

Bluetongue virus and its vectors in Switzerland: First results of a new surveillance programme

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Abstract

Since 1998, Bluetongue (BT), a vector-borne virus infection of ruminants, has affected many countries in Europe, including France and Italy; neighbouring countries of Switzerland. Switzerland was historically considered free from BT because of its latitude and climate. The main BT vector in Europe, *Culicoides imicola* (Diptera: Ceratopogonidae) is however present at a distance of only 360 km south of the Swiss border. Surveillance for BT virus and its vectors was therefore initiated.

In 2003, vector occurrence and immune status of Swiss cattle herds were assessed. 41 trapping sites, located in high risk areas for *C. imicola* occurrence, were sampled using black light traps. A single *C. imicola* was caught close to the Italian border. Alternative potential BTV vectors of the *C. pulicaris* and *C. obsoletus* complexes, were abundant in all sampled regions with individual catches exceeding 70,000 midges per trap night. 2,437 cattle sera, analysed with a commercial c-ELISA, were negative with a mean herd sensitivity of 98.8%. The achieved cumulative level of confidence, based on a minimal expected prevalence of 2%, was 99.99%.

In 2004, based upon the virtual absence of the main BT vector and the sero-negativity of the cattle population, 12 sentinel cattle herds were selected to establish an early warning system for BT. 133 catches were morphologically identified with no more *C. imicola* caught. Additionally, cattle at all sites were serologically negative for BT antibodies using c-ELISA. In summary, until 2004, the main BT vector, *C. imicola* has not established in Switzerland and BT virus did not circulate among Swiss cattle.