

Glyphosate and 2,4-D amine resistance in common sowthistle (*Sonchus oleraceus*) and fleabane (*Conyza bonariensis*) in the Northern Grain growing region of Australia

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Summary Common sowthistle (*Sonchus oleraceus*) and fleabane (*Conyza bonariensis*) are common and problematic broadleaf weeds in the northern grains region, infesting fallows and crops throughout much of the year. A heavy reliance is placed on knockdown herbicides such as glyphosate and 2,4-D for the control of these weeds. As a result, resistance to glyphosate has been confirmed in both species and both are at risk of developing resistance to 2,4-D. In response, a GRDC-funded field survey has been conducted in winter and summer grain crops from late-2016 to early-2018 to determine the extent of glyphosate and 2,4-D resistance across the northern grain region. In total, more than 500 sites have been surveyed in New South Wales

and Queensland, with more than 200 populations of sowthistle and 60 populations of fleabane collected. To date, screening of those populations with glyphosate and 2,4-D have identified 5 and 18 common sowthistle and fleabane populations, respectively, to have evolved resistant to glyphosate. No populations of either weed species have been identified as resistant to 2,4-D. Results from the survey will be provided to individual land managers to inform their weed management programs. Maps of the distribution of resistance will be produced to help guide and prioritise RD&E in relation to these weeds and their management.

Keywords Sowthistle, fleabane, glyphosate, 2,4-D amine, herbicide resistance.