Monitoring ANIMAL HEALTH

Poultry | October 2020

Analysis of ND titres in broilers (2018 until early 2020)

ND is a viral respiratory disease affecting poultry. All ND viruses belong to the group of avian paramyxoviruses serotype 1 (APMV-1). Serotype 1 can be classified on the basis of its pathogenicity, as 'asymptomatic enteric', 'lentogenic', 'mesogenic' or 'velogenic'. Lentogenic APMV-1 viruses generally cause very few or no disease symptoms, making them suitable for use as vaccine strains. These (field) viruses form the basis of the live ND vaccines available in the world.

The compulsory blood testing for broilers occasionally results in high titre values being found. In GD's standard HI test, titres of 1 to 7 are detected. However, the titres of 7 could actually have a higher value; the samples need further titration to determine this.

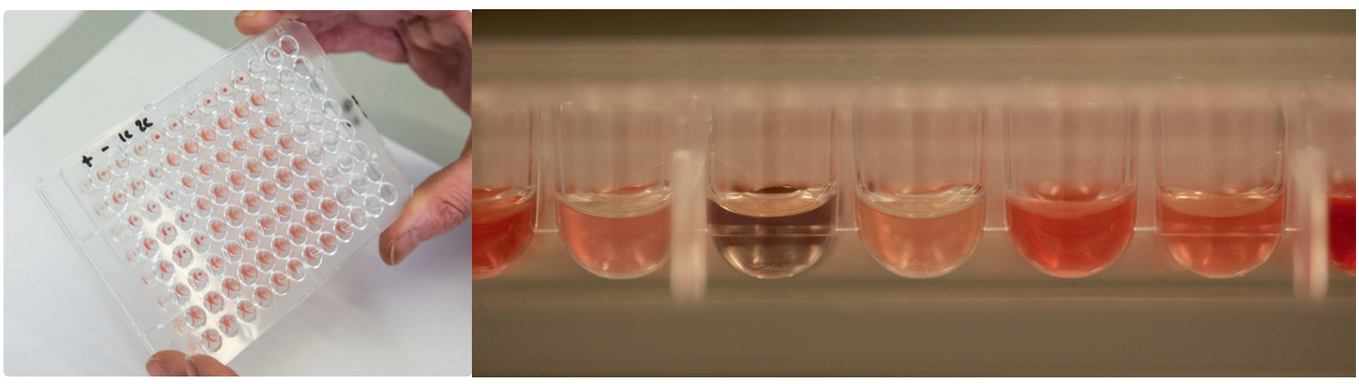
A limited analysis has been conducted of the ND results from farms supplying blood samples from broilers over the past 2.5 years, of which more than 70 percent of the blood samples submitted (per submission) had a titre of 7 or higher.

Analysis results

There were 28 farms with one submission of which more than 70 percent of the individual titres showed a HI value of 7 or higher, six farms with two submissions, one farm with one submission and one farm with six submission to which this applied. The farms where further titration was required once or more often, consult thirteen different veterinary practices. There does not seem to be any correlation between veterinary practices and the farms where further titration was required. The postal code distribution was studied of the farms where further titration of the blood in the ND-HI test was required. Based on the first two figures of the postal code area, the farms are located in 21 postal code areas. There does not seem to be any region in the Netherlands where the AMPV-1 virus is present that causes high titres in the region for an extended period of time.

Conclusion

There are a number of farms where multiple flocks clearly showed high ND titres over an extended period of time, whereby the vaccination schedule was no different from the schedule applied at other flocks in the Netherlands. Although the titres are higher than expected based on the standard vaccination schedule, this gives no cause to suspicion of presence of the ND virus (ICPI > 0.7). The introduction of lentogenic APMV-1 strains (vaccine or field strains) in such a flock may be the cause of the higher titres being present.



A test plate, showing the sediment visible after executing the HI test. When there were insufficient or no antibodies in the dilution, the red blood cells have clotted together.

Recurrent infections with the new Gumboro strain

A new Gumboro strain (98.1% homology with DV86) has been detected since 2016, while the classic DV86 field strain no longer seems to be present. In broilers, the new Gumboro strain is associated with poorly performing flocks and problems such as wet houses, reduced growth, increased mortality and reduced technical results. This may have something to do with a certain degree of immunosuppression. These symptoms match the results of the pathogenicity study conducted by GD within the context of practical research in 2019. This study showed considerable and permanent damage to the bursa of Fabricius, without clear clinical symptoms in the broilers.

Practical research 2020

The practical research of 2020 looks at the cut-off titre of the new field strain. It is frequently reported that the new Gumboro strain results in recurring problems (no typical representation of Gumboro but disappointing technical results) at multiple farms, despite Gumboro vaccinations with a stronger vaccine, and vaccination based on blood testing. On those farms, this calls into question the effectiveness of the vaccinations. Due to the Gumboro infection itself having little or no clinical presentation, it is unclear when the infection actually occurs: before the vaccination, very soon after vaccination or later on. This information is essential to quickly gain more insight into the measures required to prevent damage by this Gumboro strain.

Monitoring pilot 2020

GD initiated a small-scale monitoring pilot in August. At farms experiencing recurring problems caused by the new Gumboro strain, a retrospective study is conducted in an infected flock to determine when the infection began, at which volume of maternal antibodies it occurred, and when the infection occurred in relation to the vaccinations used. The combination of blood testing of maternal antibodies and PCR testing for the presence of the virus will provide more clarity on the possibility of the virus infecting animals under field circumstances, and the measures required to prevent damage (intensity of cleaning and disinfection, choice of vaccine, vaccine timing, level of required maternal antibodies).

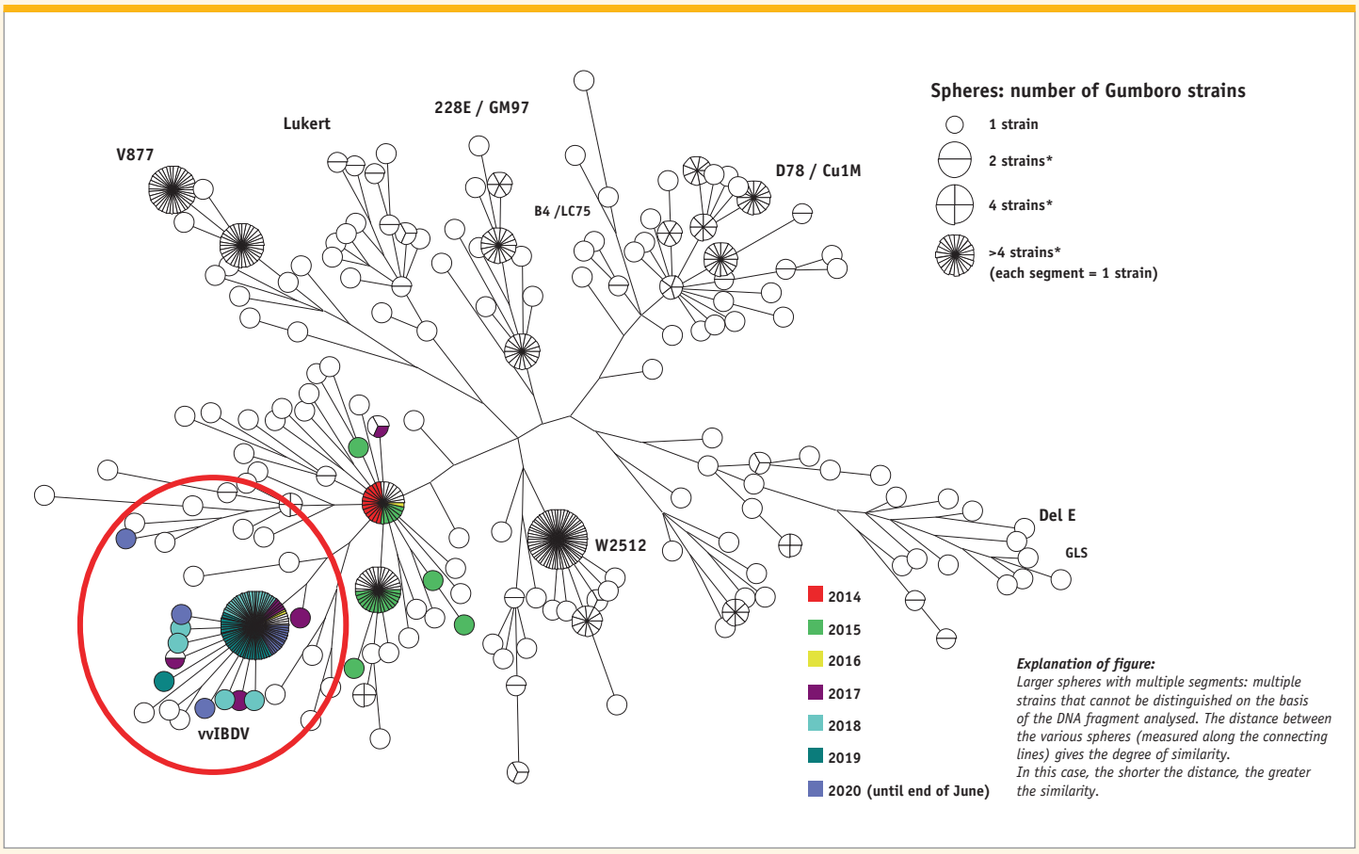


Figure 1. Phylogenetic tree of Gumboro field and vaccine strains detected by GD, including detected DV86 strains at Dutch farms during the 2014 through June 2020 period (coloured spheres). In the red circle are mainly the detected 98.1% homology DV86 strains (Source: GD)

Animal health barometer for poultry 2nd quarter 2020

Veterinary diseases	Brief description	1st quarter 2020	2nd quarter 2020	3rd quarter 2020	4th quarter 2020	TREND (OVER 2 YEARS)
Article 15 GWWD (Health & Welfare Act) diseases (diseases named in articles 3 and 7 of the 'Rules for prevention, control and monitoring of infectious animal diseases and zoonoses and TSEs')						
Avian influenza in the Netherlands (H5/H7) (Source: GD, WBVR, national government)	**HPAI (H5/H7):**	Not detected	Not detected			-
	LPAI (H5/H7):	Not detected	Not detected			-
	Serology (new flocks): *(Antibodies for H5/H7)*	2 flocks	0 flocks			-
Avian influenza in Europe (H5/H7) (Source: OIE)	**HPAI (H5/H7):**	**H5N8:** Various countries* **H5:** Ukraine	**H5N8:** Bulgaria and Hungary			⬆
	LPAI (H5/H7):	**Denmark:** H5N1	**Italy:** H5N3 and H7N1			-
ND in the Netherlands (Source: GD, OIE)	Commercial poultry	Not detected	Not detected			-
ND in Europe (Source: GD, OIE)	Commercial poultry	No OIE reports	Macedonia: 1			-
M. gallisepticum[A] (Source: GD)	**Serological monitoring by GD:**					
	Reproduction sector:	0 farms	0 farms			-
	Layer pullets:	0 farms	0 farms			-
	Layers:					
	- *not vaccinated and infected:*	3 farms	2 farms			⬆
	- *vaccinated and infected:*	1 farm	5 farms			⬆
	Turkeys:	0 farms	0 farms			-
	Reports in EWS[C] based on positive serology and/or voluntary PCR testing:					
	Layers:	4 farms	7 farms			⬆
	Backyard poultry	-	2 cases			-
M. synoviae[B] (Source: GD)	**Serological monitoring and/or dPCR by GD:**		**% of positive farms versus farms tested**			
	Grandparent stock (incl. pullets) (meat):	0%	0%			-
	Broiler breeder pullets:	8%	2%			⬇
	Broiler breeders:	26%	32%			⬆
	Grandparent stock (incl. pullets) (layers):	0%	0%			-
	Layer breeder pullets:	0%	0%			-
	Layer breeders:	3%	6%			-
	Layer pullets:	35%	15%			⬆
	Layers:	76%	71%			-
	Turkeys:	10%	7%			⬇

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⬆ Increase or strong increase
⬆ Limited increase
- Situation unchanged
⬇ Limited decrease
⬇ Decrease or strong decrease

** Bulgaria, Germany, Hungary, Poland, Romania, Slovakia, Czech Republic*

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

Table continuation

Veterinary diseases	Brief description	1st quarter 2020	2nd quarter 2020	3rd quarter 2020	4th quarter 2020	TREND (OVER 2 YEARS)
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	Layers: 1 farm			⬆
Article 100 GWWD (Health & Welfare Act) diseases (diseases named in article 10 of the 'Rules for prevention, control and monitoring of infectious animal diseases, zoonoses and TSEs')						
Campylobacteriosis	No data available	-	-	-		N/A
Salmonellosis (zoonotic salmonella) (at the flock level) (Source: NVWA)						
S. Enteritidis	Reproduction:	9 flocks	0 flocks			⬆
	Layer pullets:	0 flocks	0 flocks			-
	Layers:	10 flocks	7 flocks			⬆
S. Typhimurium	Reproduction:	1 flock	0 flocks			-
	Layer pullets:	0 flocks	0 flocks			-
	Layers:	0 flocks	0 flocks			-
Other salmonella serotypes (Hadar (S.H.), Infantis (S.I.), Java (S.J.), Virchow (S.V.)	Reproduction:	0 flocks	S.I.: 1 flock S.H.: 1 flock			-
Other OIE-list poultry diseases in the Netherlands subject to compulsory notification						
Avian chlamydia (Source: GD)		Not detected	Not detected			-
Gumboro (IBD) (Source: GD; EWS)	**Reported in EWS[C]:**					
	Broilers:	6 farms	7 farms			⬆
Infectious bronchitis (IB) (Source: GD)	**Types most commonly detected by GD:**					
	Broilers:	D388	D388			
	Layers:	4-91/D388/ D181	4-91/D388/ D181			
Infectious laryngotracheitis (ILT) (Source: GD; EWS)	**Reported in EWS[C]:**					
	Broiler breeders:	2 farms	-			-
	Broilers:	0 farms	1 farm			⬇
	Layers:	1 farm	-			-
	Backyard poultry:	1 case	-			-
Turkey Rhinotracheitis (TRT) (Source: GD)	**Detected by GD:**					
	Broilers:	1 farm	4 farms			

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⬆ 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 DIVA M.s.-PCR
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Table continuation

Veterinary diseases	Brief description	1st quarter 2020	2nd quarter 2020	3rd quarter 2020	4th quarter 2020	TREND (OVER 2 YEARS)
Other poultry diseases						
Avibacterium paragallinarum (Source: GD; EWS)	**Reported in EWS[C]:**					
	Broiler breeders	-				-
	Layers:	4 farms	4 farms			↓
	Backyard poultry:	1 case	2 cases			-
Erysipelas (*Erysipelothrix rhusiopathiae*) (Source: GD)	**Detected by GD: (new infections):**					-
	Layers:	6 farms	2 farms			
Pasteurella multocida (Source: GD)	**Detected upon necropsy:**					-
	Layers:	5 farms	4 farms			
	No reports to the NVWA					
Histomonosis (Source: GD)	**Detected by GD:**					
	Reproduction (meat sector):	2 farms	3 farms			↓↓
	Reproduction (layer sector):	1 farm	-			-
	Layers:	1 farm	2 farms			-

↑↑ 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 DIVA 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 – 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.

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