

INTERACTION BETWEEN ORBIVIRUSES AND THEIR *CULICOIDES* VECTORS

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■ VECTOR SURVEILLANCE

Bluetongue, African horse sickness and epizootic haemorrhagic disease are non-contagious, infectious diseases, caused by orbiviruses transmitted by *Culicoides* biting midges. Recent incursions of bluetongue virus (BTV) into both Southern and Northern European countries have highlighted our lack of knowledge in the mechanisms involved in the transmission of orbiviruses, which are of importance in understanding their spread. This presentation will discuss preliminary results of vector competence studies and provide an overview of future investigations. An understanding of the rates and temperature limits of virus replication and effects of temperature on vector metabolism can provide simple tools to predict the probability of virus establishment and onwards transmission subsequent

to new incursions. Experiments showed that it was possible to use KC cell lines originating from *C. sonorensis* embryos as a surrogate system to screen rapidly replication rates in preference to the classical method of infecting and incubating adult insects via membrane feeding on a blood/virus meal. Some of the issues that arose in the development of detection assays are examined. The value of these techniques is then discussed in relation to understanding the effect of laboratory passage history upon orbivirus infectivity and detection, and this is related to an overview of current BTV strains' distribution. Finally, future areas of interest that may develop from these studies are described.

KEYWORDS: *CULICOIDES* – *ORBIVIRUS* – VECTOR.

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