Monitoring ANIMAL HEALTH

Cattle | October 2021

Suspicion of Parafilariosis in two imported heifers from southern Germany

At the end of May, the Veekijker received a call from a vet regarding bloody lumps, resembling *Parafilaria bovicola*, in two Fleckvieh heifers imported from southern Germany in early October 2020. The lumps were surgically removed from one of the cows for histological examination by GD. While no worm was discovered in the tissue, the clinical and histological presentation was extremely suspicious.

Photo 1. Parafilariosis in cattle

Parafilaria bovicola is a worm measuring 3 to 6 centimetres in the bodies of cattle, particularly under the skin. Adult female worms nestle under the skin to lay their eggs, which are visible as lumps measuring 0.5 to 4 centimetres. The worm burrows its way out through the skin, resulting in the eggs flowing over the skin in a small stream of bloody fluid. The autumn housefly, which is generally prevalent in the Netherlands even outside the autumn season, functions as an intermediate host. The larvae develop in this fly and are then deposited by the fly, mainly in the corners of the eye and in open wounds. From there, the larvae migrate under the skin over the rump, particularly to the skin of the neck, shoulders and back.

The period between infection and production of eggs is approximately seven to ten months.

Besides the physical discomfort caused by skin infections, there is mainly economic damage, as a result of the meat, carcass or hide (leather) being declared unfit. Parafilariosis has been detected once in the Netherlands, in 2007, in a cow imported from France. This disease is not subject to compulsory notification or reporting in the Netherlands, nor is it zoonotic.

It is difficult to control because treatment is not effective against all stages of the worm's life cycle. The Veekijker advised that the farmer be informed of the risks of spreading, the possibilities and limitations of treatment, the need for accurate fly control, and also that the selling party be informed of the findings.

Blue-green algae

Blue-green algae, also known as Cyanobacteria, is an increasing problem worldwide as the result of excessive nutrients in water and rising temperatures. The Netherlands has relatively fewer issues than regions with warmer climates, yet it is still a problem here, particularly during hot and sunny weather. Blue-green algae can form a dense floating layer on the water surface, can be distributed in the water column or can grow in a biofilm on the bed of shallow waters. For example in water troughs exposed to sunlight.

Affected animals may display abnormal behaviour, muscle spasms or convulsions. There may also be signs of abdominal discomfort and diarrhoea. Feed consumption and production will generally decline. Liver failure can be so severe that animals become jaundiced. When exposed to high levels, animals may sometimes die rapidly. In order to estimate the toxicity risk, water containing a green floating layer must be analysed for the presence of toxic blue-green algae. In particular any green discolouration not attributable to plants such as duckweed, green biofilms or other known reasons for green discolouration.

Blue-green algae can be formed at high temperatures and can produce various toxins. Most of the problems are attributable to toxic substances which damage the liver and nervous system. Not all types of blue-green algae produce toxins. It is therefore useful to have GD identify the type of blue-green algae in order to determine whether there is a potential risk of toxicity.

Photo 2. A microscopic image of a toxic blue-green algae from a Dutch pond

Cattle at Dutch farms with a high working life score well in terms of animal health

The lifespan of cattle at Dutch dairy farms has been increasing since 2018. The average cow was 5 years and 8 months old in 2018, while this age had risen to more than 6 years by the end of 2020. The data analysis of the animal health monitor for cattle shows a number of changes in animal health indices which may be linked to the increasing lifespan of a cow. An in-depth analysis therefore looked more closely at the association between the lifespan of a cow and animal health. This analysis classified all dairy farms into one of six groups based on the lifespan of a cow: a constantly high or constantly low lifespan, and increasing or decreasing lifespan, a stable or a varying lifespan (Figure 1). The average lifespan of a cow was more than 7 years at farms with a constantly high lifespan, and 5 years at farms with a low lifespan.

Dairy farms in the group of farms with a constantly high lifespan of a cow had lower mortality rates, in both calves and adult cattle. These farms often had a closed operational management system. The udder health at these farms initially seemed to be less favourable, with more high cell count cattle on average (Figure 2a) and a higher bulk milk cell count. However, the cell count increases along with the age of the cattle. When comparing cattle of specific age groups, the cattle at farms with a constantly high lifespan proved to have a lower cell count than cattle of the same age at farms with a lower lifespan (Figure 2b, example of one age group). The average higher cell count at farms with a high lifespan of a cow is therefore due to the older age of the cattle at the farm, as older cattle often have a high cell count. It is not due to less favourable udder health of the cattle versus cattle of a comparable age at farms with an average lifespan.

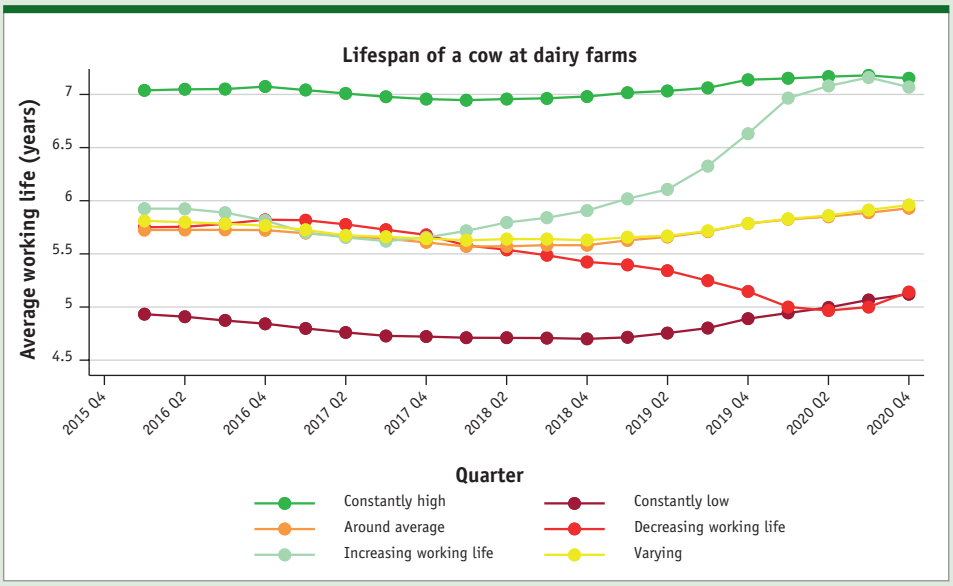

Figure 1. Average lifespan of a cow per quarter for dairy farms classified in one of six lifespan groups, between 2016 and 2020.

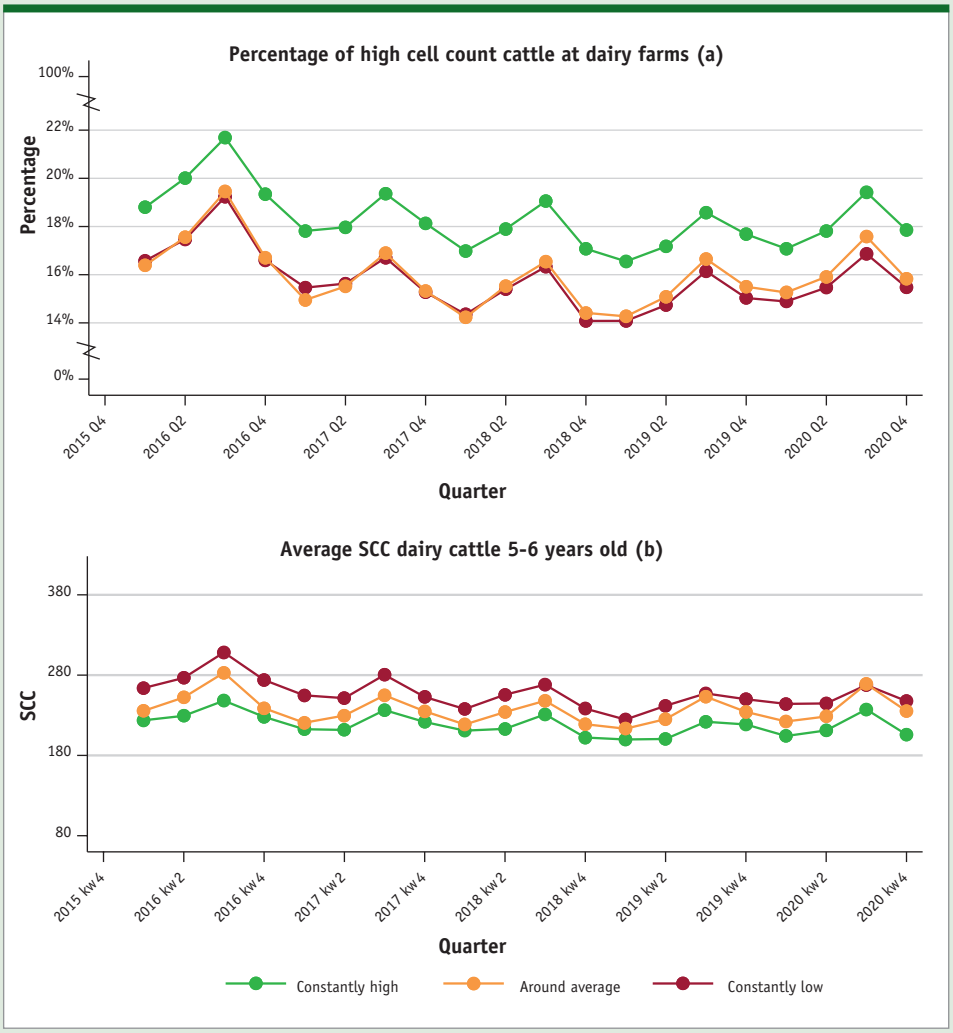

Figure 2. Percentage of cattle with a high cell count (a) and average cell count of cattle aged 5 to 6 years (b) per lifespan of a cow group of dairy farms, per quarter between 2016 and 2020.

Acute mortality of nine animals at a dairy farm, with detection of botulism

At the beginning of June, the Veekijker received a call regarding mild paralysis signs, followed by the death of three cows and one heifer (within two days). Botulism scored extremely high in the differential diagnosis and the practitioner was advised to submit a recently dead animal for necropsy, in order to determine whether a common denominator could be found in feed or water. A farm visit also took place on request.

There are a number of cases of botulism in cattle in the Netherlands each year. The clinical signs depend on the level of absorbed toxin. When a high level of toxin is absorbed, the animal may be found already dead, without prior symptoms of illness. Lower doses of toxin give more progressive clinical signs and less severe clinical symptoms. Quite a typical symptom is a weak tail, often in combination with paralysis of the abdominal muscles. Besides paralysis of the legs, the tongue may also be found to be paralysed.

Clostridium botulinum is generally prevalent in the soil and environment. Toxins are produced under conditions favourable for the bacteria. Cadavers form an ideal breeding ground and toxins can survive in cadaver remains for a number of months. Cattle may absorb toxins from cadaver remains or may come into contact with the toxins (via cadaver remains) when grass is processed into silage or hay. A large portion of the feed can become contaminated particularly when mixer-feeders are used. By absorbing contaminated feed, cattle become infected with the bacteria and the toxins. The toxins are absorbed through the stomach and small intestine, and then spread through the body via the bloodstream. In the nerve endings, toxins inhibit the transfer of nerve impulses, resulting in the animal becoming paralysed.

In this case, the clinical signs prompted the decision to vaccinate the herd of cattle against botulism. At a later date, the botulism test during necropsy of the two cattle was indeed positive. A total of nine cattle died. The suspect feed should preferably be withheld, and otherwise the advice is to wait until at least two weeks following the second vaccination, before it is fed to the cattle.

Animal Health Regulation

The Animal health regulation (AHR) came into force on 21 April 2021. This regulation enables alignment of the approach to animal diseases within the European Union. Insofar as the AHR has no direct effect, it has been implemented in the Netherlands in or on the basis of the Animal Act as of 21 April 2021. Each member state is obliged to roll out a monitoring system to detect the diseases designated by the EU and any relevant new diseases.

Based on the AHR, the Execution decree (EU) 2018/1882 of the commission dated 3 December 2018, categorises and classifies animal diseases into A, B, C, D and E diseases. BSE and other encephalopathies are not mentioned in the AHR, but rather in Decree (EC) no. 999/2001.

The categorisation is as follows:

A. Animal diseases not generally found within the Union, which require active control.
B. Animal diseases which require active control for the purpose of eradicating them throughout the Union (over the course of time).
C. Animal diseases which are relevant in some member states and for which measures are required to prevent them spreading to other parts of the Union which are officially disease-free or which have an eradication programme for the animal disease.
D. Animal diseases for which measures are required to prevent them spreading upon arrival in the Union or due to movement within the member states.
E. Animal diseases which require monitoring within the Union.

The categories A, B and C diseases have also been designated as D diseases and all diseases have been designated as E diseases.

The animal health barometer has been updated in keeping with this development. The animal diseases are categorised under the legislation which covers them. Where applicable, the categories have been added per animal disease.

Animal health of cattle in the Netherlands, second quarter 2021

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2021
Execution decree (EU) 2018 /1882 of the Animal Health Regulation (AHR) (EU) 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 the Animal Health Regulation (AHR) (EU) 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 non-dairy farms.	C, D, E	84 percent of dairy farms have BVD-free or BVD-unsuspected status. This was 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.

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Table continuation

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2021
Execution decree (EU) 2018 /1882 of the Animal Health Regulation (AHR) (EU) 2016 /429 (Categories B through E) *(continuation)*			
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 non-dairy 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	79 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.
Article 3a.1 Reporting of zoonoses and symptoms of illness '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 non-dairy farms.	-	Two farms with antibodies in bulk milk. Declining percentage of free small-scale and suckler cow farms.
Listeriosis (zoonosis, infection via inadequately prepared food)	Bacterial infection. Occasional infection detected in cattle.	-	Infections detected in six cattle submitted for necropsy, not detected in aborted foetuses.
Salmonellosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Control programme compulsory for dairy farms, voluntary for non-dairy farms.	-	98 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.	-	One infection detected at necropsy. No *Yersinia species cultivated in milk samples*.
(EEC) Decree 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.

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Table continuation

Royal GD
P.O. Box 9, 7400 AA Deventer
The Netherlands

T. +31 (0) 570 63 33 91
support@gdanimalhealth.com
www.gdanimalhealth.com

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2021
Other infectious diseases in cattle			
Malignant Catarrhal Fever (MCF)	Viral infection. Infections with Ovine herpes virus type 2 occur occasionally in the Netherlands.	-	Two infections detected at necropsy.
Liver fluke	Parasite. Liver fluke is present in the Netherlands, particularly in wetland areas.	-	Infections detected at thirteen farms and in four cattle submitted for necropsy
Neosporosis	Parasite. An infectious cause of abortion in the Netherlands.	-	Infections detected in three submitted aborted foetuses.
Tick borne diseases	Parasite that can transfer infections. Ticks infected with *Babesia divergens, Anaplasma phagocytofilia* and *Mycoplasma wenyonii* are present in the Netherlands.	-	One infection detected.
From monitoring			
Strong suspicion of Parafilaria bovicola.			
Streptococcus equi spp. *Zooepidemicus* detected in bulk milk and mastitis cases			
Data analysis			
Mortality in adult cattle is stable.			
Increased bulk milk cell count and use of antibiotics for mastitis.			
Resistance to antibiotics at dairy farms			
High percentages of resistant *S. aureus* isolates detected.			
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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