

Crop Protection



\$11 million boost for war on weeds

MINISTER for Primary Industries, Katrina Hodgkinson has announced a list of projects for ongoing noxious weed control worth more than \$11 million, which the NSW Government will fund in the 2013/14 financial year.

Ms Hodgkinson also revealed close to 200,000 kilometres of weed pathways – covering an area of 800,000 hectares – has been inspected for new invasive weeds as part of the NSW Government's Weed Action Program.

"The NSW Government is investing more into weed management than ever before, up from the \$10.8 million allocated last financial year," Ms Hodgkinson said.

"Thirteen Weed Management Authorities will share in \$8.5 million in funding to carry out weed management, while the Department of Primary Industries and other partners will lead a range of State-wide projects totalling more than \$1.5 million.

"The NSW Government is committed to continue to wage a war against weeds.

"The Weeds Action Program is just

one of the weapons in our arsenal to manage problem weeds in this State, which cost farmers around \$1.2 billion a year in control and lost production."

Ms Hodgkinson said the Weeds Action Program has also developed and implemented early detection capabilities, inspecting more than 60,000 suspected new weed incursions and identifying more than 6000 high-priority sites for the management of widespread weeds.

"A range of innovative weeds projects throughout NSW will also receive close to \$1 million worth of funding," Ms Hodgkinson said.

"This funding will bolster and fund a range of projects across NSW, including new work into herbicide trials for the effective control of Serrated Tussock.

"Preliminary findings into the pre-emergence control of this weed are looking promising and it is hoped that once developed through further testing, these new treatments are likely to be used as alternatives or complements to existing control measures."



Glyphosate and paraquat resistant annual ryegrass under vines.

Photo: Andrew Storrie

Wake-up call

A JUST confirmed case of annual ryegrass resistant to both glyphosate and paraquat is a warning to all farmers that rotating herbicide modes of action alone does not solve all your herbicide resistance problems, according to researchers.

The Australian Glyphosate Sustainability Working Group (AGSWG), supported by the Grains Research and Development Corporation (GRDC), said it was the first case of glyphosate plus paraquat resistance in any weed species in Western Australia and a world first for wine grapes.

The finding was made in a WA vineyard after Department of Agriculture and Food (DAFWA) senior researcher Sally Peltzer was alerted to the problem by the vineyard owner.

"It isn't just vineyard managers who need to be having a serious look at how they use knockdown herbicides, as it raises concerns about broadacre management practices as well," Dr Peltzer said.

While the problem first appeared to be a paraquat failure, treating samples with glyphosate showed the ryegrass was failing to respond to that

knockdown herbicide as well.

AGSWG executive officer Andrew Storrie said the multiple herbicide resistance appeared to have been caused by 20 years of unplanned rotating of paraquat and glyphosate when treating the vine row strip.

"The area was treated two to three times per season and there was no follow-up to ensure any weed survivors were prevented from setting viable seed," he said.

"Lack of follow-up is common practice across all spheres of weed control, from broadacre fallows to the treatment of fence lines, road verges and vine and tree crops.

"The only way to manage resistance is to kill the survivors of any herbicide application.

"This can be done with what we call a 'double knock' which can be another herbicide mode-of-action or mechanical means such as cultivation, hand-pulling or heavy sustained grazing."

Mr Storrie said that land managers should monitor weed control to ensure weeds did not survive and reproduce following herbicide use.

"Another measure they can employ is to tank-mix full rates of two herbicide modes of action, so if one fails there is a robust rate of the second herbicide to kill the weeds," he said.

"The good news about this population of weeds in the short term is that they are still susceptible to Group A grass-selective herbicides which have been used to prevent any further seed set."

For more information on managing glyphosate resistance visit the AGSWG web site www.glyphosateresistance.org.au or for more on herbicide sustainability and harvest weed seed control practices, visit the WeedSmart information hub at www.weedsmart.com

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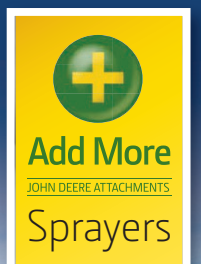
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Crop Protection



Two new pre-emergent herbicides are available, offering growers an alternative to trifluralin. Here, Sakura has been applied at sowing using knife-points and has demonstrated good crop safety and weed control.

Solubility key to pre-emergent options

CHOOSING and applying the right pre-emergent herbicide can be difficult, particularly if herbicide resistance is becoming a challenge in a no-till system.

Dr Chris Preston, University of Adelaide (UA) associate professor weed management says the choice is simplified when the chemistry of the available products is understood.

"Most growers are aware of the need to incorporate trifluralin into the soil within 24 hours of application and that this chemical does adhere to stubble, which can render it ineffective if insufficient chemical reaches the soil," he says.

Another major concern is the increasing populations of weeds that are resistant to trifluralin.

"Because of these two problems we've done a lot of work with industry to bring new products to the market," he says. "Boxer Gold and Sakura are now available and it is important to understand the differences between how these new products work and how trifluralin works."

The main difference between Boxer Gold and Sakura and trifluralin is their respective levels of solubility.

Dr Preston says trifluralin has no water solubility to speak of, which means that it won't move from where it is applied unless there is soil movement or exceptionally heavy rain.

Wheat is not very tolerant of trifluralin but this herbicide can still be used safely in a wheat crop provided adequate chemical-to-soil contact is achieved and the chemical is not applied to soil that will come in contact with the emerging wheat seedlings.

This means planting at the correct depth and making sure that trifluralin-treated soil does not end up above the wheat seed.

Generally disc seeders displace too little soil from the seed row to make trifluralin a safe option for use.

The amount of stubble also needs to be considered because trifluralin will stick to stubble and be rendered ineffective. Dr Preston says using higher rates and bigger droplets can help get the chemical through heavier stubble and onto the soil but if stubble is matted on the ground the trifluralin will not get through to the soil and will not work.

However, if trifluralin-resistant ryegrass is present a grower will need to look at other pre-emergent herbicide options.

"Where ryegrass populations are not big or overly resistant, we've found that a mixture of trifluralin and Avadex® can achieve a reasonable level of weed control, particularly in areas where wireweed is a problem," he says. "But, if the population is large or there is significant resistance to trifluralin then this strategy will not work. This has been demonstrated repeatedly in our trial work."

This is where the new products, Boxer Gold and Sakura, have their place but the

different chemistry needs to be understood. Dr Preston says that these new products are more soluble in water than trifluralin, Boxer Gold more so than Sakura.

"One of the difficulties with the new chemistry is the management of the herbicide down the seed row," says Dr Preston. "Boxer Gold only needs about 5–10 mm of rain to wash it in and activate it, giving really good early weed control. But too much rain after application can wash the herbicide into the seed row and cause crop damage. We have found that wheat is more susceptible to damage than barley."

He says knife-point application of Boxer Gold works better than using a disc seeder to apply the herbicide.

"This chemical degrades fairly quickly in Australian soils, generally within a few weeks, so in longer season areas or in years with rainfall through late winter and into early spring it is likely that later flushes of ryegrass will escape," says Dr Preston.

"The location of the crop and the level of competition needs to be considered as we have seen situations where Boxer Gold has fallen away very badly at the end of the season, but it does provide very good early control."

The other new product on the market, Sakura, is also water soluble, requiring about 10–15 mm to activate it in the soil. Dr Preston says this characteristics means problems can arise if the soil is dry on the surface but there is moist soil underneath.

"What can happen is a small amount of rain might fall that is sufficient to germinate the weeds but not enough to activate the herbicide and the weeds can grow through it," he explains. "Sakura is also harder to get through a heavy stubble than Boxer Gold."

The advantage with Sakura lies in its residual action that will continue to control ryegrass late in the season. Dr Preston says sometimes, if there is a dry start to the season after early rain, there is an escape of early ryegrass but these plants become stunted as the season progresses because Sakura is still present and working on the weeds' roots.

Registrations and rotations need to be carefully considered as Sakura is only registered for use in wheat and triticale crops (not durum) and may affect following crops such as oats and durum.

Dr Preston says another important finding of the Grains Research and Development supported research work was that, as with trifluralin, adding Avadex to Boxer Gold and Sakura often gives better control than using these herbicides on their own.

"We have seen this added efficacy consistently with Avadex," he says.

Growers can use the GDRRC weeds app to identify weeds and download fact sheets from www.grdc.com.au/weedlinks. For more on managing the risk of herbicide resistance, visit www.weedsmart.org.au

Flexible approach to weed control needed

GRAIN growers across northern Australia are being urged to take an open minded approach to weed control strategies within summer cropping and fallow country to avoid damaging the viability of their cropping system.

Taking action to combat the rapidly escalating problem of herbicide resistance in major weeds such as feathertop Rhodes (FTR) grass and awnless barnyard grass (ABYG) has become critical to preserving the effectiveness of existing chemicals and the integrity of the widely-practiced reduced tillage cropping systems.

Northern Grower Alliance (NGA) chief executive officer Richard Daniel said problem weeds required a new and strategic approach to management and growers should not rule out re-employing "old tools" such as tillage to improve the efficacy of control.

"What is very clear from all the trial work is that weed

management, especially in reduced tillage fallows, has become a very complex and expensive part of cropping in the northern grains region," he said.

"While much of this season's trial work is focussed on the chemical management of problem weeds, it is critical that we start to employ other tactics for successful and economically viable control.

"In some cases we will need to revert to past practices such as tillage as a salvage option to avoid seed bank replacement.

"Growers need to keep an open mind with regards to integrated weed management strategies to avoid eroding the profitability of their farming systems."

Residual control of summer weeds will be a major focus of the NGA's trial program during the 2013/14 summer season with six trials targeting awnless barnyard grass (ABYG), five trials evaluating feathertop Rhodes grass (FTR)

management, two trials for windmill grass and two for liverseed grass management.

Funded by the Grains Research and Development Corporation (GRDC), the trials will evaluate the residual characteristics of chemical control methods and the implications for rotational cropping systems.

Although residual herbicides will limit re-cropping options and rarely provide complete control, they are a key part of successful fallow management according to Mr Daniel.

"Double knock herbicide strategies – the sequential application of two different weed control tactics – are also useful tools but the herbicide choices and optimal timings will vary by weed species.

"Results from this trial work will form a key part of future integrated weed management advice and recommendations."

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