

Monitoring

ANIMAL HEALTH



Epizootic Hemorrhagic Disease (EHD): first detection of infection in Europe

The first outbreak of EHD in Europe was detected in early November 2022 in a number of cattle at various Italian cattle farms on the island of Sardinia and subsequently on Sicily. Reports of infected cattle in Spain soon followed in November and December. While the virus had already been detected in wild (mainly deer) and domesticated ruminants in North Africa, North America, Australia and Asia, this was the first occurrence on the European continent. EHD is caused by an orbivirus (RNA virus), related to the bluetongue virus, and like bluetongue is transmitted by stinging insects of the *Culicoides* genus (midges). EHD may have been brought by vectors from the north-western region of Africa to the southern European regions. It is first and foremost a severe disorder in deer, while cattle and sheep occasionally fall ill. It is not zoonotic. EHD belongs in the category of 'D and E animal diseases', for which measures must be taken to prevent it spreading and for which monitoring is required within the EU. There is as yet no vaccine to combat EHD in cattle.



IBR outbreak in the Northern Netherlands

In late December 2022 and early 2023, eight dairy farms in a small area of the Northern Netherlands lost their IBR-free status in quick succession. It proved to be an unusually virulent outbreak. There was no indication that the introduction of cattle played a role. The GD specialist for IBR closely supervised and advised the practitioners in the direct vicinity of the affected farms. The dairy farms where the outbreak took place and many neighbouring farms chose to have their animals vaccinated. GD temporarily intensified the testing capacity of the regular IBR monitoring programme to get results more quickly. Cattle farmers and practising veterinarians were alerted to the outbreak via various professional publications, and warned to stay alert to any symptoms. One farm, at which an aborting cow was subsequently found to have antibodies, had already submitted (bronchoalveolar lavage) samples to a different laboratory than GD back in November, following detection of clinical signs. No IBR virus had been detected in the samples. No more antibodies in bulk milk were detected at IBR-free farms in the month of February, in the Northern Netherlands, where eventually eight IBR-free farms had been found to be infected in the previous weeks. The outbreak therefore seems to have been halted in this region.

Udder health at dairy farms shows unfavourable development

As of 1 January 2022, Qlip is applying new reference materials to determine the cell count, for the purpose of international harmonisation. It was assumed that this would increase the average bulk milk cell count in the Netherlands by 12 percent. Various predictive models and analyses have shown that part of the increase can indeed be explained by the new reference method, though it is equally influenced by the higher milk price and older age of the dairy herds.

The percentage of cattle with a high cell count was greater in the third quarter of 2022 than the percentage of high cell count cows in the third quarter of 2021. The percentage of cattle with a new high cell count at dairy farms was also higher in the third quarter of 2022 versus the third quarter of 2021. An increasing trend can be seen over the five-year period, in both the percentage of high cell count cattle at the farm and the percentage of new high cell count cattle (figures 1a and 1b). The hypothesis is that the higher milk price resulted in cows with a high cell count being kept longer, or being less readily or frequently treated with antibiotics. If this raises the risk of infection at a farm, the incidence of new udder infections will increase likewise.

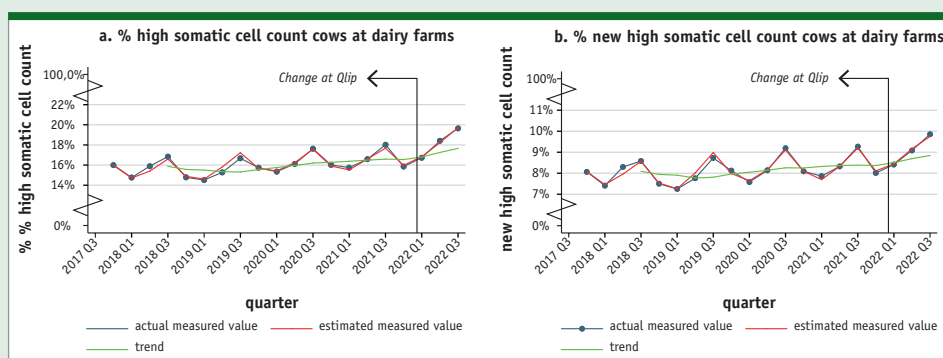


Figure 1 The percentage of high cell count cows (a) and the percentage of new high cell count cows (b) at dairy farms per quarter, in the period from 1 October 2017 through 30 September 2022 (source: Data analysis based on I&R and CRV)

Nitrate intoxication in cattle

In mid-November, a veterinarian called Royal GD with regard to the acute death of seven yearlings in a barn. No clinical signs were seen in other animals in the herd. The differential diagnosis was discussed with the veterinarian: consequences of fertiliser mixes whereby harmful gases are released, botulism, nitrate or *Clostridium perfringens* intoxication or vitamin E deficiency. When considering the anamnesis discussed, nitrate or *Clostridium perfringens* intoxication seemed most likely. The advice was to immediately stop feeding fresh grass and to arrange for post-mortem examination. Although there was no mix of fertilisers, the farmer requested that the fire services conducted a gas measurement, which showed no harmful gases to be present. Following pathological examination of the

animal submitted, nitrate intoxication was diagnosed and no further animals died following the recommended change in feed.

The risk of nitrate intoxication when feeding fresh grass is the greatest in autumn, during the dark and cool weather while the soil is still warm. If the soil has also been well fertilised, nitrate accumulation will increase in the grass once the grass growth slows. If the grass then grows again following a rain shower and cattle consume this grass during this period of nitrate accumulation, the nitrate concentrations can be high enough to cause nitrate intoxication. The nitrate ingested via the fresh grass is converted into nitrite in the cow's rumen. When nitrite

accumulates in the digestive system, it is absorbed into the bloodstream, where it changes the red haemoglobin into rusty methaemoglobin. In turn, the blockage of haemoglobin restricts oxygen transport via the blood. Once approximately 75 percent of the oxygen in the blood has been replaced by nitrite, the cow will suffocate. When fed in the barn, cattle are able to quickly consume a large volume of feed, so that the risk of nitrite intoxication is then greater than in the case of outdoor grazing.

Three botulism outbreaks at cattle farms

Pathological examination of a submitted cow found *Clostridium botulinum* type C/D, by means of a PCR of the liver and rumen contents at WBVR, at three farms (one veal calf farm and two dairy farms) in the final quarter of 2022. Six outbreaks of botulism had

already been reported to GD during the third quarter. In 2022 as a whole, pathological examination found *Clostridium botulinum* type C/D in thirteen animals, which represents an increase versus 2021 (three animals). During intervention meetings for practitioners in

November and December, Royal GD paid specific attention to botulism, also discussing the approach and prevention methods.

Besnoitiosis

In January 2023, our Belgian colleagues (DGZ) informed us that the number of cattle infected with besnoitiosis had increased considerably in Belgium over the past years, as the result of the import of infected animals. As animals suffering from besnoitiosis form a serious risk for the Belgian bovine sector, the sector is working hard to establish a statutory framework so restrictions can be imposed on infected animals.

Infections with the *Besnoitia besnoiti* parasite have been described in southern Europe since the 19th century. Over the past few years, this disease has clearly advanced

within southern Europe, but also to countries such as Germany, Switzerland, Hungary, Croatia, Ireland and Belgium. Besnoitiosis is therefore regarded to be an Emerging Disease in Europe. There are three forms of the parasitic infection: asymptomatic carriers, acute disease and chronic disease. The formation of cysts in the sclera is pathognomonic for Besnoitiosis. The acute and chronic stages of the disease are harmful to cattle in terms of their welfare, meat and milk production losses, fertility problems and even mortality in seriously affected animals. Mortality rates can run up to 10 percent in a herd. Besnoitiosis is not zoonotic. The Netherlands has no legislation for the

reporting or prevention of this disease. The control measures advised on the basis of scientific research consist of preventing introduction through the purchase of infected cattle on the one hand, and on the other hand the correct approach to a detected infection. Farmers are advised to quarantine any animals imported from risk regions and to have them tested for besnoitiosis. Should any animal prove to be infected, it must be placed in isolation and disposed of as quickly as possible. Clinical and serological testing is then advised throughout the herd (Alvarez-Garcia et al., 2013*).

* Alvarez-García, G., Frey, C. F., Mora, L. M. O., & Schares, G. (2013). A century of bovine besnoitiosis: an unknown disease re-emerging in Europe. *Trends in Parasitology*, 29(8), 407-415

Animal health of cattle in the Netherlands in the fourth quarter of 2022

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance Highlights Fourth Quarter 2022
Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Category A disease)			
Lumpy Skin Disease (LSD)	Viral infection. The Netherlands is officially disease-free.	A, D, E	Infections have never been detected.
Foot and Mouth Disease (FMD)	Viral infection. The Netherlands has been officially disease-free since 2001.	A, D, E	No infections detected.
Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Categories B through E)			
Bluetongue (BT)	Viral infection. The Netherlands has been officially disease-free since 2012 (all serotypes). Annual screening.	C, D, E	The Netherlands BTV-free.
Bovine genital campylobacteriosis	Bacterial infection. The Netherlands has been disease-free since 2009. Monitoring of AI and embryo stations, and in animals for export.	D, E	<i>Campylobacter fetus</i> spp. <i>veneralis</i> not detected.
Bovine Viral Diarrhoea (BVD)	Viral infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	88 percent of dairy farms have BVD-free or BVD-unsuspected status.* This is 19 percent among voluntarily participating non-dairy farms. *BVD status determined according to the GD programme

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance Highlights Fourth Quarter 2022
Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Categories B through E) (continued)			
Brucellosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. The Netherlands has been officially disease-free since 1999. Monitoring via antibody testing of blood samples from aborting cows.	B, D, E	No infections detected.
Enzootic bovine leucosis	Viral infection. The Netherlands has been officially disease-free since 1999. Monitoring via antibody testing of bulk milk and blood samples of slaughtered cattle.	C, D, E	No infections detected.
Infectious Bovine Rhinotracheitis (IBR)	Viral infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	79 percent of dairy farms have IBR-free or IBR-unsuspected status. This is 21 percent among voluntarily participating non-dairy farms. Outbreak in the Northern Netherlands.
Anthrax (zoonosis, infection via animal contact)	Bacterial infection. Not detected in the Netherlands since 1994. Monitoring via blood smears from fallen stock.	D, E	No infections detected.
Paratuberculosis	Bacterial infection. Control programme compulsory for Dutch dairy farms. 98 percent of dairy farms participate.	E	81 percent of dairy farms have Paratuberculosis Programme Netherlands (PPN) status A (unsuspected).
Rabies (zoonosis, infection via bites or scratch wounds)	Viral infection. The Netherlands has been officially disease-free since 2012 (illegally imported dog).	B, D, E	No infections detected.
Bovine tuberculosis (TBC) (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. The Netherlands has been officially disease-free since 1999. Monitoring via slaughtered cattle.	B, D, E	No infections detected.
Trichomonas	Bacterial infection. The Netherlands has been disease-free since 2009. Monitoring of AI and embryo stations, and in animals for export.	C, D, E	<i>Tritrichomonas foetus</i> not detected.
Q fever (zoonosis, infection via dust or inadequately prepared food)	Bacterial infection. In the Netherlands, a different strain in cattle to that found on goat farms, with no established relationship to human illness. Once again a standard component of the aborter protocol from the first quarter of 2023.	E	No infections detected in submitted aborted fetuses.
Article 3a.1 Reporting of zoonoses and clinical signs 'Rules for Animal Husbandry' of the Dutch Animal Act			
Leptospirosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	-	97 percent of dairy farms have leptospirosis-free status. 31 percent of non-dairy farms have leptospirosis-free status. Again, more incoming animals with a status lower than leptospirosis-free. One dairy farm with a leptospirosis infection.
Listeriosis (zoonosis, infection via inadequately prepared food)	Bacterial infection. Occasional infection detected in cattle.	-	Infections detected in one cow submitted for necropsy and detected once in aborted fetuses.
Salmonellosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	-	96.1 percent of dairy farms have favourable bulk milk results (national programme).

Table continuation

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance Highlights Fourth Quarter 2022
Article 3a.1 Reporting of zoonoses and clinical signs 'Rules for Animal Husbandry' of the Dutch Animal Act			
Yersiniosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Detected occasionally in cattle, mostly in aborted fetuses.	-	No infections detected.
Regulation (EC) No 999/2001			
Bovine Spongiform Encephalopathy (BSE)	Prion infection. The Netherlands has OIE status 'negligible risk'. No cases detected upon monitoring since 2010 (total 88 cases between 1997-2009).	-	No infections detected.
Other infectious diseases in cattle			
Malignant Catarrhal Fever (MCF)	Viral infection. Infections with Ovine herpes virus type 2 occur occasionally in the Netherlands.	-	Three infections detected at necropsy.
Liver fluke	Parasite. Liver fluke is present in the Netherlands, particularly in wetland areas.	-	Infections detected at 29 farms and one in cattle submitted for necropsy.
Neosporosis	Parasite. An important infectious cause of abortion in the Netherlands.	-	Infections detected in seven submitted aborted fetuses.
Tick borne diseases	External parasite that can transfer infections. Ticks infected with <i>Babesia divergens</i> , <i>Anaplasma phagocytophilia</i> and <i>Mycoplasma wenyonii</i> are present in the Netherlands.	-	No infections detected.



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.