Surveillance and control programmes for terrestrial and aquatic animals in Norway
Norwegian Veterinary Institute

Annual Reports · 2011

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Annual report 2011

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ISSN 1890-9973

Title:
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Date: 9 July 2012

Front page photo: Hanne Mari Jordsmyr

Example of citation:
Åkerstedt J, Norström M, Mørk T. The surveillance and control programme for enzootic bovine leukosis (EBL) in Norway 2011. *Surveillance and control programmes for terrestrial and aquatic animals in Norway. Annual repo*rt 2011. Oslo: Norwegian Veterinary Institute 2012.

The surveillance and control programme for enzootic bovine leukosis (EBL) in Norway 2011

Johan Åkerstedt, Madelaine Norström, Tormod Mørk

All milk and blood samples tested in 2011 were negative for antibodies against bovine leukaemia virus (BLV).

Introduction

Enzootic bovine leukosis (EBL) is caused by bovine leukaemia virus (BLV), in the genus retrovirus. Most infections are subclinical, but approximately a third of cattle over 3 years old develop persistent lymphocytosis, and a smaller proportion develop lymphosarcomas in various internal organs. EBL is classified as list B disease in Norway and is notifiable to the Office International des Epizooties.

The disease had never been reported in Norway until antibodies against BLV were detected in eight dairy herds in samples collected through the surveillance and control programme in 1995 (1). No new herds have tested positive since 1997 (2), except a single positive bulk milk sample in one herd in 2002, and one blood sample from one of the cows in that herd. After extensive follow up, it was concluded that the positive antibody results were due to false positive reactions (3).

Free status from EBL was granted to Norway by the EFTA Surveillance Authority in 2007.

The Norwegian Food Safety Authority is responsible for carrying out the surveillance and control programme for EBL. The Norwegian Veterinary Institute is in charge of planning the programme, collecting the bulk milk samples from the dairies, and performing the tests. Official inspectors from the Norwegian Food Safety Authority collected the blood samples from beef cattle at slaughterhouses.

Aims

The aim of the surveillance and control programme for EBL in 2011 was to document freedom from the infection in Norway according to Council Directive 64/432/EEC as amended and to contribute to the maintenance of this favourable situation.

Materials and methods

The surveillance and control programme included both dairy and beef herds. Bulk milk samples from the dairy herds were provided by the dairies. From the beef herds, individual blood samples from animals older than 24 months were collected at slaughterhouses, with a maximum of ten animals per herd.

The target population of dairy herds consisted of all cattle herds delivering milk to dairies during the sampling period. In 2011, bulk milk samples from 1,226 randomly sampled dairy herds were tested. The target population of beef herds was all herds delivering cattle to slaughter in 2011. A total of 4,758 individual blood samples from 1,278 beef herds were analysed in pools. The sampled herds represented approximately 17.0% of the Norwegian cattle herds (Table 1).

Bulk milk samples and blood samples were examined by an indirect enzyme-linked immunosorbent assay (ELISA; Svanova Biotech AB, Uppsala, Sweden) at the Norwegian Veterinary Institute in Sandnes (4).

Table 1. Numbers of dairy herds and beef herds within the frame of the Norwegian surveillance and control programme for EBL in 2011

Herd category	Total no. of cattle herds*	No. of herds tested	% tested of the total no. of herds
Dairy herds**	10,500	1,226	11.7
Beef herds***	4,200	1,278	30.2
Total	**14,700**	**2,504**	**17.0**

* Based on data from the Register of production subsidies as of 31 July 2011.
** Cattle herds delivering milk to dairies.
***Sampling performed at slaughterhouses.

Results

All bulk milk samples and blood samples tested in 2011 were negative for antibodies against BLV. Table 2 shows the results of the testing during the period from 1995 to 2011.

Table 2. Results of antibody testing in the surveillance and control programme for EBL in the Norwegian bovine population during the period 1995-2011

	Dairy herds	Beef herds		
Year	No. of bulk milk samples tested	No. of beef herds sampled*	No. of individuals tested	No. of positive samples
1995	25,131	1,532	9,354	8 (bulk milk)
1996	2,278	303	1,523	1 (bulk milk)
1997	26,903	2,214	16,741	0
1998	23,581	2,191	17,095	0
1999	19,933	2,382	18,274	0
2000	1,590	340	2,892	0
2001	2,564	434	3,453	0
2002	2,308	462	3,693	1 (bulk milk)
2003	1,845	449	3,901	0
2004	1,573	402	3,364	0
2005	1,919	484	4,766	0
2006	1,673	479	4,624	0
2007	1,575	412	4,241	0
2008	1,422	444	4,616	0
2009	1,315	435	5,038	0
2010	1,265	507	4,020	0
2011	**1,226**	**1,278**	**4,758**	**0**

*Sampling performed at slaughterhouses in 2011.

Discussion

The requirement from the EU for granting an EBL free-status is that the herd prevalence must be lower than 0.2%, which represents 29 herds out of the total number of 14,700 herds.

No new cases have been reported since 1997, and the continuous surveillance since 1995 shows that the Norwegian cattle population is free from EBL according to the requirements (2, 3). Initially, all cattle herds were tested annually. Since 2000, a minimum of 10% of dairy and beef cattle herds have been tested each year.

Together with the possible isolation period of six months and the testing protocol for imported animals, the surveillance and control programme for EBL should be an effective means to detect introduction of new infection.

References

1. Tharaldsen J, Ødegaard Ø, Krogsrud J. Smittsom storfeleukose diagnostisert i Norge [Contagious bovine leukosis diagnosed in Norway, No]. Nor Vet Tidsskr 1996; 108: 550.

2. Åkerstedt J, Tarpai A, Mørk T. The surveillance and control programme for enzootic bovine leukosis (EBL) in Norway. In: Sviland S, Hellberg H (editors). Surveillance and control programmes for terrestrial and aquatic animals in Norway. Annual report 2010. Oslo: Norwegian Veterinary Institute; 2011. ISSN 1503-1454.

3. Nyberg O, Tharaldsen J, Heier BT. The surveillance and control programme for enzootic bovine leukosis (EBL) in Norway. In: Mørk T, Hellberg H (editors). Surveillance and control programmes for terrestrial and aquatic animals in Norway. Annual report 2003. Oslo: National Veterinary Institute; 2004. p. 57-62.

4. Klintevall K, Näslund K, Svedlund G, Hajdu L, Linde N, Klingeborn B. Evaluation of an indirect ELISA for the detection of antibodies to bovine leukemia virus in milk and serum. J Virol Methods 1991; 33: 319-33.

The Norwegian Veterinary Institute (NVI) is a nationwide research institute in the fields of animal health, fish health, and food safety. 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 Norwegian Veterinary Institute has its main laboratory in Oslo, with regional laboratories in Sandnes, Bergen, Trondheim, Harstad og Tromsø, with about 360 employees in total.

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The Norwegian Food Safety Authority (NFSA) is a governmental body whose aim is to ensure through regulations and controls that food and drinking water are as safe and healthy as possible for consumers and to promote plant, fish and animal health and ethical farming of fish and animals. We encourage environmentally friendly production and we also regulate and control cosmetics, veterinary medicines and animal health personnel. The NFSA drafts and provides information on legislation, performs risk-based inspections, monitors food safety, plant, fish and animal health, draws up contingency plans and provides updates on developments in our field of competence.

The NFSA comprises three administrative levels, and has some 1300 employees.

The NFSA advises and reports to the Ministry of Agriculture and Food, the Ministry of Fisheries and Coastal Affaires and the Ministry of Health and Care Services.

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