



## Sprayer survey

# The value of tech

**Investing in a new sprayer can raise numerous questions around opting for various technological and safety options, but how are machines likely to evolve over the next few years? CPM takes a look at the key features and why they're valuable.**

*By Melanie Jenkins*

**Technological advances in sprayers often have cost and chemical-saving or safety elements behind their invention, but it isn't always simple to justify the investment.**

And with only 22% of respondents to a recent grower survey conducted by CPM and Kuhn saying they'd want to have additional technology on their next sprayer purchase, what is holding the remaining 78% back?

According to Kuhn's Edd Fanshawe, there could be a multitude of reasons, ranging from the cost to the understanding of the new technology available. "One response to the survey which I found surprising was that more farmers aren't interested in spot application and individual nozzle use. Although 55% are interested, there's a further 45% which aren't and we're surprised more farmers wouldn't be able to justify the investment because going forward the pressure to reduce or optimise chemical use is likely to increase."

On the face of the investment, Edd feels that it's the upfront cost of the technology that is likely deterring some. "But the more this kind of technology is used on farm, the more worthwhile and value for money the investment becomes in the longer term."

Although this kind of technology is well-known across the industry now, he feels that not many farmers and operators have been able to use or had direct exposure to spot spraying yet. "There's only a handful of sprayers in this country that have it fitted, so it might be that there's a lack of understanding about the difference having it can make to an operation."

### Software and hardware

Additionally, there's a lot of software and hardware required in a spot spraying system, which means development is likely slowed somewhat and then this links back to the cost, he explains. "But we're at the point where the concept is right, there just has to be more awareness about what it can achieve on farm so that farmers are less reluctant to adopt it. At some point spot spraying will be the norm and I think in 10 years we'll be seeing this technology on every new sprayer people buy because it's fundamentally about saving money and reducing chemical use."

Answers to the survey flagged that only 26% of respondents felt that individual nozzle control was essential, while 60% believed it to be optionally important and 15% felt it was unimportant. "Individual nozzle control will be most important to larger operations where there's a greater benefit from having this technology."

However, Edd had anticipated a more even split between those feeling the technology is essential and those who don't.

*“When we come to see this system widespread, there'll be minimal interaction between the operator and chemical.”*

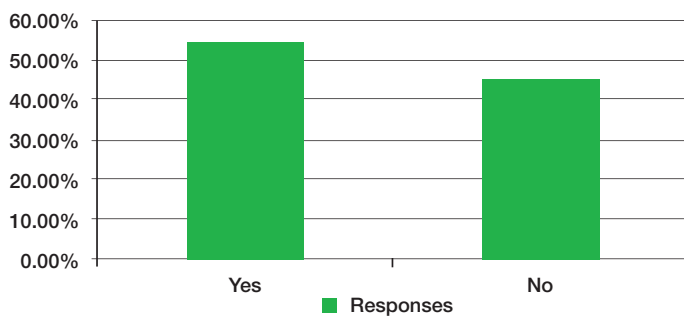
"There are definitely small margins to be gained by investing in individual nozzle control. Much like when adopting GPS it's helps to prevent any overlaps by a couple of centimetres and reducing wear, with individual nozzle control it means there's less chemical used if you're able to shut on any sections that aren't required. For example, you might have to spray a 1m section but because you don't have individual nozzle control you end up having to spray across a 4m section, meaning that's 3m of wasted chemical for that entire pass. Adopting technology such as this is all about understanding the cost benefits."

Further technology aimed at optimising chemical use and reducing costs comes in the form of boom levelling systems. "There's a good awareness of the impact boom levelling can have on operations, and with 78% of respondents to the survey rating it as essential it appears farmers and operators can see the benefits."

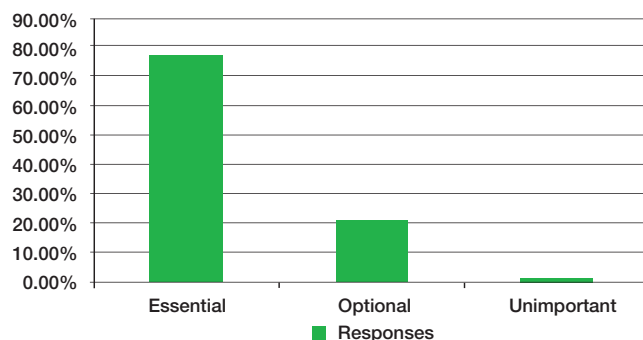
Those operating smaller boom widths — in the region of 12m — are less likely to see the benefits of investing in this technology, but for those operating wider widths, especially when using 24m or 36m systems, ▶

# Sprayer survey

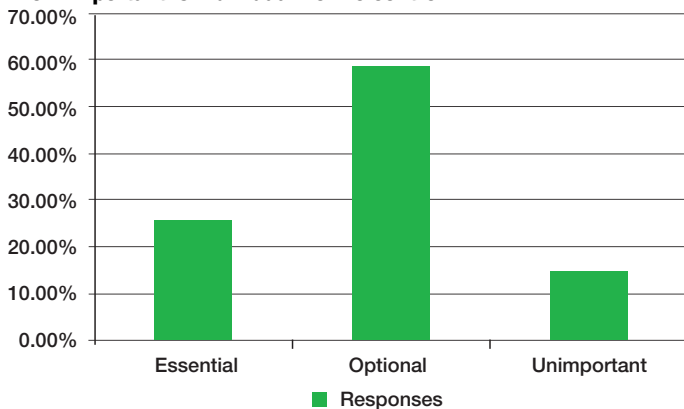
**If spot spraying technology to target individual plants was available, would you aim to justify this on your next sprayer purchase?**



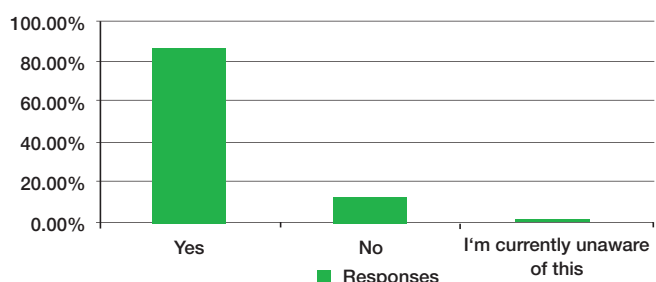
**How important is boom levelling technology to increase application accuracy?**



**How important is individual nozzle control?**



**Are you interested in using closed transfer systems to avoid chemical spills and protect the operator when filling up your sprayer?**



## Safety first

Safety when using and operating spraying equipment can't be undervalued, and closed transfer systems (CTS) have been designed to optimise just this.

Although most respondents to the survey (87%) were interested in equipping their next sprayer with a CTS, Edd was slightly surprised there were respondents who weren't interested in the technology. "A large majority of the respondents were either farm owners or managers and I do think that if more had been sprayer operators, the response would have been different again. Although the system is about improving safety and is likely to speed up chemical transfer, operators may think it'll slow them down."

The easyconnect CTS comprises of two main components, explains Adama's Jonny Oosthuizen. "The first part is a unique screw cap fitted to product containers and the second is a coupler which can either be fitted to the sprayer or connected to a separate frame in the designated filling area. The idea is that these two components work together and reduce the risk of spills."

A CTS coupler connects to the sprayer and negates the use for a classic induction hopper, he says. "In comparison with an induction hopper, using the easyconnect CTS means that product containers don't have to be opened in the tradition-

al sense, but instead the container is inverted and attaches to the coupler via the unique cap. The product is then delivered straight into the tank, so there's minimum operator exposure to the chemical.

"Not only does this make the handling of products safer for the operator and the environment, but it also means there are less points of potential contamination and no requirement to tip the products into the induction hopper. This process also makes chemical transfer quicker and once the container has finished emptying, the resealing is automatic, again minimising the risk of spillage," he adds.

Everyone understands that there are risks associated with chemicals, says Edd. "When we come to see this system widespread, there'll be minimal interaction between the operator and chemical."

Installing a CTS coupler doesn't require buying a new machine as they can be retrofitted, and if required, the unique caps on the containers can be unscrewed as normal so the product can be transferred to the sprayer in a more traditional manner, says Jonny.

Adama has been involved in a UK steering group for this technology since the early stages of its development and back in the spring the firm ran a



*According to Jonny Oosthuizen, closed transfer systems make the handling of products safer for the operator and the environment.*

pilot with its Arizona (folpet) product with CTS compatible caps on, he says. "We hope to roll out these caps on a wider range of our products so they're compatible with CTS systems but the speed of this will likely be driven by the uptake of the couplers within the industry. From Adama's point of view, anything that makes the handling of crop protection products potentially safer and faster is a positive thing."

Although CTS has been around for numerous years, it's still in the early stages in terms of on-farm uptake and there's no legislation in place that drives this. "Purchasing a coupler has a cost associated with it as does integrating the new caps into manufacturers' production systems, so this careful introduction gives the industry time to decide on which systems are most effective and work best."

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▶ the technology can make all the difference to accuracy, explains Edd.

“But boom levelling systems enable user to feel more confident going to wider widths and it might be the lack of having this technology that prevents them increasing their boom size. Because drilling width is so often dictated by sprayer width, introducing a boom levelling system might allow you to go wider than this.

“We're also seeing an increase in windier

## Winner announcement

Congratulations to prize winner Robert Heywood from Devon who responded to the CPM/Kuhn survey and provided an insight on whether a self-propelled sprayer with front mounted booms would be of interest and what the biggest benefits or drawbacks of this design would be. Robert won an Apple iPad worth £500.

He was chosen as the winner having completed the tie-breaker question, explaining that the ability to view front mounted booms in operation would be a big positive where there is undulating ground and it would provide peace of

mind regarding application efficacy.

Kuhn's Edd Fanshawe says the answer stood out because increasing application accuracy is something the firm is constantly looking at and understand it's a high priority for many users. “Although front mounted booms aren't popular in the UK currently, this answer proves that operators are willing to explore new practices and machine designs to improve precision.”

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days now than we have in the past, meaning there are fewer spraying days. But having a boom levelling system can open the spraying window wider and allow you to continue to work in conditions that likely wouldn't be able to otherwise.

## Boom levelling

“Boom levelling means sprayers can travel at increased speeds and still maintain accuracy, so efficiency is improved, both in terms of chemical use and the area it's possible to cover during the day. Additionally, there are a multitude of benefits aside from keeping the boom level, including reducing drift and improving accuracy of hitting targets.”

Another well-established technology, pulse width modulation, again has more benefits when fitted to larger sprayers. This technology allows users to adjust the droplet size from the cab and provides turn compensation so that there's an equal dose across the width of the boom, meaning there

are no overdosed areas on the inside of a turn or underdosed areas on the outside, explains Edd. “These systems allow the exact amount of chemical to be applied arounds corners and on bends, irrespective of how fast you're travelling.”

Responses to the survey highlighted that a number of businesses with 5000-6000-litre sprayers were interested in the technology but felt they couldn't justify the cost. “There might still be some hesitancy in the uptake of this technology where users haven't seen it in practice,” says Edd. “But it might be the case that a number of farmers don't have the hectareage to justify the investment.”

Edd believes that as farmers and operators see and experience more of the technologies on offer, the adoption will become more widespread despite the cost. “As the cost benefits and accuracy gains are realised, more and more farmers are likely to be willing to invest and in a decades time sprayers are likely to be even more technically capable than they are now.” ■

## Adapting for cost-saving

Covering all aspects of agricultural contract work on Anglesey, off the north-west coast of Wales, Rhys Jones introduced a Kuhn sprayer to his operation in 2021. Previously he'd run a self-propelled Knight sprayer, which he felt was great but was better suited to situations where land is all grouped together. “As a contractor I'm doing a lot of road travel, so I wanted to get something nipplier,” he explains.

Working across 2000ha per year on largely grassland, some maize and a smaller area of wheat and barley, he decided to purchase a mounted Altis 2002 with a 2000-litre rear and 1500-litre front tank. “We chose this because we could separate the water, meaning we could cover one customer and travel straight to the next

without necessarily having to go back to the yard to fill up.”

Rhys kept the same boom width as with his previous sprayer, at 24m, but opted for aluminium gullwing booms as opposed to the steel booms he'd had before. “I was a bit apprehensive about switching to aluminium booms because I hadn't heard much about them, but now I'd never go back to having a steel boom. The aluminium is so much lighter there's a considerable weight saving.”

One of the best features according to Rhys is the Diluset cleaning function which means the front tank can be cleaned separately to the rear tank and he can start cleaning both from the cab using the 170-litre front clean water tank and the 300-litre rear tank. “It's a really

handy element to have, especially when changing from a weed killer to a foliar fertiliser,” he says.

Another feature Rhys was keen to get on the Altis was auto shut-off but in future he'd like to get full section control for each meter. “It's an expensive investment, so now the sprayer has seven sections.

He had been running four-cylinder tractors, but his year purchased a New Holland T7 225 to use for his sprayer operations. “The sprayer is a heavy piece of equipment, so I'm potentially looking to changing from a mounted to a trailed sprayer, but I'd stick with Kuhn.

“Overall, my working hours have definitely gone down because of the travel speed and due to being able to carry two products.”