



OSR weed control

Smooth operator

A difficult season for herbicide application is likely to have resulted in an unwanted bounty of weeds in oilseed rape crops. With the final window having arrived for mastering some control, CPM digs deeper into the role of water conditioners.

By Melanie Jenkins

With few chances to get on top of weed control during the past few months, seizing the final chance of a herbicide application is paramount, and optimising application will be central to that.

A changeable drilling period, followed by months of rain and very few frosts, means there's a mix of oilseed rape crops out there, all at different growth stages, says Corteva's Joe Martin.

But the crux of the situation is that a lot of OSR hasn't had any herbicide applied at all, says ProCam's Rob Adamson. "The combination of it being so wet over the winter and many having grown companion crops with their OSR, meant no residuals were applied.

"Normally a follow-up herbicide would have been used to take out the weeds once the companion crop dies, but poor weather conditions and doubts about whether or not OSR crops would survive has meant many held off applying anything."

Now that the window to apply products such as Astrokerb (aminopyralid+ propyzamide) has closed, this means the next opportunity will be from 1 March using

clopyralid until flower buds are visible, which is a very short window, highlights Rob Adamson.

"This'll be your final chance to take out weeds in what, in some cases, are quite dirty crops. If neither a residual or winter herbicide was applied, then species like thistles, poppy and mayweed will have grown pretty big, making them a challenge to control."

Robbing nutrients

The issue with this isn't just about the unsightly visuals of weeds, but they're also robbing nutrients from and competing with the cash crop, which can reduce yield potential, he explains. "This is very topical this year due to waterlogging and nutrient leaching. OSR is becoming an increasingly challenging crop to grow, so if you've managed to establish the crop, then you can't afford to let weeds rob yield, or contaminate the seed sample at harvest — which can lead to price penalties. These things can make all the difference with gross margin."

These compounding factors means it's important to ensure that any herbicides applied from 1 March onwards are as effective as possible, stresses Rob Adamson. "If you have a viable crop, then it's now the time to start managing it to make sure that it's profitable."

According to Joe, Korvetto is one of the few options for control of broadleaf weeds in winter OSR during the spring. "Corteva suggests taking a programmed approach to achieve good broadleaf control, starting with what you've applied in the autumn, whether that's Belkar (halauxifen-methyl+ picloram), Astrokerb, Kerb (propyzamide) or a combination of those three, and then assessing what weeds you have in the spring.

“If you don't invest in the extra water conditioner, you're effectively throwing away your herbicide through cation lock-up.”

"Korvetto (clopyralid+ halauxifen-methyl) can be applied from the beginning of March onwards, at BBCH30 until BBCH50, so stem elongation up to before flower buds are visible above the canopy," he advises.

The herbicide can be used when temperatures are between 8-25°C and product label guidance suggests water volumes of 150-300 l/ha with a maximum



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Rob Adamson has seen situations where herbicides haven't worked as well as would be expected because the water has been too hard.

dose rate of 1 l/ha.

It provides good control of weeds such as thistles, cleavers, poppies and mayweed, says Joe. "And it can also be used to control a number of off-label weeds such as shepherd's purse, which I've seen quite a bit of lately."

In terms of safe practice, Korvetto shouldn't be applied if frosts are forecast or if the crop is stressed, as in water-logged situations, advises Joe. "It's also advised to be careful if your OSR is near sensitive crops such as legumes, potatoes and carrots but there're no restrictions to following crops if you've applied it, meaning it can be useful in the rotation."

Korvetto has an adjuvant pre-mixed in the formulation so this is one less thing for growers to think about, but a further addition worth consideration is a water conditioner.

Having done research with other halauxifen-methyl containing products, such as Belkar and Pixxaro (halauxifen-methyl+ fluroxypyr), De Sangosse has identified significant improvements in weed control when using a water conditioner, especially against less susceptible species, explains the firm's Rob Suckling.

Improving performance

Although research hasn't been done with Korvetto specifically, the related research indicates that including a water conditioner is likely to help improve performance, especially against less susceptible weeds where dose rate responses can be expected, he points out.

"We're pretty limited with what we can apply to OSR in the spring with only a few active ingredients available to us, and all of them are synthetic auxin Group 4 herbicides," says Rob Suckling. "As a group, these can all be affected — to a greater or lesser extent — by hard water as the chemistry is so similar.

"These herbicides are weak acids which can form salts with calcium and magnesium ions naturally present in water, and these salts will be less soluble and less biologically active."

This process is often referred to as 'locking-up' and the greater the concentration of calcium in spray water, the greater the potential becomes for loss of herbicide active to insoluble salt formation, he explains.

Although association between the cations and herbicide occurs in the spray tank, it's on the leaf surface as the spray droplet ►



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► dries that the salts precipitate. The resulting solids are then unable to diffuse through the leaf cuticle and ultimately, a percentage of the applied dose has been lost which can compromise the efficacy of the application, explains Rob Suckling.

"Water hardness varies across the country, but interestingly, the hard water areas correlate closely with the major combinable crop areas where the majority of herbicide use occurs. This is why water hardness is an important consideration," he explains.

"It's important to note the difference between water hardness and pH. Water hardness is a measure of dissolved calcium and magnesium, whereas pH is a measure of acidity. It's also vital to separate these two properties of water as their effects on agrochemicals are very different, and require different management approaches.

"The confusion often occurs as hard water (containing high levels of calcium carbonate), makes water slightly alkaline. Alkalinity can be an issue for some insecticide chemistry which can be hydrolysed in an alkaline environment. This is the chemical degradation of active substances into inactive

degradation products."

Different actives have varying susceptibility to react with calcium, and this, alongside water hardness and speed of evaporation, will determine how much product is lost to cation lock-up, he says.

"Clopyralid is a weak acid with a pKa value of 2.01. The pKa value is the acid dissociation constant at a negative log scale — the lower the number numerically, the stronger the acid indicating its propensity to ionise in water. In water, clopyralid will ionise readily which allows its association with calcium ions," says Rob Suckling.

True water conditioners

Preventing cation lock-up of valuable products is where water conditioners come in. "Using true water conditioners which control calcium in spray water prior to adding the herbicide can be beneficial in supporting the best possible efficacy — particularly against hard-to-control species."

He explains that true water conditioners control cations by acting sacrificially, forming irreversible complexes with calcium ions. "When the herbicide is subsequently added, it remains free to move through the spray water, able to diffuse through the leaf cuticle of the target weed as the spray droplet dries."

But beyond this, water conditioners, such as Aquadyne — an updated version X-Change — can provide a number of functionalities including pH buffering, humectancy and foam control, he says. "We call products which include these four functionalities, full water conditioners because they control water hardness, stabilise the pH to around pH 5 for optimal herbicide uptake, whilst mitigating any hydrolysis of pH sensitive pesticides.

"In addition, humectants prevent spray droplets from evaporating too quickly, allowing for maximum diffusion through the leaf cuticle. The anti-foam agents control



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foaming during sprayer filling.”

Growers should be aware that water conditioners are unregulated products — unlike pesticides and adjuvants — meaning the labels won't necessarily declare the effective components or their concentration, he advises. “Not all products are equal, and many won't control cations and prevent the damaging consequences they have on pesticide performance. Many are based on ammonium sulphate which doesn't control cations and this is the most important aspect of a water conditioner.”

In the field, Rob Adamson has seen situations where herbicides haven't worked as well as would be expected because the water has been too hard. “In some cases, growers have used a water conditioner but not enough to provide full cation control. Water conditioners should be used at a relative level to water volume and if you increase your water rate, then it's essential to up your dose of water conditioner.

“And although water conditioners aren't expensive, it might be off-putting to have to double your spend on them because you've

doubled your water rate. But if you don't invest in the extra water conditioner, you're effectively throwing away your herbicide through cation lock-up,” he warns.

Glyphosate is well-known to be affected by water hardness, but so are many other foliar applied, systemic herbicides, says Rob Suckling. “We're continuing to lose approvals for effective chemistry, so it's important to get the best out of what we have available to us, especially in challenging situations, with limited spray windows like we're seeing this year.” ■

Precision nutrition

Implementing strategic tactics and precision nutrition has enabled Hertfordshire grower Rob Fox to boost oilseed rape establishment and increase crop resilience heading into spring.

Through implementing a combination of SOYL nutrient mapping, regular soil testing and understanding the farm's history, Rob says he adapts to the requirements of each field where soil type can vary considerably across the 800ha farm.

He says this ensures nutrition requirements suit different conditions, while applying variably reduces fertiliser use and increases nutrient availability because efforts are focused on the highest yielding areas.

“When working with light, gravel soils but also medium loams and heavy clays, having a soil-first approach has put us in good stead for the spring growing season, particularly with OSR,” says Rob.

In a bid to reduce nitrogen use and maximise organic matter, he began executing his OSR nutrition strategy with an early autumn ‘sprinkling’ of PinKstart starter fertiliser, closely followed by an application of soil conditioner, Humistart+.

“This made the most of the natural mineralisation that occurs in warm, moist soils and meant the crop had a chance to form deep

rooting and quickly establish ahead of excessive winter rainfall,” he says.

With the opportunity to travel, an early February application of TOP-PHOS fertiliser was made, which contains Complex Super Phosphate (CSP).

“It's crucial to have a consistent supply of phosphorus and sulphur throughout the growing season, not just in periods of rapid growth. However, it's more for the soil than for the crop as it aids longer-term maintenance and soil fertility building for years to come.”

Rob explains that potash will be applied in the spring between nitrogen applications in March (urea) and April (ammonium nitrate). “The OSR has an early, front-loaded spring dose of nitrogen along with sulphur which is ahead of our other crops because it starts and finishes early.”

In the past 12 months the farm has received 150% of its annual rainfall. Rob says regardless of how wet the weather has been, he's still assumed there'll be a long dry spell in late spring which has become the norm in recent years.

“Although it's been wet it's also been mild, which has led the OSR to establish better while building resilience for the rest of the growing season. Luckily, most of the OSR has been planted in fields with gravel soils which have drained pretty well. There have been a few wet corners, but the crop has fared well overall.

“It's all a mixture of luck and judgement — a combination of selective drilling and application dates and an early approach to providing nutrients to get the roots down and the crop away from the ground when conditions are favourable.”

Rob says he aims to apply fertiliser in the most economical and environmentally conscious way. “I find it's better to farm smart, making decisions based on soil, crop and weather conditions rather than adhering to textbook dates, to remain cost-effective and reduce environmental impact.

“It's all in the preparation — you want to get the crop in the best possible place to withstand adverse weather events, whether that's an extremely wet winter or dry spring,” he comments.



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“It can allow excess water to infiltrate three-four inches below the crop while helping soils to hold on to nutrients and avoid leaching. However, it's important to not try too many new things at once otherwise it'll be difficult to define what's making a real difference.

“It's hard to quantify, but switching up the nutrition strategy and trialling a new variety (Resort — HEAR from LSPB) seems to have led to the crop getting well away from the ground early doors.

“Growing OSR has always been a battle but it suits our rotation. Last year, we achieved an average 3.2t/ha at harvest selling at £525/ha. But I'm happy with how it's established this season and the way it looks now heading into spring,” concludes Rob.