



Scotch Thistle

Department of Primary Industries

Common and scientific names

Scotch thistle, heraldic thistle, cotton thistle

Onopordum acanthium L.

Origin and distribution

Scotch thistle is native to Europe, western and central Asia and Asia Minor. It is considered a troublesome weed in Victoria because of its ability to invade pastures. Scotch thistle thrives in high fertility soils. It has not yet reached the full extent of its potential distribution.

Description

An erect annual or biennial herb, commonly 1 to 1.2 m high but up to 2m, reproducing by seed. Seed can germinate at any time of the year, however there are two main germination times, late summer to autumn and late winter to spring. This results in infestations containing plants of different sizes and ages. Seedlings develop into rosettes which generally require some winter cold before they can grow a flowering stem in their first spring or summer. Plants resulting from summer-autumn germination behave as annuals, flowering the following spring while plants resulting from winter-spring germinations behave as biennials, growing as rosettes through summer, autumn and winter, and then flowering the following spring. Plants die after flowering but can remain standing for months.

Stems - Generally one main stem with numerous branches, covered with dense woolly hairs giving a whitish appearance, and broad spiny wings.

Leaves - Margins cut or toothed, spiny and undulating. Dense, white woolly hairs on undersides, sometimes sparser on upper sides. Rosette leaves up to 40 cm long, stalked. Stem leaves smaller and without stalks, extending into wings along the stems.

Flowers - Purple or mauve, in heads surrounded by numerous spiny bracts (modified leaves at the base of flower). Heads 2 to 6 cm in diameter, solitary or in groups towards the ends of the branches. Bracts are woolly at the base and end in orange spines. Flowers are produced in late spring and summer.

Seeds - 4 to 5 mm long, grey with dark mottling, attached to a pappus (parachute) of toothed hairs or bristles up to twice as long as the seed. The pappus is often detached

from the seed in the head. Large plants can produce over 20,000 seeds.

Roots - Taproot.



Figure 1. Scotch thistle.

The problem

Scotch thistle is confined to areas with an annual rainfall of 500 to 900 mm. It is a competitive weed in improved pastures where it favours soils with high levels of nitrogen. Scotch thistle is avoided by stock because of its dense spines and this encourages its spread in heavily grazed pastures. If eaten, the spines can cause damage to stock, particularly around the mouth. Spines and dead leaves contribute to vegetable fault in wool.



Figure 2. Scotch thistle infestation.

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Dispersal

The main dispersal method is by seed, but cultivation can spread root pieces, which will establish if soil moisture is adequate. Seeds have a pappus of toothed hairs which helps dispersal by attaching to clothing and animal coats. The pappus is not adequate for wind dispersal of seeds but seed heads and stems can be transported by strong wind and water. Seed can be spread in contaminated hay, silage, grain and farm machinery.

Management program

Some control methods described in this note are only effective if used in combination with other control options as part of a long-term management program.

If used in isolation, these methods do not effectively destroy the plant, allowing it to re-shoot or continue to grow. Authorised officers from DPI or DSE may direct landowners to undertake specific control activities to ensure methods are used that are capable of destroying plants and preventing their spread.

Where directed to do so, landowners must use the method or methods as directed by the authorised officer. In most cases the landowner will be able to choose from a variety of options appropriate for use in their particular situation.

Priorities for controlling different infestations must be worked out when planning a Scotch thistle management program. Clean areas should be kept free of the thistle 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 pasture improvement programs, in conjunction with other control techniques.

Cultivation

Ploughing is effective in killing young plants providing they are completely turned over. This is best achieved with a mouldboard plough.

Slashing or Mowing

These techniques are usually not effective because cut plants can regrow from the base and cut flowering stems may still produce fertile seed.

Pasture Management

Strong, competitive, well-managed pastures are effective in shading thistle seedlings, reducing establishment of the weed during the main germination periods. Careful grazing management is necessary to minimise bare ground, which assists thistle seedling establishment. Contact your local Catchment and Agriculture Services staff for pasture management advice.

Grazing

Goats have been used at the flowering stage to reduce seed

production. Fencing must be adequate to restrict these animals to the chosen control area. Keep in mind that browsing animals eat a range of vegetation and may destroy desirable plants as well as thistles.

Manual Control

Isolated plants can be grubbed. Remove as much of the taproot as possible to prevent regrowth.

Chemical Control

The Australian Pesticides & Veterinary Medicine Authority (APVMA) is responsible for the assessment and registration of agricultural and veterinary chemicals in Australia. As chemical products are registered on a daily basis and renewal of these registrations are undertaken each financial year, there is much change in the registration status of products each year. The APVMA information is available at: <http://www.apvma.gov.au/>
The Chemical Standards Branch (CSB) of the Department of Primary Industries provides information on agricultural chemicals registered in Victoria and their uses. Enquiries will be referred through the Customer Service Centre on 136 186. Information can also be obtained by visiting the CSB website: www.dpi.vic.gov.au/chemicalstandards

Under Victorian legislation there are controls on the use of agricultural chemicals. It is the responsibility of the user to be familiar with these controls. These responsibilities are outlined in Agriculture Note AG0520: "Responsible use and handling of farm chemicals".

Farm chemicals are registered for specific uses. Each chemical has a 'product label', which documents the approved use and the approved rate of use within each State of Australia. This label is important in determining the appropriateness of chemical use.

Choose only products registered for use on Scotch thistle one-leaf cape tulip in your particular situation. Read the product label carefully and follow all label instructions.

Your chemical retailers can provide information on registered chemical products that are available in their store. They can also supply a 'material safety data sheet' which outlines the health and safety issues associated with use of a product.

Legal use of some restricted chemicals requires the user to possess an Agricultural Chemical User Permit (ACUP). Other chemicals have restrictions on their use in Agricultural Chemical Control Areas (ACCAs).

Information on ACUPs, ACCAs and other chemical information can be found at the website: <http://www.dpi.vic.gov.au/chemicalstandards>

Weeds don't respect boundaries.

If a weed is a problem on your property, it's a problem for your neighbours.

Biological Control

A program is under way to introduce a number of natural enemies of Scotch thistle from Europe. Insects which reduce seed production are being released and several others are being evaluated. 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.

Further advice

- Contact your local landcare or friends group for further assistance and advice.
- Call the DPI/DSE Customer Service Centre on 136 186.
- Contact your local DPI Pest Management Officer for advice on local programs.
- Visit the DPI website at:
<http://www.dpi.vic.gov.au>

and the Weeds Australia website at:
<http://www.weeds.org.au>

References

- Parsons, W.T. and Cuthbertson, E.G. (1992) *Noxious Weeds of Australia*. Melbourne, Inkata Press.
- Woodburn, T.L., Briese, D.T. and Corey, S. (1996) Thistle management. Proceedings of a workshop held at CSIRO Division of Entomology, Canberra on 12-13 June 1996. *Plant Protection Quarterly* **11** Supplement 2, pp. 231-292.

Acknowledgements

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All land managers have a responsibility to control weeds on their property.