

# Leptospirosis Abortion in Beef Cows

Mark Gilmour

Southern Rangitikei Veterinary Services Ltd, PO Box 10, Bulls

## Introduction

Our practice has been diagnosing clinical Leptospirosis more frequently in recent years. Most commonly this has involved lamb deaths. These have usually been associated with heavy rainfall with resultant surface water on paddocks – which we assume facilitates the spread of the organism.

In the spring of 2006 we dealt with three separate cases of abortion storms in cattle in which infection with L.Pomona appears to be strongly implicated. This case presentation relates to a severe abortion outbreak in a beef herd on a coastal sand country property.

## History

On the 7<sup>th</sup> of August 2006 I was asked to investigate a worsening still birth/abortion problem on a local farm. Apparently early in July three heifers and four cows had slipped. Discussion at the time with one of the practice vets concluded Macrocarpa might have been implicated as the problem started and stopped over a couple of days.

However over the last few days of July and during the first week of August losses began to occur regularly again with 13 dead calves in the cows and 11 from the heifer mobs. Of these calves a number had been assisted by the farmer, some had delivered unassisted and four had been assisted by one of our vets, involving three separate visits each by a different vet.

## Management after pregnancy testing

Pregnancy testing results were:

### Heifers

54 mated 13/10/05 to 15/12/05. Pregnancy tested 14/2/06 - 52 pregnant.

Calving start date 20/7/06.

### Cows

235 mated 28/10/05 to 7/1/06. Pregnancy tested 4/5/06 - 220 pregnant.

Calving start date 6/8/06.

The heifers and cows are grazed separately until after weaning.

The heifers are grazed as one mob until they are put into saved pasture behind a hot wire on 17th July. Springing heifers are removed weekly and brought up to the home paddocks. They are mostly grass fed with hay occasionally.

After pregnancy testing the cows graze as a mob. On the 13th June the 220 cows were put on a 20ha paddock and fed baleage. On the 5th July 35 lighter condition cows were spread out on

the calving paddocks. From the 18th July the remaining 185 cows were rotated on two day shifts until being set stocked on calving paddocks on the 3rd August (approx 30/paddock).

## Investigation and findings

I asked that fresh calves be collected for post mortem and also their dams to be yarded if possible.

Four calves and their dams (2 heifers and 2 cows) were presented. There was a full term calf and a premature calf from the two cows, and one of each from the two heifers. The four calves were post mortemed, and their dams blood sampled and had placentae sampled from the uterus.

None of the presented calves had breathed. They weren't particularly autolysed but there were varying amounts of thoracic and abdominal fluid and some s/c bruising and oedema. No other significant lesions were visible grossly. The cows on the property were generally in reasonable order.

A range of samples were collected to investigate a range of differential diagnoses – including fungal, leptospirosis, BVD, Neospora, WMD, other bacteria etc.

A history of losses and grazing management was obtained.

## Results

There were no significant bacteriological isolates from the stomach contents. Serum selenium levels from the dams were in the low/marginal range (av. 147.5nmol/litre). There were not significant lesions found on histopathology of the placenta.

## Serology

Animal ID	L.Pomona MAT	L.hardjo MAT	Neospora IFAT
Cow 1	≥ 1/1600	1/200	negative
Cow 2	≥ 1/1600	negative	negative
Heifer 3	1/200	negative	negative
Heifer 4	1/800	1/200	negative

The history, the serological evidence and lack of other apparent aetiological agents were considered as confirmation of the leptospirosis outbreak.

## Treatment

It was decided to isolate all aborted and aborting animals from the mobs and to treat them with a single dose of Streptomycin. All remaining animals were vaccinated with 2mls of Leptavoid 2® progressively by mob and this was to be repeated in 3-4 weeks.

The slips and still births continued to occur at a diminishing rate as calving progressed and virtually stopped at about the time of the booster vaccination on the 13th September 2006.

## **Impact**

In 2005 there were 330 cows and heifers mated on the farm and approximately 295 calves were marked i.e. approx 90% calves docked to cows mated.

In 2006 there were 312 cows and heifers mated and 227 calves marked i.e. 73% calves docked to cows mated.

This means approximately 50 extra cows lost their calves and either failed to rear a calf or reared a mothered on calf compared to 2005.

## **Discussion**

### **Source of infection**

In the June/July period there was considerable surface water in the paddocks so urine contamination of this water by any infected animals was highly likely. There was a period in June when the cows were mobbed up and fed on baleage in a 20ha paddock.

The source of the infection hasn't been definitely demonstrated. One possible source considered were the numerous Samba deer on the property and surrounding forest. A number of shot deer were blood sampled and kidneys collected by local hunters. Leptospire were seen in the kidneys but in insufficient numbers to enable typing to be carried out. Serological titres to *L.pomona*, *L.hardjo* and *L.copenhagenii* were low or negative.

A number of other cattle on the property were blood tested in September as part of the on-going investigation. The majority of them were animals that hadn't been running with the cows i.e. bulls and dry heifers. All were negative apart from the only bull brought in that year who had a titre of 1/800.

There was no evidence of pigs being a possible source. Wild pigs don't exist in the area. A number of sheep on the property have been tested and titres were negative for *L.pomona*.

A number of neighbouring properties farm bull beef - their status is unknown.

### **Appearance of aborted calves**

Some references refer to putrefaction being a feature of leptospirosis abortions but this wasn't a feature in this case.

### **Spread**

Whatever the source originally it is likely that infected animals continued to excrete the bacteria and the presence of significant surface water over the period facilitated the continued spread to other herd mates.

### **Human health implications**

The evening I rang the farmer I enquired if there had been any flu symptoms in the farm staff. He said he had been feeling unwell that afternoon with headache, muscle pain and tiredness. He went to the doctor and was put on antibiotics. He was bed ridden for about 3-4 days and took a fortnight to regain full health. One of our vets also went down with flu like symptoms – to the point he was hospitalised and put on a drip. However neither showed serological evidence of leptospirosis infection.

### **Implications for neighbours**

The bush telegraph worked quickly! One neighbouring down stream property had beef breeding cows and we were able to move them away from common water sources. A vaccination policy has been instigated on that property. Most other neighbours farmed dry cattle.

### **Ongoing policy**

This year's pregnancy testing has just been carried out. All pregnant animals have been re-vaccinated and all cattle on the farm will be vaccinated annually. The pregnancy rates for 2007 are 58/60 heifers and 258/278 cows.

### **Acknowledgements**

John Moffat (Schering-Plough) for advice and testing assistance, and Fraser Hill (Gribbles, Palmerston North). The farm owners for their co-operation.