Veekijker NIEUWS
Cattle | December 2020

Increase in infectious pleuritis in veal calves

As introduced in the Veekijker News of October, data analysis is used to look at trends and developments in data from GD necropsies, as of autumn 2020. The time-based trend can then be visually defined in any striking disease cases. Based on the recent analysis (2016 through June 2020), a striking increase was seen in the number of fatal infectious pleuritis cases in veal calves, within the total number of animals submitted from the veal calf sector.

For veal calves in the category of infectious lung disorders, 'acute fibrinous pneumonia' and 'acute pleuritis' were analysed further (the number of diagnoses versus the number of calves submitted with infectious lung disorders). At 58.1 and 51.5 percent in the second and first quarters of 2020 respectively, the percentage of calves submitted with pneumonia was higher versus the same quarters of previous years (Figure 1, blue line).

This increase in the percentage submitted with pneumonia was shown to be caused not only by *M. haemolytica*, as the percentage submitted where *M. haemolytica* was found, was lower. The percentage caused by *E. coli* proved to be higher. Should this trend continue in the following analysis period, GD may take a further look at possible explanations.

The contact between the Veekijker and veal calf vets showed that the increase concerned farms with calves that displayed symptoms of acute fever and respiratory problems, with increased losses due to rapid mortality, within three to seven months of the start of the fattening period. As differential diagnoses, the practitioners were considering outbreaks of mannheimia or salmonella. Pathological examination showed *E. coli* to be the cause of the infection.
During necropsies, acute pleuritis can be identified based on deposits of the inflammatory product fibrin on the pulmonary pleurae (see photo 1). This inflammation can be accompanied by acute inflammation of the peritoneum. The results show that looking at trends and developments in pathological examinations through data analysis provides more insight into changes caused by infectious bacteria. This is important, both for practitioners to be able to tackle issues in a more targeted manner, and for monitoring purposes.

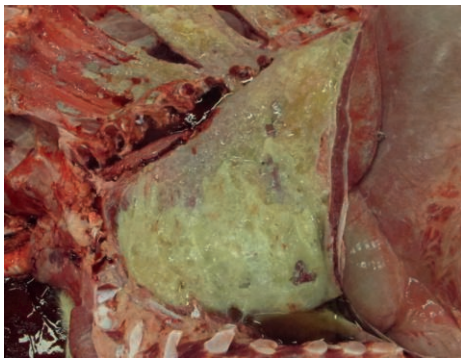

Photo 1. Acute pleuritis due to infection with E. coli. The inflammation is characterised by deposits of excess fibrin on the pulmonary pleurae.

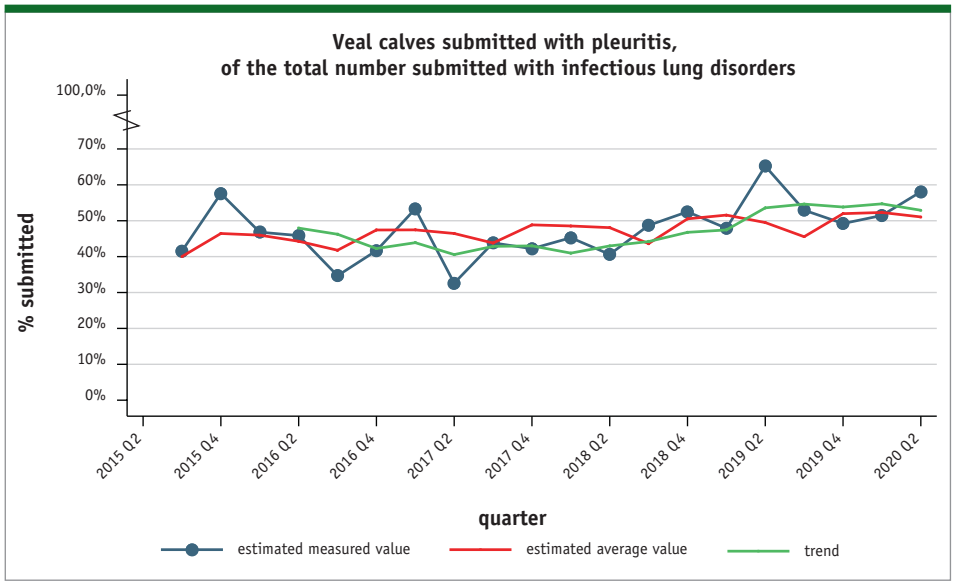

Figure 1. Percentage of veal calves submitted with pleuritis per quarter in the period from 1 July 2015 to 30 June 2020 (source: Data analysis based on GD pathology data).

Bluetongue serotype 8 now also in Luxembourg

Early this year, cattle were reported to be infected with serotype 8 bluetongue (BTV-8) in France and Switzerland. In mid-August, another report was received of a BTV-8 outbreak, this time in sheep in the French Pyrenees. In the second week of September, a notification was received via the ProMED message service, regarding cattle infected with BTV-8 in Luxembourg. This infection was reported following a confirmation test. Luxembourg had been officially disease-free since 2012. As a result of these findings, measures were tightened for export of animals susceptible to the bluetongue virus (ruminants). Figure 2 shows that Luxembourg has been added to the monitored zones.

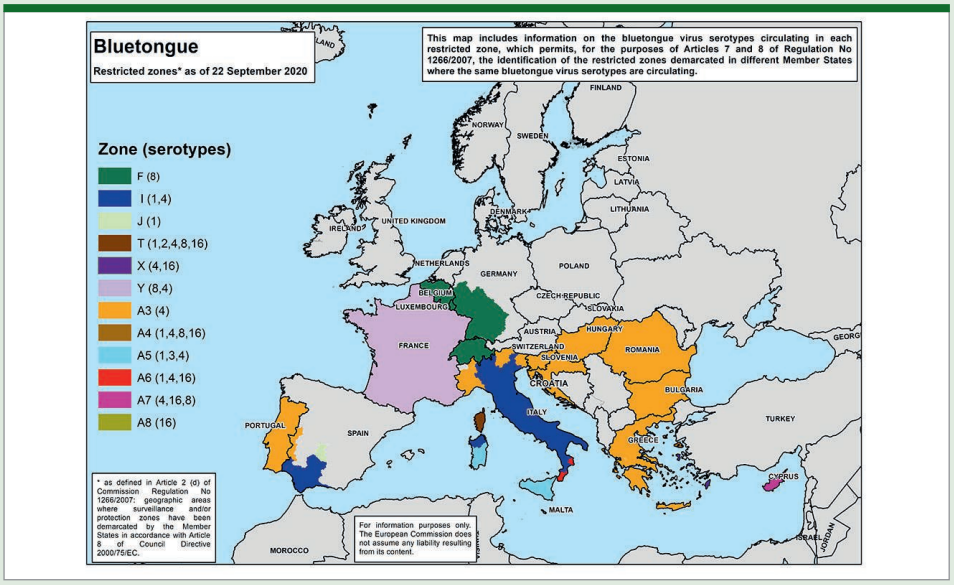

Figure 2. Bluetongue situation up to 22 September 2020

Two acutely paralysed calves at a dairy farm

The first four-month-old calf was housed in a straw stall together with three other calves and was suddenly unable to stand up, had respiratory problems but no fever. The calf did not recover and was euthanised after a week. One week later, a six-month-old calf became paralysed, with comparable symptoms. Neither calf showed any signs of trauma. A blood test on the second calf showed it to be anaemic. Unfortunately, the calf did not survive and was submitted to GD for pathological examination a week after the blood test. Microscopic examination of the nervous system showed acute damage to nerve cells at specific locations in the spinal cord, without any sign of inflammation, thrombosis or trauma. This is a presentation described specifically in the literature for *Aspergillus clavatus* fungal infections. This fungus was not found to be present in this case. On further questioning however, the calves were found to have been fed the last mouldy pellets from the silo, so that fungal intoxication could certainly have played a role. However, this does not explain the anaemia, though we do know that mycotoxins can cause haemolysis. This type of toxin may have developed in the mouldy pellets, but this could unfortunately no longer be determined. The remaining thirteen calves in the herd did not display any symptoms. The main factor in preventing mould growth in concentrated feed silos is to keep the contents dry. Moisture permeation must be prevented.

Multiple calves with congenital deformities

Over the past quarter, a number of veterinary practices reported a total of 25 calves with congenital deformities (3 to 13 farms per practice). More than half of the cases concerned a deformity of the hindquarters: no tail, unformed anus/large intestine (atresia ani/colon), deformed rear legs or a combination of any of these. Other deformities were also reported, of the head, extra legs, unclosed peritoneum, hydrocephalus, ascites and a number of cases of an 'inside out' calf (schistosma reflexus). The symptoms described are not new, but the large number of notifications in a short period of time is striking. They generally concerned only one calf per farm. Some of the abnormalities may be in keeping with a Schmallenberg virus infection. Two animals were submitted for necropsy. One calf tested positive for the Schmallenberg virus; the virus was not found in the other calf. In another calf, the blood tested negative for antibodies to the Schmallenberg virus prior to the drinking of colostrum. GD decided to save these notifications and to request background data in order to examine whether there is a clear increase and a common risk factor.

Photo 2. Calf with congenital deformity.

Botulism in water troughs and well water with excess iron

In July, the Veekijker received a phone call from a vet regarding a dairy farm where three cows in various stages of lactation died suddenly within a short period of time. In one animal, pathological examination by GD, using PCR testing, showed *Clostridium botulinum* type C to be present. Despite not discovering any toxins, botulism could not be excluded. Necropsy on another animal showed internal steatosis and a copper deficiency. The botulism test was negative in this animal. The farm had moved to the present location 18 months ago and had struggled with production problems since that time, along with a high somatic cell count and sudden death of animals. The possible risk factors for botulism at this farm were discussed with the vet, and it became apparent that there were strong concerns regarding the quality of the well water. Unfortunately, it was not possible to switch to mains water. On examination by WBVR, the drinking water in the water troughs was found to be *Clostridium botulinum* PCR positive. As a result of these findings, a Veekijker vet visited the farm. It seemed unlikely that the well water would be the initial source for *Clostridium botulinum*, as the farm used a closed-circuit drinking system, with no risk of animal remains entering the system. Traces of *Clostridium botulinum* may have ended up in the drinking trough via a different source. The water quality was however visibly inadequate. A water test at GD showed an extremely high level of iron in the 'crude' water (10.38 mg/l), and the iron content directly after the filter system was still much too high (5.26 mg/l). The GD norm for iron in drinking water is less than 0.5 milligrams per litre. This high iron content in the well water was very probably the cause of the extended problems at this farm. It can result in iron accumulation, which in turn will damage the liver function. Excessive iron will also suppress trace elements such as copper, selenium, manganese and zinc, which are all extremely important for effective resistance to disease. Cows also do not appreciate the flavour of water with such a high iron content. GD advised that a new well be dug at a greater depth, by a recognised drilling company, and that an effectively functioning deferrisation system be installed.

Mycoplasma bovis outbreak leads to respiratory problems in cows

The cows with swollen legs were not seriously lame. As according to the vet, their symptoms were not in keeping with any known infectious disease, the Veekijker was requested to visit the farm. The Veekijker vet's probable diagnosis was an infection with *Mycoplasma bovis (M. bovis)*. This was confirmed by a positive *M. bovis* PCR in pooled milk samples, from cows with mastitis and mycoplasma-positive cultures from individual milk samples taken from other suspect animals. Furthermore, a cow submitted for necropsy was shown to have catarrhal pneumonia, arthritis and mastitis, with mycoplasma being cultured from the lungs, the bronchial tree and the udder. A PCR showed that this had been caused by *M. bovis*. Respiratory problems caused by *M. bovis* are generally described in the literature as a herd issue among young cattle, and are generally less commonly encountered in dairy cattle. This farm was found to have had vague symptoms for a number of months. Advice was given on how to limit the spread of *M. bovis* and how to treat or dispose of infected animals. Attention was also paid to increasing general resistance to diseases, including minimisation of moments of stress, sufficient vitamin E and a good transition.

Animal health barometer for cattle, third quarter 2020

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Surveillance – Highlights Third Quarter 2020
Article 15 GWWD (Health & Welfare Act) compulsory reportable and treatable diseases (diseases named in article 2 of the 'Rules for prevention, control and monitoring of infectious animal diseases and zoonoses and TSEs')		
Bluetongue (BT)	Viral infection. The Netherlands has been officially disease-free since 2012 (all serotypes). Annual screening.	The Netherlands BTV-free, no infections detected. BTV-8 reports in Luxembourg, Switzerland and France.
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.	21 re-tests, no infections detected.
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.
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.	No infections detected.
Lumpy skin disease (LSD)	Viral infection. The Netherlands is officially disease-free.	Infections have never been detected.
Anthrax (zoonosis, infection via animal contact)	Bacterial infection. Not detected in the Netherlands since 1994. Monitoring via blood smears from fallen stock.	No infections detected.
Foot and Mouth Disease (FMD)	Viral infection. The Netherlands has been officially disease-free since 2001.	No infections detected.
Rabies (zoonosis, infection via bite or scratch wounds)	Viral infection. The Netherlands has been officially disease-free since 2012 (illegally imported dog).	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.	No infections detected. More infections reported in Germany and France.
Article 100 GWWD (Health & Welfare Act) compulsory reportable diseases (diseases named in article 10 of the 'Rules for prevention, control and monitoring of infectious animal diseases and zoonoses and TSEs')		
Campylobacter fetus *ssp. venerealis* and ***Tritrichomonas foetus***	Bacterial infection. The Netherlands has been disease-free since 2009. Monitoring of AI and embryo stations, and in animals for export.	No infections detected.
Leptospirosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Control programme compulsory for dairy farms, voluntary for non-dairy farms.	Four farms with antibodies in bulk milk; in total, 12 infected farms have now been confirmed this year.
Listeriosis (zoonosis, infection via inadequately prepared food)	Bacterial infection. Occasional infection detected in cattle.	Infections detected in one aborted foetus and in one cow submitted for necropsy.
Salmonellosis (zoonosis, infection via animal contact or inadequately prepared food)	Bacterial infection. Control programme compulsory for dairy farms, voluntary for non-dairy 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.	One infection detected in a cow submitted for necropsy. No *Yersina species* cultivated in milk samples.

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

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

Table continuation

VETERINARY DISEASES	SITUATION IN THE NETHERLANDS	Surveillance – Highlights Third Quarter 2020
Other OIE-list diseases in the Netherlands subject to compulsory reporting		
Bovine Viral Diarrhoea (BVD)	Viral infection. Control programme compulsory for dairy farms, voluntary for non-dairy farms.	82 percent of dairy farms have BVD-free or BVD-unsuspected status. This is 22 percent among voluntarily participating non-dairy farms.
Infectious Bovine Rhinotracheïtis (IBR)	Viral infection. Control programme compulsory for dairy farms, voluntary for non-dairy farms.	76 percent of dairy farms have IBR-free or IBR-unsuspected status. This is 25 percent among voluntarily participating non-dairy farms.
Paratuberculosis	Bacterial infection. Control programme compulsory for Dutch dairy farms. 99 percent has PPN status.	78 percent of dairy farms have Paratuberculosis Programme Netherlands (PPN) status A (unsuspected).
Tick borne diseases	Vector borne diseases. Ticks infected with *Babesia divergens*, *Anaplasma phagocytofilia* and *Mycoplasma wenyonii* are present in the Netherlands.	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.	Two infections detected at necropsy.
Liver fluke	Parasite. Liver fluke is present in the Netherlands, particularly in wetland areas.	Infections detected at six farms.
Neosporosis	Parasite. An infectious cause of abortion in the Netherlands.	Infection detected in five submitted aborted foetuses.
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.	Two infections detected in submitted aborted foetuses.
From monitoring		
Veekijker	Notifications of calves with congenital deformities.	
Pathological examination	Udder Cleft Dermatitis (UCD) as main pathological diagnosis increasing.	
Data analysis	Cattle mortality remains high, calf mortality declining or stable.	
	In-depth data analysis of pathology: Favourable situation for dairy farms. High percentage submitted with *E.coli* infections and pleuritis, from beef cattle farms.	
Resistance to antibiotics at dairy farms	No abnormalities.	
Resistance to antibiotics at non-dairy farms	No abnormalities.	

Monitoring ANIMAL HEALTH

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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