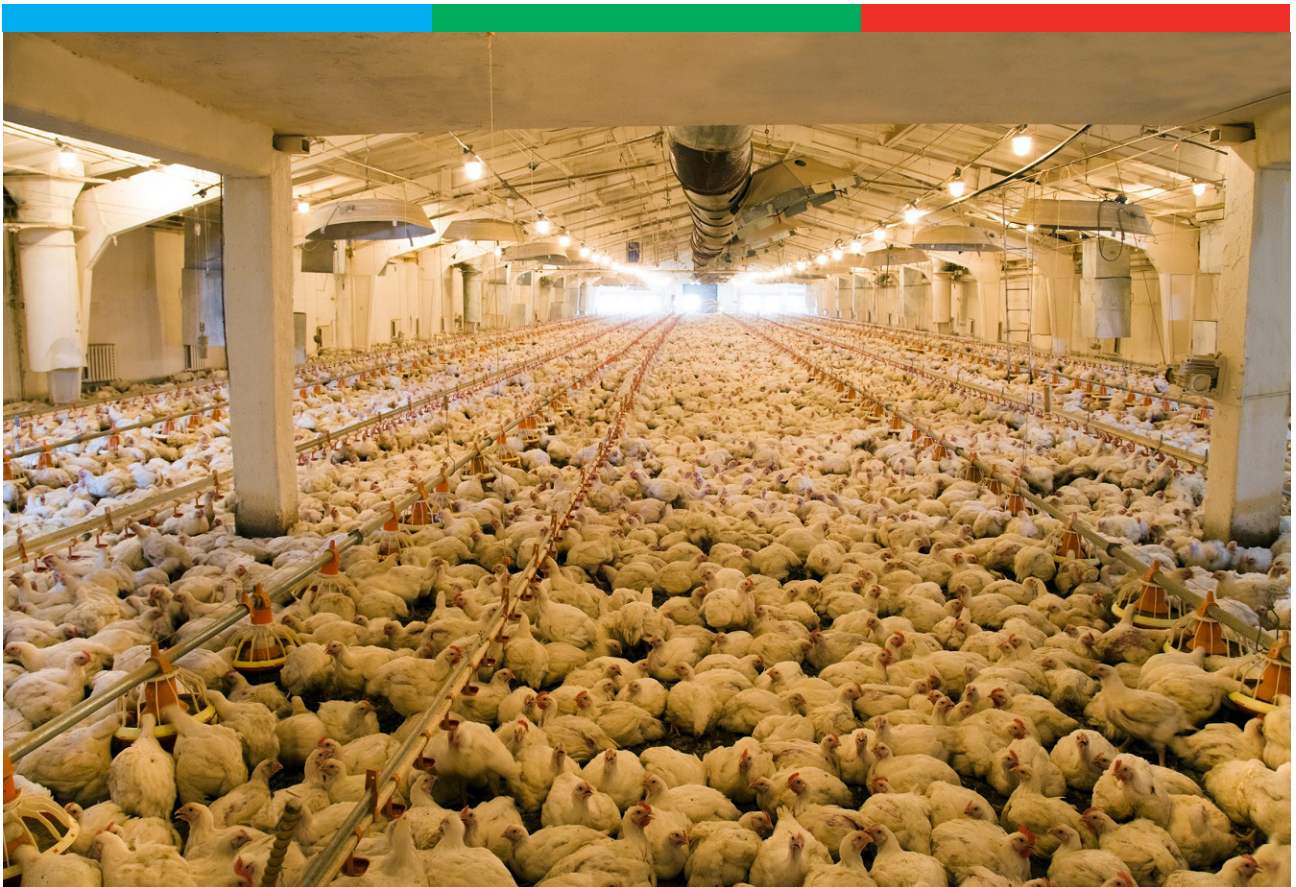




The surveillance programme for avian influenza (AI) in poultry in Norway 2020



REPORT 21 / 2021

The surveillance programme for avian influenza (AI) in poultry in Norway 2020

Authors

Grim Rømo, Anne Nordstoga, Chiek Er

Suggested citation

Rømo, Grim, Nordstoga, Anne, Er, Chiek. The surveillance programme for avian influenza (AI) in poultry in Norway 2020 . Surveillance program report. Veterinærinstituttet 2021. © Norwegian Veterinary Institute, copy permitted with citation

Quality controlled by

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

Published

2021 on www.vetinst.no

ISSN 1890-3290 (electronic edition)

© Norwegian Veterinary Institute 2021

Commissioned by / In collaboration with

Norwegian Food Safety Authority



Colophon

Cover design: Reine Linjer

Cover photo: Colourbox

www.vetinst.no

Content

Summary	3
Introduction	3
Aims	3
Materials and methods	4
Flock selection and sampling.....	4
Laboratory analyses	4
Results and Discussion	5
References	5

Summary

Surveillance in 2020 did not detect infection with highly pathogenic influenza A virus in poultry.

Introduction

The Norwegian Food Safety Authority is responsible for the surveillance programme for avian influenza (AI) in poultry. Started in 2006, the programme is based on the serological investigations of poultry modelled on EU's Council Directive 2005/94/EC (1). The Norwegian Veterinary Institute is responsible for planning, laboratory investigations and reporting components of the programmes. There has not been any HPAI cases in poultry, reported or diagnosed, in Norway in 2020.

AI is a serious and highly contagious disease in poultry and other captive birds caused by many different subtypes of influenza A viruses. The level of risks posed by the different subtypes to animal and public health is variable due to rapid virus mutations and possible re-assortment of the genetic material between different subtypes.

Current knowledge indicates that the health risks posed by the so-called low pathogenic AI (LPAI) viruses are lower than that posed by highly pathogenic AI (HPAI) viruses. Most LPAI viruses cause only mild disease in poultry. The HPAI viruses originate from a mutation of LPAI viruses of either H5 or H7 subtype. HPAI can cause disease in poultry resulting in mortality rates exceeding 90 %.

In general, domestic poultry populations are free from AI viruses. However, wild waterfowls are the natural reservoirs for all influenza A virus subtypes. Infected birds do not usually develop clinical disease, but may shed large amounts of virus upon infection (2). Spread of AI from the wild bird reservoir to poultry happens occasionally, and some LPAI viruses may mutate to HPAI in this context. Hence, an important aim of the surveillance program is to identify the circulation of LPAI and HPAI viruses in poultry.

Aims

The aim of the national surveillance programme for AI in poultry is to document that the various poultry populations in Norway are free of influenza A virus of subtypes H5 and H7 and to contribute to the maintenance of this status.

Materials and methods

Flock selection and sampling

The programme in 2020 consisted of serological screening of blood samples from poultry. As outlined in Commission Decision 2010/367/EC (3), there is preferential sampling of poultry deemed at risk for exposure to influenza type A. The sample selection was based upon a risk assessment published by the Norwegian Veterinary Institute in February 2006 (4). The sample selection in 2020 included chickens, turkeys, ducks and geese.

In addition to risk-based sampling from farms with table egg production (including all organic table egg producers with > 100 layers) and turkey farms (4), AI surveillance also includes breeding flocks. National regulations for certification of poultry breeding farms (5) require blood samples from 60 birds per breeding flock for screening for Newcastle disease antibodies (Norway does not practise vaccination). In addition, there was also screening of 10 of these 60 samples for AI.

For non-breeding flocks, blood sampling is at least 10 individuals per holding. An exception to this were the collection of 50 samples per waterfowl flock. However, sampling include all birds if flock size was less than the required sampling size. If there were more than one shed on the holding, all sheds were part of the sampling frame.

Laboratory analyses

Screening serum samples for antibodies against influenza A virus utilised the competitive multispecies ELISA kit from IDvet (ID Screen® Influenza A Antibody Competition, multi-species). The test detects antibodies to all influenza A subtypes and antigenic variants using a monoclonal antibody against a highly conserved epitope of the influenza A virus nucleoprotein (NP).

In cases of positive ELISA results, the follow up procedure is a second test, the haemagglutination-inhibition (HI) test according to the OIE diagnostic manual (6). Antigens used in the HI test follow the EU reference laboratory (EURL) for avian influenza (Istituto Zooprofilattico Sperimentale delle Venezie (IZSVE), Legnaro, Italy) and listed in Commission Decision 2010/367/EC (3). EURL supplied Norway with primary antigens H5N3 (A/teal/England/7894/06), H7N7 (A/turkey/England/647/77) and H5N8 (A/duck/England/14; ducks and geese only) and secondary antigens H5N1 (A chicken/Scotland/59) and H7N1 (A/African starling/983/79).

Results and Discussion

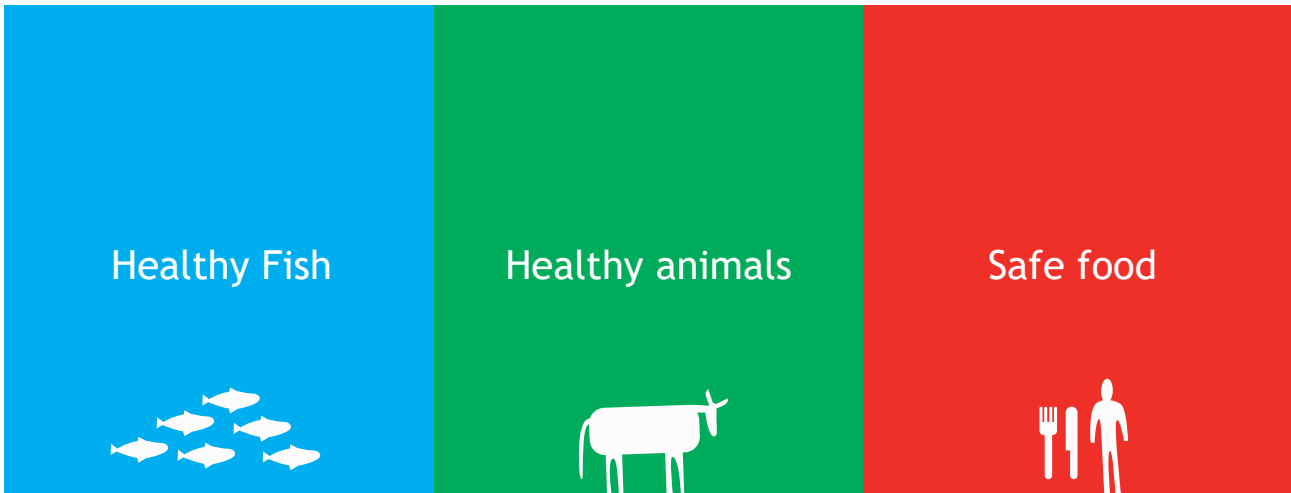
Table 1 shows the number of flocks and birds tested in 2020. The number of domestic poultry flocks sampled relative to the Norwegian poultry population was adequate in achieving a high confidence in ascertaining its disease free status for AI. Besides the surveillance programme, additional samples taken for diagnostic purposes and the control of imported animals were also screened for antibodies against influenza A virus or H5/H7. All were negative.

Table 1: Number of certified breeder flocks, commercial flocks, and birds tested in the surveillance programme for AI in poultry 2020.

Species	Certified breeder flocks		Commercial flocks		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
Chicken	82	820	51	510	133	1 330
Turkey	5	50	48	482	53	532
Duck	3	149	7	350	10	499
Goose	0	0	1	49	1	49
Total	90	1019	107	1391	197	2 410

References

1. Council Directive 2005/94/EC
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0094&from=EN>
2. Webster RG, Bean WJ, Gorman OT, Chambers TM, Kawaoka Y. Evolution and ecology of influenza A viruses. *Microbiol Rev* 1992; 56: 152-79.
3. Commission Decision 2010/367/EC
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010D0367&from=EN>
4. Gjevre A-G, Handeland K, Jansen PA, Lyngstad TM, Ytrehus B. Risiko for smitte med høypatogen aviær influenza (HPAI) H5N1 fra ville fugler til fjørfe i Norge [Risk of transmission of HPAI H5N1 into the Norwegian poultry population via wild migratory birds, No]. Special report 2006. Oslo: National Veterinary Institute; 2006.
5. Forskrift om sertifisering av fjørfevirksomheter av 18.11.94 nr. 1020. (Provision concerning the certification of poultry enterprises.) <http://www.lovdato.no/for/sf/ld/xd-19941118-1020.html>
6. Office International des Epizooties. Manual of diagnostic tests and vaccines for terrestrial animals 2018. Chapter 3.3.4 Avian Influenza (infection with avian influenza viruses).
http://www.oie.int/fileadmin/Home/eng/Health_standards/tahm/3.03.04_AI.pdf



*Scientifically ambitious, forward-looking
and collaborative- for one health!*



Veterinærinstituttet
Norwegian Veterinary Institute

Ås

Trondheim

Sandnes

Bergen

Harstad

Tromsø

postmottak@vetinst.no
www.vetinst.no