

Updated Situation Assessment No.10

Bluetongue virus (BTV-8) in France

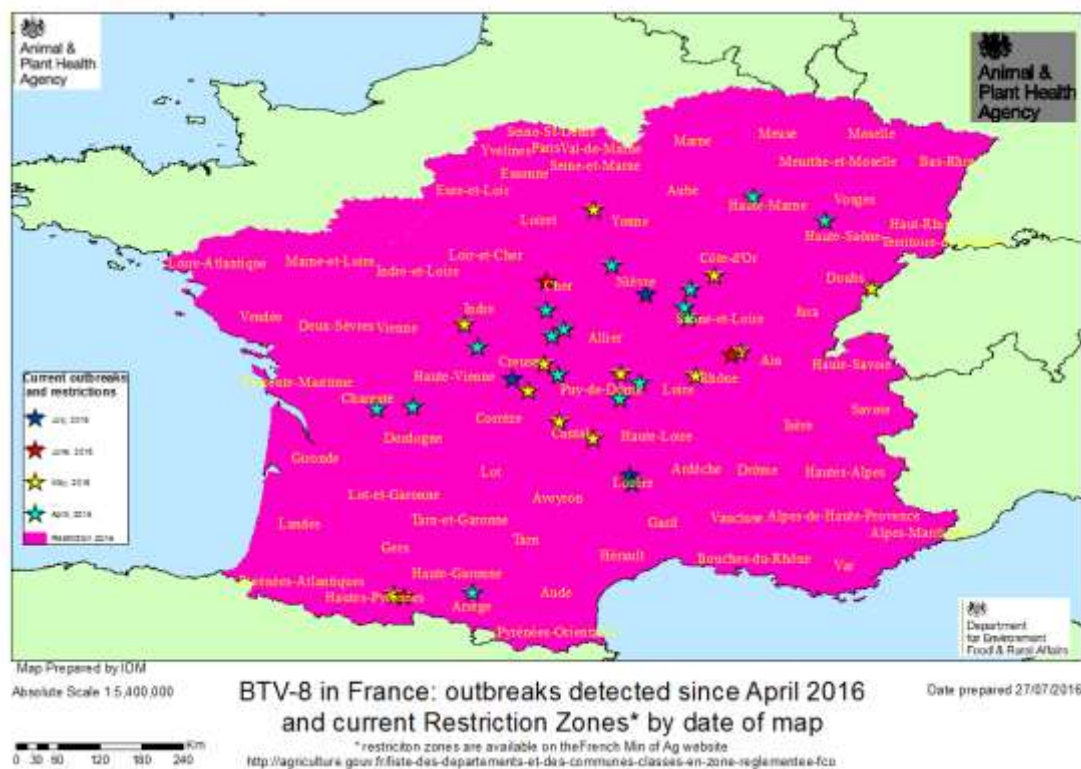
21st July 2016

Ref: VITT/1200 BTV-8 in France

Disease Report

France has reported four new outbreaks (since our last update on the 1st July) in the départements of Creuse, Lozere and Nièvre, in the central region making a total of 288 outbreaks (see dark blue stars on the map below). While three of the cases were detected as part of surveillance, one was a report case, but all were in cattle and were just one or two animals. There are no further details on the clinical case.

The extent of the restriction zones have not changed as a result of these cases and have not changed since April.



Situation Assessment

There are no recent updates from the French Authorities on the wider epidemiological situation or their surveillance plans.

In the UK, in June, a serological survey of ~200 randomly picked dairy herds across the Southeast and East of England were tested using the ID VET™ milk ELISA on bulk milk

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samples, for antibodies to BTV to ascertain the background level of BTV-seropositive cattle and whether this would be a useful as an early warning system for BTV-8 incursion. The results showed a high proportion of herds (80%) tested positive for BTV antibodies. The test sensitivity is ~30% at 1% within herd seroprevalence and specificity for BTV antibodies is very high (99%). These results suggest that there is a high level of residual *between-herd* seropositivity in dairy cattle in these regions. There are four possible reasons for this, either alone or in combination:

- Animals are still present in the dairy herd which were infected with BTV during the 2007 / 2008 epizootic;
- Animals are still present in the dairy herd which were vaccinated against BTV during or after the 2008 - 2011 vaccination campaign in the UK;
- Animals have been imported into the herds from either areas with circulating BTV or from areas where vaccination was carried out;
- There has been undiagnosed circulating disease in the herds since, or after the 2007/2008 epizootic.

There are no data that can be used to determine how the test results relate to the antibody titres for individual animals, nor whether these are protective, neutralising antibodies or another category of antibody not involved in antiviral activity.

Dairy cattle may still be present several years after either the disease was circulating, or after having been vaccinated, as the replacement rate for cattle ranges from 18% to 35% in the UK with an average lactation age of 3.03 (AHDB, 2016) and around 5% of the UK dairy herd being over eight years of age (AHDB, 1999) although that percentage has reduce in recent years (AHDB, 2014).

Animals which are naturally infected are immune for life and will test positive for antibodies. Of the farms tested this year (n=~200), only eight had been previously tested in 2007/8 as part of surveillance programmes and four of those tested positive then and still tested positive for BTV antibodies in this study in 2016. The other farms had not been tested before.

Although vaccination is recommended to protect an animal for a single year, there are still likely to be residual antibodies as demonstrated by several authors and as confirmed by the OIE and EU Reference Laboratory (The Pirbright Institute) who demonstrated antibodies could be detected up to four years after vaccination (Oura *et al.*, 2012; Batten *et al.*, 2013). Our own testing of animals destined for third country exports has also highlighted that vaccinated animals still express antibodies several years later. Only one bluetongue antibody positive animal needs to contribute to the bulk milk sample for the test to be positive in certain circumstances. This would depend on the strength of the individual animal's immune response and on the number of animals which contributed to the bulk milk sample. The BTV vaccination coverage in the South/ South East of England following the 2007/8 outbreak was very high (~90%).

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It is possible that animals entered the herds from another country where vaccination was carried out since 2008, and this needs to be investigated more thoroughly. The ELISA used in this study will only detect BTV group-specific antibodies, not BTV strain-specific antibodies, so vaccination against BTV-1, BTV-2 or BTV-4 (which are currently present in Europe) could also produce a non-negative result in the ELISA.

We consider the likelihood of BTV-8 virus circulating in the years between 2007 and present day to be unlikely for several reasons: our scanning surveillance (investigation of all clinical cases or seropositive lab results reported to APHA) has not detected any cases; we continually monitor and assess the risk of incursions, and this risk level has been very low in the intervening years; all imported cattle from BTV-8 at-risk areas are tested for BTV and no infected animal has been imported since this outbreak in France began; the small number of cases in the UK in 2007-8 in comparison to the Continent and the high level of vaccination in the North East Europe region meant multiple incursions through BTV-infected midges were very unlikely and the number of naïve livestock would have been too low to maintain infection (the R_0 , or basic reproductive rate of BTV-8 infection in the UK would have fallen quickly below 1, meaning disease would have stopped spreading). Also, none of the recently increased number of BTV report cases that have been triggered by the greater level of awareness of BTV amongst Vets and farmers, have proven to be positive.

Conclusion

Our risk level remains the same as our previous report, at medium, for this time of year. The findings from the BTV bulk milk survey must be treated with caution. This does not imply that there is protective immunity in the dairy herd in the study areas. Each positive result could be caused by a few or even just one animal having an antibody titre due to past infection or vaccination and contributing to the bulk sample. The level of antibody itself cannot be determined from this single test and a positive result should not be taken as a sign for protective immunity of the herd. Some proportionate investigations will be carried out to ascertain the likely source of antibody positive animals within these herds.

We will continue to monitor the current situation in France and report any further updates from the French Authorities.

BTV-8 vaccine is now available for the GB market from mid-July, and the decision to vaccinate should be taken by the farmer, in consultation with their private veterinary surgeon.

For information on bluetongue and the vaccine availability in GB, see the announcement by the NFU at www.nfuonline.com/bluetongue

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