

Leptospirosis

Costly for deer and humans

Leptospirosis in deer can be very costly in terms of reduced farm productivity. For people who develop the disease it can be very serious with a long recovery time.

A herd vaccination programme will prevent leptospirosis outbreaks.

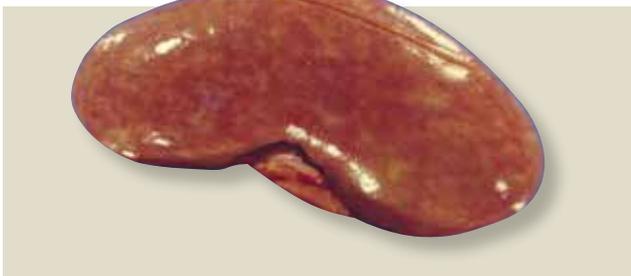
When deciding whether or not to vaccinate, the cost of vaccination needs to be weighed against the cost of lost production associated with the disease. On farms that are currently free of leptospirosis, the risk of introduced infection should also be taken into account.

What are the signs?

- Pomona and Copenhageni can cause serious outbreaks in which deer develop redwater, jaundice, dullness and loss of appetite. They may abort and they may die.
- Hardjo-bovis causes very mild infections, often with no obvious signs. But it can reduce growth rates in weaners and it can reduce calving percentages especially in first calvers.
- Young deer are generally more susceptible to clinical disease than adults.

How does it spread?

- Pomona is carried long-term by pigs and short-term by cattle and deer.
- Copenhageni is carried long-term by rats and possibly dogs.
- These carrier animals usually show no signs of illness.
- Leptospire spread from one animal to another in urine. For example, when urine from infected animals contaminates feed or water, gets into the eyes or mouth, or onto cuts or scratches.
- Leptospire can persist in water for long periods, but die out quickly in dry conditions. Periods of heavy rain and flooding can spread infection.



White spots in the kidney of a deer with leptospirosis

Diagnosis and treatment

The first indication of disease may be lower fertility or calving percentages than expected, especially in first calvers, or the deer slaughter plant may report white spots on the kidneys (see Illustration).

If you suspect the disease or if you wish to rule it out, your vet can arrange for laboratory tests to be carried out on samples of blood or urine.

Veterinary treatment of affected deer with antibiotics (streptomycin or tetracycline) is usually effective and it eliminates infection if begun early in the course of the disease.

In most outbreaks, your vet will treat all deer in the mob, because apparently healthy deer can become carriers. Streptomycin or tetracycline treatment eliminates this carrier state.

Key points

- There are three strains of the bacterium that cause leptospirosis in deer in New Zealand: *Leptospira Hardjo-bovis*, *L. Pomona* and *L. Copenhageni*.
- Hardjo-bovis infection is widespread on deer farms. Although it doesn't usually cause obvious signs of disease, it can limit productivity.
- Pomona and Copenhageni occur on a small number of farms in some regions. They can cause serious disease in deer.
- All three strains can cause serious disease in humans.
- Vaccination of weaners is effective in preventing problems, but they must be vaccinated before they are exposed to infection in autumn/winter.
- Annual vaccination of hinds gives fawns colostral protection for 12 weeks or so.

Vaccinate or not?

- On farms where deer have clinical leptospirosis (i.e. overt signs of the disease), treatment and vaccination are very likely to be cost-effective. There will be less disease and better deer growth rates and reproductive efficiency. Farmers and others in contact with the deer are less likely to become infected.
- On farms where there is subclinical infection (i.e. where deer are infected and excrete leptospire without showing any overt signs of disease) vaccination can still be cost-effective, especially if a significant proportion of deer are infected. This is because growth rates and reproductive performance will be improved and there is less risk of human infection.
- On farms where leptospirosis is currently not present, vaccination is less likely to be cost effective, although the risk of introduced infection can never be ruled out.

When deciding whether or not to vaccinate, the cost of actual and potential production losses should be balanced against the cost of vaccinating.

Factors that favour a decision to vaccinate include the following:

- A significant prevalence of infection in your herd. The prevalence can be assessed using blood tests organised by your vet.
- Previous outbreaks of leptospirosis on the farm.
- The deer have direct or indirect contact with cattle, pigs or rats. For example, vaccination might be wise if the deer are run on the same farm as dairy or beef cattle or adjacent to a pig farm.
- The herd is a trading herd (i.e. one in which deer are brought in from other sources from time to time) rather than a closed herd.

Vaccination programme

Vaccination (two injections 3 to 4 weeks apart) is effective in preventing the adverse effects of leptospirosis. Weaners should be vaccinated as soon as possible after they reach 12 weeks of age. Delaying vaccination increases the chance of exposure and development of the carrier state, which is not eliminated by vaccination.



Vaccination for leptospirosis reduces the risk of serious illness in humans who come in contact with deer, both on-farm and in venison processing plants

Annual vaccination of hinds is then recommended for continued protection, and to provide colostral protection for fawns.

Yersiniosis vaccination: It is important to stagger the timing of yersinia and leptospirosis vaccinations to avoid interfering with development of immunity. Give the first leptospirosis dose at the same time as the yersinia booster and the second leptospirosis dose 3 to 4 weeks later.

Discuss these issues with your vet to help you decide whether or not to vaccinate, when to vaccinate and which vaccine to use. Some vaccines protect against two strains of leptospire (Pomona and Hardjo-bovis), some against all three.

Prevention

To prevent the introduction of leptospirosis:

- Ensure that your deer do not come into direct or indirect contact with unvaccinated dairy cattle.
- Ensure your deer are not exposed to effluent or run-off from pig or dairy cattle farms.
- Minimise runoff from neighbouring properties.
- Control rodents, wild pigs, wild deer and possums.

If you decide to vaccinate:

- Vaccinate all the deer on your farm.
- Buy in only vaccinated livestock, or treat and vaccinate all incoming deer.

Human health

Leptospirosis can be transmitted to humans, usually when infected urine is splashed onto cuts or scratches on the arms or legs. Deer farmers are at risk, as are deer slaughter plant workers, transport operators and even those in contact with water contaminated by urine from infected animals.

The symptoms in humans include flu-like chills, muscle pain, headaches and vomiting. Convalescence can take months. Without treatment the symptoms can progress to jaundice, kidney failure, diarrhoea, skin rash and even death. Treatment includes high doses of antibiotics.

Before handling deer or other stock that may have leptospirosis, apply waterproof dressings to protect cuts and scratches and/or wear gloves. Afterwards, or before eating or smoking, thoroughly wash and dry hands and exposed skin.

Historically leptospirosis has been a major problem in dairy cattle and in dairy farmers but over the last 20 to 30 years vaccination of dairy cattle has become widespread, and the disease is now much less common both in cattle and humans.

More >>

DINZ Deer Hub: www.deernz.org/lepto

NZ Veterinary Association: www.leptosure.co.nz

ACC advice to GPs: <http://bit.ly/1C29YBL>



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