Weed control in Tasmania's forests:
information sheet 5

Ragwort (*Senecio jacobaea L.*)

Life Cycle

Ragwort if left undisturbed will in the first year form a leafy rosette, and then in the second year flower and die. This is referred to as a "biennial" (two year) life cycle. A biennial life cycle usually occurs in plants growing on waste land or other undisturbed areas.

In response to physical damage ragwort found in pasture normally behaves as a perennial (plants that live for more than 2 years), perhaps flowering several times before dying. This perennial life cycle is promoted by damage to the plant from cultivation, stock hooves, grazing and cutting.

With the exception of some of the cooler districts the bulk of seed germination begins after the first substantial rain in the autumn, and may continue through to the spring. New leaf shoots from the previous year's plants also appear following autumn rainfall, and may be mistaken for seedlings.

The growth of seedlings is normally slow. In pasture, seedlings seldom produce more than five leaves and leaf length seldom exceeds 50 mm in the first year of growth. In open situations rosettes up to 100 mm in diameter may be produced.
The restriction to growth caused by pasture competition makes seedlings more vulnerable to death from disease, trampling during the winter and drought during summer. Survival rates in the second year are much higher as the rosettes develop.

New shoots are readily produced from the rosette crown (growing point) following damage to established leaves. These may also develop from larger fleshy roots. This capability contributes significantly to ragwort's survival in pasture and commonly occurs following hoeing or pulling when roots become detached from the crown and are left in the soil.

The production of new shoots from the damaged crown can lead to the development of multi-crowned plants. These plants produce a greater number of flowering stems as opposed to that produced from a single crown plant. Continued damage to a plant delays flowering and may lead, over several years, to the development of a very large multi-crown plant.

A very leafy rosette, normally exceeding 150 mm in diameter, develops before stem elongation occurs in the late spring. Several stems may be produced from one

rosette. In Tasmania, stem elongation usually begins in early November with flowering commencing in late December or early January. Mature seeds are produced in late January or early February, and seed production may continue until early April. Thus, any control measures aimed at preventing seed production must be completed by early January.

Any action during flowering which damages but does not kill the plant, such as grazing, slashing or incorrect herbicide application is likely to result in the production of new flowering stems. These arise as either branches from the original stem or at the base of the plant. These new stems can continue flowering well into the autumn and even into winter. Plants damaged but not killed at the flowering stage behave as perennials, and commonly continue to produce new leaves after flowering.
The majority of the seeds are deposited within 20 metres of the parent plant but under favourable conditions seeds may be dispersed by wind for distances of a kilometre or more. Dispersal on the coats of animals, on farm machinery, logging equipment, trucks and other vehicles, and in hay may be more important than wind in long distance dispersal.

Seeds on the soil surface germinate readily following rain in the autumn, whereas seeds covered by soil or litter may exhibit delayed germination. Buried seeds may remain viable for a number of years, possibly 20 years or more.

Distribution

Ragwort is widely distributed throughout the grazing areas of Tasmania, The heaviest infestations occur on land which has been cleared in the past but never properly developed for agriculture, or on run-down pastures and grasslands. Pastures grazed by cattle are particularly prone to ragwort invasion as the death of desirable plants from cattle hooves leaves openings for seedlings to establish. As cattle normally avoid grazing ragwort it also has a competitive advantage over other pasture plants that are grazed.

Status under the Noxious Weeds Act

Ragwort is declared as Secondary Weed. Under the provisions of this Act gazetted weed inspectors can require land holders to take any action thought necessary.

In areas where infestations of ragwort are not widespread such as the Midlands, the far North-west, and some areas covered by community weed management strategies, land holders are required to completely eliminate infestations where practicable.

In districts where the weed is firmly established, and its elimination is not feasible, land holders are required to contain infestations and take appropriate actions to minimise spread to neighbouring properties.

Control

Chemical control:

Herbicides need to be applied at the seedling or rosette stage to be most effective, and best results can be expected when the plants are actively growing at the time of application. Autumn and spring are thus the normal seasons for undertaking chemical control, although winter applications can also be effective on mild sunny days if the plants are still green and not damaged by frost.

Brushoff® and Lontrel® are effective herbicides against ragwort even at the flowering stage. However both of these herbicides are very active against clovers

BOOM OR SPOT SPRAYING

Stage of growth*	(Active ingredient)	Commercial product	Rate per hectare	Spot rate of product per Litre	Comments
Rosettes: single-crown plants	clopyralid metsulfuron methyl	Lontrel® (300 g/L) Brush-Off® (600 g/kg)	Up to 2litres/ha 15g/hectare	2 mL 0.05g	Add surfactant. Apply to actively growing plants.
Rosettes: multi-crown plants**	clopyralid metsulfuron methyl	Lontrel® (300 g/L) Brush-Off® (600 g/kg)	Up to 2litres/ha 15g/hectare	4 mL 0.05 g	Add surfactant. Apply to actively growing plants.
Shooting plants***	clopyralid metsulfuron methyl	Lontrel® (300 g/L) Brush-Off® (600 g/kg)	Up to 2litres/ha 15g/hectare	4 mL 0.05 g	Add surfactant. Apply to actively growing plants.
Flowering plants*§**	metsulfuron methyl	Brush-Off® (600 g/kg)	15g/hectare	0.05 g	Add surfactant. Apply to actively growing plants.

- The rosette stage of growth is the preferred stage for effective chemical control. Application at the flowering stage or latter will result in reduced kill rates.
- Note Brushoff® can only be used before planting of pines or eucalypts. There is also a witholding period before trees can be planted. Brushoff® applications after tree planting will result in tree damage. See the label

* Although not listed on the label, glyphosate at 2 litres /ha will kill around 80% of ragwort at the rosette stage. The addition of Pulse® or higher rates will allow for better results. Glyphosate /Brushoff® mixes will effectively kill ragwort.