



Department
for Environment
Food & Rural Affairs

www.gov.uk/defra

GB Bluetongue Virus Disease Control Strategy

August 2014



Llywodraeth Cymru
Welsh Government



The Scottish
Government



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PB13752

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Movements of susceptible animals, embryos, ovum and semen in an outbreak under licence24

Introduction

1. This document sets out the disease control measures and policies we would consider and implement if bluetongue disease (BTV) was suspected or confirmed in farmed ruminants. These reflect changes in 2012 to the vaccination legislation, and the current knowledge about BTV and vaccines.
2. BTV is a notifiable disease of ruminants, including sheep, cattle, deer, goats and camelids (camels, llamas, alpacas, guanaco and vicuña). It is generally accepted that BTV does not cause disease in other animals or humans.
3. BTV is mainly spread by adult infected midges biting an animal susceptible to the disease. The time of year, i.e. whether during the active vector season (normally March-September), and meteorological conditions, i.e. temperature and wind direction, and the proximity and density of neighbouring farms are significant factors in the potential incursion and spread of this disease. The severity of the infection depends upon the strain of the virus and may be affected by serotype. There are currently 26 different BTV serotypes.
4. This document has been produced jointly between Scottish and Welsh governments and Defra, and in consultation with experts and industry stakeholders.
5. Responsibility for managing an outbreak in the countries that form the GB falls to the respective governments. However as BTV could spread irrespective of geographical and political boundaries, the approach to movement controls, restrictions, vaccination and managing an outbreak seeks complementary, consistent and coordinating measures across the whole of GB. The “GB and Northern Ireland Contingency Plan for Exotic Notifiable Disease” of Animals sets out the structures, roles, and responsibilities for a rapid and effective response to animal disease.¹
6. The disease control strategy includes good biosecurity and animal care, responsible sourcing of animals, monitoring of the disease situation in Europe and internationally, and having in place appropriate risk based import conditions and testing.
7. The control measures set out in legislation and this control strategy are aimed at preventing disease spread through managing risks and taking appropriate evidence based action at the right time. This control strategy is for government, stakeholders, industry, and anyone keeping an animal that is susceptible to BTV for any purpose.

¹<https://www.gov.uk/government/publications/great-britain-and-northern-ireland-contingency-plan-for-exotic-notifiable-diseases-of-animals>

Summary

BTV disease

8. BTV is difficult to spot. In sheep, clinical signs are similar to other notifiable diseases. Goats, cattle, and wild ruminants such as deer can appear healthy when infected. This can lead to silent spread by midges feeding on the infected animals. If farmers, animal keepers or vets have any concerns about any animal or carcass they must be reported as soon as possible to the local Animal Health Veterinary Laboratories Agency (AHVLA²) field services office. Early detection through vigilance, good biosecurity and prompt reporting are important aspects of getting the disease under control.
9. BTV is mainly spread by certain types of biting midges and causes production losses. An exception to this is vector-free transmission of BTV 26 between goats³. Some strains can cause significant mortality. For most virus strains there is little or no direct contact spread between live animals. BTV has no human health implications. It is not spread through carcasses or fomites, such as on vehicles. However, vehicles carrying infected midges could be a potential route of spread over large distances.
10. Disease is confirmed by positive laboratory tests. An outbreak is confirmed if there is evidence that BTV is circulating in susceptible animals.

Disease scenarios

11. As BTV could be a challenging infection or disease to address, as it is spread by midges, we have set out what actions could be taken in different disease scenarios concerning kept animals. The actual actions will depend on the circumstances of the outbreak and whether it occurred in the active vector season.
12. For all the scenarios we would need to take into account the availability and production of inactivated vaccines. It is unlikely that government would purchase stocks of vaccines for use in an outbreak.

² The AHVLA will become part of the combined Animal and Plant Health Agency from 1 October 2014.

³ Evidence for Transmission of Bluetongue Virus Serotype 26 through Direct Contact, Batten et al 2013, published May 2014, DOI: 10.1371/journal.pone.0096049

Disease scenarios and expected actions for kept animals

Scenario	Animal import		Vaccine mis-use	Midge borne	
	Import of BTV-1, 2, 4 or 8 (licensed inactivated vaccine available)	Import of other serotype	Mis-use of live or attenuated BTV vaccine e.g. BTV-6, 11, 14	Midge borne incursion BTV-1, 2, 4 or 8 (licensed inactivated vaccine available)	Midge borne incursion other serotype (no licensed inactivated vaccine)
Action					
Detection: horizon scanning; checks on health certificates; post import testing from current BTV areas.	Yes	Yes	No	Yes	Yes
Increase and maintain farmer awareness	Yes	Yes	Yes	Yes	Yes
Controls: Vaccination with inactivated vaccines	Yes	Not available at present	No	Yes	Not available at present
Vaccination with live vaccines	No	Probably not	No	No	Probably not
Monitoring & Surveillance of live animals	Yes	Yes	Yes	Yes	Yes
Culling of infected animal	Probably yes if limited number of animals and recently imported	Probably yes if limited number of animals and recently imported	Probably not	Consider for a limited number of animals e.g. on suspicion if thought to be index case. No if disease already circulating	Consider for a limited number of animals e.g. on suspicion if thought to be index case. No if disease already circulating
Movement restrictions on animals, carcasses, ovum, embryos, semen ⁴	Yes. May be only temporary.	Yes. May be only temporary.	Yes. Likely to be temporary until nature of vaccine strain is understood.	Yes	Yes
Export trade restrictions	Yes	Yes	Probably not	Yes	Yes
Vector mitigation e.g. pesticides, pour on treatments	Probably not	Probably not	No	Probably not	Probably not

⁴ Although there are some movement restrictions which may be put in place under national rules while determining the nature of the disease outbreak, there may be other restrictions imposed on us by the Commission and which may relate to trade as well as national movements.

Living with disease ⁵	No	No	Probably not	No	Yes
Exit strategy: Monitoring & Surveillance of vectors for disease freedom	Yes	Yes	Probably not	Possibly	Possibly
Monitoring & Surveillance of animals for disease freedom	Yes	Yes	Probably not ⁶	Possibly	Possibly

Disease control measures

Suspicion

13. If BTV is suspected a government veterinary inspector will serve a restriction notice prohibiting movements of ruminants from the premises and anywhere that susceptible animals may have been exposed to the disease.
14. A Temporary Control Zone (TCZ), of an appropriate size to contain disease, may be declared around the premises while veterinary investigations are carried out. No susceptible animals, carcasses, ovum, embryos or semen are permitted to move to or from any premises within this zone, except under licence issued by a veterinary inspector. The control zone is likely to be short lived.

Isolated cases of bluetongue virus

15. If infection is confirmed at the premises and there appears to be limited local spread e.g. on the farm and no evidence of widespread circulation of disease by midges, the relevant administration(s) are likely to try and contain and eradicate it by culling relevant ruminant animals. At this point it may not be necessary to introduce a control zone or a restricted zone (comprising protection and surveillance).

Confirmation (disease circulating)

16. If it is confirmed by laboratory tests and investigation that BTV is circulating beyond the local area and the local spread cannot be contained, the Chief Veterinary Officer (CVO) of the relevant administration will confirm that BTV is circulating and declare a control zone with movement restrictions around the infected premises. No-one will be allowed move a susceptible animal, carcase, ovum, embryos or semen to or from premises in a control zone.

⁵ Disease control measures to prevent the spread of disease is unlikely to have an effect but legislation requires zones to be in place.

⁶ Vaccine incident not considered an outbreak.

Restrictions to animal movement

17. If BTV is confirmed, a restricted zone, including a protection zone (with a radius of at least 100km) and a surveillance zone (with a depth of at least 50km beyond the protection zone) will be declared. The movement of susceptible animals, semen, ovum or embryos out of a restricted zone will be banned, except under licence (or a health certificate if to another Member State) to limit the risk of further spread.
18. Licence conditions will take into a range of account factors, as outlined in Annex 3 of the 1266/2007 and as amended by the Commission implementing regulation 456/2012.
19. Movements of susceptible animals may be permitted:
 - where the same serotype(s) is involved and animals show no signs of disease on the day of transport
 - within and between surveillance and protection zones

Vaccination

20. A risk assessment by the relevant government department will be carried out to assess the outbreak to review the existing general licences which permit the voluntary use of approved inactivated vaccines. Voluntary or compulsory vaccination under a specific or general licence, with approved inactivated vaccines for the disease serotype and susceptible animals is expected to be the appropriate control measure. If an inactivated vaccine is not available, vaccination with live attenuated vaccines may be licensed in exceptional circumstances in a vaccination/protection zone. No vaccination with live attenuated vaccine will be permitted in a surveillance zone or outside a zone. The protection zone must be the same size or larger than the vaccination zone.

Exit strategy

21. Surveillance, monitoring, epidemiological and risk assessments will be carried out and inform decisions to amend or ease area restrictions.
22. A provisionally BTV free zone may be declared following at least 1 year's monitoring and surveillance evidence that no virus serotypes are circulating in part of a restricted zone in the vector activity period (normally March-September). The application to the Commission will include information and results for this and another year.
23. For a disease freedom application three years evidence is required, and two of these must show that the virus has not been circulating the vector-activity periods (normally March-September). This could include the last year of surveillance when disease was circulating.

The disease

24. Bluetongue is an Office International des Epizooties (OIE) notifiable disease that has the potential for rapid spread with significant production loss for the sheep and cattle

industry and is of major importance to the international trade in livestock.

25. It is generally accepted that BTV does not cause disease in animals other than ruminants or humans. As a result, in a suspect or confirmed outbreak, there are no restrictions on activities like dog walking and horse riding, or trade in meat or meat products.
26. On confirmation by the relevant CVO that BTV is circulating in a part of the GB, the CVO(UK) will notify, within 24 hours of the disease being confirmed, the European Commission and the OIE Central Bureau. Government will provide information to animal keepers (and the public) about the zones and restrictions in place through government websites. Government is also required to provide a list of the restricted zone(s) and the relevant BTV serotype(s) circulating in that zone(s) to the EU Commission and other EU Member States.
27. Disease is caused by a virus spread by certain types of biting midges. When a midge bites an infected animal, the virus passes to the midge in the blood meal and in the right conditions the virus multiplies in the midge. When the midge bites another susceptible animal, the virus is transmitted and infection occurs. There is an amplification phase in the midge during which virus is not normally available to be spread to new mammalian hosts. The cycle of replication of the virus in the insect vector and in the susceptible host, results in an increase in the amount of BTV available to infect and spread to naive hosts. Infection from animal to animal does not normally occur without the vector phase, except transmission of BTV-8 which may occur across the placenta and BTV-26 between goats. Mechanical transmission of the virus by blood is possible between and within herds and can happen by unhygienic practices, e.g. use of contaminated surgical equipment or hypodermic needles. This route of transmission is believed to be of minor importance in the epidemiology of BTV.
28. Although susceptible animals are vulnerable throughout the warmer months of the year, the peak populations of the vector midge (various *Culicoides* species) occur in the late summer and autumn, particularly at dawn and dusk. It is estimated that midges can travel several kilometres a day in a local area. However, if caught in certain meteorological conditions they can be carried much farther distances, especially over water masses.

Signs of infection

29. Infection is not easy to distinguish from other notifiable diseases from clinical signs in sheep, while in cattle, camelids and goats clinical signs may be mild or severe, depending on the serotype and strain. As the midges prefer to bite cattle, they are the main mammalian reservoir of the virus, and are therefore very important in the epidemiology (the study of the patterns, causes, and effects of health and disease in defined populations) of the disease.
30. BTV clinical signs may be confused with other diseases, including other notifiable diseases such as Foot and Mouth disease, and any concerns must always be discussed with a private vet or the duty vet at your local AHVLA Regional office without delay.

31. Clinical signs shown by infected sheep may include eye and nasal discharges, drooling due to painful lesions in the mouth, a high temperature, lameness and respiratory problems. Highly virulent field strains can cause high case fatality rates in sheep (30-50%) which have not previously been exposed to the virus. In cattle a transient fever and loss of milk yield may be significant signs.
32. There is also the possibility of trans placental (transfer from mother to unborn young through the womb) transmission for BTV live-vaccine strains, serotype 8 and other serotypes causing foetal malformation and abortions.

Disease controls

33. Managing the risk of BTV disease primarily involves:

- reducing the likelihood of outbreaks by taking actions to prevent disease incursion by high-risk animals
- rapid detection and the implementation of appropriate control measures if incursion does occur
- surveillance, contingency planning and preparation to reduce the impact of such an incursion.

Prevention

34. Important preventative measures are responsible sourcing of susceptible animals by checking their health and vaccination status, vigilance by animal keepers about the health of their animals and animal keepers discussing any concerns with their vet promptly. Anyone keeping an animal must notify any suspicion of notifiable disease. This will be investigated by government veterinary inspectors.
35. Government's surveillance for BTV (and other exotic notifiable diseases) includes international disease monitoring to identify any significant changes in the level of threat of disease introduction through trade and other high risk pathways to the UK livestock population.
36. When there is a significant increase in risk, Government will inform stakeholder organisations so that they can consider appropriate measures. Assessments are available at: <https://www.gov.uk/government/collections/animal-diseases-international-monitoring>

Vaccination in areas without bluetongue restrictions

37. Animal keepers in GB are currently permitted, under general licence, to voluntarily vaccinate their animals with inactivated vaccines, with a European Medicines Agency authorisation, for BTV serotypes 1,2,4 and 8 (cattle and/or sheep) outside of a restricted zone.
38. The general licences allow animal keepers to decide, for example before the start of the vector season whether precautionary vaccination is worthwhile.

39. In an outbreak a risk assessment would be produced and a revised general or specific vaccination licence issued.

Intra-community and third country trade

40. To avoid unnecessary disruption to trade in ruminants and to detect possible incursions of disease, a sustainable monitoring and surveillance strategy has been developed.

41. All live animals dispatched for trade are subject to a veterinary check no more than 24 hours prior to departure and are accompanied by a health certificate. Documentary and identity checks, pre-export, post-import and artificial insemination centre surveillance samples are carried out on a risk basis and samples are tested at the national reference laboratory (see Annex 1).

42. Imports of live animals of EU origin have risk based post-import checks and tests completed in accordance with Directive 90/425/EEC. For third country trade all animals are subject to a documentary, identity and physical check at the border inspection post. Post import tests are carried out on a pre-determined proportion of consignments. The tests will be within 10 days of arrival or in line with a specific timescale where required. Tested animals remain on the first premises of destination until negative results are received.

43. The risk assessment for active laboratory-based surveillance will be informed by the ongoing international monitoring and assessments of BTV outbreaks, the outcomes of post import tests, resources and cost-benefit analysis.

44. If additional surveillance is appropriate, an annual programme of monitoring or surveys, or targeted monitoring and surveillance would be considered in compliance with Commission Implementing Regulation 456/2012.

Stages of an outbreak

45. EC Directive 2000/75/EC determines that BTV is confirmed when the relevant CVO, based on laboratory results, declares that BTV is circulating in a specific area on the basis of clinical and/or epidemiological results. Until then, while suspicions or isolated cases are being investigated, steps will be taken to minimise the possible spread of disease.

Disease control objective

46. If BTV is detected, the key objective is to ensure a swift and effective response to the incident, rapidly assessing and closing down all risk pathways to livestock and resolving uncertainties as quickly as possible. Governments' aim is to prevent the spread of infection through proportionate and evidence-based control measures which also:

- Protect public health and safety
- Eradicate the disease and regain disease free status

- Safeguard the health and safety of those involved in controlling the outbreak
- Minimise the burden on the taxpayer and public as well as the economic impact on the agricultural industry.

47. In achieving this aim, in accordance with the “GB and Northern Ireland Contingency Plan for Notifiable Exotic Diseases of Animals”, the disease control strategy primary aims are to protect public health and safety and restore the UK disease free status as quickly as possible. In doing so, government would select control strategies which, so far as is possible consistent with the overall aim:

- Keep to a minimum the number of animals that have to be destroyed, either for disease control purposes or to safeguard animal welfare
- Ensure that if animals do have to be destroyed it is carried out humanely
- Minimise the adverse impacts on animal welfare, the rural and wider economy, the public, rural communities and the environment.

Suspicion of infection

Veterinary inquiry of suspect premises

48. In response to the notification of suspicion of BTV a veterinary investigation will be conducted by government. Where there is a suspect case, owners of livestock are informed to observe restrictions on their premises pending the arrival of the government veterinarian. If disease cannot be ruled out on clinical grounds, samples from susceptible animals (defined as all ruminants) will be submitted for laboratory testing at the national reference laboratory.

49. An inventory of all animals on the premises will be produced by the veterinary inspector. This would include information on:

- all animals by species clinically affected, dead and clinically normal
- veterinary history of the herd/flock, e.g. medicine use, including use of inactivated vaccines
- movements of BTV-susceptible animals on to and off the suspect premises in the previous 60 days and contact premises
- possible vector breeding sites.

Restrictions

50. The suspect premises will be placed under restrictions through a notice issued by the veterinary inspector. A notice may also be served on premises that may have been exposed to infection. Movement of ruminant animals, ovum, semen or embryos on to or off the premises will be prohibited pending the results of the laboratory tests. Movement of susceptible animals on the premises will be as directed by the veterinary inspector. The premises and animals may be subject to midge control measures as specified in the notice. In the event of welfare issues which require movement of animals, certain licensed movements may be permitted under veterinary supervision.

51. A Temporary Control Zone (TCZ) may be declared of a size that is considered necessary to prevent the potential spread of disease. In the TCZ animals cannot be moved on to or off premises except in accordance with a licence issued by the veterinary inspector. The movement controls are likely to have an impact on trade. It is unlikely that a TCZ would be declared at the suspicion stage when the premises was under restrictions and the sample test results were awaited.

Outcome of investigation of suspect premises and animals

52. There are two possible outcomes:

- BTV is not confirmed - restrictions would be lifted
- BTV is detected in the animal(s) tested.

52. If BTV is detected, the national reference laboratory would conduct further testing to isolate and identify the serotype of the virus. Molecular epidemiological techniques would be employed to determine whether the virus sequence matches that of another BTV virus circulating elsewhere to determine the likely geographical origin of the virus.

53. An Amber Teleconference, chaired by the CVO UK and attended by government is likely to be arranged at this time to apprise all concerned of the developing situation, to assess the risks and agree next steps. Government will also inform relevant industry stakeholder organisations. Potentially multiple serotypes could be found and the teleconference would consider this, and the engagement of experts. A TCZ may be declared following this meeting.

54. If virus has been detected from an animal or animals following notification of suspicion, a notice may be served by the veterinary inspector to confirm BTV infection on the premises.

55. A BTV disease outbreak is confirmed by the relevant CVO when investigations demonstrate that virus is circulating, and further controls may be needed. A range of evidence is needed to determine this.

56. On premises where BTV was detected the following will be considered:

- clinical inspections and examinations of the herd/flock
- further testing/surveillance of herd/flock to establish the within herd/flock prevalence of the virus
- post mortem examination for confirmation of infection
- cleansing and disinfection
- an epidemiological assessment aimed at identifying likely time of introduction to premises and likelihood of onwards spread
- insect collection on the premises and submission to the national reference laboratory for identification. This would be carried out by specialist staff
- slaughter of susceptible animals as a control measure. The decision would be taken by the relevant CVO (or Ministers in Scotland) and would take account of the available epidemiological information and the veterinary risk assessment of the infected premises. Compensation would be paid for animals destroyed for the purpose of disease control and diagnosis, unless they are slaughtered because of non-compliance with import requirements

- a tracings exercise of BTV-susceptible animals on to and off the premises in the 60 days prior to the first identified infected case (unless epidemiological assessment prescribes a longer or shorter period); and, if the infected animals have moved in this period, from the original premises

57. On premises where susceptible animals are traced to, the following actions would normally be taken:

- clinical examination of traced animals
- submit samples from traced animals for laboratory examination
- review the clinical history and movement/medicine use records of the herd/flock
- subsequent retesting may be undertaken on the traced animals and any other animals on the premises
- movement restrictions on susceptible animals through a notice and possibly a TCZ.

58. To identify if disease was circulating and to what extent the following factors would be considered:

- targeted surveillance of susceptible species for epidemiological assessment and clinical investigation. Priority would be given to the largest cattle farms up to 3km from the premises where BTV was detected
- assess potential long distance spread. Prioritise investigations on tracing premises furthest from suspect premises, and in particular those involving cattle movements (as most likely hosts)
- the season and time of the year
- the recent pattern of cattle movements in the surrounding area
- serological or virological surveillance of bovine/ovine animals
- the potential role of wild ruminants e.g. deer
- collection and identification of vectors by the Pirbright Institute to assess populations and presence of the *Culicoides* species at the suspect premises or in the area. It is unlikely that a single vector type would be identified, as previous UK surveys show multiple vectors at most surveyed sites.

Meteorological Surveillance

59. The Met Office monitor meteorological conditions on a daily basis and this is likely to be used to assess the past and ongoing potential for windborne spread of BTV infected vectors to areas of GB.

60. For areas identified as high risk, Government would advise a heightened state of vigilance from 7-10 days after the potential 'incursion' date to look out for any signs of disease amongst susceptible animals.

Expert assessment

61. An epidemiological assessment will be carried out by the National Emergency Epidemiology Group (NEEG) to provide advice through the National Experts Group.

62. The National Expert Group provides GB policy teams and CVOs with specific veterinary, technical and scientific advice and recommendations on the disease, its

transmission and effective and proportionate options for its control. Depending on the issue under discussion attendees may include modelling experts, meteorologists, economists, scientific or veterinary representatives of Imports and Exports Portfolios and scientific experts in required fields, e.g. vector biology. These can be from within Government, its agencies or from external organisations, e.g. wildlife expert groups, academia.

63. Following investigation, gathering of sufficient evidence, and expert assessment the relevant CVO would decide whether:

- circulation of BTV has not been found and an outbreak isn't confirmed. In other words BTV has been isolated to the animal or animals for which disease suspicion was notified and there is no evidence of vector transmission in the GB between them and onward circulation of disease.

64. Possible examples are:

- the import of one or several ruminants from a holding that were already infected, which have been kept indoors and promptly slaughtered
- vaccinated or seropositive animals from restricted zones. Depending on circumstances, an epidemiological report may be sent to the Commission supporting the conclusion that disease is not circulating

65. A BTV disease outbreak is confirmed as the virus has been found to be circulating.

Confirmation of disease

66. The disease is spread by infected midges which cannot be controlled and can spread locally and more widely in certain temperatures and wind conditions. The main measures are expected to be movement controls and restrictions for susceptible species in relevant areas to reduce the opportunity for vector transmission between herds. If available, animal keepers may be encouraged or required to vaccinate their animals with inactivated vaccines. Once BTV is in the midge population the culling of susceptible animals is unlikely to be a proportionate or effective control measure.

67. Once circulation of disease is confirmed, decisions on the following measures are likely to be taken to minimise the impact of BTV in GB:

- Identification and monitoring of BTV infected premises
- Maintain controls (as at suspicion stage) on infected premises
- Declare appropriate areas to be a Control Zone (which must include the infected premises) and a Restricted Zone (made up of a Protection Zone and Surveillance Zone).
- Targeted movement controls and other restrictions in the Control Zone and Restricted Zone to prevent the spread of BTV by infected animals, semen, ovum or embryos in areas of greatest risk. This could include pre-movement testing or a total movement ban
- Surveillance and testing in the Protection Zone to monitor any change in distribution of BTV and vectors (where considered necessary)

- Epidemiological and economic modelling to develop control strategies and mitigation actions
- Voluntary or compulsory vaccination with inactivated vaccines and/or live vaccines in Vaccination/Protection Zones in areas of greatest risk.
- Culling of susceptible animals
- Cleansing and disinfection of vehicles to be loaded with susceptible animals to allow for transport to or from a restricted area
- A communication programme to inform owners/keepers of susceptible animals, veterinarians and other stakeholders of the disease situation and measures being implemented e.g. vaccination, and to provide advice on clinical signs of disease and vector mitigation measures

Zones

68. Control zones will have a radius that is appropriate for disease control purposes of at least 20km around an infected premises.

69. A Restricted Zone may consist of:

- Protection Zone with a radius of at least 100km (but with flexibility to adjust according to epidemiological circumstances) declared around the infected premises
- Surveillance Zone with a radius of at least a further 50 km (but with flexibility to adjust according to epidemiological circumstances) declared around the Protection Zone. No vaccination with live attenuated vaccines is permitted in the surveillance zone. When a surveillance zone is identified it must not contain any land where animals have been vaccinated with live attenuated vaccines against bluetongue in the previous twelve months

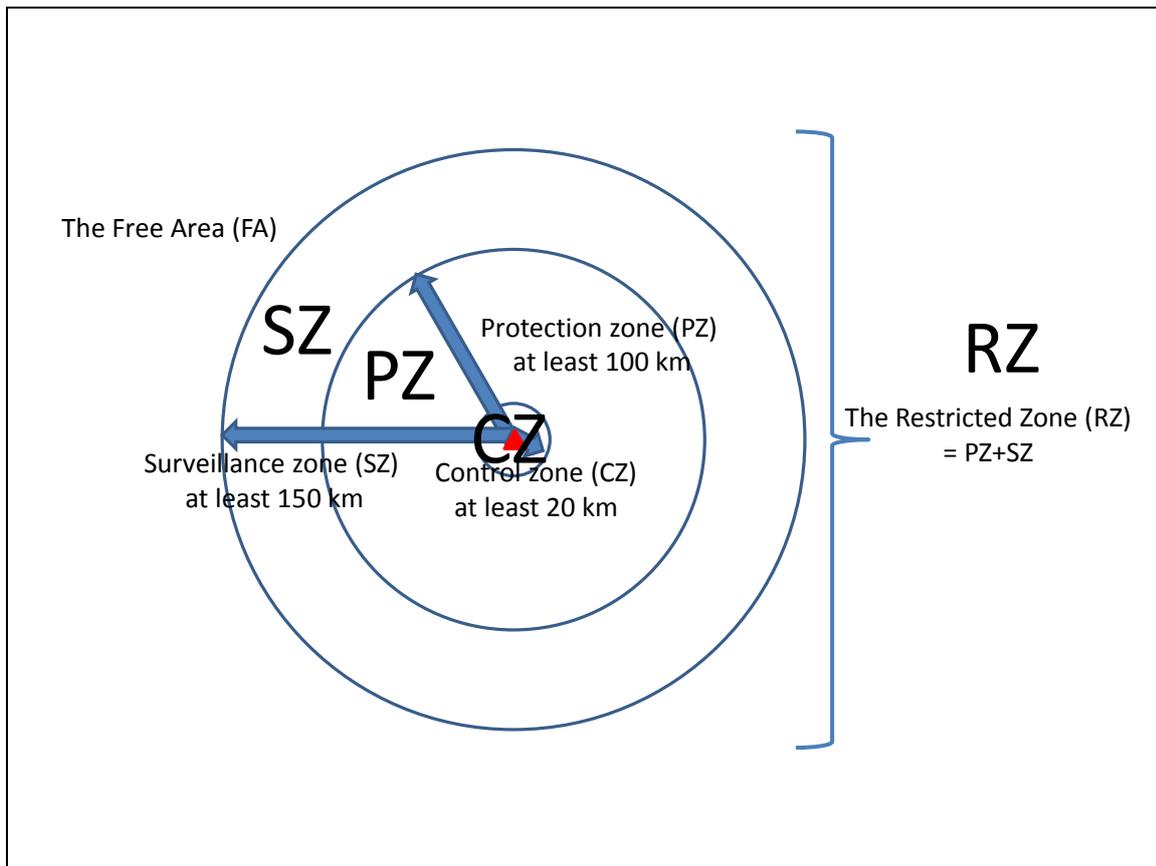


Illustration of the relationship of disease control zones

70. The size of the zones, which are centred around the infected premises, will take account of geographical barriers, whether or not individual or multiple serotypes are circulating, and the circumstances of the outbreak. Where they overlap and could be combined a practical and proportionate approach will be taken. It is expected that zones will be declared on both sides of the borders between England and Wales, and England and Scotland.
71. Due to the size of the zones, substantial areas of the GB may be within the restricted zone and subject to movement restrictions irrespective of where BTV is confirmed. The nature of the UK sheep and cattle industry means that at certain times of the year movement of breeding or fattening stock would be restricted to control the spread of disease and infection. This could have welfare impacts.
72. There may be occasions when it is proportionate to extend the boundaries of a zone to minimise the impact of the restrictions on industry e.g. to provide access to a slaughter house. This may mean the Restricted Zone could cover the whole country as part of the strategy to keep the impact of movement restrictions proportionate to the disease situation.
73. Alternatively a slaughter house may be designated to receive animals transported under a licence out of a restricted zone, or from a protected zone to a surveillance zone. In such cases the operator of the slaughter house must slaughter the animal(s) within 24 hours of arrival. It may also be necessary to restrict the times when animals can be transported to minimise exposure of possibly infected livestock to uninfected midges.

74. The boundaries of the Restricted Zone may be increased in size in response to disease spread in order to maintain the minimum boundaries of the Protection Zone and Surveillance Zone.
75. The boundaries may also be amended by the European Commission after consideration of results of investigations and surveillance submitted by the UK .

Bluetongue restriction zone(s) in another EU member state demarcated such that they extend to GB

76. During the 2006 BTV-8 outbreak in northern Europe, parts of south east England were effectively within 150km of infected premises on the Belgian coast. In the European Commission, the UK successfully achieved exclusion from the zones because of geographical reasons, passive surveillance work being undertaken (i.e. post-import testing), and pro-active stakeholder awareness raising. Government would in future continue to seek to avoid zones declared in other countries in the EU being extended to include parts of the UK, but this is dependent on EU agreement and the disease situation.

Measures within the Zones

Registration of premises

77. There are existing statutory requirements for all premises with susceptible animals to be registered with their local AHVLA office. Any unregistered premises that have susceptible animals (temporarily or permanently) will have to be identified and recorded. These registers will be used for investigation and surveillance activities within the Restricted Zones.

Movement restrictions

78. The broad principle of permitting animal movements between areas/countries with BTV outbreaks is that susceptible animals can only freely move between free areas, or BTV zones for the same BTV serotype. If a susceptible animal is to move from a BTV zone to a free area or to a BTV zone for a different serotype then various criteria need to be met to ensure that the animal is not incubating or infected with BTV, such as a pre-movement inspection.
79. Bluetongue legislation requires controls on movement of susceptible animals, semen, ovum and embryos to reduce the risk of the disease spreading.
80. No movements of ruminants are permitted to or from premises in a Control Zone.
81. However some limited movements may be permitted:
- within a restricted zone for the same BTV serotype or serotypes unless the animal shows clinical signs of bluetongue on the day of transport
 - out of a Protection Zone to a Surveillance Zone

- out of a Surveillance Zone
- out of a restricted zone under the authority of a licence, or a health certificate for intra community trade or export to a third country, issued by the competent authority.

82. The requirements for the movement of animals, semen, ovum and embryos to and from restricted zones are set out in Commission Regulation 1266/2007 as amended by Commission implementing regulation 456/2012, and summarised below. Movements to provisionally free areas from restricted zones also have to meet the requirements of these Commission regulations.

83. If any animals have been moved to a premise outside of a restricted zone, a notice prohibiting further movement, except under licence, may be issued.

Movement of susceptible animals and products from restricted zones

84. Animal movements of susceptible species, their semen, ovum and embryos, within and from BTV restricted zones to another EU Member State for intra-community trade, are banned unless they meet Article 8 and the exemption conditions set out in Annex III of Regulation 1266/2007, as amended by Regulation 456/2012.

85. If susceptible animals are transported from or through a restricted area during a recognised seasonally vector free period the vehicle does not need to be cleansed and disinfected. This period is to be determined through an active annual programme of vector catching, monitoring and surveillance in relevant geographical areas. The requirements for the vector traps are set out in Commission implementing regulation 456/2012 Annex I (4), and the criteria are in Commission Regulation 1266/2007 Annex V.

86. In May 2012, the EU amended the implementing regulations concerning the control, monitoring, surveillance and movement restrictions for susceptible species from restricted zones. The exemptions, broadly for animals that are vaccinated, laboratory tested (for virus or for antibodies), naturally immune or have been protected against vectors, are based on risk analysis, the destination, and health requirements guaranteeing the safety of the animals. Of note is that vaccination or immunity to one serotype does not protect the animal against another serotype.

87. For certain susceptible animals, e.g. from zoos, for conservation and welfare reasons, moving from restricted zones, we require that they meet one of the amended vaccination conditions 5-7 of Annex III of Commission Implementing Regulation 456/2012. For some imports or exports we may make bilateral arrangements for animal movements e.g. goats where cascade vaccination is in place. One reason for this is that the vaccines available are not licensed for goats so these animals do not conform totally with Regulation 1266/2007.

88. In summary, susceptible animals must have been protected against attacks by the vector during transportation to the destination and meet one of the following criteria:

1. The animals were in a zone that is seasonally free of bluetongue vectors for at least 60 days prior to the movement and had a negative agent identification test,

up to 7 days before the movement. If at least three years of monitoring substantiate the seasonally vector-free period, an agent identification PCR test is not required

2. They have been protected against attacks by vectors in a vector protected establishment for at least 60 days prior to dispatch. The criteria for vector protected establishment are set out in Commission implementing regulation 456/2012 Annex II. Guidance is available at http://ec.europa.eu/food/animal/diseases/controlmeasures/docs/guidance_document_vpe_7068_2012_en.pdf

Given the cost of providing vector protected establishments it is likely that the relevant exemptions will be used only for high value susceptible livestock or Artificial Insemination centres.

The competent authority has to approve the establishment and has to monitor, by a vector trap, at least 3 times during the period, the effectiveness of the measures

3. The same as 1 and 2, but for at least 28 days prior to despatch and having had a negative serological test at least 28 days after the start of protection or the seasonally vector-free period
 4. The same as 1 and 2, but for at least 14 days prior to despatch and had a negative agent identification test at least 14 days after the start of protection or the seasonally vector-free period
 5. The animals have been vaccinated against the serotype(s) present or likely to be present in the epidemiologically relevant geographical area of origin, the animals are within the immunity period guaranteed for the vaccine and meet at least 1 of 4 other conditions
 6. The animals were always kept in an epidemiologically relevant geographical area where not more than 1 serotype was or is present or is present or likely to be present, and they were subject to 2 positive serological tests to detect antibodies to that serotype either, between 60-360 days and not earlier than 7 days before the date of movement or a positive serological test to detect antibodies to that serotype at least 30 days and a negative agent identification test not carried out earlier than 7 days before the date of movement
 7. The same as 6, but for specific antibodies against all BTV serotypes present or likely to be present
 8. For pregnant animals being moved from a restricted zone for BTV-8, at least 1 of the conditions in points 5, 6, and 7 must have been complied with before insemination or mating, or the conditions in point 3 must be complied with. For point 3 a serological test is not to be carried out earlier than seven days before the date of movement
89. Animals have to have health certificates from the competent authority which set out the relevant condition(s).

Susceptible animal semen, ovum and embryos

90. Semen, ovum and embryos have to be obtained from donor animals which comply with at least 1 of the above conditions of EC 1266/2007 Annex III as amended by the Commission implementing regulation 456/2012.

Susceptible pregnant or new born animals

91. Precautionary import controls for the movement of pregnant animals from BTV serotype 8 restriction zones, to prevent spread by pregnant or new born animals, are set out in amendments to Annex III 7(3) of Commission Regulation 1266/2007 by the Commission implementing regulation 456/2012. These require compliance with the criteria of 5, 6 or 7 above before mating or insemination, or criteria 3 but within 7 days of the movement.

Vaccination

92. While the UK is a BTV free area, in GB following specific risk assessments in 2012, General Licences were published by government to allow farmers to vaccinate their animals on a voluntary basis with inactivated vaccines for serotypes 1,2,4 and 8 which have a Marketing Authority at EU level.⁷

93. However, if BTV disease was confirmed a new specific risk assessment would be produced to determine a new specific or general vaccination licence.

94. If supported by a risk assessment the new government licences:

- may permit a voluntary approach to vaccination with authorised inactivated vaccines
- or may make vaccination compulsory in a declared vaccination zone. In this case any occupier of a premises or keeper of animals would be required to vaccinate their animals with authorised inactivated vaccines or possibly live attenuated vaccines. and comply with any other measures concerning vaccination or vaccine in that declaration. A notice may also be served by a veterinary inspector to ensure relevant animals are vaccinated

95. The inactivated BTV vaccines e.g. for serotypes 1,2,4 and 8, with marketing authorisations granted by the European Medicines Agency, may well be licensed as a disease control measure. Depending on the availability of the relevant vaccines we may identify priority areas for vaccination or for a specific time period.

96. If another serotype was found we would consider whether to use, if it was available, a live attenuated vaccine in protection zones, and the risks associated with this. Vaccination with live attenuated vaccines is not permitted in surveillance zones and such a zone must not include any animals that have been vaccinated with live attenuated vaccines in the previous 12 months.

⁷ <http://www.defra.gov.uk/ahvla-en/2012/10/01/update-use-vaccination-against-bluetongue-across-gb/>

97. The size of the vaccination zone is expected to be based on the available epidemiological evidence from investigations, surveillance and monitoring, and advice from the national experts group and core groups. For live attenuated vaccines, the protection zone is to be at least the size of the vaccination zone.

98. The Commission would need to be informed before vaccination started.

Stakeholder awareness and communication

99. For each outbreak or incident of any exotic notifiable disease of animals it is important that there are effective, timely and accurate communications. Appropriate communication tools, such as websites, AHVLA's mass messaging service and social media, will be used to assist in reducing the impact and spread of disease. Declarations and licences will be published on government websites.

Recovery

100. One of the key elements of the recovery phase following an outbreak or incident of BTV is to have a clear strategy and plan to eradicate disease and demonstrate its absence. This is essential to regain disease freedom on a Great Britain and Northern Ireland basis and resume normal trading as quickly as possible.

Attaining Bluetongue-free Country or Zone status

101. To regain disease free status we need to demonstrate the absence of BTV serotype(s) circulation through monitoring and surveillance programmes.

102. The OIE Terrestrial Animal Health Code sets down the rules for the recovery of disease free status at http://www.oie.int/eng/normes/Mcode/en_chapitre_2.2.13.htm

Provisionally free area

103. A provisionally BTV free zone may be declared, and restrictions reduced, following at least 1 year's monitoring and surveillance evidence that no virus serotypes are circulating in part of a restricted zone in the vector activity period (normally March-September). The application to the Commission will include information and results for this and another year.

104. The information must include a description of the surveys, the type of diagnostic test, the species sampled, the number of samples per species, their geographical coverage, the frequency and timing of sampling, and the number of

positive results by animal species and geographical location. If pools of sera⁸ are tested we would need to estimate and report on the corresponding number of animals.

Disease freedom

105. For a disease freedom application three years evidence is required, and two of these must show that the virus has not been circulating the vector-activity periods (normally March-September) This could include the last year of surveillance when disease was circulating. The same information as for a provisionally free area must be provided.
106. Although the monitoring and surveillance programme is expected to reflect the epidemiology of the disease outbreak, the minimum sample size has to be able to detect a prevalence of 5% with 95% confidence. The required relevant area is a grid 45km by 45km (approximately 2,000 km²), unless specific environmental conditions justify a different size. At least 1 administrative region, e.g. a county is to be included in this area.
107. The Restricted Zone will remain in place and measures will continue to be implemented until amended or repealed by the relevant administration with the approval of the Commission.

⁸ Blood samples for presence of antibodies are the standard method of carryout surveillance for BTV over a large number of animals . The serum from the sample from each animal sampled can be pooled with others and the resulting batch tested.

Annex 1

National Reference Laboratory

Role

The National Reference Laboratory for BTV is: The Pirbright Institute, Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF.

This laboratory has also been designated by the European Community as the Community Reference Laboratory for bluetongue (Directive 2000/75/EC, Annex II), and by the OIE as a World Reference Laboratory for bluetongue.

In this role, the Pirbright Institute is responsible for:

- Maintaining a capability of performing the tests required to confirm a diagnosis of BTV and typing of the BTV involved
- Maintaining a supply and quality of diagnostic reagents for BTV
- Undertaking testing of vaccines for BTV if required by a commercial partner
- Assessing the vector competency of the *Culicoides sp.* from areas where BTV is present
- Organising comparative testing with other laboratories within the European Union at regular intervals to assess the sensitivity and specificity of the diagnostic procedures being used
- Preserving isolates of BTV isolated from cases in the UK, EU and worldwide
- Undertaking molecular epidemiological investigations to determine the origin of virus incursions
- Provide advice on the disease and suitable people for National Expert Groups that may be established to advise on BTV planning and control.

National laboratory for bluetongue vector (*Culicoides sp.*) entomology

The national laboratory for bluetongue vector (*Culicoides sp.*) entomology is also the Pirbright Institute.

The *Culicoides* vector entomology reference laboratory is responsible for:

- Providing staff to collect vectors and, if required, to train others in vector collection
- Identification of insects collected to determine *Culicoides sp.* acting as vectors
- Advice on the ecology and control of the vectors.

At present laboratory tests at licensed laboratories are the only way to confirm BTV is circulating in an area.

Annex 2

Legislation

The strategy reflects various pieces of EU and domestic legislation which set out the control, monitoring, surveillance, movement restrictions, and vaccination requirements. At the time of publication these were:

England

- The Bluetongue (Amendment) Regulations 2012/1977 These transpose Directive 2012/5/EU
- The Bluetongue Regulations 2008/962. These regulations implement Council Directive 2000/75 and enforce Commission Regulation 1266/2007
- The Bluetongue Compensation Order 2007/2996

Scotland

- The Bluetongue (Scotland) Order 2012 No. 199. This Order implement Council Directive 2000/75 and enforces Commission Regulation 1266/2007

Wales

- The Bluetongue (Wales) Amendment Regulations 2012. These regulations implement the vaccination requirements of EU Directive 2012/5/EU of 14 March 2012 which amended Council Directive 2000/75/EC
- The Bluetongue (Wales) Amendment Regulations 2008. They amend the Bluetongue (Wales) Regulations 2008 so as to replace a reference to “the Secretary of State” with “the Welsh Ministers” in regulation 17`
- The Bluetongue (Wales) Regulations 2008. These Regulations implement Council Directive 2000/75/EC and enforce Commission Regulation (EC) No. 1266/2007
- The Bluetongue (Wales) (Compensation) Order 2007. This Order make provisions for compensation to be paid in respect of an animal affected / suspected of being affected / exposed to the infection of BTV which are slaughtered under section 32 of the Animal Health Act 1981

EU

- Council Directive 2000/75 laying down specific provisions for the control and eradication of bluetongue
- European Commission regulation 1266/2007 implementing the rules of Council Directive 2000/75 as regards the control, monitoring, surveillance and restrictions on movements of certain animals of susceptible species in relation to bluetongue
- European Parliament and Council Directive 2012/5 of 14 March 2012 amending 2000/75 as regards vaccination against bluetongue

- European Commission implementing regulation 456/2012 of 30 May 2012 as regards the control, monitoring, surveillance and restrictions on movements of certain animals of susceptible species in relation to bluetongue
- European Commission implementing regulation 497/2012 of 7 June 2012 as regards imports of animals susceptible to bluetongue from third countries

Annex 3

Movements of susceptible animals, embryos, ovum and semen in an outbreak under licence

	To Control Zone (CZ)	To Protection Zone (PZ)	To Surveillance Zone (SZ)	To Free Area (FA)
From CZ	No animal moves allowed ⁹	No animal moves allowed	No animal moves allowed	No animal moves allowed
From PZ	No animal moves allowed	Animal moves allowed between zones with the same serotype and providing no clinical signs on day of transport	No animal, semen, ovum, embryos moves allowed except for those: that meet the criteria in Annex III of Directive 1266/2007 and amendments of Commission implementing regulation 456/2012 that meet animal health guarantees for slaughter within 24 hours ¹⁰	No animal, semen, ovum, embryo moves allowed except for those: that meet the criteria in Annex III of Directive 1266/2007 and amendments of Commission implementing regulation 456/2012 that meet animal health guarantees for slaughter within 24 hours
From SZ	No animal moves allowed	Moves allowed	Animal moves allowed between zones with the same serotype and providing no clinical signs on day of transport.	No animal, semen, ovum, embryo moves allowed except for those: that meet the criteria in Annex III of Directive 1266/2007 and amendments of Commission implementing regulation 456/2012 that meet animal health guarantees

⁹ Article 12 Bluetongue Regulations 2008/962

¹⁰ Article 14 Bluetongue Regulations 2008/962

				for slaughter within 24 hours
From FA	No animal moves allowed	Moves allowed	Moves allowed	Moves allowed. A licence is required if involves transit through a restricted zone.