

# Monitoring

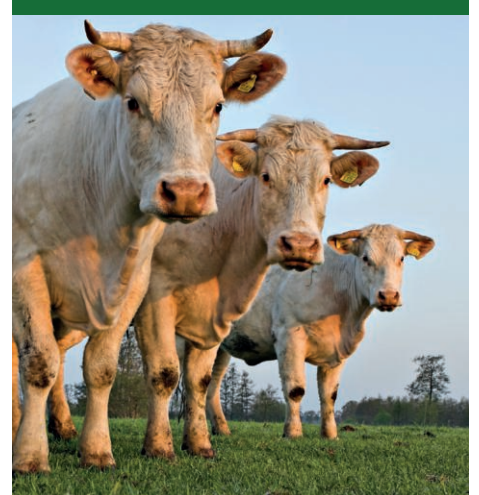
## ANIMAL HEALTH



## First half of 2023: more listeriosis diagnosed during GD pathological examination

In the first half of 2023, pathological examination at GD diagnosed listeriosis in 14 adult cattle and two aborted fetuses. This number is similar to the number of total cases for the full-years of 2022 (18) and 2021 (15). A possible explanation for the increase lies in feeding poorly harvested and preserved corn or grass silage from the summer of 2022. The pH of poorly preserved silage declines less effectively, and therefore curbs the growth of the *Listeria monocytogenes* bacterium less effectively. The risk of listeria being present also increases in silage containing large amounts of soil (due to many molehills in the ground, for example). The bacteria are spread readily in the surrounding area, in for example the water and soil. Infections in ruminants are caused by small lesions in oral, nasal and/or ocular mucous membranes, from where they are spread via the neural pathways to the medulla oblongata. The clinical signs are fever, neurological symptoms (excessive salivation, incoordination, circling, depression, head tilt and unilateral facial paralysis) along with abortion in the final three months of gestation.

Listeriosis is considered a zoonosis. Human infections mainly arise by eating food contaminated with listeria (for example products prepared using unpasteurised milk), but also through direct contact with contaminated material, such as animal faeces or contaminated soil. Our Belgian colleagues in Flanders (DGZ) reported an increase in the number of *Listeria monocytogenes* infections in ruminants over the spring of 2023. The same cause was once again suspected (source: DGZ Veescape no. 011). Effective preservation of silage, with a pH lower than 5.0 and with as little soil as possible, is an important preventative measure.



## Pathogenic bacteria from milk samples: *Streptococcus uberis*

A striking percentage of isolates of *Streptococcus uberis* appeared to be resistant to treatment with trimethoprim sulphonamides during the first quarter of 2023. This increase continued in the second quarter of the year. The percentage rose from 0 to 1 percent in 2022, to 14 percent in the first quarter of 2023, and was 52 percent in the second quarter of 2023.

Trimethoprim sulphonamides are the first choice of antimicrobial agents which are prescribed for the parenteral treatment of mastitis, in the KNMV Dairy cattle Formulary. Some sulphonamides are second and third antibiotic of choice for parental treatment of (sub) clinical mastitis (grades I and II) caused by gram-positive bacteria. Moreover sulphonamides are the preferred parental treatment in grade III clinical mastitis caused by gram-negative bacteria.

In practice, trimethoprim sulphonamides are applied to a limited extent as parenteral treatment of *Streptococcus uberis*, as this bacterium generally causes mild or only moderately severe cases of clinical mastitis. The increase in the number of *Streptococcus uberis* isolates appears to be resistant to trimethoprim sulphonamides is striking and this development will be closely monitored.

# Resistance of bacteria from animal material from non-dairy farms

The increase in the percentage of *Mannheimia haemolytica* isolates showing resistance to chlorotetra-/doxy-/oxytetracyclin in the first quarter of 2023 continued in the second quarter. This percentage was 58 percent in the fourth quarter of 2022 (n=45), 77 percent in the first quarter of 2023 (n=75) and had risen to 93 percent in the second quarter (n=45).

The percentage of *M. haemolytica* isolates resistant to chlorotetra-/doxy/oxytetracyclin has been increasing since 2016 (Figure 1). The same rising trend was seen in *Pasteurella multocida*, though this increase seems to have stopped since the fourth quarter of 2021. As in the case of *M. haemolytica*, the percentage of resistant *P. multocida* isolates is being closely monitored, also because the percentage of resistant *P. multocida* isolates was once again (insignificantly) higher in the second quarter of 2023. According to the KNMvD Veal calves and Beef cattle Formulary, tetracyclins are the drugs of choice treatment in bronchopneumonia caused by *M. haemolytica* and *P. multocida*.

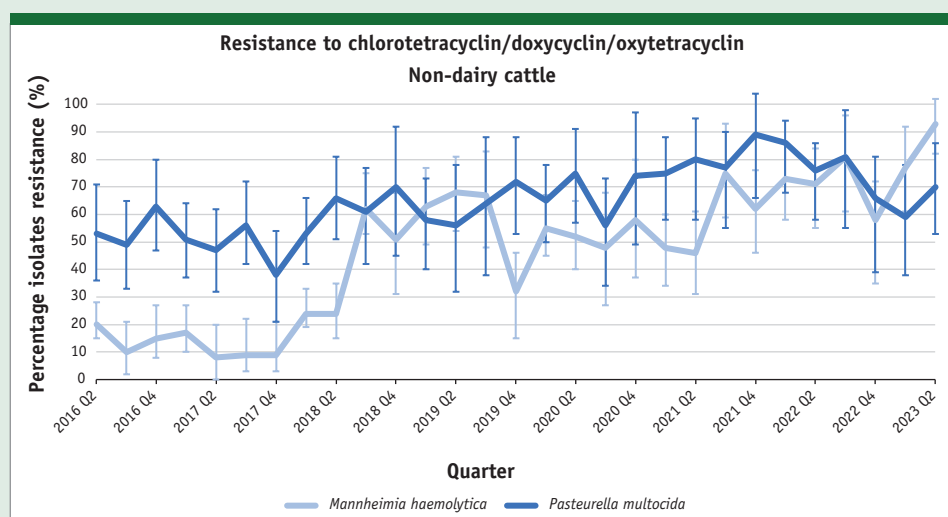


Figure 1 Percentage of *Mannheimia haemolytica* and *Pasteurella multocida* isolates derived from cattle from non-dairy farms, proving resistant to chlorotetra-/doxy-/oxytetracyclin (with 95% reliability intervals)

GD pathology data (Q4 2022) showed that in 34.2% of the veal calves, *M. haemolytica* could be detected in the lungs (Figure 2). This was significantly higher than in the third quarter of 2022 (10.3 percent) and the fourth quarter of 2021 (19.7 percent). The five-year trend in the number of *M. haemolytica* cases in veal calves declined until the fourth quarter of 2022. In the first two quarters of 2023, the percentage of animals submitted with *M. haemolytica* in veal calves declined slightly to 34.1 percent in the first quarter of 2023 and 32.9 percent in the second quarter of 2023. However, the percentage of animals submitted with *M. haemolytica* in veal calves is still considerably higher than the average value predicted on the basis of analyses.

*M. haemolytica* is the main pathogen for polyserositis in veal calves and can also cause broncho(pleuro)pneumonia. The increase in the percentage of veal calves submitted with *M. haemolytica* in the lungs, may be associated with an increased number of unsuccessful treatments of broncho(pleuro)pneumonia due to the increased resistance shown by *M. haemolytica*.

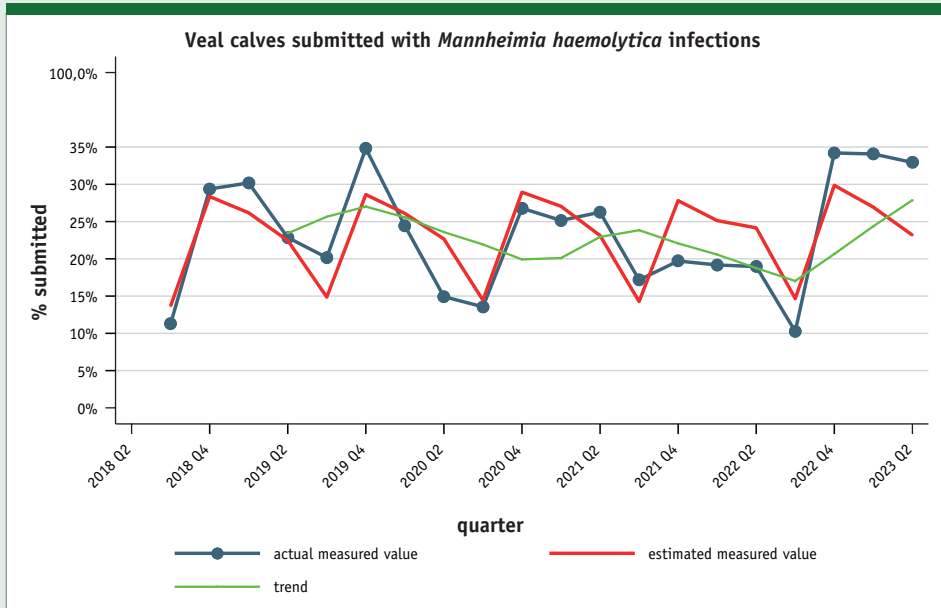


Figure 2 Percentage of veal calves submitted for pathological examination whereby *Mannheimia haemolytica* was detected, per quarter in the period from 1 April 2018 through 30 June 2023 (source: Data analysis based on GD pathology information)

## Pilot for knee problems in adult cattle

Over the last couple of years, the Veekijker has regularly received reports from practitioners, feed consultants and traders, who have experienced an increase in the number of dairy farms with acutely lame cattle, whereby the problems appeared to be in the knees. This tends to affect two to three animals per farm per year, and the cattle were otherwise healthy. They were however seriously lame, more or less walking on three legs. There was generally no indication of any incident occurring before the observation, and it mainly concerned older Holstein cattle. The painful knee issues have an unfavourable effect on the welfare and lifespan of the cattle. Farm visits were organised at the farms which had submitted at least one cow with knee problems for pathological examination, in order to gain better insight into the pathological and clinical symptoms, and any risk factors.

Visits were made to three farms, which varied in size from 80 to 250 cattle. There was outdoor grazing at the farms.

Based on the inventory of the housing and feed/minerals, no clear risk factors could be found for the knee problems. Two farms used a hydraulic trimming box and two farms a manual shovel or robot. The incorrect use of such equipment may form a risk for knee trauma, though no causative relationship was discovered at these farms. Four suitable animals were submitted for pathological examination, from the three farms visited. The four animals submitted varied between 6 and 9 years of age. *Mycoplasma* was not detected in any of the animals. Three out of four cattle displayed knee defects on both sides, in the form of arthritis, while one animal was found to have osteochondrosis. One of the arthritic animals also had a torn ligament.

The cause of arthritis in cattle is unknown. Even in human medicine, much has yet to be learned regarding the development of arthritis. Age, genetics, gender, obesity, joint damage or overtaxing of muscles all play a role in the development of arthritis in people. The significance of vitamin D is also being researched in human medicine. A blood test of the vitamin D level could be conducted in one animal in the pilot, and was clearly shown to be low. Following on from this pilot and on the basis of scientific literature, GD advises a study of vitamin D at farms where the above-mentioned knee issues are encountered, alongside optimisation of housing, hoof trimming and manure evacuation management.

## Pilot for calves with birth defects

In the autumn of 2022, the Veekijker received reports from practitioners regarding a higher than expected number of macroscopic birth defects in calves from various dairy farms in their practice. Although the defects varied, none of the calves survived. This often only concerned one or two animals per farm, so that the

farmers did not tend to submit the calf for pathological examination. Comparable cases were reported in 2020, but a common cause could not be determined at that time. It was therefore decided to initiate a pilot in the autumn of 2022 in order to take a closer look at the signals. Sixteen full-term calves (minimum 250 days'

gestation) with clear external macroscopic defects, either stillborn or having died by day three, or euthanised for that reason, were submitted for pathological examination. They were derived from 14 dairy farms, of which one farm submitted two calves with birth defects within a period of one month. Heart blood could be examined from 13

calves, and supplementary information was requested about the farm, and the paternal and maternal parent stock of all calves. The size of the farms varied from 75 to 215 adult animals. All farms had BVD-virus free status, two farms had 'IBR-vaccinated' status, all others were certified free or unsuspected. Gestation monitoring generally took place using ultrasound. The age of the maternal parent stock varied from 2 to 14 years.

In two cases, the clinical signs of the calves with birth defects were very probably caused by a virus, there were ten cases of a known non-infectious cause (such as open cranium, absence/blockage of bowel, cleft palate) and

four cases of an unknown, possibly chromosomal defect. No BVD virus or neospora antibodies were found in the heart blood of any of the thirteen calves. BVD antibodies were found in one calf, two calves had bluetongue antibodies and six animals had Schmallenberg antibodies. Maternal immunity could not be precluded, as all these calves had received (mixed) colostrum.

In consultation with the Dutch Food and Consumer Product Safety Authority (NVWA), the maternal parent stock of the calves with bluetongue antibodies were examined and shown to be negative for antibodies. One of these two farms had a history of Bluetongue

vaccination. In the end, no common cause could be determined for the birth defects in the calves. The defects varied from defects in the heart, intestinal tract and brains, with brain defects being most commonly displayed (10/16). This would suggest a malfunction in the early stages of gestation. It could not be ascertained whether any infection might have been suffered early in gestation. The anamnesis gave no indication of illness of the maternal parent stock during gestation, nor any risk of contact with toxic substances. GD will check any genetic relationship between the calves and previous generations, via CRV.

## Animal health of cattle in the Netherlands in the second quarter of 2023

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2023
<b>Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Category A disease)</b>			
<b>Lumpy Skin Disease (LSD)</b>	Viral infection. The Netherlands is officially disease-free.	A, D, E	Infections have never been detected.
<b>Foot and Mouth Disease (FMD)</b>	Viral infection. The Netherlands has been officially disease-free since 2001.	A, D, E	No infections detected.
<b>Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Categories B through E)</b>			
<b>Bluetongue (BT)</b>	Viral infection. The Netherlands has been officially disease-free since 2012 (all serotypes). Annual screening.	C, D, E	The Netherlands BTV-free*. <i>* on 6 September 2023, the NVWA published an official press release to confirm an infection with the Bluetongue virus in the Netherlands. More information: <a href="http://www.gddiergezondheid.nl/Blauwtong">www.gddiergezondheid.nl/Blauwtong</a></i>
<b>Bovine genital campylobacteriosis</b>	Bacterium. 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.
<b>Bovine Viral Diarrhoea (BVD)</b>	Viral infection. Control measures compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	90 percent of dairy farms have BVD-free or BVD-unsuspected status.* 19.8 percent of all non-dairy farms had a favourable status (free or unsuspected). <i>*BVD status determined according to the GD programme</i>
<b>Brucellosis</b> (zoonosis, infection via animal contact or inadequately prepared food)	Bacterium. 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.
<b>Enzootic bovine leucosis</b>	Viral infection. The Netherlands has been officially disease-free since 1999. Monitoring via antibody investigation in bulk milk and blood samples of slaughtered cows.	C, D, E	No infections detected.

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2023
<b>Execution decree (EU) 2018/1882 of Animal Health Regulation (AHR) 2016/429 (Categories B through E)</b>			
<b>Epizootic Haemorrhagic Disease (EHD)</b>	Viral infection. In cattle in continental Europe since 2022 (Spain and Italy).		No suspicious clinical cases.
<b>Infectious Bovine Rhinotracheitis (IBR)</b>	Viral infection. Control measures compulsory for dairy farms, voluntary for beef cattle farms.	C, D, E	81 percent of dairy farms had IBR-virus free or IBR-bulk milk antibody unsuspected status. 21 percent of all non-dairy farms had a favourable status (free or unsuspected).
<b>Anthrax</b> (zoonosis, infection via animal contact)	Bacterium. Not detected in the Netherlands since 1994. Monitoring via blood smears from fallen stock.	D, E	No infections detected.
<b>Paratuberculosis</b>	Bacterium. Control programme compulsory for Dutch dairy farms. 98 percent of dairy farms participate.	E	83 percent of dairy farms have Paratuberculosis Programme Netherlands (PPN) status A (unsuspected).
<b>Rabies</b> (zoonosis, infection via bite or scratch)	Viral infection. The Netherlands has been officially disease-free since 2012 (illegally imported dog).	B, D, E	No infections detected.
<b>Bovine Tuberculosis (TBC)</b> (zoonosis, infection via animal contact or inadequately prepared food)	Bacterium. The Netherlands has been officially disease-free since 1999. Monitoring via slaughtered cattle.	B, D, E	No infections detected.
<b>Trichomonas</b>	Bacterium. 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.
<b>Q fever</b> (zoonosis, infection via dust or inadequately prepared food)	Bacterium. 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 pathology protocol since the first quarter of 2023.	E	One infection detected in aborted foetus.
<b>Article 3a.1 Reporting of zoonoses and symptoms of illness 'Rules for Animal Husbandry' of the Dutch Animal Act</b>			
<b>Leptospirosis</b> (zoonosis, infection via animal contact or inadequately prepared food)	Bacterium. Control measures compulsory for dairy farms, voluntary for beef cattle farms.	-	97.9 percent of dairy farms had leptospirosis-free status. 30.1 percent of non-dairy farms had leptospirosis-free status. Animals still being purchased with a status lower than leptospirosis-free, though less than in the previous quarter. Three dairy farms with a leptospirosis infection.
<b>Listeriosis</b> (zoonosis, infection via inadequately prepared food)	Bacterium. Occasional infection detected in cattle.	-	Infections detected in six cattle submitted for necropsy and in two aborted foetuses.
<b>Salmonellosis</b> (zoonosis, infection via animal contact or inadequately prepared food)	Bacterium. Control measures compulsory for dairy farms, voluntary for beef cattle farms.	-	97.5 percent of dairy farms had favourable bulk milk results (national programme).
<b>Yersiniosis</b> (zoonosis, infection via animal contact or inadequately prepared food)	Bacterium. Detected occasionally in cattle, mostly in aborted foetuses.	-	Two infections detected.

Table continuation

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Category (AHR)	Surveillance – Highlights Second Quarter 2023
<b>(EEC) Decree no. 999/2001</b>			
<b>Bovine Spongiform Encephalopathy (BSE)</b>	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.
<b>Other infectious diseases in cattle</b>			
<b>Malignant Catarrhal Fever (MCF)</b>	Viral infection. Infections with Ovine herpes virus type 2 occur occasionally in the Netherlands.	-	Two infections detected at necropsy.
<b>Liver fluke</b>	Parasite. Liver fluke is present in the Netherlands, particularly in wetland areas.	-	Infections detected at seven farms and two in cattle submitted for necropsy.
<b>Neosporosis</b>	Parasite. An important infectious cause of abortion in the Netherlands.	-	Infections detected in two submitted aborted fetuses.
<b>Tick borne diseases</b>	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.	-	Two <i>Anaplasma phagocytophilum</i> infections were 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.