

SPRAYING INVASIVE WEEDS – WHAT YOU NEED TO KNOW

Contents

What are invasive weeds and why do we control them?.....	2
Which plants are classed as invasive weeds?	3
Choosing if and how we control invasive weeds	3
What are the risks of spraying invasive weeds?	3
What are the rules around spraying herbicide?	4
1. Planning.....	4
2. Selecting a contractor or operator.....	4
3. Developing a Spray Plan and a Site Specific Safety Work Plan	5
4. Notifying the public.....	5
5. Procedures on the day	5
6. Post operation activities	5
How do we adapt and improve what we do?	6

Greater Wellington Regional Council (GWRC) controls invasive weeds such as Gorse and Lupin using herbicide spraying in various locations across the region.

We know that it may seem counter-intuitive that we are protecting the environment and yet are using 'hazardous chemicals' to do so. However, as an organisation we have invested a lot of time into refining our protocols and procedures to make sure spraying is done safely, is monitored and carried out in the best interest of the community and the environment.

It's something we have vigorously debated internally and externally and we are not going to stop spraying. We are committed to doing it safely and believe it is in the best interests of restoring the environments we are responsible for.

When deciding which spray method to use, we consider a number of factors. We think about what invasive weeds we are wanting to control, where they are, is the cost of control and how close the weeds are to sensitive environments such as water bodies, native plants or forest, agricultural land and houses.

In many circumstances, spraying herbicide is the most effective control method and because of this we use herbicides at sites across the region. Spraying is always part of a wider management programme and is usually only carried out for a limited time.

The aim of any GWRC invasive weed control programme is to reduce the problem until we get to a point where the use of herbicides is minimal or can be stopped entirely.

This document provides all you need to know about herbicide spraying to help you understand how and why we use it to manage invasive weeds.

What are invasive weeds and why do we control them?

Thousands of non-native plants have been introduced to New Zealand (NZ) over the last 100 years. There are now more introduced plant species (around 2,500) growing wild than there are native plant species. Not all non-native plants are damaging, but there are over 250 species that are causing significant problems to our environment. We refer to these species as **invasive weeds**.

Problems caused by invasive weeds include:

- survival of native plants being threatened by smothering or being out-competed
- survival of some native animals being threatened by the changing or destroying of their habitat or removing food sources or breeding sites
- ecosystems and landscapes being transformed to alter the availability of essentials such as fresh water
- contributing to the risks of flooding in our waterways
- posing a health risk to humans and animals
- Costing farmers, growers and foresters tens of millions of dollars every year in herbicides and in lost production.

Because of the huge problems invasive weeds can cause, GWRC need to control them. For example a weed infestation may pose a threat to any of our Key Native Ecosystems or regional parks: increase the risk of flooding or be declared a pest under the Regional Pest Management Plan.

Which plants are classed as invasive weeds?

You can find a full list of New Zealand's invasive weeds on [the Department of Conservation's website](#).

Choosing if and how we control invasive weeds

We decide on a site by site basis if controlling invasive weeds is necessary, and we target our control work to where it will be most effective, and of greatest benefit to the environment. A healthy and weed free environment has many flow on effects for local communities and wildlife.

There are a number of tools at our disposal when deciding how to control invasive weeds. Most are much like what you would buy at the garden centre and use in your own garden – just on a bigger scale.

The tools: (these can be used on their own or in combination)

- Spraying herbicide – by hand using a knapsack sprayer, using a motorised spray unit mounted on a vehicle, or using a helicopter mounted spray unit
- Cut and paste– mechanised or manual cutting and treatment with gel herbicide
- Drill and fill – using a power drill and liquid herbicide
- Manual removal – felling, weeding, or digging up root matter
- Mechanical removal – using handheld machinery or heavy machinery such as mulchers, bulldozers or diggers
- Biological control – release of organisms that impact the target species
- Natural control/suppression – revegetating areas with desirable plant species

More information on the different tools, control methods and available herbicides some of which you can use in your own gardens can be found on the [GWRC website](#).

What are the risks of spraying invasive weeds?

There are some risks involved in the use of herbicides just like the risks around opening bags of compost or using sprays at home.

Some of the risks include the potential for environmental or personal contamination. The risks are different for each type of herbicide.

Some herbicides are non-selective (they will kill any plant matter they come into contact with). This means they could potentially cause damage to non-targetted invasive weed species.

Some herbicides are highly toxic in aquatic environments and could potentially harm our wetlands, rivers or streams.

Other herbicides could cause health problems if you ingest them or get the undiluted chemical in your eyes or on your skin.

Because herbicides could potentially cause harm, we closely manage the risks of spraying to keep communities and the wider environment safe.

Some risks are managed directly by us and others are managed by different organisations, depending on our roles in the specific circumstances.

What are the rules around spraying herbicide?

Spraying agrichemicals, including herbicides, is regulated by national legislation and local rules designed to protect the environment and communities from any potential negative effects of spraying herbicide. **GWRC strictly follows all of these rules and guidelines.**

- [Hazardous Substances and New Organisms Act \(1996\)](#) – all herbicides for sale in New Zealand have been assessed and approved for use by the Environmental Protection Authority (EPA). The EPA places controls on how approved herbicides can be used, so the risks of the substances can be safely managed. Instructions for the correct use and the risks for each herbicide are detailed on the product label
- [Management of Agrichemicals Code of Practice \(NZS 8409:2004\)](#) – the EPA provides guidance to ensure that herbicides are used in a safe, responsible and effective way. The document is designed to minimise any potential negative effects from herbicides on the environment or human and animal health
- [Regional Air Quality Management Plan for the Wellington Region](#) – rules in this Plan specify who can use herbicides and how they can apply them. A key rule specifies that the public must be notified when aerial spraying will be taking place on any site to which the public has access. The pNRP includes new rules for spraying, however these rules will remain in effect until the plan is superseded by the pNRP (below).
- [Proposed Natural Resources Plan for the Wellington Region \(pNRP\)](#) – there are rules in the pNRP that specify who can use herbicides and how they can apply them. These set out the conditions that have to be followed when applying herbicides, eg preparing a spray plan, limiting where herbicides can be used. It may be necessary to apply for a resource consent in order to spray, and this can involve specific conditions for that spraying operation.

How do we go about spraying invasive weeds?

The national rules, regulations, policies and guidelines underpin any herbicide spraying that is carried out by GWRC. In addition to this GWRC has put in place plans, procedures and checks to ensure that spraying does not negatively affect people, communities and the wider environment. GWRC has a duty to protect our staff, the public and the environment, and the procedures that we follow are designed to minimise any potential risks of using herbicide.

To carry out a spraying operation we carefully follow these steps:

1. Planning

Before any spraying takes place we carry out an initial site inspection. This is to identify any potential hazards and confirm if spraying is appropriate and the best approach. We assess if it is safe to use herbicide in particular locations, and then determine what the best herbicide and application methods are. GWRC sets out exactly how a spraying operation must be carried out by staff and contractors in documents called Standard Operating Procedures (SOPs). For high risk procedures, such as aerial spraying, the operation must be signed off by GWRC senior management. An example of an SOP for aerial spraying can be found [here](#).

2. Selecting a contractor or operator

We make sure that anyone who sprays herbicide on behalf of GWRC is highly capable, qualified and experienced. All staff and contractors must hold a GROWSAFE Registered Chemical Applicator

certificate. All our staff undergo extensive training to ensure they are highly skilled, and we have a thorough procedure for selecting contractors.

3. Developing a Spray Plan and a Site Specific Safety Work Plan

Before spraying can take place we prepare a spray plan and a site specific safety work plan. The spray plan must include details of when and where the spraying will take place, what herbicides will be used, the location of any sensitive areas and contact details for everyone involved.

The site specific safety work plan identifies any actual or potential hazards and the risks associated with them, how to minimise any risks, and includes steps to follow in the event of an emergency. Everyone involved with the spraying operation is required to read, fully understand, and sign off on these plans before spraying can take place. Examples of both plans are included in the [SOP](#) for aerial spraying.

4. Notifying the public

Ground spraying: Notification is only required if the spraying will be done with high pressure equipment such as a gun and hose or boom spraying. Every property which borders the boundary of the property being sprayed must be informed (including those who are nowhere near the spray location). This may be done via public notice in the newspaper or by individual communication.

Aerial spraying: It is a legal requirement to inform neighbouring landowners whose properties are within 300 metres of the boundary of the area to be aerially sprayed that the work is to be carried out. If we will be carrying out aerial spraying where the public has access to the area, warning signs are placed at all access points while spraying is taking place. The area is also closely monitored by GWRC staff while the spraying takes place to make sure that nobody is on site and so people are able to contact us with queries or concerns.

You can see an example of a public notice for aerial spraying [here](#).

5. Procedures on the day

We will check the weather conditions in the lead up to spraying and on the day, to decide if spraying will go ahead or not. Herbicides generally can't be applied during rain or wind and if the team on site is not completely happy with the weather conditions they will postpone the spraying operations.

Signs will be placed at all site access points to warn the public that spraying will be taking place. The plans for the operation will be checked and updated if necessary. If everything is in place and the conditions are good our staff or contractors will carry out herbicide spraying, which is monitored at all times by an on-site coordinator.

It is important to note that if conditions change, such as wind increasing to unacceptable levels, then the operation will be immediately halted.

6. Post operation activities

When the spraying has finished the on-site team will clean up and remove any equipment from site. Signage advising that spraying has been carried out will be placed at public access points and remain in place for at least 24 hours (or longer depending on the withholding period of the

herbicide that was applied). This signage is to advise the public that the area has been sprayed. The site will be monitored after spraying to ensure that the spraying was successful and to help us with planning any future invasive plant control work.

How do we adapt and improve what we do?

Our procedures have been put in place because they work. However we don't just stick to what we already do. We are constantly assessing what we do, how we do it and striving to be as efficient and effective as possible based on research, guidelines and best practice.

GWRC is part of a group of professionals across New Zealand, and the world, actively developing new ways to combat invasive weeds. For example GWRC's Biosecurity department is part of a national research and development network and is currently trialling new technologies and methods across the region. We have in-house experts who are constantly looking to improve how we do things and who advise other parts of GWRC on best practice. GWRC also adapts how we work based on community feedback, new technology and information to make sure we are doing the best job we can to protect people and the environment while controlling invasive weeds.

Frequently Asked Questions

1. Are herbicides a health risk?

ONLY if they are used incorrectly. Herbicides are strictly regulated by the Environmental Protection Authority (EPA). Only herbicides that do NOT pose a significant risk to human health are approved for use.

GWRC adheres to the regulations and rules governing how approved herbicides should be used, including detailed instructions listed on the herbicide container, to minimise any residual risks.

Much like many chemicals or herbicides available over the counter in garden centres, the herbicides we use may cause health problems if you ingest them, get them in your eyes or on your skin.

We have strict Health and Safety rules in place to make sure that our staff are not affected by using herbicide as part of their work.

2. Is Glyphosate a human carcinogen?

We rely on the advice of the EPA on which herbicides are safe to use. In 2016 the EPA commissioned a scientific review of glyphosate [Review of the Evidence Relating to Glyphosate and Carcinogenicity](#). It concluded that glyphosate is "unlikely to be genotoxic or carcinogenic to humans".

3. How do you stop aerial spray from drifting?

The risk of herbicide drifting outside an operational area is managed in a number of different ways. Spraying is only conducted when the wind conditions are such that any herbicide drift cannot be physically moved offsite by air movement. The wind speed and direction is constantly monitored during the operation by the pilot and GW staff on site as we all know how quickly weather conditions change across our region. Spraying would cease immediately upon conditions becoming unfavourable.

Helicopter spray booms and nozzles are now designed to deliver uniformly large droplets which are heavier and less susceptible to air currents. Release height is optimised to minimise the distance the spray needs to travel which in turn significantly reduces the opportunity for the drift. Aerial spraying is generally conducted in lower air temperatures to negate spray droplet evaporation which in turn reduces the risk of the drift of vaporised herbicide.

4. Spray can harm waterways, fish and other fauna so what happens to them during spraying work?

We specifically avoid “sensitive areas” such as streams and waterways when carrying out most of our spraying activities. However, from time to time it is necessary to spray weeds that choke waterways in order to allow streams to flow and to prevent flooding and to improve biodiversity. There are rules regarding aquatic weed removal in the [Regional Freshwater Plan](#) and the [pNRP](#) that GWRC, and landowners and managers, must comply with to minimise the risk of this activity.

There is virtually no herbicide run off to ground from aerially sprayed vegetation which means that surface water will not be contaminated. Samples from water bodies adjacent to aerial spraying zones have been tested a number of times over past years by an independent laboratory and to date no herbicide has been detected.

5. How are bees and other insects protected?

Past research indicates that aerial herbicide spraying has little impact on terrestrial invertebrates. GWRC also endeavours to conduct any spraying operations before plants flower to minimise any negative impact on bees.

For some operations the area involved is so small that there is a minimal impact on bees. Herbicides are selected to minimise the impact on bees and other invertebrates.

6. How do you ensure sprays do not affect the safety of our food?

The way herbicides are applied aerially means that the herbicide rarely reaches the soil. Spray droplets tend to settle on the foliage and are quickly metabolised by the plant a bit like rain droplets do after a very short light shower. There is virtually no herbicide runoff to ground.

Each herbicide has a withholding period and provided stock are not grazed on sprayed vegetation until after the withholding period has expired there is no risk of herbicides entering the food chain.