Floods in Limburg

Heavy rainfall in July caused severe flooding in Germany, Belgium and the Netherlands. In the Netherlands, this was particularly around the rivers in the south of Limburg. Sedimentation samples were collected from five fields in the afflicted areas, representing the various river systems, with drainage from Germany and Belgium. These samples were tested for the presence of heavy metals and organic contaminants: PAH (Polycyclic Aromatic Hydrocarbons) and PCBs (polychlorinated biphenyls). PAH and PCBs were within the legal limits. There was a slightly raised level of lead at one location and zinc at three locations. However, the levels were not sufficiently raised to cause acute health problems in animals. In order to prevent any chronic unfavourable health effects, we advised that measures be taken to limit the animals' intake of plants contaminated with sedimentation. For example, by not grazing contaminated fields, or by ploughing crops affected by the sedimentation. Farmers were also advised to test levels of heavy metals in potentially contaminated silage, before feeding.

Sporidesmin

Late in September, the Veekijker received a notification of a number of cattle in a herd suffering from thickened and painful teats and an acute production drop. One animal also had sensitive skin. Following consultation, the practitioner submitted blood samples for liver enzyme testing, and very severe liver damage was discovered, indicative of a possible sporidesmin with sporidesmin intoxication. The practitioner subsequently examined the grasslands and detected large volumes of Pithomyces mould spores. No exact count was made. In the meantime, more than ten animals were quickly showing the same clinical signs. The affected animals had been stalled and the advice was to also stall the rest of the herd.

During wet periods with relatively warm conditions, the Pithomyces mould can grow on dead plant material in grasslands. Following ingestion of mould spores, the sporidesmin mycotoxin can be released, which may cause serious damage to liver and bile ducts and result in photosensitivity. Treatment consists of pain relief, containment indoors and a high-energy feed ration. The presence of sporidesmin does not always result in liver damage and clinical signs. During the same period, the Veekijker was alerted to a case in which sporidesmin was also suspected, based on the clinical signs. An examination of the grasslands produced enormous volumes of Pithomyces mould spores, but a blood test of these animals showed no liver damage. The weather conditions are the most important reason for the growth of this mould. Similar problems may be expected in years to come, in warm and wet circumstances.

Bovine tuberculosis in neighbouring countries

Bovine tuberculosis (TBC) is a bacterial disease caused by the *Mycobacterium bovis* bacterium, and is zoonotic. Prior to the Netherlands becoming officially free from TBC in 1999, *Mycobacterium bovis* was a source of tuberculosis in humans, mainly due to drinking unpasteurised contaminated milk. The risk of introduction of TBC to the Netherlands occurs when animals are imported from TBC-free farms located in non-TBC-free regions, as the tuberculosis status of an exporting farm can change after animals have been sold. Over the past six months, we have detected an increase in the number of infections in neighbouring countries. Up until the first of September, Belgium had four notifications of TBC in 2021, versus a single notification in the whole of 2020. There were seven notifications in Germany in 2021, versus ten in 2020, while France had 90 cases in 2021 versus 105 in 2020. These three countries have TBC-free status. The free status of the country is only jeopardised when more than 0.1 percent of the farms become infected per year. Therefore, when purchasing cattle, it is always important to take the risks of introduction of infectious diseases into account and to take measures to prevent such introduction.

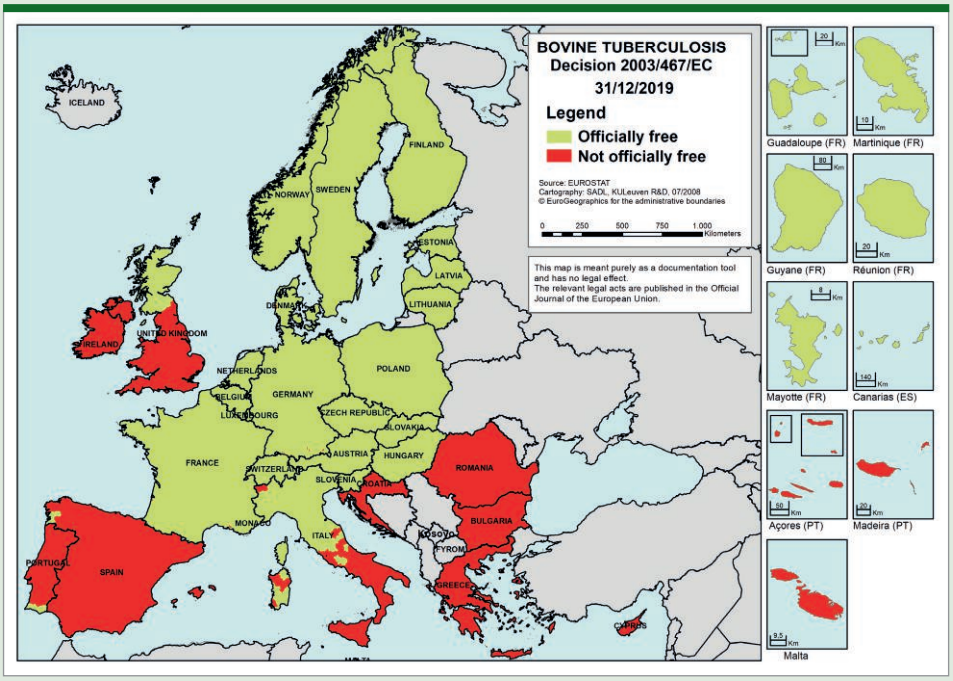

Photo 1: Bovine tuberculosis free status European countries until 31/12/2019:

Surge of chlamydia abortions at a cattle farm

As of 2013, farmers are provided with support in tackling abortion problems. Alongside an aborter protocol, the pathological examination of aborted foetuses has been extended to the chlamydia and *Coxiella burnetii* bacteria (the latter causes Q fever). These bacteria can result in abortion among cattle while also being infectious for humans.
Recently, multiple aborted foetuses/placentas from one and the same cattle farm were shown to be infected with *C. psittaci* or *C. abortus* during pathological examination. Within the scope of the aborter research project, the chlamydia bacteria is also classified into subspecies *C. psittaci* and *C. abortus*. At this farm, *C. psitacci* was present. *C. psitacci* can cause flu-like clinical signs in humans, and in more severe cases may cause pneumonia and sepsis. The farmer and veterinarian in question were approached proactively. A GD veterinarian visited the farm, identified risk factors and drew up a plan of approach. Pigeons can be carriers of *C. psittaci* and are therefore a risk factor. Preventive measures were taken at this farm, to keep any pigeons out of the farm buildings, preventing them from nesting there. No chlamydia was detected in the drinking water of this farm. The abortion percentage was calculated to be 4 percent at the time of the farm visit, though a follow-up showed that there had subsequently been more aborters.

Analyses of pathological findings in breeding calves and veal calves

GD developed a standard analysis method to routinely monitor pathological diagnoses and findings. This allows more efficient monitoring of trends and developments in pathological findings with the aim of gaining insight into trends in lung and digestive tract issues. One of the specific pathogens that are monitored is *Cryptosporidium parvum*. *C. parvum* is a parasitic infection that can cause diarrhoea in calves. When diarrhoea is caused by *C. parvum*, it is essential that the ambient infection risk is reduced while improving the calves' immune system. The percentage of *C. parvum* shown in the graph applies in relation to the total number of calves submitted by each particular type of farm (dairy or veal calves). The percentage of both breeding calves and veal calves submitted with *C. parvum* infections has declined over the past five years. In the first and second quarters of 2021, *C. parvum* was detected in 16.8 and 12.8 percent of the calves submitted from dairy farms, and in 1.9 and 1.3 percent of veal calves submitted. These percentages are comparable with the first and second quarters of 2020 for breeding calves (17.8 and 13.0 percent) and lower than those for veal calves (6.1 and 7.5 percent).

Further research is required in order to gain insight into the reasons for this decline, though it could be an indication of improved hygiene and calf immunity. GD will once again make an analysis in order to follow the trend over the coming six months.

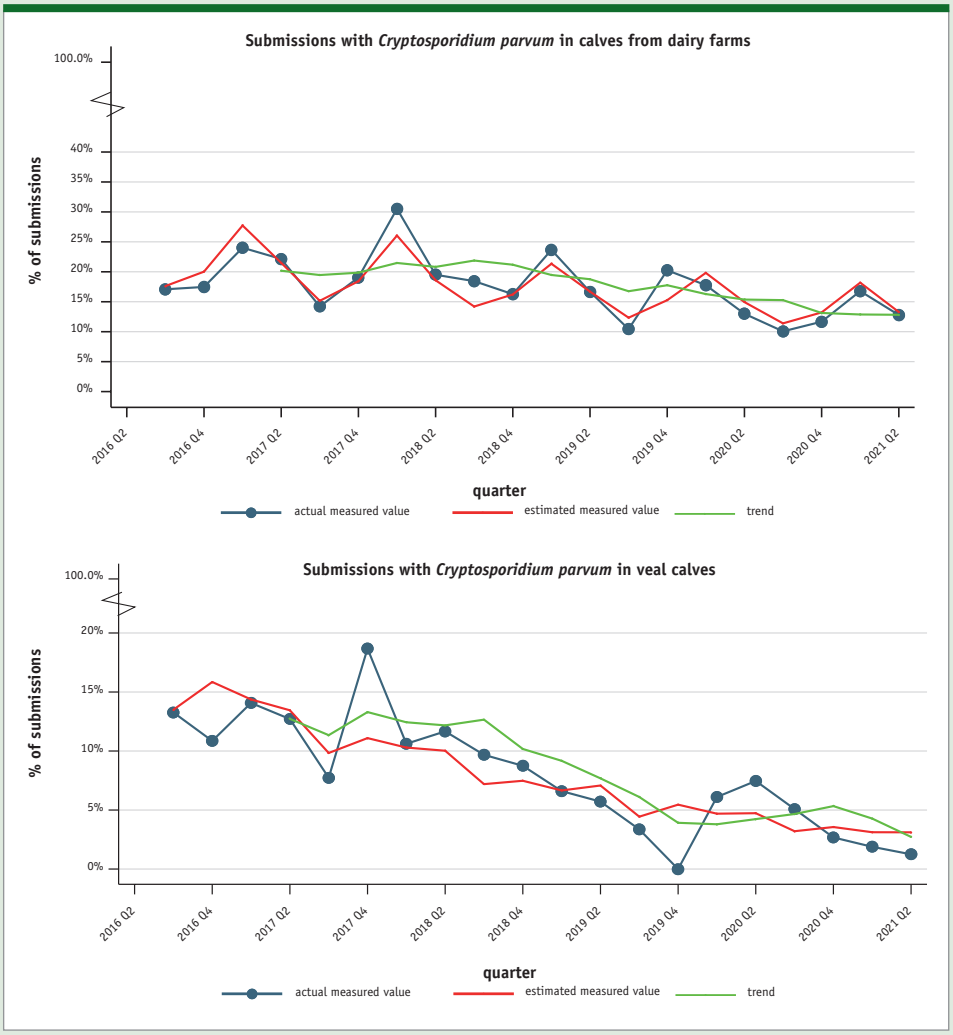

Figure 1 Percentage of submissions with a C. parvum *infection in calves younger than 1 year, from dairy farms (A) and in veal calves (B) per quarter during the period from 1 July 2016 through 30 June 2021* (source: Data analysis based on GD pathology data)

Animal health of cattle in the Netherlands in the third quarter of 2021

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	CATEGORY (AHR)	SURVEILLANCE HIGHLIGHTS SECOND QUARTER 2021
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, no infections detected.
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	*Campylobacter fetus spp. veneralis* not detected.
Bovine Viral Diarrhoea (BVD)	Viral infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	85 percent of dairy farms have BVD-free or BVD-unsuspected status. This is 17 percent among voluntarily participating non-dairy farms.
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 (EBL)	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 Rhinotracheïtis (IBR)	Viral infection. Control programme compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	77 percent of dairy farms have IBR-free or IBR-unsuspected status. This is 20 percent among voluntarily participating non-dairy farms.
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. 99 percent of dairy farms participate.	E	80 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	*Tritichomonas foetus* 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.	E	No infections detected in submitted aborted foetuses.

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Table continuation

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	CATEGORY (AHR)	SURVEILLANCE HIGHLIGHTS SECOND QUARTER 2021
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.	-	Two farms with antibodies in bulk milk. More incoming animals with a status lower than leptospirosis-free.
Listeriosis (zoonosis, infection via inadequately prepared food)	Bacterial infection. Occasional infection detected in cattle.	-	Infections detected in two cattle submitted for necropsy, one detected in an aborted foetus.
Salmonellosis (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 had favourable bulk milk results (national programme).
Yersiniosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Detected occasionally in cattle, mostly in aborted foetuses.	-	No infections detected at necropsy. No *Yersinia species cultivated in milk samples.*
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 seven farms and not in cattle submitted for necropsy
Neosporosis	Parasite. An important infectious cause of abortion in the Netherlands.	-	Infections detected in eight submitted aborted foetuses.
Tick borne diseases	Vector borne diseases. Ticks infected with *Babesia divergens, Anaplasma phagocytofilia and Mycoplasma wenyonii* are present in the Netherlands.	-	One infection detected.
From monitoring	Surge of chlamydia abortions at a cattle farm.		
	Intoxication caused by mycotoxin sporodesmin.		
Data analysis	Decline in mortality of non-registered calves.		
	Renewed increase of abomasum disorders in breeding calves submitted for necropsy.		
	Increase of metastatic pneumonia in dairy cattle older than 12 months submitted for necropsy.		
	Increase of infectious pleuritis and abomasum disorders in veal calves submitted for necropsy, and increase in *E. coli* infections detected.		
Resistance to antibiotics at dairy farms	No abnormalities.		
Resistance to antibiotics at non-dairy farms	No abnormalities.		

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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