

## The surveillance and control programme for infectious bovine rhinotracheitis (IBR) and infectious pustular vulvovaginitis (IPV) in Norway 2013

*Johan Åkerstedt*

*Madelaine Norström*

*Tormod Mørk*



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## Project managers at the Norwegian Veterinary Institute:

Ståle Sviland (Terrestrial animals)  
Anne-Gerd Gjevre (Aquatic animals)  
Mona Torp (Food safety)

## Publisher

Norwegian Veterinary Institute  
PO Box 750 Sentrum  
N-0106 Oslo  
Norway

Fax: + 47 23 21 60 95  
Tel: + 47 23 21 60 00  
E-mail: [postmottak@vetinst.no](mailto:postmottak@vetinst.no)  
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## Authors:

Johan Åkerstedt, Madelaine Norström, Tormod Mørk

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# The surveillance programme for infectious bovine rhinotracheitis (IBR) and infectious pustular vulvovaginitis (IPV) in Norway 2013

*Johan Åkerstedt, Madelaine Norström, Tormod Mørk*

*All milk and blood samples tested in 2013 were negative for antibodies against bovine herpes virus (BHV-1).*

## Introduction

Infectious bovine rhinotracheitis and infectious pustular vulvovaginitis (IBR/IPV) is a disease caused by bovine herpesvirus 1 (BoHV-1). The virus affects the upper respiratory tract of cattle causing purulent nasal discharge, hyperaemia of the muzzle and conjunctivitis. Signs of general illness are fever, depression, reduced appetite, abortions and reduced milk yield. The virus may also infect the genital tract and cause pustular vulvovaginitis and balanoposthitis. IBR/IPV is classified as a list B disease in Norway and is notifiable to the Office International des Epizooties.

Norway has not experienced clinical outbreaks of infectious pustular vulvovaginitis since the early 1960s, when two outbreaks were diagnosed in cattle. In 1993, animals in one single herd were found seropositive after primary testing of bulk milk samples. Clinical signs of IBR/IPV were not recorded and all animals on the farm were slaughtered. Attempts to isolate the virus from organ samples gave negative results. Contact herds and dairy herds in the same region were found serologically negative (1). Likewise, red deer that were shot in the neighbourhood during the hunting season the same year were found seronegative. Later, BoHV-1 infection has not been demonstrated in Norway.

EFTA Surveillance Authority (ESA) has recognised Norway as free from IBR since 1994. Decisions concerning the additional guarantees relating to IBR/IPV for bovines destined for Norway are described in ESA Decision 74/94/COL. Maintenance of the ESA Decisions accepting the IBR-free status of Norway requires annual reports of the surveillance of the disease.

The Norwegian Food Safety Authority was responsible for carrying out the surveillance and control programme for IBR/IPV. The Norwegian Veterinary Institute was in charge of planning the programme, collecting the bulk milk samples from the dairies and performing the tests. Blood samples from beef herds were collected by inspectors from the Norwegian Food Safety Authority at slaughterhouses.

## Aim

The aim of the surveillance and control programme for IBR/IPV was to document freedom from the infection in Norway according to the demands in ESA Decision 74/94/COL with amendments, and to contribute to the maintenance of this favourable situation.

## Material and methods

The surveillance of cattle for IBR/IPV in 2013 included both dairy and beef herds. Bulk milk samples from the dairy herds were provided by the dairies, while beef cattle older than 24 months were sampled at 14 slaughterhouses, with a maximum of five animals per herd and day of sampling.

The target population of dairy herds consisted of all cattle herds delivering milk to dairies during the sampling period. In 2013, bulk milk samples from 1042 randomly sampled dairy herds were tested. The target population of beef herds was all herds delivering cattle to slaughter in 2013. A total of 4079 individual blood samples from 1167 beef herds were analysed in pools. The sampled herds represented 16% of the Norwegian cattle herds. The number of herds in the surveillance and control programme for IBR/IPV in 2013 is given in Table 1.

All samples were tested for antibodies against bovine herpes virus 1 (BHV-1) using a commercial indirect enzyme-linked immunosorbent assay (ELISA; Boehringer Ingelheim Svanova, Uppsala, Sweden)

at the Norwegian Veterinary Institute in Sandnes. In case of any positive or dubious results, a serum neutralization test would be preformed.

Table 1. Numbers of dairy herds and beef herds within the frame of the Norwegian surveillance and control programme for IBR/IPV in 2013

Herd category	Total no. of cattle herds*	No. of herds tested	Percent of herds tested of the total no. of herds
Dairy herds**	9485	1042	11
Beef herds***	4992	1167	23
<b>Total</b>	<b>13668</b>	<b>2208</b>	<b>16</b>

\*Based on data from the Register of production subsidies as of 31 July 2013.

\*\*Cattle herds delivering milk to dairies.

\*\*\*Sampling performed at slaughterhouses.

## Results

All bulk milk samples and blood samples tested in 2013 were negative for antibodies against BHV-1. Table 2 shows the results of the testing during the period from 1993 to 2013.

Table 2. Numbers of samples and positive results of the surveillance and control programme for IBR/IPV in the Norwegian cattle population during the period 1993-2013

Year	Dairy herds	Beef herds <sup>1</sup>		No. of positive samples
	No. of bulk milk samples tested	No. of beef herds sampled	No. of individuals tested <sup>2</sup>	
1993	26,642	0	0	1
1994	24,832	1,430	5,954	0
1995	25,131	1,532	9,354	0
1996	2,863	303	1,523	0
1997	2,654	2,214	16,741	0
1998	2,816	2,191	17,095	0
1999	2,930	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	0
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	5,048	0
2010	1,265	507	4,020	0
2011	1,226	1,278	4,758	0
2012	1,189	1,178	4,308	0
2013	1,042	1,167	4,079	0

<sup>1</sup>Sampling performed at slaughterhouses from 2011 to 2013.

<sup>2</sup>A small number of blood samples collected at slaughterhouses could originate from dairy herds.

## Discussion

Up to 2008, a blocking ELISA (2), which had been evaluated in a retrospective analysis using a simulation model (3), was used for the surveillance and control programme for IBR/IPV. After participation in a proficiency testing scheme organized by the Veterinary Laboratories Agency Weybridge, New Haw, England, a commercial indirect ELISA replaced the previously used blocking ELISA. The new method was found better suited for testing bulk milk specifically.

In addition to the surveillance programme, all breeding bull candidates are serologically tested before entering the breeding centres, and all breeding bulls are subject to a compulsory test each year.

The results of the programme since 1993 strongly indicate that the Norwegian cattle population is free from IBR/IPV-infection (4).

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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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