

Management of emerging weeds in the western region: fleabane (*Conyza bonariensis* (L.) Cronquist) and sowthistle (*Sonchus oleraceus* L.)

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Summary Fleabane and sowthistle (also commonly known as flaxleaf fleabane (*Conyza bonariensis* (L.) Cronquist) and milk thistle (*Sonchus oleraceus* L.) are emerging summer weeds in Western Australia. Changes in farming systems, farm management practice and climate are resulting in changes in the summer weeds spectrum throughout the cropping area. Trials were conducted to examine the efficacy of herbicides to control fleabane and sowthistle during summer and the winter seasons of 2015. After the 2014 harvest of winter crops, two experimental sites with infestation of fleabane were selected across a wheat paddock on sandy loam soils at Grass valley (31° 38' 20" S and 116° 48' 22" E) and Geraldton (28° 78' 83" S and 114° 69' 47" E). A winter-fallow site with sowthistle infestation was also selected at Geraldton. During summer of 2014/2015, eight herbicide treatment combinations alone, as tank mix or in sequence were applied at different growth stages of fleabane at Grass Valley and only at flowering stage of fleabane at Geraldton. Similarly the sowthistle infestation at Geraldton was treated in winter-fallow with 12 herbicides combinations in winter 2015.

At Grass valley, all treatments were found effective in controlling fleabane although the efficacy of herbicides to control fleabane during summer varied with plant growth stages. In some treatment, surviving fleabane plants were affected to variable degrees by herbicides but plants regrew and developed when assessed 3 weeks after the second spraying. Glyphosate or glyphosate + 2,4-D amine applied as a single knock also provides good but incomplete fleabane control. However, double knockdowns with a mixture

of 2,4-D ester + glyphosate followed by Spray.Seed® provided 98% control while double knockdowns with a mixture of 2,4-D ester + glufosinate followed either alone, as a tank mix or in sequence at by Spray.Seed® provided 94% control of fleabane when applied at rosette stage. Most herbicide treatments provided 80% to 94% control of fleabane when applied at flowering stage. The most effective treatment identified was a double knock application of glyphosate or glyphosate + 2,4-D amine followed by paraquat seven days later kills 100% of mature fleabane.

At Geraldton, all treatments worked very well and almost 100% control was observed in fleabane. Herbicides were found more effective on controlling fleabane when applied at seedling or flowering stage than rosette stage. Application of a mixture of glyphosate and 2,4-D followed by the application of Spray.Seed® was highly effective on fleabane whether applied in December 2014 at Grass Valley or in March 2015 at Geraldton.

Single application of glyphosate as well as double knockdown of glyphosate followed by Para-Trooper® or Spray.Seed® provided up to 100% control of sowthistle at Geraldton. However, double knockdown is preferred to single knockdown to minimise risks of herbicide resistance development. Double knockdowns of glyphosate followed by Para-Trooper® or Spray.Seed® were also effective on most of the other weed species such as capeweed, ryegrass, blue lupin, wild turnip, doublegee, fleabane, flatweed and couch.

Keywords Flaxleaf fleabane, sowthistle, couch grass, double knockdowns, tank mixes, summer, winter, weed control.