

# Endometritis in the Dairy Herd

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## Introduction

Bovine endometritis is a common condition seen in New Zealand dairy herds shortly after calving, and is defined as inflammation of the uterine lining.

Contamination occurs when bacteria enters the uterus while the cervix is open during calving. Most cows can clear the bacteria without treatment but, in 10-20% of cows, this will develop into a chronic clinical or subclinical endometritis. Systemic clinical signs are often absent and can cause a significant reduction in reproductive performance and profit to the dairy farm. It is important to identify infections early to allow treatment before mating, and increase the chances of a successful pregnancy (Barański et. al., 2012).

## Herd History and Assessment

In September 2020, we were called out to a dairy farm in the Manawatū region. Our goal was to identify cases of endometritis in preparation for the planned start of mating in a months' time.

The 300-cow herd consisted of Holstein-Friesians, Jerseys and Kiwicross. Body conditions of the cows ranged from approximately 4.0 to 6.0 out of 9.0. The recommended score for mating should be approximately 5.0, which suggests that some cows are not reaching their target. Many of the cows had diarrhoea, possibly due to lush grass growth. The facilities consisted of a herringbone dairy shed with 50 bails.

At-risk cows had been marked with a red dot, which included those with difficult calvings or twins. A veterinarian was previously required for an assisted calving in breech presentation. The farm has also had a few cases of down cows from hypocalcaemia this year, which is another important risk factor for endometritis.

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## Risk Factors

Prevention is beneficial for the long-term reproductive health of the herd. Even when cured, cows will have a lower reproductive performance and profitability in the future. Risk factors include:

- Dystocia and retained placentas
- Abortions and stillbirths
- Older cows or those with metabolic disturbances
- Inadequate nutrition and low body condition before calving

The best way to prevent endometritis is through effective management of the transition period, keeping cows in a good body condition, and minimising the number of cows with diseases around calving (DairyNZ, 2020).

## Differentials and Diagnostics

Post-partum uterine diseases include metritis, ovarian cysts and, less commonly, pyometra. Clinical endometritis is characterised by the presence of purulent or mucopurulent uterine discharge 21 or more days after parturition with no systemic signs (Šavc et al., 2016).

To diagnose cows in the herd with endometritis, a Metricheck™ device was used, as seen in Figure 1., to examine the vaginal discharge. The handle is used to clean the vulva lips and the cup is advanced through the vagina to the cervix. The handle is slightly elevated and removed to collect a sample of discharge in the rubber cup at the end of the rod. The device is cleaned with diluted disinfectant after each use to prevent contamination between cows.

The discharge is examined and scored on a scale from 0 to 3 to identify inflammation and potential infection, as shown in Figure 2. A "dirty" cow is described as one with a score of 2 or higher. For this case, it was decided to treat

**Figure 1: Metricheck device**



any cow with a score of 1 or higher, to prevent missing those with a mild infection. These cows were marked with tail paint and drafted into a separate race for treatment with intrauterine antibiotics.

The presence of purulent discharge in the vagina does not necessarily confirm endometritis, as the source could be from the cervix or vagina itself. Diagnosis of subclinical endometritis requires either cytology, ultrasonography, or endometrial biopsy (Gilbert, 2015). This can be costlier and more time consuming than metrichecking.

### Treatment

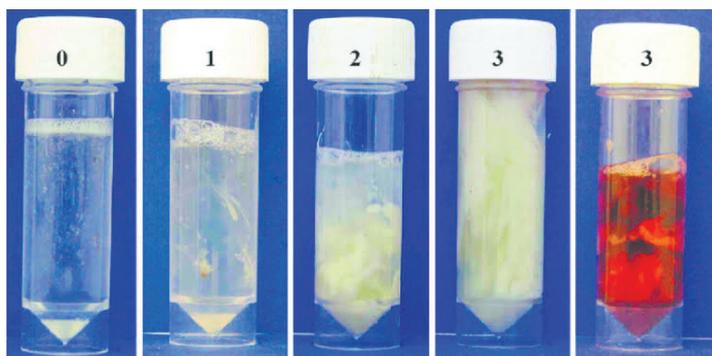
The aim of treatment is to reverse inflammatory changes and increase fertility of the cow. This can be done with either intrauterine antibiotics or prostaglandin therapy. Early treatment is important, as it has been shown that cows treated earlier had a 9.6% higher six-week in-calf rate and conceived eight days earlier on average than a group with delayed treatment (Clews & Cranefield, 2017).

The treatment used consisted of a single intrauterine infusion of Metri-Clean™, containing 500mg cephapirin (Figure 3). This treatment protocol has been shown to be the most effective treatment with a clinical cure rate of about 76% (Tison et al., 2017).

Another treatment method includes the administration of prostaglandin (PGF2 ). Prostaglandin is an endogenously secreted hormone that causes luteolysis of the corpus luteum and return to oestrus. This helps with the defence mechanisms of the uterus, stimulating uterine contractility and clearance of its contents. This treatment is used when a functional corpus luteum is present. A benefit to this treatment is that there are no milk withholding times as there are with antibiotics.

There is a large proportion of cows (57-75%) that will self-cure due to the natural healing process during

**Figure 2: The discharge is examined and scored on a scale from 0-3 to identify inflammation and potential infection**



**Figure 3: Metri-Clean antibiotic syringe**



uterine involution. This may lead us to question whether treatment is needed for this condition. However, curing does not imply a return to normal fertility. Cows with a clinical cure tend to have better reproductive performance than those who self-heal. The median day to pregnancy in cows that were treated was improved by approximately 20 days compared to cows that self-cured (Tison et al., 2017). The financial impact of this means the aim should be to resolve cases as soon as possible through medical treatment.

### Results

From the 300 cows in the herd, 80 cows were identified as dirty, approximately 27% of the herd. Ideally, this should be around 10-20%. Out of the 80 cows, 23 were treated and eight were untreated as we were unable to pass the pipette to treat.

Another call-out was made a week later and the 80 cows were rechecked. Only 5 of the remaining cows were dirty, which brings the percentage of the herd down to 9.3%. rechecked. This number is higher than previous years (6.2% in 2018 and 4.6% in 2019), which could be explained by the increase in dystocia and hypocalcaemia occurrences this season.

### Reproductive and economic losses

Cows with endometritis, especially those that go without treatment are at high risk for long term consequences:

- Prolonged calving to conception intervals
- Disrupt cyclical activity/ non-cycling cows
- Unsuccessful fertilisation and early embryonic death
- Fewer days in milk
- Increased involuntary cullings

Endometritis is a significant cost to New Zealand dairy farmers, even when infected cows are identified and treated early (Clews & Cranefield, 2017). Economic losses arise from:

- A delay in ovarian activity

- Increase in services per conception
- Decrease in milk yield
- Cost of treatment

### Conclusion

Endometritis is an important herd health issue to monitor post-calving in the dairy herd. Examination of vaginal discharge is a useful tool that can identify dirty cows before mating starts. Failure to identify and treat these cows can result in reduced fertility performance and economic losses for the future. Prevention of increasing endometritis cases in the future can be done through effective management of the transition period, and minimising diseases around calving.

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