



Livestock health after prolonged wet conditions and flooding

Following a major flooding event and periods of ongoing rainfall animal owners should be aware that there is an increased risk of their livestock contracting diseases. This information leaflet outlines what you can do following a flood to prevent disease, what diseases to look out for and who you can contact for help. This information has been prepared for farmers, whenua Māori entities and lifestyle block owners.

What to do following a flood/heavy rainfall?

In the short term, there is work involved in ensuring that immediate animal welfare responsibilities such as provision of adequate food, water and shelter are met. You should inspect animals for injuries (cuts, wounds, abrasions, fractures, pain and burns) and signs of pneumonia secondary to water inhalation during the flooding event.

Flood waters are contaminated with sewerage and chemicals which can damage skin and increase the risk of infections and skin sloughing. Therefore, if practical, debris and mud should be washed off or removed from affected animals.

You should continue to monitor your animals for any signs of disease and contact your local veterinarian if you suspect one of your animals is hurt or unwell.

Once it is safe to do so, the work of repairing infrastructure begins. As part of this, you should reinstate your properties biosecurity protocols as best as possible. There are several early response steps that you can take to minimize the risk of disease transmission:

Put in place health and safety measures

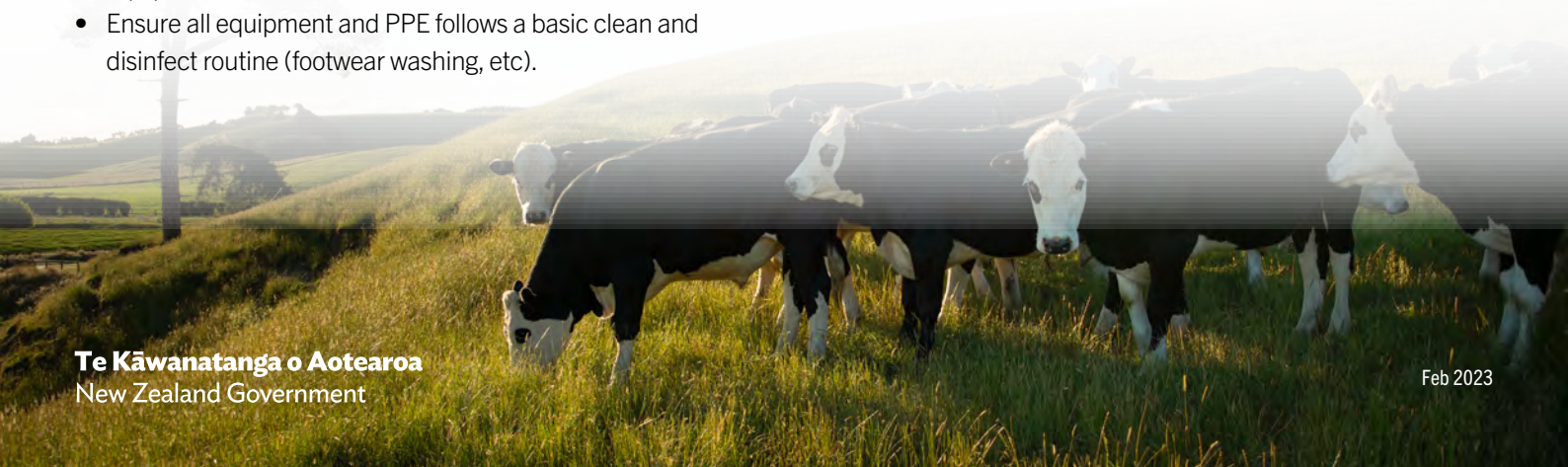
- Prohibit or minimise access of people and vehicles not from the property to paddocks.
- Ensure people follow personal hygiene procedures (hand washing, etc) and proper use of personal protective equipment (PPE).
- Ensure all equipment and PPE follows a basic clean and disinfect routine (footwear washing, etc).

Keep stock contained

- Repair fences, particularly boundary fences (use electric fencing if permanent repairs are not possible), and shelter facilities.
- Where possible prevent access to heavily silted pasture by fencing off affected areas or moving stock off pasture with heavy soil contamination. Do not feed out hay or silage that is contaminated with silt.
- Provide dry underfoot conditions, where possible.
- Prevent access to animal carcasses.

Animal care priorities

- Separate livestock into age groups as best as possible. Quarantine any sick and/or new livestock (separately).
- Provide access to clean, fresh drinking water as soon as possible. Once power is restored and it is feasible, pumps should be reinstated to get troughs filled (even if there is still flood water in the paddocks).
- Milk dairy cows as soon as possible, even once-a-day initially. Sharing milking facilities with neighbours is a great way to allow more herds to be milked (for more information follow this link [NZVA: Disrupted milking after an adverse event](#) or visit the DairyNZ website).
- Continue to monitor animals for signs of disease.





To minimise longer lasting flood impacts, you should:

- Conduct disease and worm surveillance tests on newly acquired livestock as recommended by your veterinarian.
- Ensure all vaccinations are up to date, especially for clostridial diseases and leptospirosis.
- Monitor and treat animals for diseases such as lameness, mastitis, dermatophilosis and flystrike.
- Monitor paddocks for any new weeds or poisonous plants.
- Reinstate pest control procedures (trapping, spraying, etc).

Don't forget to include your working dogs and pets in your biosecurity and disease management programme. For example, monthly de-worming of all farm dogs against tapeworm and annual vaccination programs for common diseases, including leptospirosis.

It is recommended that both livestock owners and their neighbours, be on the lookout for any unusual diseases. If you think you've spotted an exotic or new disease, **call the pests-and-diseases hotline on 0800 80 99 66 or report it online.** Biosecurity is a shared responsibility of all New Zealanders.

What livestock diseases do I look out for following a flood/heavy rainfall?

After a flood, livestock are often nutritionally challenged and stressed leading to reduced immune system function which increases the likelihood of them becoming sick. In addition, the wet conditions are the perfect environment for bacteria, biting insects and worm eggs and larvae to thrive.

The major diseases* livestock owners need to remain vigilant for include:

- Internal parasites (especially barbers pole and small intestinal worms)
- External parasites (ticks and nuisance flies)
- Gastrointestinal diseases (Yersinia and Salmonella)
- Lameness
- Mastitis
- Leptospirosis
- Clostridial infections (notably blackleg, botulism and

tetanus)

- Toxicities following the ingestion of poisonous plants
- Dermatophilosis (rain rot, rain scald, scratches, mud fever, lumpy wool) and flystrike

**Please note: this list of diseases is by no means exhaustive and the disease risk will be different from property-to-property.*

Some diseases may only become evident months after the event, meaning that livestock owners need to remain vigilant and aware beyond their immediate flood recovery efforts.

Prevention in the form of vaccination is the best and most cost-effective option for certain diseases. Livestock owners are encouraged to consult with their local veterinarian and follow a comprehensive herd-health programme, modified to mitigate the risks associated with prolonged wet conditions, and/or flooding.

Internal Parasites

Following a flood, animals are more susceptible to worm infections due to the stress on their immune system and increased exposure to worm eggs and larvae on the ground. Young animals are most susceptible to internal parasitism as they do not yet have a well-developed immunity to the different worm species. Goats are also particularly susceptible to worm infections.

An animal with worms will often have diarrhoea (scours), poor body condition, dull coat, and poor growth rate. If the animal is infected with barbers pole, then they may also be anaemic as this worm feeds on the animal's blood. If it is infected with Lungworm you may see respiratory signs such as coughing. It is not uncommon for animals to be infected with multiple species of worms.

Close monitoring of your livestock using faecal worm egg counts is recommended. Following consultation with your veterinarian or Wormwise adviser, affected animals should be treated with the appropriate commercial worm remedies according to the product label.





External Parasites

Diseases which are carried by insect and tick vectors are likely to increase in the medium term following heavy rainfall or flooding. These include theileriosis in cattle which is transmitted by the cattle tick, and mosquito carried diseases such as fowl pox in chickens.

The physical nuisance caused by biting flies and midges should not be under-estimated. The distress caused by these insects can depress the immune system and reduce feed intake resulting in loss of body condition.

If you are seeing an increase in external parasites contact your vet to help you implement the best management practices.

Yersinia and Salmonella

Yersinia pseudotuberculosis and Salmonella are bacteria that cause gastrointestinal disease. Both Salmonella and Yersinia are carried by a range of animals including cattle, rodents, and birds. Infected animals shed the bacteria in their faeces, thus contaminating pastures.

Yersinia can survive for long periods and multiply in mud and pooled water. In contrast to the other diseases mentioned, yersiniosis is more likely to occur in cool temperatures. Yersiniosis can cause severe diarrhoea and death in cattle and deer. It is only adults which are usually affected although it is also seen in R1 and R2 calves.

Salmonella bacteria outbreaks are common following warm and wet conditions with the bacteria surviving for long periods of time in the environment. All ages of stock are susceptible to salmonella. Salmonellosis is a common cause of diarrhoea in calves whilst in adult cattle you may see diarrhoea, abortions, reduced milk production and mastitis. In sheep, salmonella can cause abortions and death.

Early diagnosis and treatment with suitable antibiotics are the best way to manage sick animals. Early isolation of sick animals prevents the spread of the disease and it is recommended that, if possible, livestock be moved to an unaffected paddock. Moving bale feeders to a new spot in a paddock also helps prevent the spread of the disease. For more information on how to treat and prevent these diseases speak to your veterinarian.

Salmonella and Yersinia are zoonotic, which means the disease can be transmitted from affected animals to humans. To reduce the risk of you or your team contracting this disease, ensure

personal hygiene procedures (hand washing, etc) are followed and that the appropriate personal protective equipment (PPE) is used. Also ensure that all contaminated equipment and PPE follows a basic clean and disinfect routine (footwear washing, etc). People with pre-existing health conditions should avoid close contact with sick animals.

Lameness

The persistent wet underfoot conditions following a flood can lead to softening of the hooves. This means the normally tough exterior of the hoof is much easier to damage and less resistant to infection. This can lead to increased risk of trauma, wounds and inflammation of the foot itself or the skin of the lower limb. You should monitor for swollen limbs, joints or feet and animals favouring a limb when they are moving or standing. Lamé animals will also rest and lie down more. Any animal showing signs of lameness should be examined and treated by a veterinarian.

To prevent lameness, stock should be moved to the driest paddocks, if possible, to allow their hooves to recover. If feasible, tracks should be repaired with preference given to the drier parts of the property. Lameness can also result from sudden changes in feed or by not providing enough fibre in the animal's diet. To prevent diet induced lameness, ensure any changes in feed are done gradually, especially when introducing or increasing concentrates, and ensure all animals receive enough fibre (e.g., hay, chaff, etc).

Some sheep breeds, such as the Dorper, are more susceptible to hoof infections. Horses may also be more susceptible to hoof abscesses and other hoof conditions following persistent wet conditions.

Mastitis

Mastitis is an infection of the tissues that comprise the mammary gland (or udder). This is often seen in milking dairy cattle after a flood event but can also occur in many other livestock species that are producing milk. Mastitis is seen post flooding due to the increased risk of environmental contamination of the teats, the stress experienced by the animal due to physical trauma or disruption of their routines, reduced feed intake and in some cases, missed milkings.



Dairy cows should be milked as soon as possible. If possible, Hand milking is better than no milking until machine milking can resume. If cows cannot be milked for three to four days they may start to dry off and a decision will need to be made on whether to allow them to dry off completely. If you are unsure on how to proceed consult with your veterinarian. You can also use the links provided below to help with your decision making.

You should monitor for a swollen, red and/or hot udder. Mastitis milk may be red, thick (like cottage cheese), black or watery. The animal may show signs of pain when the udder is touched so be careful when examining these animals.

Mastitis can become life threatening, especially if the animal is showing systemic (whole body) signs such as reduced appetite, lethargy, inability to rise, etc. If you suspect one of your animals has mastitis contact your veterinarian immediately, as this condition requires anti-inflammatory and antibiotic therapy.

For more information follow this link [NZVA: Disrupted milking after an adverse event](#) or visit the [DairyNZ](#) website for more useful resources.

Leptospirosis

Often referred to as just “Lepto”. *Leptospira* thrives in moist and warm conditions. The bacteria are mainly spread by infected urine, it enters the body by ingestion, or directly through wounds. Leptospirosis is a zoonotic disease as it can infect humans and animals including horses, pigs, and dogs, with actual disease usually seen in young animals.

Lepto can be fatal, and symptoms include fever, abortion, weakness, infertility, and dark urine (from bleeding in the kidneys). In cows, a form of mastitis known as ‘milk-drop syndrome’ can occur and horses can develop blindness due to inflammation of eye tissue.

Most important The Lepto serovars/ strains that cause the most damage can be vaccinated against. If an animal is already infected when vaccinated the vaccine may reduce the severity of symptoms but the animal will remain a low-grade carrier with the

potential to continually shed the bacteria. Your veterinarian will be able to provide you with a Lepto management programme to minimise the risk to your livestock, pets and your family.

Clostridial Infections

Blackleg (*Clostridium chauvoei*) is a bacterium that is found in the environment, most commonly in soil. If blackleg bacteria are present in the soil that the flooding disturbs, the bacterial spores are deposited on pasture which then enter the animal’s body via ingestion or wounds. The bacteria live in the animal without symptoms, but when muscles are bruised the bacteria multiplies rapidly and the animal dies soon afterwards. The affected muscles appear black, hence the name.

Botulism (*Clostridium botulinum*) is a disease caused by the ingestion of botulinum toxin that can be found in rotting plant and/or animal material. This bacterium can be present in the bones of animals that have died during a flood, or when bones are exposed by erosion. Cattle are known to pick up bones, especially when they have a “salt hunger”, and become infected. The bacteria release a toxin which causes paralysis and eventually death.

Tetanus (*Clostridium tetani*) is a disease which can infect all animals, with horses being particularly susceptible. The tetanus bacterium multiplies in oxygen-poor environments, such as deep puncture wounds. The risk is high when a wound is contaminated with soil. First aid is important, but early aggressive treatment with antibiotics, antitoxin, and vaccinations is required, especially for horses.

Clostridial diseases usually result in death. However, they can be effectively prevented by vaccination. Ensure that your stock and horses, especially young or new animals, are vaccinated against these diseases. For more information talk to your veterinarian.

Note: Botulism vaccine is currently not available in New Zealand. However, importing the vaccine into New Zealand is being considered and will be prioritised once the demand has been determined.





Plant toxicities

Poisonous plant matter can become displaced following a flood and spread across paddocks causing infestations in previously clean pastures. Restrict livestock's access to vegetation washed onto paddocks by the flood waters and continue to monitor your pastures for any unusual growth in the long term.

The signs and symptoms of plant toxicity vary depending on the species of plant consumed by the animal. Some plant toxins can be fatal and animals can deteriorate rapidly. If you suspect any of your livestock have ingested a poisonous plant seek veterinary advice immediately.

Dermatophilosis and flystrike

Dermatophilus congolensis is a bacterial disease associated with prolonged wetness of the skin. This is often referred to as 'rain rot' or 'mud fever' in horses and 'lumpy wool' in sheep. The bacteria that cause this disease thrives when skin remains wet for some time (due to prolonged rain or wet wool) and the temperature is warm. The bacteria cause a moist skin infection which then forms a scab.

The infection, though not fatal, causes some distress to the affected animal and importantly, attracts flies which lay their eggs on the skin. Maggots hatch from the eggs and burrow into the skin causing deep and suppurating wounds. This is known as flystrike and typically occurs in sheep, though not exclusively.

Flystrike can be detected by a distinct smell and dark staining of the wool. If left untreated, fly strike will progressively become worse and cause severe illness and death.

Flystrike is a significant animal welfare issue. Fortunately, there are several ways to prevent and treat flystrike. These include:

- Shearing, and the removal of soiled wool (dagging).
- Routinely treating animals for worms to reduce faecal contamination of the wool.
- Use of pour-ons, dips and sprays to kill or deter flies and maggots.

The 'lumpy wool' or 'rain rot' will require specialised treatment of its own. Talk to your veterinarian about which method is best suited for your situation, remembering that a multi-faceted programme will give you the best results for your livestock and horses, as well as being the most cost effective.

Who can I contact to get help or advice?

Extreme weather events involving flooding and heavy rainfall can be difficult times for livestock owners. We recommend that you consult with your veterinarian, animal health adviser, and reach out to your rural support person should you need help or advice.

Support is also available through farming organisations such as Beef and Lamb New Zealand, Federated Farmers, and DairyNZ.

The MPI On Farm Support service is also here to help. To get in contact with our team call

0800 00 83 33 or email onfarmsupport@mpi.govt.nz

Also see below for some useful resources:

- **Beef and Lamb NZ: Flood recovery fact sheet**
- **Beef and Lamb NZ: Looking out for facial eczema**
- **MPI On Farm Support: Fact sheet**
- **MPI Adverse Events: Dealing with floods**
- **NZVA: Disrupted milking after an adverse event**
- **NZVA: Flood resources webpage**

