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PEST FACTS

NORTHLAND REGIONAL COUNCIL

Ragwort

Senecio jacobaea

Ragwort was introduced into New Zealand before 1874, almost certainly as a contaminant in pasture seed, and quickly spread throughout the country. Today it is found from the Kermadecs to the Chathams, in waste places, riverbeds, swamps, open native forests, plantation forests and pasture.

Ragwort prefers areas of high rainfall but will tolerate a variety of conditions, thriving in a wide range of soils, light levels and fertility.

DESCRIPTION

A member of the daisy or Asteraceae (Compositae) family, ragwort is an erect annual, biennial or perennial herb. It normally grows to 45-70cm but can reach 1.6m in height. The solid taproot or crown produces numerous fibrous roots that can extend outwards 30cm or more. Wrinkled, deeply divided leaves appear in a rosette, which grows into a dense cluster or 'cabbage.' This is followed several months later by the flower stem which is often streaked red-purple and usually has a few leaves on it.
The flowers are bright yellow and when mature turn

brown producing many tiny seeds, each surrounded by white feathery thistledown-like hairs.
Left undisturbed, plants flower and die within one or (at most) two seasons. Plant populations are therefore maintained by new seedlings each year. However when plant growth is checked by any means (mowing, pugging, poor spraying or grubbing), regeneration from the crown occurs, new rosettes and crowns form and the plant becomes a perennial or 'multi-crown'. These multi-crowns are much more difficult and expensive to kill with herbicides and they live and flower for longer periods and can seed at any time of year. Therefore mowing ragwort leads to a year-round problem rather than an annual one. Even grubbing is usually ineffective as small root fragments left in the soil resprout, perpetuating the problem.

DISTRIBUTION

Although transport of root and crown fragments by machinery does occur, ragwort invasion is mostly caused by seed spread. It has been estimated that a large ragwort plant produces 100,000-250,000 seeds, with a viability rate of 40-80%. Seed is carried predominantly by water but wind is also a factor. Exactly how far seed is blown is a hotly disputed topic. Recent studies in New Zealand indicate that the vast bulk of seeds falls to the ground within five

metres of the parent plant, while virtually none are blown more than 37 metres away. Many farmers disagree with these findings, claiming that ragwort seeds can be blown several kilometres from hilltops. Machinery such as lime spreaders can spread ragwort but earthmoving equipment is more likely to do this. Seed is often carried in hay. Stock can distribute seeds on their hooves and coats. It is unlikely that birds spread ragwort.

THREAT

The major threat posed by ragwort is to seasonal pasture production and profit. Initially considered to invade only low-to-medium fertility pasture, the plant has become a significant weed in high fertility dairy pasture. However, where once it rated as the

worst non-woody pasture weed in New Zealand, herbicide and management technologies have enabled farmers to control ragwort so that it now ranks below several thistles and carrot weed as an economic weed in Northland.

Arguments for ragwort control need to be considered in the context of evaluating its current impact. Despite being declared a noxious plant in Whangarei County in 1908, regulation to achieve eradication has proven highly expensive and ultimately futile, both in Northland and elsewhere in New Zealand. A comparison of the costs of eradication against the benefits to the community of such measures, shows that eradication cannot be justified but that it is reasonable to require landowners to prevent it spreading across boundaries. Most Regional Councils therefore aim to protect clear land by maintaining a boundary control strategy.

Ragwort is toxic to livestock. The plant contains several poisonous alkaloids, and prolonged browsing leads to chronic liver damage, causing ill-thrift and occasionally death. Horses and cattle are worst affected. Sheep detoxify the alkaloids in the rumen so their tolerance to ragwort is much higher. However, their livers are progressively damaged causing copper accumulation and sheep can eventually die of copper poisoning. All of the ragwort plant is toxic when fresh or dry, and it should be removed from hay paddocks before haymaking. Sheep develop a liking for ragwort, and as the toxic effects take months or even years to develop, sheep can be used to control the plant. Other stock avoid ragwort, so overgrazed cattle pastures can become more heavily infested as everything but the ragwort is eaten.

CONTROL

Many different control methods exist, but no single method can give permanent control of ragwort. A combination of dedicated pasture management and ragwort removal is needed to maintain clean pasture.

Maintaining continuous pasture

Maintaining a vigorous dense pasture greatly assists in preventing ragwort invasion. Ragwort seed establishes in broken or bare spots so land management should attempt to maximise grass cover, especially in autumn when seed germinates. Factors to consider include fertility, erosion control, not over-grazing, rabbit and possum control and prevention of insect attack. Pugging and the effects of drought should be minimised where possible.

Grazing with sheep

This can give excellent control of ragwort, especially where access or terrain is a problem. However plants are not killed, merely eaten to ground level, and recover when sheep are removed. Mob stocking therefore needs to be carried out at least four times between spring and autumn to be effective. Each paddock should be stocked for four days minimum.

Alternatively, a continuous grazing regime of sheep at three units per hectare as part of an overall minimum of 11 stock units per hectare works well. In medium to dense ragwort infestations the sheep numbers will only marginally affect cattle carrying capacity. Any temporary production loss is usually more than offset by savings in herbicide and application cost, and less damage to clover. As ragwort levels drop, sheep numbers can be reduced and cattle numbers increased. Ultimately the total carrying

capacity of the property can be raised. Sheep also assist the control of other weeds and help keep pasture tight.
Goats and horses are not effective against ragwort. Deer give a measure of control inferior to sheep.

Cultivation
Because ragwort root fragments resprout, cultivation is largely ineffective unless followed by crop or fallow, herbicide treatment and recultivation into pasture.

Biological control
This is seen as probably the best hope of achieving significant long term control of ragwort in New Zealand. However there is no way of predicting if biocontrol agents will be successful when introduced and some can take many years to establish.
Cinnabar moth and Ragwort seed fly have been previously released, with little impact. Ragwort flea beetle *(Longitarsus jacobaeae)*, released in 1983, shows much promise as a control agent. However it is extremely slow to establish and multiply to sufficient numbers to give good control.
The Northland Regional Council is active in funding biocontrol research and spreading various agents around the region.

Grubbing or pulling
Grubbing or pulling plants leaves root fragments in the soil, which usually resprout into multi-crowns. This only delays the necessity for further work. Either action should only be considered when plants are at the full to late flowering stage and the soil is very dry, causing most root fragments to perish. The mature (ie post-petal) flower heads of pulled or grubbed plants should be burned

Mowing
Mowing causes the formation of hard-to-kill multi-crown plants and is not recommended.

Chemical control
Herbicides give probably the best short term control of any method, but are costly and can kill clovers which are vital for pasture production. Some also check or kill grasses. They can be applied in many ways, from spray booms, Controlled Droplet Applicator (CDA) booms and carpet roller or rope wick booms, to spot spraying by gun, CDA, knapsack, or 'hockey stick'. Granules can be applied by hand or special applicator.

For a full description of recommended application methods, herbicides currently available and land occupiers responsibilities, please refer to Pest Update 2A - Ragwort.

For more information, contact Northland Regional Council Land Operations staff at one of the addresses below.

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