Updated Outbreak Assessment #7

Bluetongue Virus Europe

18 October 2023

Disease report

On 10 October 2023, an immediate notification was made to WOAH of BTV-3 infection on a backyard sheep farm in Belgium. This is the first time that Belgium has reported BTV-3, however, they previously reported BTV-8 in 2021 and the UK hadaccepted Belgium's BTV country free status on 3 August 2023. The route of infection is currently unknown.

On 13 October, Germany also made an immediate notification to WOAH of BTV-3 infection on a sheep farm. The route of BTV-3 incursion into Germany is currently unknown. This is the first time that the serotype has been confirmed in Germany, with BTV-8 being previously reported in 2021.

Since our last report on 29 September, to 18 October, a total of 2,259 outbreaks (771 clinically positive and 1,488 PCR positive) of BTV-3 have been reported by the Dutch Ministry of Agriculture, Nature and Food Quality (NVWA) (Figure 1). The clinically positive farms have not had testing performed due to clinical signs being clearly visible.

On 21 September, the National Reference Laboratory for France reported more than 300 outbreaks of an emergent strain of BTV-8 in Aveyron with at least one clinical case in the neighbouring departments of Lot, Lozère, Cantal and Tarn-et-Garonne. On the 16 October, France reported a further 300 outbreaks of BTV-8, bringing the total to over 600 establishments affected. The new departments that are affected include Ardèche, Ariège, Corrèze, Dordogne, Gard, Haute-Garonne, Puy-de-Dôme and Tarn. (Plateforme 2023). (This virus appears to be an incursion of a new exotic strain of BTV-8, rather than a reassortment of existing endemic serotypes. Find (via link) further updates and changes to restriction zones for Bluetongue across the European union (European Commission 2023).



Figure 1: Map showing 2,259 outbreaks (1,488 PCR positive and 771 clinically positive) of BTV-3 in the Netherlands reported by NVWA from the 5 September to 18 October 2023, these reports have not all been confirmed by ADIS or WOAH at this time (Available at <u>Current animal diseases in the Netherlands and Europe | Animal diseases | NVWA , accessed on 18 October 2023).</u>

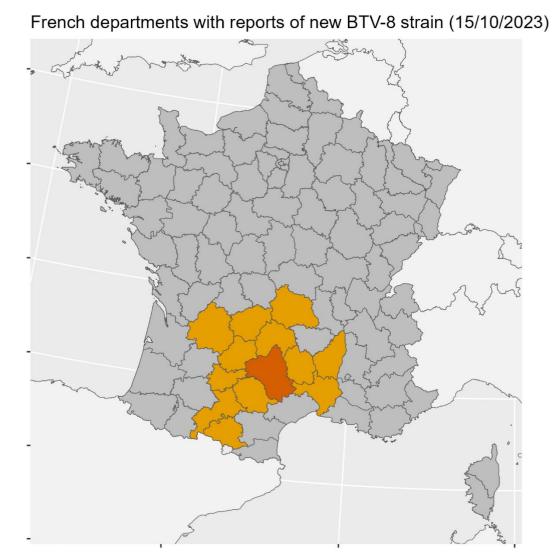


Figure 2: Map showing the departments in France reported to be affected by the recently emergent strain of BTV-8 in France. The darker orange department is where the BTV-8 strain was first reported and the lighter orange shows the spread.

Situation assessment

Netherlands

Bluetongue was originally confirmed on four sheep farms in the municipalities of Wijdemeren and Stichtse Vecht, following reports on clinical suspicion by private veterinarians, and was subsequently confirmed as BTV-3 (House of Representatives of the Netherlands 2023). BTV-3 has been circulating at a very low level in Sardinia, Sicily and southern Italy and was identified as being similar to a strain detected in Tunisia in 2016. Whole Genome Sequencing (WGS) and phylogenetic analysis has verified that Seg-2 sequences of the Netherlands strain of BTV-3 clearly clusters with other (including geographically close) variants of BTV-3. However, high homology across the whole genome has not yet been identified, making tracing the source of the variant difficult (Holwerda et al 2023).

It is noteworthy that the initial sites are approximately 20 km from Schiphol airport. Initially, the Dutch authorities put into place measures to gain more clarity about the situation in accordance with EU legislation. A contact investigation was carried out with screening of the farms in the infected zone to determine the extent and spread of infection. One challenge with BTV-3 control, is that there is no vaccine commercially available, and the EU have not currently approved the BTV-3 vaccine from South Africa. Existing vaccine serotypes do not confer cross protection making it difficult to control the outbreak spreading into immunologically naïve susceptible species (Cappai et al., 2019).

Since our last update, the Netherlands have reported huge geographical jumps and widespread reports of disease across the country. This could be due to the recent warmer weather in the autumn where midges thrive.

France

Since our last update, the emergent BTV-8 strain outbreak has spread from 450 establishments to over 600, with confirmed cases now in the departments of Ardèche, Ariège, Aveyron, Cantal, Corrèze, Dordogne, Gard, Haute-Garonne, Lot, Lozère, Puy-de-Dôme, Tarn and Tarn-et-Garonne (<u>Plateforme 2023</u>). The severe clinical picture of pyrexia, locomotion difficulties, mouth ulcers and coughing were unlike the BTV-8 cases seen elsewhere in France. Subsequent sequencing of the viral genome has confirmed this to be a different BTV-8 strain from that which circulated between 2006-2009 and re-emerged in 2015 (<u>Promed 2023</u>).

Belgium

Belgium recently declared their disease-free status from BTV on 5 June 2023, which was later accepted by Great Britain on 3 August, however, this has now been rescinded since BTV-3 was confirmed on 10 October. The first detection of Bluetongue serotype 3 in Belgium was in the province of Antwerp on a small sheep farm. To note, this was around 6.5km away from the Netherlands border. One sheep was confirmed positive by RT-PCR, however, has now since recovered. The sheep was displaying clinical signs of BTV such as fever, runny nose, stiffness and respiratory symptoms (). No other animals on the farm have displayed

Department for Environment, Food and Rural Affairs clinical signs.

Germany

Germany also recently declared their BTV free status in the spring from BTV-8, however, lost this on the 13 October when BTV-3 was detected. Bluetongue was first confirmed in the state of North Rhine-Westphalia which borders the Netherlands. The premises housed 570 sheep and one animal was confirmed positive for serotype 3 by RT-PCR after the animal showed clinical symptoms that initially suggested orf virus infection ('lip grind'). (LANUV (nrw.de) Intra community movement of live ruminants and germinal products have been restricted by the EU. See TSIS for a map and restriction zones for the outbreak.

Conclusion

The whole territory of mainland France is declared a BTV restriction zone. This means that susceptible livestock cannot be moved to Great Britain without prior vaccination for the circulating BTV-4 and BTV-8 serotypes. It also important to note that the Culicoides midge population peaks mid to late summer, and during early Autumn the conditions are optimal for BTV transmission by infected midges (<u>Plateforme 2023</u>) (Wittman et al., 2002). Vaccines are commercially available for BTV-4 and BTV-8.

The reports of BTV-3 in the Netherlands, and further geographical spread to Belgium and Germany are of greater concern, as there is no approved vaccine for BTV-3. Therefore, in order for EU intra-community trade to resume, live animals need to be first isolated for 60 days in vector free accommodation and then test negative for the disease, before being permitted to move. Third Country certification however does not permit such movements of live ruminants into Great Britain. As there are now many reports located near to the coastline in the Netherlands, there is also potential for windborne infected midges to be blown across the North Sea if the meteorological conditions are suitable. This would mean BTV disease incursion could occur in the southern and eastern counties of England from the Netherlands. Ahead of suspending trade, all imports of susceptible animals from the Netherlands and Germany were subject to post import testing for BTV and all recent imports have tested negative. Testing of all imports of susceptible animals from Belgium is ongoing. Trade in live sheep and cattle from the Netherlands, Belgium, and Germany is now no longer possible and germinal products are subject to additional testing requirements.

Considering all disease incursion routes from France, the Netherlands, Belgium and Germany, the overall risk of BTV entry has been assessed as **MEDIUM**. Live ruminants from the Netherlands, Belgium and Germany are unable to be sent to GB due to them being unable to meet the certification requirements in the absence of BTV-3. Tracings of imports from the four-week period prior to BTV-3 being confirmed are complete. Investigations regarding source of infection in Belgium are ongoing and these geographic jumps into different countries show that spread can go undetected in a traded population and highlight the importance of post import testing. Hence the risk to Great Britain is currently from the incursion of infected midges (windborne and via transport) and undetected spread to other areas we are trading with.

The possibility for the windborne incursion of midges from affected areas is monitored frequently, with a collaborative effort between APHA, The Pirbright institute (as vector and disease experts) and the Met Office (who can predict potential airborne movement of vectors into Great Britain using their Numerical Atmospheric-dispersion Modelling Environment (NAME), and provide estimates of climate suitability for spread in Great Britain and on the Continent). The NAME model predicts how many 'plumes' may have been sufficient to enable windborne incursion of midges from sites of interest over a two-week period and where in Great Britain these plumes may have entered. Outputs from the risk assessment are communicated to risk managers. As we head into Winter and the temperature drops, midge activity decreases, and virus replication does not occur, which will impact the risk.

Other potential pathways for BTV into Great Britain include imports and illegal movement of infected animals or germplasm. There is a potential risk of virus entry associated with the movement of infected Culicoides in other traded or transported commodities. 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.

Assurances should be sought from traders to ensure BTV susceptible animals are fully protected with the appropriate serotype vaccination prior to travel. 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.

We would also like to remind keepers that if they wish to move show animals to an exhibition held in a BTV-4 or BTV-8 Restriction Zone on the Continent, and then return them back to the Great Britain (a BTV Free Area), the animals will need to be fully vaccinated against either or both virus serotypes (BTV-4 and BTV-8) prior to leaving Great Britain. As there is no commercially available vaccine to protect against BTV-3, it is advisable not to export live ruminants to the Netherlands, Belgium, or Germany at this time.

We will continue to monitor the current situation.

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