



Photo: Andrew Storr, Agronomo Consulting



Flaxleaf fleabane

(Conyza bonariensis)

Key facts

- Fleabane is emerging as a major summer weed problem in no-till systems across south-eastern Australia.
- Fleabane has a natural tolerance to the uptake of herbicides due to fine, dense hairs and a thick leaf surface.
- Most fleabane seedlings emerge from late August through to November.
- Young (one month old or less) fleabane seedlings can be easily controlled but when they develop strong root systems, control is difficult.
- A double-knock herbicide application during summer is often necessary to control larger fleabane plants.

Flaxleaf fleabane (Conyza bonariensis) has been a problem weed in Queensland and northern New South Wales cropping regions for many years, but has only recently emerged as a difficult-to-control weed in South Australia and Victoria. A surface-germinating weed, fleabane has previously been controlled by a combination of cultivation, sulfonylurea herbicides and grazing, but it is emerging as a major problem in no-till farming systems.

Fleabane has been present in many areas of south-eastern Australia as a summer weed along roadsides and around yards but has not caused problems in cropping paddocks until recently. It can produce large amounts of seed, with individual plants producing up to 120,000 seeds. Strong winds easily disperse these small, light-weight seeds, with about one per cent of seed travelling 10km or more. Managing seed levels can be difficult as neighbouring paddocks, roadsides and non-arable areas can be a continual source of reinfestation.

No-till systems provide ideal conditions

Fleabane thrives in no-till stubble-retention (NTSR) farming systems as seed does not need to be incorporated deeply to germinate — most seeds germinate from the top 10mm of soil. Fleabane emerges when air temperatures are between 10–30°C, with optimal temperatures between 20–25°C. Provided there is adequate moisture, plants can germinate in crops and pastures from late August through to November.

Fine, dense hairs on a thick cuticle (leaf surface) provide fleabane with a natural armoury, protecting the plant against the uptake of herbicides. If treated with an application of glyphosate at one month old or less, susceptible fleabane plants can be controlled. Mature fleabane plants with well-developed roots systems, are difficult to control with glyphosate, regardless of their resistance status. Control is often difficult when plants are sprayed post-harvest during summer, as they are well established and spray conditions are often sub-optimal.

Fleabane control critical to protect soil moisture

Controlling fleabane is important for conserving soil moisture over summer. Research in SA has proven effective fleabane control can result in significant soil moisture retention for following crops (see Table 12).



PREVIOUS PAGE: An individual fleabane plant can produce up to 120,000 seeds. Photos: Matt McCallum, McAg Consulting and Andrew Storrie, Agronomo Consulting.

LEFT: If sprayed with glyphosate as a young plant (less than one month old) susceptible fleabane plants can be controlled. Photo: Andrew Storrie, Agronomo Consulting.

Table 12. The impact of fleabane control on residual soil moisture

Fleabane control (%)	Increased soil moisture over control (mm)
52	17
62	29
80	45
99	71

Adapted from Fleet and Gill (2013)

Table 13. Herbicide efficacy on fleabane at Bute and Pinnaroo during summer 2012

Treatment	Fleabane control (%)	
	First knock (glyphosate only)*	Second knock (glyphosate then paraquat)*
Untreated	0	36
Glyphosate 1L/ha	30	54
Glyphosate 2L/ha	55	83
Glyphosate 3L/ha	89	95
Glyphosate 4L/ha	93	97

Note: Glyphosate was 570g/L formulation and the rate of paraquat in the second knock was 2.4L/ha of the 250g/L formulation. Assessments on percentage control for main herbicide treatment alone (first knock), and with the addition of a subsequent paraquat application (second knock).

Control options for fleabane

A combination of chemical and non-chemical strategies can be used to control fleabane. Effective herbicide options are available for fleabane for most stages of the cropping cycle.

Herbicides combined with light grazing can effectively control fleabane during summer. This option reduces the need for cultivation and reduces the risk of soil erosion.

Pre-harvest chemical control options

A range of pre-emergent and in-crop products will help control emerging fleabane plants. Based on experience from Northern NSW, pre-emergent herbicides such as Triasulfuron (e.g. Logran®), metribuzin, simazine, Terbyne® (Terbuthylazine), and Balance® (Isoxaflutole) all have some activity on fleabane. In-crop applications of 2,4-D amine, metsulfuron (e.g. Ally®) and clopyralid (e.g. Lontrel®) can effectively control newly-emerged and younger fleabane plants.

Post-harvest chemical control options

Most research to date has focussed on fleabane control during summer after the crop has been harvested and fleabane plants have started to mature. During recent times, Ben Fleet and Gurjeet Gill from the University of Adelaide have evaluated a range of herbicide options for fleabane control during summer, some of which are presented in Table 13.

Non-chemical control options

■ Crop competition

Flaxleaf fleabane is a poor competitor. Increased crop competition from cereals using higher sowing rates and narrow row spacing can suppress growth and weed seed production.

■ Strategic tillage

Strategic soil disturbance is an effective option in areas of high infestation or going into a crop with limited in-crop control options.

■ Grazing

Grazing and spray grazing are effective tools to control fleabane, which is palatable to both sheep and cattle.

Non-chemical control

In contrast to the experience from NSW, high rates of glyphosate (3–4L/ha) provided excellent control even when a second knock was not implemented. However, using glyphosate alone as a strategy may be short-lived, as populations of glyphosate-resistant fleabane have been found in SA, NSW and Queensland.

These trials showed that fleabane control was significantly better where a second knock of paraquat was applied, particularly when the first herbicide application provided at least 50 per cent control or better.

Achieving 100 per cent control with herbicides during summer can be expensive. Spray grazing or the use of precision spray technologies (i.e. WeedSeeker™ or WEEDit™ systems) can help reduce herbicide costs.

Further information

- Barry Haskins on fleabane <https://www.youtube.com/watch?v=YYgZKzNeOlc>
- Fleet, B and Gill, G (2013) *Fleabane ecology and control in cropping systems of southern Australia*, University of Adelaide, GRDC Adviser Update