

A guide to applying agrichemicals

Responsibilities of applicators

This guide does not apply to fertiliser application



*Working with our communities for a better environment
E mahi ngatahi e pai ake ai te taiao*



What is spraydrift?

Agrichemicals are sprayed onto areas to control pests and diseases, or weeds.

Occasionally, due to weather conditions, the operator's method of application, or the landscape, spray moves away from the target area.

This is known as spraydrift. Spraydrift can occur in two main ways:

- i) droplet movement off target and
- ii) movement of contaminated dust, soil or sand particles and spray vapour.

Effects of spraydrift

The wider impact of spray drift should not be underestimated. Overseas markets are becoming more demanding for socially and environmentally acceptable production practices. Reports of local community concerns over spraydrift can have far reaching implications. Grower profitability could be seriously impacted should products like hydrogen cyanamide be withdrawn because of community concerns or consumer pressure. Therefore we need to ensure that all agrichemicals are used correctly and in an environmentally safe manner.

The physical effect of spraydrift depends on the type of agrichemical spray, the concentration, the extent

of drift and what it comes into contact with. At the time of purchase, read the label of the agrichemical to find out:

- If it is the correct product for your problem.
- If there are restrictions on its use.
- If the product can be used safely on your property.
- What environmental precautions are needed.
- If you have the right application equipment.
- If you have the right protective clothing.

If you are unsure, ask the staff where you are purchasing your chemical or check with the chemical company representative. Some possible effects of spraydrift are:

- damage to non target crops or plants;
- pollution of our water, land, animal and plant systems;
- side effects in humans, including skin irritations, stress, nausea and nervous system breakdowns;

- an additional cost to farmers/ orchardists because the spray drift contains chemicals that are missing the target crop.

If you have concerns about your health after there has been spraying in your area, contact your doctor or health professional.

Please refer to the New Zealand Standard Management of Agrichemicals NZS 8409 (Code of Practice), Appendix G, Spraydrift Hazard and Weather Conditions for further information.

Read the label

Hazardous materials are required by law to include a Material Safety Data Sheet (MSDS) and label. To further reduce the risks in sensitive areas the chemical of choice should have the lowest toxicity and be the most environmentally friendly, while still controlling the target pest effectively.

The MSDS and hazardous material package label will detail information on the chemical, including:

- Precautions for use.
- Possible health effects.

- Safety measures for handling, including protective clothing.
- Contact numbers for further information.
- The classification of the chemical, which will either be Toxicity Class 6 or Ecotoxicity Class 9.

Label instructions must be followed and strict attention must be given to the control of spray drift. Even when common sense and good application technology are followed, drift can still be a problem for the applicator.

Before spraying

- Check current weather conditions and forecast.
- Contact neighbours as required under the Regional Air Plan rules. Read product label to find out:

- » The protective clothing needed to handle the agrichemical.
- » How much agrichemical to use.
- » How and when to apply the agrichemical.
- » The withholding period.
- » The warnings, precautions and first aid measures.
- » Any special instructions.

- Check your spraying equipment and ensure it is in top condition and properly calibrated.

- Put on your protective gear.
- Mix agrichemicals with care. Greater precautions are necessary when you are handling the concentrated material. Follow the label instructions.

There is a wide range of agrichemicals available in New Zealand. In the wrong places they can be dangerous, especially as undiluted concentrates, so they need to be handled with care.

Be a good neighbour

Let neighbours know when you will be using agrichemicals. A lot of problems arise because people don't know what is being sprayed and they tend to imagine the worst.

Things to consider when spraying

Many factors interact to influence spraydrift, therefore the following should be taken into account when spraying.

Make sure you have already informed the neighbours of what you are doing.

Weather conditions

- Check current weather conditions and forecast.
- Do not apply when wind direction and speed are unfavourable.
- “Dead Calm” weather conditions are not necessarily the best conditions when spraying.

- You must avoid risks to people, crops, stock and the environment. The best time to spray is when temperatures are cool and when there is a light breeze blowing away from the non-target area.
- Irresponsible operators give agrichemicals a bad name. Do not be tempted to spray if conditions are not good.
- Make sure that the humidity and atmospheric stability is favourable for spraying.

Equipment

- Check your spraying equipment and ensure it is in top condition.
- Ensure equipment is calibrated correctly for the crop being sprayed.
- Use the lowest practical spraying pressure.
- Wherever possible use Air Inclusion nozzle technology to help reduce spraydrift.



Hand held weed sprayer.

Application

- When applying any agrichemical, make sure that it does not drift onto neighbouring urban areas, houses, schools, public roads and access-ways, crops or gardens.
- Place nozzles within the air stream and not across it in forced air systems.
- Apply as close as practical to the target.
- Increase the flow rates of your application (more litres per hectare).
- Use a drift control additive.
- Check for sensitive areas. Accurate discharge methods are required next to streams, rivers, lakes and wetlands.
- Establish buffer zones and shelterbelts.
- Apply the largest effective droplet size that will give good coverage of the target with the minimum of off-target drift.
- Choose non-volatile (those that do not vapourise easily) agrichemical formulations.
- Check the label for the toxicity of the chemical.
- Follow the directions on the label.

After spraying

- Return unused agrichemical to a locked storage area.
- Dispose of empty containers, surplus agrichemical mix and washings safely (see safe disposal).
- Clean protective clothing and equipment.
- Have a thorough shower.

Sensitive areas

The main negative effects spraydrift has on our environment happen around sensitive areas. These include riparian sensitive areas:

- Public water supply catchments and intakes.
- Rivers and streams, and associated riparian vegetation.
- Lakes, especially the Rotorua Lakes, and riparian vegetation and wetland margins.
- Wetlands.

And other sensitive areas:

- Residential buildings.
- School buildings.
- Amenity areas where people congregate.
- Sensitive crops or farming systems (e.g. organic farms).
- Indigenous vegetation habitat areas and reserves.
- Public roads.



Wetlands are sensitive to agrichemical spraying.

Buffer zones

For sensitive areas other than riparian areas buffer zones are only one of many methods to manage and reduce spraydrift hazard.

The minimum buffer zone distances in the table below should be used as a guideline when spraying:

Application method	Distance (metres) from sensitive areas	
	With shelter*	Without shelter
Boom sprayer	2	10
Orchard sprayer	10	30
Aerial application	100	300

*Note: These are guidelines only and care needs to be taken to assess risk/effect in each circumstance.
* Shelter should be complete and without gaps at the base.*

Riparian areas



Agrichemicals must only be discharged using hand-held or mechanical methods that accurately target the area or species when used in riparian areas of lakes, streams, rivers and wetlands. This is to prevent the discharge of agrichemicals to surface water.

Drain spraying.

The distances in the table below apply:

Location	Land Slope	Riparian area as measured from the edge of the surface waterbody
Rotorua Lakes – Rotorua, Rotoiti, Rotoehu, Rotoma, Okataina, Okareka, Tikitapu, Rotokakahi, Tarawera, Okaro, Rotomahana, Rerewhakaaitu	0 to 7°	Between 0–5 metres from the edge of the lake
	>7 to 25°	Between 0–10 metres from the edge of the lake
	>25	Between 0–40 metres from the edge of the lake
Streams, rivers, wetlands and all other lakes	0 to 7°	Between 0–2 metres from the edge of the waterbody
	>7 to 15°	Between 0–5 metres from the edge of the waterbody
	>15 to 25°	Between 0–10 metres from the edge of the waterbody
	>25 to 35°	Between 0–25 metres from the edge of the waterbody
	>35°	Between 0–40 metres from the edge of the waterbody

Responsibilities of the applicator under regional rules

Any application of agrichemicals that are legal to use in New Zealand is a permitted activity, but only if you comply with the conditions set by the regional rules. Rules in the Bay of Plenty Regional Air Plan, and Regional Water and Land Plan apply. These requirements are set out below.

Conditions for all agrichemical applications

- The agrichemical use must not result in any harmful concentration beyond the boundary of the subject property or target area.
- Where the agrichemical is classified as a Toxicity Class 6 or Ecotoxicity Class 9 poison (read label) then the applicator must be a certified Approved Handler.
- The agrichemical shall be discharged in a manner that does not contravene any requirement specified in the manufacturer's precautions and instructions.
- The agrichemical must be used in a manner complying with the New Zealand Standard Management of Agrichemicals NZS 8409.

Land-based application methods

Land-based agrichemical discharge methods (i.e. not aerial application) must not:

- Have a direct discharge of agrichemical to streams, rivers, lakes or wetlands.
- Cause fish kills in a surface waterbody.
- Contaminate any authorised water take
- Discharge agrichemical in the tidal reach of any stream or river between 1 March and 31 May (this is to protect whitebait spawning sites).



Spray truck.

Use of agrichemicals near surface waterbodies

Only agrichemicals that have been approved by Environmental Risk Management Authority (ERMA) for use near water can be used in these situations.

Weed control in streams, rivers, lakes and wetlands

Rule 21 of the Regional Water and Land Plan allows the discharge of aquatic herbicides over water for

emergent aquatic weed control. This is limited to identified plant pests, and vegetation in drains and other artificial watercourses. In addition to the other requirements in this guideline, only aquatic herbicides that have been approved by Environmental Risk Management Authority (ERMA) for use over water can be used in these situations. Check Rule 21 for the full requirements before you spray over water.

Notifying and signs

Notifying people of the intention to spray informs those who could be affected, and provides the opportunity for them to take action to avoid or minimise potential exposure of themselves, their children, or their property to specific applications of agrichemicals. However, notifying neighbours when using non-motorised hand held applicators is not required. The agent, owner or occupier of the property on which spraying is to take place is required to inform any person who could be directly affected.

Additional requirements for notifying people and signs must be met where:

- Motorised equipment is used to spray agrichemicals (tractor driven sprayers/orchard blast sprayers etc).
- Application is by aircraft.
- Spraying is on land that adjoins public land/roadways etc.
- Spraying is on public land.

Motorised spray equipment application

The owner, occupier or agent must notify the occupier of any neighbouring properties within 50 metres of that agrichemical use. Notification must be no earlier than 20 days and no later than 12 hours before agrichemical use, unless an agreed form of notification has been reached between the parties, such as an annual spray plan and individual notification if certain chemicals are to be used.

This condition does not apply to agrichemical use on public land, or land used for road or rail purposes.

Notification must include the following:

- The site of proposed application.
- The date of proposed application.
- Name and type of agrichemical to be applied.
- Name, address and phone number of applicator.

Application from aircraft

- The pilot should hold a minimum of a Chemical Rating issued from the Civil Aviation Authority, by completing the National Certificate in Agrichemical Application – (Aerial).
- The owner, occupier or agent must notify the occupier of any neighbouring properties within 200 metres of that agrichemical use. Notification must be no earlier than 20 days and no later than 12 hours before agrichemical use, unless an agreed form of notification has been

reached between the parties, such as an annual spray plan and individual notification if certain chemicals are to be used. This condition does not apply to agrichemical use on public land or land used for road or rail purposes. The property owner or agent acting on behalf of the property owner must advise the aerial applicator that notification has occurred before the aerial application of any agrichemical is carried out.

Notification must incorporate the following:

- The site of proposed application.
- The date of proposed application.
- Name and type of agrichemical to be applied.
- Name, address, phone number and registration number of applicator.
- The applicator must immediately notify Bay of Plenty Regional Council in the event of any discharge of agrichemical beyond the boundary of the subject property.

Application of agrichemicals to land that adjoins public land / roadways etc

Where agrichemicals are applied to land adjoining public places, signs must be placed on the road boundary 24 hours before the time of application and removed by the applicator when it is safe for re-entry.

The signs must include the following information:

- The name and type of agrichemical used.
- The date and time of application.
- The date and time that it will be safe to access the land again.
- The name and contact details of the applicator.

The only exception when signs are not needed is where a boom sprayer is being used and it is more than 6 metres from the boundary. In this case it must

comply with the following standards:
The liquid pressure through the boom must be less than 3 bar;

- The height of the discharge point on the boom must be less than 1 metre from the ground.
- The nozzles must point down.
- The nozzles must be designed to create coarse droplets.



Ragwort growing on a hillside.

Application of agrichemicals to public places

If agrichemicals are used in public places (public land, public roads or railways), then one week's notification must be given before application. This can be in the form of a public notice in the local newspaper and/or other recommended methods, including letter drops. The following must be stated:

- The area where the agrichemical will be used.
- The agrichemical to be used.
- The reason for the use (e.g. weed control).
- The duration of the use.
- The date and time after the application of agrichemical when it is safe to re-enter the area.

The site of the agrichemical use and public places beside where the agrichemical is used must also be signposted with the following information:

- The agrichemicals used.
- The date and time of application.
- The date and time for safe re-entry.
- The name and contact details of the applicator.
- The signs must remain in place until the site is safe for public re-entry.

Consequences for non-compliance

If the requirements of the Resource Management Act and Bay of Plenty Regional Council's Regional Air Plan and Regional Water and Land Plan are not adhered to, this can result in the applicator, owner or occupier being

given an infringement or abatement notice, or it can lead to prosecution. An applicator, owner or occupier can also face civil action or have to pay compensation to affected parties.

Safe storage

More than 60 percent of all poisonings with agrichemicals involve children under five years old. You need to make sure that children, pets and livestock cannot come into contact with agrichemicals. The following key points for safe storage are suggested.

- Storage area should be secure, well ventilated and child proof.
- Store agrichemicals in a lockable cabinet, stand alone lockable shed, or separate lockable area within a larger shed. The storage area should be for agrichemicals only.
- Keep herbicides, insecticides and fungicides separate in the storage area.
- Keep a record of stored agrichemicals.
- Fix a 'poison' sign to the storage area.
- Make sure all containers always have a proper readable label.
- Check containers regularly for leaks. Agrichemicals from a leaking container should be put into a sound, clean container, clearly labelled with the product's name. You might remember what it is, but others won't know if you don't label it.

- Any spilt chemical should be soaked up onto absorbent clay, sand, soil or sawdust and put in a can ready for suitable safe disposal.



Chemical storage shed near a waterbore.

Safe disposal

Empty containers

As soon as they become empty, plastic or steel agrichemical containers must be rinsed out three times. After each rinse the washings should be added to the spray tank. Once triple rinsed, the containers are safe for landfill disposal. Plastic containers can be recycled, visit www.agrecovery.co.nz. Empty cardboard containers can be burnt. Containers that have held deadly poisons must not be used for any other purpose. Other containers can have other uses as long as they have been thoroughly cleaned. They must not be used for human or animal drinking water.

Surplus mix and washings

Any surplus mix and washings should be sprayed over the application area.

Unwanted and obsolete agrichemicals

The Agrecovery Rural Recycling Programme (www.agrecovery.co.nz) should be the first point of call when looking to dispose of unwanted agrichemicals. Bay of Plenty Regional Council encourages users to purchase chemicals from suppliers participating in the programme. Contact us if you are unsure of where or how to legally dispose of any unwanted chemicals.

Summary

Always consider the risks involved in spraying agrichemicals. These include broader community and market responses as well as the personal safety of applicators and neighbours.

By following the MSDS (Material Safety Data Sheet), wearing appropriate protective clothing, and considering effects on sensitive areas, many negative effects from spray applications can be minimised.

Further information

Useful sources of information include the GROWSAFE® manual and specific industry crop protection programs as well as information from chemical suppliers or manufacturers'

representatives. Please contact Bay of Plenty Regional Council for information regarding your responsibilities as a sprayer.



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