



### Neospora

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#### WHAT IS IT?

Protozoan parasite about half the size of a red blood cell. It has two stages; a "bradyzoite(slow)" stage that is harboured in tissue cysts and can remain for a long time, and "tachyzoite (fast)" stage which causes neurological disease and localises in placental tissue.

#### HOW?

Most commonly infects cattle and dogs.

- Causes neurological symptoms in dogs infected in utero and successive litters from the same bitch may be infected.
- Causes abortion in cattle or production of still born calves.
- Once infected cattle remain infected and occasionally calves are born live but with neurological abnormalities or infected with the parasite, whilst appearing outwardly normal.

#### TRANSMISSION:

Disease manifests in pregnancy and the parasite has a predilection for placental tissue.

#### Vertical transmission (dam to calf in utero) occurs in herds with high levels of infection

If a cow is infected when her immune system is good (non-pregnant) then she is able to fight the infection and the parasite goes into the slowly growing "bradyzoite" stage which can be re-awakened in times of stress.

Invasion of the placenta results in several outcomes depending on the stage of pregnancy when the dam is infected and her immune status. (abortion, still birth or infected live calf).

A persistently infected but apparently normal calf can pass on the parasite to her offspring.

Around 5% infected cows will abort in a subsequent pregnancy.

**Horizontal infection** between adult cows is not known to occur, but infection is transmitted in dog faeces left on pasture.

#### LIFECYCLE:

Infection can start by

1. Buying in a persistently infected cow
2. A recently infected dog can transmit it in faeces or through faecal contamination of water troughs
3. Wildlife may be a source of infection

#### Transmission Of Neosporosis In Cattle

##### Horizontal Route

Contaminated Food/Water

Oocysts

Tissue Cysts

##### Vertical Route

Primary Infection

Abortion

Persistently Infected Cows

Infected Calf



Dogs become infected by ingesting tissue cysts containing the bradyzoite phase of the parasite (aborted material) or in meat (hunt dogs). They then pass the oocysts in faeces which are ingested by cattle from pasture. They shed oocysts in faeces from about 3 days after infection for approximately 3-4 weeks.

#### DIAGNOSIS:

Antibody ELISA for detecting exposure through blood. Testing of placenta and aborted foetal tissues will confirm cause of abortion. Milk tests for antibodies are available. Testing calves at birth is not reliable due to transfer of immunity from the cow to calf.

#### TREATMENT:

There is no treatment or vaccination available. The options for stopping spread in a herd are limited.

1. Stopping spread from dogs; preventing them feeding on offal or aborted foetal material, exclusion from calving and feeding areas. Do not feed raw meat. Proper disposal of dog faeces.
2. Removal of infected cows from the herd to prevent vertical transfer to offspring in often impractical and has huge economical implications
3. Operate a closed herd and only breed replacements from cows known to not be infected with neospora
4. Put notices up on footpaths and educate the public to pick up their dog faeces wherever livestock graze.

# Parasitic diseases caused by nematode worms in cattle

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Nematode worms can often be an overlooked cause of disease or poor growth in grazing cattle. Controlling these parasites should form an important part of a herd health plan.

The two main types of Nematode worms that pose a threat to growing cattle are lungworms and gastrointestinal worms. Control of these two types of worm parasites aims to limit exposure of susceptible cattle to worm larvae on pasture, some exposure however is a good thing as it can help create some immunity to nematode worms and can limit the need for anthelmintic treatments.

Once young cattle start to graze, they quickly acquire new worm infections. Populations of worm larvae on grass typically increase from mid-July onwards for parasitic gastroenteritis and from late summer for liver fluke. Lungworm infections are also more common from July onwards, but the key thing with lungworms is unpredictability; catastrophic outbreaks can happen at any time.

## Gastrointestinal nematode worms

The most important nematode in cattle is Ostertagia. This can cause a disease seen in late summer and autumn of the first grazing season. A secondary disease can be seen in yearling cattle in the late winter or spring following their first grazing season, when larvae hibernate in the gut wall in late autumn and hatch out in late winter. Adult cattle do not normally require treatment, as there is some age-related immunity. Adult cattle can have a cleaning effect on worm-infested pasture by grazing larvae that then produce only a limited amount of eggs as adult worms.

### Suckler Beef Cattle

- Calves at foot do not automatically require preventive treatments for worms as long as they are with their mothers. When the calves are weaned, worm control will be required. Weaned autumn born calves and spring born calves in their second season are susceptible to worms and a control programme should be put in place.

### Dairy Cattle

- Dairy calves do not have the protective effect of grazing alongside cows; monitoring of dung worm egg counts can be useful alongside a worm control program for the first grazing season.

Clean pasture that has no or limited worm burden, is useful in controlling gastrointestinal worms. Calves grazing on clean pasture will do well, but will not develop sufficient immunity and they remain susceptible to disease, either later in the grazing season or the following year.

When safe pasture is not available, then worming programs should be followed. The choice of anthelmintic depends on labour, handling facilities, weight of cattle, proposed cattle sale dates, availability of safe pasture and price.

### Types of Wormer

**Levamisoles (yellow drench);**

**Benzimidazoles (white drench)**

**Avermectins (clear drenches, pour-on, injectable)**

We have recorded some resistance to types of worms in sheep and goats to the Benzimidazoles (white drenches) in the area. This does not seem to be a problem with Ostertagia, yet. Again sampling dung for worm eggs can be helpful if this is suspected; we can help you with this.

### Lungworm

Parasitic bronchitis is caused by Dictyocaulus. It can be treated using broad spectrum anthelmintics (and antibiotics for secondary infection), but it is always better to aim to prevent this disease rather than wait until lung damage occurs. Programmes used to control parasitic gastroenteritis may not prevent lungworm because of its unpredictable nature. Prevention relies on one of two methods;

**Immunity** – oral vaccination with irradiated larvae. Calves over 2 months old are given 2 doses, 4 weeks apart (second dose before turnout).

**Suppression of infection** – anthelmintic treatment used regularly throughout the grazing season, however cattle that do not generate their own immunity are susceptible to disease.

We often see an increase in the number of cases of lungworm in the autumn.