

The unsung hero of the spray tank



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MARK GLOVER

With tricky tank mixes, tight weather windows and suboptimal spraying conditions all threats to herbicide performance, *CPM* finds out how adjuvants can play a crucial role in optimising applications.

By Charlotte Cunningham

As every farmer or sprayer operator knows: getting the most out of every spray application is crucial. Whether it's herbicides, fungicides, insecticides, or even fertilisers, ensuring what can be costly inputs work as effectively as possible can mean the difference between a thriving crop and a disappointing yield – as well as being in the green or red

when it comes to the bottom line.

Of course, there are many things that impact a successful application – some within and some without the operator's control. However, there are actions that can be undertaken to minimise the effect of less-than-ideal conditions, complex tank mixes and difficult leaf surfaces, explains Agrii agronomist, Mark Glover. “Nothing changes in agriculture – the

same challenges exist whether it's an easy or difficult spraying season.

“So really, it's about tailoring your approach to the degree of those challenges. In a difficult spraying season, what tends to happen – as a general statement, and it varies by region – is tank mixes become more complex and water volumes are rarely above 100 l/ha.”

Application is often impacted too, he continues, with some products applied earlier than typically expected which means the water temperature is lower, which can adversely affect tank mixing.

“It also means in some situations, the amount of leaf target that's on the plant for these backward crops is less. So it's up to the farmer and agronomist to

overcome those challenges using the tools they have available in the armoury, with adjuvants an important part of that.”

Delving deeper into the potential challenges of difficult seasons, Mark says hefty tank mixes need managing in terms of tank mixing and ensuring product performance. “This becomes more complex as more products get added to the tank and hard water doesn’t help either. Lots of water in the UK is classified as hard, to a greater or lesser extent, which is important to keep in mind.”

MANAGING WATER

Water temperature is also significant, he adds. “This is especially where borehole water is used or when the water has been sitting in storage tanks over the winter. So if you have hard, cold water, lots of products going in the tank and a high pH, it’s important to be aware that things could go badly wrong if not managed properly.”

In this situation, Mark believes an adjuvant is critical. In simple terms, adjuvants are additives designed to enhance the performance of agricultural chemistry. “While they don’t have any direct pesticidal effect, the correct adjuvant can help the active ingredients in tank mixes to do their job better by improving spray coverage, reducing drift or ensuring better absorption, to name just a few benefits. All adjuvants are different and do slightly different jobs, but what we do know is Kantor from Interagro has some unique properties in that regard. The structure of the

molecule within it is substantially different than other adjuvants in the market.”

One of these unique properties is Kantor’s ability to prevent poor mixing, he explains. “In complex mixes, and especially in cold water, chemicals don’t combine. But because of the unique properties in Kantor, when we add this to the tank it prevents that from happening.”

Mark explains that this issue with tank mixing can be partially attributed to the formation of micelles – aggregates of surfactant molecules that form in an aqueous solution. Mixed micelles are subsequently formed when two or more different surfactants mix, particularly in scenarios of cooler water conditions. “Kantor essentially prevents formulation of the micelles in the tank mix. This is well-documented in literature and proven in trials,” he says.

Its drift reduction is another benefit over other adjuvants on the market, he adds. “A lot of growers have time constraints, which are compounded by adverse weather and a desire to get a lot done in a short time. Application rates 100 l/ha and lower are common.

“When this is teamed with perhaps an inappropriately high sprayer speed – which of can come down to short spraying windows – the combination of the two leads to significant drift which again reduces product performance.

“However, Kantor significantly reduces drift, including in circumstances where low water rates and high forward speeds are used. Even with drift reduction technology nozzles, you



Insurance in a can

With sprayer operators often pushed for time and dealing with large, complex mixtures, Agrii agronomist Dominic Swainson believes using an adjuvant is an insurance to keep chemistry working as it should.

can easily achieve an additional 20% reduction in drift just by using Kantor.”

As well as the reduction in drift, Kantor has been proven to aid uptake and retention of product on the crop’s surface. “That retention is known technically as ‘pinning’ which essentially ensures the product stay on the leaf.”

HIGH VALUE CROPS

For one grower and agronomist team in Worcestershire, Kantor has proven to be an essential part of the strategy.

Dominic Swainson, senior agronomist at Agrii, says the adjuvant has been particularly beneficial in vegetable crops for Will Parrot who oversees the production of more than 1,600ha of veg at Springhill Farm – part of Evesham Valley Growers – in the Vale of Evesham.

With sensitive horticultural crops including salad onions and asparagus in the rotation, using Kantor in with fungicide mixes has been a staple for some time, explains Dominic. “We get a lot of downy mildew at the farm – it’s probably the biggest challenge to salad onion production. The crop requires frequent spraying to keep the disease at bay. However, the fungicide range at our disposal isn’t as extensive or effective as it used to be, so we’re already on the backfoot when it comes to good disease control.

“What’s more, with the salad onions in particular, it has quite a waxy, very upright, round leaf, so getting good coverage can be challenging.”

As a solution to both reduced chemistry performance and application challenges, Dominic recommended



Solution saving

Adding Kantor to a mixture that wasn’t sitting in solution saved a tricky tank mix at Springfield Farms in spring 2023.

- ▶ Will try a combination of alternated backward- and forward-facing spray nozzles alongside Kantor in the tank mix.

“Not only did it help us to achieve good coverage, but it also improved the rainfastness to under 30 minutes. Because we’d be applying fungicides most weeks due to the downy mildew pressure, there’d be a crop at some stage that required a critical fungicide application. So it meant we could go out in less-than-ideal conditions and actually get very good results.”

TRICKY MIXES

As well as helping to keep salad onion crops clean, Dominic says Kantor has also helped to rescue tricky tank mixes in the past. “It was about two years ago, in March, and we had to apply a complicated pre-emergence herbicide mix on a couple of fields of asparagus,” he explains.

“The mix actually uses about five different products and with the cold water that was being used, it went into the tank and as soon as it started to spray out, the sprayer nozzles blocked up.

“I received a phone call, headed back to base, and picked up some cleaning materials so the team could clean out the nozzles, the lines and the sprayer. Then we pumped the spray solution into a couple of IBC containers.

“What we noticed when I took a sample from the IBC, was that it wasn’t homogenous – it wasn’t sitting in solution. The herbicides were sinking to the bottom and that was what was causing the problem. Obviously chemistry is very expensive, so I suggested adding some Kantor to see if we could rescue the spray mix rather than dispose of the sprayer contents.”

Dominic says they drew 10 litres off and added about 200ml of Kantor in each 5-litre can. “We shook it up and left it overnight and the next morning when we had a look it had gone back into solution.

“So we decided to pump it back into the sprayer with additional clean water and a good slug of Kantor, and off it went and sprayed out beautifully. So that was a lesson learned about a complicated tank and cold water early in the spring. Obviously, it’s always best to avoid this where we can, but Kantor does offer a solution when the pressure for spraying is high and farmers are left with limited options.”

Today, the farm uses Kantor across the rotation on both vegetable and cereal crops including with contact herbicides in maize to improve efficacy. “We’ll also use



Part of the strategy

Incorporating an adjuvant in the tank mix has become a core part of the strategy at Springfield Farms in Worcestershire.

Kantor with the herbicides in the spring for the sake of crop safety,” explains Dominic. “It’s become the philosophy to avoid any detrimental effect to the crop, because Kantor can improve the safety of herbicides and improves the efficacy and spreadability of fungicides.

“With rainfastness down to 30 minutes with Kantor, for a sprayer having to do complicated mixes and be here, there and everywhere, it’s an insurance which takes many of the problems associated with spraying away.”

Looking ahead, Mark says there’s potential legislation for adjuvants on the horizon, which he says could be a good thing to ensure products entering the market are fit for purpose.

“While adjuvants won’t have to go through the same registration process as crop protection products, they will require more evidence of justification of efficacy, which I think is a good thing.

“I’m very confident that if and when that happens, products such as Kantor will cut the mustard. With increasing pressure on UK farmers to be more precise, efficient, and environmentally responsible, adjuvants offer a simple yet highly effective way to get the most out of every spray application. By improving coverage, reducing drift, and helping active ingredients perform better, these unsung heroes of the spray tank can save time, reduce waste, and ultimately boost yields,” he concludes. ●

Pushing Performance

At the heart of good crop production lies careful use of chemistry to protect the plant and maintain performance, right through the season.

But optimising the efficacy of plant protection products can be challenging, while increasingly restrictive regulations limit just how far you can go.

This series of articles explores the science behind the use of adjuvant and biostimulant tools to help power both chemistry and crop performance, as well as increase understanding of why they’re needed and what they do.

We’re setting out to empower growers and drive crops to reach their full potential. Kantor is a unique activator adjuvant that brings unbeatable performance to crop protection sprays by removing the physical and chemical constraints that restrict activity and efficacy.

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