

The herbicide SU-ccess story



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ADAM ESPIR

Part of the broadleaf weed control armoury for 40 years, what’s behind the staying power of spring-applied sulfonylurea herbicides? *CPM* finds out.

By Janine Adamson

Cast minds back to 1985 – Live Aid rocked Wembley Stadium, Boris Becker won Wimbledon, and the British Antarctic Survey discovered the hole in the ozone layer. However, despite being less memorable for the general public, this year proved especially game-changing for British growers – the arrival of spring-applied sulfonylurea (SU) herbicides.

“I recall the launch advert being a rusty old barrel of chemical next to a small pack of SU herbicide – the premise was ‘beat the drum,’” remembers Adam Espir, former commercial technical manager for FMC.

“Visualising the low dose of SUs in this manner really captured the imagination of farmers. Suddenly they didn’t have to mix, store or transport such large quantities of product anymore, yet the results were just as good.”

Originally discovered by DuPont, the SU broadleaf herbicide range was transferred to FMC in 2017 following the acquisition of part of DuPont’s crop protection business. Active ingredients in the range currently comprise metsulfuron-methyl, tribenuron-methyl and thifensulfuron methyl.

Hampshire grower, Julian Gibbons, has

used SUs since before their official launch and agrees the change was memorable.

“Through connections with DuPont we were part of the pre-launch trial.

“We were used to lugging 20l cans of product around so having a small container was rather innovative – far less backache was involved,” he laughs.

So just how do SUs work? Contact acting, their mode of action means they’re classed as ALS-inhibitors – attacking an enzyme required for the biosynthesis of isoleucine, leucine, and valine amino acids. Because these amino acids are critical for cell division, post-application of an SU, weeds stop growing and slowly discolour before eventual mortality.

Adam highlights that as this mode of action was different to other products available at the time of launch, much work was required to educate users on the science. “Farmers had to trust that although it took longer to see symptoms than they were used to, the SUs were efficacious and control of the weeds would follow,” he highlights. “It was a new approach and it was different.”

Fast-forward to 2025 and Julian says for him, they’ve stood the test of time,

helping to combat key species such as chickweed, mayweed, fat hen and bindweed across the 450ha farm. “The alternative broadleaf options have since disappeared; we’ve lost a lot of products meaning we only have SUs and hormone-based weed sprays left for spring use.

“Ultimately, SUs do the job across a broad spectrum of weeds. Unlike other growers, we’ve not experienced problems with resistance – we either catch any broadleaf weeds with our autumn pre-em’s or target them when they’re small in the spring.

“That said, if any do slip through, the dose rate is flexible depending



Market launch campaign

Former commercial technical manager, Adam Espir, recalls the launch advert for SUs being based on ‘beating the drum’.

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on the weed size and the application window is wide,” he explains.

ADAS’ Dr Sarah Cook points out that known cases of SU herbicide resistance are increasing, primarily in poppy, chickweed and mayweed. “And there are many more species out there that have resistance that we haven’t found yet.

“Therefore it’s critical to identify resistance rather than brush it under the carpet as a herbicide failure. Rotations can be wide and variable now and situations where resistance can be an issue, particularly in broadleaf species, are relatively rare,” she says.

“So it’s important to identify when it is indeed herbicide resistance, as broadleaf weed seeds have a long life in the seedbank and will come back in greater numbers in the future, making for a significant problem.”

Adam acknowledges the growing threat of resistance, but stresses the pace at which it’s developing is much slower than in other classes of active ingredients. “From day one of SUs, the advice has always been to mix or alternate modes of action as part of a proactive anti-resistance strategy.

“The launch of the new, improved SX formulation in 2004 supported this further, enabling greater tank mixing and better solubility,” he highlights.

Sarah agrees that stewardship has been and will continue to be key, for the longevity of SUs. “Apply products at the



Resistance concerns

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right rate to the correct growth stage and when the weeds are actively growing.”

And it’s not just the stewardship of conventional SU herbicides that requires attention to detail, she believes.

“Another threat on the horizon has to be the introduction of the herbicide-tolerant varieties – Conviso sugar beet and Clearfield oilseed rape. Although they’ve been excellent for the control of weed beet and brassica weeds respectively, they can facilitate more rapid development of herbicide resistance to SUs. Therefore, use this technology wisely and follow the guidelines stringently.”

With new weed threats ever on the horizon, Adam says this is another area where SUs can continue to be

the solution. “When growers reported increasing incidences of bur chervil, FMC invested in trials to understand whether SUs could offer control. Another ‘new’ threat has been in the guise of cover crops, for example – phacelia in subsequent crops of spring barley.

“Providing trial data on whether SUs can control these emerging weeds has been important to keep the products current to the requirements of growers, especially when no new technology has arrived to supersede them. Similar solutions have come along, but there’s been little in the way of comparable innovation for the past 40 years,” he says.

Despite being based on older technology, FMC’s product manager, Hazel Blanshard, believes SUs meet the expectations of modern farming systems where protecting the environment is of key concern. “Not only is the low dose an efficient and convenient delivery mechanism for the grower, but it means SUs pose a lower threat in terms of their ecotoxicological profile.

“SUs are much less soluble than other contemporary actives and this, together with the innate low dose innovation which delivers far less product, offers benefits to the environment particularly watercourse contamination.”

Hazel perceives SUs as the stalwart of broadleaf weed control. “It really is a positive story – 40 years on and they remain front of mind,” she concludes. ●

Agronomic perspective

According to Frontier’s Paul Fogg, the arrival of spring-applied SU herbicides undoubtedly simplified agronomy in terms of broadleaf weed control

The SUs came in with a low use rate, were kind to the crop, easy in the tank, and offered a broad spectrum of control.

“The world has since changed though – with the area of autumn-sown crops and therefore quantity of residual chemistry being used much greater, it’s somewhat shifted attention away from the role of SUs,” he explains.

Paul also reminds of persistency: “If applying later in the season due to drilling date, use of cover crops or other rotational shifts, you have to accept there’ll be a high level of crop interception during establishment. For an active like metsulfuron-

methyl, this will be quite significant therefore specific SU choice will depend on both its persistency and the weed in question.”

As for the alternatives, he perceives a steady evolution is taking place. “Hormone-based options such as MCPA or MCPP do have a role to play but we see them as offering complementary activity to the SUs rather than being the foundation.

“If you’ve leant on spring barley in your rotation, and therefore relied on SUs and are now seeing resistance issues, it’d be wise to consider introducing MCPA/MCPP. But definitely don’t give up on SUs



Alternative choices

Hormone-based options have a role to play but offer complementary activity to the SUs rather than being the foundation, says Frontier’s Paul Fogg.

altogether – test for resistance and be smarter – responsible use of all chemistry is essential,” he stresses.