping."



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RWSW larvae have a chestnut brown head and a creamy white body with no legs whereas CSFB larvae have a dark head capsule, a body covered in dark spots and three pairs of legs.

► available where there's a chance of controlling adults with pyrethroid insecticides.

"My strategy has been to apply an insecticide at this point to disrupt and limit egg laying because if you don't get control in that period, there's probably nothing else you can do. I find the pest incredibly difficult to find in crops and I have colleagues who put sticky traps out to identify their presence. You have to take a view as to whether you consider there's a risk and treat accordingly. Almost a spray and pray approach."

Staggered maturity

RWSW larvae burrow into the stems and feed at the base of the stems throughout winter and will continue to feed inside the plant until early spring, when they leave and pupate in the soil, says Tom. "The adults then emerge and cause no further damage, going into diapause until the next OSR crop is drilled in autumn.

"RWSW will either kills plants or cause them to produce lots of lateral shoots, resulting in extended flowering and ripening," he explains. "This results in a negative effect on yield and problems at harvest because the plants mature at different times, which is something you don't see with CSFB damage. There is little information on the yield impact of RWSW if the plant isn't killed but whole areas of a crop can be destroyed by this pest.

"This pest has been

underreported and urgently requires research," he stresses. "RWSW hasn't been considered an important pest to warrant detailed research into, but based on anecdotal evidence, it could be worth that investment of time and resource. However, we don't know if it's suddenly having more of an impact or whether there's increasing awareness of the pest as people post photos online and share experiences of damage caused by it."

Andrew feels there's a desperate requirement for some near-market research. "This could help the industry tackle the pest responsibly and, possibly, in an environmentally friendly way. I'd like to think we could make some improvements quite quickly."

Growers are asking for information on the pest, adds Tom. "But there's very little up to date information to report." ■



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