



Good neighbours work beyond the boundary fenceline to help combat the spread of weeds

In the Sunraysia region, land managers from different agricultural sectors are coming together to tackle weed issues across the landscape. Researchers are working with growers of broadacre crops, wine grapes, dried fruit, citrus and almonds trialling different weed management practices to control flaxleaf fleabane (*Conyza bonariensis*), with a particular focus on individuals sharing a boundary fence – having conversations over the fence.

Through mobile weed seed and pollen, herbicide resistance genes move across farm boundaries and between different land uses. Coordinated weed management activities beyond an individual farm boundary, can deliver a better return on investment and be more effective for all land managers than isolated weed control on a single property.

Trials across the Sunraysia region over the summer of 2020–2021 evaluated weed management practices in broadacre cropping and horticulture systems, while also exploring the economic and social impact of herbicide resistant weeds across the region.

AT A GLANCE

- A community-wide commitment to effective weed control practices for problem weeds, such as flaxleaf fleabane, is crucial to protecting the diverse range of agricultural industries across the Sunraysia region.
- Mobile weed seed and pollen from one property can disperse across the landscape, spreading herbicide resistant weeds beyond property boundaries.
- A landscape-scale approach to weed management is required to stop herbicide resistance in its tracks.



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“If we can reduce the number of weeds across the entire landscape, everyone in the region will benefit. This is particularly true when dealing with weeds with mobile seed and pollen,” said Mallee Sustainable Farming’s Project Manager Tanja Morgan.

During January 2020 Mallee Sustainable Farming (MSF) surveyed flaxleaf fleabane across the Sunraysia region to assess the weed’s herbicide resistance status. Of the 50 samples tested, resistance to glyphosate was found in 21 (42%) of the samples.

“It’s important to note that none of the fleabane samples tested were resistant to paraquat plus diquat, so alternate herbicide options are still available,” Tanja said.

Glyphosate is a key herbicide in both broadacre cropping and horticulture systems, but each industry has its own priorities and is using glyphosate for specific purposes and at different times throughout the season.

“In vineyards, the focus is on herbicide options for fleabane and annual ryegrass control, and there is a heavy reliance on glyphosate to control these weeds,” Tanja said.

“Weeds are considered a nuisance in vineyards, compared with broadacre cropping systems, where weeds compete with crop plants for water and nutrients. As such, there is less focus on rotating herbicides in vineyards and growers tend to rely solely on glyphosate to control weeds.”

When growers are motivated to repeatedly use broad-spectrum, cheaper herbicide options, such as glyphosate, it promotes the development of herbicide resistance and the weed seeds from the surviving resistant plants disperse throughout the landscape.

The MSF trials indicated effective control of herbicide resistant fleabane was still possible using a more strategic approach to herbicide application. Rather than using inexpensive broad-spectrum options, such as glyphosate, all the time, rotating glyphosate with other products with different modes of action can prevent and/or kill the resistant weeds and stop them setting seed.

“If growers across the landscape ensure they have their own on-farm weed management in order, we can reduce weed movement across farm boundaries,” Tanja said.



ABOVE: Sunraysia farmers ranked fleabane in their top three weeds of concern. Its ease of spread, increasing resistance to glyphosate and difficulties in control were listed as reasons for their concern.

Fleabane was ranked in the top three weeds of concern across the 200 Sunraysia farmers surveyed. Reasons Sunraysia farmers are concerned with fleabane include the ease with which it spreads, the difficulties in controlling it and its growing resistance to glyphosate.

“From the survey responses, 56% of Sunraysia farmers reported being very concerned about the cost of weed management, closely followed by 40% being very concerned about herbicide resistance,” said Dr Sonia Graham, lead researcher, University of Wollongong.

“We also asked farmers about the area wide scale of weeds, and almost all the farmers surveyed in the Sunraysia region agreed every landholder has a responsibility to the region to control weeds. It’s not just to benefit themselves and their farm, but the whole region. So, if people work together ‘over the fence’ it’s a win-win for everyone.”

The survey also explored the benefits and costs of collaboration — what makes people want to work with their neighbours or alternatively, why they don’t want to work together to control weeds across different industries.

The long list of benefits included increased awareness of weeds in the area, particularly herbicide resistant weeds, increased production and an acknowledgement that working together will ensure farmers ‘get ahead of the game’ and stop weeds spreading.

On the flip side, the key deterrents noted by respondents were the transactional cost of working together (i.e. increased time spent meeting with neighbours and planning weed management) and the limited number of options available for weed management in organic farming systems.

With more than 80% of survey respondents recognising the need to work together across all industries for effective weed control, the time is right to continue the AWM conversation.

RIGHT: Of the 50 flaxleaf fleabane samples tested for herbicide resistance, 42% were resistant to glyphosate. But importantly no samples were resistant to paraquat and diquat — effective control of herbicide resistant fleabane is still possible using a more strategic approach to herbicide application.



“Our message is – be a good neighbour and stop the spread of weeds.”

Understanding the attitudes of farmers to weed management

As part of the larger area wide management (AWM) of weeds project, researchers surveyed growers across the Sunraysia region in Victoria, the Riverina, New South Wales and the Darling Downs, Queensland, to better understand what drives farmer decision making — their values, trust and relationships, and where they source information and advice. The project team explored what individual growers are doing, but importantly how this fits with people around them and what they are doing.

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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