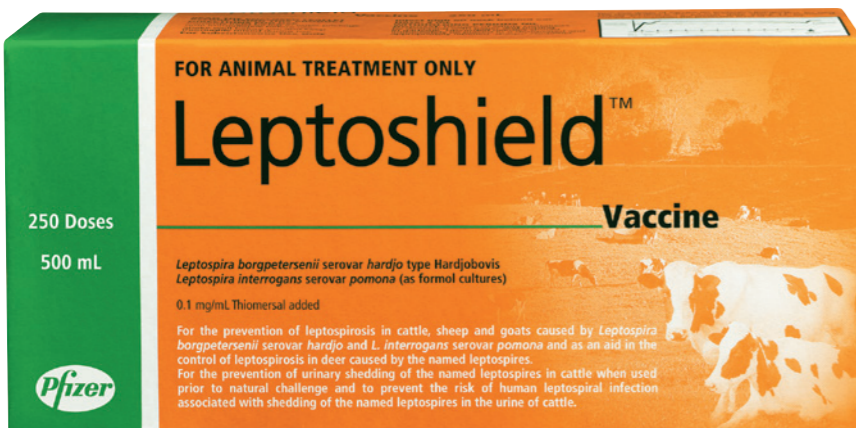
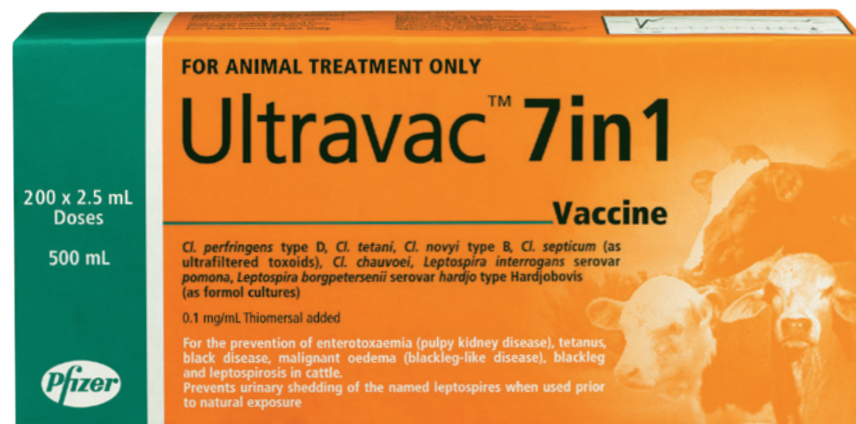


STOP LEPTOSPIROSIS BEFORE IT STARTS





PFIZER LEPTO VACCINES:

Prevent renal colonisation and urinary shedding^{1,2,3},

Prevent reproductive tract colonisation^{2,3}

Prevent disease including: infertility, abortion, stillbirths and foetal infection^{2,3}

12 months duration of immunity^{4,5}

Ability to vaccinate from 4 weeks¹

30 day broached vial claim for repeat use.

LEPTOSPIROSIS IN NEW ZEALAND

Leptospirosis continues to be our most important zoonosis⁶. Despite widespread vaccination of dairy herds, there are still around 100 reported human cases a year, and it is estimated that the numbers of unreported or undiagnosed cases are actually 40 – 50 times higher. Meat workers, farmers and other occupations involving animal contact represent the bulk of the infections.

The continued high levels of human infection are likely due to incorrect vaccination programmes, stock movement without vaccination, and sheep and beef farms acting as reservoirs.

Veterinarians have a huge role to play in the education and implementation of correct vaccination programmes with their farmers.



PREVENTION OF LEPTOSPIROSIS BY VACCINATION

PREVENT RENAL COLONISATION

The prevention of chronic renal colonisation and subsequent shedding is the key to controlling leptospirosis by vaccination. Vaccination of an infected animal will often not eliminate the carrier status so it is important calves are vaccinated before they are exposed to leptospirosis.

Ultravac 7 in 1 and Leptosshield vaccines are proven to prevent renal colonisation and urinary shedding of *L. hardjo*.

IN UTERO PROTECTION

Leptospiral infection can result in infertility, abortion, stillbirth or the birth of apparently normal calves. Calves which survive in utero infection may have renal colonisation and may be a source of infection for months if not years.

Ultravac 7 in 1 and Leptosshield vaccines are proven to prevent reproductive tract colonisation and shedding, infertility and foetal infection with *L. hardjo*.

ANNUAL REVACCINATION AND STOCK CONTROL

Maintain the herd's immunity by annual revaccination and ensure any animals sent away for grazing are up to date with vaccinations. Likewise any animals arriving at the property need to be considered.

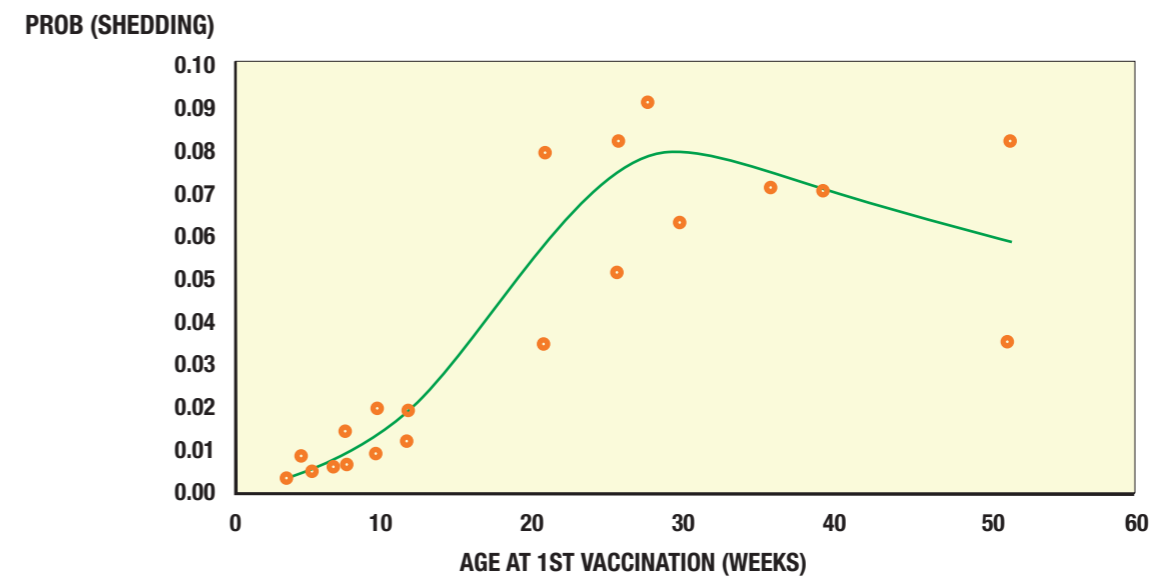
Ultravac 7 in 1 and Leptosshield vaccines have a 12 month duration of immunity.

EARLY VACCINATION OF CALVES

The risk of potential MDA (Maternally Derived Antibody) interference with vaccination must be balanced against the risk of infection for the unprotected calf. The age of vaccination of the calf mob must be aimed to protect the majority of the animals with the least risk of MDA interference.

A 2011 Massey University pilot study^{6,7} showed an increased risk of leptosporic animals in the herd with increasing age at first vaccination.

AGE OF FIRST VACCINATION VS HERD INFECTION STATUS



The mean half life of IgG1, the main immunoglobulin comprising MDA is 18 days in individual calves⁸. Where 90% of calves are born with detectable leptospira MAT, based on the above half life the rate of decay is such that at the herd level most calves have no detectable MAT at 100 days. About 80% of calves will have no detectable MAT after 50 days of age. Therefore assuming detectable MAT is indicative of MDA protection, at herd level calves may be regarded as susceptible from about 7 weeks of age if MAT was present in 90% of calves at birth⁸. Lower initial proportions of the herd having detectable MAT levels may make herd level susceptibility more like 4- 6 weeks.⁸

Ultravac 7 in 1 and Leptosshield vaccines can all be used in calves from 4 weeks of age.

FOETAL PROTECTION + EARLY CALF VACCINATION = STOP LEPTOSPIROSIS BEFORE IT STARTS



LEPTOSPIROSIS VACCINATION

The ideal conditions for survival and transmission of leptospires are warm and wet climatic conditions. Annual revaccination can be timed to be just prior to this period of greatest risk. This will vary by region in NZ and by season, but annual revaccination in early autumn is generally recommended.

SPRING BORN CALVES													
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YEAR 1	BIRTH YEAR							BIRTH					
									VACC 1 – FROM 4 WEEKS OF AGE				
										VACC 2 4 – 6 WEEKS LATER*			
YEAR 2			AUTUMN BOOSTER*										
YEAR 3+			ANNUAL DRY OFF/ AUTUMN BOOSTER										

AUTUMN BORN CALVES													
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YEAR 1	BIRTH YEAR			BIRTH									
					VACC 1 – FROM 4 WEEKS OF AGE								
						VACC 2 4 – 6 WEEKS LATER*							
YEAR 2			AUTUMN BOOSTER										
YEAR 3+		ANNUAL DRY OFF/ AUTUMN BOOSTER											

*Spring born calves require an autumn booster to align them with the herd and avoid long re-vaccination intervals.

#Any calves receiving their second vaccine before 12 weeks of age will require a third vaccination around 6 months of age to manage the potential risk of MDA interference.

CALVES – vaccinate early from 4 – 6 weeks of age before the calf has a chance to become infected

YEARLINGS – need to be vaccinated at the same time as the breeding herd to maintain protection from their calf vaccinations

BREEDING COWS – annual revaccination aims to protect the cow from infertility and abortion related to leptospirosis, and protect her unborn calf from becoming infected in utero. Newborn calves will also be protected via maternal antibodies.

BULLS AND ANY OTHER BOUGHT IN STOCK – must be sourced from herds that have an up to date vaccination programme.

1. Palit A *et al.* The influence of maternal antibody and age of calves on effective vaccination against *Leptospira interrogans* serovar hardjo. Aust Vet J 1991;68:299-303.
2. Alt, D.P., Hornsby, R., Bolin, C.A., 2002. Use of a monovalent leptospiral vaccine to prevent placental and fetal infection in cattle exposed to *Leptospira borgpetersenii* serovar hardjo during mid gestation. Pfizer data on file.
3. Alt, D.P., Bolin, C.A., 2003. Monovalent Leptospiral vaccine prevents renal and genital tract colonisation with *Leptospira borgpetersenii* serovar hardjo types A and B. Pfizer data on file.
4. Bolin, C.A., Pers.Comm. Infovet Conference proceedings, 2005.
5. Gallo *et al.* Protection afforded by Spirovac™, *Leptospira borgpetersenii* serovar Hardjo (type Hardjobovis), inactivated vaccine, in challenge studies in cattle. World Buiatrics Conference 2006.
6. Heuer, C., Leptospirosis Update. Pfizer Animal Health Dairy Summit Proceedings 2012.
7. Parramore, J., Meenks, M.B.R., Wilson, P.R., Heuer, C., Weston, J.F., 2011. The effectiveness of long-term vaccination of dairy cattle on New Zealand farms. Massey University, Palmerston North, 33.
8. Heuer, C., Benschop, J., Stringer, L., Collins-Emerson, J., Sanhueza, J., and Wilson, P., Leptospirosis in New Zealand – Best Practice Recommendations for the use of vaccines to prevent human exposure. A Report by Massey University Prepared for the New Zealand Veterinary Association, June 2012.