

Beyond the boundary: implementing an area-wide weed management approach for mobile crop weeds

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Summary Several of the most costly weeds in Australian cropping regions are highly mobile via seed and pollen, with the potential to also spread herbicide resistance. It is well recognised that movement across farm boundaries occurs, often involving increasingly diverse neighbouring land uses such as where there are expanding areas of irrigated plantings alongside dryland grains, as well as adjoining roadsides. Although there are few existing examples in cropping regions, these factors point to increasing potential for area-wide approaches that can bring together multiple sectors to help reduce the impact of some key weed threats. We describe activities in three pilot regions (Darling Downs, Riverina - Murrumbidgee Irrigation Area and Sunraysia) where the potential for area-wide weed management is being evaluated and trialled in partnership with local stakeholders, including those from grains, cotton, horticulture, viticulture and local government. Weed, social, genetic, economic and spatial sciences have been brought together to investigate mobile weed issues prioritised by local

growers. Backed by characterisation of local herbicide resistance status and mobility, trials led by regional partners include evaluation of summer weed control options to reduce seed set on grain and horticultural properties, channel bank vegetation for weed suppression, and roadside management options. Demand for greater cross-sector weed management extension activities has been demonstrated, along with improved opportunities to address roadside weeds. Local stakeholder expectations about the costs and benefits of implementing collaborative management of crop weeds highlight the need to clearly define management area scale and engagement demands. By understanding the benefits and key principles influencing success in the pilot regions, opportunities for development of localised approaches to reduce the cost of mobile weeds in other regions of Australia are being identified.

Keywords Resistance, mobile, area wide, management, participation