



PREVENTING LEPTOSPIROSIS PROTECTING YOUR CATTLE & YOUR FAMILY



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LEPTOSPIROSIS THE THREAT TO CATTLE AND PRODUCERS

Leptospirosis is the infectious disease that results from a type of bacterium called *Leptospira* spp. There are two significant types of *Leptospira* spp., or 'Lepto' as it is commonly known in Australia, affecting cattle - *L. hardjo** and *L. pomona*^

Leptospirosis - affects both beef and dairy cattle

- Can live in the environment for months in moist conditions before infecting an animal.
- Can survive for a long time in stagnant water and can spread over large areas in floodwaters.
- Cattle can shed Lepto in their urine when infected. In the case of *L. hardjo*, cattle can shed this organism for long periods after their initial infection.

Leptospirosis - affects humans

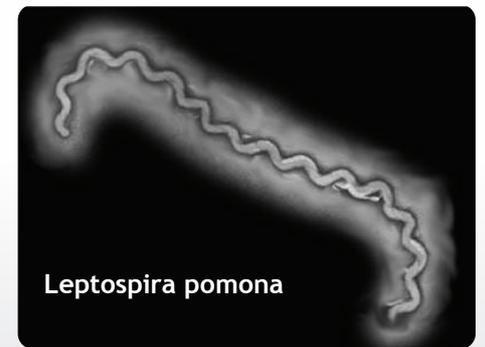
- Unlike many other cattle diseases, Lepto can spread from cattle to humans.
- Public health data shows that *L. hardjo* is the most common type of Lepto found in people with occupational exposure to cattle.¹⁰

* *Leptospira borgpetersenii* serovar Hardjo type *Hardjobovis*
^ *Leptospira interrogans* serovar *Pomona*



Leptospira hardjo

The main type of leptospirosis infecting Australian cattle (infected kidney shown)



Leptospira pomona

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HOW CAN CATTLE GET INFECTED?

CONTAMINATED URINE

Leptospire from contaminated urine enter via mucous membranes

INFECTION LOCALISES IN KEY ORGANS:

KIDNEYS

leptospire colonise and multiply in renal tubules

UTERUS

Lepto has the potential to cause infertility, abortion and weak calves^{1,3}

UDDER

Lepto has the potential to cause milk drop syndrome and mastitis¹⁻⁵

IMPACT
INFERTILITY,
ABORTIONS,
STILL BORN
CALVES



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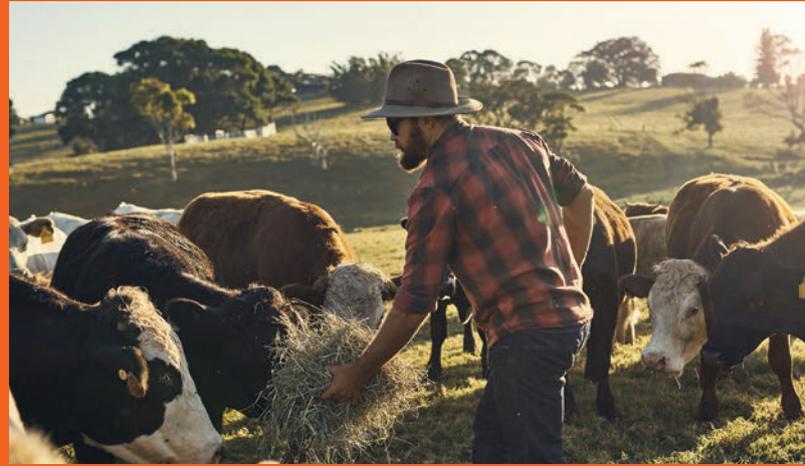
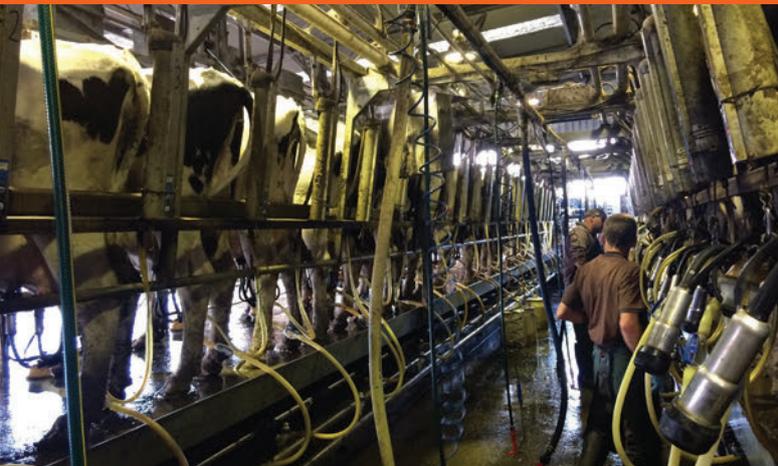
HOW CAN HUMANS GET INFECTED?

Humans can easily become infected

Leptospirosis is contracted through direct contact with infected urine, placental material or contaminated water. The organisms enter the body through mucous membranes of the eyes and mouth, abraded skin, or water logged feet.

Infections can occur:

- While assisting during calving without proper protection⁶
- From urine splashing from infected cows during milking or calving⁷
- Indirectly via contaminated water, food or soil
- By handling an aborted foetus or afterbirth
- Through contact with floodwaters



LEPTOSPIROSIS COULD BRING YOU TO A STANDSTILL

Leptospirosis can cause chronic flu-like symptoms and a high proportion of people with the disease require hospitalisation. Therefore it is significant Workplace Health and Safety (WH&S) consideration.⁶

TIME IN HOSPITAL



You could be out of action for months

The severe flu-like symptoms often develop into an ongoing chronic fatigue like illness. Serovar Hardjo is one of the most common leptospiral serovars with 20 cases reported in Australia in 2012 and 14 cases in 2013.¹⁰ Cases have been reported from all states and territories, with Queensland reporting the most. However medical research sources suggest that the true number of cases is much greater than this. Many sufferers do not seek medical attention and diagnostic tests are often not completed.

PROTECT YOUR FAMILY, YOUR EMPLOYEES AND YOURSELF

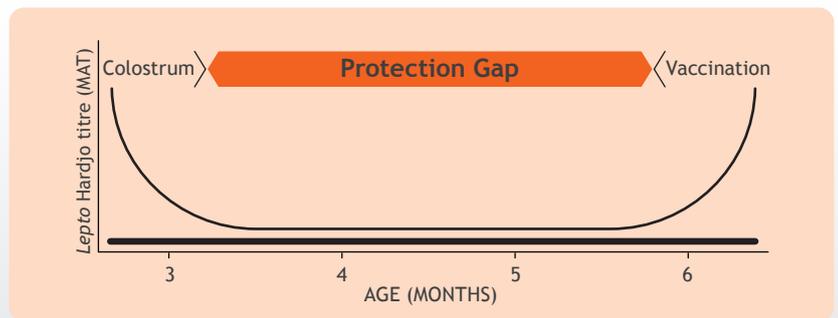
PROTECTION STARTS WITH YOUR CALVES

VACCINATE
CALVES FROM
4-6
WEEKS OF
AGE



Cows should be vaccinated 4-6 weeks pre-calving with Ultravac®7in1. Natural protection against leptospirosis provided by a mother's colostrum declines in calves to zero at around 12 weeks of age or earlier.¹¹

The 'protection gap' following decline in maternal antibodies



Calves experience a 'protection gap' following a decline in maternal antibodies if not vaccinated early in their life.

Ultravac®7in1 has a unique formulation. A two dose program can be completed before maternal antibodies have declined. Calves can be fully protected at an early age to ensure continuous protection with no gap. Calves can even be vaccinated from 4 weeks of age on high risk properties.[#]

EARLY VACCINATION BENEFITS:

- Breaks the cycle of infection from cow to calf. Cows should be vaccinated 4-6 weeks prior to calving to prevent calves from being infected before they can be vaccinated.
- Reduces handler exposure to Leptospirosis
- Reduces time and effort as calves are easier to handle
- Optimises Leptospirosis control by providing whole herd protection
- Protects a producer's investment in quality heifer replacements
- Fits in with vaccination against Clostridial diseases, which mainly affect calves



**1st
DOSE**
6 WEEKS[#]

**2nd
DOSE**
12 WEEKS

For calves 6 weeks of age or older, two doses 6 weeks apart with an annual booster 12 months following the previous vaccination.

[#]The vaccination of calves can begin from 4 weeks of age and is recommended for high risk properties. When the initial two doses are completed before 3 months of age, an additional dose should be given 6 months later and then annually.

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LEPTOSPIROSIS SPREADS IN BEEF AND DAIRY CATTLE

VIA URINARY SHEDDING



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VACCINATION WITH ULTRAVAC®7in1 PRIOR TO NATURAL EXPOSURE PREVENTS URINARY SHEDDING



Prevention stops the spread

The only way to stop shedding leptospires is to vaccinate before infection. Cattle in the herd vaccinated prior to exposure will not shed leptospires.

Rapid clearance of the disease

Ultravac®7in1 also has benefits in herds where some cattle may already be infected. This vaccine prevents shedding and so stops new infections, enabling a more rapid clearance of the disease from the herd.

Only Ultravac®7in1, **prevents** shedding of leptospires, while also protecting against the key clostridial diseases. It **stops** the spread of leptospirosis - by preventing urinary shedding of leptospires when used prior to natural exposure.

Only a tiny amount of Lepto organisms are required to infect a calf, cow or human. Therefore any other vaccine that **minimises** shedding does not adequately protect the herd or farm workers from infection.

DON'T RISK THE HEALTH OF YOUR FAMILY OR YOUR HERD

ULTRAVAC® 7in1 PROTECTS AGAINST LEPTOSPIROSIS + THE 5 KEY CLOSTRIDIAL DISEASES AFFECTING AUSTRALIAN CATTLE

✔ Leptospirosis

✔ Tetanus

✔ Black Disease

✔ Black Leg

✔ Pulpy Kidney

✔ Malignant Oedema

LEPTOSPIROSIS

This can damage the reproductive performance of cattle and kill calves.

MOTHERS

Abortion, still births, birth of weak or dead calves, reduced fertility and abortion 'storms' where several animals in the same herd abort at around the same time.

CALVES

Birth of weak or dead calves. Jaundice, fever and death.



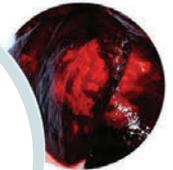
TETANUS

Organisms enter at wound sites and affect the nervous system, making the animal stiff and hypersensitive to touch. It may lie down with the head and legs extended, then die.

Sometimes, sudden death occurs.

BLACK DISEASE*

Following damage to the liver by migrating liver fluke, the organism grows rapidly and toxins are produced in the liver, resulting in death.



KEY

- Clostridial diseases (diseases caused by varieties of the Clostridium bacterium)
- Leptospirosis (diseases caused by varieties of the Leptospira bacterium).

BLACK LEG

Spores enter through cuts in the mouth and settle in muscle. Bruising triggers them to grow and produce toxins which cause muscle death, resulting in dark red-to-black coloured muscle, fever, lameness, emphysema (gas in tissues) and death in 48 hours.



PULPY KIDNEY (ENTEROTOXAEMIA)

Often misdiagnosed as bloat. Changes to feed lead to rapid growth of the organism in the gut producing a lethal toxin which causes convulsions and rapid death. Young animals, especially those in best condition are at greatest risk.



MALIGNANT OEDEMA (SWELLING)*

The organism enters through wounds, causing inflammation, redness and swelling. Blood poisoning and death can occur within days.



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ULTRAVAC®7in1 IS UNIQUE



ULTRAVAC®7in1 IS THE ONLY VACCINE:

FACT THAT PREVENTS SHEDDING OF LEPTOSPIRES WHEN USED PRIOR TO NATURAL EXPOSURE.

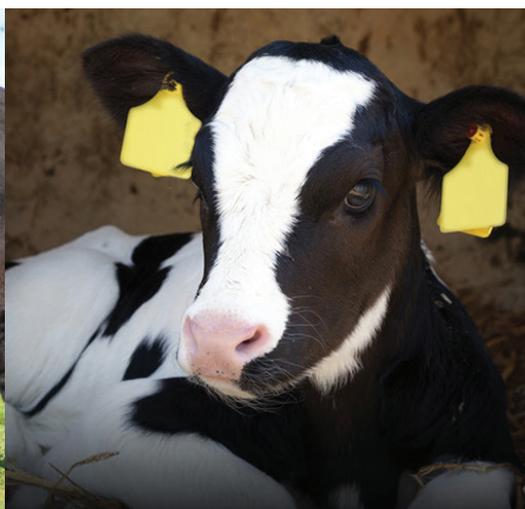
Prevention of shedding is vital in stopping the spread of this important disease within herds and to farmers, their family and employees. Urinary shedding of the bacteria is the main way infection is spread through herds and to people.^{11,12} Ultravac®7in1 is the only leptospirosis / clostridial vaccine that prevents urinary shedding, breaking the cycle of infection.

FACT SHOWN TO PREVENT REPRODUCTIVE TRACT COLONISATION AND PLACENTAL AND FOETAL INFECTION.

Leptospirosis is a known cause of abortion in cattle as well as the birth of weak calves.¹¹ To protect the foetus, it is important that the leptospirosis bacteria are prevented from colonising the reproductive tract, as well as prevented from infecting the placenta and the foetus. Ultravac®7in1 has been formulated from an Australian isolate and is the only leptospirosis / clostridial vaccine that has been proven to prevent reproductive tract colonisation and infection of the placenta and foetus by *Leptospira borgpetersenii* serovar Hardjo, the type of Leptospirosis that occurs in Australia.¹³

FACT SPECIALLY FORMULATED TO BE ABLE TO BE USED IN CALVES FROM 4 WEEKS OF AGE.

Natural protection against leptospirosis provided by the mother's colostrum declines in calves at around 12 weeks of age.¹² Calves may also be susceptible to leptospirosis early in life if they do not receive enough high quality colostrum from the cow, leaving these calves susceptible to infection at an age when they are most vulnerable to disease. The uncertainty of when a calf will become susceptible can be managed by using Ultravac®7in1. Ultravac®7in1 has a unique formulation that allows calves to be vaccinated from 4 weeks of age, so they are fully protected at an early age. Other leptospirosis / clostridial vaccines can only be given to calves from 4 to 6 months of age, leaving younger animals susceptible to this potentially fatal disease.

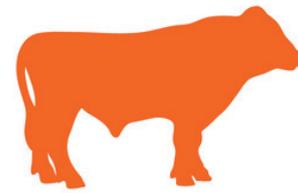
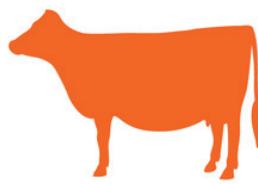
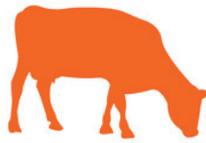


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ULTRAVAC® 7in1 TICKS ALL THE BOXES. THERE'S ONLY ONE CHOICE.

	Ultravac® 7in1 vaccine	Other 7in1 vaccines
Prevents shedding in urine and from the reproductive tract when used prior to natural exposure	✓	No claim
Prevents reproductive tract colonisation*	✓	No claim
Prevents placental and foetal infection*	✓	No claim
Calves can be vaccinated from 4 weeks	✓	4-6 months
Low volume 2.5 mL dose	✓	4 mL
Can be used for up to 30 days after opening**	✓	24 hours

* Caused by *Leptospira borgpetersenii* serovar Hardjo. ** Provided storage instructions are followed. Refer to product label for registered label claims



CALVES

AT 6 WEEKS OF AGE

Start vaccination 6 weeks after birth or at marking, followed by a second dose 4-6 weeks later

HEIFERS

PRE-JOINING

Booster vaccination 2-4 weeks pre-joining

COWS

PRE-CALVING

Vaccinate 4-6 weeks pre-calving

BULLS

PRE-JOINING

Booster vaccination 2-4 weeks pre-joining
Vaccinate unvaccinated bulls twice

ULTRAVAC® 7in1 VACCINATION PROGRAM. DOSE RATE: 2.5ML

	CALVES		HEIFERS		COWS	1ST SEASON/ NEW BULLS		BULLS	YEARLING STEERS AND BULLOCKS
Age/ Time	6 weeks	12 weeks	Pre- Joining 2-4 weeks	Pre- Calving 4-6 weeks	Pre- Calving 4-6 weeks	Pre- Joining 6-8 weeks	Pre- Joining 2-4 weeks	Pre- Joining 2-4 weeks	Annual booster
Ultravac 7in1	✓	✓	✓	✓	✓	✓	✓	✓	✓†

CALVES 4 WEEKS: The vaccination of calves can begin from 4 weeks of age and is recommended for high risk properties. When the initial two doses are completed before 3 months of age, an additional dose should be given 6 months later and then annually.

BREEDING HEIFERS AND COWS: Vaccinate prior to calving to protect the unborn calf and to prevent infertility and abortion

ALL OTHER CATTLE, INCLUDING STEERS, BULLS AND NEWLY PURCHASED CATTLE: Vaccinate early to prevent chronic kidney infection and the shedding of leptospire in the urine, followed by annual vaccination.

† STEERS: Two doses required if previously unvaccinated. Ideally it is best to coincide steer vaccination with heifer vaccination.

FOR MORE INFORMATION TALK TO YOUR ZOETIS CATTLE PRODUCT SPECIALIST ON 1800 814 883

**CAN BE USED FOR
30 DAYS AFTER OPENING***

* PROVIDED STORAGE INSTRUCTIONS ARE FOLLOWED



REFERENCES

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