



## International Animal Health Division

International Animal Disease Monitoring

## Preliminary Outbreak Assessment



Ref: VITT 1200/BT - BULGARIA

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# Bluetongue in sentinel goats in Bulgaria

**Note:** Defra's International Animal Health Division (IAHD) monitors outbreaks of high impact diseases around the world. Bluetongue (BT) is among those diseases of major concern.

## Disease Report

Bulgaria has reported the detection of BT antibodies in sentinel goats showing no clinical signs. The goats were located in Burgas county (south-eastern Bulgaria) on 10 October



2006 (see map). This detection occurred in animals belonging to the 2006 BT surveillance programme in Bulgaria (see map). In this programme, blood samples from cattle and goats in villages and towns in eleven counties that lie along the southern and western borders of the country are tested for antibodies to BTV (European Commission, 2006). Laboratory testing and virus isolation at the

National reference laboratory in Sofia is underway and serotype will be determined at the Community Reference Laboratory, U.K.

## Situation Assessment

Outbreaks of the BT virus serotype 9 have been reported from Burgas, Yampol and Slive regions of Bulgaria in July-August 1999. This outbreak resulted in 2-4% mortality and 40-60% morbidity in sheep. Subsequently, the disease was reported from Edirne region in Turkey and Euros and Rodopi in Greece (FAO-EMPRES, 1999). In addition to serotype 9, serotypes 4 and 16 were also identified (Listes and others, 2004).

In 2001, clinical BT occurred again in Bulgaria, in addition to Serbia, Montenegro, Kosovo (UN Administered), Macedonia and Bosnia & Herzegovina 2001. This outbreak was due to BTV serotype 9. (Baylis and Mellor, 2001; Djuricic and others, 2004; FAO-EMPRESS, 2006). In 2001, Greece again experienced an outbreak of BT, this time caused by BT virus serotype 1 (Namikou and others, 2004).

In 2002, the BT virus was recorded in Albania for the first time (Listes and others, 2004). The disease was recorded in western parts of Serbia, Montenegro, eastern parts of Bosnia & Herzegovina and southern Croatia in 2003 (Djuricic and others, 2004). Again in 2004, BT



virus serotype 9 was isolated in Croatia. Although no disease was reported, serological evidence of BTV was demonstrated in surveillance programmes in Kosovo in 2003 and 2004 (Osmani and others, 2006).

Whilst there have been 4 BTV serotypes (1, 4, 9 and 16) isolated from sheep in Greece and Western Turkey, only BTV 9 has spread northwards through the Balkans.

These outbreaks occurred in the regions where the main Afro-Asiatic vector *Culicoides imicola* has never been found, therefore a possible involvement of novel *Culicoides* vectors (i.e. *C. pulicaris*, *C. obsoletus*) was suggested (FAO-EMPRESS, 2006). Serological testing in southern Croatia revealed an overall prevalence of 18.7%, with the highest prevalence recorded in cattle (49.9%). The prevalence was lower in goats (15.9%) and sheep (13.7%). Clinical signs were recorded in sheep and goats but not in cattle (Listes and others, 2004).

Some studies indicate that the minimum infection rate of *C. obsoletus* was found to range from 0.05% to 0.51%, therefore, they are commonly considered to be a less competent vector for the virus than *C. imicola* (De Liberato and others, 2005). However, it is hypothesised that the distribution and abundance of the vectors is directly related to the intensity of outbreaks and their yearly distribution and that nightly catches of more than 400 or more *C. obsoletus* and 150 or more *C. pulicaris* may be required to trigger a local spread (Torina and others, 2004).

In summary, there have been five different serotypes of BT virus detected in the Mediterranean Basin. The molecular epidemiology investigation has revealed the following potential origins of the virus isolates during these incursions along the known genetic 'east-west' split of BT viruses (Maan and others, 2004):

- a) The BT virus serotype 1 isolated from Greece in 2001 was shown to be closely related to a group of BT virus serotype 1 from India which may have spread westwards via the Middle East or eastern Turkey.
- b) the BT virus serotype 2 isolates appear to be closely related to viruses from sub-Saharan Africa (Nigeria, Sudan and South Africa).
- c) The BTV virus serotype 4 isolates may be divided into two subgroups. One subgroup contained strains representing western grouping (Africa, South America and Turkey). The other subgroup contained strains which are more related to distinct Far Eastern grouping (China)

- d) the BTV serotype 9 isolates appear to belong to the same lineage as those from Asia indicating westerly spread. This type has also been reported in Turkey (Anatolia), Syria, Jordan and Israel over the past several years.
- e) The BT serotype 16 isolates appear to be clustered in two subgroups. One group contained isolates from Turkey which showed close relationship to South African reference and vaccine strains. The other subgroup contained isolated that showed less closely relationship to the strain from Nigeria.

Clinical observations suggest that BT virus type 9 appear to be consistently of high virulence, BT virus serotypes 4 and 16 appear to be generally less virulent, while BT virus type 1 appear to display varying virulence depending on the species and breed, and abundance of local vectors and climatic conditions (Panagiotatos, 2004).

Eastern Europe experienced sporadic incursion of various serotypes of BT virus for the past few years. However, it remains unclear whether these incursions of the virus are true evidence of westward spread of various serotypes of the BT virus by infected midges from neighbouring regions or whether movement of animals may have a role to play in the introduction of the virus. While these incursions appear to have been successfully contained in the past in Greece and Bulgaria, the epidemiological situation in Turkey and Balkans remains unclear which creates difficulties in assessment of potential risks.

Therefore, more information would be required to ascertain the occurrence and distribution of BT virus types; geographical occurrence and abundance of vectors; potential involvement of other, more commonly widespread vectors; particularly those that are perceived as 'exotic' in order to define most appropriate disease prevention and control measures in the region (Panagiotatos, 2004). Similarly, this may apply to countries in northern Africa given that increased movements of animals from sub-Saharan Africa may occur due to better transportation.

TRACES (EU electronic notification system) shows no imports of susceptible species or their products from Bulgaria to the UK for the past two months.

## Conclusion

Based on the disease report and situation assessment, the likelihood of the introduction of this disease from Bulgaria to the UK before and after this outbreak is considered negligible. The IAHD does not intend to carry out and publish a full risk assessment on this outbreak but will continue to monitor developments and re-assess the situation.

## References

- European Commission, (2006). Bluetongue - Bulgaria. Health & Consumer Protection Directorate-General, Directorate D, Brussels, D1 BVG (06)D/412794. 10 October 2006. Facsimile received on 10 October 2006 at 14.58pm.
- De Liberato, C., Scavia, G., Lorenzetti, R., Scaramozzino, P., Amaddeo, D., Cardeti, G., Scicluna, M., Ferrari, G., Autorino, G.L., (2005). Identification of *Culicoides obsoletus* (Diptera: Ceratopogonidae) as a vector of bluetongue virus in central Italy. *Veterinary Record*, 156, 301-304.
- Djuricic, B., Nedic, D., Lausevic, D., Pavlovic, M. (2004). The epizootiological occurrence of bluetongue in the central Balkans. *Veterinaria Italiana*, 40(3), 105-107.
- FAO-EMPRES, (1999). Bluetongue emergency in Bulgaria, Turkey and Greece. *Empres Transboundary Animal Disease Bulletin*, No.11. Accessed 11 October 2006 (<http://www.fao.org/docrep/X3444E/x3444e04.htm>)
- FAO-EMPRES, (2006). *Empres Watch: EMPRES factsheet on Bluetongue in Europe*. Accessed 11 October 2006

[http://www.fao.org.ec/archivos/empres/EW\\_europe\\_sept06.pdf#search=%22EMPRES%20wach%20september%202006%22](http://www.fao.org.ec/archivos/empres/EW_europe_sept06.pdf#search=%22EMPRES%20wach%20september%202006%22)

- Baylis, M., Mellor, P.S. (2001) Bluetongue around the Mediterranean in 2001. *Veterinary Record* 149, 659.
- Listes, E., Bosnic, S., Benic, M., Lojkic, M., cac, Z., Cvetnic, S., Madic, J., Separovic, S., labrovic, A., Savini, G., Goffredo, M., (2004). Serological evidence of bluetongue and a preliminary entomological study in southern Croatia. *Veterinaria Italiana*, 40(3), 221-225.
- Maan, S., Samuel, A.R., Maan, N.S., Attoui, H., Rao, S., Mertens, P.P.C., (2004). Molecular epidemiology of bluetongue viruses from disease outbreaks in the Mediterranean Basin. *Veterinaria Italiana*, 40(3), 489-496.
- Namikou, K., Mangana-Vougiouka, O., Panagiotatos, D.E., (2004). Overview of bluetongue in Greece. *Veterinaria Italiana*, 40(3), 108-115.
- Osmani, A., Murati, B., Kabashi, Q., Goga, I., Berisha, A., Wilsmore, A.J., Hamblin, C., (2006) Evidence for the presence of bluetongue virus in Kosovo between 2001 and 2004. *Veterinary Record*. Vol.158, 393-396.
- Panagiotatos, D.E., (2004). Regional overview of bluetongue viruses, vector surveillance and unique features in eastern Europe between 1983 and 2003. *Veterinaria Italiana*, 40(3), 61-72.
- Torina, A., Caracappa, S., Mellor, P.S., Baylis, M., Purse, B.V., (2004). Spatial distribution of bluetongue virus and its *Culicoides* vectors in Sicily. *Medical and Veterinary Entomology*, Vol.18, No.2, 81-89.