

Ragwort

Keith Turnbull Research Institute, Frankston

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Common Name

Ragwort

Botanical Name

Senecio jacobaea L.

Status

Ragwort is a Regionally Prohibited Weed in the Port Phillip East Catchment and Land Protection Region, and a Regionally Controlled Weed in the Glenelg, Corangamite, Port Phillip West, West Gippsland and East Gippsland CaLP Regions. Land owners in areas where ragwort is Regionally Prohibited must eradicate or control it on their land. Landholders in areas where ragwort is Regionally Controlled must take all reasonable steps to control it and prevent its spread on their land and the roadsides which adjoin their land.

Origin and Distribution

Ragwort is a persistent pasture weed which originated in Europe and western Asia. It is well established on the Mornington Peninsula and high rainfall areas of the Strzelecki, Otway and Dandenong Ranges of southern Victoria. It is usually found on heavy soils of moderate fertility and is common in poorly managed degraded pastures and in areas cleared in the past but never properly developed for pasture. It is also found in natural areas, particularly near the coast.

Description

Ragwort is a biennial or perennial plant (rarely an annual) which can reproduce from crowns, roots and seeds. There are many native species of *Senecio* and care should be taken to distinguish them from this noxious weed.

Stems - Erect, up to 1.8 m high but more commonly 45 to 60 cm; rigid, reddish to purple at base, branched at top, furrowed, sometimes bearing cobweb-like hairs. Single or several stems arise from a crown.

Leaves - Dark to mid-green on upper surface, paler and sometimes downy underneath, up to 35 cm long, deeply divided and wrinkled. Rosette leaves are stalked but those on the stems are not. Upper stem leaves are clasping around the stems; young leaves are sometimes covered with cobweb-like hairs. The lower leaves die off as the flowering stalk emerges.

Flowers - Bright yellow and daisy-like, about 2.5 cm in diameter with 12 to 15 strap like petals. Each flower is capable of producing up to 75 seeds. Peak flowering occurs from late January through to March, though odd plants may flower at any time.



Figure 1. Ragwort.

Seeds - Straw coloured to light brown, about 2 mm long and 0.5 mm wide. Each flower has two types of seed. Disc Seeds (40-60/flower) occur in the centre of the flower and are adapted for dispersal. They have a pappus of fine white feathery hairs 4 to 5 mm long to aid wind dispersal and a covering of microscopic bristles (trichomes) which aids

attachment to animals. **Ray Seeds** (12-15/flower) occur around the outer edge of the flower and are smooth, thicker and heavier than the disc seeds, and drop straight down into the gap left by the senescent parent plant.

An average plant produces 60-70,000 seeds but a large plant can produce as many as 250,000. Seed can remain viable in the soil for at least 8 years.

Roots - A crown or stout rootstock occurs at or just below the soil surface from which numerous fleshy roots each about 15 cm long are produced. Many fibrous roots extend deeper into the soil.

Properties

Ragwort is poisonous to grazing animals. Cattle, horses and pigs are most susceptible. Ragwort contains pyrrolizidine alkaloids that cause cumulative liver damage, leading to photosensitisation, jaundice and wasting. Cross bred sheep will eat ragwort without showing ill effects unless continually exposed to the plant in large quantities.

Ragwort competes strongly with more desirable plant species and reduces pasture productivity. Stock selectively avoid grazing ragwort which aids its spread in pastures. Its presence reduces land values.



Figure 2. Ragwort infestation.

Dispersal

Seeds are spread by wind, water, animals, farm implements, agricultural produce including hay, and on clothing and other equipment. The great majority of seed fall within the immediate area of the parent plant, but because such a vast number of seeds is produced, the amount which becomes airborne and travels for long distances (kilometres) is large. The seed readily floats in water but germinates quickly when immersed.

Control

Management of ragwort infestations requires thorough control measures. Integrated management programs must be well planned if they are to be successful. These programs must involve the setting of priorities for controlling different levels of infestation. Clean areas should be kept free of ragwort and managed to prevent infestation. Lightly infested areas are best cleaned up as

soon as possible to prevent spread. Extensive infestations are best quarantined and tackled progressively as part of a pasture improvement program, in conjunction with other control techniques. Grazing with sheep can prevent or reduce flowering and the spread of seed. Sheep should be used with caution because of the danger of liver damage.

Cultivation

Cultivation is only recommended if carried out systematically and with an improved pasture or cropping program. The danger of soil structure decline and erosion, especially on steep country, must be considered. Ploughing in spring followed by cultivations in summer and autumn will kill existing plants, regrowth and seedlings. Ragwort seedlings which appear after cultivation should be spot sprayed as a priority.

Hoeing, Slashing and Hand Pulling

Ragwort that is slashed, pulled, cut or broken close to the soil surface will produce new growth from the cut crown or small pieces of root left behind in the soil. Ragwort quickly grows back after slashing, often with a few weeks. Slashing must be followed up with chemical application and/or cultivation and pasture improvement. Small infestations can be chipped out using a mattock.

Hand pulling is not generally effective during winter or spring as seedlings and small plants are difficult to remove and root fragments may regrow. It can be used to control flowering ragwort, but the flowering heads should be placed in bags to prevent spread of seeds and later piled up and burnt or composted to prevent seed germination.

Pasture Management

Sound pasture management is essential. Maintenance of a dense pasture will reduce seedling establishment. Where a pasture contains a significant proportion of desirable plants, ragwort control can be assisted by improving the competitiveness of the pasture by application of fertiliser or by improved grazing management. Where undesirable species are dominant, pasture renovation or establishment of new pastures may be required. Ragwort control in inaccessible areas may be best achieved by fencing off the area and allowing it to return to bush or by grazing with sheep or goats.

Sheep can develop a taste for ragwort and will actively seek out flowering plants. However grazing regimes need to be flexible to apply grazing pressure to ragwort as part of a spray-graze program. A common problem is that after applying herbicides at a spray-graze rate, stocking numbers are not increased to 4 -to 5 times normal. Increased stocking is required as the spray-graze rate of herbicide will do nothing more than slightly retard the growth of ragwort for a short period of time, unless the grazing pressure is substantially increased. This pasture management aspect of ragwort control needs to be conducted annually.

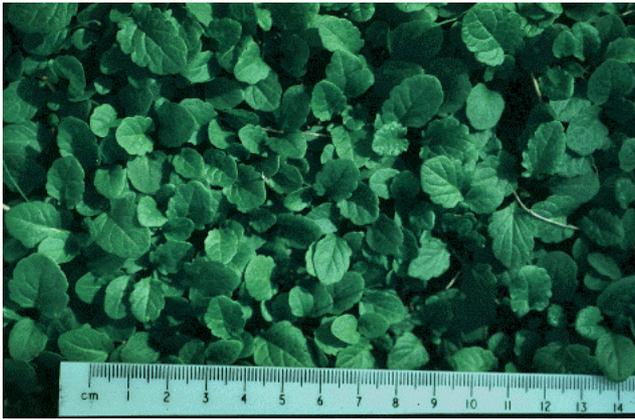


Figure 3. Ragwort seedlings.

Chemical Control

Under Victorian legislation there are controls on various aspects of the uses of agricultural chemicals. Some particular uses are prohibited and some require permits. Users of certain agricultural chemicals are required to obtain an Agricultural Chemical User Permit (ACUP) or work under the direct supervision of an ACUP holder. Additional restrictions on the use of some herbicides apply to particular geographic areas known as Chemical Control Areas (CCA).

It is the responsibility of chemical users to familiarise themselves with these controls. See Agriculture Note: Agricultural chemical user permits (ACUP) and chemical control areas (CCA) for further information.

An ACUP is required for the use of prescribed chemicals containing the active constituents marked with an asterisk (*) in the following list. Records of the use of these chemicals must be made by the user and these records must be kept for 2 years. Restrictions on use in CCAs apply to the chemicals marked with a hatch (#).

Contact the Regional Chemical Standards Officer of the Department of Natural Resources and Environment if further advice is required.

You should read the product label and follow all label instructions carefully before using any herbicide.

Use a product containing one of the following active constituents or combinations of active constituents that is registered for use in Victoria to control ragwort in the particular situation in which you need to use chemical control, eg. in pastures. Consult the product label for detailed information.

- 2,4-D ISOPROPANOLAMINE SALT + PICLORAM#
- 2,4-D ETHYL ESTER*#
- 2,4-D ISOBUTYL ESTER*#

- DICAMBA DIMETHYLAMINE SALT#
- DICAMBA DIMETHYLAMINE SALT + MCPA DIMETHYLAMINE SALT#
- MCPA DIMETHYLAMINE SALT#
- MCPA SODIUM SALT
- METSULFURON METHYL#
- PICLORAM TRIETHANOLAMINE#
- PICLORAM#+ TRICLOPYR BUTOXY ETHYL ESTER*#

This list of chemicals is based on information supplied to the Department of Natural Resources and Environment by the National Registration Authority for Agricultural and Veterinary Chemicals (NRA). The State of Victoria through the Department of Natural Resources and Environment has not assessed or checked the accuracy of the information supplied to it from the NRA as that responsibility rests with the NRA.

No herbicide will completely eradicate ragwort in one application. Most herbicides used in ragwort control act by foliar uptake and translocation. They are taken up by the leaves and transported to all parts of the plant, especially to the crown and roots, where they start to kill the weed. Because ragwort has a large proportion of biomass in the crown and root system below ground level, getting an effective amount of herbicide into the crowns and roots in one of the main challenges of herbicidal control. Repeated herbicide treatments may be required during the one season to prevent rosettes maturing and setting seed. In general, the best time to spray ragwort is in spring or autumn when the plant is in the seedling or rosette stages. Plants should not be stressed at the time of herbicide application but should be actively growing.

Biological Control

There are three insect species introduced to control ragwort which are established in Victoria: the ragwort leaf and crown boring moth, *Cochylis atricapitana*, and the ragwort flea beetles, *Longitarsus flavicornis* and *L. jacobaeae*. The ragwort seed fly, *Botanophila seneciella*, was introduced in the 1950s but failed to establish. The cinnabar moth, *Tyria jacobaeae*, a flower and leaf feeder, was first released in the 1930s also failed to establish. Attempts are currently underway to establish a field-hardened biotype of the cinnabar moth imported from New Zealand in 1993.

The flea beetles were introduced to Australia in the late 1970s. Thus far in Victoria they have only established in high altitude, high rainfall locations, where they have spread slowly. The larvae feed on ragwort roots and the older larvae may bore in the root crown. Flea beetles have reduced ragwort infestations to less than 5% of their former density at some sites.

The ragwort leaf and crown boring moth was introduced from Spain in 1986 and has been released at hundreds of sites. Larvae of this insect destroy the crown of ragwort

rosettes and often kill plants. The moth is building up at established sites and its impact is expected to increase as populations expand.

Biological control is a long term program which is best used on large, chronic infestations with a low priority for control due to inaccessibility, remoteness or low threat of spread. All of these agents will be of long term assistance in an integrated control program of ragwort infestations.

For more detailed biological control information refer to Landcare Note LC0161 *Biological control of ragwort using the leaf and crown boring moth, cinnabar moth and ragwort flea beetles*, or contact the Keith Turnbull Research Institute on (03) 9785 0111.

References

McLaren, D. and Mickan, F. (1997) *The Ragwort Management Handbook*. Melbourne, Department of Natural Resources and Environment.

Parsons, W.T. and Cuthbertson, E.G. (1992) *Noxious Weeds of Australia*. Melbourne, Inkata Press.

Acknowledgments

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The advice contained in this publication is intended as a source of information only. Always read the label before using any of the products mentioned. The State of Victoria and its officers do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.