

# Insecticidals and Bluetongue disease

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**B**luetongue (BT) is an infectious, non-contagious, insect borne viral disease of cattle, sheep and other domestic and wild ruminants. The Bluetongue virus (BTV) belongs to the genus Orbivirus of the family Reoviridae.

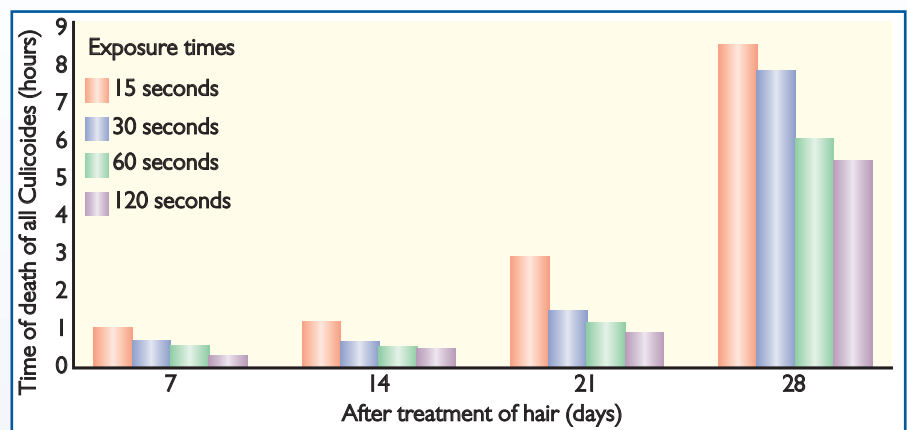
At present, 24 serotypes of BTV are recognised worldwide. In 2007, animals on more than 50,000 farms throughout Europe became infected with the BT disease out of serotype eight, with resulting abortions, milk loss, loss of calves, retarded weight gain in cattle and high death toll in sheep (EFSA, 2008).

Although midges did not show activities as vectors of diseases in central Europe in the past, biting midges of the species *Culicoides* were identified as a vector for the BTV and, therefore, responsible for the spread of the virus. The epidemiology of BT in Europe is closely related to the biology of the vector. Therefore, bluetongue is a seasonal disease generally observed in late summer and early autumn. Virus transmission begins in the early spring with the onset of the insect activity and continues until the first hard frosts.

It only requires a single midge carrying BTV to infect the animal. Therefore, a key element of sanitary measures to be taken in order to reduce the risk of BTV spreading is the protection of ruminants against the vector with insecticides.

These insecticides can either be sprayed onto the walls of the building where animals are housed or poured directly onto the skin of the animals. Treatment of individuals is highly recommended, since the animals are susceptible to midge attacks both housed or outside.

While flies and tabanids attack predomi-



**Fig. 1. The effects of deltamethrin treated hair from cattle on *Culicoides* species (Mehlhorn et al).**

nantly the head and upper body of the animal, *Culicoides* midges prefer to bite along the lower side of the belly and the legs (often just above the fetlock).

Insecticide treatment of ruminants brings advantages, since each avoided bite decreases the risk of disease transmission.

Every female midge that is killed also reduces the breeding population and the number of progeny that enter the surroundings of grazing ruminants.

Early season treatment – depending on the weather/temperature – will help to minimise midge populations in the livestock surrounding and thus reduce the risk of virus transmission. A new pilot study done by Mehlhorn et al proves that Butox 7.5 pour-on paralyses or kills *Culicoides* midges, the vector of bluetongue disease. In this trial the efficacy was proven over a period of 28 days in cattle and sheep. Three important features can be considered:

- *Culicoides* midges are sensitive to Butox 7.5 pour-on when used in cattle and sheep.
- The product reaches the feet of the treated animals, which are one of the preferred biting sites of *Culicoides* midges.
- *Culicoides* midges coming into contact with the product are paralysed or killed effectively.

Previous experience of BT outbreaks in the Mediterranean area have shown that the best approach for its control includes a combination of vaccination, vector control, surveillance and livestock movement restrictions when required. ■

Mehlhorn, Heinz et al. 2008, Butox 7.5 pour on: A deltamethrin treatment of sheep and cattle: pilot study of killing on *Culicoides* species (*Ceratopogonidae*); Parasitol. Research, Vol. 102, Issue 3, Feb. 2008, 841 S. 515-518.