



Cross-sector collaboration helps combat herbicide resistance

As part of WeedSmart Week, during September 2022, in addition to the large broadacre-focused sessions, more than 85 attendees, from across a range of broadacre cropping and horticulture industries came together in Mildura, Victoria to explore the latest approaches to tackling herbicide resistance.

Broadacre cropping experts involved in an area wide weed management (AWM) project joined horticulture specialists to share their knowledge about weed mobility, double-knock herbicide strategies, biocontrol options and integrated weed management.

Herbicide resistance is a major problem for both the broadacre cropping and horticulture industries across the Sunraysia region in north-western Victoria and south-western New South Wales.

AT A GLANCE

- The battle against herbicide resistance is bringing together stakeholders from across a diverse range of agriculture and horticulture industries.
- As the toolkit of chemical control options for highly mobile herbicide-resistant weeds dwindles, growers across industries are looking for alternative management approaches.
- A region-wide approach to weed management will have the greatest impact on herbicide-resistant weeds, reducing weed risks to growers on a landscape scale.
- Starting conversations early between growers and industry representatives is the key to cross-sector collaboration.



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Highly mobile weeds, such as flaxleaf fleabane (*Conyza bonariensis*), are posing a significant challenge for both industries. With the move away from cultivation and a heavy reliance on chemicals to control weeds during the past 20 years, broadacre croppers are seeing herbicide resistant weeds on the increase. In horticultural areas, resistance to the important herbicide glyphosate is also on the increase and growers are looking for alternative management options.

While the management techniques used to control weeds differ between the broadacre cropping and horticulture sectors, the issue of potentially resistant weeds 'crossing the fence' is a shared concern.

Cross-industry opportunity to collaborate

The proximity of broadacre and horticulture properties across the Sunraysia region presented an ideal opportunity for cross-industry collaboration at the WeedSmart in horticulture field day.

Project collaborator, Matt Strmiska, EE Muir and Sons, was overwhelmed by the number of attendees and believes the level of interest highlights the widespread concern about herbicide resistance across the region.

"To attract more than 85 people to a horticultural field day is an anomaly in our industry," Matt said.

"Most events only attract around 20–30 people."

Attendees included growers from a range of horticultural industries, including high-value crops, grapes, tree nuts, stone fruit and citrus. The largest group in attendance were growers (farm owners or workers) who made up more than half the attendees (55%), while agronomists (16%) and commercial representatives (13%) were the next most represented groups.

"People from all sectors are clearly keen to learn what other industries are doing to combat the increasingly challenging issue of herbicide resistance," Matt said.



ABOVE: The highly mobile flaxleaf fleabane is posing increasing challenges for both broadacre croppers and horticulturalists. Cross-industry collaboration is the key to stopping potentially resistant weeds 'crossing the fence.' Community driven processes, good weed management and different industries working together creates a win-win for everyone.

The team aimed to provide practical information for horticulture growers and industry professionals on how to manage crops, fight herbicide resistance and optimise yields.

Several demonstrations throughout the day included calibrating spray equipment to get the most effective herbicide application, alongside presentations on alternatives to glyphosate, current chemical availability and biological weed control (biocontrol) options.

"The day was hands-on with plenty of opportunities for networking and information exchange and highlighted the need to continue to innovate and improve on current management strategies," Matt said.

Area wide management drives regional impact

Collaboration between landholders at a regional scale to tackle the growing issue of herbicide-resistant weeds is the focus of the AWM project, which is bringing together multiple sectors to explore weed control across private and public land.

"Sharing information across sectors, increasing the understanding and effectiveness of management techniques to control weeds is a big part of area wide approaches to weed management — especially in a region like Sunraysia where there is an expanding boundary where dryland cropping meets irrigated industries," AWM Project leader, Dr Rick Llewellyn said.

As part of the AWM project, researchers have mapped the incidence of herbicide resistance in weeds such as flaxleaf fleabane across the Sunraysia.

GPS weed management maps across the Sunraysia show a higher density of herbicide resistance across horticultural properties.

"When Mallee Sustainable Farming sampled 105 fleabane populations from across horticulture and broadacre areas in 2020 and 2021, the University of Adelaide testing showed an average of 23% were found to be glyphosate resistant and resistance was found spread across all land uses," Rick said.

"This highlights the need for the two sectors to work together to tackle herbicide resistance and its potential spread."

Rick believes activities such as the WeedSmart in horticulture field day provide the ideal environment for cross-sector collaboration.

"WeedSmart has a proven effective approach to engaging and communicating with growers and advisers in an impactful way — there's a lot of potential across all sectors for more sharing of information and on-farm experiences," Rick said.

WeedSmart Project Manager Jessica Strauss agrees, saying that partnering with the AWM project and bringing the horticulture and broadacre cropping industries together to share information and solve problems relevant to both industries, highlights the huge potential for more cross-sector collaboration in other regions.

"While change can often be hard, in the case of weed management it is well worth it. There has been a definite attitude shift in recent years with growers under pressure to do more with less," Matt said.

"Effective integrated weed control results in increased productivity and reduced chemical use, which has a direct impact on the growers' bottom line, and on neighbouring properties.

"If we collaborate and work together across the fence and across industries, we will continue to increase our understanding of weed mobility and best management practices."

According to Matt, collaboration over the fence and across industries to promote better weed management practices is strong across the Sunraysia.

"There are several examples in the Sunraysia of cropping properties next door to orchards, where growers have regular conversations about their management practices to ensure one is not impacting the other; working together and sharing information for the best outcomes for both businesses," he said.

"Growers, regardless of industry, want to be on the front-foot and armed with the best information and practices to control weeds."

Matt believes the key to success is to start the conversations early between growers and industry representatives.

"When the process is community driven, different industries work together and weed management is done well — it's a win-win for everyone."



ABOVE: The WeedSmart in horticulture field day included several demonstrations including alternatives to glyphosate, current chemical availability, calibrating equipment to achieve the most effective herbicide application and biocontrol options.

Area wide management of weeds in cropping systems

A ground-breaking project is exploring the potential for cross-sector collaboration to make inroads into the ever-evolving challenge of weed control across private and public land. The project is investigating and demonstrating the agronomic, economic and social benefits of tackling the problem of mobile weeds on a cross-industry scale.

The project looks to increase understanding of the mobility of key weeds in cropping systems, their herbicide resistance status, the costs of managing herbicide-resistant weeds and the attitudes of a range of stakeholders to collaborative weed management approaches, such as AWM.

Researchers focussed on three main regions with diverse land-use types and distinct social dynamics: the Darling Downs, Queensland, Riverina, New South Wales and Sunraysia, Victoria.

Local stakeholders were engaged across the project to better understand the impacts of weeds and weed dispersal and the collective motivation to minimise weed seeds at a landscape scale. This will have a larger impact than individuals working independently.



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WeedSmart has investment from the GRDC and commercial companies and delivers science-backed weed control solutions. GRDC is a Platinum Partner in WeedSmart. Read more at the WeedSmart resource centre www.weedsmart.org.au

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