

Overview of the bluetongue situation in Europe with emphasis on *Culicoides* vectors.

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“What is disturbing about the metaphor of relations between human beings and viruses as a chess game is that the virus always plays with the white pieces and we human beings with the black. The virus makes its move, and we react”.

(J. M. Coetzee, Diary of a Bad Year, 2007).

INTRODUCTION

Bluetongue (represented by serotype 8) appeared in northern Europe in August 2006. Subsequently, it spread across five Member States (MSs) and by December had affected an area of approximately 170 000 km². Both cattle and sheep showed clinical signs and at least two species of *Culicoides* i.e. *C. obsoletus* and *C. dewulfi* were shown to be involved in its transmission. All affected MSs initiated national entomological surveillance programmes with the result that *Culicoides* are now monitored widely using mainly Onderstepoort-type blacklight traps. The most significant findings made over the past year are summarised and discussed with emphasis on The Netherlands, where 20 farms are sampled weekly.

RESULTS

***Culicoides* activity during the winter months of 2006/7**

In Holland (and in Belgium) low numbers of *Culicoides* (almost exclusively of the Obsoletus Complex and excluding *C. dewulfi*) were captured almost each week between January and March; 99% were freshly emerged nullipars indicating low-level breeding to have continued throughout the winter.

How did BTV-8 overwinter between 2006 and 2007?

Between January and March (\pm 90 days) the absence of older parous, potentially BTV-infected, previous-season adult midges in light trap collections led to the (false!) hope that BTV would not survive the winter. However, its ferocious recrudescence in 2007 invites many questions, which are discussed.

More *Culicoides* in a cooler and wetter 2007...!

The average number of vectors captured in Holland in 2007 is approximately 10x greater than the number collected in 2006 despite it being cooler and wetter quite unlike last year (the hottest on record since measurements began in 1706). This would indicate that warmer winters and moderate ‘normal’ summers favour vector proliferation and perhaps also the endemisation of viruses exotic to Europe.

Marked changes in some vector *Culicoides* abundances

The Obsoletus Complex is the most prevalent vector in Holland and dominant on half the farms surveyed. However, in parts of southern Holland, *C. dewulfi* has this year superseded *C. obsoletus*. If a similar reversal has occurred also elsewhere in Europe, it may in part explain the intensity of the current outbreak.

Diurnal biting activity in *Culicoides*

C. dewulfi and *C. obsoletus* attack livestock in broad daylight while they are at pasture, especially on overcast days. Aggravating the situation is that they enter also animal houses after dark. Therefore, the attack of livestock by day and at night, and both indoors and outdoors, complicates our fight against BT. At this stage vector control seems to hold little promise for halting the spread of the disease.

CONCLUSIONS

In 2007 BT continued to spread and included a jump across the English channel. The BT restriction zone now covers an area of almost one million km². There are no obvious geographical or topographic boundaries that might halt the advance of BTV-8, making it likely that it will continue to do so in 2008 (and beyond) until it reaches the — as yet unknown — limits of its range. This is daunting when it is considered that vector *Culicoides* (and susceptible ruminant hosts) occur across the entire Holarctic Region, which includes the Mediterranean Basin where *C. imicola* lies in waiting, and North America, where outbreaks of BTV and Epizootic Haemorrhagic Disease of Deer virus (EHDV — another *Culicoides*-borne pathogen), are occurring also. In this respect it would seem that warmer winters will only add to the conundrum in future promoting rather than suppressing virus survival and vector longevity. Vaccination still seems to be the best defence available to us. But have we waited too long?