

## **Neospora outbreak**

*Written by Hamish Pike - Courtesy of Totally Vets (Manawatu)*

We talk constantly about BVD as a potential cause of abortion in cattle, but what about the organism that is the cause of most diagnosed abortions in cattle in New Zealand? This is *Neospora caninum*.

*Neospora caninum* is a protozoan parasite, an organism which is similar to *Toxoplasma gondii* – a common cause of abortion in sheep.

The organism appears to be spread by cattle ingesting eggs (or oocysts) on the pasture, and transfer of the organism across the placenta to the foetus.

Dogs can serve as a source of infection. They become infected after eating infected foetal tissue or afterbirth (or raw beef), and then pass oocysts in their faeces. The oocysts are very resilient, and can remain infective in the environment for months.

Rodents, ferrets, stoats, and weasels have also been suspected as sources of infection.

Although dogs can shed oocysts in their faeces for several weeks, abortion outbreaks due to *N. caninum* should not be entirely blamed on the farm dog. Dogs are poor hosts for *N. caninum* because they produce only scant numbers of oocysts in their faeces, if any are shed at all. The overall evidence that oocyst challenge from dogs leads to abortion is poor.

Therefore how do cattle manage to have *N. caninum* abortion outbreaks?

The efficiency of transfer of the organism across the placenta is likely to be up to 95%. Therefore calves born with the parasite will in turn pass it on to their offspring. Many cattle are therefore already infected (maybe for years) before any dog has had a chance to be involved.

Keeping dogs away from aborted material and not feeding them raw beef is still best practice. This will not only help prevent *Neospora* abortion but also a host of other causes as well.

Most abortion storms seem to be related to a herd event that reduces immunity (e.g. BVD) in a previously infected herd, causing re-activation of the parasite.

Infected cattle are 3 times more likely to abort than other cattle. However, culling of cows that have aborted is often not practical (because of the high prevalence) and because some cows will abort only once, and then become immune. These cattle (and possible antibody-positive cows) may be best retained in the herd as culling of immune cows could lead to further abortion storms if the organism was to be reintroduced into a naïve herd.

Recently, I was involved with an abortion outbreak in a dairy herd primarily due to *N. caninum*. The herd had no history of abortions due to this organism. 25 cows out of 1050 had identifiable abortions over several weeks. We scanned the rest of the herd and discovered a further 45 cows had lost their pregnancy since the herd was first pregnancy tested back in March. There were a dozen or so cows detected with a mummified foetus. Given that most abortions due to *Neospora* occur between 4 and 7 months gestation, it is likely that the worst of the abortion storm has passed – fingers crossed!

However, most calves are likely to be infected at birth, and although it is probable that the majority will show no clinical signs, most of heifer replacements are likely to pass infection to their own offspring – which is concerning to say the least! Calves at birth may display an inability to stand or lack of coordination, limb abnormalities, neurological signs or a “popped-eyed” appearance.

Until more knowledge is gained concerning the exact life cycle of Neospora, and the immunity to the parasite, unfortunately no effective preventative regime at this stage can be recommended. A preventative vaccine was withdrawn from the market a few years ago due to lack of efficiency.