Distribution and Abundance of Biting Midges, the Potential Vectors of Bluetongue, in Switzerland

C. Kaufmann[1] F. Schaffner[1*]
A. Tschuor[2] A. Mathis[1]

Indigenous biting midges proved to be highly efficient vectors for the recently introduced bluetongue virus serotype 8 (BTV-8). Since its introduction in Northern Europe, the virus has rapidly spread, reaching Switzerland in 2008. The aims of this project are to determine the distribution, abundance, and activity patterns of biting midges occurring in Switzerland. Insects were caught with Onderstepoort ultraviolet light traps once weekly at stations representing the 12 climatic regions of Switzerland throughout the whole year. In addition, catches were carried out at five stations in an Alpine region of Switzerland at altitudes between 1300 and 2000 metres above sea level from the end of June to the end of October 2008. Midges were grouped under the stereomicroscope into Obsoletus complex, Pulicaris complex or other *Culicoides* spp. Midges were caught at all stations, albeit in very different numbers. The highest monthly average was 10,000 midges per night (Dittingen); the third highest average was recorded at the highest station (Juf, 2130 m). At stations below 1500 m, midges of the Obsoletus complex (98% in Dittingen) were predominant. In Central Europe, they are considered the most likely vectors responsible for BTV transmission. With increasing altitude, midges of the Pulicaris complex prevailed (91% in Juf). Catches in two neighbouring Alpine mountains of similar altitude (approximately 2000 m) varied considerably. It is most likely that there are no midge-free zones in the agricultural areas (including Alpine summer pastures) of Switzerland, but the vector competence of the various midges with regard to BTV needs to be urgently clarified.

Keywords: *Culicoides* – distribution – Switzerland.

1. Institute of Parasitology Vetsuisse Faculty, University of Zürich, Winterthurerstrasse 266a, CH-8057 Zürich, Switzerland.
2. Department of Farm Animals, University of Zürich, Switzerland.

* Corresponding author
Tel.: +41 44 63 58 524
E-mail: Francis.Schaffner@access.uzh.ch