

Monitoring

ANIMAL HEALTH

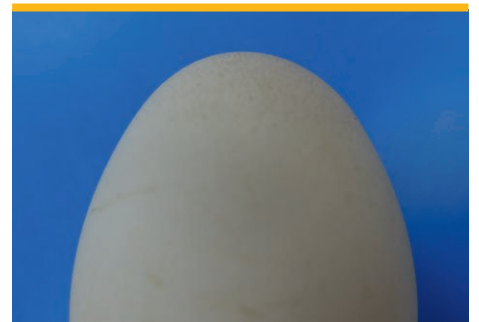
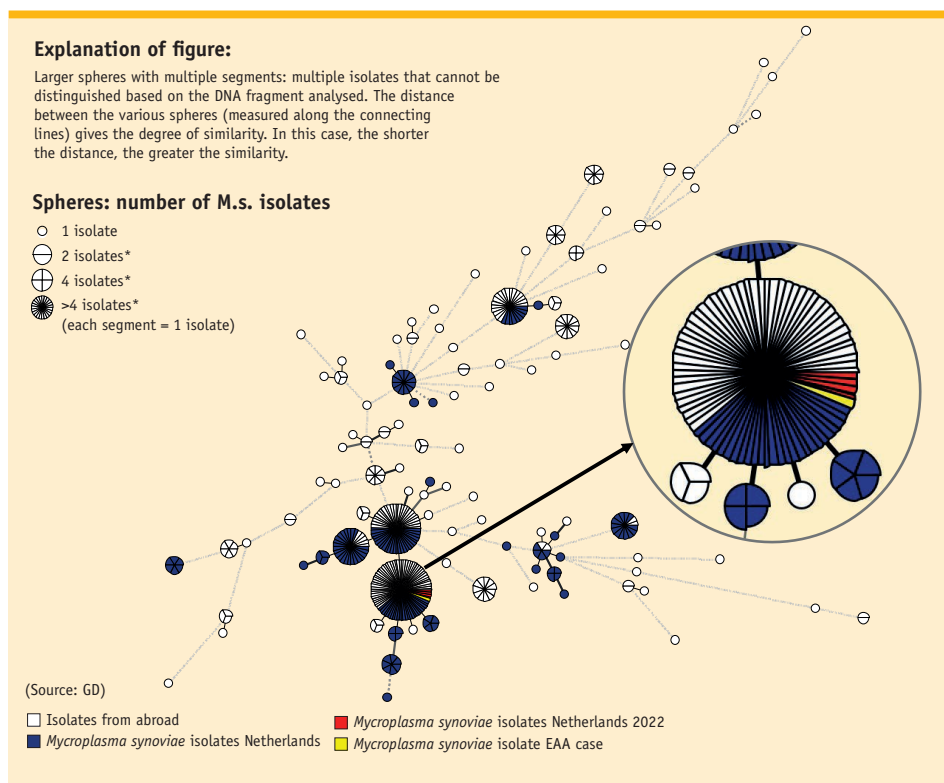
Eggs with eggshell apex abnormalities due to *Mycoplasma synoviae* in layers

Subclinical infections occur frequently. However, there are also pathogenic strains inducing disease. There are Ms strains with affinity for the joint and related to infectious synovitis. These arthropathogenic strains cause considerable losses to the turkey industry. In 2005 Ms strains were described which have affinity for the oviduct and which are responsible for eggshell apex abnormalities (EAA) and egg production losses. These strains are responsible for economic losses in laying hens. In the first quarter of 2022, Royal GD received eggs with and without eggshell apex abnormalities from the same layer flock. The egg had a thinner and rougher eggshell at the apex of the egg. Candling showed a clear demarcation zone between the eggshell in the apex of the egg and that of the rest of the egg. The presence of Ms in the eggshell membrane of the abnormal apex was confirmed by means of Ms-PCR. The Ms-PCR was negative in the eggshell membrane of the normal eggs.



Genotyping of the *Mycoplasma synoviae* strain

In 2022, GD performed molecular genotyping of the Ms strain involved in the EAA case. Based on the results, it was concluded that this was not a new strain, but rather an Ms strain already frequently detected in the Netherlands: see the yellow segment of the chart in Figure 1.



Photos 1 and 2. In EAA, the cone of the eggshell is shaped differently, and is thinner and more fragile. This is already somewhat visible in daylight (upper photo) but becomes particularly clear when the egg is viewed by candling (lower photo).

Figure 1.
Results of genetic study of the Ms strain in the EAA case.
Geographic diversity of Ms isolates based on MLST* of Ms isolates within and outside the Netherlands.

* MLST is a molecular biology technique used to typify multiple gene positions in the DNA, whereby DNA sequences of internal fragments of a number of housekeeping genes are applied in order to characterise isolates of a microbial species.

Streptococcosis in Dutch poultry

Streptococcus species are part of the normal microflora in the intestines in animals (including chickens). However, this bacterium can also cause disease in poultry and other animal species. Field research in 2022 paid attention to the occurrence of streptococci in poultry. Against the background of the Bekedam report 'Zoönosen in het vizier' ('Focus on Zoonoses'), which recommends an annual check of the zoonotic risk, the analyses from national surveillance and the literature were used to estimate the zoonotic risk of streptococcosis in poultry (see below and see results of additional research in the box at the bottom right).

Analysis of surveillance data 2010-2021 and estimation of the zoonotic potential

Analysis of the national surveillance data, covering the period 2010 to 2021 (a total of 13,153 cases submitted for pathology), revealed 49 cases of poultry submitted for pathology where streptococci were present in the diagnosis.

The majority of cases submitted were related to increased mortality. Streptococci are more important as a primary cause of increased losses in ducks, versus chickens (see figures 2 and 3). In ducks, *S. gallolyticus* was the most common primary cause of mortality.

Based on literature research, the incidence of streptococcosis in commercial poultry and data from additional AVINED research, it was concluded that the zoonotic potential of streptococcosis in poultry can be estimated as low (see results of additional research in the box at the bottom right).

Chickens submitted for necropsy over the 2010-2021 period with increased losses as the reason for submission (n = 23) and streptococci species primary or in the presence of other pathogens (secondary)

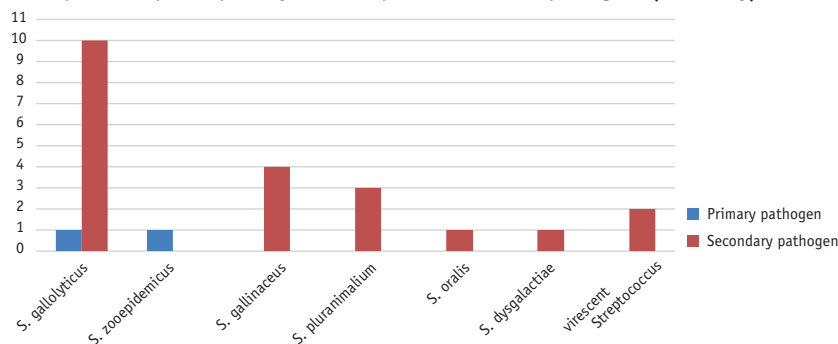


Figure 2: Overview of GD necropsies of chickens with streptococci in the diagnosis and increased losses as the reason for submission over the 2010-2021 period (Source: GD)

Ducks submitted for necropsy over the 2010-2021 period with increased losses as the reason for submission (n = 18) and streptococci species primary or in the presence of other pathogens

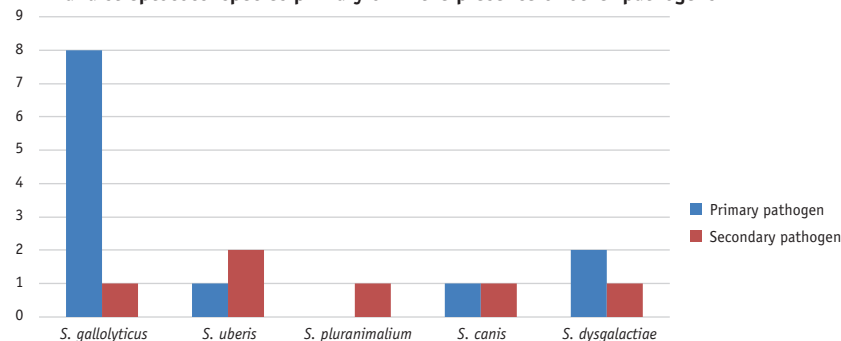


Figure 3: Overview of GD necropsies of ducks with streptococci in the diagnosis and increased losses as the reason for submission over the 2010-2021 period (Source: GD)

Additional research into *Streptococcus suis*

Due to a recent article from Asia reporting the isolation of *S. suis* from chickens, a random sample of 25 layer farms was also tested for *S. suis* within the surveillance programme. The bacterium was not detected at any of the farms.

Practical research into streptococci

In addition to the analysis, within the veterinary practical oriented research research for AVINED, GD also paid attention to, among other things, the possible zoonotic risk of the streptococci detected; genetic analysis of the cultivated strains allowed a comparison with isolates from other animal species and an MLST type which causes disease in humans. The results were presented to AVINED; the zoonotic potential of streptococci from poultry is estimated to be low.

Animal health barometer for poultry

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1 st quarter 2022	2 nd quarter 2022	3 rd quarter 2022	4 th quarter 2022	Trend (OVER 2 YEARS)
Execution decree (EU) 2018/1882 of the Animal Health Regulation (AHR) (EU) 2016/429 (Category A disease)						
Avian influenza (AI) in the Netherlands (H5/H7) <small>(Source: GD, WBVR, national government)</small>	Highly pathogenic AI (H5/H7):	H5(N1): 23 farms, 5x backyard poultry	H5(N1): 16 farms, 1x backyard poultry	H5(N1): 18 farms, 13x backyard poultry	H5(N1): 19 farms, 4x backyard poultry	↑
	Serology (first detection in flock): <i>(Antibodies for H5/H7)</i>	Not detected	Not detected	Not detected	Not detected	-
ND in the Netherlands <small>(Source: GD, OIE)</small>	Commercial poultry:	Not detected	Not detected	Not detected	Not detected	-
Execution decree (EU) 2018/1882 of the Animal Health Regulation (AHR) (EU) 2016/429 (Categories B through E)						
Campylobacteriosis	No data available	-	-	-	-	N/A
Avian influenza (AI) in the Netherlands (H5/H7) <small>(Source: GD, WBVR, national government)</small>	Low pathogenic AI (H5/H7):	Not detected	Not detected	Not detected	Not detected	-
Avian mycoplasmosis <small>(Source: GD)</small>						
<i>M. gallisepticum</i> ^A	Serological monitoring by GD:					
	Reproduction sector:	4 farms	1 farm	2 farms	-	↑
	Layer pullets:	-	1 farm	1 farm	-	-
	Layers:					
	- not vaccinated and infected:	2 farms	5 farms	1 farm	1 farm	-
	- vaccinated and infected:	2 farms	3 farms	2 farms	3 farms	-
	Turkeys:	1 farm	-	3 farms	1 farm	↑
	Reports in EWS^c based on positive serology and/or voluntary PCR testing:					
	Reproduction sector:	4 reports	1 report	-	-	-
	Layers:	1 report	5 reports	3 reports	3 reports	-
	Turkeys:	1 report	-	4 reports	-	↑
	Backyard poultry:	-	-	2 reports	4 reports	↑
<i>M. meleagridis</i> <small>(Source: GD)</small>		N/A	N/A	N/A	N/A	N/A
Salmonellosis (non-zoonotic salmonella) <small>(Source: GD)</small>						
<i>Salmonella arizonae</i>		N/A	N/A	N/A	N/A	N/A
<i>Salmonella Gallinarum</i> (SG)		Not detected	Not detected	Not detected	Not detected	-
<i>Salmonella Pullorum</i> (SP)		Not detected	Not detected	Not detected	Not detected	-
West Nile fever	Not monitored	N/A	N/A	N/A	N/A	N/A
Article 2.1 Designation of animal diseases 'Rules for Animal health' of the Dutch Animal Act						
Avian chlamydiosis <small>(Source: GD)</small>		Not detected by GD	Not detected by GD	Not detected by GD	Not detected by GD	-

>>

Table continuation

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1 st quarter 2022	2 nd quarter 2022	3 rd quarter 2022	4 th quarter 2022	Trend (OVER 2 YEARS)
Article 2.2. Designation of zoonoses 'Rules for Animal health' of the Dutch Animal Act						
Salmonellosis (zoonotic salmonella) (at flock level) (Source: NVWA)						
S. Enteritidis	Reproduction:	0 flocks	3 flocks	0 flocks	0 flocks	↓
	Layer pullets:	0 flocks	0 flocks	0 flocks	0 flocks	-
	Layers:	2 flocks	10 flocks	17 flocks	4 flocks	↑
S. Typhimurium	Reproduction:	0 flocks	0 flocks	0 flocks	1 flock	↓
	Layer pullets:	0 flocks	0 flocks	0 flocks	1 flock	-
	Layers:	0 flocks	1 flock	0 flocks	0 flocks	-
Other types of salmonella (S. Hadar, S. Infantis, S. Java, S. Virchow)	Reproduction:	0 flocks	0 flocks	0 flocks	0 flocks	-
Other WOAH-list poultry diseases in the Netherlands subject to compulsory notification						
Infectious laryngotracheitis (ILT) (Source: GD; EWS)	Reported in EWS^c:					
	Layer pullets:	-	-	3 reports	1 report	↑
	Layers:	1 report	-	-	-	-
	Broilers:	-	-	-	2 reports	-
	Backyard poultry:	2 reports	-	-	1 report	-
M. synoviae ^b (Source: GD)	Serological monitoring and/or dPCR by GD:					
	% of positive farms versus farms tested					
	Broiler grandparents (incl. replacement):	0%	0%	0%	0%	-
	Broiler breeders replacement:	10%	15%	9%	17%	↑
	Broiler breeders:	21%	30%	25%	21%	↑
	Layer grandparents pullets:	0%	0%	0%	0%	-
	Layer grandparents:	20%	0%	0%	0%	-
		(1 farm)				
	Layer breeders pullets	0%	8%	0%	0%	-
	Layer breeders:	9%	13%	7%	10%	↑
Layer pullets:	7%	12%	13%	8%	↓	
Layers:	73%	73%	75%	70%	-	
Turkeys:	17%	12%	12%	14%	-	
Infectious bronchitis (IB) (Source: GD)	Types most commonly detected by GD:					
	Broilers:	4-91/D388	D388/4-91	4-91/D388	D388/4-91	
	Layers:	4-91/D181	4-91/D181	4-91/D181	4-91/D388	
Gumboro (IBD) (Source: GD; EWS)	Reported in EWS^c:					
	Broilers:	4 reports	6 reports	11 reports	5 reports	-
	Layer pullets:	-	-	1 report	-	-
Turkey Rhinotracheitis (TRT) (Source: GD)	Detected by GD:					
	Reproduction sector-meat:	-	1 farm	1 farm	1 farm	
	Broilers:	1 farm	4 farms	3 farms	1 farm	
	Layer pullets:	1 farm	-	2 farms	-	
	Layers:	1 farm	1 farm	1 farm	1 farm	

>>

Table continuation

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1 st quarter 2022	2 nd quarter 2022	3 rd quarter 2022	4 th quarter 2022	Trend (OVER 2 YEARS)
Other poultry diseases						
Erysipelas (<i>Erysipelothrix rhusiopathiae</i>) (Source: GD)	Detected by GD: Layers:	2 farms	1 farm	-	1 farm	↓
Histomonosis (Source: GD)	Detected by GD: Reproduction (meat sector):	1 farm	2 farms	5 farms	5 farms	
	Reproduction (layer sector):	-	-	-	2 farms	
	Layer pullets:	1 farm	-	-	1 farm	
	Layers:	-	1 farm	-	1 farm	
	Meat turkeys:	-	-	1 farm	-	
	Backyard poultry:	1 case	-	-	-	
<i>Avibacterium paragallinarum</i> (Source: GD; EWS)	Reported in EWS^c: Layers:	2 reports	3 reports	1 report	8 reports	-
	Backyard poultry:	2 reports	1 report	3 reports	2 reports	-
<i>Pasteurella multocida</i> (Source: GD)	Detected upon necropsy: Broiler breeders replacement:	-	-	1 farm	-	-
	Layer breeders:	1 farm	-	-	-	-
	Layers:	-	1 farm	3 farms	-	-
	Ducks:	-	1 farm	-	-	-
	Turkeys:	-	-	-	1 farm	-

- ↑ Increase or strong increase
- ↗ Limited increase
- Situation unchanged
- ↘ Limited decrease
- ↓ Decrease or strong decrease

- A Based on serological monitoring
- B Based on serological monitoring and/or the differentiating M.s.-PCR
- C Early Warning System

Animal health monitoring

Since 2002, Royal GD has been responsible for animal health monitoring in the Netherlands, in close collaboration with the veterinary sectors, the business community, the Ministry of Agriculture, Nature and Food Quality, vets and farmers. The information used for the surveillance programme is gathered in various ways, whereby the initiative comes in part from vets and farmers, and partly from Royal GD. This information is fully interpreted to achieve the objectives of the surveillance programme – the rapid identification of health problems on the one hand and the following of more general trends and developments on the other. Together, we team up for animal health, in the interests of animals, their owners and society at large.