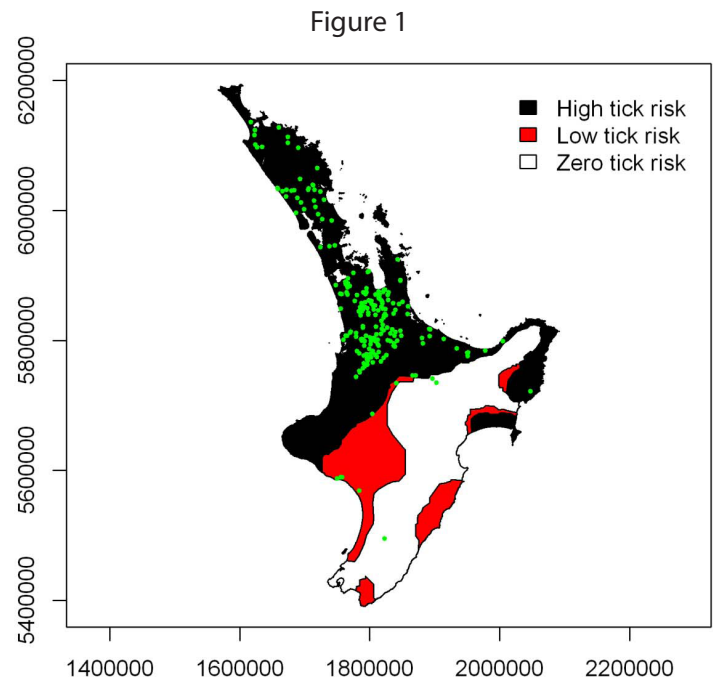


Theileria

Theileria orientalis is a parasite which lives in the red blood cells of cattle and is spread from cow to cow by ticks. To become infected a cow must be bitten by a tick, which is carrying the disease. *Theileria* is not spread by direct animal-to-animal contact and does not affect other species, or humans.

A new strain arrived in New Zealand in northland in 2012 and over the following few seasons there were large scale outbreaks in areas where ticks are prevalent. Since the initial outbreaks, the cattle in these high tick areas have been exposed to large numbers of parasites and produced antibodies against them. This means cattle in these areas have become more resistant to the parasite, resulting in fewer episodes of disease and much milder clinical cases when we do see them. We call this situation where the local population is unlikely to show clinical signs endemic stability. Currently the main issues caused by *Theileria* in New Zealand is when animals from outside endemically stable areas (e.g. animals with no antibodies or resistance) are moved into areas where infectious ticks are present. This often results in outbreaks of high numbers of clinical cases.

Theileria has become endemic in all areas where ticks are active. (See figure 1).



Clinical signs

In the majority of cases, cattle can be infected with the *Theileria* parasite without showing any signs of clinical disease. Over time, cattle will gradually build up a level of natural immunity to *Theileria*. Peak levels of *Theileria* in the blood appear to occur 4-6 weeks after initial infection. The main risk is where peak parasite levels occur at the same time as another stressful event, especially calving. This can result in large numbers of significantly affected adult cattle and mortality of 1-2% of the herd.

Clinical signs are a result of the body's attempts to destroy the parasite. Because the parasite is living inside the red blood cells, the body destroys its own infected red blood cells (haemolysis) to get rid of the parasite. This loss of red blood cells is called anaemia and results in the following signs:

- Weakness
- Pale or yellow (jaundice) mucous membranes i.e. the gums, inside the vulva and the white around the eye)
- Depression
- Not eating
- Weight/condition loss
- Abortion
- Poor milk production

Theileria can be diagnosed at the laboratory from a blood sample.

Image courtesy of mpi.govt.nz

TREATMENT

It is important to work closely with your veterinarian to get the best advice for your circumstances.

Individual animals

There are a number of treatment options available, depending on the severity of clinical signs. The colour of the mucous membranes, or the cows PCV (a test for the proportion of the blood volume that is made up by red blood cells) can be used as a guide.

Treatment may include:

- Blood transfusions are an effective and sometimes necessary treatment.

- Other treatment options may be recommended by your Veterinarian specific to your circumstances

Herd

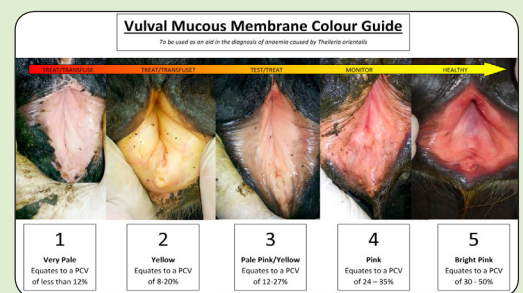
Reducing stress and pressure on affected animals is very important to control the severity of the disease and the number of animals developing clinical signs.

This can be achieved by:

- Once a day milking.
- Minimised handling.
- Walking cows at their own.

pace to the shed.

- Good quantity and quality of feed.
- Optimal trace element levels



Prevention

It is impossible to prevent animals becoming infected in high risk areas, as such the main focus is trying to allow infection to occur during a period where this will have the least impact on production. In dairy production, this is as calves in their first summer. Provided the animals are not under nutritional or disease stress at the time, minimal clinical signs will be noted, although it often results in a growth check. Control in young animals should be centred around ensuring good nutritional and health status through the calves first year of life.

Infection with Theileria as calves is preferable to infection as adults as the clinical signs in young animals are much less severe and the significantly lower financial impacts (one month of poor growth rates vs early drying off of cattle, reduced fertility and increased mortality).

A significant challenge is managing naïve animals. For example, animals that have not previously been exposed to Theileria entering a herd where Theileria is prevalent, or where a naïve herd is moved into a region where the disease is present. Here the emphasis should be on minimising the chance of infection occurring within 4-6 weeks of a major stress (such as calving or peak production), e.g. trying to get animals infected prior to drying off or strategic use of tickicides to limit infection until after peak.

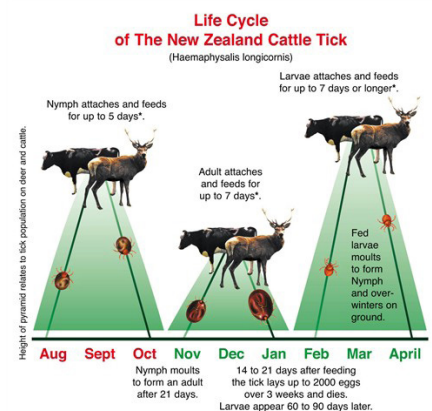
If you are in a low risk area for ticks, then your focus should be on minimising animal movement from any areas where Theileria is present, if this is unavoidable performing a test on a selection of the group to determine if these animals are carriers may be of benefit. Quarantine treatment of all animals for ticks on arrival has also been suggested in areas with low tick numbers.

Ticks and tick control

The control of ticks is important during high tick-risk periods. This is commonly mid-August to mid-March, but as long as the mean air temperature is above 7°C, ticks will be active. There are 4 stages to the tick life cycle – egg, larva, nymph and adult. Theileria is not transferred from the adult to the egg. However, if a larva becomes infected with Theileria the tick remains infected as a nymph and an adult and is able to transfer infection to cattle at each of these stages.

The tick spends most of its life living in the base of the pasture sward. To progress to its next life stage the tick needs to feed on a warm-blooded host, and so it will climb up the plant stem and attach to a passing animal, feeding for 5 to 14 days, before dropping off into the pasture again to mature to the next stage, or to lay eggs.

Where the climate is moist and warm and winters mild, ticks can be active through winter, and therefore pose a significant threat if infecting cattle in the months prior to calving.



*This graph indicates the periods when the tick population can be seen from each lifecycle stage. Occasionally the lifecycle stages will not be obvious as ticks do have the ability to cycle several times within one year if conditions are suitable.

Image kindly supplied by Bayer

For more information contact your local XLVets practice:

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