Monitoring ANIMAL HEALTH

Poultry | October 2022

Genotyping of *Avibacterium paragallinarum* strains

Coryza

Coryza is caused by the *Avibacterium paragallinarum* bacterium. This bacterium causes infection of the upper respiratory tract in chickens. The clinical signs include respiratory problems, swollen sinuses, and nasal discharge. Besides respiratory signs the disease is also characterized by an acute decrease in egg production. After recovery of the disease the bacterium remains present in the flock (carrier flock).

The importance of genotyping

Since 2021, Royal GD has a test available for genotyping of *A. paragallinarum*. Genotyping of strains enables us to monitor the introduction of possible new (potentially pathogenic) strains and to link any outbreaks. In 2021, we were able to identify genotypes GT4, GT7, GT8, GT26, GT27 and GT31 in outbreaks among commercial and backyard poultry. Over the first six months of 2022, we found two new genotypes in carrier flocks (commercial poultry): GT14 and GT19. GT14 was also found in backyard poultry (see figure).

Results of HPG2 sequential analysis of *Avibacterium paragallinarum* strains first six months of 2022

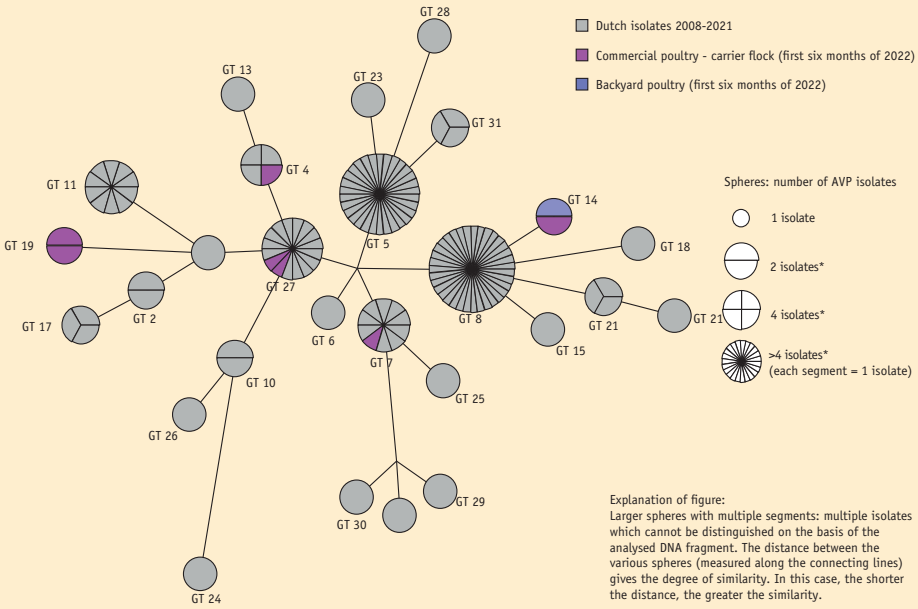


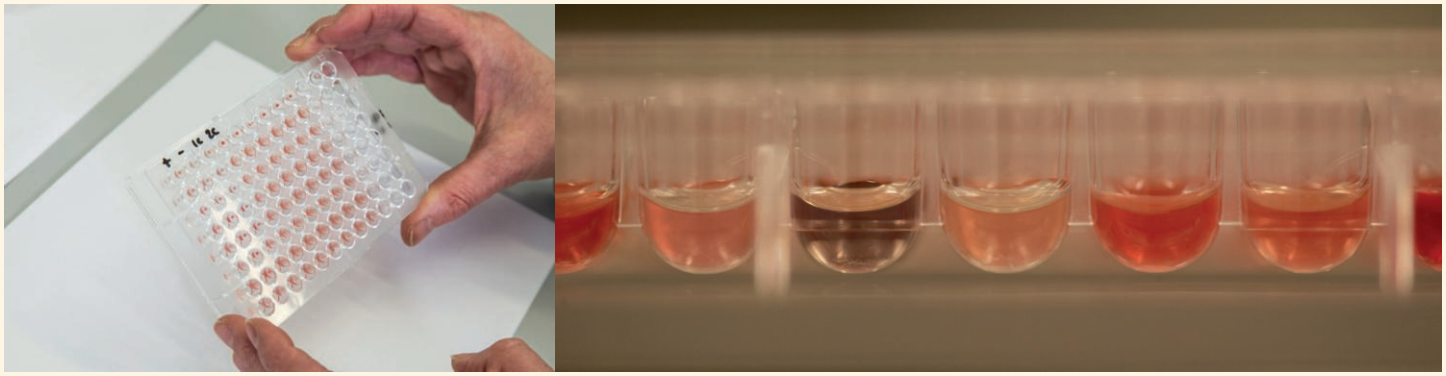
Figure. Results of Coryza testing of strains in the first six months of 2022: 5 HPG2 genotypes (numbers next to the spheres refer to the various genotypes (GT)) (Source: GD)

Genotype versus serotype and sensitivity of the tests

It has already been shown that backyard poultry infected with *A. paragallinarum* may pose a risk for commercial poultry. In commercial poultry, control of disease caused by A. paragallinarum is based on vaccination. The effectiveness of vaccination is related to the serotype of the strain incorporated in the vaccine. When the disease is caused by a new genotype, the serotype of this strain is also important. The molecular test applied to monitor the serotype alongside the genotype has specific requirements regarding the concentrations of the genetic material of the *A. paragallinarum* bacterium (bacterial DNA) for effective test results. Monitoring shows the sensitivity of this serotyping test to be particularly limited in samples obtained from carrier flocks (low volume of bacterial DNA present), thus giving no clear results. The sensitivity of the test is currently being adjusted in order to further optimise monitoring at the serotype level, also in those cases involving a lower volume of genetic material.

Further analysis of high ND titres

Over the first six months of 2022, seventeen blood samples submitted from boilers or meat turkeys underwent further titration due to more than 70 percent of the blood samples having a titre of 7 or higher. As the standard HI test has a test range of 1 through 7, it is not clear for these samples which titre they actually have. Upon further titration, it became apparent that none of the submitted samples had an average ND-HI titre higher than 9. The samples came from different postcode areas, and were therefore not concentrated in any particular region of the Netherlands. Following contact with the poultry veterinarians at the farms from which the samples were submitted, no respiratory health issues were found to be present in any of the cases. Although there is no explanation for these high titres, there is no reason to expect the presence of velogenic ND virus in the Netherlands.



A test plate, showing the sediment visible after carrying out the HI test. When there are insufficient or no antibodies in the dilution, the red blood cells will clump.

Animal health barometer for poultry - first six months of 2022

Disease/disorder/ health characteristic	Brief description (numbers at farm level)	1st quarter 2022	2nd quarter 2022	3rd quarter 2022	4th 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) (Source: GD, WBVR, national government)	Highly pathogenic AI (H5/H7):	**H5(N1):** 23 farms, 7x backyard poultry	**H5(N1):** 16 farms, 1x backyard poultry			↑
	Serology (first detection in flock): (Antibodies for H5/H7)	Not detected	Not detected			-
ND in the Netherlands (Source: GD, WOAH)	Commercial poultry:	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) (Source: GD, WBVR, national government)	Low pathogenic AI (H5/H7):	Not detected	Not detected			-
Avian mycoplasmosis (Source: GD)						
M. gallisepticum[A]	**Serological monitoring by GD:**					
	Reproduction sector:	4 farms	1 farm			↑
	Layer pullets *(not vaccinated):*	-	1 farm			-
	Layers:					
	- *not vaccinated and infected:*	2 farms	5 farms			↑
	- *vaccinated and infected:*	2 farms	3 farms			-
	Turkeys:	1 farm	-			-
	Reports in EWS[C] based on positive serology and/or voluntary PCR testing:					
	Reproduction sector:	4 farms	1 farm			↑
	Layers:	1 farm	5 farms			-
	Turkeys:	1 farm	-			-
	Backyard poultry:	-	-			-
M. meleagridis (Source: GD)		N/A	N/A			N/A
Salmonellosis (non-zoonotic salmonella) (Source: GD)						
Salmonella arizonae		N/A	N/A			N/A
Salmonella Gallinarum (SG)		Not detected	Not detected			-
Salmonella Pullorum (SP)		Not detected	Not detected			-
West Nile fever	Not monitored	N/A	N/A			N/A
Article 2.1 Designation of animal diseases 'Rules for Animal health' of the Dutch Animal Act						
Avian chlamydiosis (Source: GD)		Not detected by GD	Not detected by GD			-

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Table continuation

Disease/disorder/ health characteristic	Brief description (numbers at farm level)	1st quarter 2022	2nd quarter 2022	3rd quarter 2022	4th 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			-
	Layer pullets:	0 flocks	0 flocks			-
	Layers:	2 flocks	6 flocks			-
S. Typhimurium	Reproduction:	0 flocks	0 flocks			-
	Layer pullets:	0 flocks	0 flocks			-
	Layers:	0 flocks	1 flock			-
Other types of salmonella (*S.* Hadar, *S.* Infantis, *S.* Java, *S.* Virchow)	Reproduction:	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]:**					
	Layers:	1 farm	-			-
	Backyard poultry:	2 cases	-			-
M. synoviae[B] (Source: GD)	**Serological monitoring and/or dPCR by GD:**	**% of positive farms versus farms tested**				
	Broiler grandparents (incl. replacement)	0%	0%			-
	Broiler breeders replacement:	10%	15%			↑
	Broiler breeders:	21%	30%			↓
	Layer grandparents pullets:	0%	0%			-
	Layer grandparents:	20% (1 farm)	0%			-
	Layer breeders pullets:	0%	8%			↑
	Layer breeders:	9%	13%			-
	Layer pullets:	7%	12%			↓
	Layers:	78%	73%			-
	Turkeys:	17%	12%			↓
Infectious bronchitis (IB) (Source: GD)	**Types most commonly detected by GD:**					
	Broilers:	4-91/D388	D388/4-91			
	Layers:	4-91/D181	4-91/D181			
Gumboro (IBD) (Source: GD; EWS)	**Reported in EWS[C]:**					
	Broilers:	4 farms	10 farms			↓
Turkey Rhinotracheitis (TRT) (Source: GD)	**Detected by GD:**					
	Reproduction:	-	1 farm			
	Broilers:	1 farm	4 farms			
	Layer pullets:	1 farm	-			
	Layers:	1 farm	1 farm			

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Table continuation

Disease/disorder/ health characteristic	Brief description (numbers at farm level)	1st quarter 2022	2nd quarter 2022	3rd quarter 2022	4th quarter 2022	Trend (over 2 years)
Other poultry diseases						
Erysipelas	**Detected by GD:**					
(Erysipelothrix rhusiopathiae)	Layers:	2 farms	1 farm			-
(Source: GD)						
Histomonosis	**Detected by GD:**					
(Source: GD)	Reproduction (meat sector):	1 farm	1 farm			
	Layer pullets:	1 farm	-			
	Layers:	-	1 farm			
	Backyard poultry:	1 case	-			
Avibacterium paragallinarum	**Reported in EWS[C]:**					
(Source: GD; EWS)	Layers:	2 farms	3 farms			↓
	Backyard poultry:	2 farms	1 farm			↓
Pasteurella multocida	**Detected upon necropsy:**					
(Source: GD)	Layer breeders:	1 farm	-			-
	Layers:	-	1 farm			-
	Ducks:	-	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

Monitoring DIERGEZONDHEID

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.

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