



The surveillance programme for infectious laryngotracheitis (ILT) and avian rhinotracheitis (ART) in poultry in Norway 2024

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Authors

Silje Granstad, Anne Bang Nordstoga and Johan Åkerstedt

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Merete Hofshagen, Director of Animal Health, Animal Welfare and Food Safety, Norwegian Veterinary Institute

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Summary

Surveillance based on serological investigations to monitor infectious laryngotracheitis (ILT) in chickens and avian rhinotracheitis (ART) in turkeys in 2024 did not detect antibodies against gallid herpesvirus 1 (infectious laryngotracheitis virus, ILTV) or avian metapneumovirus (aMPV).

Introduction

The Norwegian Food Safety Authority is responsible for the national surveillance programmes for infectious laryngotracheitis (ILT) in chickens and avian rhinotracheitis (ART) in turkeys. These programmes, based on serological investigations, were established in 1998. The Norwegian Veterinary Institute manages the planning, laboratory testing, and reporting components of the programmes. Surveillance is conducted in accordance with Regulation FOR-2022-04-06-631 Dyrehelseforskriften (1). The national surveillance programmes for ILT and ART provide the basis for quarantine requirements related to poultry import, as described in Regulation FOR-2022-04-07-636 Landdyrforflytningsforskriften (2).

ILT is a severe respiratory disease in chickens caused by gallid herpesvirus 1. While it primarily affects chickens, it can also impact pheasants, partridges, and peafowl. The disease is common in commercial chickens in most parts of the world, including European countries (3). Vaccination is the primary method to control the disease in many countries. Chickens are not vaccinated against ILT in Norway. The last time ILT was detected in a commercial poultry flock in Norway was in 1971. Outbreaks of ILT occur sporadically in backyard flocks in Norway (4). ILT is a national list 2 disease in Norway, but it is not listed as a notifiable disease in the EU. The national surveillance program for ILT provides additional guarantees in connection with import and trade, ensuring the quarantine of imported poultry.

ART, also known as turkey rhinotracheitis (TRT) in turkeys, is a highly contagious disease affecting the upper respiratory tract, sometimes combined with reproductive disorders. The disease is caused by avian metapneumovirus (aMPV), a virus considered prevalent in most European countries (3). ART is a national list 2 disease of turkeys in Norway, but it is not listed in the EU. ART has never been diagnosed in turkeys in Norway. The national surveillance program for ART in turkeys in Norway forms the basis for quarantine practices for imported turkeys, as a measure to prevent the introduction of this disease to the Norwegian turkey population.

Aims

The national surveillance programmes for ILT in chickens and ART in turkeys aim to document that the respective Norwegian poultry populations remain free from these diseases, and to support the maintenance of this status. The surveillance is conducted in accordance with Regulation FOR-2022-04-06-631 Dyrehelseforskriften and FOR-2022-04-07-636 Landdyrforflytningsforskriften (1,2).

Materials and methods

Flock selection and sampling

According to the national regulations for the certification of poultry breeding farms, blood samples from 60 birds are collected at least once a year from each breeding flock (5). Thirty of these 60 samples from chicken and turkey breeding flocks are included in the national surveillance programmes for ILT and ART. In addition, flocks of fattening turkeys are sampled for ART analyses at the time of slaughter.

Laboratory analyses

Analytical workflow

Serological screening was conducted at the Norwegian Veterinary Institute (NVI). Samples with positive or inconclusive results in the screening test were further tested using a secondary verification test conducted at the NVI and/or at the Swedish Veterinary Agency (SVA) in Uppsala, Sweden. Samples were considered negative if the verification test produced negative results.

If the secondary verification test yielded inconclusive results, or if only individual positive samples were present within an otherwise negative batch, the Norwegian Food Safety Authority was informed and the flock was re-sampled after 10–14 days. At least 30 new samples were collected, following the same procedure as described above. In some cases, re-sampling was not possible because the flock had been slaughtered.

If the results remained ambiguous after re-sampling, with individual positive or inconclusive samples, or if re-sampling could not be performed, an expert evaluation was carried out. This assessment considered the presence of clinical signs, antibody titres, and the number of inconclusive or positive samples in the flock batch. If no clinical signs of disease were observed, seroprevalence had not increased between sampling time points, and antibody titres were low, the flock was considered negative.

As a general principle, if laboratory results warrant suspicion of disease, the Norwegian Food Safety Authority will be notified.

Test kits

An indirect ELISA test from IDvet (ID Screen® ILT indirect) was used to screen for antibodies against ILTV in chicken samples.

All turkey serum samples were screened for antibodies against aMPV using an indirect ELISA from IDvet (ID Screen Avian Metapneumovirus Indirect). For secondary verification, a different ELISA from IDEXX (IDEXX Avian Pneumovirus Antibody Test Kit) was used. If further confirmation was needed, a second verification test was performed at SVA.

Results and Discussion

Table 1 summarises the number of flocks and birds tested in 2024.

Table 1. Number of flocks and birds tested in the surveillance programmes for infectious laryngotracheitis (ILT) in chickens and avian rhinotracheitis (ART) in turkeys in 2024.

Disease – poultry category	Total numbers tested		Seropositive flocks
	Flocks	Birds	
ILT - Broilers	72	2 158	0
ILT - Layers	9	300	0
ART - Turkeys	56	1,766	0

In 2024, the Norwegian Veterinary Institute received 2,488 poultry samples as part of the ILT surveillance programme. Of these, thirty samples were unsuitable for analysis, leaving 2,458 samples from 81 flocks (72 broiler flocks and nine layer flocks). All but one sample (0.04%) tested negative in the initial screening. The single positive sample tested negative upon subsequent re-testing in duplicate. Consequently, all poultry samples were concluded to be negative for ILT.

In 2024, the Norwegian Veterinary Institute received 1,766 samples from 56 turkey flocks as part of the ART surveillance program. All samples were suitable for analysis, and 1,716 were negative and 50 were positive in the initial screening. Thirty of the samples tested negative upon re-testing in duplicates. The remaining twenty positive samples came from two flocks that were subsequently re-sampled, providing new samples from 30 birds each to NVI. All these samples tested negative. Due to the absence of clinical signs in the flocks and the negative results from re-sampling, the results from the initial screening were interpreted as false positive reactions. In conclusion, all turkey flocks tested were considered negative for ART.

The Norwegian Veterinary Institute has been informed by the aMPV ELISA kit manufacturer that the positive results we occasionally obtain from our analyses are most likely due to the high sensitivity of the indirect ELISA kits, which may compromise specificity and result in some false positives. The IDvet kit is specifically designed to detect low antibody titres produced by live vaccine against aMPV. According to the kit manufacturer, if there were genuine infection in the flock, we would expect much higher antibody titres than those obtained in our analyses.

Antibodies against aMPV were detected in chickens from one broiler breeder farm in 2003 and one layer breeder farm in 2004, both located in the same area. No clinical signs were observed in any of the seropositive flocks. Numerous attempts to isolate and identify an infectious agent responsible for the seroconversion were not successful. Consequently, the diagnosis of ART in these flocks was based solely on serology. The affected flocks were culled, and preventive measures were implemented. Follow-up screening in the district revealed no spread of the infection to other farms. However, in 2005, another seropositive flock was detected in the same area. No clinical signs were observed in any of the seropositive flocks from 2003 to 2005, and no infectious agent causing the seroconversion was identified. Chickens were excluded from the national surveillance programme for ART in May 2005 (5).

Besides the surveillance programme, samples collected for disease investigation and for the control of imported poultry were also screened for antibodies against ILTV and aMPV.

Antibodies against ILTV are occasionally detected in samples from backyard poultry flocks. In 2024, ILT was confirmed in one backyard flock in Norway (4). Most outbreaks among backyard chickens have occurred following the purchase of new birds. Trade with live poultry between non-commercial flocks is likely the main cause of ILTV transmission.

All commercial poultry flocks tested for ILT and ART in the 2024 surveillance programme were concluded to be negative for antibodies against gallid herpesvirus 1 or avian metapneumovirus. The results from the surveillance programme strongly indicate that the commercial Norwegian chicken and turkey populations are free from ILT and ART, respectively

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postmottak@vetinst.no

vetinst.no