



# Bovine Neosporosis

- **Neosporosis is an important, infectious disease of cattle worldwide that results in abortion and stillbirth.**

Neospora parasites cause problems in the placenta, brain and sometimes other organs in the developing foetus. A recent survey of aborting cattle within Scotland, conducted by scientists at Moredun in collaboration with SACVS, showed that 16% of aborted foetuses had evidence of infection with Neospora parasites. Reports from other veterinary research institutes in USA, Holland and New Zealand and elsewhere confirm these figures indicating that Neospora infection is emerging as one of the most important causes of bovine abortion worldwide.

- **Neosporosis is caused by *Neospora caninum*, a single-celled organism (a protozoan parasite).** The parasite mainly causes disease in cattle and dogs, although there have been less frequent reports of disease in horses, goats and deer.

- **Current knowledge suggests that Neospora does not cause disease in people.**

- **Neospora eggs (oocysts) are produced by infected dogs and excreted in their faeces.** It is believed that these oocysts can survive in the environment in a manner very similar to *Toxoplasma* oocysts shed by cats.

- **Cattle will become infected if they eat food or drink water contaminated with Neospora oocysts.**

The parasites then spread around the body via the bloodstream and if the animal is pregnant they can invade the placenta and then the foetus causing disease.

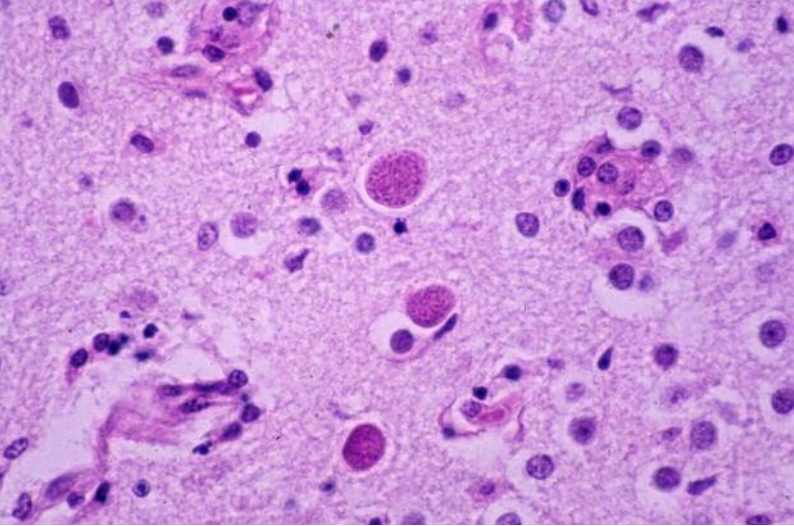
- **Vertical transmission (ie through the placenta) of Neospora from mother to foetus is very common.**

Infection may be passed with no ill effect.

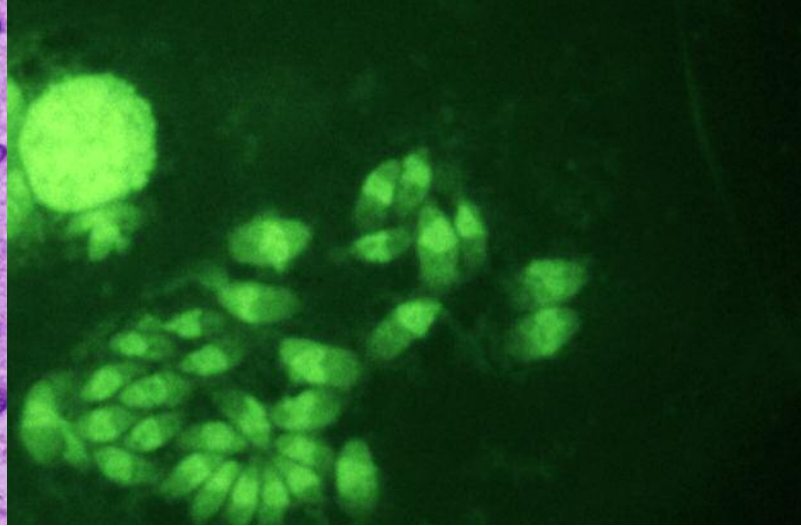
- **Disease occurs when Neospora multiplies in the cells of the developing calf and its placenta causing sufficient damage to trigger abortion and stillbirth.**

- **Diagnosis of cattle abortion caused by Neospora can be difficult.** Early foetal death can result in the foetus being re-absorbed by the mother who then returns to service giving the outward appearance of a case of infertility. Examination of foetal brain, placenta and other tissues can reveal characteristic damage caused by the parasites along with the organisms themselves. In addition, blood samples from the foetus and the dam may contain specific antibodies (seropositive) which shows that the immune system of the animal has encountered the parasite and responded to it.

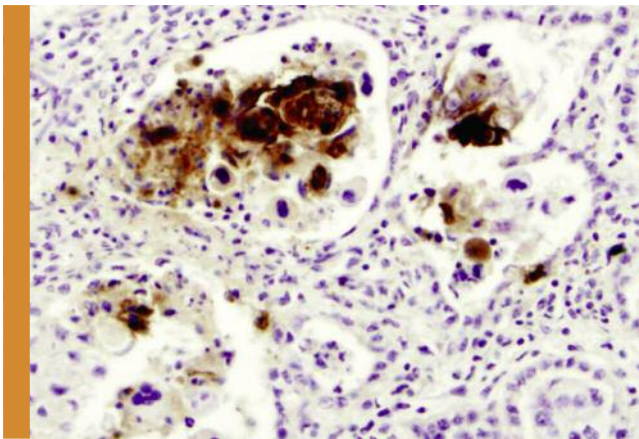




*Neospora parasites contained within tissue cyst in foetal brain.*



*Neospora parasites invade and multiply within cattle cells.*



*Neospora parasites (stained brown) in foetal area of placenta.*

- There are drugs which will kill Neospora but their use to control infection/disease in cattle is either impracticable or not effective.
  - There is no vaccine against Neospora currently available in the UK.
  - Scientists at Moredun are working closely with farmers and vets to improve our understanding of how the disease is spread, how the immune system of the cow fights the disease and whether we can use this information to develop an effective vaccine to control the disease.
- **Control of Neospora abortion is difficult but certain management rules can be applied to reduce the risks:**
    - Feedstuffs, hay, bedding, and water should be kept free of faecal contamination by dogs and other carnivores as well as vermin.
    - Prompt disposal of placentas, foetuses and stillborn calves will also limit the spread of disease.
    - Embryos from a cow infected with Neospora can be transferred to an uninfected cow. This would ensure that the calf was not born infected with Neospora.



**Moredun**

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