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Legionnaires' disease and legionellosis

Working safely with garden soil, compost, mulch, and potting mix.

This guide provides advice to persons conducting a business or undertaking (PCBUs) about how to reduce the risk of workers getting Legionnaires' disease. The advice also applies to other people, such as customers.

Anyone working with bagged or bulk organic material is at risk

Anyone who works with bagged or bulk organic material such as garden soil, compost, mulch, or potting mix is at risk of inhaling (breathing in) *Legionella* bacteria.

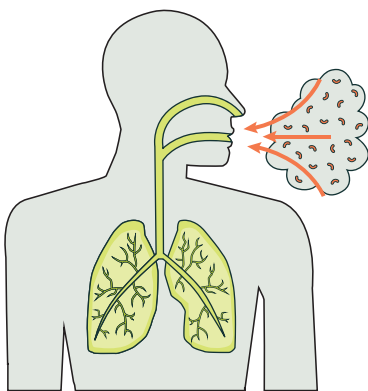


FIGURE 1: Bacteria can be breathed into the lungs

In New Zealand there are two main types of *Legionella* bacteria.

- *Legionella longbeachae* is mainly found in garden soil, compost, mulch, and potting mix. This guide covers how to work safely with these products.

- *Legionella pneumophila* is mainly found in water systems, where it can grow on wet surfaces. For more information, see our fact sheet: [Preventing Legionnaires' disease from cooling towers and evaporative condensers](#)

Legionellosis is a generic term for the diseases caused by *Legionella* bacteria.

The most commonly reported form of legionellosis is a type of pneumonia called Legionnaires' disease.

Legionnaires' disease

- Affects the lungs causing a severe form of pneumonia.
- Can be fatal.
- Is not contagious - you cannot catch it from another person.

Symptoms

Legionnaires' disease usually develops two to ten days after exposure to *Legionella* bacteria.

- The usual initial symptoms are **headache**, **muscle aches**, **malaise** (feeling generally unwell), and fever.
- By the second or third day, other symptoms develop, including **cough** (sometimes with blood-streaked phlegm), **shortness of breath**, **chest pain**, **nausea**, **vomiting** and **diarrhoea**, and **confusion**.

Anyone who develops a high fever, breathlessness and/or a cough after handling garden soil, compost, mulch, or potting mix should visit a doctor as soon as possible.

Who is at risk of getting legionellosis?

Legionellosis is more common in people who are older, smoke or drink heavily, have chronic lung disease or other long-term medical conditions such as diabetes, cancer or kidney failure. Other people exposed to the bacteria may also be at risk.

In 2018, New Zealand had 174 notified cases of legionellosis.¹

You have a duty to manage work-related health risks

If your workers work with bagged or bulk garden soil, compost, mulch, or potting mix, then you must manage the risk of your workers getting legionellosis.

As a PCBU, you have a duty to look after the health and safety of your workers – and you must also ensure that others are not put at risk from your work. You must eliminate risks so far as is reasonably practicable. If it's not possible to eliminate risks then you must minimise them using control measures (see below).

Get your workers involved

Always involve workers when you are identifying health and safety risks and deciding how to eliminate or minimise these risks. For more information, see our website: [Worker engagement and participation](#)

Workers can help spot issues, and suggest practical, cost-effective solutions. You must make sure that workers have opportunities to make suggestions, ask questions or raise concerns.

Control measures

These control measures will help to minimise the risk of workers – and other people – getting legionellosis.

Storage

- Store bags or bulk supplies of garden soil, compost, mulch, or potting mix in a cool place, out of the sun. *Legionella* bacteria can grow quickly in elevated temperatures.
- If you store garden soil, compost, mulch, or potting mix in containers, including bulk bins, label these containers with health warnings and handling requirements.

Work areas

- Work areas in greenhouses, potting sheds or other enclosed spaces should be well-ventilated.

Handling

Workers (and others) should:

- wear gloves when handling garden soil, compost, mulch, or potting mix
- wash their hands well after handling garden soil, compost, mulch, or potting mix, even if gloves have been worn
- avoid opening bags in enclosed areas
- open bags slowly, directing the opening away from the face to avoid inhaling the mix
- dampen potting mixes and other organic material before use to reduce dust
 - use a water mist bottle or a low-pressure hose with a gentle spray – if you spray too hard, there is a risk of breathing in mist that contains *Legionella* bacteria.

Clean-up

Provide a clean-up kit for dealing with spilled organic material and train workers how to use it. The kit should contain:

- instructions for use
- disposable respirators
- gloves
- a water mist bottle
- a brush and shovel set
- plastic bags to contain spilled material
- tape to seal the bags and to repair any other bags that have split or been cut
- incident reporting forms.

A clean wheelie bin is a good place to store the clean-up kit.

Avoid sweeping dust from bulk garden soil, compost, mulch, or potting mix. Sweeping may send dust into the air that could be inhaled (breathed in).

- If sweeping is the only option, dampen the material before sweeping.
- Use a low-pressure hose with a gentle spray – if you spray too hard, there is a risk of breathing in mist that contains *Legionella* bacteria.

¹ Institute of Environmental Science and Research Limited (ESR) Notifiable Diseases tables

Using mobile plant to load or spread bulk organic material

Mobile plant with a sealed cab

WorkSafe recommends that mobile plant (such as a front-end loader) used to load or spread bulk garden soil, compost, mulch, or potting mix have:

- a sealed cab, and
- filters fitted to the air intakes.

Filters should be cleaned and maintained regularly

- follow the manufacturer's instructions.

Mobile plant **without** a sealed cab

If mobile plant used for loading or spreading has an unsealed cab, then operators should wear appropriate respiratory protective equipment (RPE) such as a P2 respirator (see the RPE section below).

When the time comes to buy a replacement vehicle, consider getting one that has a sealed cab.

Consider using a low-pressure hose with a gentle spray to remove any dust that lands on mobile plant. Do not use compressed air to clean off dust.

People whose vehicles are being loaded

People sitting inside, or standing beside, their vehicles while they are being loaded are at risk of inhaling dust that contains bacteria. For more information, see our fact sheet: [Workplace traffic management](#)

- Consider providing a safe area upwind of the loading area where people can wait while their vehicle is being loaded.
- People who stay inside their own vehicle should:
 - position their vehicle upwind of the loading area; if a trailer is being loaded, position the vehicle upwind of the trailer
 - turn off the engine, and
 - keep the windows closed.

Respiratory protective equipment (RPE)

Workers should wear respiratory protective equipment (RPE) when they are working with garden soil, compost, mulch, and potting mix if the material is likely to release dust.

PCBUs whose workers wear RPE to minimise health and safety risks have specific duties related to RPE.

These duties are explained in our quick guide: [Respiratory protective equipment – advice for businesses](#)

For example:

- you must provide information, training or instruction to workers about how to correctly use, wear, store and maintain the RPE
- the RPE must be:
 - appropriate for the work
 - a suitable size and fit
 - compatible with other PPE
 - reasonably comfortable.

Examples of suitable reusable and disposable RPE are shown below. Don't use 'nuisance dust masks' as they will not protect workers' health.



FIGURE 2:
Disposable
half-face respirator



FIGURE 3:
Reusable half-face
respirator (cartridge)

Reusable and disposable respirators must be fit tested to ensure they fit the wearer's face properly. A fit test checks the seal between the respirator and the wearer's face:

RPE cleaning and storage

- A **reusable respirator** (such as a half-face respirator) should be **cleaned and stored** in a sealed container between each use. Clean your hands well before removing the respirator from the container.
- If a **disposable respirator** becomes difficult to breathe through, is damaged, or is dirty on the inside or outside – stop using it and throw it away. It's **not possible to clean** a disposable respirator. However, a disposable respirator can be re-used if it is clean, undamaged, and still easy to breathe through. Protect it between each use by placing it in a clean sealed container. Clean your hands well before removing the respirator from the container.

Provide information for customers

Manufacturers and suppliers of garden soil, compost, mulch, or potting mix must provide information to ensure safe use of their products.

- Packaging must include health warnings and recommended control measures.
- Label all containers and bulk bins with health warnings and handling requirements.
- WorkSafe recommends that suppliers:
 - display signs near products to warn of the risk of Legionnaires' disease
 - provide Safety Data Sheets (SDSs) to anyone buying bulk amounts.

Safety Data Sheets are available from product manufacturers. They include detailed information about health risks, first aid, handling, storage and disposal.

You must notify WorkSafe if a worker develops Legionnaires' disease

Legionnaires' disease is a notifiable illness under the Health and Safety at Work Act 2015 (HSWA). You must notify WorkSafe if someone has developed Legionnaires' disease as a result of work by:

- calling WorkSafe on 0800 030 040, or
- completing a notification form online: worksafe.govt.nz

Then review and revise your control measures to minimise the risk of other workers getting the disease.

More information

WorkSafe information and advice

[Respiratory Protective Equipment](#)

Other resources

Ministry of Health

[Legionellosis](#)

Health Promotion Agency

[Safer and Healthier Gardening](#)