Surveillance programmes for terrestrial and aquatic animals in Norway

Norwegian Veterinary Institute

Annual Report · 2015

The surveillance programme for bluetongue in Norway 2015

Veterinærinstituttet

Norwegian Veterinary Institute

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The surveillance programme for bluetongue in Norway 2015

Johan Åkerstedt, Ståle Sviland, Siv Klevar, Attila Tarpai

All bulk milk samples tested in 2015 were negative for antibodies against bluetongue virus serotype 8.

Introduction

Bluetongue is a disease caused by Bluetongue virus (BTV) which comprises 24 serotypes (BTV 1-24). The virus is insect-borne and midges of genus *Culicoides* transmit BTV to susceptible ruminants, after being infected by feeding on viraemic animals. After replication in the insect's salivary glands, which depends upon ambient temperature, the virus can be transmitted to new vertebrate hosts. Therefore, infection has a seasonal occurrence (1).

In 2006 an outbreak of bluetongue serotype 8 (BTV 8) started in the Netherlands and rapidly spread among the ruminant population in the European countries the following years. A surveillance programme for BTV 8 based on bulk milk serology was conducted in 2008. Four cattle herds in the southern part of Norway were seropositive for BTV 8. After 2 years of comprehensive monitoring and surveillance of BTV 8 without any further discovery of infected herds, Norway regained free status for bluetongue. The surveillance programme for BTV could be reduced to a small programme based on bulk milk serology (2-4).

Aim

The aim of the surveillance programme for bluetongue is to document freedom from the infection in Norway according to the demands in Regulation (EC) No.1266/2007, Annex 1.1.2, and to contribute to the maintenance of this favourable situation.

Material and methods

The target population of dairy herds consisted of all cattle herds delivering milk to dairies during the sampling period from October to November, after the end of the vector season. Bulk milk samples were collected from 504 dairy herds from counties in the southern part of Norway. The number of herds per county and the number of herds selected in the surveillance programme for bluetongue in 2015 is given in Table 1.

The samples were tested with an Indirect ELISA (ID Screen® Blue Tongue Milk) for detection of antibodies against BTV. Samples with inconclusive or seropositive ELISA results were retested in duplicate with the same ELISA. In case of positive bulk milk test, blood samples from all lactating dairy cows in the herd would be examined for antibodies with the ID Screen® Bluetongue Competition ELISA. In case of seropositive animals, all animals in the herd would be examined for BTV with real time RT-PCR (5).

The samples were analysed at the Norwegian Veterinary Institute in Sandnes and the Section for Immunology in Oslo.

Results and discussion

Of 537 bulk milk samples collected from 504 farms in 2015, none tested positive for BTV 8. The agent has not been detected in Norway since 2009 (6) thus the cattle population has no antibodies against BTV.

Cattle are efficient sentinel animals for bluetongue. Beef cattle are not included in the programme because both dairy and beef cattle are kept in the same geographical areas. Most dairy cattle have to be kept outdoors, at least 8 weeks during the summer, making their exposure to midges not very different from the exposure of beef cattle to the vector.

Table 1. Number of dairy herds in 2015 and numbers of dairy herds tested in the surveillance programme for bluetongue in Norway in 2015.

County	Number of dairy herds	Number of dairy herds tested
Østfold	143	94
Akershus	129	92
Oslo	2	1
Hedmark	542	9
Oppland	1 140	3
Buskerud	192	10
Vestfold	70	35
Telemark	95	15
Aust-Agder	94	43
Vest-Agder	251	85
Rogaland	1 279	106
Hordaland	550	11
Total	**4 487**	**504**

The most likely method of bluetongue introduction to Norway is either by import of infected animals or by airborne transfer of infected *Culicoides* (7). Imports of ruminants from EU countries not free from bluetongue, and all imports from countries outside EU are tested for the disease. The topography in Norway with hills and valleys makes it difficult for long distance transfer of *Culicoides* from one local area to another and there are relatively few ruminants per area compared to the rest of Europe which makes it less likely for a widespread of the agent if BTV should be introduced.

The most important purpose of the surveillance programme is to reveal potential infections brought in with airborne midges during the vector season. The most probable entry of windborne infected midges is in the southern part of Norway from the beginning of May until the end of October. Infected midges may come from Sweden, Denmark or Scotland. Testing of bulk milk collected from the end of October and onwards will detect any infection introduced during the vector season.

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The primary mission of the NVI is to give research-based independent advisory support to ministries and governing authorities. Preparedness, diagnostics, surveillance, reference functions, risk assessments, and advisory and educational functions are the most important areas of operation. The Institute has its main laboratory in Oslo, with regional laboratories in Sandnes, Bergen, Trondheim, Harstad and Tromsø, with about 330 employees in total.

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