

Herdsure® protocol for neosporosis in cattle herds



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Introduction

This protocol describes the processes used to establish the disease status for neosporosis in cattle and for the subsequent monitoring of neosporosis in those herds.

This protocol is suitable for both dairy and beef herds.

The neosporosis protocol comprises three levels of 'health status':

Level 1	Provides an indication of the herd's neosporosis status, based on a snapshot bleed or historical data.
Level 2	Aims to improve the health status of the herd for neosporosis.
Level 3	Monitors the herd's improved neosporosis health status.

Please also refer to the flowchart summary of the protocol presented at the end of Level 3.

The disease

Introduction

Neosporosis is a disease caused by a protozoan parasite, *Neospora caninum*, which occurs worldwide. Its major effect in cattle is abortion, although cattle can be infected without showing any signs.

The disease

Neosporosis is the most frequently diagnosed cause of abortion in cattle in the UK, accounting for about 20% of cases diagnosed. As well as the direct cost of the loss of the calf, there may be other production losses such as reduced milk yield and fertility problems.

Cattle become infected in one of two ways:

- **‘Exogenous’ infection:** The main part of the parasite’s lifecycle is through dogs, which excrete the oocysts in their faeces. Cattle are infected when they eat the oocysts. Thus exposure to dog faeces in the environment, such as on pastures or in feed, is the main risk of this route of infection. Dogs can become infected by eating placenta or calf remains from an infected cow.
- **‘Endogenous’ infection:** Cattle that are already infected can pass the parasite on to their unborn offspring through the placenta (also called ‘vertical transmission’). These infected calves may be aborted. Alternatively they may be born with no abnormal signs but may carry the infection until they themselves become pregnant, when they will either abort or produce congenitally infected calves. Cattle infected this way remain infected for life. This is the main way in which the infection spreads within herds, i.e. from cow to calf. The disease does not spread from cow to cow.

N. caninum infection can enter herds either through environmental contamination by infected dog faeces or through purchase of infected animals. This means that control must include biosecurity measures that prevent exposure of the herd to dog faeces, prevent dogs from eating the products of calving and avoid purchase of infected animals.

Tests for neosporosis

An antibody test is used to detect the immune response to *N. caninum* infection. Animals with an immune response (referred to as ‘sero-positive’) are six to seven times more likely to abort than those that are not. The level of antibody in the blood fluctuates during a cow’s breeding cycle and is highest 10 to 4 weeks **before** calving.

To be sure that an animal is not infected, it must have had **two** negative tests on blood samples taken between 10 to 4 weeks before calving in two pregnancies.

In addition, all abortions occurring on the farm must be investigated to rule out the involvement of neosporosis. Please contact your veterinary practitioner for further details.

Biosecurity

Biosecurity refers to the actions taken to prevent disease entering or leaving a farm. There are some neosporosis-specific measures that must be undertaken as part of the Herdsure® protocol:

- dogs must not have access to the calving areas, including calving paddocks, or to placentas or dead calves. This includes farm dogs, visitors' dogs, foxhounds and those belonging to members of the public. Placentas, stillborn calves and carcasses should be removed as soon as possible from the calving areas to a secure location that is inaccessible to vermin such as foxes, badgers, rats and mice. They will then be removed by fallen stock contractors. This is necessary in order to prevent dogs gaining access to potentially infected material.
- feed stores, for both straights and forage, must be dog-proof to prevent contamination with dog faeces. It is also good practice to ensure they are vermin-proof to prevent possible spread of contamination by foxes, badgers, rats and mice.
- suppliers of feed should certify that measures to prevent contamination with dog faeces are in place at their premises.
- dogs access to pasture used for cattle grazing or for the production of cattle forage should be kept to a minimum because this could increase the risk of cattle becoming infected with *N. caninum*.

Keeping track of your herd's progress in Herdsure®

An **annual herd progress report** will be issued to Herdsure® members. The progress report will detail the level achieved for each protocol for which the herd is enrolled on the date of issue.

For a small fee, an updated progress report can be produced. The updated progress report, like the annual report, will detail the level achieved for each protocol for which the herd is enrolled on the date of issue.

Adding cattle – avoiding buying in disease

Added animals are one of the most likely ways to introduce infection to a herd. Minimising the number of added animals will keep the risk of introducing infection low. You should consider having a closed herd policy.

If possible, only buy animals that have been confirmed negative according to the Herdsure® protocol. These animals can be added without testing.

Cattle of 'unknown health status' can be introduced but they should be subject to testing as described below before they join the remainder of the herd.

Added animals should preferably be blood sampled at the farm of origin and antibody-positive animals should not be purchased. If this is not possible, added animals should be tested on arrival. If tested positive to *N. caninum*, they should be removed from the herd as soon as possible. Under no circumstances should any offspring be retained from them for introduction into the breeding herd.

Animals that give negative results cannot be regarded as free of infection on the basis of only one blood test. Antibody-negative animals should be regarded as *potentially* infected until they have achieved **two** negative blood tests taken between 10 and 4 weeks before two calvings. This could include the pre-purchase blood sample if taken in this period of gestation. Embryos must only be implanted into antibody-negative recipients.

The protocol

Level 1

Objective of Herdsure® testing

- Level 1 testing provides an indication of the herd's neosporosis status, based on a snapshot bleed or historical data.
- Level 1 also uses any herd history and history of relevant test results already held by the veterinary practitioner or by AHVLA, covering the last 12 months.
- where the history and test results indicate clear evidence of *N. caninum* infection in the herd in the last 12 months herds should enter the protocol at Level 2.

Sampling

The neosporosis status of the herd may already be known from previous investigations of abortions or blood tests.

If the status is not known, a '**snapshot blood test**' should be taken from **all** pregnant animals in the herd that are between 10 and 4 weeks of their expected calving date. This will indicate whether *Neospora* is present in the herd and give an indication of the proportion of cows that are infected. Your veterinary practitioner will be able to advise if this step is appropriate for your herd.

The herd should go directly to Level 2 if the *Neospora* status of the herd is already known or if there are not enough cows to carry out the 'snapshot bleed'.

Level 2

Objective of Herdsure® testing

- Level 2 testing aims to improve the health status of the herd by reducing the detrimental influence of neosporosis infection in the herd by identifying the cattle that are infected. Once identified, these cattle may be removed.

Sampling

All female breeding animals in the herd should be blood sampled twice during the 10-4 week pre-calving window. As this is carried out over a period of time it is known as a '**progressive herd bleed**'.

These samples may be taken at the times shown in the table below.

Animals may be tested 10 to 4 weeks before their expected calving date, or following an abortion that occurs 10 to 4 weeks before their expected calving date. In addition, all abortions must be investigated to determine whether neosporosis was involved.

If either of the samples is positive, the animal is considered to be infected. Such animals must not be used for breeding replacements as these could also be infected. Infected animals should be removed from the herd at a time appropriate for the management of the herd (such as at the end of a lactation).

The herd cannot move to Level 3 until all positive animals have been removed.

Level 3

Objective of Herdsure® testing

- Level 3 testing aims to monitor the herd's improved neosporosis health status.

Sampling

During Level 3 all abortions must be investigated as for Level 2. This is a key part of the monitoring process and must be adhered to.

If *N. caninum* infection is found to have played a part in the abortion then the herd will revert to Level 2 while a herd investigation is carried out as follows:

- immediate blood sampling of all adult animals in the same group as the aborting cow. This group is defined as all animals which are due to calve or have calved from 1 month before to 1 month after the date of the abortion.
- if all of the cows and heifers in the group are negative, the herd may return to Level 3. Positive results in one or more animals in the group is suggestive of an external source of infection and means the herd restarts Level 2, and all the breeding animals must re-qualify for Level 3. This will mean that the 'free of neosporosis status' of all the breeding female cattle in the herd will be lost and the herd will begin sampling and testing for Level 2 again.
- farm biosecurity should be reviewed and, if necessary, improved following the likely re-introduction of neosporosis in order to identify potential risks and possibilities for disease entry.

