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Methods used for weed control in Auckland

Mechanical

Weed control by weed-eating, mowing or shredding.

Mechanical control methods are not effective ways of killing the entire plant including the root system, but they trim foliage and can prevent or reduce seed production and restrict growth. It is most effective when it is timed well, e.g. before a plant sets seed.

Auckland Council generally uses mechanical control for selected pest plants in the road corridor, in catchments used by Watercare Services and in some parks to keep some open drains and swales clear. It is used most often in combination with other weed control methods (such as synthetic herbicide, steam, and hot water) to increase effectiveness.

Mechanical control methods must be undertaken on a regular frequency, depending on the species, to prevent weeds from re-sprouting from stem and root fragments.

There is the potential to spread some weeds through mechanical control methods as fragments can travel on machinery, or re-sprout from fragments on site.

Manual

Weed control by hand, hand tool or mulching.

Council uses this method in various sites, though it is not an effective method for most of the hard edges in local parks, or for the road corridor. In other sites it can be effective against small shrubs and trees and herbaceous weeds in small infestations, removing the whole plant. It is best suited to small plants without extensive root systems that can be removed without breakage. It is not recommended for plants with deep underground roots and/or easily broken roots.

Most weeds should be removed from the site entirely to avoid fragments or seeds colonising and careful disposal is important for some species (e.g. those that re-sprout from fragments).

This method also creates soil disturbance, which can lead to weed invasion, and manual control on species that re-sprout from fragments can lead to weeds spreading further. The labour-intensive nature of this method and the need to remove and dispose of weeds makes it comparatively more expensive than other methods.

Biological control

Control using a weed's natural enemy.

Biological control (biocontrol) agents are usually insects or pathogens that attack different parts of a weed, including the seeds, stems, shoots, leaves and roots. This method is used to control suited species in sites across the region including regional parks. The agents are released into a target area with a suitable weed population.

It is not suited to control weed species typically occurring on hard edges of local parks and many species in the road corridor as there is a high probably of these agents attacking similar species outside the target area, including neighbouring private land. It can be a suitable method for sites alongside native bush or commercial crops which may be impacted by control using synthetic herbicides.

There is an initial financial investment to research, breed and import a biological control agent however if an agent is successful it can be a cost-effective option as it continues to kill the pest with no further direct help from humans and at no additional cost.

Before a new biological control agent is released, approval from the EPA is needed and all proposed agents are rigorously tested to assess the risk of damage to non-target plants. They are also tested for disease and evaluated for any other unwanted interactions they might have.

High pressure steam

Application of high pressure steam.

Steam is not an effective way of killing the entire plant including the root system, but it treats the foliage and can prevent or reduce seed production and restrict growth. The steam destroys the surface foliage of the weeds, leaving the roots primarily untreated as the temperature of the steam decreases (forming liquid water) rapidly upon touching the ground.

Steam does not destroy the foliage of some types of weeds (nutgrass and kikuyu for example).

This method is used in the road corridor in the north-east urban area of the North Shore (methodology used in the road corridor remains that of the legacy North Shore City Council). Steam treatment is required every six weeks in combination with or interspersed with mechanical trimming/removal. This method uses 2000L to 3000L of water per control shift which must also be heated.

Hot water treatment

Application that involves rubbing the foliage with a wand delivering hot water.

Hot water treatment is not an effective way of killing the entire plant including the root system, but it treats the foliage and can prevent/reduce seed production and restrict growth.

The hot water destroys the surface foliage of the weeds, leaving the roots primarily untreated as the temperature of the water decreases rapidly upon touching the ground. Hot water does not destroy the foliage of some types of weeds (nutgrass and kikuyu for example). Thermal treatment of weeds can reduce soil micro-organisms and invertebrates.

This method is used in the road corridor in the north-west urban area of North Shore (methodology used in the road corridor remains that of the legacy North Shore City Council). It uses 5000L to 6000L of heated water per control shift. Control is currently repeated every eight weeks in combination with mechanical trimming/removal of larger weeds.

Plant-based herbicide

Weed control by plant-based herbicide via foliar spray.

Plant-based herbicide includes products such as ‘Organic Interceptor’ (derived from pine essence) and ‘Agpro Bio-Safe’ (derived from coconut oil). Both are non-selective, contact herbicides. (A non-selective herbicide kills or injures all plants present, and is effective on the plant parts contacted by the herbicide if applied at an adequate rate).

Plant-based herbicides are activated on contact with the foliage of weeds and brown off the foliage thus can prevent or reduce seed production and restrict growth. They are usually fast acting, and they can control some weeds that hot water and steam don’t affect (such as kikuyu).

Plant-based herbicide is used in approximately 1049 km of road corridor in central Auckland and on Waiheke Island (methodology used in the road corridor remains that of the legacy Auckland City Council). Plant-based herbicides are also be used in combination with other methods, and they require more frequent application compared to synthetic herbicide. Bio-Safe is used on a four- weekly cycle and is supplemented with synthetic herbicide. Interceptor is used on a 12-day cycle in combination with mechanical removal.

Bio-Safe becomes a non-active substance on contact with the soil and has no residual activity.

Synthetic herbicide

Application of approved synthetic herbicide through foliar spray or other suitable method.

Synthetic herbicides are effective when correctly selected for the target species and when used according to label and best practice methodology. For all synthetic herbicide use, Auckland Council complies with the Environmental Protection Authority (EPA) national level requirements for the storage, mixing, use, disposal and certification of contractors for synthetic herbicide.

It is often the most effective control method for a weed, including some of the worst environmental weeds (pest plants) managed by our biosecurity team. Common application methods include foliar spray, cut and paste, roller ball, weed wipe or stem injection.

Glyphosate-based herbicides are used on 3551km of hard edges in local parks except where a local board has decided to fund non-herbicide, mechanical control in this area. To date five local boards (Waiheke, Great Barrier, Kaipātiki, Devonport/Takapuna and Whau) have opted to fund non-herbicide weed control methods for some or all hard edges and infrastructure in their local parks.

Glyphosate-based herbicides are the preferred method of vegetation control in the road corridor and are widely used across the road network.

Glyphosate-based herbicides are an effective tool for controlling annual broadleaf weeds, grasses and other monocots, effectively killing the entire plant including its root system. This control method requires less frequent follow ups than other methods, with an average of three to four treatments a year, making it very cost-effective. Auckland Council and Auckland Transport notify the public of intended application in the following ways:

- Prior notice in local newspapers, or door-to-door advice
- On-site signage
- Signage on application equipment

If you do not want your street frontage sprayed with herbicide, read about the council No-Spray Register**.**

No control

Where no weed control is undertaken at a particular site.

No control can be effective in some sites and with some species, for example no control of gorse in the rural road corridor can lead to successful regeneration of native species. This method can take many years to be effective and any interventions, especially maintenance during the period where the site looks unkempt, can set the effectiveness period back many years.

In situations where erosion control is more important than species composition, no control of weeds is also an effective option. No control can also be suitable on sensitive sites such as maunga (volcanic cones) where intervention and disturbance could have an adverse impact on cultural, archaeological and geological site values.

There is no immediate direct cost for this method, though there are unquantified potential longer- term costs from damage to assets caused by weeds (cracks in footpaths, car parks etc.) There is also the potential environmental cost of weed species out-competing native plant populations and weed species like privet triggering asthma and hay fever and other species presenting a physical hazard (e.g. trip hazard).