Animal & Plant Health Agency

SRUC

Great Britain miscellaneous and exotic farmed species quarterly report

Disease surveillance and emerging threats

Volume 29: Quarter 2 – April to June 2021

Highlights

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Introduction and overview

This quarterly report reviews disease trends and disease threats for the second quarter of 2021 (April to June). It contains analyses carried out on disease data gathered from Animal and Plant Health Agency (APHA), Veterinary Services division of Scotland's Rural College (SR UC) and partner postmortem providers and intelligence gathered through the Miscellaneous Species Expert Group networks.

In addition, links to other sources of information including reports from other parts of the APHA and Defra agencies are included.

A full explanation of how data is analysed is provided in the annexe available on GOV.UK.

Issues and trends

New postmortem providers join APHA's Scanning Surveillance Network in England and Wales

The APHA's postmortem examination and diagnostic testing service provides a major component of the Great Britain(England, Scotland and Wales) Scanning Surveillance Network. The network works closely with vets and farmers to detect and investigate new or re-emerging disease, and diagnose endemic diseases in farm animals.

The APHA Surveillance Intelligence Unit and Surveillance and Laboratory Services Department are very pleased to announce that during January and February 2021, three additional postmortem examination (PME) providers have joined the Scanning Surveillance Network. These are the Universities of Cambridge, Liverpool and Nottingham.

This broadens the expertise of, and contributors to, livestock disease surveillance in England and Wales and also brings livestock premises in the areas they cover closer to a postmortem provider.

The new PME providers join the seven current PME Providers (Royal Veterinary College, Universities of Surrey, Bristol, Cambridge and Liverpool, the Wales Veterinary Science Centre, and SRUC Veterinary Services St Boswells) that work together with the six APHA Veterinary Investigation Centres, all of which will continue their valued contribution to scanning surveillance.

Key points about accessing PME in APHA's Scanning Surveillance Network:

- each PME Provider has an assigned area as shown in colour on the APHA disease surveillance map within each assigned area, the hatched area shows where premises are eligible for free carcase collection and delivery of animals to the PME provider. Premises within non-hatched areas need to arrange to deliver animals themselves
- our postcode search tool identifies and provides contact details for the allocated PME provider and indicates if the premises is eligible for free carcase collection. This is

based on the postcode of the premises from where an animal is to be submitted rather than a veterinary practice

- to arrange a PME, the vet calls the relevant PME provider to speak to the duty Veterinary investigation Officer or PME Veterinary Surgeon.
- there will be some livestock premises for which the allocated PME provider has changed, and the free carcase collection service may no longer be provided for some holdings. The APHA postcode search tool allows farmers and vets to see the situation for individual premises

More information about APHA's scanning surveillance and diagnostic services is available on the Vet Gateway.

Let us know if you have queries which are not addressed in this communication or contact the APHA Surveillance Intelligence Unit (SIU) by emailing SIU@apha.gov.uk for more information.

Diagnostic submission trends

Table 1: diagnostic submissions in Quarter 2 (April to June) for alpacas, llamas and farmed deer– the APHA figures include submissions to partner post mortem providers (PPP). Other miscellaneous and exotic species may also be received in small numbers.

	Non Carcase submissions			Carcase submissions			
April to June	**APHA**	**Scottish Agricultural College (SAC)**	**Total**	**APHA**	**SAC**	**Total**	**Grand total**
2017	31	22	53	33	9	42	95
2018	12	11	23	23	5	28	51
2019	8	6	14	27	8	35	49
2020	14	2	16	13	2	15	31
2021	23	20	43	27	3	30	73

Table 1 - diagnostic submissions in Quarter 2 (April to June) for alpacas, llamas and farmed deer for all years (2017 to 2021)

Figure 1 - carcase and non-carcase submissions for Quarter 2 (April to June) for all years (2017 to 2021)

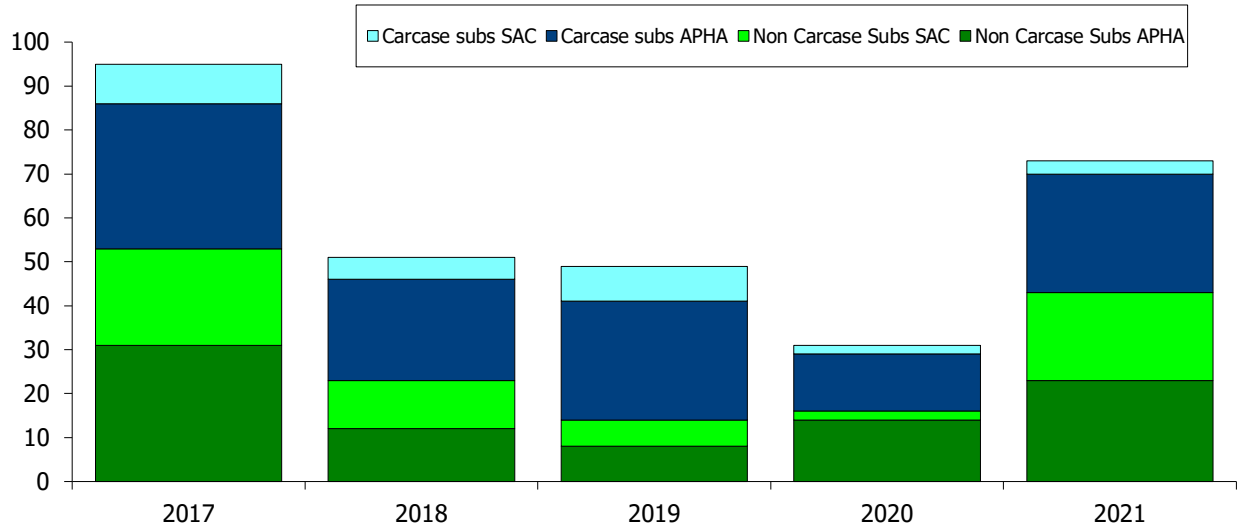

Table 2: total diagnostic submissions for Quarter 2 for all years (2017 to 2021) for each main species covered by this report and also for each main geographical area

Areas	Alpaca	Deer	Llama	Total number of animals
East England	45	12	2	59
North England	29	11	2	42
Scotland	26	25	6	57
Wales	6	0	0	6
West England	84	10	6	100
Unknown	22	8	5	35
Total for all areas	212	66	21	299

New and re-emerging diseases and threats

Nothing to report this quarter.

Diagnoses from the Great Britain Scanning Surveillance Network including unusual diagnoses

Camelids

Congenital Urinary Defect in an alpaca cria

A full gestation newborn alpaca cria which was found dead with accompanying placental tissue was submitted with 5/13 alpacas in the group pregnant and well. Gross post mortem examination showed inflated lungs and approximately 100mls of yellow-coloured fluid under the renal capsule of both kidneys and the renal pelvises dilated.

Infectious causes were ruled out by standard laboratory tests but histopathology confirmed the presence of a chronic, *lymphohistiocytic interstitial nephritis*, most likely the result of a prior bacterial insult, together with *hydronephrosis* and kidney *medullary fibrosis* suggestive of a congenital urinary tract obstruction.

Squamous Cell Carcinomas in Alpacas

A *Squamous Cell Carcinoma* was identified by histopathology of a slow-growing, nodular skin mass taken from the tail base of an eight year old male alpaca.

The carcase of a six year old castrated alpaca was submitted with a history of being found dead with little in the way of premonitory signs. Gross post mortem revealed a number of large discrete pale-coloured masses throughout the liver parenchyma and over the surface of the omentum.

The stomach compartment 3 was encapsulated by pale-coloured tissue showing a nodular appearance with the mucosa disrupted (see figure 2).

Histopathology of the stomach compartment mass and liver mass confirmed a gastric squamous cell carcinoma with multiple metastases. These tumours are not common in alpacas but have been previously recorded, with multifactorial aetiologies such as diet, genetic predisposition and even infectious agents such as papilloma virus.

Figure 2: photograph of the gastric squamous cell carcinoma with multiple metastases

Cerebrocortical necrosis in Alpacas

A 14 year old female alpaca from a group of four died shortly after the acute onset of nervous signs including circling, walking into walls and objects, disorientation, shaking and excessive salivation. It collapsed with splayed hindlegs, and died soon afterwards. Gross pathology was fairly unremarkable, the brain was slightly swollen but did not autofluoresce under ultraviolet light.

However histopathology of the brain revealed lesions with a distribution supportive of a diagnosis of thiamine-dependent cerebrocortical necrosis. (Himsworth, 2008).

In a separate submission, Cerebrocortical necrosis was diagnosed in a two week old cria which had been born premature. The cria had received veterinary attention including a plasma transfusion, cephalosporin, and insulin (as it was hyperglycaemic, Cebra CK,2000).

It was reported to have proprioceptive deficits, with a reduced menace response. It was provided further treatment but deteriorated and died. The gross post mortem was considered unremarkable bar the meninges appearing cloudy and the brain friable. Bacteriology recovered *Streptococcus mitis* in a mixed bacterial growth systemically, considered to represent a terminal bacteraemia.

Histopathological examination of the brain revealed severe, acute, symmetrical necrosis of the grey matter, including lamellar necrosis of the cerebral cortex (CCN). The pattern of changes were suggestive of metabolic insult with thiamine deficiency, hypoglycaemia and salt toxicity/water deprivation the main differentials.

There were fibrin microthrombi in the heart, lung and liver considered to be reflective of terminal disseminated intravascular coagulation and there was lymphoid depletion in the spleen. The latter can result from a variety of causes including hypoxia, certain viral infections and high doses of steroids.

Farmed Deer

Malignant Catarrhal Fever in Red Deer

Malignant catarrhal fever (MCF) was found to be the cause of acute dysentery and death in a farmed red deer, where approximately 50% of the group were bought-in animals. They were outside at grass and had received anthelmintic treatment. At post mortem:

- the carcase was dehydrated with dysenteric staining around the hind quarters
- mucosal erosions with cream exudate on the soft palate
- multiple ulcerative, necrotising foci in the pyloric region (see figure 3)
- the small intestinal mucosa was congested

Bacteriology recovered *B. trehalosi* from lung and spleen and histology confirmed this to be a terminal bacteraemia in a debilitated animal. PCR testing confirmed MCF supported by histological findings, particularly pulmonary, lymphocytic, vasculitis.

Further investigation revealed that the bought-in animals had originated from a farm which also kept sheep, although not in direct contact with the deer.

Figure 3: Pyloric region with multiple ulcerative, necrotising foci

Parasitic gastroenteritis in a Red Deer (kept in parkland)

A juvenile red deer was submitted to investigate the cause of death in a group of approximately 250, kept in parkland of approximately 50 hectares. The herd had recently undergone heavy culling to reduce stocking density.

Over the three weeks prior to submission, three juvenile red deer had been found dead. The group were kept on the same pasture as fallow deer, however groups tend not to mix.

The pasture had been used continuously by the deer for a number of years, however no other livestock graze the land. The group were extensively managed and had received no medication.

At necropsy, the calf had a significant endoparasitic burden, both within the respiratory tract and the gastrointestinal tract (GIT). A total worm count of the GIT identified a moderate *Ostertagia* spp. burden and the degree of autolysis of the carcase meant this was likely an underestimation.

Trace element testing was undertaken, and it was concluded that the copper and selenium values were at the lower ends of the reference ranges provided by Green (2016), although the practitioner was advised that as only a single deer has been sampled it was unclear how representative this was of the overall group.

The practitioner was signposted to some of the literature surrounding management of park deer, an interesting yet challenging subject matter.

Horizon scanning

COVID-19 effects

As described in previous quarterly reports, the current COVID-19 pandemic had continued to have an impact on the number of camelid and farmed deer carcase submissions to the Great Britain Scanning Surveillance Network.

However, both carcase and non-carcase submission numbers have improved in quarter 2 of 2021 compared to the previous two years. Communications have been sent to veterinary practices to indicate that the Veterinary Investigation Centres and Post mortem partners are continuing to function throughout and encouraged veterinary practitioners to make contact to discuss cases.

The situation will hopefully continue to improve over the coming months as COVID-19 restrictions continue to be eased and are finally lifted completely.

Chronic Wasting Disease and Adenovirus infections in the USA

An interesting posting on ProMED (ProMED-mail is a program of the International Society for Infectious Diseases) relating to Adenovirus Haemorrhagic disease (AHD) in Canada which is a useful reminder of the clinical signs and background to this disease:

Adenovirus Hemorrhagic Disease (AHD) - Canada: (British Columbia) Deer

ProMED archive number: 20210621.8463989

Date of post: Friday 18 Jun 2021 2:46 am Eastern Daylight Time (EDT)
Source: The Science Times (edited)

A deadly disease that initially started to affect deer on Vancouver Island, British Columbia in 2020 is still spreading in local populaces, the provincial government recently announced.

A CTV News report said, according to a spokesperson for the Ministry of Forests, Land, Natural Resource Operations and Rural Development, out of 36 dead deer examined by the ministry since the beginning of the year (2021), 22 have had adenovirus hemorrhagic disease or AHD.

AHD was originally detected in 1993 in California, although it had never been discovered in British Columbia (BC) until September last year (2020), as reported in British Columbia News.

The province officials said this disease typically kills deer fast by leading to impairment to small blood vessels in the lungs and intestines.

Nonetheless, it can result in chronic diseases, including ulcers and abscesses in the mouth and throat of a deer.

According to the BC government, there is no evidence of AHD transmission to humans, pets, or livestock. Nonetheless, hunters are still being cautioned not to eat any meat from deer, specifically, those that have been found dead, appear ill, or are acting abnormally before they died.

The ministry said it continues to investigate the transmission and persistence of the disease, and it is asking whoever sees dear with AHD to contact (the ministry).

In an email, the spokesperson said the province remains interested in collecting more specimens for ongoing investigation and welcome reports of deer, regardless of age, with clinical indications of foaming and drooling at the mouth, dark-colored diarrhea, and difficulty breathing.(byline: Marie Morales)

Communicated by email by: ProMED at promed@promedmail.org

This adenovirus (CdAdV-1 or OdAdV-1) was 1st recognised in California in 1993, as stated in the text, where it caused fatal hemorrhagic disease in black-tailed deer (*Odocoileus columbianus*). The virus is closely related to bovine adenovirus-3, but the biologic properties of both viruses are clearly distinct, and CdAdV-1does not cause disease in other animals than deer.

Mortalities due to CdAdV-1 infection have been documented in black-tailed deer and moose. Wild populations of other cervid species, such as white-tailed deer, mule deer, and elk, are also sporadically infected.

Also an extract from ProMED which detailed cases of Chronic Wasting Disease (CWD) in Pennsylvania, New York and Texas and gave a useful summary of the disease:

"Chronic wasting disease (CWD) is a neurological disease in deer, elk, moose, and other members of the deer family, known as 'cervids'. The disease was 1st recognised in 1967 in captive mule deer in Colorado and has since been documented in captive and free-ranging deer in states and 2 Canadian provinces. The 1st case of CWD in Texas was discovered in 2012 in free-ranging mule deer in an isolated area of far West Texas."

"This disease presents numerous challenges for state wildlife agencies across North America. Of concern is the potential for decline within deer, elk, or other susceptible cervid populations. In addition, CWD could have indirect impacts on hunting, hunter participation, and economic benefits derived from big-game hunting. In Texas, hunting is a 2.2 billion US dollars economic engine, supporting many rural towns across the state."

"Because eradication is thought to be impossible once CWD becomes established in a population, it is imperative that a sound CWD management program is established to reduce the severity of implications resulting from the disease. Of course, disease prevention is the best approach to protect cervid populations and prevent social and economic repercussions.

Texas Parks and Wildlife Department (TPWD) and Texas Animal Health Commission (TAHC) have developed a cooperative CWD management plan to guide both agencies in addressing

risks, developing management strategies, and protecting big game resources from CWD in captive or free-ranging cervid populations."

This information was taken from the Chronic Wasting Disease page on the TPWD website.

Chronic wasting disease continues its march across much of North America and parts of Europe.

So far, no method of effective control or prevention has been found. Slaughtering animals in regions where positive animals exist may temporarily reduce the number of positives, but ultimately, the disease marches on. Sadly, our scientists are apparently no closer to a treatment or prevention for this disease.

Publications

None this quarter.

References

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Statement regarding use of this material

This publication is available at:

https://www.gov.uk/government/collections/animal-disease-surveillance-reports

Any enquiries regarding this publication should be sent to us at SIU@apha.gov.uk

http://apha.defra.gov.uk/vet-gateway/surveillance/index.htm

The Animal and Plant Health Agency (APHA) is an executive agency of the Department for Environment, Food & Rural Affairs, and also works on behalf of the Scottish Government and Welsh Government.