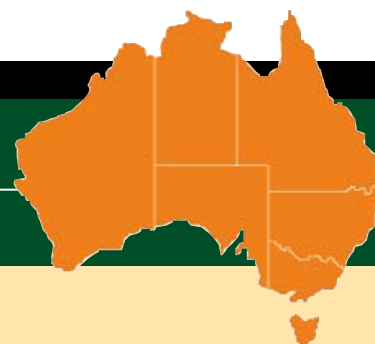


factsheet

Managing garden weeds:

bulbs, tubers and corms



Weedy bulbs, tubers and corms in gardens

Any plant that reproduces from a bulb (or corm or tuber) can be a weed if it is growing in the wrong place. Examples of 'bulby' weeds are listed in the Table on page 2.

Generally, a bulb that becomes a 'problem' weed will have the ability to rapidly grow, reproduce and spread. Bulbous plants such as oxalis, nutgrass and onion weed can be extremely persistent weeds of gardens and lawns. These plants produce large numbers of small 'bulblets' each season and may also reproduce by seed. Plants such as onion weed produce large numbers of viable seeds if left uncontrolled.

Managing weedy bulbs in the garden

Tactic Groups

There are a number of tactics that can be used to manage weeds in gardens. These tactics can be grouped according to their main aim and which part of a weed's life cycle is being targeted.

There are five 'Tactic Groups' and these are outlined in the Weeds CRC Factsheet, *Managing garden weeds: planning tactics*. These 'Tactic Groups' may aim to prevent new weeds entering the garden, kill the weed or simply stop the production and dispersal of propagules.

Allocating the various weed management tactics to one of the five Tactic Groups assists in planning a more

Propagule: method of multiplication or spread used by a plant to reproduce eg seeds, corms, vegetative parts, spores.

Bulb: a storage organ usually subterranean, having fleshy leaves and a stem reduced to a flat disc which roots from the underside (onion, lily).

Corm: a short, swollen, upright stem-base in which food is stored (gladiolus).

Cormel: small corm produced underground near a corm.

Tuber: a fleshy, usually oblong or rounded thickening or outgrowth or a subterranean stem or shoot, bearing minute scale-like leaves with buds or eyes in their axils, from which new plants arise (potato).

VET sector resource: RTD5402A *Develop a strategy for the management of target pests.*

successful garden weed management program.

Successful weed management relies on:

- using a variety of tactics from a number of Tactic Groups;
- choosing the right tactics; and
- applying and timing tactics correctly.

Important tactics for weedy bulbs

The ultimate weed management plan will use a tactic from each Tactic Group. For weedy bulbs in the garden it is essential to include tactics from:

- Tactic Group 1: Reduce number of propagules (dig and dispose of bulbs) in area being targeted;
- Tactic Group 2: Kill (apply herbicide or dig whole plant including bulb) and remove weed from area being targeted; and
- Tactic Group 5: Prevent viable weed propagules (bulbs, corms and tubers) from moving to new areas (eg in soil, manure, potted plants).

Garden weed planner

A garden weed planner can be used to develop and outline a weed management plan. It identifies which tactics are suitable for use and which Tactic Group they belong to. Going to the effort of filling in the planner highlights 'gaps' and any possible weakness in the plan.

An example garden weed planner for the bulby weed, oxalis, (*Oxalis pes-caprae*), is included as a case study in this factsheet. It illustrates a successful weed management plan using tactics from each Tactic Group and how to complete a planner to manage any



A bulb is a weed if it is growing in the wrong place and when it 'jumps' the garden fence.

Examples of weeds with bulbs, corms and tubers			
Common name(s)	Scientific name	Method of spread or propagule	Comments
Agapanthus	<i>Agapanthus praecox</i>	Stemless rhizomes Vegetative propagation Seed	Extremely hardy plant. Able to jump the garden fence by establishing from pieces present in dumped garden waste or seed.
Arum lily	<i>Arum italicum</i>	Tuber	Arum lilies produce fleshy fruit and have toxic sap.
Bridal creeper	<i>Myrsiphyllum asparagoides</i>	Tubers and seeds	Erect or climbing plant that is a serious environmental and orchard weed as it smothers ground and shrub layers.
Cape tulip	<i>Homeria</i> spp.	Corms and cormels	These plants have an annual stem and perennial rootstock.
Chincherinchee	<i>Ornithogalum</i> spp.	Bulb	Very difficult to control as produces both seed and bulbs. Can be dug out and bulbs removed and burnt.
Onion grass	<i>Romulea rosea</i>	Corm	Pink-violet flowers and prolific seed producer.
Oxalis, soursob	<i>Oxalis pes-caprae</i>	Bulb	Grows in cultivated areas and reproduces from bulbs, which may be spread by any soil movement. Loves gardens!
Nut grass	<i>Cyperus rotundus</i>	Tuber	Underground rhizomes produce tubers.
Star of Bethlehem	<i>Ornithogalum umbellatum</i>	Bulb	Very hardy. Can 'jump' garden fence. Grows in low-lying or swampy grassland. Has become a difficult to control weed in crops and pastures eg on the Yorke Peninsula, SA
Grape hyacinth	<i>Muscari armeniacum</i>	Bulb	Very hardy. Can 'jump' garden fence. Commonly found on road-sides and dispersed when soil is disturbed by machinery.
Freesia	<i>Freesia alba x leichtlinii</i>	Corms	Very difficult to control by hand weeding as they produce seed, corms and cormels. Soil needs to be loosened before removal to prevent corm breaking off.



Bulbs can 'jump' the garden fence and become environmental weeds. It is important to not dump garden waste in bushland or introduce potentially invasive plants into a garden that is close to a native vegetation area eg bushland or coastal vegetation. Garden plants such as a) bridal creeper, b) grape hyacinth and c) agapanthus, are just a few examples of 'bulby garden escapes' that are causing environmental problems.

garden weed problem. An individual planner should be used for each target weed.

Best garden practice

'Best garden practice' or management to favour desirable garden plants will also improve the success of any weed management plan. Best garden practice includes activities such as monitoring weeded areas, mulching, replanting weeded areas with desired plants and providing the required nutrients to encourage active plant growth.



Oxalis bulbs can be removed from the soil by carefully digging them out with a trowel.



Oxalis can be difficult to eliminate from targeted areas as it produces numerous small 'bulblets' (circled) in addition to larger bulbs.

Case study: managing oxalis in gardens and lawns

Planning oxalis management

The successful management of oxalis will depend on the tactics chosen, the timing of the tactics, where the weed is situated (eg lawn or garden) and the density of the infestation (eg few plants or many). Deciding how to best manage this weedy bulb can be assisted by filling in a garden weed planner.

The following example garden weed planner demonstrates how to plan the management of oxalis in both a lawn and garden situation.

A blank garden weed planner can be found in the Factsheet *Managing garden weeds: planning tactics*.

Name: *Oxalis pes-caprae*, oxalis. Also known as soursob, Bermuda buttercup, yellow flowered oxalis, African wood sorrel.

Brief description: a small, succulent plant growing up to 40 cm high. Clover-like, bright green leaves, often with purplish brown speckles or markings on the upper surface. Bright yellow flowers occur in drooping clusters on top of a single leafless stalk. The bulbs have a dark brown papery cover, many bulbils form above the bulb each year. Oxalis does not form seeds in Australia.

Key propagules: bulbs.

Method of spread: Under the ground oxalis is quite a complex plant. A rhizomatous stem joins the leaf

crown to a deep parent bulb. Below this bulb, the stem tapers to a fine thread then swells into a fleshy tuber which initially acts as a food storage organ. In late spring the tuber shrinks, contracting and pulling new bulbs deeper underground. It is common for two bulbs to develop within the old bulb and one on the tuber. Often more than 20 bulblets develop on the rhizomatous stem above the bulb. The numerous bulblets are the predominant method of spread however during vegetative growth cut sections of the stem are also capable of forming new plants. Without disturbance, infestations spread by sending out the underground stem at an angle. This allows the tuber to pull the new bulblets sideways as it contracts.

Garden weed planner		
Target weed: oxalis		Situation: garden or lawn
Method of spread: underground		Key propagules: bulb
Tactic Group and aim	Tactic used	Information and timing of tactic
Tactic Group 1 Reduce number of weed propagules in area being targeted.	Dig	Carefully remove oxalis plants and attached bulb by digging with a trowel. Sieve soil to remove as many of the very small bulbs as possible. Particularly effective if there are isolated plants or they are contained within a small area. Leave bulbs and plant material to rot in sealed plastic bags in the sun.
	Replace soil	Remove soil from heavily infested areas and replace with clean soil and mulch. Dispose of soil contaminated with oxalis bulbs with care.

Garden weed planner		
Target weed: oxalis		Situation: garden or lawn
Method of spread: underground		Key propagules: bulb
Tactic Group and aim	Tactic used	Information and timing of tactic
Tactic Group 2 Kill and remove weeds from area being targeted.	Dig	Carefully remove plants and bulbs when they are actively growing. This is very effective in small areas. <i>See Dig in Tactic Group 1.</i>
	Apply herbicide	Spot spray infestations just prior to flowering when old bulbs are exhausted and there is minimal new bulb development. Bulbs are empty, plants are committed to flowering and the majority of leaves have emerged. Actual time of flowering will vary from year to year and between sites. As not all plants will be at the same stage follow-up control will be required in the following years. Oxalis is easily stressed by dry spells which reduces the effectiveness of herbicides. Seek advice and read and follow label directions carefully before application. Note: For further information see Guidelines on the Weeds CRC website: <i>Herbicides: knowing when and how to use them</i> and <i>Herbicides: guidelines for use in and around water.</i>
	Mulch	Mulch with materials such as thick layers of newspaper, straw, bark chips and gravel to inhibit the emergence, establishment and growth of oxalis. Weed mat is also effective.
Tactic Group 3 Stop weeds forming viable propagules.	Apply herbicide	Apply appropriate herbicide at flowering when bulb reserves are low to prevent formation of additional bulbs, and to destroy parent plant. Seek advice and read and follow label directions carefully before application. Note: For further information see Guidelines on the Weeds CRC website: <i>Herbicides: knowing when and how to use them</i> and <i>Herbicides: guidelines for use in and around water.</i>
Tactic Group 4 Prevent the addition of weed propagules, from existing weeds, to the area being targeted.	Collect and dispose	Preventing oxalis plants from adding newly formed propagules to the soil is challenging with a bulb forming plant. Digging and removing new season bulbs is the only method of reducing the number of new propagules that will enter the target area .
Tactic Group 5 Prevent viable weed propagules from moving to new areas.	Quarantine	Avoid introduction of oxalis in the soil of potted plants by weeding the plants thoroughly. Monitor the areas around newly introduced plants for the next 12 months and remove weeds that emerge.
	Clean tools	Clean soil from garden tools after working in area infested with oxalis.
	Use weed free garden materials	It is important to source weed free garden materials, particularly with weeds like oxalis, which is spread by numerous small bulbs.
'Best garden practice' Implement 'best garden practice' to favour desirable plants rather than the weeds.	Choose plants carefully	Increase competition from desirable plants - encourage shading and colonization of the area by these plants.
	Apply nutrients and water	Encourage shading and colonization of gardens by desirable plants. Provide them with adequate nutrients and water to give them a competitive advantage.
	Mulch	Mulch with materials such as thick layers of newspaper, straw, bark chips and gravel to keep plants moist and roots cool during summer. Weed mat is also effective.
	Monitor	Check regularly for oxalis around new plants and problem areas. Control when small and remove the bulb or the plant will regrow.
Additional reference: http://members.iinet.net.au/~ewan/oxalis.htm (Environmental Weeds action Network)		

For further information visit the Weeds CRC's website: www.weeds.crc.org.au

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Further reading: *What does your garden grow?* (a training resource developed by the Weeds CRC); other factsheets in the *Managing garden weed* series, Weeds CRC.



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