

Distribution of potential bluetongue vectors on Belgium farms

SIR, – During the winter of 2006/07, Losson and others (2007) monitored the presence of biting midges indoors on a farm. *Culicoides* species were caught throughout winter when temperatures ranged from 6 to 12°C. This study suggested that *Culicoides* species are either able to survive the winters of northern Europe or that adult emergence from breeding sites is possible at these temperatures.

In 2007, populations of biting midges were monitored on a cattle and sheep farm, both indoors and in the immediate surroundings of the farms, using UV light traps. During this year both farms experienced several clinical cases of bluetongue.

The first monitoring – carried out from early April until the end of May 2007 on a cattle farm at Gembloux (Belgium) (50°33'19" N, 4°41'06" E) – yielded 3223 and 149 *Culicoides* midges from an open cattle shed and a nearby meadow, respectively. The cattle herd was put on pasture on April 4, 2007; animals returned to the shed every evening. The second sampling took place from mid-August until December 2007 on a sheep farm at Faulx-Les-Tombes (Belgium) (50°26'36" N, 5°01'55" E), and yielded 17,450 and 1121 biting midges from the animal accommodation and a nearby meadow, respectively. Sheep kept indoors were either fattening lambs aged between four and five months or ewes with their suckling lambs. Identification of the *Culicoides* species revealed that the bluetongue virus potential vector species in northern Europe (*Culicoides chiopterus*, *Culicoides dewulfi*, *Culicoides obsoletus/scoticus* and *Culicoides pulicaris*) accounted for 98 and 99 per cent of the insects captured in the cattle shed and in the sheepfold, respectively.

Females represented more than 99 per cent of all individuals captured indoors. Males accounted for 13 and 10 per cent of the individuals captured in the cattle and sheep meadows, respectively. Indoors, more than 50 per cent of the females belonging to the vector species were nulliparous (with empty and unpigmented abdomens) except in the case of *C. chiopterus*, which had less than 9 per cent nulliparous females. This suggests that the cattle shed and sheepfold harboured a lot of newly emerged biting midges. Moreover, in August at the peak of the epizootics, 610 blood-engorged *Culicoides* females (4.5 per cent of the total females trapped in August) were captured inside the sheepfold. The presence of recently fed females indicates that females were actively feeding at that time; this is corroborated by the fact that two lambs died

of bluetongue two to three weeks later in September.

In conclusion, when animals are kept indoors, potential vectors of bluetongue virus may be much more abundant than outdoors. This study shows clearly a strong preference of these biting midges for the farm and its immediate surroundings.

To date, no control strategy against these biting midges and their immature stages has been defined. In Europe, a vaccination campaign using an inactivated vaccine has already been launched in some countries. Additional control measures aiming at the reduction of midge populations at farm level could represent a useful additional option.

Jean-Yves Zimmer, Eric Haubruge, Frédéric Francis, Jeannine Bortels, Emilie Joie, Gregory Simonon,

Gembloux Agricultural University, B-5030, Gembloux, Belgium

Redgi De Deken, Gill De Deken, Isra Deblauwe, Maxime Madder,

Prince Leopold Institute of Tropical Medicine, Department of Animal Health, B-2000, Antwerp, Belgium

Christiane Fassotte,

Ruddy Cors, Thibault Defrance,
Walloon Agricultural Research Centre, Department Biological Control and Plant Genetic Resources, B-5030 Gembloux, Belgium

Claude Saegerman,

Etienne Thiry, Bernard Mignon,

Julien Paternostre,

Bertrand Losson, *Faculty of Veterinary Medicine, University of Liège, B-4000 Liège, Belgium*

Nathalie Kirschvink, *University of*

Namur, Animal Physiology, Veterinary Department, B-5000 Namur, Belgium

Reference

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