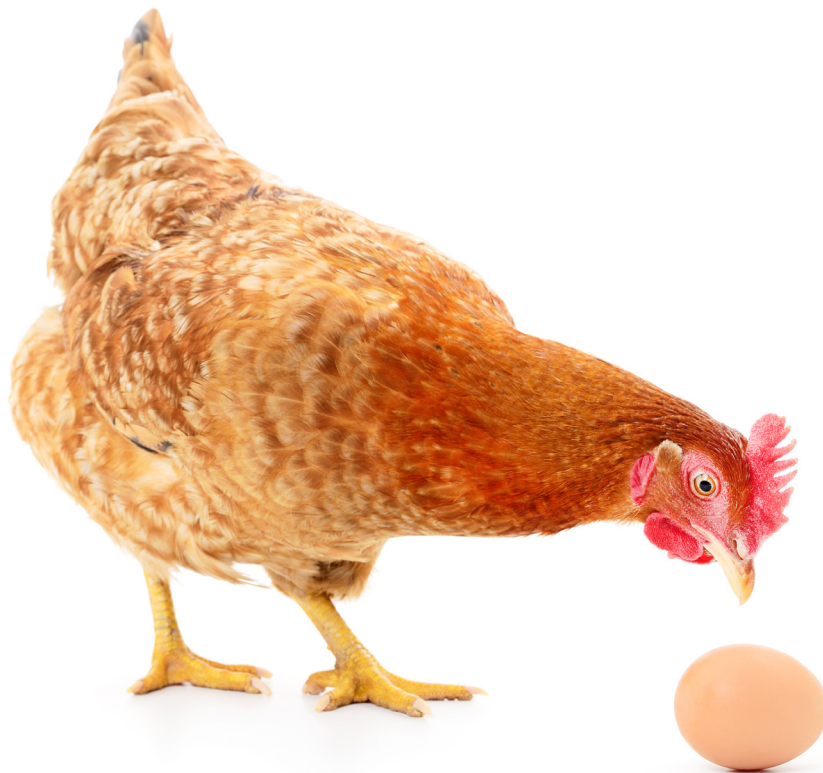




The surveillance programme for infectious laryngotracheitis (ILT) and avian rhinotracheitis (ART) in poultry in Norway 2023



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The surveillance programme for infectious laryngotracheitis (ILT) and avian rhinotracheitis (ART) in poultry in Norway 2023

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Summary

Surveillance based on serological investigations to monitor infectious laryngotracheitis (ILT) in chickens and avian rhinotracheitis (ART) in turkeys in 2023 did not detect antibodies against gallid herpesvirus 1 (ILT virus, ILTV) or avian metapneumovirus (aMPV).

Introduction

The Norwegian Food Safety Authority is responsible for implementing the national surveillance programmes for infectious laryngotracheitis (ILT) and avian rhinotracheitis (ART) in chickens and turkeys, respectively. The ILT and ART surveillance programmes, based on serological investigations in poultry, commenced in 1998. The Norwegian Veterinary Institute manages the planning, laboratory investigations, and reporting components of the programme. The monitoring is conducted in accordance with Regulation FOR-2022-04-07-636 (1). The national surveillance programmes for ILT and ART offer enhanced assurances related to poultry import and trade.

ILT is a severe respiratory disease in chickens caused by gallid herpesvirus 1 (ILT virus, ILTV). 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 (2). 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 (3). 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 and sampling 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 (2). 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 and sampling 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 of these diseases and to contribute to maintaining this status. The surveillance is conducted in accordance with Regulation FOR-2022-04-07-636 (1).

Materials and methods

Flock selection and sampling

According to the national regulations for certification of poultry breeding farms, blood samples from 60 birds are collected at least once a year from every breeding flock (4). Thirty of the 60 samples from chicken and turkey breeding flocks were included in the national surveillance programmes for ILT and ART. In addition, turkey flocks were sampled for ART at slaughter.

Laboratory analyses

All serological screening analyses were performed at the Norwegian Veterinary Institute (NVI). Samples with positive or inconclusive results in the surveillance programme were re-tested in duplicate with the same test method. Samples were considered negative if the re-test came back with a negative result. If re-testing resulted in positive findings, confirmation testing was performed at the NVI or at the Swedish Veterinary Agency (SVA) in Uppsala, Sweden.

ILT

An indirect ELISA test from IDvet (ID Screen® ILT indirect) was used to detect antibodies against ILTV. In the event of standalone positive or inconclusive results for individual samples within a flock batch, the samples in question were sent to SVA in Sweden for confirmatory testing. If still positive, the flock was re-sampled after 10-14 days with at least 30 new samples. If clinical signs of disease were absent, and all re-sampled animals were negative for antibodies against ILTV, the flock was concluded as negative. In case of standalone positive or inconclusive results for individual samples within a flock batch during re-sampling, an expert evaluation based on the presence of clinical signs, antibody titers and number of positive samples was conducted. If clinical signs of disease were absent in the flock, and there was no increase in seroprevalence and antibody titers for the samples in question were low, the flock was concluded as negative.

ART

All serum samples were screened for specific antibodies against aMPV using an indirect ELISA produced by IDvet (ID Screen® Avian Metapneumovirus Indirect). In the event of standalone positive or inconclusive results for singular samples within a flock batch, the samples in question were further tested with a confirmatory ELISA at NVI (IDEXX Avian Pneumovirus Antibody Test Kit). Samples positive in the confirmatory ELISA were sent to SVA in Sweden for analysis. If still positive, the flock was re-sampled after 10-14 days with at least 30 new samples. If clinical signs of disease were absent, and all re-sampled animals were negative for antibodies against aMPV, the flock was concluded as negative. In case of standalone positive

or inconclusive results for individual samples within a flock batch during re-sampling, an expert evaluation based on the presence of clinical signs, antibody titers and number of positive samples was conducted. If clinical signs of disease were absent in the flock, and there was no increase in seroprevalence and antibody titers for the samples in question were low, the flock was concluded as negative.

Results and Discussion

Table 1 summarises the number of flocks and birds tested in 2023.

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 2023.

| Disease - poultry category | Total numbers tested | | Seropositive flocks |
|----------------------------|----------------------|-------|---------------------|
| | Flocks | Birds | |
| ILT - Broilers | 74 | 2 338 | 0 |
| ILT - Layers | 8 | 240 | 0 |
| ART - Turkeys | 49 | 1 496 | 0 |

In 2023, the Norwegian Veterinary Institute received 2,641 poultry samples as part of the ILT surveillance programme. Sixty-three samples were unsuitable, leaving 2,578 samples from 82 flocks (74 broiler flocks and eight layer flocks) for analysis. Among these, 2,573 samples tested negative. The remaining five positive samples came from three layer flocks, which were subsequently re-sampled. Serological testing of 30 birds from each of these flocks showed that all birds were seronegative.

In 2023, the Norwegian Veterinary Institute received 1,496 samples from 49 turkey flocks as part of the ART surveillance program. All samples were suitable for analysis, with 1,495 confirmed negative. The single positive sample came from a turkey flock that was subsequently re-sampled, providing new samples from 30 birds to NVI. Out of the 30 new samples received, 29 tested negative and one tested positive. Due to the absence of clinical signs in the flock, low ELISA values, and a consistent low number of birds testing positive for antibodies, the positive result was interpreted as a false positive reaction.

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 titers 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 titers 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 unsuccessful. 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. Results from these analyses are not included in this report. Antibodies against ILTV are occasionally detected in samples from backyard poultry flocks. In 2023, ILT was confirmed in two backyard flocks in Norway (3). Most outbreaks among backyard chickens have occurred following the purchase of new birds. Trade with in live poultry between non-commercial flocks is likely the main cause of ILTV transmission.

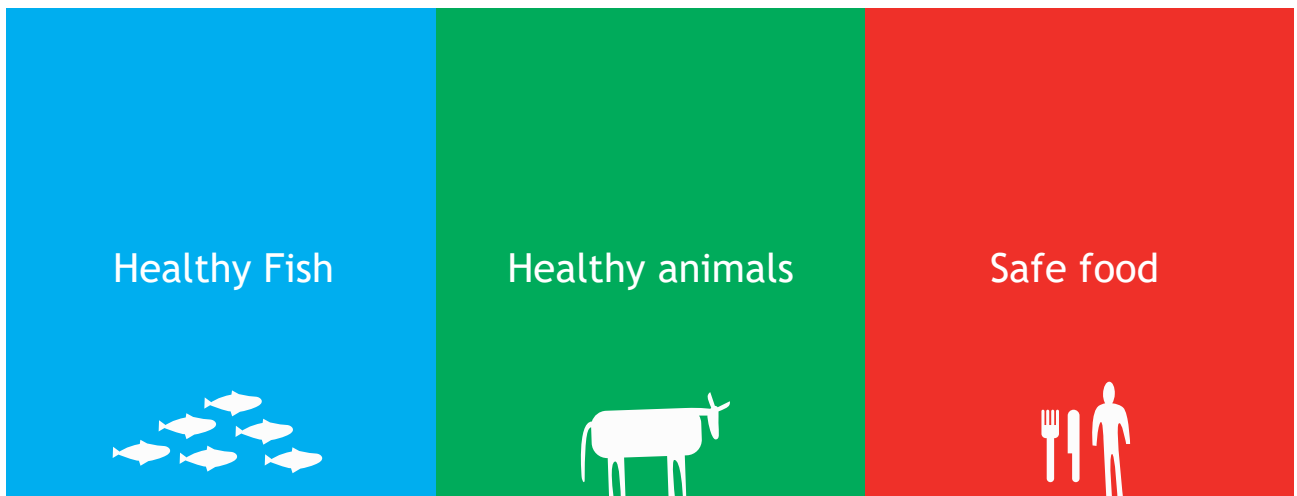
All commercial poultry flocks tested for ILT and ART in the 2023 surveillance programme were concluded to be negative for antibodies against gallid herpesvirus 1 (ILT virus, ILTV) or avian metapneumovirus (aMPV). The results from the surveillance programme strongly indicate that the commercial Norwegian chicken and turkey populations are free from ILT and ART, respectively.

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