

Risk assessment of emerging non-notifiable AIV in Europe: communication, support and research.

F. Bonfante, A. Bortolami and C. Terregino,

EURL (IZSve)

26th ANNUAL MEETING OF THE NATIONAL REFERENCE LABORATORIES (NRLs) FOR
AVIAN INFLUENZA AND NEWCASTLE DISEASE OF EUROPEAN UNION MEMBER STATES
2020

Virtual Meeting, Padua



The H3N1 epidemic in Belgium (and France)

- January 2019, outdoor laying hens farm in Belgium
- 3 months later the virus was detected again...
- Overall **82 infected farms** were affected
- On June 11, 2019, the European Commission **authorized** Belgium within the framework of Chapters I and II and Article 26 of Regulation (EU) No 1305/2013...to **provide emergency aid** to farmers affected with LPAI H3N1.
- Under the current OIE regulation such aid would be prohibited.

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

EMERGING INFECTIOUS DISEASES® (Steensels *et al.*, 2020)

Volume 26, Number 8—August 2020

Dispatch

Atypical Pathogenicity of Avian Influenza (H3N1) Virus Involved in Outbreak, Belgium, 2019

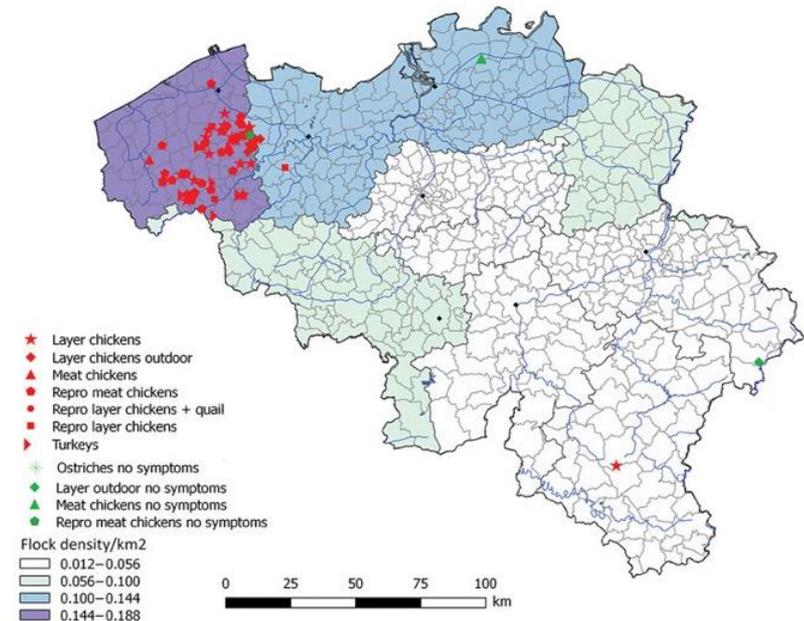
Mieke Steensels^{1,2}, Philippe Gelaude, Steven Van Borm, Thierry Van Den Berg, Mickaël Cargnel, Virginie Roupie, Fabienne Rau, and Bénédicte Lambrecht

Author affiliations: Sciensano, Brussels, Belgium (M. Steensels, S. Van Borm, T. Van Den Berg, M. Cargnel, V. Roupie, F. Rau, B. Lambrecht); Animal Health Vlaanderen, Torhout, Belgium (P. Gelaude)

On This Page

[The Study](#)

[Conclusions](#)



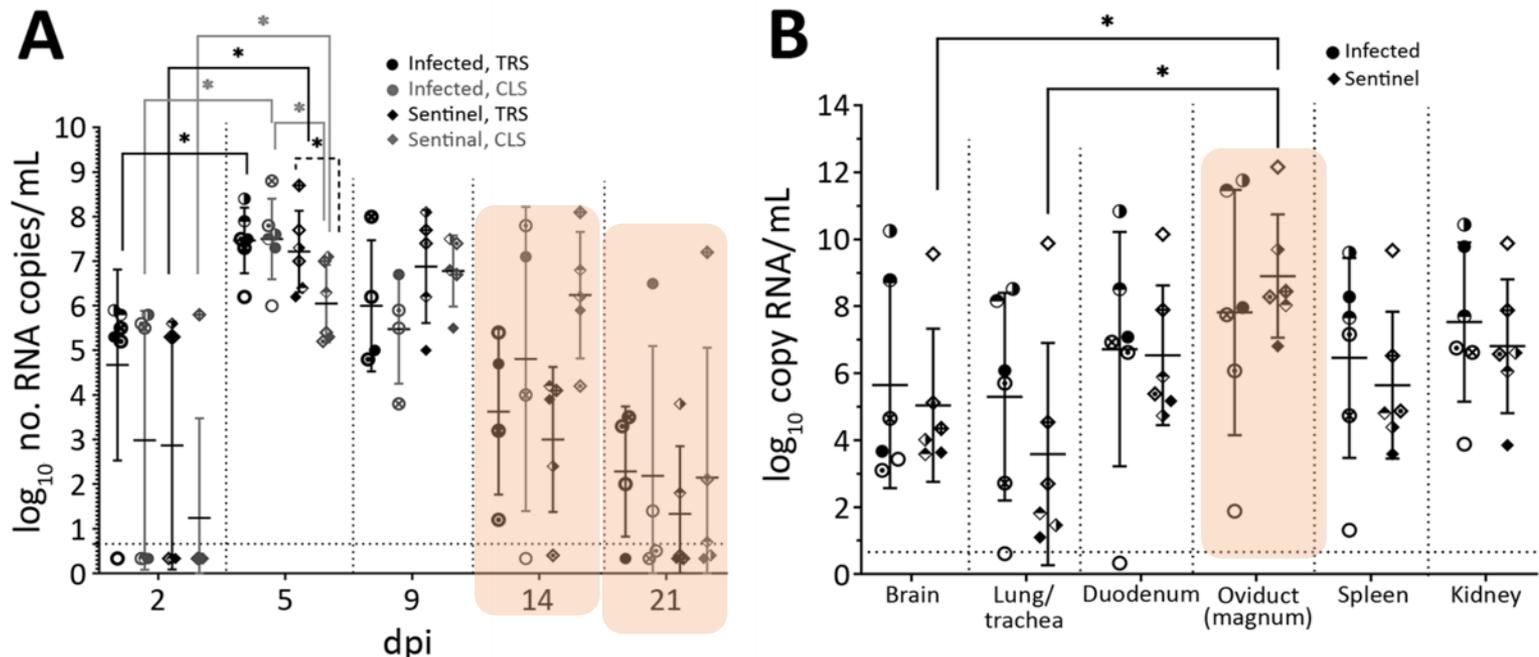
The H3N1 epidemic in Belgium (and France)

(Steensels *et al.*, 2020)

“...the clinical picture in the field started with discolored eggs for laying hens and breeders, followed by an **increased mortality rate of up to 60% in breeder hens and 40% in laying hens**”.

In addition, a **marked egg drop, up to 100%**, was reported.

Under experimental conditions 24-week old laying hens



The H3N1 epidemic in Belgium (and France)

Original Articles

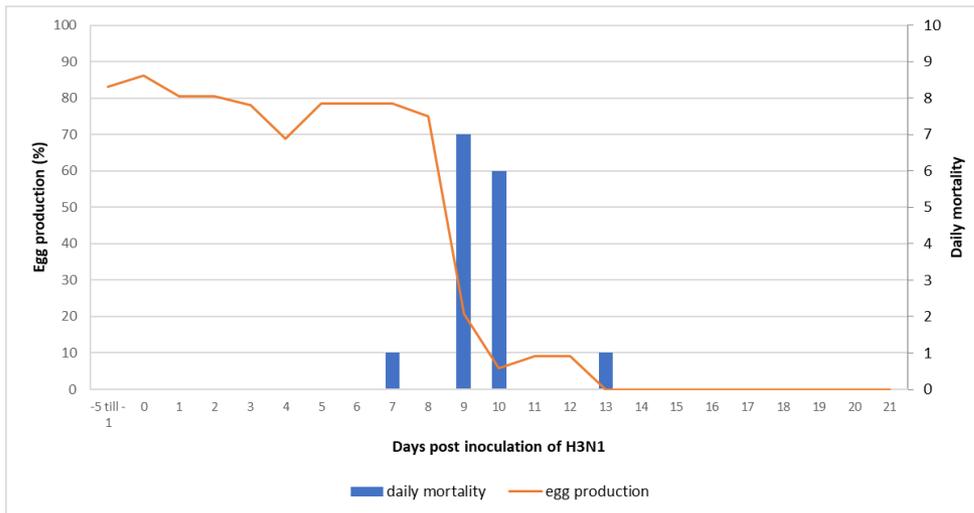
Major difference in clinical outcome and replication of a H3N1 avian influenza strain in young pullets and adult layers

J. J. de Wit , T. H. F. Fabri, R. J. Molenaar , R. Dijkman, N. de Bruijn & R. Bouwstra

Pages 286-295 | Received 26 Sep 2019, Accepted 14 Feb 2020, Accepted author version posted online: 17 Feb 2020, Published online: 12 Mar 2020

(De Wit *et al.*, 2020)

34-week-old laying SPF hens, drop in egg production



21 days p.i., fibrinous to caseous exudate in the coelomic cavity



Veterinarian Maarten de Gussem states that diagnose of **avian influenza** is done, using outdated tests and methods. Photo: Vetworks

Belgium: Learning from 2019 outbreak of low pathogenic AI

Maarten de Gussem described the aftermath of the outbreak as “a **serious hangover** for the Belgian poultry system”...

“...what looked non-pathogenic by the **IVPI test**, turned out to be virulent for layers and breeders”

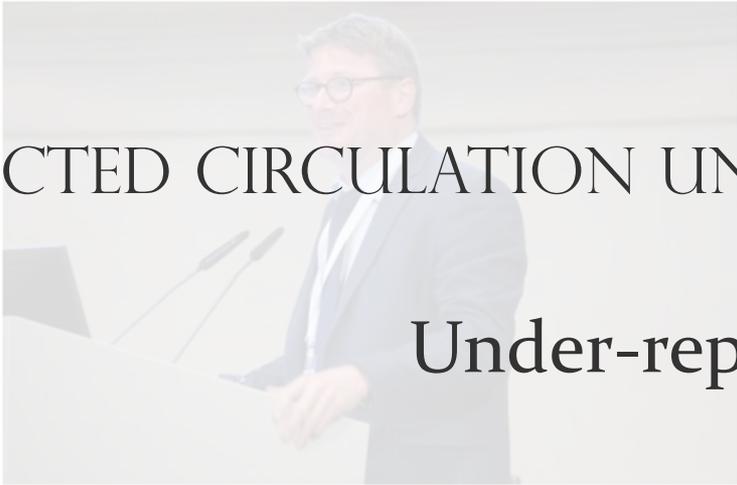
“stamping out and compensation were implemented but **that was too late**”

“while **waiting for an update of the legal definition** of notifiable avian influenza...**The sector must take matters into its own hands**”

?

POULTRY

What went (relatively) wrong and why?



EXPECTED CIRCULATION UNTIL ADAPTATION

Belgium: Learning from 2019 outbreak of low pathogenic AI

Prolonged shedding

Under-reporting

difficult pathotyping

Maarten de Gussem described the aftermath of the outbreak as “...what looked non-pathogenic by the IVPI test, turned out to be virulent for layers and breeders” ...

Veterinarian Maarten de Gussem states that diagnose of avian influenza is done, using outdated tests and methods. Photo: Vetworks

Late movement control

Misdiagnosed as a *bacterial pathogen*

“ ...what looked non-pathogenic by the IVPI test, turned out to be virulent for layers and breeders”

Lack of an *adequate* legal framework ...

“ stamping out and compensation were implemented but that was too late”

Delayed reporting

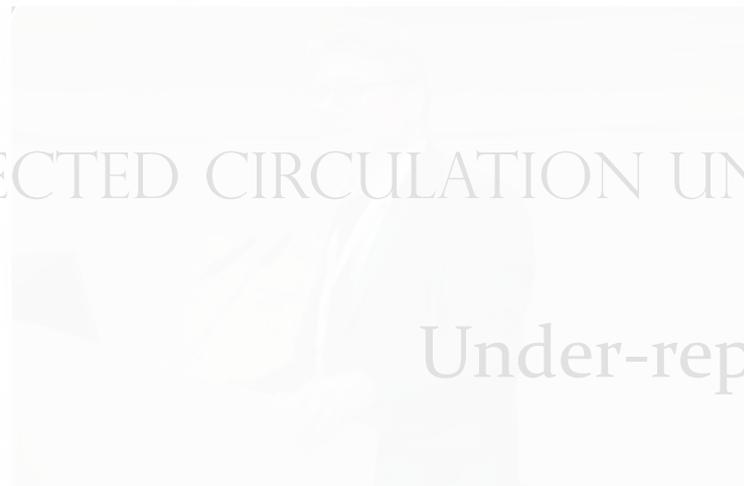


Movement of eggs?

“ while waiting for an update of the legal definition of notifiable avian influenza...The sector must take matters into its own hands”

Late compensation

POULTRY What went (relatively) wrong and why?



Belgium: Learning from 2019 outbreak of low pathogenic AI

Prolonged shedding

AFFECTED CIRCULATION UNTIL ADAPTATION

Under-reporting

difficult pathotyping

Maarten de Gussem described the aftermath of the outbreak as “...an poultry system”...

Misdiagnosed as a *bacterial pathoaen*

A suboptimal decision-making process

Lack of an *adequate* legal framework ...

“ stamping out and compensation were implemented but that was too late”

Delayed reporting



Movement of eggs?

“ while waiting for an update of ...the sector must take matters into its own hands...”

Late compensation

● Endemic H9N2 in Germany (and for some years in Italy)

(Martin Beer's presentation)

FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health

Detection of H9N2 in Germany in poultry

Active and passive poultry monitoring

- Monitoring programmes of poultry industry
- Governmental surveillance programmes

- Lower Saxony, 1994-5
- SW Germany, 2012-3
- Lower Saxony > 2013



● Endemic H9N2 in Germany (and for some years in Italy)

(Martin Beer's presentation)

Attempts to control H9N2 in Germany

FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsanstalt für Tiergesundheit
Federal Research Institute for Animal Health

- **Non-notifiable**

All actions organized and carried out by poultry industry

- Optimized diagnosis (serology, RT-qPCR)
- Sanitation, nucleus herds free of H9N2

- **Prevention of endemicity failed**

- Vaccination programme was established (private initiative)

- **Autologous vaccination**

Rules established by regional government

ACTA
ABP
BIOCHIMICA
POLONICA

Vol. 61, No 3/2014

453–457

on-line at: www.actabp.pl

Review

Avian influenza in Poland

Krzysztof Śmietanka[✉] and Zenon Minta

Department of Poultry Diseases, National Veterinary Research Institute, Puławy, Poland

up of) holding
ants
ducer, use

Endemic H6N2 in South Africa

Research article | [Open Access](#) | Published: 18 December 2019

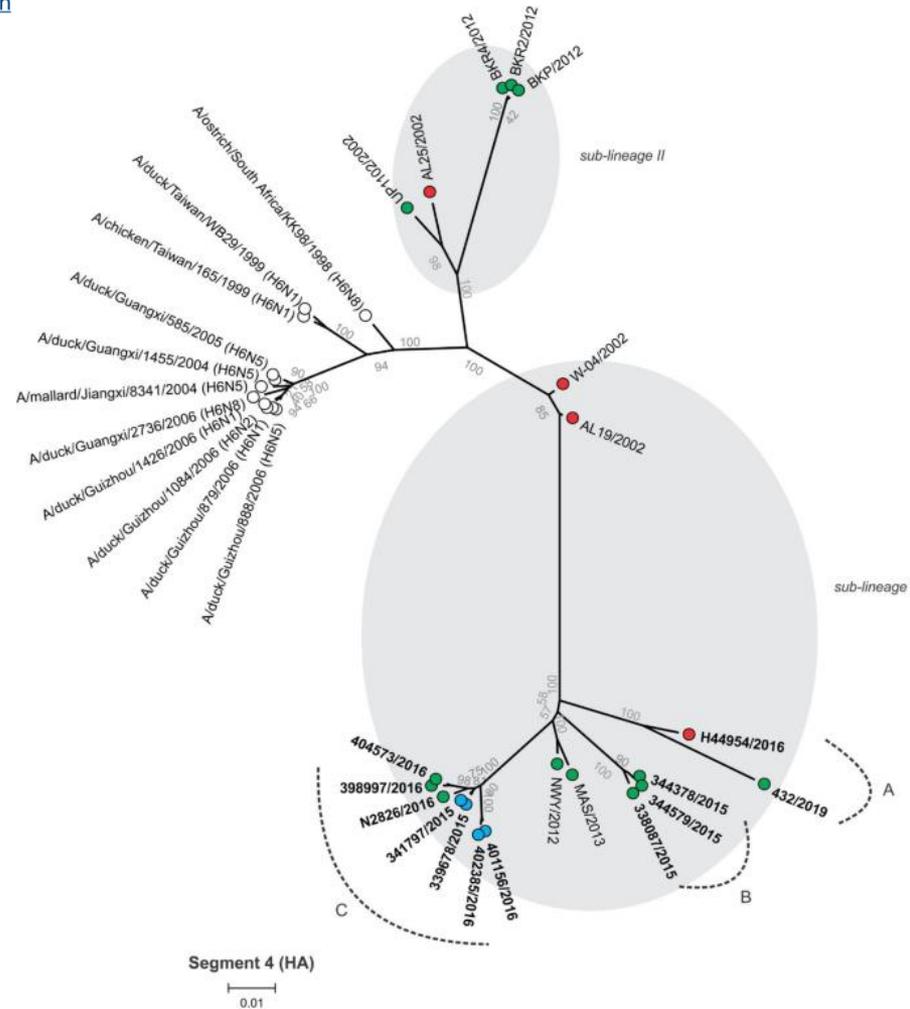
Continuing evolution of H6N2 influenza a virus in South African chickens and the implications for diagnosis and control

Celia Abolnik [✉](#), Christine Strydom, Dionne Linda Rauff, Daniel Barend Rudolph Wandrag & Deryn Petty

[BMC Veterinary Research](#) 15, Article number: 455 (2019) | [Cite this article](#)

«The true prevalence of H6N2 in the country has been difficult to determine, partly **due to the continued use of an inactivated whole virus H6N2 vaccine** and the inability to distinguish vaccinated from non-vaccinated birds on serology tests»

(Abolnik *et al.*, 2020)



The recent English/Irish H6N1 epidemic in 2020

thejournal.ie [Contribute : Support us now](#)

Irish News FactCheck Voices Brexit Covid-19

Egg shortage in some supermarkets amid bird flu outbreak and increased demand

Half a million hens have been culled as a result of the outbreak.

Apr 28th 2020, 1:58 PM 42,003 Views 50 Comments [Share](#) 197 [Tweet](#) [Email](#) 5

SUPERMARKETS ARE WORKING with suppliers to keep eggs on shelves amid shortages caused by an outbreak of avian flu and a recent increase in demand.

An outbreak of bird flu in the Co Monaghan area, which is the main source of egg supplies in the Republic of Ireland, has resulted in a drop in egg production of at least 10%.

Half a million hens have been culled as a result of the outbreak.



Image: Shutterstock/siambizkit

- Started in Northern Ireland in January 2020
- 15 outbreaks
- 0.5 million culled birds

The English/Irish H6N1 epidemic in 2020



The Poultry Site

Poultry Digital | Events | Shop | Our site:

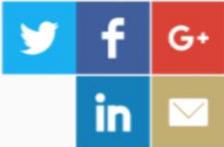
Home | Genetics & breeding | Meat poultry | Egg layers | Health & disease | Processing | Equipment & innovation | M

Irish government offers support for producers facing avian influenza

Ireland's agriculture minister announces a once-off support for poultry flock owners contending with outbreaks of low-pathogenic avian influenza.

• GOVERNMENT AND REGULATORY • POLICY AND REGULATION • MARKETS & POLICY • POULTRY HEALTH • AVIAN INFLUENZA
• DISEASES • HEALTH & DISEASE

 by The Poultry Site
7 July 2020, at 11:12am



Minister for Agriculture, Food and the Marine, Barry Cowen TD, announced a once-off financial support scheme for a number of poultry flocks impacted by an outbreak of low pathogenic avian influenza this year. This particular strain of avian influenza (subtype H6N1) has no food safety implications, but does impact on flock productivity.

A number of poultry flocks have been affected by a particular strain of avian influenza (subtype H6N1) since February this year. The Department of Agriculture, Food and the Marine does not have a legal basis to provide funding in respect of the H6N1 subtype as it is not of a subtype defined under the relevant EU legislation as requiring intervention.

● Poor control of NNAIV...a reason for concern? Yes.

- Direct economic losses (mortality, drop in egg production, culling)
- Late interventions → spread → vaccination → antigenic drift...endemicity
- Endemicity:
 - I. Interference with passive surveillance of HPAI (especially 2.3.4.4b?)
 - II. Interference with serological surveillance of LPAI
- Zoonotic potential:
 - I. Direct (e.g. H9N2 G1 lineage)
 - II. Indirect (reassortment events with mammalian influenza in other hosts or other AIVs)
 - III. Pre-pandemic potential of H1, H2 and H3 strains?
- Increased use of antibiotics in poultry (antibiotic resistance!)

● A chance for *redemption*? Yes and no...

REGULATIONS

REGULATION (EU) 2016/429 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 9 March 2016

on transmissible animal diseases and amending and repealing certain acts in the area of animal health ('Animal Health Law')

Although NNAIVs will remain non-notifiable as before...(as non H5/H7)

...from April 2021, the AHL suggests that “***pathogens that could cause significant negative effects in the Union on animal health, or pose a significant risk to public health due to its zoonotic character***” shall be included in the list of diseases subjected to specific prevention and control.

Decision-making must be evidence based (and quick)

- Need for a rapid phenotypic characterization of emerging NNAIVs (alternative tests to IVPI?)
- Finding determinants of poultry adaptation (beyond the NA stalk deletion and glycosilation sites...) and zoonotic transmission
- Identify ecological/environmental risk factors for the diffusion of NNAIVs

t

: of

diseases subjected to specific prevention and control.

A chance for *redemption*? Yes and no...

...in a few words
(and quick)

We need to start filling these gaps to be able to advise Animal Health Authorities facing outbreaks of NNAIVs

- Finding determinants of poultry adaptation (beyond the NA stalk deletion and glycoprotein sites) and genetic

We need to communicate more, sequence and deposit more...

- Identify ecological/environmental risk factors for the diffusion of NNAIVs

If a timely characterization of viruses is not feasible in one site...a harmonized effort of multiple NRL could be the best solution: emergency research.

Thank you for your attention