

Premium Cattle Health Scheme Johne's Disease Environment and Cull Cow Screen

Objective

To provide a screening system for herds where the Johne's disease status is unknown in order to direct the herd plan to ensure that appropriate biosecurity advice or a hygiene programme is put in place.

Background

Johne's disease is an increasing problem in the UK dairy herds. Where no action is taken to limit new infections then the level of infection within the herd increases significantly with time. The major loss is then down to early culling of affected animals. There is also concern over a possible relationship between the organism that causes Johne's disease and its involvement with Crohn's disease in humans. The Food Standards Agency has advised a precautionary approach is taken and recommend that dairy farmers take action to limit the amount of the Johne's disease organism that enters the milk. There is already a Johne's disease accreditation programme that is used in herds that are free of the disease to promote the sale of breeding stock that are at low risk of developing the disease. This approach is also used to support a test and cull programme along with a hygiene programme for infected herds. However there is also a need for a screening programme that can be used for commercial herds that will allow the status of the herd to be identified and so allow the biosecurity programme and hygiene programme to be more focussed. This screening programme will support the Food Standards Agency objective, but will not replace the Johne's disease assurance programme for the sale of breeding stock.

The Principle

There are two aspects to the screening, 1/ the environmental sampling and 2/ the cull cow screen.

1/ Environmental sampling: The Johne's disease organism *Mycobacterium avium* subspecies *paratuberculosis* (*Map*) is an organism that persists in dung and slurry and can be found in milk. The collection of the environmental samples is straightforward and does not involve any handling of the animals and therefore does not disturb the routine management of the herd. Samples are pooled and can then be tested for the presence of *Map* either by culture or by the polymerase chain reaction (PCR) test.

2/ Cull cow screen: In herds where the disease is present at a low level, infected cows may be culled because of infertility or low yield before they develop clinical signs of Johne's disease. If each cull cow is blood tested before it leaves the herd and any blood test positives are confirmed by faecal culture or by faecal PCR then this provides an early indicator of herd infection.

Methodology

1/ Environmental sampling: The three critical areas for sampling are the dry cow accommodation, the alleyways in the milking herd accommodation and the slurry storage. From each a total of eight 20 grams samples of faecal material are collected at a minimum of five pace intervals for the accommodation and alleyways and from eight points around the slurry storage area. These samples are sent to the laboratory in the containers supplied. At the laboratory the samples are pooled according to a standard protocol to provide six composite samples for testing. A single bulk tank sample is collected into the container provided and frozen over night before being sent to the lab with the faecal samples. Each composite sample is subjected to testing by culture or by PCR if required. The milk sample is tested by peptide mediated capture PCR. A herd is then classified as environmental sampling positive or negative depending on whether or not any positive result was found.

2/ Cull cow screen: When cows are scheduled for culling they should have a blood and faeces sample collected and sent to the laboratory. The blood sample will be tested using the antibody ELISA and for any test positive samples the matching faecal sample will then be tested by culture or PCR. The herd will be classified as cull cow screen positive if a positive blood result is confirmed by a positive faecal culture or PCR. The herd will be classified as cull cow screen inconclusive if no faecal sample has been tested and cow cull screen suspicious where positive blood results are not confirmed by faecal culture or PCR.

Costs to the Member

This service will be offered through membership of the Premium Cattle Health Scheme and membership will be charged at £60.00 per annum for each herd. If several herds are under a single ownership the membership will be required and charged for each herd. Membership will be automatically invoiced each year until membership is cancelled.

The environmental screening will be charged at a single rate of £247.59 for each screen. A screen may be performed on more than one occasion in the course of a year as required by the member.

Cull cow screen will be charged at the rate of £4.00 per test where more than five samples are received at one time and £7.80 where fewer than five samples are submitted at one time. Faecal screening will be charged at £30.70.

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