

Legionnaires' Disease

Legionella and legionellosis

When your staff and customers handle garden soils, compost and potting mixes there is a potential risk of contracting legionellosis, or Legionnaires' disease. Legionellosis is a respiratory (lung) infection, caused by the *Legionella* bacteria. The severity of legionellosis can range from a relatively mild respiratory non-pneumonic illness (Pontiac fever) to pneumonia (Legionnaires' disease) which if left untreated may be fatal.

Legionella bacteria occur naturally in the environment and are common in aquatic environments and soil, including potting mixes and compost, and have been isolated from both these environments. *Legionella spp* appear to infect humans by inhalation of dust or liquid droplets contaminated with the bacteria.



There are currently at least 50 different *Legionella* species which are found worldwide.

The predominant species responsible for cases of legionellosis in New Zealand are *L. pneumophila* and *L. longbeachae*.

Legionella pneumophila has been responsible for illnesses linked to engineered water systems such as hot water systems and cooling towers used in air conditioning systems of buildings.

However, human exposure to *Legionella longbeachae*, has been linked to the inhalation of contaminated dust and aerosols from garden soils, potting mix or composts.

Few who come into contact with the bacteria become sick and symptoms will vary from person to person. To date there have been no documented cases of person-to-person transmission of the bacteria.

Symptoms

If people become infected with *Legionella*, they may get flu-like symptoms that can range from mild to severe. Those in good health may experience little more than mild flu-like symptoms. Sometimes however, it can be life-threatening, especially to people who have health factors that increase their susceptibility. Those most at risk include smokers, the elderly and those with existing respiratory illnesses and/or weakened immune systems.

Symptoms can include:

- muscle aches and headache
- tiredness
- chills
- shortness of breath
- loss of appetite
- coughing, and sometimes
- stomach pain and diarrhoea.

If left untreated, the disease can progress to Legionnaires' disease, and require hospitalisation. In severe cases, death has resulted from contracting this disease. The period between exposure and onset of illness for Legionnaires' disease can vary between 2-14 days. For Pontiac Fever, the onset of illness usually occurs between 5 hours to 3 days. People who develop a flu-like illness which is worsening should see a doctor.

Legionellosis has been a notifiable disease under the Health Act 1956 since June 1980. This means that any identified case has to be reported. In 2012, there were 152 cases of legionellosis. In about one third of these cases people reported contact with potting mix, composts, or soil.

Some people exposed to a strain of the bacteria may build up immunity to the particular strain. For example, those working around potting mixes, soil and compost may have developed immunity to *Legionella longbeachae*. But this is specific to that strain, so should not be relied on exclusively.



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An Employer's Responsibility - Health and Safety Precautions

Your health and safety policy must address this risk. Both staff and customers are at risk when they handle soil, potting mixes and composts.

For potting mix and compost manufacturers many of your processes will expose staff to risk.

In nurseries this is most obvious when potting media is being prepared, during potting (including potting machines) and at all times when potting mix is being handled.

In retail outlets exposure can occur when handling materials, such as loading from bulk bins and repotting. There's also a risk from water splashes during watering and irrigation or dust being blown off-site into neighbouring properties.



The Ministry of Business, Innovation & Employment has a "Legionnaires' Disease Fact Sheet" which advises...

To avoid the risk of contracting legionellosis from soils, compost and potting mix. Please take the following precautions:

- Water gardens and composts gently, using a low-pressure hose.
- When opening bags of composted potting mix, do so slowly, making sure the opening is directed away from your face.
- When potting plants, wet the soil to reduce dust.
- When working in greenhouses, potting sheds or indoors, make sure that the working area is well ventilated.
- Wash your hands carefully after handling soils.

If these precautions aren't practicable, you should consider wearing a disposable respirator (not a nuisance dust mask). The double-strap type with nose clip for secure fitment gives good protection. Employers are responsible for providing respiratory protection and for training staff in its correct fitting and use.

Ensure **safety signage** in risk areas provides adequate warning. A mask should be worn when working around bulk bins and stockpiles of potting mix to prevent inhaling dust, steam or mist. A disposable face mask should be either P1 or P2 particulate mask as specified in the appropriate Australian/New Zealand Standard - see references.

If you are providing growing media and equipment to customers who are commercial operators or gardeners, you should make them aware of the risks and recommend they seek advice from the Department of Labour as this agency is responsible for health and safety in the workplace and can advise on appropriate personal protective equipment in the workplace.

In nurseries and other places where potting machines are employed, the use of masks as part of appropriate personal equipment, good ventilation of the workplace and storage of potting mix in cool areas can substantially reduce exposure to *Legionella*.



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The Public

Retailers should ensure their staff is familiar with the risk and how to communicate with customers. Ill-informed team members pose a risk to both customers and your business. As low as the incidence of *Legionella* contracted from gardening may be, it's a serious issue and in some cases regrettably tragic. Sit down with your team, and work out how to best handle customer feedback and enquires. This way, you and your staff can help your customers reduce the risk and continue to enjoy their garden, and your store.

Have masks on hand for both staff and customers (here's an add-on sale opportunity), review signage around bulk bins and any other risk areas. Members of the public should stand clear when trailers are being loaded from bulk bins.

For diseases such as *Legionella*, which can be transmitted by the airborne route, a disposable face mask should be either P1 or P2 particulate mask as specified in the appropriate Australian/New Zealand Standard - see references.

Members should only stock packaged potting mix and compost with a comprehensive health warning printed prominently on the bags.

Such a warning should meet the standard set out in NZS 4454:2005 - Composts, Soil Conditioners and Mulches. The standard labeling warns the public of the risks and advises them of simple precautions to reduce their exposure:

CAUTION

Ordinary garden soil and products like compost and potting mix may contain a variety of living micro-organisms, some of which on rare occasions can cause illness in humans.

Serious harm is rare. However, for older people or those with reduced immunity, infection can be life threatening. We recommend the following precautions:

- Avoid opening bags in enclosed areas
- Avoid inhaling the mix
- Always wear gloves and wash hands after use.

See your doctor if you develop high fever, chill, breathlessness or cough.

The Ministry of Health's "*Safer and Healthier Gardening*" booklet provides guidelines to help reduce the risks for the home gardener:

- Minimise the amount of dust when working in the garden.
- Water gardens and indoor plants using a gentle spray.
- Read the warning label on bagged composts or potting mix.
- Wear gloves.
- Wear a dust mask so that any dust is filtered out before you can breathe it in.
- Dampen potting mixes before use.
- Open bags of soil products slowly, away from the face.
- Make sure the working area (glasshouse, potting shed) is well ventilated.
- See a doctor if you develop a flu-like illness which is worsening.
- Wash hands thoroughly after gardening or handling soil products.

These are simple, easy and natural steps that all gardeners can take to reduce risk while continuing to enjoy their garden.

References

Safer and Healthier Gardening - HE4605, August 2010

Ministry of Health

Read here: <https://www.health.govt.nz/resource/safer-and-healthier-gardening>

Legionnaires' Disease - What you should do if you work with soils, compost and potting mix, 2013.

Ministry of Business, Innovation and Employment

Download from: <http://bit.ly/Legionnaires>

Composts, soil conditioners and mulches - New Zealand Standard, NZS 4454-2005

Order from: www.standards.co.nz

Selection, use and maintenance of respiratory protective equipment - Australian/New Zealand Standard, AS/NZS 1715: 2009

or

Respiratory protective devices - Australian/New Zealand Standard, AS/NZS 1716: 2003

Order here: www.standards.co.nz

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Important Information about handling Soils, Potting Mix and Composts

- All members - retailers, nurseries and manufacturers should be aware of the risks associated when handling soil, potting mixes and composts. There are significant health and safety, staff and customer relationship issues that need to be addressed.
- Soil, potting mixes and composts contain *Legionella* bacteria, which if inhaled through dust or mists can cause Legionnaires' disease, a flu-like illness that can lead to death if left untreated.

HEALTH AND SAFETY PRECAUTIONS

- Ensure your Health and Safety policy addresses this hazard.
- Handle materials in a way so as to minimize the risk of inhaling dust, mist or water vapour.
 - Irrigate gently, using a low-pressure hose.
 - When working around bulk supplies of potting mix, avoid breathing dust or inhaling steam or mist.
 - When opening bags of compost and potting mix, do so slowly, making sure the opening is directed away from your face.
 - When potting plants, wet the soil to reduce dust.
 - When working in greenhouses, potting sheds or indoors, make sure that the working area is well ventilated.
 - Wash your hands carefully after handling soils; soap and water kills *Legionella longbeachae* on the hands.
- If the above is impractical, supply staff with masks and ensure they know how to fit them.
- Have a copy of the Department of Labour's "*Legionellosis Fact Sheet*" on hand.

THE PUBLIC

- Train staff on how to deal with the public in an informed manner. Make sure they are familiar with the guidelines in the Ministry of Health's "*Safer and Healthier Gardening*" booklet, and have copies available to give away.
- Stock packaged media with labeling that meets the New Zealand Standard.
- Have masks on hand for sale to the public. Place some near the bagged material with appropriate signage and add-on sales opportunity.
- Ensure signage and procedures around bulk bins comply with New Zealand Standard.

SUMMARY

- **Legionnaires' disease can be avoided through taking a few simple and natural precautions.**
 - **If you think somebody is infected, arrange a visit to a doctor immediately.**
- Key signs are high fever, chill, breathlessness and/or cough.**

