Updated Outbreak Assessment #11

Bluetongue Virus in Europe

4 September 2024

Disease report

Since our last report on 8 August 2024, bluetongue virus serotype 3 (BTV-3) has been detected in Great Britain. The first case was confirmed on 26 August. As of 4 September, there have been 15 cases of BTV-3, all located in East Anglia. These premises were located in the coastal areas of Norfolk and Suffolk. The affected farms had no recent movements of livestock onto the premises. As of 4 September the counties of Norfolk, Suffolk and Essex are under restriction and 3 vaccines were approved for emergency use in the high-risk counties of Great Britain (England, Scotland and Wales).

On the Continent, there has been continued spread of BTV-3 throughout Belgium, the Netherlands, Luxembourg and Germany, with reports across the entire of these countries. In France, there has been rapid spread of BTV-3 towards the west and south of the country. On 9 August 2024, BTV-3 was detected for the first time in the municipality of Tender in Denmark, which borders Germany. Since the initial detection, BTV-3 has spread northwest in Denmark. On the 30 August, Switzerland reported 3 detections of BTV-3 for the first time. These reports were located in the northwest near the French and German borders.

Since the beginning of August, the new strain of BTV-8 (BTV-8-2023) has continued to spread northwest and east. There have been reports of BTV-8-2023 in many of the departments in France which border Switzerland and Italy. A World Organisation for Animal Health (WOAH) report was published on the 30 August for BTV-8 in Switzerland. This is the first time since 2020 that Switzerland has reported BTV-8. The outbreak is located in Vaud which borders France.

On the 20 August Italy also reported the first detections of BTV-8 in the northeast since 2010. There have been 21 outbreaks all located in the northeast of Italy near the border of France. In the south there have been detections of BTV-4, these are the first reports of BTV-4 on the mainland since November 2023. In Sardinia, there has also been an increase in the number of reports of BTV-3, BTV-4 and BTV-8 since our last report in August. In Greece, there have been no detections of BTV-16 or BTV-4 since August. Finally, there have been no updates for the BTV-8-2023 situation in Spain or Andorra.

With many reports across Europe, and further spread and incursion into new countries along with suitable temperatures for disease transmission and vector activity, the risk of new incursions of BTV into Great Britain has been increased to HIGH (occurs very often). The risk of incursion via infected airborne Culicoides is variable and dependent on specific meteorological conditions. This risk is assessed collaboratively between APHA, Met Office and The Pirbright Institute, with the risk levels and appropriate nuance reports published on GOV.UK.

Situation assessment

Vaccination status

Germany, Belgium and the Netherlands approved towards the end of April 2024 3 commercial vaccines (BULTAVO 3, BLUEVAC-3 and Syvazul) for emergency use. (PEI 2024, NVWA May 2024, FAMHP 2024). These are inactivated vaccines which can be used in sheep and cattle. The onset of immunity occurs between 21 to 28 days after vaccination for all 3 vaccines (Boehringer Ingelheim 2024, CZ vaccines 2024, Syva 2024). But the duration of immunity has not been clearly established (PEI 2024, Syva 2024). The vaccines do not prevent the infection but are stated to prevent mortality, as well as reduce viraemia and clinical signs (Boehringer Ingelheim 2024, CZ vaccines 2024, Syva 2024). As of the 5 August, France has approved the emergency use of BULTAVO 3 and BLUEVAC-3 (French Ministry of Agriculture and food sovereignty August 2024). This is a dynamic situation, it is currently difficult to comment on the effectiveness of vaccination campaigns.

On the 9 August, Luxembourg started administering the BULTAVO 3 vaccine, vaccination is voluntary (<u>PAFF Luxembourg 2024</u>). On the 19 August, Denmark approved the emergency use of BULTAVO 3 and vaccination is voluntary (<u>PAFF Denmark 2024</u>). There is currently no approved vaccine against BTV-3 in Switzerland (<u>FSVO 2024</u>).

On 4 September, Great Britain permitted the use of 3 unauthorized BTV-3 vaccines (vaccines (BULTAVO 3, BLUEVAC-3 and Suvasu) subject to license. Available licenses to allow use will either be geographically targeted general licenses, initially in high-risk counties as part of a phased approach, or specific licenses which can be applied for through APHA. General licensing will be subject to risk assessment.

Great Britain

On the 26 August 2024, the first case of BTV-3 for this season was detected in Norfolk, in a sheep showing clinical signs. An initial 20km temporary control zone (TCZ) was put in place around the affected farm to restrict movements of susceptible animals and their germinal products, except under licence, and the animal was culled. Following this, 2 further TCZs were put in place in Norfolk and Suffolk following confirmation of BTV-3. TCZs were replaced by a Restriction Zone (RZ) on 30 August 2024 for the whole of Norfolk and Suffolk. As of the 4 September, there have been 15cases all located in Norfolk and Suffolk (East Anglia). The affected farms had no recent movements of livestock onto the premises. At the time of writing, the whole counties of Norfolk, Suffolk and Essex were in the RZ. All affected cases have been located in coastal areas deemed to be at high risk of airborne incursion of BTV infected Culicoides. Emergency use of vaccination has been approved for the areas deemed high risk.

France

As of the 30 August, in France there had been 341 additional outbreaks of BTV-3 since our

last report, bringing the total to 342 reports. These were primarily located along the border with Belgium, however, in recent weeks there have been numerous detections in the coastal area of the department of Nord (59). There have also been several detections towards the west in Orne (61) over 200 km from Somme (60) and towards the south in Saone -et-Loire (71) 180km from Haute -Marne (52). It is unclear what caused these large geographical jumps. At the time of writing, vaccination for BTV-3 in France was voluntary. To control the spread of BTV-3, France has implemented a 150 km restriction zone which prohibits cattle, sheep or goats from moving outside of the zone, unless they are tested (with a negative result) (French Ministry of Agriculture and food sovereignty August 2024).

Since our last update, BTV-8-2023 has continued to spread in multiple directions. The following departments are now affected with BTV-8-2023: Rhone (69), Jura (39), Haute-Savoi (74), Savoie (73), Hautes-Alpes (05), Hautes-Pyrenees (65), Gers (32), Landes (40). BTV-8-2023 was first reported along the Swiss and Italian borders in Savoie (73) (east of France) on the 27 August. Since then, there has been continuous spread to other bordering departments in France. Additionally, on the 30 August there were reports of further spread of BTV-8-2023 to Deux-Sèvres (79) (northwest of France, near Brittany) (GDS France 2024). BTV-8 (older strain) is considered endemic in France and is assumed to be present in all departments (Plateforme ESA 16 July 2024).

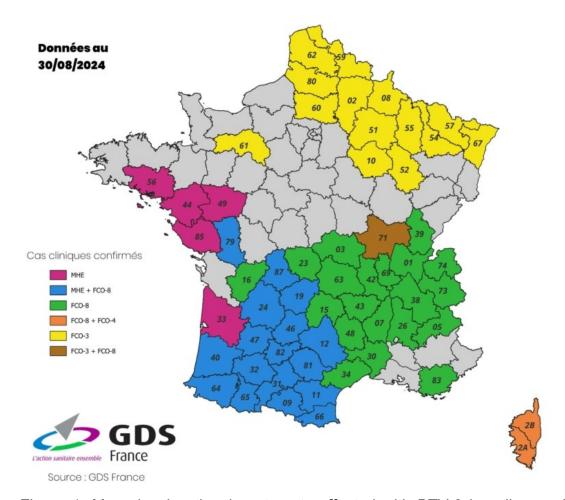


Figure 1: Map showing the departments affected with BTV-3 in yellow and BTV-8-2023 in green and blue across France as of the 30 August 2024. BTV-8-2023 is located across almost the entire of the southern half of France and has spread to the border of Switzerland and Italy. Also reports of BTV-8-2023 detected further northwest for the first time. BTV-3 is primarily

located in the east but continues to spread west. (Available at: (GDS France 2024) Accessed 4 September 2024

Belgium

Since our last assessment on 8 August, there have been 1,763 additional reports of BTV-3 bringing the total to 1,985 across the country (Sciensano 2024). These reports are located in all regions of Belgium, with a majority of reports located near the border of the Netherlands. There are also a significant number of reports in the coastal regions near the English Channel. The continually increasing number of reports in Belgium is not surprising, given the suitable temperatures for spread in recent weeks, and most livestock are currently considered to be naïve. To control the spread of BTV-3 in Belgium, they have approved the emergency use of inactivated BTV-3 vaccines (FAMHP 2024). As of the 29 August, there have been 100,000 cattle, 37,000 sheep and 500 goats vaccinated so far (PAFF Belgium 2024). In 2023 there were just 8 reports of BTV-3 in Belgium all located near the Netherlands. Compared to 2023, when BTV-3 was initially reported in October (when temperatures drop and conditions become less suitable for transmission), the spread of BTV-3 in 2024 has been vast over the summer months.

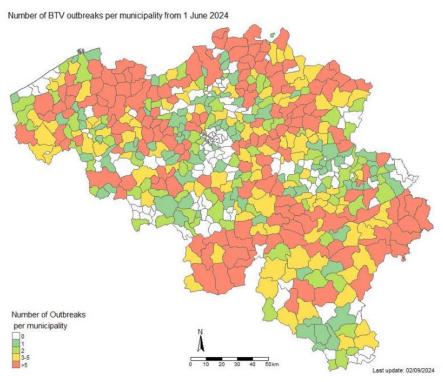


Figure 2: Map showing a total of 1,985 reports of BTV-3 in Belgium across 1 June to 2 September 2024. Many reports are concentrated near the border of the Netherlands. There are also a number of reports along the border near Luxembourg and France, as well as several in the coastal area near the English Channel. (Available at: Sciensano 2024) Accessed on 4 September 2024

Netherlands

In the Netherlands, there have been 4,125 additional reports of BTV-3 since our last assessment, bringing the total to 6,384 outbreaks (1,767 confirmed clinically and 4,617 PCR positive) across the country (NVWA July 2024). These reports are distributed across the entire

country, but many are located in coastal areas (<u>NVWA July 2024</u>). The continually increasing number of reports in the Netherlands is not surprising, because in recent weeks the weather conditions have been optimal for spread and studies suggest that most livestock are naïve (Royal GD 2024). The number of reports since June has now exceeded the total number of reports of BTV-3 in 2023 for the Netherlands (6000). To control the spread, the Netherlands approved the emergency use of inactivated BTV-3 vaccines (<u>NVWA May 2024</u>). Media reports suggest vaccination coverage of over 90% of sheep in the Netherlands (<u>Nieuweoogst June 2024</u>). The vaccination coverage in cattle is unclear. On 14 July, the Netherlands reported that a number of animals that were vaccinated against BTV-3 showed clinical signs consistent with BTV (<u>Directorate of Animal Agricultural chains and animal welfare 2024</u>).

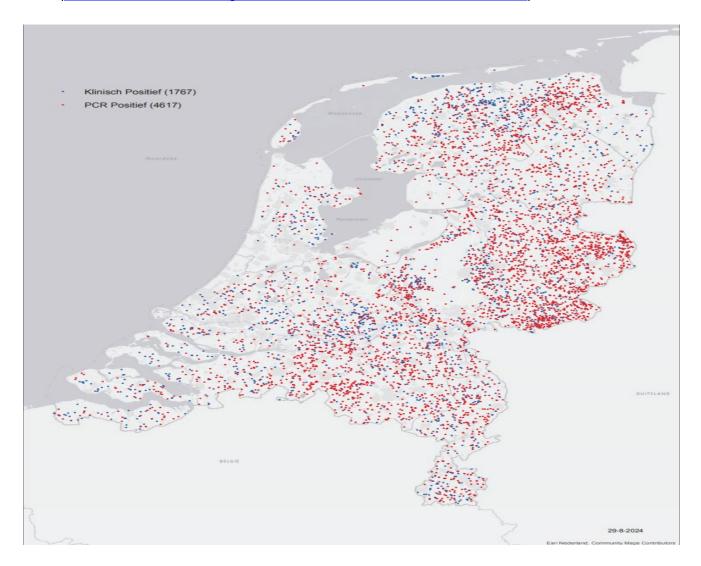


Figure 3: Map showing a total of 63, 484 reports of BTV-3 in the Netherlands for the 2024 season so far (1 June to 29 August), including 1,767 clinically positive in blue and 4,617 PCR positive in red. The majority of outbreaks are PCR positive and are concentrated near the border of Germany, however, there are also numerous outbreaks across all parts of the Netherlands, including the coastal area near the English Channel. (Available at: Bluetongue positive by place of residence 2024 | Map

NVWA) Accessed on 4 September 2024.

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Germany

In Germany, there have been 4,311 additional reports of BTV-3 since our last assessment, bringing the total to 6,210 outbreaks. All states of Germany are now affected with BTV-3 (TSIS 2024). In recent weeks there has been spread towards the southwest including numerous cases along the border of Switzerland and France in Mullheim and Schopfheim. There has also been significant spread towards the east and there are several reports 15km from Czechia.

In 2023 there were only 47 outbreaks, all of which were located along the border of the Netherlands. To control the spread, Germany has approved the emergency use of inactivated BTV-3 vaccines <u>FAMHP 2024</u>), but it is not clear how many animals have been vaccinated since approval in April.

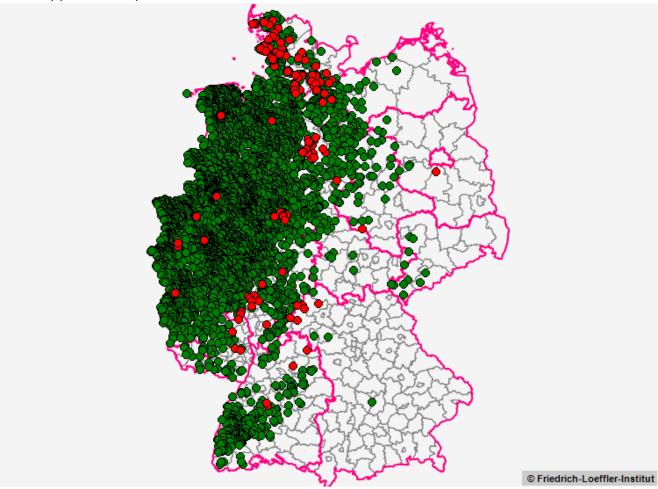


Figure 4: Map showing a total of 6,210 reports of BTV-3 in Germany for the 2024 season so far (1 June to 2 September), The majority of outbreaks are concentrated near the border of the Netherlands, however, there are also outbreaks across all parts of the country, including the coastal area near the English Channel and north near Denmark. Active cases are highlighted in red. (Available at: TSIS 2024) Accessed on 4 September 2024.

Luxembourg

In Luxembourg, there have been 218 additional reports of BTV-3 since our last assessment, bringing the total to 246. In recent weeks BTV-3 has spread across the country. The increasing number of reports in Luxembourg is not surprising, given the recent suitable temperature conditions for spread and vector activity, in addition to a naïve livestock population, as they were unaffected by BTV-3 in 2023. To control the spread, Luxembourg has approved the emergency use of inactivated BTV-3 vaccines. As of the 30 August, 70,000 doses have been administered but it is not clear which species have been vaccinated (PAFF Luxembourg 2024), (Luxemburg Ministry of Agriculture, Food and Viticulture 2024).

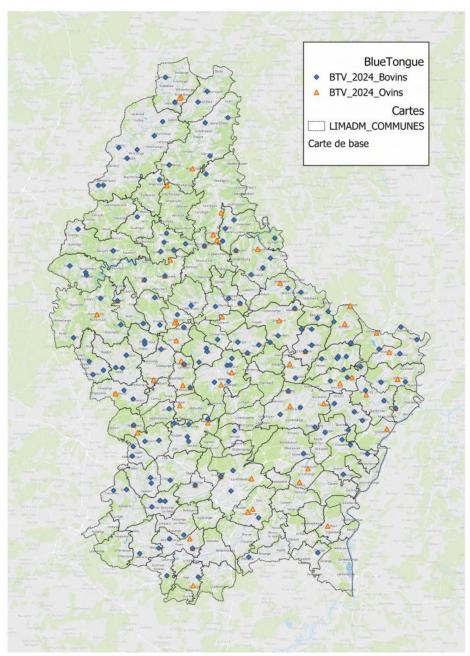


Figure 5: Map showing a total of 246 reports of BTV-3 in cattle which are blue and sheep which are orange in Luxembourg for the 2024 season so far (1 June to 28 August). Most outbreaks have occurred in cattle. There are also numerous outbreaks across all parts of Luxembourg. (Available at: (Luxemburg Ministry of Agriculture, Food and Viticulture 2024) Accessed on 4

September 2024.

Denmark

On 9 August 2024, BTV-3 was reported in one holding with sheep and cattle in Denmark in the municipality of Toender bordering Germany. The disease-free status for bluetongue has been suspended in Denmark. As of the 3 September, there have been 65 reports of BTV-3. Almost all confirmed cases are in the southwest of Denmark near Germany, and near the coastal area which poses a risk to Great Britain regarding the airborne spread of BTV infected Culicoides vectors (Danish Veterinary and Food Administration 2024). Denmark started vaccinating on 27 August. As of the 30 August, 62,100 doses have been administered (PAFF Denmark 2024).

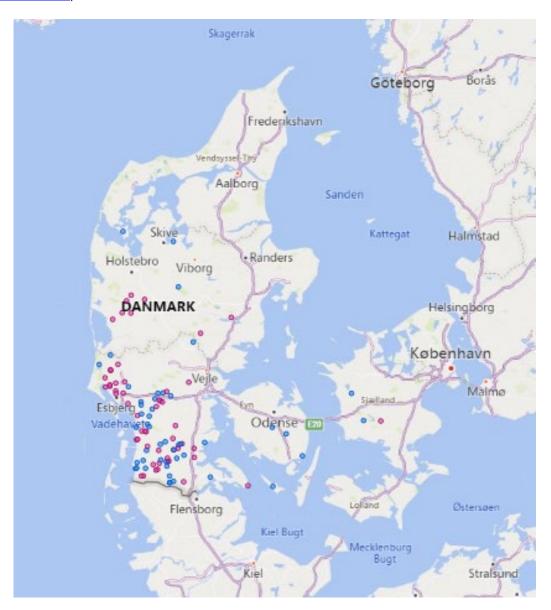


Figure 6: Map showing a total of 65 confirmed reports in pink of BTV-3 in Denmark for the 2024 season so far (1 June to 3 September) and 62 suspected cases in blue. The majority of outbreaks have occurred in the southwest near the coast and Germany. (Available at: (Danish Veterinary and Food Administration 2024) Accessed on 4 September 2024.

Switzerland

On 30 August, Switzerland reported 3 detections of BTV-3. These were located in 2 sheep farms in Jura and one sheep farm in Solothurn in the north and are in close proximity to recent reports of BTV-3 in both France and Germany. Furthermore, on 31 August a WOAH report for Switzerland was published detailing a case of BTV-8 in Vard (WOAH event 5839). This case is located in the west of Switzerland along the French border. This is the first outbreak of BTV-8 in Switzerland since 2020 (FSVO 2024). Though it is currently unclear if this is the older strain of BTV-8 which is endemic in France or the 'new' BTV-8-2023 strain, this report comes after many bordering departments in France detected BTV-8-2023 for the first time.

Italy

In 2023 there was one case of BTV-8 in a single cow in Tuscany. Previously, Italy had not reported any BTV-8 outbreaks on the mainland since 2010 (BENV 2024). On 20 August 2024, the Italian ministry of agriculture published the first reports of BTV-8 in Northern Italy since 2010. As of 2 September, there have been 21 reports of BTV-8 in the northeast, near the border with France. These reports come after many bordering departments in France detected BTV-8-2023 for the first time. As of 2 September, there have been 2 outbreaks of BTV-4 on the mainland of Italy. These are the first detections of BTV-4 on the mainland since November 2023 (BENV 2024).

Our previous report highlighted that there had been no reports of BTV in Sardinia between April and August 2024 where the disease is considered to be endemic. In recent weeks, BTV-3, BTV-4 and BTV-8 have been detected in Sardinia. At this time there have been 27 outbreaks of BTV-3 in the south, 4 outbreaks of BTV-4 in the north and 30 outbreaks of BTV-8 in the north. Given Sardinia's endemic status, this is not unexpected (BENV 2024).

Spain

There have been no updates since our previous report which highlighted the first case of BTV-8 since 2020. Sequencing confirmed the virus to be BTV-8-2023. In all restriction zones (RZs) infected with BTV, vaccination is compulsory for any movements of live animals to outside of the RZ, and surveillance zones have been established. In the BTV-8-2023 affected zone in Catalonia, Spain has also enforced mandatory vaccination for all susceptible animals over 3 months old (Spanish Ministry of Agriculture 2024).

Implications for Great Britain

In Great Britain, Culicoides populations peak around mid to late summer. In addition to the large vector populations, temperatures tend to be suitable for transmission at this time which can lead to disease spread. For BTV, the rate of spread increases exponentially above 15°C (peaking at 22°C) (APHA May 2024). In Great Britain, the first case of BTV-3 was identified on 26 August. As of 4 September, all affected cases have been located in the high-risk counties. This is a rapidly evolving situation. Additionally, there are increasing number of reports of BTV-3 in the coastal regions of northern France, Belgium, Netherlands, Germany

and Denmark near the English Channel. The presence of infected animals there may result in additional windborne incursions of infected or infectious Culicoides into the high-risk coastal areas of Great Britain if meteorological conditions are suitable. The <u>airborne risk of incursion of BTV infected midges from the Continent</u> is assessed weekly and published on GOV.UK.

Conclusions

BTV-3 has now been detected in Great Britain, as of the 4 September there have been 15 cases. It is unlikely that BTV-3 overwintered here, as the conditions for spread have been optimal for many weeks with no previous detections. The affected farms have not imported any live susceptible animals. All detected cases of BTV-3 in Great Britain at the time of writing were located in Norfolk or Suffolk. These areas are coastal regions of England which were previously identified as at high risk of windborne incursions of BTV from affected countries in Europe. It is plausible that these first detections of BTV-3 are a consequence of infectious Culicoides being spread from coastal areas of northern Europe into Great Britain through wind plumes.

On the continent of Europe, BTV-3 has successfully spread to the northern coast of France and been detected for the first time in Switzerland and Denmark. There continue to be numerous reports of BTV-3 in Germany, the Netherlands, Belgium and Luxembourg. All regions of these countries are now affected with BTV-3 and the number of reports in Germany, the Netherlands and Belgium has exceeded the number of reports for 2023. These numbers will likely continue to rise through autumn until temperatures decrease below the suitable threshold for onward transmission, and vector activity decreases although new cases may still be detected after this point as was observed in late 2023 and early 2024.

More reports in the coastal areas of affected countries in northern Europe may lead to greater potential for new incursions of BTV into Great Britain. If meteorological conditions are suitable in these coastal areas, infectious or infected Culicoides may be spread to Great Britain via the wind. If warm temperatures continue, any infectious or infected Culicoides able to reach Great Britain are likely to be capable of spreading BTV. The Airborne Orbivirus Assessment assesses this risk each week using the Numerical Atmospheric-dispersion Modelling Environment (NAME) model and publishes these <u>risk assessment reports</u> which are published on GOV.UK. This is a collaborative report between APHA, The Pirbright Institute and Met Office regarding windborne incursions of Culicoides midges from affected areas. It should be noted that if meteorological conditions become optimal, and BTV continues to circulate on the continent, the risk of windborne incursion will likely increase. As meteorological conditions are so variable, the risk of airborne incursion of BTV-3 infected midges is changeable and risk levels may fluctuate between weeks. All risk levels, rationales and nuance are captured in the weekly reports which are published on GOV.UK.

BTV-8-2023 has also continued to rapidly spread in recent weeks, but the number of reports is not known. BTV-8 has also been detected for the first time in recent years in Switzerland and northern Italy (<u>FSVO 2024</u>, (<u>BENV 2024</u>). Additionally, BTV-8-2023 has been detected for the first time in the northwest department of Deux-Sèvres in France (<u>GDS France 2024</u>).

All imports of susceptible livestock from BTV-3 affected counties are required to comply with the health certificate requirements including the appropriate vaccination. There is currently no fully approved vaccine for BTV-3 making it difficult to comply. Geographic jumps have been reported and the recent cases in Great Britain, France, Switzerland and Italy highlight that BTV is spreading in Europe. The overall risk of incursion of BTV into Great Britain has been increased to HIGH (occurs very often).

There is guidance available for livestock owners within TCZs and RZs. Livestock owners are strongly advised to source replacement stock responsibly and consult with their private veterinarians to put in place controls preventing the introduction of bluetongue virus. It is also strongly advisable to request pre-movement testing of animals prior to departure as a further check to ensure that animals are clear of infection before they travel. Currently, susceptible livestock cannot be moved to Great Britain without prior vaccination for countries affected with BTV. As there is no fully approved vaccine for BTV-3, countries affected with BTV-3 are unable to comply with the health certificate requirements. Assurances should be sought from traders to ensure BTV susceptible animals are fully protected with the appropriate serotype vaccination, where possible, prior to travel (BTV-3, BTV-4, BTV-8 and BTV-16 are circulating in Europe). If you keep livestock, you must continue to keep a close watch for, and report, any suspicion of bluetongue disease in your animals.

Sheep are more likely to show obvious clinical signs of bluetongue than cattle if they become infected. Signs of bluetongue in sheep include:

- ulcers or sores in the mouth and nose
- discharge from the eyes or nose
- drooling from mouth
- swelling of the lips, tongue, head and neck and the coronary band
- red skin as a result of blood collecting beneath the surface
- fever
- lameness
- breathing problems
- abortion
- foetal deformities and stillbirths, death

Lambs can become infected with bluetongue before birth if the dam is infected while pregnant. Signs of infection include born small, weak, deformed, or blind, death of lambs within a few days of birth, stillbirths.

Cattle clinical signs include:

- lethargy
- crusty erosions around the nostrils and muzzle
- redness of the mouth, eyes or nose
- reddening of the skin above the hoof
- nasal discharge
- reddening and erosions on the teats
- fever
- milk drop
- not eating
- abortion, foetal deformities and stillbirths

Adult cattle may serve as a source of virus for several weeks while displaying little or no clinical signs of disease and are often the preferred host for insect vectors.

Calves can become infected with bluetongue before birth if the mother is infected while pregnant. Signs of infection include born small, weak, deformed, or blind, death of calves within a few days of birth, stillbirths.

For more information and photos of clinical signs of bluetongue virus visit <u>Bluetongue: how to spot and report it</u>. If livestock keepers or vets, consider bluetongue as a possibility they must report the suspicion to APHA immediately.

We will continue to monitor the current situation.

Authors

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