

Monitoring

ANIMAL HEALTH



Enterotoxemia in young lambs

Last spring, the GD received several lambs for pathological examination in which an intestinal dysbacteriosis with overgrowth of *Clostridium* spp. was diagnosed at very young age. It concerned both goat kids and sheep lambs less than 14 days old.

Although the aspect of classical enterotoxaemia is usually seen more often in lambs from four weeks of age, an overgrowth of this bacterium can occur at all ages. *Clostridium* spp. are bacteria that are part of the intestinal flora of healthy animals, but under the influence of certain internal or external triggers, this bacterium can increase rapidly in numbers, while producing toxins.

Due to the acute course of this disease, pathological examination is the preferred method to make a diagnosis; clinical signs can progress so quickly that macroscopic changes to the intestinal wall are not yet

detectable. In addition to growing large amounts of *Clostridium* spp., findings such as pulpy kidneys, glucosuria, perivascular oedema of the brain and, pericardial effusion are some indications in the direction of an enterotoxaemia.

Loss can vary from a few animals to percentages of about 20 to 30 percent. Although a contaminated environment is mentioned as a possible cause, a disturbed or excessive intake of sugar-rich foods, including milk, is much more often the cause of a dysbacteriosis. After determining the problem, it is therefore important to check possible management factors that could possibly lead to such a different recording. In a number of cases, lambs are also diagnosed with respiratory complaints on pathology. Besides the fact that these have an effect on the immunity of the lamb, respiratory problems may also lead to an abnormal feed intake.



Clostridial diseases are generally well preventable through vaccination. For protection of the youngest lambs by passive immunity, dams can be vaccinated a few weeks before lambing. Good supply of colostrum from one's own dams is then essential. Lambs can be actively immunized through vaccination from two weeks of age. Vaccination can also be advised during an outbreak of enterotoxaemia.

Listeriose on dairy goat farms

Recently, the Veekijker-helpdesk has received several reports regarding major outbreaks of listeriosis on dairy goat farms. On some of these farms the number of animals with clinical signs consistent with listeriosis was tens to more than a hundred animals. In case the first animals with clinical signs were noticed, the diet was adjusted immediately with the aim of eliminating the most likely source. Despite these interventions, new cases of listeriosis were noted up to six weeks after the first clinical signs were observed.

Pointing out the causal source after an outbreak of listeriosis is generally complicated in practice. This is partly due to the fact that the incubation period of listeriosis can vary from a few hours to a few

weeks. The bacterium is widely distributed in the environment, especially in soil. Based on experience, it appears that silage is usually the main source of contamination for listeriosis on dairy goat farms. The use of a TMR feed mixer can easily contribute to unintentionally distribution of the bacterium to larger numbers of animals. Feeds with a high dry matter content, such as concentrates, hay and straw, are considered a less likely source of listeriosis.

The probability that *Listeria* spp. lead to problems in a herd depends on several factors. First of all, *Listeria* spp. have to be included during the extraction or production process of roughage. Preventing soil absorption is important in this regard. For

example, by guaranteeing a certain minimum mowing height. In addition, bacteria must have the opportunity to grow, which depends on several factors including pH, temperature and humidity. The bacterium grows optimally at temperatures between -0.4 and 45 degrees Celsius, but grows poorly in circumstances of low temperature and a low pH (<4.5). The bacteria will not be able to multiply easily in a dry and well-preserved product.

A diagnosis can be made based on clinical signs and pathological examination. Detecting the bacterium in potential sources is not easy since it is a ubiquitous bacterium, which makes it difficult to link bacteriological results in relation to the current outbreak.

Loss of yearling sheep due to haemonchosis

During April and May haemonchosis was diagnosed in several sheep by means of pathological examination. These were all yearling sheep that were sent in after sudden deaths had occurred in the weeks after lambing. The yearlings showed clear signs of haemonchosis during the pathological examination, such as white mucous membranes and oedema between the jaw branches. Recently, the prevention of such problems with haemonchosis has also been made known by Animal Health Flanders (DGZ).

In case haemonchosis is diagnosed after a period that the sheep were stabled, it

concerns infections that most probably have already occurred during the previous grazing season. Haemonchosis is caused by infection with *Haemonchus contortus*. After ingestion of infectious larvae on land, some larvae go into inhibition in the abomasum. Around lambing, these larvae become active again and continue their development into adult worms. When large numbers of worms develop into adult-stages within a short period of time and start to take up blood in the abomasum, an animal can develop clinical haemonchosis. Risk factors are sheep that have not built up sufficient immunity, for example because they have not

encountered *Haemonchus contortus* frequently enough. Regular worming without any indication can also contribute. In addition, sheep that are housed with a high infectious load are at risk. Performing faecal sampling on a regular basis provides insight into the degree of infection. It is important to only deworm animals in case there is an indication to do so. This is even as important from the perspective of slowing down resistance development. For several years, GD has noticed that haemonchosis may also lead to problems beyond the traditionally risk period between July and August.

Chlamydia abortion in dairy goats

In spring 2022, a dairy goat farm was visited dealing with abortion due to *Chlamydia abortus*. A few years earlier, female breeding stock was purchased from a farm, which appeared in retrospect infected with *C. abortus*. The purchase of goats from this *C. abortus*-infected farm appears to have been the most likely route of introduction, although difficult to conclude in retrospect.

This breeding season was the first time to confirm the presence of the bacterium by means of PCR on aborted material and vaginal swabs. After the diagnosis was established, a group of gravid animals was treated with long-acting oxytetracycline. The goat farmer has indicated that the treatment did not have the desired effect since a large part of the treated pregnant animals still aborted.

There was also a group of lactating early-pregnant dairy goats on the farm. Vaccination of pregnant animals with a live

chlamydia vaccine, which is registered for sheep, is not recommended in pregnant animals and due to the milk withdrawal times when using oxytetracycline, this approach was not preferred by the goat farmer. Therefore, the vet and producer chose to vaccinate this group of pregnant goats with an inactivated chlamydia vaccine. The goat farmer has stated that eventually a large part of this group of pregnant dairy goats also aborted.

It has been advised to vaccinate the goats in accordance with prescription (off-label) with live chlamydia vaccine prior to the breeding period from now on. Based on the experience of others with this vaccine, it is expected that the number of abortions will decrease significantly. The available vaccines against *Chlamydia abortus* are not registered for goats.

Chlamydia abortus has been one of the most common causes of abortion in sheep and

goats for years and is most commonly introduced through purchase of infected female breeding stock. Chlamydiosis is a zoonosis. The bacterium is a particular risk for pregnant women. It is important that pregnant women do not have direct or indirect contact with small ruminants during lambing.

On this farm, the most logical route of introduction of *C. abortus* seems to be the purchase of a group of infected goats from a farm with a history of *C. abortus*, despite the fact that the first problems did not arise until well after this introduction.

Once *C. abortus* has been introduced into a flock, the approach is extremely complex. The emphasis is thus on preventing the introduction of *C. abortus*. In a general sense, GD advises producers to explicitly inquire about the health status at the farm of purchase and to take quarantine measures in the event of a purchase.

Liver fluke causes more problems in season 2021-2022 compared to previous years

Last spring, the Veekijker-helpdesk received several questions from sheep farmers and veterinarians regarding liver fluke. While liver fluke disease has led to fewer problems in previous years, possibly related to successive dry years, liver fluke disease surprised several sheep farmers last year. Until 2020, the Liver Fluke Prognosis Working Group annually prepared a provisional and definitive prognosis with which animal keepers and veterinarians were informed about the expectation with regard to the chance of

developing liver fluke disease. The occurrence of resistance to liver fluke agents was also monitored.

Many of the questions asked in the past period related to the diagnosis of ill-thrift or (sudden) death, but also in the context of poor treatment results due to possible resistance to triclabendazole, the active substance that is active against all stages of the liver fluke. Resistance to triclabendazole was first established in North-Holland in the

late 1990s and has since been demonstrated in many places throughout the Netherlands. In case a liver fluke infection is suspected, it is essential to confirm this by means of pathological examination, blood tests or faecal sampling before starting treatment. Mapping the occurrence of the liver fluke in fields can help identify which fields are at risk and which are better avoided at certain times of the year.

Animal health barometer Small Ruminants

Veterinary diseases	Brief description	Category	Quiet ¹	Increased attention ²	Further investigation ³
Articles 2.1.a and 2.1.b Designation of animal diseases 'Rules for Animal Health'/Implementing Regulation (EU) 2018/1882 of the Animal Health Law (EU) 2016/429 (Category A disease)					
Infectious pleuropneumonia in goats (CCPP) (<i>Mycoplasma capricolum</i> subs. <i>capripneumoniae</i>)	Has never been present in NL.	A+D+E	*		
Foot and Mouth Disease (FMD)	No FMD in the Netherlands since 2001.	A+D+E	*		
Infection with ovine rinderpest (commonly known as PPR, peste des petits ruminants)	Has never been present in NL.	A+D+E	*		
Infection with Rift Valley fever virus (RVF)	Has never been present in NL.	A+D+E	*		
Sheep pox and goat pox	Has never been present in NL.	A+D+E	*		
Articles 2.1.a and 2.1.b Designation of animal diseases 'Rules for Animal Health'/Implementing Regulation (EU) 2018/1882 of the Animal Health Law (EU) 2016/429 (Category B through E)					
Infection with <i>Brucella abortus</i> , <i>B. melitensis</i>	Based on a random sample in 2021, the Netherlands maintains its free status. Action has already been taken for the 2022 random sample.	B+D+E	*		
Infection with the rabies virus	Extremely rarely diagnosed in bats.	B+D+E			
Infection with the bluetongue virus (serotypes 1-29)	The Netherlands has been officially free from BT since 2012. There are a number of sources of BT within Europe. BTV-8 is found in Germany, Luxembourg and Belgium, for example. Many outbreaks of BTV-4 around the Mediterranean.	C+D+E	*		
Epididymitis in sheep (<i>Brucella ovis</i>)	Examination of rams for export purposes.	D+E	*		

Veterinary diseases	Brief description	Category	Quiet ¹	Increased attention ²	Further investigation ³
Articles 2.1.a and 2.1.b Designation of animal diseases 'Rules for Animal health'/Execution decree (EU) 2018/1882 of the Dutch Animal Act (EU) 2016/429 (Category B through E) continuation					
Infection with <i>Mycobacterium tuberculosis</i> -complex (<i>M. bovis</i> , <i>M. caprae</i> , <i>M. tuberculosis</i>)	The Netherlands has been officially free from bovine tuberculosis since 1999.	D+E	*		
Anthrax (<i>Bacillus anthracis</i>)	Last registered outbreak in cattle in 1993. No infections registered since then.	D+E	*		
Paratuberculosis (<i>Mycobacterium avium</i> subs. <i>paratuberculosis</i>)	Regular cases especially in dairy goats and occasionally in sheep.	E	*		
Q fever (<i>Coxiella burnetii</i>)	In 2016, the final dairy goat farm was certified free from infection with <i>Coxiella burnetii</i> .	E	*		
Echinococcosis	No confirmed cases in recent years.		*		
Trichinellosis	No known cases of trichinellosis in sheep or goats.		*		
Article 2.1.c Designation of animal diseases 'Rules for Animal Health' of the Dutch Animal Act					
Transferable TSEs (scrapie, BSE)	Hardly any cases among sheep in the past 10 years. In the annual random sampling by GD, all the rams examined had the required genotype. In goats, the first case of scrapie was in 2000 and the last case in 2001.		*		
Article 3a.1 Reporting of zoonoses 'Rules for Animal Husbandry' of the Dutch Animal Act					
Campylobacteriosis (<i>Campylobacter</i> spp.)	A few cases each year. Particularly known as a cause of abortion in small ruminants.		*		
Leptospirosis (<i>Leptospira</i> Hardjo)	No cases in sheep or goats for many years.		*		
Listeriosis (<i>Listeria</i> spp.)	Encephalitis caused by <i>Listeria monocytogenes</i> is regularly found in sheep but especially in dairy goats. It is unknown how long listeria bacteria are excreted into the milk. Both <i>L. monocytogenes</i> and <i>L. ivanovii</i> can cause abortion in sheep and goats.		*		* Further investigation is required into the types found in people and animals.
Salmonellosis (<i>Salmonella</i> spp.)	Since 2016, recurrent and large-scale losses of kids at dairy goat farms caused by a multiresistant <i>S. Typhimurium</i> Also a number of cases of illness in people caused by the same MLVA strain of the bacteria. The infection source is unknown; it is also unknown where the bacteria exist outside the kidding season.		*		* A further study of dairy goats is underway within the framework of Public private collaboration on increased sustainability of dairy goat farming.
Yersiniosis (<i>Yersinia</i> spp.)	A few cases each year. Identified as the cause of diarrhoea, mortality and abortion.		*		
Toxoplasmosis (<i>Toxoplasma gondii</i>)	A number of confirmed cases per year but probably one of the most commonly occurring causes of abortion. High seroprevalence has previously been shown in sheep and goats.		*		

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¹ Quiet: no action required or action is not expected to result in a clear improvement.² Increased attention: alert to an anomaly.³ Further investigation: further investigation is ongoing or required.

Table continuation

Veterinary diseases	Brief description	Category	Quiet ¹	Increased attention ²	Further investigation ³
Other OIE list diseases					
Enzootic abortion (<i>Chlamydia abortus</i>)	One of the main causes of abortion in goats and sheep for years.		*		
Caprine arthritis encephalitis (CAE)	Commonly occurring disease whereby the pathogenic virus sometimes behaves differently depending on the size of the farm. Source of introduction not always clear.		*		
Maedi-Visna virus (MVV)	(Most) significant infectious disease at large farms.		*		
Tularemia (<i>Francisella tularensis</i>)	Since 2011 infected hares are regularly detected, and a few human tularaemia patients in the Netherlands.		*		
<i>Mycoplasma agalactiae</i>	Has never been present in NL.		*		
Nairobi sheep disease	Has never been present in NL.		*		
Heartwater (<i>Ehrlichia ruminantium</i>)	Has never been present in NL.		*		
Infections with the Schmallenberg virus (SBV)	Annual infections with the SBV since 2011, resulting in congenital abnormalities in lambs Also various notifications of lambs showing congenital abnormalities caused by SBV, in early 2022.			*	
From monitoring					
Distomatosis (liver fluke) (<i>Fasciola hepatica</i>)	A number of submissions for pathology showed distomatosis in autumn 2021 and spring 2022. The Veekijker has received many notifications regarding liver fluke infections and possible resistance. There has been a lack of insight into the infection risk since the discontinuation of the Working group for Liver fluke prognosis, in 2020.			*	
Death of sheep lambs due to (as yet) unknown cause	Great losses of sheep lambs from two weeks of age due to an (as yet) unknown cause. No clinical signs in the sheep. Further investigation is to take place.				
Haemonchosis	Yearlings and older sheep with clinical haemonchosis confirmed by means of faecal examination and pathological examination following sudden death. Haemonchosis increasingly occurs outside the "appropriate period". Anthelmintic resistance is cause for concern. Effective (pasture) management is very important within the scope of preventing clinical signs and delaying resistance development.				
Bone abnormalities and osteochondrosis in goat lambs	Severe misalignment in young goat lambs. Pathological investigation points to abnormal bone development. A study of possible genetic causes is underway.				
Listeriosis at dairy goat farms	Multiple dairy goat farms with high morbidity and subsequent losses as the result of listeriosis.				



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.