

The promise of certainty

“For the grower, this means both visible results and tangible yield uplifts.”

Miravis launch

The latest in a line of new UK fungicide launches, Miravis Plus, which features the long-awaited Adepidyn technology, is finally here. *CPM* learns why it's hailed as a step-change in disease control.

By Janine Adamson

The last time *CPM* explored fungicide technology Adepidyn was back in July 2021. And now, nearly three years later, the product has finally landed in the form of Miravis Plus.

Syngenta admits that hopes were high for the chemistry being available before this season, but nevertheless, initial demand following its authorisation in early April would suggest growers believe it's been worth the wait.

But why the fuss? Firstly, Adepidyn is the trademark for active ingredient pydiflumetofen, which belongs to a new group within the class of SDHI fungicides (the N-methoxy-(phenyl-ethyl)-pyrazole-carboxamide group).

And because the chemical structure of the Adepidyn molecule is different from other SDHIs, trials have confirmed it can offer greater potency against a broad spectrum of diseases while delivering considerable yield uplifts.

Syngenta's Lizzie Carr-Archer explains that although Adepidyn is registered in 50 countries across a variety of crops, it'll be available in the UK market for use in cereals as Miravis Plus. "We're marketing the concept as a co-pack, so it'll be presented as Miravis Plus with Era (prothioconazole).

"Miravis Plus is ideally suited for T2 use in wheat and barley at one application per crop (see table), and we're delighted to have a label with no restrictions including buffer zones," she says.

Mode of action

The chemistry behind Miravis Plus works by adhering to the plant and penetrating rapidly through the leaf surface. This creates a reservoir of active ingredient in the waxy layer of the plant tissue to enable even distribution and long lasting protection.

Syngenta's Jason Tatnell says the result is a step-change in the control of diseases such as septoria in wheat and net blotch in barley. "However, another jewel in the crown is its control of fusarium, which is unique within the SDHI class."

Furthermore, the company is using three key words to describe the fungicide in its launch communications — superpower, stamina and certainty — all which Jason says contribute to yield.

In terms of 'superpower', he explains this



Miravis Plus with Era is ideally suited for T2 use in wheat and barley at one application per crop, says Lizzie Carr-Archer.

is related to the product's potency. "Based on EC50 scores [the concentration (or dose) effective in producing 50% of the maximal response], you require less Miravis Plus to achieve the desired results in septoria control, compared with the first and second generation of SDHIs. In fact, it offers a 100-fold increase in potency in these tests which we view as a true step-change," says Jason.

"As for ramularia, which has proven very ▶

Recommended rates	Miravis Plus (pydiflumetofen) + Era (prothioconazole)
Winter wheat T2	1.5-2.0 l/ha + 0.5-0.67 l/ha
Winter barley T2	1.33-1.5 l/ha + 0.44-0.5 l/ha
Spring cereals T2	1.33 l/ha + 0.44 l/ha
	To be used together, one application per crop

ULTIMATE PROTECTION

For a higher yield
and a profitable harvest

UNIQUE

A novel site of action
with no cross resistance
to any other chemistry

FLEXIBLE

Broad spectrum and
rainfast, Univoq™ gets
to work quickly

ROBUST

Exceptional crop coverage
providing long-lasting
disease control

Protect now. Profit later.

Univoq™
Inatreq[®] active

FUNGICIDE

Unique, flexible cereal disease control.

Univoq™ fungicide offers persistent protection and curative control of all Septoria strains. Its broad-spectrum disease control ensures a higher yield, to secure your profit and protect the future of your farm.

Discover more about the benefits of Univoq and our latest application advice at:
www.corteva.co.uk/univoq



Discover more at www.corteva.co.uk
Technical Hotline: 0800 689 8899 E-mail: ukhotline@corteva.com

USE PLANT PROTECTION PRODUCTS SAFELY. Always read the label and product information before use.
For further information including warning phrases and symbols refer to label.
Corteva Agriculture UK Limited, CPC2 Capital Park, Fulsbourn, Cambridge CB21 5XE. Tel: 01462 457272.
* Trademarks of Corteva Agriculture and its affiliated companies. © 2024 Corteva.
Univoq™ contains triprokoxamid (inatreq[®] active) and prothioconazole.



Less Miravis Plus is required to achieve desired results in septoria control, compared with the first and second generation of SDHIs, says Jason Tatnell.

► difficult to control since the loss of chlorothalonil (CTL), Miravis Plus offers very good activity — again 100 times more potent than comparable SDHIs (bixafen and fluxapyroxad), seen in similar lab tests.

“If you take this to the field across two leading barley varieties, there’s a visible difference in ramularia control. The plots sprayed with Miravis Plus with Era at T2 after no T1 are much cleaner and greener; it’s a great new partner to the multi-site folpet.”

Jason also commends Miravis Plus’ control of brown rust in wheat and net blotch

and rhynchosporium in barley, offering all-round broad-spectrum activity.

But even more compelling is the product’s ‘stamina’, he says. “Despite being applied at T2, Miravis Plus accumulates in the plant even until T3 for long-lasting protection. This has been demonstrated during a pot test where product concentration in the flag leaf was sampled.”

Increasing concentration

“The application of Miravis Plus was made to leaf two just before the flag leaf had emerged. Plants were then grown on with samples taken at 14 days and 28 days. The results show that the product concentration within the flag leaf continued to increase during this time, demonstrating the active’s movement to new growth,” explains Jason.

Then, from an in-field perspective, green leaf area measurements further support the concept that Miravis Plus has endurance. “Research has shown that for every day from crop flowering onwards that green leaf area is kept at 37% or above, wheat yield can accumulate by 0.15t/ha.

“So looking at the time in day degrees that it takes for the flag leaf to degrade to 37.5% green leaf area, Miravis Plus with Era took the longest in ADAS trials, compared with other leading fungicide options,” points out Jason. “For the grower, this means both visible results and tangible yield uplifts.”

This stamina of the product over time is likely to be the reason why Miravis Plus is delivering on fusarium head blight control,

he adds, which is unique within the SDHI group of fungicides.

“We acknowledge that T3 is the best timing to control fusarium, but by using Miravis Plus at T2 you minimise risk later down the line. In fact, research conducted by Harper Adams University has shown that an application of Miravis Plus with Era at T2 makes it more likely that a T3 of prothioconazole will keep a crop below the DON thresholds (currently 1250ppb).

“This is a ‘free kick’ into fusarium control and increases the success rate of an overall fusarium strategy,” says Jason.

Disease control aside, what about the aforementioned promised yield uplifts — the reasoning behind the ‘certainty’ descriptor? Across all wheat trials at like for like doses, Miravis Plus with Era offers a 0.3t/ha uplift on fenpicoxamid+ prothioconazole and a 0.5t/ha uplift over mefentrifluconazole+ fluxapyroxad.

Focusing on one trial in particular, across the average of three high septoria sites in 2023, Miravis Plus 1.33 l/ha with Era 0.44 l/ha offered a 1.69t/ha advantage over the control (all crops received a standard T1). Compared with fenpicoxamid+ prothioconazole it delivered +0.31t/ha, whereas with mefentrifluconazole+ fluxapyroxad it was +0.54t/ha.

However, Jason says the yield benefits in barley are even more exciting. “Again, averaging all 122 barley trials undertaken from 2020-23, for all diseases at all levels, Miravis Plus with Era delivers a 0.5t/ha ►

An independent perspective

According to NIAB’s Dr Aoife O’Driscoll, it’s difficult to identify any negatives about the Miravis Plus (pydiflumetofen) with Era (prothioconazole) product offering.

“Performance-wise, Miravis Plus’ only weakness is potentially brown rust, but other actives can plug that gap,” she says. “For T2, the best chemistry available is undoubtedly the two SDHIs Miravis Plus and Iblon/isoflucypram, or, Inatreq/fenpicoxamid.”

Aoife says because Miravis Plus sits in a sub-class of the SDHI group, it’s a useful resistance management tool. “With the plethora of chemistry now available, there’s no reason to not mix and alternate modes of action across a fungicide programme. Ideally, we want to protect the chemistry for 10-15 years rather than the 3-5 year cycle we’ve been seeing during recent times.

“Key to this will be effective use of the co-pack — prothioconazole is a good mix

partner which can be supported by folpet if resistance status warrants it. But definitely avoid mixing with another SDHI and certainly don’t split the co-pack,” she warns.

Her advice is due to the pace in resistance shifts across the SDHI group of fungicides — mutations seem to occur much quicker than in azoles, for example. “As with the other recently launched SDHIs, this makes Miravis Plus high risk resistance-wise,” says Aoife.

She agrees with Syngenta in that Miravis Plus with Era is a positive launch for the industry and admits that in terms of persistency, it does stand out above the rest. “In NIAB trials we’ve seen good kick-back activity for 4-7 days against septoria and yellow rust which is another bonus.

“It also offers strengths in barley and is comparable or significantly better than other available SDHIs in the control of ramularia. This is especially useful for those who’ve been grappling with resistant ramularia strains and



Dr Aoife O’Driscoll says avoid mixing Miravis Plus with Era with another SDHI and certainly don’t split the co-pack.

could be a game changer in those instances.”

Aoife also commends the fungicide’s activity against fusarium in wheat. “It’s proven to bolster the efficacy of T3 products which will be especially important when milling premiums are as high as they are,” concludes Aoife.

KEEP YOUR BEANS SPOTLESS.

UNLOCK PULSE POTENTIAL WITH SIGNUM®.

Growers know that pea and bean yields are notoriously unpredictable. Proven fungicides, such as Signum®, are one way to improve results.

Widely recognised as the best product for chocolate spot control, Signum® maximises pulse yields by stopping botrytis and rust in their tracks, whilst also keeping leaves greener for longer. Shown to increase yields by 20% compared to untreated bean crops and achieve £30/ha more margin than a farm standard programme*, Signum® builds yield and margin.

Visit agricentre.basf.co.uk/signum for more.

*Based on two winter bean trials by PGRD and CWT in 2020 comparing two applications of Signum® at 0.8kg/ha with two applications of azoxystrobin and tebuconazole, versus untreated yield of 4.2t/ha, no chocolate spot present. Beans price based on £200/t.

BASF

We create chemistry

Signum® is a registered Trade Mark of BASF. Signum® contains boscalid and pyraclostrobin. Use plant protection products safely. Always read the label and product information before use. For further product information including warning phrases and symbols refer to www.agricentre.basf.co.uk. © BASF 2024. All rights reserved.

Managing ramularia in barley

SRUC's Neil Havis says in high-pressure ramularia trials, Miravis Plus-treated plots cause people to stop in their tracks, in a good way.

"With the loss of chlorothalonil (CTL), Revystar XE (mefentrifluconazole+ fluxapyroxad) is the most effective alternative for ramularia control. However, there are limits on the product's application date with a cut-off of GS45 in malting barley which can be too early. And if you miss that window, that's it.

"Miravis Plus offers a much-welcomed alternative with greater flexibility," he adds. "It's impressed the host farmer in our trials which says a lot."

Professor Fiona Burnett agrees that over the duration of a career in plant pathology, there might be two or three actives that stand out and this is one. "It's been genuinely exciting to see in trials, however, this year is difficult with limited spring barley in the ground due to

inclement weather.

"So it will all depend on how much growers want to spend on a crop this season, and at the moment, we really don't know," she says.

Both stress the importance of resistance management to help prolong the life cycle of Miravis Plus. "Ramularia is a disease which mutates quickly with other SDHIs breaking down around 2017," says Neil. "We've lacked good fungicidal activity for some years, so a robust resistance management strategy will be key."

Fiona believes only being able to use the product once in a season will help. "And like Univoq, (fenpicoxamid+ prothioconazole) this is clearly stated on the label.

"Otherwise, using the lowest effective dose is helpful in reducing the risk of resistance — so don't use any more of the active than is necessary, while keeping up the dose of Era (prothioconazole). Equally, bolstering with multi-site folpet does offer a small benefit in



According to Professor Fiona Burnett, over the duration of a career in plant pathology there might be two or three actives that stand out and this is one.

terms of stewardship," explains Fiona.

Trials have also shown that pairing with folpet can further improve ramularia control in particular, concludes Neil.

► uplift compared with mefentrifluconazole+ fluxapyroxad.

"And for our in-house barley trials across 20 sites, the yield uplift was +1.73t/ha over untreated, +0.53 over mefentrifluconazole+ fluxapyroxad and +0.4t/ha over bixafen+ fluopyram+ prothioconazole. Overall, the co-pack seems to deliver 0.5t/ha compared with the competition," he comments.

But Jason believes there's more to certainty than just yield, and that Miravis Plus offers a host of wider benefits to address the uncertainties of farming life. "This new launch offers the expected level of excellence from Syngenta formulations

which results in a reliable cereals-safe product.

"Furthermore, we have a wealth of sprayer performance data which has become increasingly important of late. We're also assured of Miravis Plus' performance on disease resistance varieties — and that it delivers the same results in those scenarios," he stresses.

"And it's worth noting that SDHIs continue to deliver when there are weather extremes, particularly in hot and dry conditions which we've historically experienced during the spring."

Finally, for those seeking malting

premiums, the BBPA (British Beer and Pub Association)'s agrochemical list now includes pydiflumetofen (Adepidyn).

So for a product which offers so much, will it become the number one choice for growers? Lizzie says demand appears to already be there with a surge in website activity since the product's authorisation was announced. "We're also working to achieve registration for alternative formulations under the Miravis brand family to cater for other crops," she adds.

But with a range of recently launched fungicide options available at varying price points, only time will tell. ■

Agronomic point of view

In terms of septoria control, used properly and at the correct dose rate, Miravis Plus with Era should provide excellent results, says head of integrated crop technologies at Agrii, Dr Ruth Mann.

"Agrii has been trialling pydiflumetofen/Adepidyn in some form since 2019 and it's continually come out on top. A stand out is certainly its activity on septoria — it has the potential to be amazing," she continues.

For balance, Ruth believes the product's control of yellow rust is more average and that mixing with other actives will be required to compensate for this if the situation demands, such as tebuconazole.

As for what some might see as the elephant

in the room, she stresses that because it's a quality, potent product and has been priced accordingly, growers should avoid the temptation to cut rates below effective doses.

"It's premium and is admittedly expensive. But dropping the dose rates below the optimum level to improve affordability wouldn't be wise — I'd be worried about the efficacy and risk of resistance in that instance.

"However, other fungicide options remain which offer good disease control, rather than opting for Miravis Plus with Era and going against stewardship guidance," says Ruth.

"This is a very difficult year for everyone and input spend is pinched, but remember next season could be wholly different. Being realistic in decision making is vital," she concludes.



Dropping dose rates below the optimum level to improve affordability wouldn't be wise, stresses Dr Ruth Mann.