Common Sowthistle

Sonchus oleraceus

Weed management guide for Australian vegetable production

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Identification

Common sowthistle (*Sonchus oleraceus*) is an annual herbaceous plant, growing between 0.2 m and 1.5 m in height.

Figure 1 includes a series of photos of common sowthistle at different life stages, from a young seedling through to a mature flowering plant, including images of the flowers and seed.

Figure 1 Life stages, from emergence to seed production

Common sowthistle initially forms as a rosette, up to 25 cm in diameter, before growing as an erect plant commonly 1 m in height. Stems are circular, green to purple, hollow, and produce a milky sap when cut. Lower leaves are smooth, thin, and lance-shaped, while upper leaves are generally smooth although can be hairy. Upper leaves can show considerable variation in shape, but are generally bluish-green with irregularly-toothed margins ending in small soft spines. Leaves can be between 6 cm and 35 cm in length. The plant has a long, slender pale taproot that is usually branched.

Flowers are light yellow in colour, 10 to 15 mm in diameter, with many narrow petals. Fruit (forming at the base of the flower) is wrinkled, tapers at the base, and produces fine white cottony hairs after flowering.

At its early growing stages, common sowthistle is almost indistinguishable from prickly sowthistle (*Sonchus asper*), a weed that is also common in Australian vegetable farms and has much the same impacts as common sowthistle. However, as a larger plant, prickly sowthistle is distinguishable from common sowthistle by its leaf form, which is thicker, more curled and with much more significant spines along the leaf margins (Figures 2 and 3). Management of the two species will largely be the same.

Figure 2 Prickly sowthistle (top-left plant) and common sowthistle (bottom-right plant) showing the differing leaf forms of the plants.

Figure 3 Prickly sowthistle (left) and common sowthistle (right) mature plants, showing the significantly different leaf forms.

Characteristics

Key characteristics

Table 1 Key characteristics of common sowthistle

Time of germination	Any time after rainfall (moderate climates); spring/autumn (cool climates)
Time of flowering and seed set	Most of the year (moderate climates); spring/summer (cool climates)
Reproduction	By seed only
Seed productivity	Between 4,700 and 8,000 seeds per plant depending on conditions
Seed viability	Up to 8 years depending on conditions
Optimum germination soil depth	On or within 1 cm the soil surface
Soil type/s	Favours well-drained soils, pH 5 to 8
Competitive advantages	Germinates under wide range of soil temperatures; variable lifecycle; early emergence; rapid growth; high seed production; competes well with crops

Seasonality

Common sowthistle can germinate from spring through to autumn, although in Australian conditions the lifecycle of the plant varies considerably. Rainfall events can stimulate a flush of seedling emergence during any season. In milder subtropical regions (which can experience more regular rainfall) it is present and is able to flower throughout much of the year, whereas in the southern and western Mediterranean climate cropping regions of Australia it behaves as a summer annual species. Autumn-germinating plants may over-winter as a rosette in milder climates, however individual plants do not survive beyond a single flowering season.

The time from emergence through to flowering and seed production is approximately 10 weeks, however plants that emerge in the warmer part of the season grow to maturity significantly faster than those emerging in early spring.

Germination occurs at temperatures ranging from 5°C to 35°C, showing that this species shows a broad tolerance for climatic variation. However, an ideal maximum/minimum temperature range of 25°C/10°C has been observed. Growth and flowering usually concludes with the onset of frost, where applicable.

Seed production

Common sowthistle flowers are self-pollinating. Seed production varies considerably depending on local environmental conditions, but has been estimated at between 4,700 and 8,000 seeds per plant. Mature seeds are 2.5 to 3 mm in length and approximately 1 mm in width, light brown, flat, wrinkled, and crowned with long white hairs.

Seed germination and viability

Seeds are capable of germinating in either light or darkness, though germination rates are higher when seed are exposed to light. Consequently, common sowthistle seed is most likely to germinate on or very near the soil surface. Research has shown that germination remains relatively high when seed are buried up to 1 cm below the surface, however very few seed germinate from depths of 3 to 5 cm or greater. New seedlings require full light to flourish.

In field conditions (involving frequent cultivation), approximately half the common sowthistle seed bank appears to lose its viability in the first year after seed is produced. Seed viability appears to be greater at burial depths of up to 10 cm, while seed are less persistent on the soil surface. Research has found seed to be viable for up to 8 years in storage experiments.

Soil preference

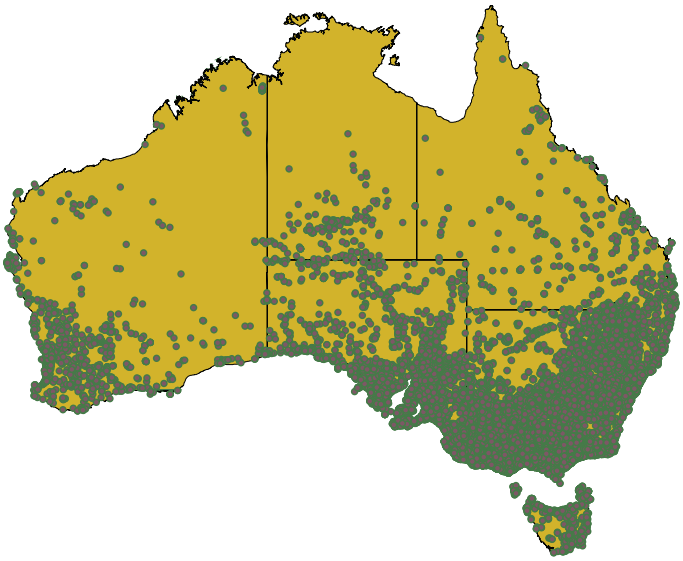
Common sowthistle shows a preference for well-drained but moist soils in a pH range of 5 to 8, but is capable of growing successfully in a range of soil types and is somewhat tolerant of saline soils.

Methods of spread

Wind dispersal is the primary method of common sowthistle spread. Through this method, seed produced at crop edges can penetrate deeply into cropped areas, and seeds can blow in from neighbouring areas. Other methods of spread include livestock and other animals (sticking to fur as well as consumption and excretion), vehicles and machinery, transport of soils and mulches, and waterways.

Distribution

Common sowthistle is a common weed of disturbed sites and gardens, in addition to being problematic in cultivated fields. It is widespread in all Australian states, particularly in more temperate southern regions, and is a major weed of Australian vegetable production.



Map 1 Australian distribution of common sowthistle (source: Atlas of Living Australia)

Impacts

Common activities in vegetable cropping (e.g. regular soil disturbance, frequent irrigation and addition of nutrients) favour the establishment and growth of common sowthistle. Once established in vegetable fields, a large seed bank can be established and populations can increase rapidly. Around the world, it is considered a major weed of many vegetable as well as broadacre crops, and in Australia it appears to be a particularly important weed in lettuce and other leafy vegetable crops.

Crop competition and contamination

Some impacts of this weed in row crops include:

- crop nutrition deficiency;
- competition for light and water; and
- crop contamination.

In addition to competing for resources with actively growing crops, common sowthistle is considered problematic during fallow periods through its capacity to use stored soil moisture. During production phases, early emergence, rapid growth and the size of adult plants gives common sowthistle a competitive advantage over many vegetable crops, particularly crops featuring smaller plants.

Contamination can result in significant removal costs during processing, or lower prices at sale. Contamination is especially problematic for machine-harvested cut-leaf vegetables such as spinach and baby leaf lettuce, with undesirable green matter added to the harvested crop.

A host of pests and diseases

Common sowthistle hosts a large number of vegetable crop pests and diseases in Australia and elsewhere around the world. Relevant viruses hosted by common sowthistle plants include lettuce necrotic yellows virus, beet yellow stunt virus (affecting sugar beets as well as lettuce), watermelon mosaic virus, and tomato spotted wilt virus.

In addition to hosting these viruses, common sowthistle is an important host of insect vectors of spread for these and other viruses of vegetable crops, including lettuce aphid (*Nasonovia ribisnigri*) and lettuce root aphid (*Pemphigus bursanus*). Consequently, the presence of this weed in between lettuce crops in particular (either in cash crops or fallows) allows a number of relevant viruses to carry over to following crops.

Common sowthistle has also been noted as an alternative host of the fungal pathogens black root rot (*Chalara elegans*) and corky rot (*Rhizomonas suberifaciens*), both of which can infect lettuce crops and cause significant yield reductions.

Management

Management methods

Table 2 Common sowthistle management methods

Activity	Suitability	Notes
Tillage	✔✔	No later than 2 weeks after emergence. Repeated operations recommended; may include stale seedbed. Inversion ploughing feasible.
Cover crops	✔✔	Feasibility of cover crops dependent on cash crop produced and viability of non-crop period in annual rotation. Thick canopy effective in reducing common sowthistle germination and seed set. Good establishment is critical.
Maximising crop competitiveness	✔✔✔	Plant crop at highest practical density without impacting on crop yield, to increase competition. Will compete well with common sowthistle for light.
Farm hygiene	✔	Best suited to farms with no current common sowthistle infestation, or an infestation restricted to one part of the farm.
Hand weeding	✔	To follow early-stage herbicide and tillage. Hand weeding expensive and not suitable for wide-scale use. Short-term intensive use for seed bank reduction.
Grazing	✔	Only applicable on existing mixed-farming operations.
Herbicides	✔✔✔	Greatest effectiveness expected during the weed seedling stage. Resistance to dicamba and glyphosate already evident in Australian broadacre cropping.
Biological control	**N/A**	Not currently available in Australia, though options have been assessed.
Integrated weed management	✔✔✔	Precise combination of techniques will vary from farm to farm. Early control with herbicides or tillage is critical, while the plants are vulnerable and before further weed seed production.

Tillage ✔✔

Tillage appears to be an effective tool for common sowthistle control, although there is some conjecture over how tillage impacts the population dynamics of this weed.

Some research has suggested that tillage actually increases common sowthistle populations (by creating the disturbed conditions that favour its germination) while other research suggests that populations are higher in minimal-tillage production systems (where viable seed remain on the surface and have a greater chance of germinating).

In Australia, research appears to confirm that common sowthistle populations are higher in zero-till systems, suggesting that tillage plays an important role in managing this weed. Specifically, research in broadacre production suggested that tillage treatments with three operations (disc, chisel plough and blade tillage) greatly reduced common sowthistle operations compared to single or double tillage operations, or zero-till. Furthermore, tillage operations that bury common sowthistle seed deeper than 2 cm below the soil surface appeared to be the most effective in reducing germination.

In both cases, the key appears to be reducing the presence of viable common sowthistle seed near the soil surface. Multiple shallow tillage operations (as part of a stale seed bed) may also be effective in managing this weed during the spring, where it is possible to implement in the crop cycle. Shallow tillage passes may also be effective *within* the crop row in the first 4-6 weeks after crop planting, depending on crop.

Figure 4 A shallow 'tickle' tillage within the crop row and between the plants early in their life cycle may help to manage recently germinated common sowthistle and other important broadleaf weeds, allowing the crop to form a canopy to shade later-germinating common sowthistle plants before they become a significant problem within the rows. Relevance of this technique will depend on crop/s grown, and availability of inter-row tillage equipment.

Cover crops

Cover crops grown in the period between vegetable cash crops offer growers an opportunity to reduce the impact of common sowthistle on their farm. When cover crops are well established and maintained, they can be expected to reduce common sowthistle emergence, flowering and seed set through competition for resources (including soil nutrients and water but most particularly light), and potentially as a result of their biofumigant effects.

At a cover crop trial site near Hobart, Tasmania, both common sowthistle and prickly sowthistle were amongst the most common weeds observed. Cover crop variety establishment, biomass and canopy appeared to have a notable impact on the amount and size of both these weeds observed within the cover crop rows.

Japanese millet (*Echinochloa esculenta*) and mung bean (*Vigna radiata*) plots appeared to allow more frequent sowthistle establishment, as well as growth of large mature plants that were capable of setting seed.

By contrast, buckwheat (*Fagopyrum esculentum*) and tillage radish (*Raphanus sativus*) were observed to be much more effective at suppressing sowthistle emergence, growth and seed set. Relatively few sowthistle plants were observed within these cover crops, and those that were observed were generally at the seedling stage and had produced few if any seed.

Since these two cover crop varieties also formed a dense canopy, this suggests that early cover crop establishment and canopy shading is particularly important for effective suppression of common sowthistle, given that seed germination rates are higher for this weed where light is available, and seedlings require light to grow to maturity.

*Figure 5 Rapidly establishing and high biomass cover crops appear to be particularly effective in suppressing common sowthistle emergence and growth due to their early establishment, high biomass and dense canopy. Here, buckwheat (*Fagopyrum esculentum*) was effective for managing both common sowthistle and prickly sowthistle (as well as a range of other broadleaf weed species) in an on-farm trial near Hobart, Tasmania.*

Maximising crop competitiveness

Agronomic practices, such as increased crop density, that contribute towards the rapid development of a thick canopy cover will result in fewer and shorter common sowthistle plants, fewer flowers, reduced seed production, and less return of common sowthistle seed to the soil. This principle is similar to selecting a competitive cover crop variety, as discussed above.

Competitive crop variety selection may result in more rapid establishment of crop canopy, and is likely to have similar effectiveness in suppressing common sowthistle.

Maximising crop canopy through higher planting density, variety selection and narrow row spacing has been observed in Australian broadacre cropping to hinder common sowthistle growth and seed production in fields where it is a major weed issue. Other factors to consider include crop plant height, early vigour, spatial arrangement and fertiliser/irrigation management. Poorly competitive crops can result in much larger common sowthistle populations and high seed production, creating problems in following seasons.

Higher planting density may have some adverse effects, such as increased competition among crop plants (lowering yield) and greater risk of soil and plant diseases.

Figure 6 On this farm near Richmond, New South Wales, appropriate planting density was combined with planting along an east-west axis in an effort to achieve greater shading of the wheel tracks. This can be used along with other techniques (such as tillage, pre-plant/pre-emergent herbicide application and selective hand weeding) to suppress common sowthistle and other weeds effectively within the crop beds.

Farm hygiene

Implementing appropriate farm hygiene practices helps limit the spread of common sowthistle seeds across and between properties, and onto crop beds from other parts of a property where the weed is present. Common practices include permanent or set vehicle tracks, equipment wash-down, and restricting movement onto the property.

While common sowthistle may be well managed within the crop beds, the authors have regularly observed this weed in wheel tracks, headlands, nearby non-crop areas and post-harvest crop residues, with plants going to seed and replenishing the seed bank both around and within the fields. Effectively managing off-bed common sowthistle plants may therefore reduce the burden of this weed within crop beds in the longer term, particularly given its capacity to spread via wind across cropped paddocks.

Farm hygiene may be less relevant for managing common sowthistle where it has already spread across the whole farm. Other difficulties associated with this approach include the time required to wash equipment down thoroughly, and the potential for uncontrolled spread from neighbouring properties due to wind or flooding.

Figure 7 Establishing a fixed equipment wash-down bay can help restrict the spread of common sowthistle on the farm, particularly where it is not present at all or only present on part of the farm.

Hand weeding

Physical control options include digging or hoeing plants out, or potentially pulling larger plants out by hand. Despite the effort involved and potentially high expense, hand weeding can be a strategic component of achieving commercially acceptable levels of common sowthistle control, particularly where higher planting densities or larger crop plant sizes make tillage within the crop impossible.

Hand weeding may also be necessary to remove common sowthistle plants growing close to crop plants, in crop plant holes in a plastic mulch system, or more generally within the crop bed where selective herbicide options are not available, and where other attempts to manage the weed have been less successful.

Farmers are generally hesitant to implement wide-scale hand weeding due to its high cost. However, selective and timely hand weeding can be a very effective follow-up to tillage and herbicide control in particular, especially when implemented earlier in the crop life cycle. Research suggests that diligent control of all common sowthistle plants for as little as eight months can deplete the seed bank to the extent that few common sowthistle plants emerge.

Removing the few remaining common sowthistle plants by hand (as a follow-up to other practices) *and* taking any flowering or seeding plants away from the paddock may have significant benefits in reducing the weed seed bank in future crop seasons. It may also help prevent common sowthistle herbicide resistance from becoming an issue on your farm.

Grazing

Farmers who keep grazing stock may consider grazing the crop fallow after harvest to control surviving common sowthistle plants and further minimise seed set. This may be particularly relevant as a post-knock-down herbicide management tactic in a crop fallow to control any plants that have survived knock-down herbicide application, and may also be relevant to reducing seed set amongst herbicide-resistant common sowthistle populations.

Cattle and sheep appear to preferentially graze common sowthistle where it is present in a field. However this approach will only be relevant to farmers who already operate mixed cropping-livestock enterprises, and therefore have the infrastructure already in place to manage grazing animals. Other considerations include potential for spreading viable seed to other paddocks through livestock transport, as well as soil compaction, erosion and damage to soil structure on the cropped paddock, and destruction of beneficial crop residues.

Herbicides

A range of selective and non-selective herbicides are registered to control common sowthistle, including pre-plant, pre-emergence and post-emergence options across a variety of vegetable crops. The effectiveness of herbicides in managing common sowthistle can vary, however, effectiveness can generally be improved by treating common sowthistle plants when they are small.

During fallow periods, a 'double-knock' approach (using two or more herbicide products to control survivors) may be required where resistance is confirmed or suspected. Farmers should consult with their advisor or agronomist for specific product availability in their district, whether herbicide options are registered for the crop/s they grow, and the suitability of these products for their production system.

Table 3 Herbicides registered for management of common sowthistle in Australian vegetable production

Herbicide active ingredient*	Trading name/s	Group	Vegetable crop/s in which use is registered	Timing/crop growth stage
Chloridazon	Pyramin	C	Red beet, silver beet, baby leaf spinach	Post-sowing pre-emergence
Chlorthal-Dimethyl	Dacthal 900 WG	D	Brassicas, beans, peas, garlic, onions, carrots, lettuce, potatoes, turnips	At time of seedling or transplanting
Cyanazine	Bladex	C	Corn, onions, peas, potatoes	Post-plant pre-emergence or early post-emergence depending on crop
Dicamba	Cadence	I	Potatoes	Apply after haulm senescence
Dimethenamid-P	Frontier-P	K	Green beans, navy beans, sweet corn, corn, green peas, pumpkins and kabocha	At or immediately after sowing; pre-emergence
Diuron	Diurex WG	C	Asparagus, peas	Pre-emergence
Ioxynil	Totril	C	Onions	Post-emergence
Methabenzthiazuron	Tribunil	C	Onions	Post-emergence (one or more true leaves in onion crop)
Metolachlor	Metolachlor 720EC; Metolachlor 960	K	Broccoli, Brussels sprouts, cabbage, cauliflower	Immediately after transplanting
Metham	Metham Sodium; Tamafume (fumigants)	N/A	All crops	Pre-plant
Oxyfluorfen	Baron 400 WG; Goal; Striker	G	Brassicas	Pre-transplant (7 days prior)
Pendimethalin	Rifle 440; Romper; Stomp 330EC; Stomp 440; Stomp Xtra	D	Carrots, peas, beans, onions, transplanted broccoli, cabbage, cauliflower, processing tomatoes	Pre-emergence
Phenmedipham	Betanal Flow 160 SE	C	Beetroot, silver beet	Post-emergence selective
Prometryn	Gesagard; Prometryn 900DF	C	Carrots, celery, potatoes	Pre-emergence, or early post-emergence in carrots
Propachlor	Ramrod	K	Onions, transplanted brassicas, beetroot	Pre-emergence, pre-transplant or at-transplant, depending on crop
S-Metolachlor	Dual Gold	K	Brassicas	Immediately after transplanting
Simazine	Gesatop; Simagranz	C	Asparagus	Pre-emergence

** Details correct at time of writing; please consult the relevant herbicide label/s, contact your reseller for current registration details, or contact the Australian Pesticides and Veterinary Medicines Authority. This table does not include minor use permits, or non-selective options such as glyphosate or diquat. If using crop rotations, the APVMA Public Chemical Registration Information System database may be searched for 'sowthistle' to identify a range of herbicides suited to a range of cropping situations.*

Herbicide resistance

Vegetable growers should remain aware of the potential for herbicide resistance to develop in common sowthistle and other key weeds, particularly if their crop rotation involves heavy reliance on a limited range of registered herbicides. Integrated weed management is of particular importance in reducing the risk of herbicide resistance developing.

Herbicide-resistant common sowthistle populations are becoming more widespread in Australia, particularly in broadacre grains and cotton production. At the time of writing, common sowthistle resistance to the Group I herbicide dicamba (which was registered for common sowthistle control in potatoes at the time of writing) had been noted in grains production in Victoria and South Australia. Group M (glyphosate) resistance has been recorded in Australian common sowthistle populations since 2014, much of these in northern NSW broadacre cropping fallow situations.

Using other herbicide products for common sowthistle control during a fallow period has been recommended to control herbicide-resistant plants before seed set, integrated with other non-herbicide approaches (such as tillage) to prevent build-up of herbicide-resistant weed seed banks.

Figure 8 Pre-plant or pre-emergent herbicides are often one of the key techniques for management of common sowthistle in broadleaf vegetable crops, such as this lettuce crop near Gatton, Qld.

Biological control

Previous research by the CSIRO in Australia has assessed potential biological control agents for common sowthistle, including the mite *Aceria thalgi*, rust fungus *Miyagia pseudophaeria*, and the pathogen *Aschochyta sonchi*. The research shows some promise - for example, *Aceria thalgi* has been shown to cause significant growth reduction in common sowthistle plants, and has the potential to be used in southern Australian cropping systems. At the time of writing, however, no biological control agents were available in Australia for management of common sowthistle.

Biological control is no silver bullet for success. Biological control agents may suppress growth and/or flowering of weeds, but will need to be integrated with other management methods.

In Australia biological control has largely only been introduced for some perennial non-grass weeds in aquatic, pasture, and rangeland habitats. The short-term cropping season common in vegetable production makes it difficult for biological control agents to become established at effective levels. Therefore, vegetable farmers are less likely to have the benefit of their use in the near future.

Bringing the control methods together

The three dimensions to success, most likely to provide effective control of major weeds such as common sowthistle, include 'Deliberation', 'Diversity', and 'Dedication'.

In applying this '3D' approach, a variety of options is available as described on the next page. This is commonly known as 'integrated weed management', and is likely to bring you the greatest chance of long-term success in restricting the impact of common sowthistle on your farm.

Figure 9 Dedicated application of a well planned integrated weed management strategy can result in little weed impact by the time of harvest, such as in this loose leaf crop in Western Australia.

Integrated management of common sowthistle

Integrating all available and feasible weed control techniques in a timely and diligent way has been shown to be very effective in bringing heavy infestations of broadleaf weed species such as common sowthistle under control on Australian vegetable farms.

This section has been adapted from the chapter 'Vegetable Weed Management Systems', written by Craig Henderson, and published in the book *Australian Weed Management Systems* (edited by Brian Sindel, University of New England).

Some practices may be implemented for reasons other than weed management, but still have weed management benefits.

Depending on the farmer's circumstances and resources and the extent of the common sowthistle infestation, whole-of-farm integrated weed management strategies may include:

- Shifting most cash crop production to the parts of the farm where the common sowthistle infestation is lower.
- *Repeated cultivations* and *knock-down herbicides* may be used together to reduce the population of common sowthistle and other weeds during fallow periods and before each crop planting. These approaches may include implementing a stale seed bed, and controlling recently emerged plants either by light tillage or herbicide application. Encouraging seeds to germinate and then controlling the plants before seed set can reduce the weed seed bank in the longer term.
- Including a vigorous and competitive *cover crop* during the traditional non-cash crop period in the rotation may complete effectively with common sowthistle plants, and minimise seed set. Fewer weeds may be expected to appear in the paddock when an out of season cover crop is grown. Including a fallow period in the crop rotation may also allow *non-selective herbicide* application to reduce the common sowthistle seed bank, though glyphosate resistance potential means that double-knock or mixed herbicide-tillage management may be required.
- Where a weed infestation is particularly heavy, it may be necessary to produce cash crops only during the warmest months of the year, when crop seeding or transplanting through to harvest is likely to take less time than during the cool season. This short crop production period may be beneficial in minimising the renewal of the common sowthistle soil seed bank, even though the species has a relatively rapid life cycle. Once the crop is harvested, the residue can be quickly ploughed in to prepare the land for the next cropping sequence, also helping to prevent seed set by escapee weed plants.
- Implementing and rigorously adhering to a *farm hygiene* program, for example: undertaking thorough vehicle washdown in between farm sites (especially infested and non-infested areas); laying concrete or gravel tracks along major farm laneways to reduce the amount of soil being spread by vehicles; and planting a competitive grass species (e.g. Kikuyu) along laneways and drainage lines, and mowing these areas to minimise the chance of undesirable weed establishment. Farm hygiene reduces the potential for common sowthistle seeds outside the vegetable beds to act as sources for recolonisation, and is particularly relevant when parts of the farm are infested while others remain free of the weed.
- Use of a *drip irrigation system* can mean that the non-irrigated inter-rows remain dry (unless rain falls) throughout most of the growing period, with consequent reductions in common sowthistle and other weed populations. Such an irrigation system may be integrated with a *plastic mulch* in some high-value vegetable crops such as cucurbits. This will result in little common sowthistle emergence within the mulched crop beds, though farmers need to remain aware of the potential for weed seeds to germinate in the crop holes, as well as where the mulch has been punctured during laying or during crop management activities.
- *Close plant spacings*, *rapid crop growth* and *canopy closure*, combined with in-crop spraying of *selective herbicides* (where such options are available) can result in low survival of dwarf nettle in the vegetable crop. A similar approach may be pursued in cover crop rotations, and has been shown to suppress common sowthistle effectively due to competition.
- *Hand weeding* also has a role to play in an integrated approach. Farm staff should be encouraged where possible to physically remove and destroy older weeds (particularly those flowering) that they come across in the course of their work, especially at harvest time when large numbers of workers are likely to be systematically moving through each field.
- A six-twelve month *fallow period* for diligent removal of all common sowthistle plants can exhaust much of the seed bank.

Because annual broadleaf weeds such as common sowthistle rely in part on rapid turnover of large numbers in the weed seed bank to maintain high populations, an integrated management system of this nature can be expected to result in a relatively sharp decline in weed numbers over time. Nonetheless, farmers need to remain aware of the potential for common sowthistle seed to remain dormant for several years depending on conditions, and therefore for germination flushes to occur at any stage given suitable circumstances (particularly after rainfall).

However, integrated management of common sowthistle is likely to be effective in reducing its impact at relatively little extra cost to the farmer, given that most of the operations described above would still have been implemented for other reasons and have other farm and crop benefits.

The key to integrated management of common sowthistle is a planned strategy to link the key management components in a sensible sequence, and the persistence to ensure that each step is diligently carried out. In the longer term, integrated weed management may contribute to improved enterprise flexibility, where cash crops may eventually be grown at any stage of the viable production period without concern that this will result in a vast increase in weed numbers, or that the weed burden will impact too significantly on the cash crop.

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Disclaimer

Descriptions of herbicide use in this guide are not to be taken as recommendations. Herbicides must only be used in accordance with the recommendations provided on herbicide labels. Readers are reminded that off-label use of herbicides may be restricted or not permitted under relevant legislation. Landholders are therefore advised to determine current registrations and legal requirements for herbicides they may be considering, and to consult with their State or Territory government departments regarding the legal requirements they are obligated to adhere to relating to herbicide use and weed control.

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