

Monitoring

ANIMAL HEALTH



Jaagsiekte in the Netherlands following import from Scotland

At the end of January, the owner of a 20-month-old imported ram from Scotland contacted the Veekijker. The animal was imported in October 2020, however recently it started to show clinical signs of impaired breathing and was deteriorating. Despite a number of treatments with various antibiotics for pneumonia, it showed no signs of improvement. The various possible causes were discussed with the owner and it was agreed to submit the animal for pathological examination in the event that it was lost. That was indeed the case several days later. The pathological examination showed pale and firm lungs, local chronic pleuritis, a foamy content in the trachea, extensive pulmonary oedema and extensive interstitial pneumonia. Various sizes of nodules were distributed throughout the lungs, and histological examination showed typical lesions for the diagnosis of jaagsiekte.

Jaagsiekte is a chronic, progressive and eventually fatal contagious lung disease. As the disease progresses, it results in emaciation. In many aspects, this disease is very suggestive of Maedi-Visna Virus (MVV). For a long time, it was believed that MVV and jaagsiekte were one and the same disease. Jaagsiekte is also known as pulmonary adenomatosis, sheep pulmonary adenomatosis (SPA), ovine pulmonary adenocarcinoma (OPA), and driving sickness. Jaagsiekte was first described in South Africa in 1825. It is a common disease in sheep farming countries, with the exception of

Australia and New Zealand.

Jaagsiekte has a long incubation period; clinical symptoms are not generally present before the age of two years. Lung abnormalities can occasionally be seen in younger animals. When there is an increased risk of infection, lambs aged around six months may show abnormalities. Jaagsiekte is caused by the jaagsiekte sheep retrovirus (JSRV). This betaretrovirus causes malignant transformation of the cells in the small bronchi and alveoli. The pulmonary tumours produce fluid, and this increased production of fluid eventually results in audible moist crackles in the sheep's breathing; this is readily detected by auscultation. At a later stage, raising the hindquarters or lowering the head of the affected animal will cause frothy mucoid fluid to run from the nostrils. Annual losses can range from one to ten percent in infected herds, though the infection percentage is often much higher. Indoor housing and close contact increase the risk of infection, just like in MVV. The virus is transmitted via the respiratory route, and there is no effective treatment for jaagsiekte.

Jaagsiekte was first found in the Netherlands in 1978, in sheep imported from the United Kingdom. Upon diagnosis, all imported animals and all sheep which had been in contact with those animals, were culled. Jaagsiekte has not been detected since then. This is striking because sheep are regularly imported from countries where the disease is endemic. This is the first confirmed case of jaagsiekte since 1978.



Anaemia in kids

Recent pathological examinations of fallen suckling lambs and kids showed that the cause of death is not always infectious. Mortality in both lambs and kids can often also be related to nutrition issues. In a number of cases, inadequate colostrum or milk production was found to be the problem. Anaemia was diagnosed in the occasional kid as a result of abnormal functioning bone marrow. Occasionally, this occurs when lambs and kids are fed bovine colostrum. Colostrum from cattle can sporadically contain substances that cause a severe immune response following intake, and result in haemolysis. Even a very small amount of colostrum of 50-150 ml can prove fatal. When bovine colostrum is used, it is therefore advised not to mix colostrum of multiple cows, but to alternate the colostrum of several cows.

Schmallenberg virus detected in lambs with congenital abnormalities

At the end of December 2020, several sheep farmers contacted the Veekijker regarding the birth of lambs showing congenital abnormalities. In most cases, the lambs were born following a full term gestation. The abnormalities displayed included bent legs, wry necks and



humped spines. Many causes are known to cause such abnormalities. These malformations typically occur in the period of gestation in which the neuromuscular system develops, approximately between days 25 and 60. On the advice of the GD Veekijker, lambs were submitted for pathological examination. Besides the aforementioned abnormalities, these lambs showed abnormalities of the nervous system and the Schmallenberg virus (SBV) was detected confirming the diagnosis. SBV is a virus of the Simbu serogroup of the Orthobunyaviridae genus and Bunyaviridae family, and was first detected in north-west Europe in 2011.

The virus can spread extremely quickly during the summer and late-summer months, via

stinging insects. It is not unsuspected that a number of cases have once again presented themselves this year. Following the introduction in 2011, the immunity of the population has probably gradually decreased over the years, giving the virus a renewed opportunity to cause problems. However, the problems are not expected to be as serious as they were during the initial introduction. Since multiple causes are known to cause congenital abnormalities, it is important to exclude infections by non-endemic agents based on pathological examination. Animals can be submitted for pathological examination by GD (0900-2020012) in case of aborted, stillborn and weak lambs. For optimal pathology it is essential to send in both the placenta and the foetus.

Abortion status in small ruminants

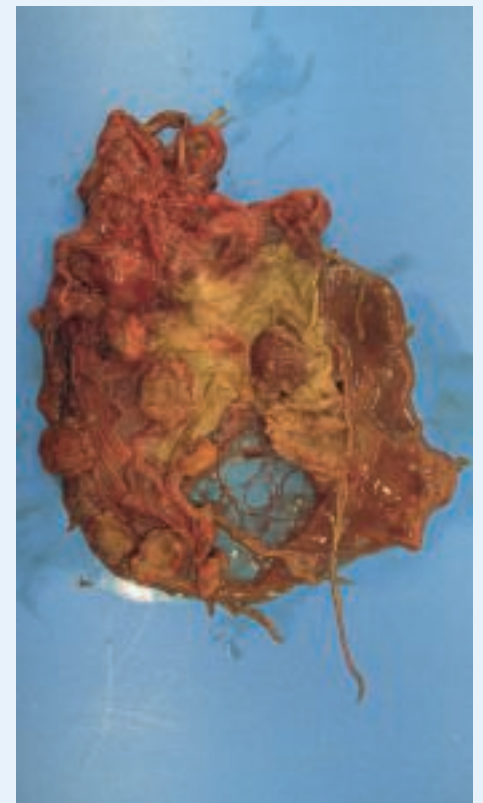
In early February 2021, 21 aborted lambs were submitted to GD for pathological examination. Identified causes of abortion included *Campylobacter* spp., *Chlamydia abortus*, *Toxoplasma gondii*, *Listeria* spp., and *Salmonella* spp. In six cases, *Listeria* spp. were detected, both *L. monocytogenes* and *L. ivanovii* have been found. In some of the cases, though signs of infection were noticed in the placenta

or organs of the aborted foetus, no pathogen could be detected. In such cases, it is assumed that an infectious agent has caused the abortion. In case the causative agent could not be found, it is advisable to submit another aborted foetus and placenta for pathological examination. In the Netherlands, an increased number of abortions in small ruminants needs to be reported to the NVWA.

Abortion in sheep caused by salmonellosis

In 2020, we reported that salmonellosis had been confirmed in a newborn lamb. Late December 2020 and early 2021, *Salmonella* spp. of serogroup F-67 was found to be the cause of abortion in sheep in several cases. These cases were probably due to *S. diarizonae*, which has been found in sheep in the past.

Following contact with the farmers in question, it appeared that although a few animals in a herd had aborted, they did not show any clinical signs. GD has advised the farmers to submit the aborted lambs for further examination. Salmonellosis is a reportable disease.



Animal health barometer for small ruminants

Veterinary diseases	Brief description	Quiet ¹	Increased attention ²	Further investigation ³
Article 15 diseases (compulsory notification and eradication)				
<i>Brucella melitensis</i> -brucellosis	In 2020, GD has frequently communicated about this surveillance program to help motivate farmers to submit samples. The required number of samples for 2020 has been achieved.	*		
<i>Coxiella burnetii</i> Q fever	A final dairy goat farm was certified free from infection with <i>Coxiella burnetii</i> in 2016.		*	
Foot and Mouth Disease (FMD)	No FMD in the Netherlands since 2001.	*		
Scrapie	In the past ten years, scrapie has very seldom been seen among sheep. In the annual random sampling, all examined rams had the ARR/ARR genotype. The first case of scrapie in goats was confirmed in 2000, the last case in 2001.	*		
Bluetongue (BT)	The Netherlands has been officially free from BT since 2012. BT is endemic in certain European countries. BTV-8 is found in neighbouring countries Germany, Luxembourg, and Belgium. Many outbreaks of BTV-4 are reported in the Mediterranean.		*	
Ovine rinderpest (PPR - Peste des petits ruminants)	Has never been present in NL.	*		
Sheep pox and goat pox	Has never been present in NL.	*		
Article 100 diseases (compulsory notification)				
Salmonellosis	Since 2016, recurrent and large-scale losses of kids at dairy goat farms caused by 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. <i>Salmonella</i> spp. has resulted in abortions at several sheep farms. This could possibly be <i>S. diarizonae</i> .		*	*
Campylobacteriosis	A few cases per year.	*		
Listeriosis	Listeria encephalitis is regularly found in sheep but especially in dairy goats. It is unknown how long listeria is excreted into the milk. Both <i>L. monocytogenes</i> and <i>L. ivanovii</i> can cause abortion in sheep and goats.		*	*
Toxoplasmosis	A few confirmed cases per year; high seroprevalence among sheep and goats.	*		
Echinococcosis	No confirmed cases in recent years.	*		
Yersiniosis	A few cases per year. Detected at three goat farms in 2020, as the cause of diarrhoea and mortality.	*		
Leptospirosis caused by <i>L. Hardjo</i>	No cases in sheep or goats for many years.	*		
Maedi-Visna Virus (MVV)	(Most) significant infectious disease at large farms.	*		
Other OIE-list diseases in the Netherlands subject to compulsory reporting				
<i>Chlamydia abortus</i> -enzootic abortion	One of the main causes of abortion in goats and sheep for years.		*	
<i>Fasciola hepatica</i> -liver fluke	A few acute and chronic infections in 2020. Awareness is required in areas with a raised groundwater level. Due to the Liver Fluke Prognosis Working Group having stopped its activities, farmers can no longer be proactively informed on the status regarding liver fluke.	*		

Table continuation

Veterinary diseases	Brief description	Quiet ¹	Increased attention ²	Further investigation ³
<i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i> - <i>paratuberculosis</i>	Regularly seen, especially in dairy goats and occasionally in sheep.	*		
Ecthyma	Similar to previous years.	*		
<i>Francisella tularensis</i> -tularaemia	Since 2011 infected hares are regularly detected, and a few human tularaemia patients in the Netherlands.		*	
Caprine arthritis encephalitis- (CAE)	Commonly occurring disease whereby the pathogenic virus sometimes behaves differently depending on the size of the farm.		*	
Sheep pox and goat pox	Has never been present in NL.	*		
From monitoring				
Jaagsiekte	Introduction of jaagsiekte to the Netherlands due to import of a ram from Scotland. Diagnosis was confirmed by pathological examination, oversees confirmation to follow. Jaagsiekte was last diagnosed in the Netherlands in 1978.		*	*
Diarrhoea in dairy goats	At several dairy goat farms, adult goats regularly suffer from acute diarrhoea; the diarrhoea can be mild but can also be watery or mixed with bloody discharge. These animals sometimes recover spontaneously but the impression is that many cases require antibiotics in order to save the animal's life. Multiple factors play a role, and especially nutrition.		*	*
Schmallenberg virus	At the end of 2020, Schmallenberg virus was detected upon pathological examination of deformed lambs.		*	
Encephalitis with unknown cause	Detection of meningo encephalitis in a sheep, possibly caused by a viral infection. Further investigation is needed to identify the agent.		*	
Multiresistant <i>E. coli</i>	Presence of a multiresistant <i>E. coli</i> at a dairy sheep farm results in problems in young and old animals. A possible source has yet to be discovered.			
<i>Pithomyces chartarum</i>	Photosensitivity has been reported by numerous sheep farms. Elevated blood liver enzymes were often detected. The pathogen was also found in grass samples at farms experiencing problems. Further investigation to follow.		*	*
Copper toxicity	Regular losses at dairy sheep farms in recent years due to copper toxicity, as a result of incorrect composition of concentrated feed.		*	

¹ Quiet: no action required or action is not expected to result in a clear improvement

² Increased attention: alert to a deviation.

³ Further investigation: further investigation is ongoing or required.



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.