

TSEs (Transmissible Spongiform Encephalopathies) in deer – Advisory notes for farmers



Llywodraeth Cynulliad Cymru
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SCOTTISH EXECUTIVE
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defra
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Introduction

Most people have heard of BSE – Bovine Spongiform Encephalopathy – not least because of the enormous effect it has had on the livestock industry and, in particular, because of the evidence linking BSE to variant Creutzfeldt-Jakob disease (vCJD) in humans. These two diseases have created lots of headlines but they are not unique. They belong to a group of progressive fatal diseases of the central nervous system known as transmissible spongiform encephalopathies (TSEs) or prion diseases. The group includes scrapie of sheep and goats and chronic wasting disease (CWD) of deer and elk.

The BSE epidemic in cattle is in decline but it is possible that a TSE could occur in another species in the UK. We therefore need to extend our surveillance and monitoring beyond that already in place for cattle and sheep. **And we need your help to do so.**

The surveillance programme we have in mind will comprise investigation of suspect cases and a proactive programme involving the collection of samples for testing. The success of the first part of this programme relies on the reporting of any signs of disease that may be indicative of a TSE. Producers of farmed deer need to look out for any suspicious signs of disease and, if any such signs are observed, report this to the local Divisional Veterinary Manager (DVM), or to their veterinary surgeon.

If a TSE cannot be ruled out, the animal will be placed under restriction. Depending on the severity of the signs the Defra veterinary officer may decide to re-visit the animal at a later date to see whether or not a TSE is suspected. If and when a TSE is suspected, arrangements will be made for the slaughter of the animal and for a laboratory examination of the brain for signs of the disease. The owners of animals slaughtered as TSE suspects will be entitled to compensation.

We have no knowledge of the signs of disease that would be shown by deer affected with any TSE, other than CWD. This latter disease has been diagnosed in mule deer, white-tailed deer and elk. It has occurred only in limited areas in the western United States and Canada and in animals exported from those countries. First recognised as a clinical syndrome in 1967, it is typified by chronic weight loss leading to death. This leaflet describes CWD in order to indicate what signs to look for and what to do if you suspect the possible presence of a TSE in your deer herd. However, it is likely that deer affected by a TSE other than CWD would show a range of the sort of signs seen in other animals. These might include: weight loss, changes of behaviour, abnormalities of balance and movement, abnormal carriage of head and ear, fine muscle tremors, dullness, excessive lip and tongue movement and eventually an inability to stand.

What do I look out for?

In most cases of CWD there is a general change of behaviour and loss of weight over time. Individual animals may show a number of different signs, none of which alone may be regarded as a definitive indication of CWD.

Changes in behaviour

- separation from other animals in the herd
- depression or blank facial expression
- lowering of the head
- difficulty in swallowing
- increased thirst and urination
- excess salivation
- difficulty swallowing
- pneumonia
- animals continue to eat grain but may show decreased interest in hay
- grinding of the teeth

Changes in posture and movement

- unsteady and poor co-ordination of movement
- listless and dull
- repetitive walking in set patterns
- paralysis

Later signs

- weight loss
- death

Age

Animals are usually three to four years old before clinical signs appear but cases have been recorded in animals as young as 18 months or as old as 13 years.

Numbers affected

As with other TSEs the disease appears a long time after initial infection and often only single cases at a time occur in a herd. However, modern test techniques do indicate that the disease will spread within a herd depending on the length of time that infection has been present in the herd.

Season

The disease may occur any time of the year.

Development of signs

When the first signs start to appear, they usually last for weeks or months before the animal dies. However, some animals may not show clinical signs except for acute pneumonia.

How can I tell whether these signs are caused by a TSE or another disease?

The diagnosis of a TSE is unlikely to be straightforward so it is important to ask your veterinary surgeon to investigate any suspicious signs. If your veterinary surgeon considers that CWD or other TSE is a possibility, you are required to inform the DVM. A Veterinary Officer will then visit to examine the suspect animal.

What else could these signs indicate?

There are a wide variety of diseases that cause central nervous system (CNS) disease and emaciation. Animals submitted to laboratories as CWD suspects have included those with brain abscesses, traumatic injuries, encephalitis, meningitis, peritonitis, pneumonia resulting from other causes, arthritis, starvation, nutritional deficiencies and even excess dental wear.

Inhalation pneumonia is often seen in the final stages of the disease in deer and elk with CWD. If this is recognised in a prime-aged deer, CWD should still be considered, even if there appear to be no other signs.

Diagnosis

Preliminary diagnosis of CWD is based on clinical signs but the disease can only be confirmed by laboratory examination of the brain from the affected animal after its death. On microscopic examination, lesions of CWD in the central nervous system resemble those of the other spongiform encephalopathies. Laboratory tests can also be used on brain tissue to detect the presence of the abnormal protein that is associated with the disease.

Research is being undertaken to develop diagnostic tests that can be used in live animals.

Transmission

The origin and mode of transmission of CWD is unknown. For example, animals born in captivity and those born in the wild have been affected with the disease. Based on the epidemiology of the disease, both lateral (animal to animal) and maternal (mother to offspring) transmission may be possible. Transmission is most likely to take place when animals are in close contact. There have been few cases of CWD in the offspring of diseased dams but, in these cases, it was not possible to confirm maternal transmission because lateral transmission could not be ruled out.

Transmission of CWD by feed is not believed to be responsible for most cases, as affected animals are known to have been fed a wide variety of foodstuffs. They can, however, be experimentally infected with CWD by mouth, so there is a theoretical possibility that BSE could have been transmitted to deer in the UK before 1 August 1996 through feed contaminated with meat and bone meal containing the agent of BSE.

What will happen when I inform the Divisional Veterinary Manager that I suspect an animal has chronic wasting disease?

A veterinary investigation will be carried out. In those cases where the existence of a TSE is suspected, the animal will be placed under restrictions. As far as possible your own method of individual identification of your deer will be used for this purpose. Samples will be collected from the animal after death for laboratory examination.

What happens if the Veterinary Officer does not suspect a TSE?

If the Veterinary Officer considers that the signs are not indicative of a TSE, no further action will be taken by Defra. No restrictions will be placed on the

animal or the herd. You may wish to contact your own veterinary surgeon to discuss an alternative diagnosis or treatment.

What happens if a TSE is confirmed?

If a positive laboratory result is obtained, it will be necessary to undertake further investigations of your herd. There is no test currently available for live animals so the DVM may wish to arrange for the collection of samples from animals that die on the farm, are culled or slaughtered for human consumption. Additional measures may be applied if considered necessary.

What would happen if I did not report an animal suspected of having chronic wasting disease?

The legislation requires you to report suspicion of these diseases¹. Furthermore, it is most important to investigate all suspect cases of TSEs in deer for the following reasons:

- to identify the existence of disease should it occur in GB;
- should the disease exist, to improve knowledge of the disease;
- to ensure that the necessary measures are put in place to protect human health and animal health;
- to ensure that CWD or other TSE does not become established in your herd.

IF IN DOUBT, CALL US OUT. WE WOULD RATHER VISIT A CASE WHICH TURNS OUT NOT TO BE CWD THAN MISS A GENUINE CASE.

¹ Regulation (EC) No 999/2001 of the European Parliament and of the Council of 22 May 2001. Article 11 requires that any animal suspected of being infected by TSE must inform the relevant authorities.

Can I do anything to stop my animals getting chronic wasting disease?

There is no evidence of the existence of any TSE in deer in the UK. In those countries where CWD exists, the mode of transmission is unknown. However, based on the pattern of distribution and development of the disease, transmission is thought to be from animal to animal and possibly from mother to offspring. There is no treatment or vaccine currently available for the disease, and control relies on good management practices. Experience in farmed elk in North America suggests that the disease has often been introduced through the movement of infected animals. Therefore, when purchasing stock it is always important to ask for details of the health of herds of origin.

Do I need to keep records?

Good farm records will be essential if a TSE is ever found to be present in deer in the UK. In line with good husbandry practices, up-to-date records of the herd's breeding and management history should be maintained together with detailed records of all movements.

The Tuberculosis (Deer) Order 1989 (as amended) requires that where farmed deer are to be tested for TB, or where they move off or are moved off a holding (whether alive or dead), the deer will require an eartag that includes a Defra herdmark or a British Farmed Deer Association mark plus an individual number. All movements must be reported to your local authority using an AML1 form.

The individual identification marks must be recorded on the form. The AML1 forms are available free from your local Animal Health Office. You should retain a copy of these documents for at least 6 months.

Contact details for Animal Health Offices can be found on the Defra website at:

<http://www.defra.gov.uk/corporate/contacts/ahdo.htm>

or in your local telephone directory.



Is there any risk to human health?

There is currently no scientific evidence that CWD affects humans. However, we must exercise caution because it is known that some TSEs can be transmitted between different species and, in particular, vCJD is believed to be associated with the consumption of products from cattle that were affected with BSE during the 1980s. With this in mind, only fit healthy animals should be slaughtered for human consumption as required under the Fresh Meat (Hygiene and Inspection) Regulations 1995. **In particular, products from animals showing any of the signs of disease described in this leaflet must not be consumed or sold for consumption.**

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