

Partners in success

“To have a solution which works well on its own – and even better with a partner – is invaluable.”

Research Briefing

The latest trials by Nufarm have shown that the scope of weed control by its sulfonylurea herbicide, Paramount Max, can be extended to ‘off-label’ species when paired with partner products — helping growers to tackle some of the most challenging weeds. CPM finds out more.

By Charlotte Cunningham

For as long as chemistry has existed, farmers and agronomists alike have experimented with various mixtures and combinations to try and get the best from weed control.

Iain Allan — account manager at Nufarm — is no exception, having worked as an agronomist for over 20 years.

Over this time, Iain says he identified trends and ‘tricks of the trade’ when it came to optimising the control of some of the most troublesome weeds which were not on the label, which ultimately led to Nufarm’s latest research into the efficacy of its sulfonylurea herbicide, Paramount Max (florasulam+ tribenuron-methyl).

“Based in the north of Scotland,

spring barley was my main crop and one of the SU herbicides I used to use frequently was a product called Inka (thifensulfuron-methyl+ tribenuron-methyl).”

Iain explains that he learnt very quickly that if an adjuvant was used with Inka, it appeared to control weeds which weren’t on the label. “It dawned on me that in some ways, Inka was quite similar to Nufarm’s product, Paramount Max, in that they both contain tribenuron-methyl and are co-formulated with another SU.

“So when I joined Nufarm — which had recently just purchased Paramount Max — I had a suspicion that I could make the product work in a similar kind of way, which has essentially been the driver behind these latest trials.”

Problems with fumitory

The trials were carried out in Scotland where there are a number of weeds which are very troublesome for spring barley growers, says Iain. “The most problematic is probably fumitory — it robs yield and can be difficult to control — and it’s very expensive to do so.

“But the biggest challenge with the weed comes at harvest time as it wraps itself around combine headers, causing real hardship for farmers at what can already be a busy, time-sensitive period of the year.”

As such, he decided to establish two years of trials to put Paramount Max to the test and see if it was possible to bolster control of weeds not on the label.

Year one

The first year of the trials saw Nufarm use Paramount Max with three different partners — mecoprop-P, its own product High Load Mircam (mecoprop-P+ dicamba) and Corteva’s product, Pixxaro (halauxifen-methyl+ fluroxypyr).

“We got extremely good results and the weed control across the board was fantastic,” recalls Iain.

Pleased with what he saw, Iain says he then wanted to take the results and develop them further to get a deeper understanding of how exactly Paramount Max worked in a working situation and how it could be manipulated to maximise weed control.

“I put my agronomist cap back on here, and decided I wanted to look at the ▶



Trials were carried out using ‘realistic’ dose rates of Paramount Max to provide more representative results, explains Iain Allan.

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All the trials were carried out in spring barley, on 12m strips down a 10ha field.

► performance of the product at realistic working rates — not just a manufacturer's recommendation. You can make anything work at full rates, but let's be honest, no agronomist uses these," he laughs.

Year two

To study realistic rates, Iain wanted to carry out the trials on a working, commercial site. "I spoke to James Hardie — an agronomist I know well — who managed to find me a suitable site belonging to a livestock farmer, who produced a lot of grain crops for his cattle.

"He was working a 12m sprayer, which made it ideal for the trial. Here, we trialled four treatments — Paramount Max on its own, Paramount Max with an adjuvant, Paramount Max with Duplosan KV (mecoprop-p) and Paramount Max with Duplosan KV and fluroxypyr.

"With regards to the adjuvant, I decided to choose just a methylated rapeseed oil as we knew every distributor would have access to this."

All of the trials were carried out on



Fumitory in spring barley can be very difficult and very expensive to control.

spring barley, on 12m strips down a 10ha field. In terms of rates, Paramount Max was kept at 15g within each treatment (compared with the full rate recommendation of 25g).

The trial strips were also compared with the farmer's usual treatment of a Harmony M (metsulfuron-methyl+ thifensulfuronmethyl) plus Duplosan tank-mix on the rest of the field.

Looking to the results, Iain says that it was no great surprise that Paramount Max on its own killed the weeds the label stated. "It didn't, however, kill off any species that weren't listed on the label — including the problematic fumitory. Effectively, this was a benchmark trial to see what Paramount Max wouldn't kill, which would allow us to compare how we could boost this with various other partners."

To his delight, the Paramount Max with the methylated rapeseed oil (at a rate of 0.5 l/ha) delivered a much more promising result. "It worked exactly the way I thought it would after seeing the capabilities of Inka when used with an adjuvant," he explains.

"It provided control against fumitory, but it killed the weed in a different sort of way than perhaps we'd been used to.

Effectively, this combination of products causes the youngest growing point of the fumitory to start to blacken and that blackening starts to spread throughout the plant — enabling growers to take out weeds up to 10-12cm, which is quite a mature plant.

"And this was still only using Paramount Max at just over a half rate of 15g. We were also bolstering the control of other key weeds — namely polygonums like knotgrass and redshank. We also saw improved control of chickweed and even saw activity on pansies.

"Pansies can be quite difficult for an SU to control if they get to any size. In the good old days, we had products in the armoury which were able to provide control, but these have since been withdrawn, so to have something which provides an effect on difficult weeds was great to see.

"Methylated rapeseed oil isn't a fancy adjuvant and there are much better, more effective options out there, but the comparative difference in control just by adding a bit of this was really interesting."

When used with 1.25 l/ha of Duplosan, Paramount Max performed well and quickly — speeding up the kill of key weeds like chickweed, explains Iain. "One of the best results we saw was with the final treatment (Paramount Max, 1 l/ha of Duplosan and 0.4 l/ha of a 200g/litre fluroxypyr).

"The results were absolutely fantastic — I call it a 'scorched earth' policy where absolutely nothing survived," he laughs. "There was no evidence of any weeds at all, and there are certain scenarios where we'd recommend this mix to agronomists."

Iain says this includes where growers have ALS-resistant chickweed, for example. "This is incredibly common in the north of Scotland, but with this mix

Agronomist's view

James Hardie, agronomist at Agri Solutions, was responsible for finding the trial site used in the second year of research into Paramount Max.

The farm belonged to one of his clients who was struggling significantly with weed control in his barley, making it a perfect site, he explains. "The farmer grows around 40ha of spring barley and a small amount of spring oats, and has historically had severe issues with chickweed, docks and thistles, to name a few. He has also had some issues with resistance in some of the

chemistry he was using."

Going forward, James says he'll be using and recommending more Paramount Max — with a suitable partner. "These weeds have caused issues for growers for a long time, and unfortunately, the same course of treatment has been prescribed which has led to increased rates and issues with resistance in some cases.

"But to have a solution which works well on its own — and even better with a partner — is invaluable."

Year two treatments and results summary

Treatment and rates/ha	Result
Paramount Max only (15g)	Killed on-label weeds, but no activity on off-label species
Paramount Max (15g) with 0.5 l of methylated rapeseed oil adjuvant	On-label weed kill plus control of fumitory. Also improved the control of other key weeds like knotgrass, redshanks, chickweed and even saw activity on pansies
Paramount Max (15g) with Duplosan KV (1.25 l)	Good control of on/off-label weeds, speeding up the kill of weeds like chickweed
Paramount Max (15g) with Duplosan KV (1.0 l) and fluroxypyr (0.4 l of a 200g/l product)	'Scorched earth' result where absolutely nothing survived. Particularly useful in cases of ALS-resistant chickweed. This is where the best results were seen

you've got both the mecoprop-p and fluroxypyr attacking the chickweed while the florasulam within Paramount Max is helpful if its SU resistant.

"Arguably, the tribenuron-methyl does nothing in this situation and this is something we've just got to accept when you've got SU or ALS-resistant chickweed."

Iain says they'd also recommend the treatment in oats, or on ground with very heavy weed burdens. "Oats are a very sensitive crop compared with barley. However, they became quite a common

part of rotations for a while as growers sought a third crop for the three-crop rule and the prices were fairly reasonable, so having good weed control options is paramount."

The benefit of carrying out the trials in a real-life setting, compared with replicated plot trials for example, is that it allowed the team to see the 'warts and all' of the treatments, he adds. "I believe this gives a much more realistic picture of what farmers are likely to actually see in the field."

Though Iain says his agronomists' 'nose'



Spring barley is one of the main crops in Scotland, but success can be hampered by weeds.

Paramount Max – everything you need to know

Paramount Max is a co-formulation of florasulam+ tribenuron-methyl and is designed to help growers control a range of broadleaf weeds including chickweed, groundsel, poppies, mayweed and cleavers, explains Iain.

A full rate dose is 25g/ha, and Iain explains that Nufarm is the only manufacturer to have this specific co-formulation available.

"How to get the best from Paramount Max all depends on what you partner it with," he adds. "It also has an extremely short half-life,

so if agronomists are needing to clear up mayweeds or late flushing volunteer OSR, for example, it can be used right up until flag leaf in winter cereals.

"After nine weeks, that product is completely gone and there's no chance for residual activity on cover crops, or OSR."

It partners very well with phenoxyes too, adding another element of flexibility into the strategy, he concludes.



Repeatedly prescribing the same weed control treatment causes issues with resistance, says James Hardie.

and previous experience with similar products meant there weren't too many surprises within the trial, it did reveal the limit of pansy control. "If pansies are any size — once they start to get 8-10 leaves on them — then control does become a bit more of a challenge, but I think this is more to do with the nature of the weed rather than a failure of the product," he adds.

In contrast, what he was most pleased to see was the fumitory control. "Anyone who grows spring barley in this region knows just how severe fumitory problems can be — but we've now been able to prove there is another way to control it. It's always great to have a different way to kill something."

So what's next? Iain says the firm is currently working on another SU, which is currently going through the registration process. "The trials so far are looking very promising when compared with a 'standard' treatment — so watch this space for more information..." ■

Research Briefing

To help growers get the best out of technology used in the field, manufacturers continue to invest in R&D at every level, from the lab to extensive field trials. *CPM* Research Briefings provide not only the findings of recent research, but also an insight into the technology, to ensure a full understanding of how to optimise its use.

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