1. Introduction

History

Only one Newcastle disease outbreak in poultry has appeared in Switzerland over the last five years (2014-2019). This was detected via clinical surveillance in the canton of Tessin in November 2017. This outbreak was characterised by an atypical, benign evolution of the disease. Following the poultry farmer’s declaration about changes to his eggs, the veterinarian immediately requested the dispatch of samples to the Reference Laboratory. Newcastle disease was diagnosed in less than 24 hours. Control measures were put in place and the flock slaughtered and eliminated. It was not possible to identify the source of introduction of the disease.¹

Notification

Newcastle disease is listed in the Federal ordinance on epizootic diseases (OFE, RS 916.401)² as a highly contagious disease (Art. 2, OFE). A highly contagious disease is defined as an epizootic disease with the potential to spread rapidly and widely beyond the borders of the country. Of major importance, they have major socio-economic and health consequences and are all notifiable diseases (Art. 1 of the Act on epizootic diseases LFE³). This means that any person who owns, looks after or cares for poultry is bound to declare the suspected cases to the poultry farm veterinarian (Art. 61 de l’OFE).

¹ https://www.blv.admin.ch/dam/blv/fr/dokumente/tiere/hierkrankheiten-und-arzneimittel/fachinformation/newcastle-krankheit-gefluegelzeitung.pdf.download.pdf/Newcastle_Krankheit_F_SGZ_10_18.pdf, Aviculture Suisse Édition 10/18, Maladie de Newcastle (grippe aviaire atypique) chez les poules pondesues, Dr Sarah Albini, Dr Simone Meier, Dr Barbara Vogler, NRGK Zurich
² RS 916.401, Ordonnance sur les épizooties (OFE) of 27 June 1995 (As it stands 12 February 2019)
³ RS 916.40, Loi sur les épizooties (LFE) of 1st July 1966 (As it stands 1 May 2017)
2. Surveillance

Population

The number of poultry has increased since 1996, and currently includes nearly 11.5 million poultry distributed among some 23,000 poultry farms. It is important to note that only 3% of them are farms with over 1,000 laying hens⁴. The number of poultry per poultry farm is defined in Article 2 of the Ordinance on maximum numbers and sets the maximum numbers at 18,000 laying hens of more than 18 weeks and 27,000 eating birds (fattening up to 28 days) respectively.⁵

Based on Article 18 of the OFE, all the breeding units in which domestic poultry is held are registered in the national database. This registration includes the species of poultry kept, the type of housing and the type of production.

Surveillance programme

Switzerland has established an ND surveillance programme for a number of years. It includes primarily a passive component complemented with active surveillance.

On the one hand, as mentioned previously, Newcastle disease is notifiable throughout the country and any person who owns, looks after or cares for poultry is bound to declare the suspected cases to the farm veterinarian (Art. 61, OFE) who in their turn informs the relevant veterinary services (Art. 62, OFE). In case of a suspicion, samples shall be taken for confirmation by the reference laboratory (see point 4). To this is added the possibility of carrying out exclusion tests of Newcastle disease, if a flock presents problems that are not clear and do not appear in the suspicion criteria (see point 5).

On the other hand, according to Article 81 of the OFE, vaccinations against highly contagious epizootic diseases are forbidden in Switzerland. It was possible to introduce a surveillance programme based on antibody detection. This active surveillance of Newcastle disease has complemented the passive surveillance programme since 2006 and provides additional data to support the absence of the epizootic disease. This serological surveillance is risk-based. In view of the measures applied to imports (see point 5), wild birds are considered to be the main risk factor for the introduction of Newcastle disease into Switzerland. Sampling shall therefore concentrate on free-range laying hens, as they are most at risk from being in contact with wild birds. In addition, all broiler turkey farms are also tested, as they live longer than broilers and are more likely to come into contact with a potentially circulating Newcastle virus. The number of flocks to be tested shall be calculated in such a way that the virus can be detected from a prevalence of 5 % in the flock with a level of confidence of at least 95 %.

For Switzerland, this means an annual sample of approximately 60 flocks of laying hens raised in the open air and all the eating turkey flocks (approx. 24 poultry farms). Ten blood samples per flock are taken at the time of slaughtering and analysed to detect Newcastle disease antibodies.

Results of the surveillance programme

The surveillance programme for Newcastle disease includes a passive component (compulsory notification and exclusion tests) as well as an active component (antibody detection). The results of Switzerland’s surveillance programme have proved the absence of cases of infection of Newcastle disease during the last twelve months.

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⁴ Système d’information sur la politique agricole (SIPA), Federal Office for Agriculture and AGIS data, 2018
⁵ RS 916.344, Ordonnance sur les effectifs maximums (OME) of 23 October 2013 (As is stands 1 January 2016)
Active surveillance is risk-based and focuses on laying hens in open air system and fattening turkeys. Ten blood samples are collected per flock. The detection of antibodies is done using ELISA test. All tests conducted during the period from September 2018 to September 2019 revealed a negative result.

As a part of passive surveillance, four suspicions of Newcastle disease were examined from September 2018 to September 2019, all with negative results.

The results of the surveillance program in Switzerland (see Tables 1 and 2) have made it possible to demonstrate the absence of cases of infection with Newcastle disease virus during the last twelve months.

Table 1: Results of active surveillance (September 2018- September 2019).

<table>
<thead>
<tr>
<th>Laying hens in open air system</th>
<th>Number of tested holdings</th>
<th>Number of samples per holding</th>
<th>Total number of samples</th>
<th>Period</th>
<th>Diagnostic test</th>
<th>Positive results</th>
<th>Negative results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active surveillance</td>
<td>72</td>
<td>10</td>
<td>720</td>
<td>01.09.2018 – 30.09.2019</td>
<td>ELISA</td>
<td>0</td>
<td>720</td>
</tr>
<tr>
<td>Fattening turkeys</td>
<td>28</td>
<td>10</td>
<td>280</td>
<td>01.09.2018 – 30.09.2019</td>
<td>ELISA</td>
<td>0</td>
<td>280</td>
</tr>
</tbody>
</table>

Table 2: Results of passive surveillance (September 2018-September 2019).

<table>
<thead>
<tr>
<th>Clinical suspicion</th>
<th>Canton</th>
<th>Holding</th>
<th>Species</th>
<th>Date</th>
<th>Diagnostic test</th>
<th>Holdings with positive results</th>
<th>Holdings with negative results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive surveillance</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Testing to exclude disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canton</td>
<td>FR</td>
<td>1</td>
<td>Hens</td>
<td>05.11.2018</td>
<td>ELISA</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
### 3. Awareness programme

A monthly information bulletin on the epizootic diseases situation abroad and a risk evaluation for Switzerland are available for professionals and the general public. This report, called ‘RADAR Bulletin’

[6]
continuously gathers, processes and evaluates the international animal health situation. This tracking of the development of the main animal diseases provides Switzerland with important information and offers the possibility of informing target groups on a regular basis. These activities enable the early detection of risks for Switzerland and the implementation of any necessary measures in time.

Information linked to Newcastle disease is included. Articles relating to Newcastle disease are also regularly published in the specialised press.

### 4. Measures taken against Newcastle disease

Measures against highly contagious disease are defined in articles 82 to 98 of the OFE and those pertaining to Newcastle disease in domestic poultry are to be found in articles 123 to 125 of the same ordinance.

#### Suspicion

A suspicion of a primary outbreak of Newcastle disease is considered officially confirmed when at least one of the following criteria is fulfilled with no other cause identified:

- decrease in consumption of food and water over 20% during a 3-day period,
- decrease in laying over 20% during a 3-day period, associated with a discoloration of the shell,
- increase in the mortality rate over 3% in one week,
- clinical symptoms or autopsy results leading to the conclusion that it is Newcastle disease,
- epidemiological indices indicating contact with an infected farm and presence of clinical symptoms indicating Newcastle disease.

From then on, the suspect poultry are enclosed in second-degree containment meaning the prohibition of movement of animals as well as the limitation of movement of people and sampling performed by the Reference Laboratory to confirm the suspicion (Art. 70 and 123, OFE).

#### Confirmation by the Reference Laboratory

The relevant services able to diagnose Newcastle disease are the National reference centre for poultry and rabbit epizootic diseases (NRGK) at the Vetsuisse Faculty at the University of Zurich and the Institute of virology and immunology (IVI) in Mittelhäusern.

Sampling is carried out according to specific technical directives

[7]. Samples must include around 15 swabs of choana and cloaca and, according to circumstances, 15 blood samples (ill animals) or 15

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[7] Technical directives on sampling and despatch of samples to establish a laboratory diagnosis in a suspected case or an exclusion test of classic avian flu (Influenza aviaire, IA) or Newcastle disease (ND), updated 18.03.2019
samples of choana and cloaca (recently dead animals) taken from different subjects per flock. These are then sent by courier or express mail to NRGK.

The diagnostic method of choice in case of an outbreak of Newcastle disease is the direct presence of the virus by PCR (rt-RT-PCR) in the swab samples.

**Control measures**

According to Article 9 of the LFE, if one or several animals in a flock are contaminated with a highly contagious epizootic disease, all the animals in the flock which are sensitive to the epizootic disease, in principle must be immediately slaughtered and eliminated. When a case of Newcastle disease is confirmed by the Reference Laboratory, the following health measures are implemented: second-degree containment of the contaminated flock and immediate slaughter on site and under the supervision of the official veterinarian, of all the animals in the flock sensitive to the epizootic disease as well as the elimination of all the animals slaughtered or perished and the cleaning and disinfection of the premises. Furthermore, a protection zone and a surveillance zone of respectively 3km and 10km around the affected farm are created.

Second-degree containment of the contaminated flock is lifted at the earliest after 21 days, when all sensitive animals have been eliminated and the premises have been cleaned and disinfected.

Emergency documentation following the chronological order of the fight against Newcastle disease is made available. It includes:

- a plan for the transmission of information in the case of highly contagious epizootic diseases;
- technical directives concerning the sampling and despatch of samples to establish a laboratory diagnosis of suspected Newcastle disease or carry out an exclusion test of this disease;
- technical directives concerning disinfection ordered officially in the case of epizootic diseases;
- directives concerning the estimation of animals in the fight against epizootic diseases.

**Additional control measure**

As vaccination of poultry against Newcastle disease is not authorised in Switzerland, control measures (the flock is eliminated) are implemented as soon as the presence of antibodies is detected.

**5. Import measures**

According to the Veterinary Agreement between Switzerland and the European Union (EU)\(^8\), the importation of animals and merchandise of animal origin from the EU are in principle subject to the same provisions in terms of the necessary paperwork, authorisations and hygiene rules concerning epizootic disease as those applied to exchanges within the EU. However, as the Swiss poultry population is considered free from Newcastle disease, additional requirements are applicable. Health certificates confirm that the following requirements have been fulfilled\(^9\).

a)  hatching eggs come from flocks which:
   - are not vaccinated or
   - are vaccinated with the help of an inactivated vaccine or

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\(^8\) Annexe 11 relative aux mesures sanitaires et zootechniques applicables au commerce d’animaux vivants et de produits animaux de l’Accord entre la Confédération suisse et la Communauté européenne relatif aux échanges de produits agricoles (SR 0.916.026.81), finalised 21 June 1999 (As it stands, 12 June 2018), [https://www.admin.ch/opc/fr/classified-compilation/19994645/index.html](https://www.admin.ch/opc/fr/classified-compilation/19994645/index.html)

\(^9\) Art. 15 of the 2009/158/CE directive and certificate examples published in Annex IV
are vaccinated using a live vaccine if vaccination takes place at least thirty days before the hatching eggs are collected;

b) day-old birds are not vaccinated against Newcastle disease and they come from:
   o hatching eggs that correspond to conditions listed under a) and
   o an incubator where work methods ensure that the incubation of these eggs is completely separate in time and space from the incubation of eggs that do not correspond to conditions listed under a);

c) breeders or productive poultry:
   o are not vaccinated against Newcastle disease, and
   o have been isolated for fourteen days before being despatched to either a farm or to a quarantine station under the supervision of an official veterinarian, and
   o in the fourteen days before being despatched, have had a representative serological test with a negative result, in order to detect antibodies of Newcastle disease.

d) slaughter poultry must come from flocks which:
   o if they are not vaccinated against Newcastle disease, satisfy the requirements under c), third point,
   o if they are vaccinated, have been tested to isolate the Newcastle disease virus, on the basis of a representative sample in the fourteen days preceding despatch of the test.

6. Conclusion

Switzerland declares itself free from Newcastle disease in poultry as of 30 September 2019 given the following factors:

- Newcastle disease is notifiable throughout the country;
- vaccination against Newcastle disease is not authorised;
- passive and active surveillance is carried out in accordance with Articles 10.9.22 to 10.9.26. of the OIE Terrestrial Animal Health Code (Terrestrial Code) (2019);
- a continuous awareness programme about the disease is implemented;
- all suspect cases of Newcastle disease are notified, are the object of ground and laboratory investigations and the measures implemented in case of suspected epizootic disease are effective;
- no infection with Newcastle disease in poultry in Switzerland over the last 12 months.

The Delegate of Switzerland to the OIE declares that the country fulfils the requirements for a freedom from Newcastle disease as of 30 September 2019, in compliance with Chapter 1.6. and Article 10.9.3. of the OIE Terrestrial Code and consistent with the information provided in WAHIS.
Déclaration devant figurer dans le document d’auto-déclaration.

Je, soussigné (e), ____________________________________________________________________________

Délégué (e) de la ___________... __________, auprès de l’Organisation mondiale de la santé animale (OIE), assume la responsabilité de l’auto-déclaration indemne de (maladie) ___________... __________, de la maladie de ___________... __________, de ___________... __________.

__________________________________________________________________________

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(iii) des conséquences directes ou indirectes de toute nature résultant ou liées à l’utilisation des informations contenues dans une auto-déclaration.

Rédigée le _________________.

Signature du/ de la Délégué (e): ____________________________________________________________________

Annex 1.