

Updated Outbreak Assessment #10

Bluetongue Virus in Europe

8 August 2024

Disease report

Since our last report on 15 March 2024, there have been no additional cases of bluetongue virus (BTV) in Great Britain. On 18 March 2024, the Seasonal Vector Low Period (SVLP) ended. On the 2 August and 6 August 2024, the World Organisation for Animal Health (WOAH) published 2 reports of BTV-3 in Luxembourg and 1 report of BTV-3 in France respectively. This marks the first time ever that BTV-3 has been detected in these countries. Moreover, new, clinical, cases of bluetongue virus serotype 3 (BTV-3) have been reported in Germany, the Netherlands and Belgium. This is also true for the 'new strain' of bluetongue virus serotype 8 (BTV-8) in southern France. Finally, Spain has detected BTV-8 for the first time since 2020 in the Catalonia region which borders France. This was confirmed to be the 'new strain' of BTV-8.

At the beginning of April 2024, a vaccine trial was conducted in Germany using an autogenous vaccine. The vaccine was recalled on 22 April due to deficiencies in the process controls and the BTV virus was detected by PCR post vaccination. Some of these vaccinated animals (both cattle and sheep) showed clinical signs of BTV and have been reported as outbreaks to the WOAH ([PAFF Germany May 2024](#)). As a result, it is difficult to determine the number of reports that have occurred this season in Germany due to overwintering of BTV or as a result of the vaccine trial. There were 72 reports of BTV-3 reported in Germany between 1 April and June across the states of North Rhine Westphalia, Lower Saxony, Rhineland Palatinate, and Hesse. Since June, there were 1899 reports (1 June to 8 August) ([TSIS 2024](#)).

In the Netherlands, the first report of BTV-3 for the new season, occurred on the 17 June ([Plateforme ESA 18 June 2024](#)). As of 8 August, there have been 2259 reports of BTV-3 (713 confirmed clinically and 1546 PCR positive) distributed across the entire country ([NVWA July 2024](#)) since June. In Belgium, the first 2 reports of BTV-3 for this season occurred on the 9 July ([Plateforme ESA 16 July 2024](#)). As of 5 August, there have been 222 reports of BTV-3 since the beginning of the new season, some of which are approximately 15 km from the French border and 5 km from Luxembourg ([Sciensano 2024](#)). On 2 August, 2 reports of BTV-3 in Luxembourg were published to WOAH. One of these reports was less than 5 km away from Belgium, and the other further south 15 km from France. Both of these reports were in cattle and showed no clinical signs. Since then, there have been 26 additional reports, bringing the total to 28 for Luxembourg ([Directorate of Animal Agricultural chains and animal welfare 2024](#)).

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As of 6 August 2024, in France there has been 1 outbreak of BTV-3 reported in Avesnes-sur-Helpe (15 km from Belgium). Furthermore, on 12 July, France reported that they detected severe cases of clinical BTV-8 with high mortality in 3 departments in the south (Pyrenees - Orientales, Aude, and Ariège). These departments were affected by the 'new strain' of BTV-8 in 2023 ([Plateforme ESA 16 July 2024](#)). It is assumed that the 'new strain' of BTV-8 has overwintered but due to the lack of consolidated data, the number of outbreaks or the extent of the spread within departments is not known. On the 8 August the 'new strain' of BTV-8 was detected in Var for the first time, indicating a migration to the east. On 6 June 2024 Spain detected the first cases of BTV-8 since 2020, in the Catalanian region 30km from France. Sequencing confirmed the virus to be the 'new strain' of BTV-8, not the one endemic to France. As of 11 July, there have been 46 confirmed reports (25 sheep farms and 21 cattle farms) of the 'new strain' of BTV-8 across the Catalonia region ([PAFF Spain July 2024](#)).

Elsewhere, on the 24 April Sardinia detected 11 farms affected with BTV-8. However, in recent years Sardinia has become endemic with BTV-8. No additional cases have been reported. On the 5 July, WOAHA published 21 reports of BTV-16, these reports were located on the islands near Turkey. None have been located on the mainland. This marks the first time since 2021 that Greece has reported BTV-16. On the same day, 8 reports of BTV-4 were published on WOAHA also located in a number of Greek islands. BTV-8 has been routinely reported in recent years and appears to be an ongoing situation. As of 8 August 2024, there have been no further reports of BTV-16 or BTV-4 in Greece.

With reports across Europe, along with suitable temperatures for disease transmission and vector activity, the risk of incursion of BTV into Great Britain is maintained at MEDIUM (occurs regularly). 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 published on [gov.uk](#).

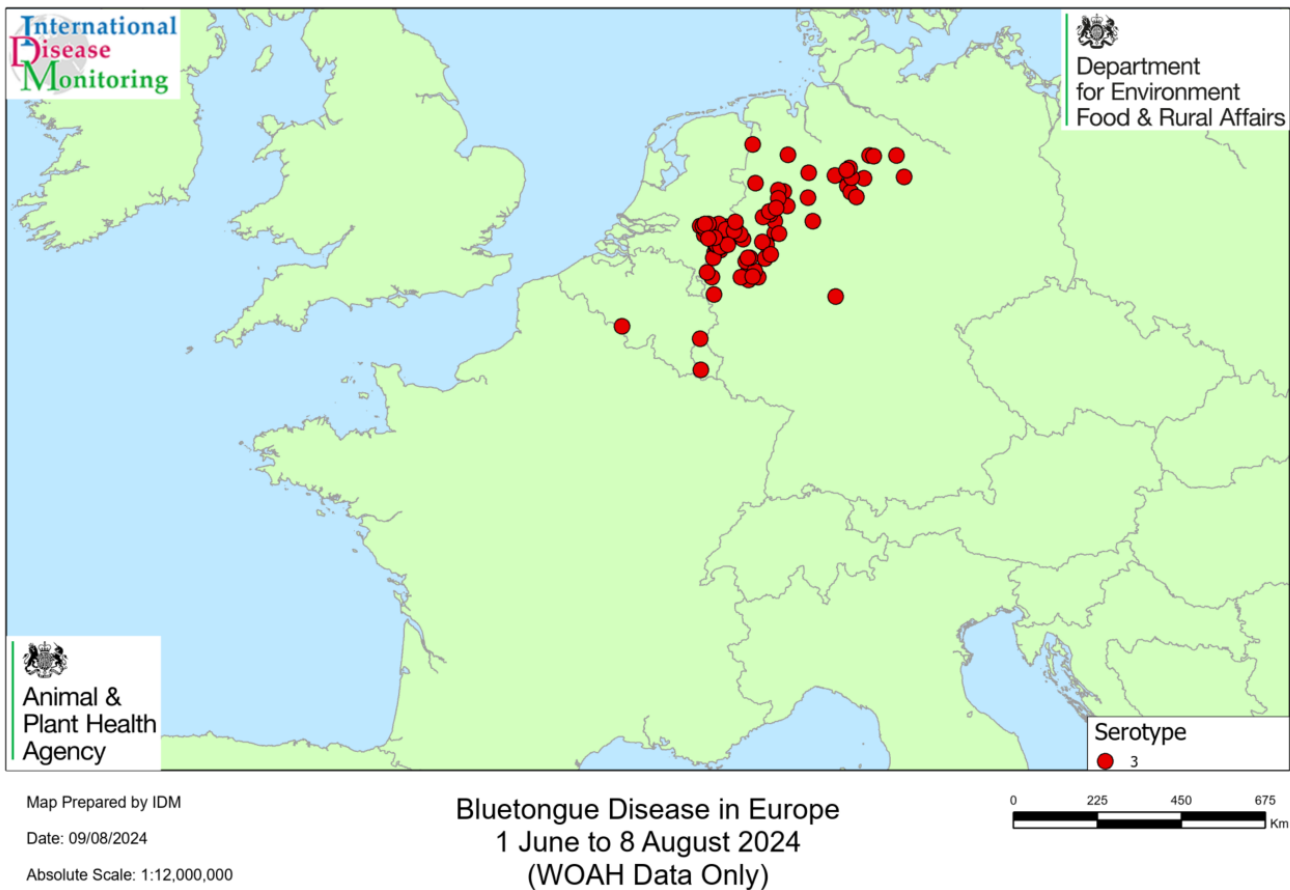


Figure 1: Map showing WOA reports from the 1 June to 8 August 2024, including the numerous BTV-3 outbreaks (as red dots) in Germany across Lower Saxony, North Rhine-Westphalia, Rhineland Palatinate and Hess, the 3 outbreaks 5 km from Saxony Anhalt. The first report of BTV-3 in France near the Belgian border. The two initial reports of BTV-3 in Luxembourg, 5 km the Belgian border and 15 km from France.

Situation assessment

Germany, Belgium and the Netherlands all approved 3 vaccines (BULTAVO 3, BLUEVAC-3 and Syvazul) for emergency use to prevent the spread of BTV-3 towards the end of April 2024 ([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 three 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 this is a dynamic situation, it is currently difficult to comment on the effectiveness of vaccination campaigns. As of the 5 August, France approved the emergency use of BLUTAVO 3 and BLUEVAC-3, at that time in response to a number of reports of BTV-3 along the border in Belgium [Bluetongue: deployment of a targeted voluntary vaccination campaign against serotype 3 in northern France | Ministry of Agriculture and Food Sovereignty](#).

Germany

At the beginning of April 2024, a vaccine trial was conducted in Germany using the ANIVAC BTV-3 autogenous vaccine. The ANIVAC BTV-3 autogenous vaccine was used in the states of Lower Saxony, North Rhine-Westphalia, and Rhineland Palatinate. The vaccine was recalled on 22 April, due to preliminary data showing deficiencies in process controls and the virus was detected by PCR in a number of animals post vaccination. Some of these vaccinated animals (both cattle and sheep) showed clinical signs of BTV and have been reported to WOAAH as outbreaks ([PAFF Germany May 2024](#)). This includes the state of Rhineland Palatinate which previously had not reported BTV-3 ([WOAH event 5749](#)). Consequently, all vaccinated animals were required to remain indoors and were placed under movement restrictions ([PAFF Germany April 2024](#)). It is difficult to determine the number of BTV-3 reports that have occurred this season in Germany due to overwintering against those that were due to vaccination. Preliminary data suggested that 135 establishments were trialed for the ANIVAC BTV-3 autogenous vaccine ([PAFF Germany May 2024](#)). 72 reports were published between 1 April and 1 June in the states of North Rhine Westphalia, Lower Saxony, Rhineland Palatinate and Hesse ([TSIS 2024](#)). Both Rhineland Palatinate and Hesse were previously unaffected by BTV-3, but Hesse did not have the ANIVAC BTV-3 autogenous vaccine trial ([PAFF Germany May 2024](#)). Between June and 8 August, there have been a further 1899 reports of BTV-3 across Germany this season. The incursion of BTV-3 into Hesse and Rhineland Palatinate highlights the spread towards the South and East of Germany. Additionally, 3 of the recent reports in Lower Saxony occurred less than 5 km from the state of Saxony- Anhalt ([TSIS 2024](#)).

Netherlands

In the Netherlands, the first report of BTV-3 for the new season occurred in Ommeren, on the 17 June ([Plateforme ESA 18 June 2024](#)). As of 8 August, there have been 2259 reports of BTV-3 (713 confirmed clinically and 1546 tested PCR positive) distributed across the entire country. A number of these are located within 50 km of the coast ([NVWA July 2024](#)). The large and increasing number of reports in the Netherlands is not surprising, as they recently published the results of prevalence studies for the previous season. Although it showed that over half of Dutch dairy farms had come into contact with BTV-3, only 23% of the adult cattle were estimated to be positive for antibodies. In the sheep farms surveyed, this estimate was lower at 10% ([Royal GD 2024](#)). These studies highlight that despite having close to 6,000 reports of BTV-3 in 2023 ([see previous report](#)), the majority of the livestock are still naïve and susceptible to BTV-3. To control the spread, the Netherlands approved the emergency use of inactivated BTV-3 vaccines ([NVWA May 2024](#)), but it is not clear how many animals have been vaccinated since approval in April. On 14 July, the Netherlands reported that a number of animals that were vaccinated against BTV-3 showed clinical signs consistent with BTV ([Directorate of Animal Agricultural chains and animal welfare 2024](#)).

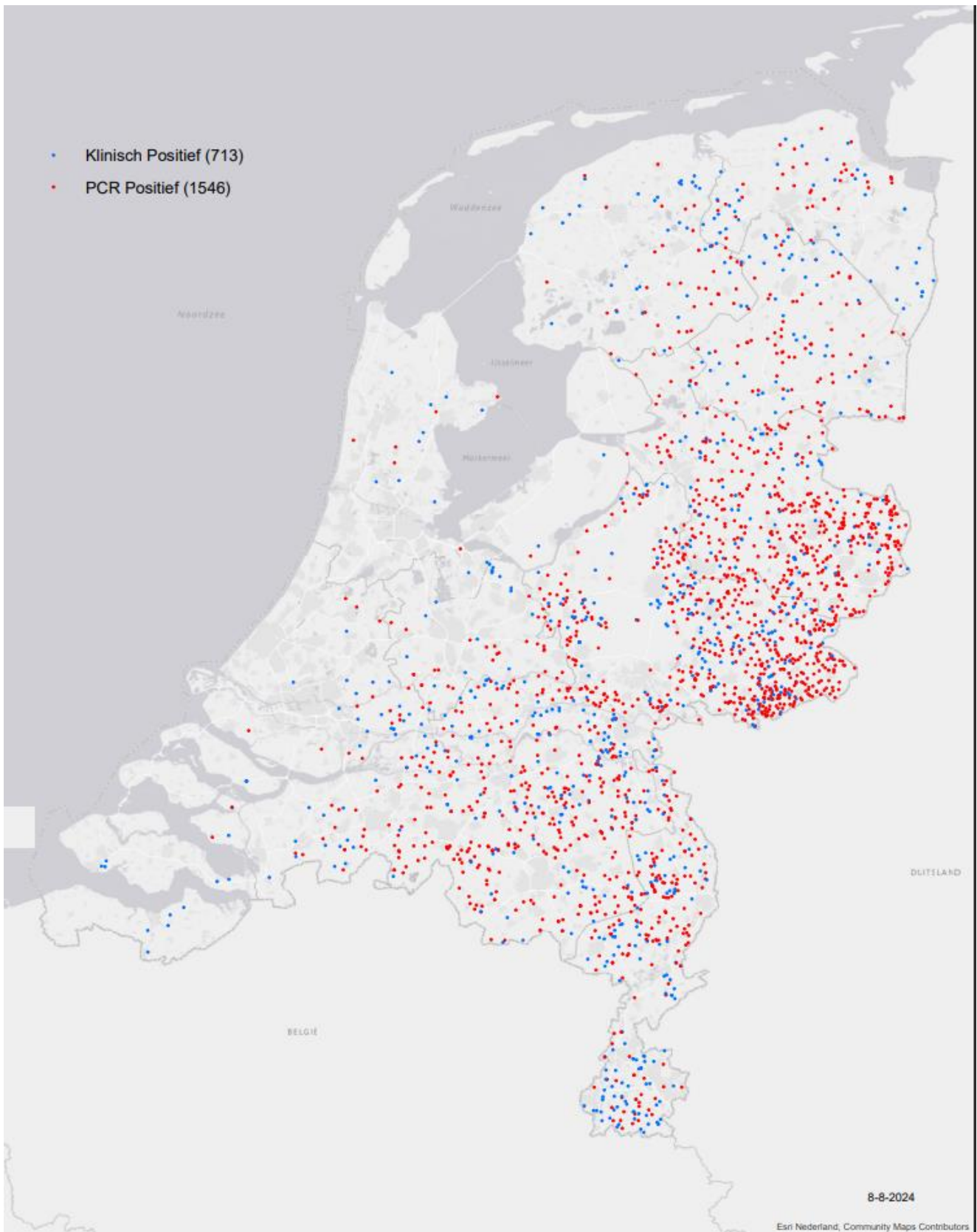


Figure 2: Map showing a total of 2259 reports of BTV-3 in the Netherlands for the 2024 season so far (1 June to 8 August), including 713 clinically positive in blue and 1546 PCR positive in red. A majority of outbreaks are PCR positive and are concentrated near the border of Germany, however, there are 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 8 August 2024.

Belgium

In Belgium the first 2 reports of BTV-3 for this season occurred on the 9 July on a cattle farm in Liège ([Plateforme ESA 16 July 2024](#)). As of 5 August, there have been 220 more reports since, bringing the total to 222 reports of BTV-3 for Belgium. All of these were detected in provinces that were until recently unaffected with BTV-3, indicating spread of BTV-3 in Belgium in all directions. Two reports are approximately 12 km from the French border, and another 5 km from Luxembourg ([Sciensano 2024](#)). Similarly to Germany and the Netherlands, in order to control the spread of BTV-3 in Belgium, they have approved the emergency use of inactivated BTV-3 vaccines ([FAMHP 2024](#)). But it is not clear how many animals have been vaccinated since approval was granted or how many of the positive cases are in vaccinated animals.

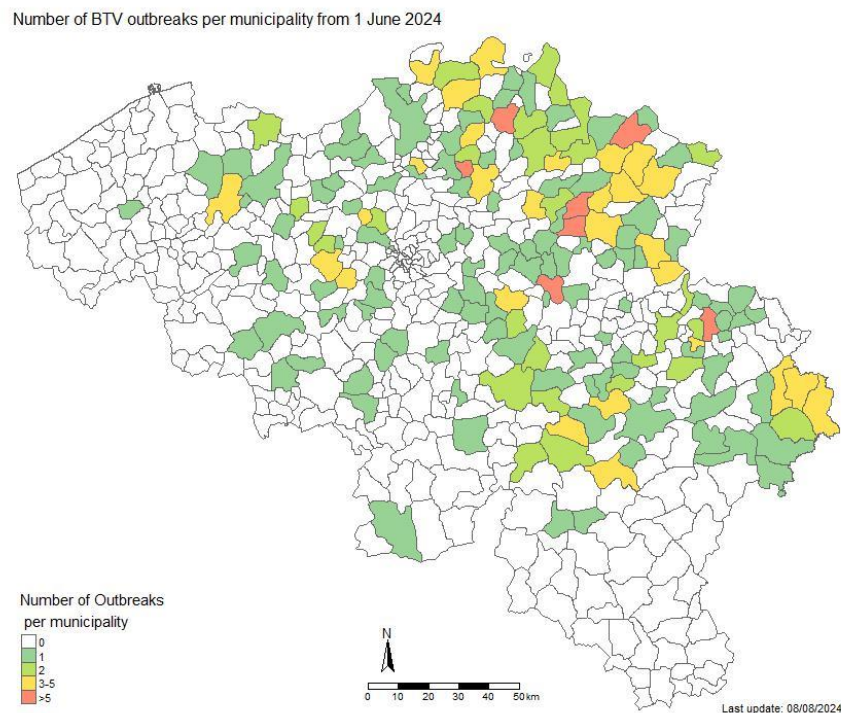


Figure 3: Map showing a total of 222 reports of BTV-3 in Belgium across 1 June to 8 August 2024. A majority of reports are concentrated near the border of the Netherlands. There are also a number of reports along the border near Luxembourg and France, as well as several in the coastal area near the English Channel. (Available at: [Sciensano 2024](#)) Accessed on 8 August 2024.

Luxembourg

On 2 August, 2 reports of BTV-3 in Luxembourg were published by WOA. One of these reports was less than 5 km away from Belgium, and the other further south 15 km from France. Both of these reports were in cattle and showed no clinical signs. They were detected after active surveillance of susceptible animals. These reports come after several reports of BTV-3 were identified along the border of Belgium in the previous weeks. According to the ministry of agriculture, as of 8 August, there are 28 affected premises involving 25 cattle, 13 sheep and 1 goat. Emergency vaccination has been approved but the vaccination campaign has not started and it is unclear which vaccines will be used (Luxembourg Veterinary and Food Administration 2024).

France

For the first time, on the 6 August 2024, it was reported that BTV-3 was present in France. The affected premises contained 15 sheep and 1 of which was PCR positive for BTV-3. This report is approximately less than 15 km from Belgium but 150 km from the coast of the English Channel. At this time vaccination for BTV-3 in France is voluntary. To control the spread of BTV-3, France has implemented a 150 km restriction zone which prohibits the movement of cattle, sheep or goats from moving outside of the zone, unless they are tested [Bluetongue \(BTF\): new measures taken in response to the confirmation in southern Belgium of outbreaks of a serotype not present in France | Ministry of Agriculture and Food Sovereignty](#).

On 12 July, France reported that they detected severe cases of clinical BTV-8 with high mortality in 3 departments in the south (Pyrenees -Orientales, Aude and Ariège) which were affected by the 'new strain' of BTV-8 in 2023. The 'new strain' was characterised in 2023 as being more clinically severe and having a higher mortality than is typical of BTV-8 ([Plateforme ESA 17 October 2023](#)). It is assumed that the 'new strain' of BTV-8 has overwintered and reemerged, and it appears to have spread south to Spain. The number of reports this season is not known, but in 2023 there were over 1000 establishments affected ([Plateforme ESA 17 October 2023](#)). On the 8 August the 'new strain' of BTV-8 was detected in Var for the first time, indicating a migration to the east. France also has an endemic strain of BTV-8 which is assumed to be present in all departments of France ([Plateforme ESA 16 July 2024](#)). For this reason, the entire of France is treated as a restriction zone. The Island of Corsica appears to have both the 'new strain' of BTV-8 and BTV-4 present but the number of reports is unknown ([Plateforme ESA 16 July 2024](#)).

Spain

On 6 June 2024, Spain detected the first case of BTV-8 since 2020, in the Catalonian region 30 km from France. Sequencing confirmed the virus to be the 'new strain' of BTV-8 not the one endemic to France. As of 11 July, there have been 46 reports (25 sheep farms and 21 cattle farms) of the 'new strain' of BTV-8 across the Catalonia region ([PAFF Spain July 2024](#)). In addition to this, Spain also has BTV-4 present in the north and south. However, this has been contained and has not spread to any previously unaffected provinces so far this season. In all restriction zones (RZs) infected with BTV, vaccination is compulsory for any movements of live animals to outside the RZ and surveillance zones have been established. In the BTV-8 affected zone in Catalonia, Spain has also enforced mandatory vaccination for all susceptible animals over 3 months old ([Spanish Ministry of Agriculture 2024](#)).

Greece

On the 5 July, WOAHA published 21 reports of BTV-16, these reports were located on the islands near Turkey, none have been located on the mainland. This marks the first time since 2021 that Greece has reported BTV-16. On the same day, 8 reports of BTV-4 were published on WOAHA, also located in a number of Greek islands. BTV-8 has been routinely reported in recent years and appears to be an ongoing situation.

Italy (Sardinia)

On the 24 April Sardinia detected 11 farms affected with BTV-8. At this time, there have been no further reports of BTV-8. However, in recent years Sardinia has become endemic with BTV-8 so this is not unexpected, and more cases will likely appear in the next few months.

Implications for Great Britain

In Great Britain, the SVLP ends when 5 or more parous female vectors are collected from any collection site across the country. In 2024 the SVLP ended on the 18 of March. Since the end of the SVLP there have been no cases of BTV detected in Great Britain, despite the suitable weather conditions over recent weeks. All imports of susceptible livestock from BTV-3 affected countries 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. Also, the presence of epizootic haemorrhagic disease (EHDV) in Western France and Spain further limits the areas able to comply as there is no available vaccine for EHDV either. The areas currently able to export include Denmark. There have been no imports of live animals from France into Great Britain since the beginning of June. If BTV is able to spread undetected to other countries such as Denmark, there is potential risk of importing infected live animals. To mitigate against this, all live susceptible animals being imported require testing and isolation ([APHA May 2024](#)). Further details on how bluetongue in Europe is affecting imports is published on GOV.UK: [Imports, exports and EU trade of animals and animal products: topical issues](#). There is also a risk of BTV incursion through airborne spread if infected or infectious Culicoides are present in the coastal regions of France, Belgium, the Netherlands Germany and Denmark (BTV free) and meteorological conditions are suitable. The airborne risk of incursion of BTV infected midges is assessed weekly and published on [gov.uk](#).

Conclusions

In Great Britain the SVLP ended on the 18 of March and there have been no cases of bluetongue virus detected since the end of the SVLP. At this time, there is no evidence to suggest that BTV-3 has overwintered in Great Britain. However, on the continent of Europe, BTV-3 has successfully overwintered in Belgium, Germany and the Netherlands and has since spread to France and Luxembourg. In addition to this, the 'new strain' of BTV-8 has overwintered in France and spread to Spain. These situations provide potential for a new incursion of BTV into Great Britain.

The situation in France surrounding the 'new strain' of BTV-8 remains unclear. Recently the 'new strain' of BTV-8 was reported for the first time this season in Pyrenees - Orientales, Aude, Ariège and Var in the south of France, but the number of reports is unknown. The 'new strain' of BTV-8 was also identified in Spain, marking the first time since 2020 that Spain has detected BTV-8. As of 11 July, there have been 46 reports of the 'new strain' of BTV-8 in Spain all near the border with France.

There has been a rapid increase in the number of reports of BTV-3 since the initial reports for this season, most notably in the Netherlands (2259 total reports of BTV-3 this season) and Germany (1899 total reports of BTV-3 this season) ([TSIS 2024](#), [NVWA 2024](#)). There has also been a resurfacing of BTV-3 in Belgium (222 reports of BTV-3 this season) ([Sciensano 2024](#)) and the geographical jump of BTV-3 into eastern France (1 report) (WOAH) and Luxembourg (28 reports) ([Luxembourg Veterinary and Food Administration 2024](#)). The surge in the number of reports in recent weeks is likely a consequence of the suitable temperatures for transmission. In all BTV infected countries in Europe, the daily mean temperature has exceeded 15°C for most days over the last several weeks, the threshold required for BTV viral replication and spread of the disease ([APHA July 2024](#)). For BTV, the rate of spread increases exponentially above 15°C (peaking at 22°C) ([APHA May 2024](#)).

Moreover, there have been a number of recent reports of BTV-3 in the 50 km coastal regions of Germany, the Netherlands and Belgium ([TSIS 2024](#), [NVWA 2024](#), [Sciensano 2024](#)). This is of importance to Great Britain because 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 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 reports [here](#). This is a collaborative report between APHA, The Pirbright Institute and Met Office regarding windborne incursions of 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. 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 characterized and the recent cases in France and Luxembourg highlight that the disease is

spreading. If BTV is able to spread undetected to other countries such as Denmark, there is potential risk of importing infected live animals though these animals will be tested as part of our continued post import testing. The overall risk of incursion of BTV into Great Britain is maintained at **MEDIUM** (occurs regularly). However, the nuance of airborne incursion of BTV infected vectors is captured elsewhere in the weekly reports and risk levels for that specific pathway will likely fluctuate with meteorological conditions and disease circulation on the near continent.

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 [Bluetongue: how to spot and report it](#). 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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