

A decade of weed surveys across south-eastern Australia – changes in herbicide resistance levels and identification of new cases of resistance

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Summary Random weed surveys have been conducted in south-eastern Australia since 2005 funded by the GRDC. Three regions in South Australia and three in Victoria were surveyed with at least 150 paddocks in each region chosen at random before crop harvest. Seeds were collected from several species including *Lolium rigidum* Gaudin., *Bromus* spp., *Avena* spp., *Hordeum* spp., *Sisymbrium orientale* L., *Brassica tournefortii* Gouan, *Sonchus oleraceus* L. and *Raphanus raphanistrum* L. Each region was surveyed at five year intervals. This research has highlighted that in some regions, resistance to ALS- and ACCase-inhibiting herbicides, trifluralin, triallate and glyphosate in *L. rigidum* have increased.

Resistance to 2,4-D and sulfonylurea herbicides was identified in *S. oleraceus* and *S. orientale*. New cases of resistance to atrazine and diflufenican were also identified in *S. orientale* from the Eyre Peninsula. In *Bromus* spp. and *Hordeum* spp., a higher incidence of resistance to ALS-inhibiting herbicides than to ACCase-inhibiting herbicides was identified.

These surveys have raised awareness of herbicide resistance as a serious issue for the Australian grains industry. The detection of new cases of resistance from these surveys serves as a warning of future increases and contributes to the adoption of management practices to delay resistance.