Weed control in Tasmania's forests:
information sheet 4

Gorse (*Ulex europaeus* L.)

Gorse bush

Identification
Gorse is one of Tasmania's most widespread and troublesome weeds. It is a prickly, perennial, evergreen shrub that if left undisturbed will grow to a height and diameter in excess of 3 metres.

Gorse is a member of the legume family *Fabaceae*. It produces an extremely deep and extensive root systems, giving it access to water at very low depths in the soil. All stems and leaves end in a sharp spine, making plants impenetrable to animals and unpalatable to all stock except goats. The dark green leaves and stems are ridged and covered with a waxy cuticle to help minimise water loss. This feature, coupled with its deep root system, allows gorse to proliferate in areas of very low rainfall.

Life cycle
Flowers are bright yellow, pea-like, approximately 20mm long, and are borne all over the plant. The buds develop during February and March, however flowering occurs in two distinct seasons, spring and autumn. A small number of flowers may be present at other times if climatic conditions suit. Bees primarily pollinate the flowers.

Vast quantities of brown to black seed, approximately 4mm long, are produced in grey, hairy pods. Each pod generally holds three to five seeds.

Dispersal
Most seeds tend to fall below the parent, although the seedpods are capable of splitting open explosively, usually on warm days, and catapulting the seeds up to several metres from the parent bush. The seeds have a hard, water-resistant coating, allowing them to remain dormant in the soil for more than 20 years. These seeds are often stimulated into germination when the existing bushes are burned or mechanically disturbed. Gorse spread is mainly by seeds, however cultivation and spread of the root system does occasionally permit some fragments to regenerate.

Status under the *Noxious Weeds Act 1964*

Gorse is a declared "Secondary Weed" under the *Noxious Weeds Act 1964*.

Control
A range of techniques is available for gorse management. Regardless of the methods employed, some vital points must first be understood:

- Destruction of existing plants is only the start of achieving long term eradication. The large quantities of seed in the soil will quickly germinate and re-establish the infestation if vigilant follow-up is not carried out over ensuing years.
- No one method alone will give total control of existing gorse plants and subsequent seedlings. A combination of methods must be employed to give maximum chances for long term success.
- Where gorse transcends property boundaries, any eradication efforts should be made in conjunction with neighbouring landholders to achieve a complete eradication of all plants in the area to prevent reinfestation.
- Whilst the largest thickets may appear the most obvious place to commence works, ideally the smaller, outlying infestations should be tackled first. This allows a greater area of land to be cleaned up first, and follow up maintenance will be less in these areas as a smaller seed bank is likely to be present.

Burning
Fire can be very useful in reducing impenetrable thickets of gorse to ground level, to allow follow up herbicide spraying of regrowth. The fire will also stimulate seed germination, allowing a high proportion of the seedlings to be sprayed the following year, greatly reducing the seed bank.
Burning is also beneficial when carried out several months after spraying when, under the best conditions, it reduces dead woody stems to ashes.

Cultivation
Mechanical clearing is an ideal method of controlling large infestations on land that is suitable for sowing down to

pasture. Bulldozers with rippers or medium to heavy tractors with dozer blades and rippers attached can be used.
Cutting off established bushes near the soil surface with dozer blades or hard equipment is another option. This treatment reduces soil disturbance, thereby stimulating fewer seeds into germination.

Chemical control

The optimum time for herbicide application is when the gorse is actively growing. This is generally spring to early summer, and after the autumn break. With large plants or thickets, a high spray volume, up to 4000 L/Ha, should be applied to ensure the entire plant is contacted, not just the outer leaves and stems.
The most effective herbicide for gorse control is a mixture of triclopyr and picloram (e.g. Grazon DS®). Where thorough coverage of the bush can be achieved, one application will usually give complete control with no regrowth. However, treated bushes should be checked twelve months after the herbicide application and any regrowth treated.

Care is needed when treating gorse with Grazon DS® in areas where desirable trees are present, or where trees may have roots extending into the treated area. They may be severely damaged or killed by spray drift onto leaves or green stems or by root uptake from the soil.

In urban or horticultural areas this triclopyr/picloram mixture is not recommended for use as it may volatilise, move on air currents, and cause damage to nearby plants or crops. Vineyards are particularly susceptible. Alternate herbicides such as triclopyr alone (e.g. Garlon 600®), glyphosate (e.g. Roundup Biactive®), metsulfuron-methyl (e.g. Brush Off®), or glyphosate/metsulfuron-methyl mixture (e.g. Trounce®) are less volatile and are preferred for foliar use in such areas.

All of these herbicides are less effective than triclopyr/ picloram mixture and should only be used where the use of this product is not appropriate.

Triclopyr, picloram and metsulfuron-methyl will not significantly affect grasses, however they will severely damage clovers and other broadleaved plants, including surrounding trees, contacted by the spray. Picloram and metsulfuron-methyl are also soil-residual, hindering the re-establishment of these plants for up to twelve months. Where this poses a problem, herbicides not containing these chemicals should be used.

Rates and times of application of herbicides for foliar treatment of gorse

Herbicide (Active ingredient)	Commercial products (Content of active ingredient)	Rate of commercial product per litre of water	Comments
triclopyr+ picloram	Grazon DS® (300 g/L + 100 g/L)	Spring & summer, to 1.5m tall: 2.5 ml Autumn or over 1.5m tall: 3.5 ml Winter: 5.0 ml	Optimum time of application is when plants are actively growing.
triclopyr	Garlon 600® (600 g/L)	1.7ml - 3.5ml	Apply from spring to mid-summer. Use the higher rate on older plants.
metsulfuron-methyl	Brush-Off® (600 g/Kg)	0.15 g (1.5g / 10 litres)	Apply to bushes up to 2m tall.
glyphosate	Roundup Biactive® (360 g/L) Glyphosate 360® (360 g/L)	15 ml	Optimum time of application is when plants are actively growing.
glyphosate+metsulfuron-methyl	Trounce® (835 g/L + 10 g/L)	1.7 g	Optimum time of application is when plants are actively growing.

Note: Addition of adjuvants to most herbicides alters their effectiveness. Carefully consult each product's label for specific directions before adding any adjuvant.

Triclopyr, picloram and metsulfuron-methyl will not significantly affect grasses, however they will severely damage clovers and other broadleaved plants, including surrounding trees, contacted by the spray.

Glyphosate is non-selective and will affect grasses, clovers and most broadleaf plants.

Picloram and metsulfuron-methyl are soil-residual, hindering the re-establishment of clovers and other broadleaved plants for up to twelve months.

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