

Monitoring

ANIMAL HEALTH



Tenosynovitis due to reovirus

The first months of 2023 saw an increase in the number of animals submitted for pathology whereby GD detected reovirus in the tendon sheath. Reoviruses are very common in chickens. The genetic material of reoviruses is spread over multiple segments (a so-called segmented genome), which can be mutually exchanged between virus strains and which are also of a type (RNA) that can collect mutations relatively easier than our own genetic material (DNA), for example. The result is a very wide variety in reovirus strains. Most reovirus infections do not cause disease. However, there are strains that can multiply in the tendon sheath and cause damage there. The disorder caused by these viruses is therefore known as viral tenosynovitis. Chicks suffering from this disorder often have swollen tendons of their legs (see photo 1). The diagnosis is made by detecting the virus in these tendons (using a PCR test, for example), while also determining that there is indeed an inflammatory reaction in the tendon or tendon sheath consistent with a viral infection (by means of microscopic testing), as swollen tendon sheaths can also be caused by other diseases, such as a bacterial infection for example.

Further examination of the reovirus strains

Figure 1 shows the increased number of necropsies in the first half of 2023 whereby GD diagnosed viral tenosynovitis due to reovirus. The reovirus isolates from the necropsies were examined in more detail to determine whether they had spread from a specific source (for example a breeding flock), or whether a specific strain had been formed which then spread rapidly. The 2023 isolates were shown to belong to various genogroups: types 1, 2 and 4 were all detected multiple times. This is therefore not a single new strain which spreads rapidly. Furthermore, infections were seen in a number of different breeds, and there is no association between a certain virus genotype and a certain breed. There is therefore no evidence that the rise in reovirus cases is linked to a certain breeding flock.

Horizontal spread between flocks is significant in reovirus. The virus can also remain present in an empty barn, to reinfect a new flock.

Reovirus in layers

Viral tenosynovitis is mainly seen in broilers or broiler parent stock. However, in 2023 an infection was seen in young layers (see photo 1). Although these animals are known to develop the disease, it is extremely rare in the field.



Photo 1. This young hen has a swollen tendon sheath (arrow). Reovirus was found in the tendon sheath, along with microscopic symptoms of a viral inflammation (Source: GD)

Number of necropsies (commercial poultry) diagnosed with a (teno)synovitis due to a reovirus infection

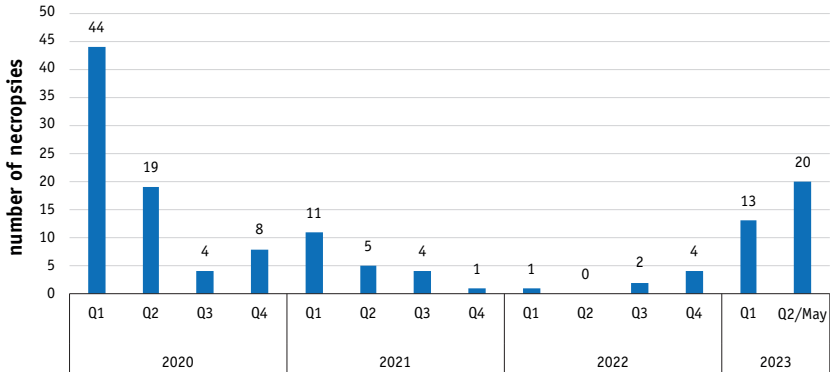


Figure 1. Number of necropsies in which GD detected tenosynovitis (inflammation of the tendon and tendon sheath) due to infection with reovirus

>> Continued on the next page

Salmonella Pullorum

In the first half of 2023, infections with *Salmonella* Pullorum were detected in backyard poultry (see box below) (SP; official name: *Salmonella* enterica serovar *Gallinarum* biovar Pullorum). SP is a non-motile salmonella from group D, which can cause very high mortality, particularly in young chicks. In adult chickens, an SP infection is generally subclinical (without disease), but these animals can pass on the bacterium to their chicks via the eggs. The chicks can then become seriously diseased upon hatching. Infections in flocks of breeding poultry can therefore have major consequences. To ensure safe and reliable mutual trade within Europe, the breeding sector is subject to compulsory monitoring for infections with SP throughout the EU. Thanks to such intensive monitoring, the Netherlands has not seen SP in the commercial breeding sector for many years. However, there was an outbreak at a commercial layer farm in 2021. At this farm, the infection also caused considerable disease among the adult animals, which was unusual. GD genetically examined the SP isolates of that outbreak, at the request of AVINED (a foundation that forms the collaboration between several supporting poultry organizations), and they were found to differ from all SP isolates kept by GD from previous historic outbreaks. The source of the infection could not be established.

However, most hens with SP do not become ill, allowing them to pass on the bacterium to their offspring unnoticed. The current infections in 2023 are all in very young dead chicks or in hatching eggs which failed to hatch in the backyard sector, without any reports of disease among adult animals.



Photo 2. An affected ovarium (oviduct) in an adult layer with *Salmonella* Pullorum (2021 outbreak)

Outbreaks of *Salmonella* Pullorum in backyard poultry

In 2023, an infection with SP was detected by post mortem examination on young chicks of backyard poultry. The infection resulted in increased mortality. Source tracing was performed in close collaboration with the submitting veterinarian and the parties involved (including the trader and the backyard sector hatchery). At the time of writing, a few more infected animals were found, and the locations of possible infections are being identified.

Backyard poultry can form a reservoir for SP, and therefore a risk for commercial breeding farms. Effective monitoring of SP and communication about the risks of infections are extremely important, also for backyard poultry.

Animal health barometer for poultry

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1st quarter 2023	2nd quarter 2023	3rd quarter 2023	4th quarter 2023	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)*: <i>* In commercial poultry and in backyard situations with >50 animals.</i>	H5(N1): Commercial: 3 farms				
	Serological monitoring by GD: (first detection in flock) (Antibodies for H5/H7)	Not detected				-
ND in the Netherlands <small>(Source: GD, OIE)</small>	Commercial poultry:	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				-
Avian mycoplasmosis <small>(Source: GD)</small>						
<i>M. gallisepticum</i> ^A	Serological monitoring by GD:					
	Reproduction sector:	0 farms				-
	Layer pullets:	0 farms				-
	Layers:					
	- not vaccinated and infected:	3 farms				
	- vaccinated and infected:	1 farm				
	Turkeys:	0 farms				-
	Reports in EWS^C based on positive serology and/or voluntary PCR testing:					
	Reproduction sector:	-				-
	Layers:	4 reports				
	Turkeys:	-				-
	Backyard poultry:	2 reports				-
<i>M. meleagridis</i> <small>(Source: GD)</small>		N/A				N/A
Salmonellosis (non-zoonotic salmonella) <small>(Source: GD)</small>						
<i>Salmonella arizonae</i>		N/A				N/A
<i>Salmonella Gallinarum</i> (SG)		-				-
<i>Salmonella Pullorum</i> (SP)		-				-
West Nile fever	Not monitored	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				-
Article 2.2. Designation of zoonoses 'Rules for Animal health' of the Dutch Animal Act						
Salmonellosis (zoonotic salmonella) (at flock level) <small>(Source: NVWA)</small>						
<i>S. Enteritidis</i>	Reproduction:	0 flocks				-
	Layer pullets:	0 flocks				-
	Layers:	3 flocks				
<i>S. Typhimurium</i>	Reproduction:	0 flocks				-
	Layer pullets:	0 flocks				-
	Layers:	1 flock				-
Other types of salmonella (<i>S. Hadar</i> , <i>S. Infantis</i> , <i>S. Java</i> , <i>S. Virchow</i>)	Reproduction:	0 flocks				-

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1st quarter 2023	2nd quarter 2023	3rd quarter 2023	4th quarter 2023	Trend (OVER 2 YEARS)
Other WOAH-list poultry diseases in the Netherlands subject to compulsory notification						
Infectious laryngotracheitis (ILT) (Source: GD; EWS)	Reported in EWS^c: Layer breeders: Layer pullets: Layers: Broiler breeders: Broilers: Backyard poultry:	- - 1 report - - 2 reports				- - - - - -
<i>M. synoviae</i> ^B (Source: GD)	Serological monitoring and/or dPCR by GD:			% of positive farms versus farms tested		
	Broiler grandparents replacement:	0%				-
	Broiler grandparents:	0%				-
	Broiler breeders replacement:	33%				↑
	Broiler breeders:	40%				↑
	Layer grandparents pullets:	0%				-
	Layer grandparents:	0%				-
	Layer breeders pullets:	0%				-
	Layer breeders:	16%				↑
	Layer pullets:	12%				↓
	Layers:	76%				-
	Turkeys:	5%				↓
Infectious bronchitis (IB) (Source: GD)	Types most commonly detected by GD: Broilers: Layers:		QX(D388) 4/91-793B			
Gumboro (IBD) (Source: GD; EWS)	Reported in EWS^c: Broilers: Layer breeders pullets: Backyard poultry:		11 reports - -			↑ - -
Turkey Rhinotracheitis (TRT) (Source: GD)	Detected by GD: Reproduction sector-meat: Broilers: Layer pullets: Layers: Meat turkeys:		- 1 farm - - 1 farm			
Other poultry diseases						
Erysipelas (<i>Erysipelothrix rhusiopathiae</i>) (Source: GD)	Detected by GD: Layers:		1 farm			-
Histomonosis (Source: GD)	Detected by GD: Reproduction (meat sector): Reproduction (layer sector): Layer pullets: Layers: Meat turkeys: Backyard poultry:		2 farms - - - - -			
<i>Avibacterium paragallinarum</i> (Source: GD; EWS)	Reported in EWS^c: Layers: Backyard poultry:		4 reports 1 report			- ↓

>>

Table continuation

Disease/disorder/health characteristic	Brief description (numbers at farm level)	1st quarter 2023	2nd quarter 2023	3rd quarter 2023	4th quarter 2023	Trend (OVER 2 YEARS)
<i>Pasteurella multocida</i> (Source: GD)	Detected upon necropsy:					
	Broiler breeders replacement:	-				-
	Layer breeders:	-				-
	Layers:	3 farms				-
	Ducks:	-				-
	Turkeys:	-				-

↑ 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 – rapid identification of health issues on the one hand and monitoring trends and developments on the other. Together, we team up for animal health, in the interests of animals, their owners and society at large.