

BLUETONGUE IN CATTLE AND SHEEP

Bluetongue is a viral disease affecting sheep, cattle, deer, goats and camelids (camels, llamas, alpacas, guanaco and vicuña). Although sheep are most severely affected, cattle are the main mammalian reservoir of the virus and are very important in the epidemiology of the disease. Bluetongue is a notifiable disease in the UK and suspected cases must be reported immediately to the Divisional Veterinary Manager at the local Animal Health Office.

There are many different strains (serotypes) of Bluetongue with each given a number (currently up to 27). Animals that recover from infection with one serotype will be immune to that strain but not to others.

The virus is transmitted by biting midges of the genus *Culicoides* and not normally from direct contact with infected animals. Peak midge populations occur during the late summer and autumn in Europe and therefore this is the time when Bluetongue is most commonly seen. The midges can be carried very large distances on the wind (over 200km) and this has been the primary way Bluetongue serotypes are introduced into new areas.

Historically, Bluetongue has been confined to tropical and subtropical areas (Central Africa, South East Asia) but climate change and trade patterns have seen increasing outbreaks in temperate regions (including Northern Europe) in recent years with outbreaks of up to 9 different serotypes occurring in Europe over the last 10 years. The most significant of which was the BTV-8 outbreak in Northern Europe in 2006-2008. Bluetongue (of any serotype) is currently absent in the UK but there is a significant risk of it being re-introduced with midges blown over the English Channel from continental Europe during European outbreaks. In particular, the current circulation of BTV-8 in southern France (as of autumn 2017) is a major risk to the UK.

Clinical Signs

Bluetongue is characterised by changes to the mucous membranes of the mouth and nose, and the coronary band of the foot. Clinical signs are generally more severe in sheep but cattle can show signs of disease. A veterinary surgeon must be contacted by the farmer where large numbers of sheep or cattle present with lameness, high rectal temperatures, salivation, lacrimation and ocular and nasal discharges. Bluetongue is a notifiable disease in the UK.



Sheep

The clinical signs of Bluetongue, which vary depending upon viral strain and sheep breed, follow an incubation period of four to 12 days. Usually, only a small percentage of sheep develop clinical signs, however deaths in some flocks can be as high as 70%. In extensively managed flocks, unexplained sudden deaths may be the first evidence of disease. Animals that survive the disease can lose condition with a reduction in meat and wool production.

Affected sheep have a fever (up to 42.0°C) and appear stiff and reluctant to move. They often adopt an arched back stance with the neck extended and the head held lowered. There is swelling of the face and ears, and also pulmonary oedema which may cause breathing difficulties. Erosions may appear on the lips progressing to ulcers. There is often profuse salivation, and a serous to mucopurulent nasal discharge. There may be reddening of the coronary band, and around the muzzle and mouth. The tongue may become swollen and lack of oxygen may make the tongue and mucous membranes appear blue (hence the name of the disease). Though this does not always occur. Bluetongue can also cause pregnant sheep to abort and infection during the breeding season may result in a large percentage of early embryonic losses with sheep returning to oestrus at irregular intervals. Foetal deformities similar to those seen with Schmallerberg virus can also sometimes occur.

Cattle



Affected cattle are febrile (up to 40.0°C) and appear stiff due to swelling of the coronary band at the top of the hooves (coronary band) and are very reluctant to move. There is a serous to mucopurulent nasal discharge and erosions on the muzzle with sloughing of the mucosa. There is lacrimation but no obvious eye lesions. Mortality rates are usually much lower in cattle than in sheep

Control and prevention

Control of bluetongue is very difficult because of the large number of potential hosts and virus serotypes. While control is aimed at keeping susceptible animals away from the vector this is not always practical. Control of the midges can be attempted with pour-on insecticides but this is expensive and does not achieve total freedom from the midge. Movement restrictions on affected animals may help with reducing spread to disease free regions but given how far the midges can blow restricting stock movements is of limited use in outbreaks.

The main prevention for BTV is vaccination. The BTV-8 vaccines available in the UK are killed vaccines. It is important to realize that there is no cross-protection between serotypes; vaccination against BTV-8 will not protect against other serotypes of BTV. The vaccines also do not act immediately with cattle requiring two doses of vaccine (and at least 6 weeks time from the first vaccination) to be protected. Importing unlicensed vaccines is not advised as there have been several outbreaks of disease due to the use of live virus vaccines imported illegally from South Africa into Northern Europe, these may also not be the correct serotype.

In many countries the timing of vaccination will depend upon local factors, in particular the occurrence of high-risk challenge periods from infected midges. Large scale vaccination efforts were important in controlling the BTV-8 outbreak in 2006-8, the virus however probably continued to circulate at low levels (in both domestic and wild ruminants) and re-emerged in 2016-17 when large numbers of naive animals were present again in European herds and flocks. Recent studies have shown that a vaccination effort of > 95% of all susceptible animals for more than 5 years would be necessary to eliminate the virus altogether in Northern Europe. As this is unlikely to be achieved, monitoring of the current disease situation and choosing to vaccinate in advance of high risk periods is the only practical solution to preventing BTV at present.

Further information including frequently asked questions is available via the [Bluetongue website](#)

Farmers are reminded of the need to remain vigilant for signs of disease, and to carefully consider the risks and check the health status of any animals when sourcing from areas where BTV is known to be circulating. Anyone who suspects disease must report this to their [local Animal & Plant Health Agency office](#) immediately.

Should you require any further information please email animal.health@argyll-bute.gov.uk or telephone 01546 605519.