Animal & Plant Health Agency

SRUC

Great Britain miscellaneous and exotic farmed species quarterly report

Disease surveillance and emerging threats

Volume 31: Quarter 4 of 2021 (October to December)

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Editor: Alan Wight, APHA Starcross

Phone: + 44 (0)3000 600020

Email: Alan.Wight@apha.gov.uk

Introduction and overview

This quarterly report reviews disease trends and disease threats for the fourth Quarter of 2021 (October to December) and annual submission figures for January to December 2021.

It contains analyses carried out on disease data gathered from the Animal and Plant Health Agency (APHA), SRUC Veterinary Services division of Scotland's Rural College (S RUC) and partner post mortem providers and intelligence gathered through the small ruminant 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 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 were very pleased to announce that during January and February 2021, 3 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 7 current PME providers: the Royal Veterinary College, the Universities of Surrey, Bristol, Cambridge and Liverpool, the Wales Veterinary Science Centre, and SRUC Veterinary Services St Boswells that work together with the 6 APHA Veterinary Investigation Centres (VICs), 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 scanning surveillance network 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
- the 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 (VIO) or vet
- 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 Vet Gateway and in the attached farmer and vet information leaflets which include a map showing the PME sites.

Please do let me know if you have queries which are not addressed in this communication or contact the APHA Surveillance Intelligence Unit by emailing SIU@apha.gov.uk.

Diagnostic submission data

Number of diagnostic submissions in quarter 4 of 2021 (October to December) for alpacas, llamas and farmed deer (see Table 1 and Figure 1) the APHA figures include submissions to partner postmortem providers (PPP).

Other miscellaneous and exotic species may also be received in small numbers. Carcase and non-carcase submissions for the same quarter (October to December) for period 2017 to 2021 are shown in Figure 1.

Table 1: Diagnostic submissions in quarter 4 of 2021 (October to December) for alpacas, llamas and farmed deer

October to December	Non-carcase submissions APHA	Non-carcase submissions SAC	Total non-carcase submissions	Carcase submissions APHA	Carcase submissions SAC	Total carcase submissions	Grand total
2017	24	21	45	26	8	34	79
2018	14	8	22	27	9	36	58
2019	15	11	26	26	8	34	60
2020	13	15	28	18	5	23	51
2021	20	26	46	23	4	27	73

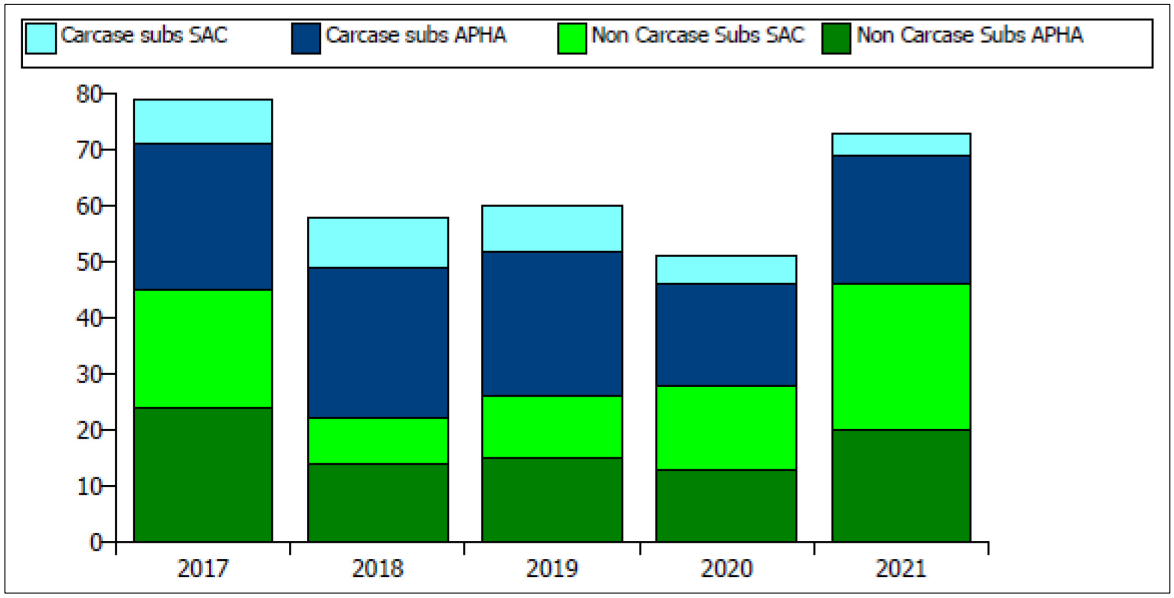

Figure 1: Diagnostic submissions in Quarter 4 (October to December) for alpacas, llamas and farmed deer in a graph

Total diagnostic submissions for quarter 4 for all years (2017 to 2021) for each main species covered by this report and also for each main geographical area (Table 2)

Table 2: Total diagnostic submissions for quarter 4 for all years (2017 to 2021) in the different geographical areas

Region	Alpaca	Deer	Llama	Regional total
Eastern England	58	15	1	74
Northern England	32	5	4	41
Scotland	38	39	6	83
Wales	10	5		15
Western England	51	14	6	71
Unknown	26	8	3	37
Great Britain summary	215	86	20	321

Annual results (January to December 2021) compared to previous 4 years: number of submissions in Table 3, graphically represented on Figure 2 and divided in the different geographical areas on Table 4.

Table 3: Total diagnostic submissions for all years (2017 to 2021)

Year	Non-carcase submissions APHA	Non-carcase submissions SAC	Total non-carcase submissions	Carcase submissions APHA	Carcase submissions SAC	Total carcase submissions	Grand total
2017	142	81	223	108	27	135	358
2018	68	47	115	121	35	156	271
2019	62	53	115	106	29	135	250
2020	66	46	112	77	13	90	202
2021	81	88	169	95	19	114	283

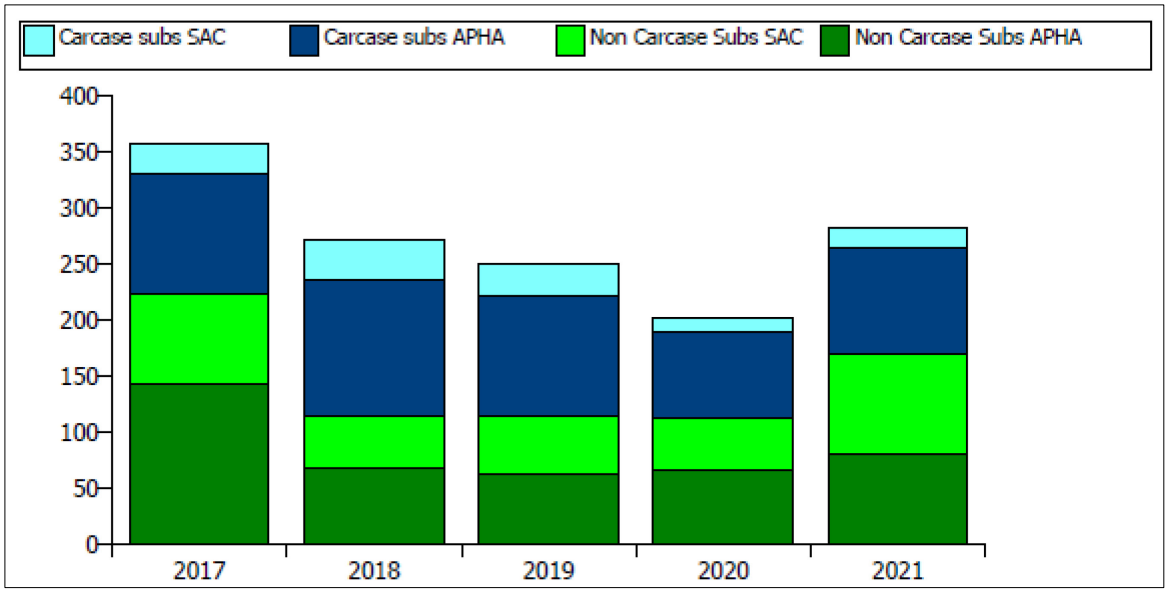

Figure 2: Total diagnostic submissions for all years (2017 to 2021) in a graph

Table 4: Total diagnostic submissions for all years (2017 to 2021) for each main species covered by this report and also for each main geographical area

Region	Alpaca	Deer	Llama	Regional summary
Eastern England	231	70	18	319
Northern England	158	37	11	206
Scotland	140	125	26	291
Wales	55	11	3	69
Western England	242	57	22	321
Unknown	119	24	15	158
Great Britain Summary	945	324	95	1,364

New and re-emerging diseases and threats

Nothing to report this quarter.

Diagnoses from the Great Britain scanning surveillance network including unusual diagnoses

Camelids

Lung lobe torsion in an alpaca

An 18-year-old alpaca was submitted for post mortem examination (PME) after a 48-hour history of laboured breathing before death.

Gross postmortem examination revealed a 180 degree clockwise torsion and reflection of the left caudal lung lobe (see Figure 3).

Histopathology confirmed emphysema and atelectasis secondary to lung torsion, with evidence to suggest a subsequent terminal septicaemia or toxaemia. Lung torsions generally occur secondary to neoplasia, pneumonia, atelectasis of the affected lobe, congenital hypoplasia or dysplasia of the lobe and/or pneumothorax.

The exact underlying cause in this case remains unclear. Additionally, parasitology revealed a high Trichostrongyle-type worm egg count of 1,090 epg, and although this animal was in good body condition, worm burden monitoring of cohort animals was recommended.

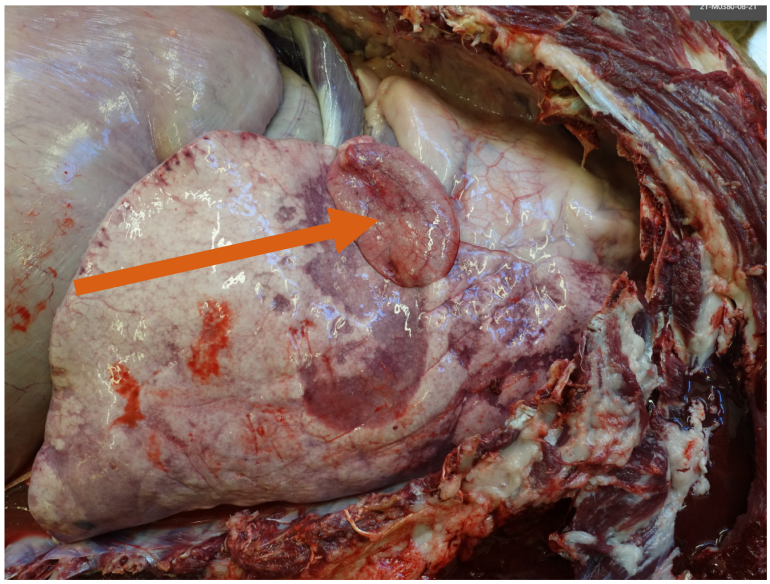

Figure 3: torsion and reflection of the left caudal lung lobe (arrow) in an alpaca

‘Alpaca fever’ in a juvenile alpaca

An 8-month-old alpaca was submitted to investigate the cause of malaise, abdominal pain and death. At postmortem examination the alpaca was found to have a severe, fibrinous polyserositis. *Streptococcus equi* subsp. *zooepidemicus* was isolated from multiple sites as part of a mixed flora. *S. equi zooepidemicus* is a recognised cause of disease in alpacas, particularly polyserositis in younger animals, and results in a condition known as ‘a fiebre de las alpacas’ or ‘alpaca fever’.

Disease in alpacas typically follows afterstressor events, such as adverse weather, malnutrition, or mixing of groups. *S. equi zooepidemicus* is also the causative organism of strangles in horses. It is potentially zoonotic, and while human infections are rare, the vet was advised to discuss good hygiene practices with the client.

The veterinarian also highlighted that the farm had recently bought in a new horse, and the possibility of monitoring the horse for infection was discussed.

Intestinal adenocarcinoma in an aged guanaco

The carcase of a 19-year-old female guanaco was submitted with a history of acute onset laboured breathing followed by death. The remaining 5 guanacos in the group were clinically well. Striking gross findings were seen on postmortem examination and included:

- multi-focal, cream-yellow, 1 to 5mm diameter, discrete, irregularly shaped foci on the liver surface and throughout the liver parenchyma (see Figure 4)
- numerous, discrete, encapsulated, 1cm diameter masses containing cream-yellow coloured soft tissue throughout the omentum
- extensive thickening of the wall of C1, C2 and C3 which had a ‘knobbly’ feel on palpation. The thickening was particularly concentrated in the glandular section of C1 and C3
- discrete areas of mucosal necrosis midway along C3 with similar changes continuing into the cranial duodenum, which was again thickened with a ‘knobbly’ feel to the tissue on palpation
- thickening and necrosis of the caecal mucosa

Gastrointestinal neoplasia was suspected. The mucosal necrosis was most likely a result of secondary bacterial invasion, inflammation and the focal lesions in the liver and masses in the omentum consistent with metastatic spread.

Histopathology confirmed a disseminated intestinal adenocarcinoma. This neoplasm has been previously reported in llamas (Valentine and Martin 2007).

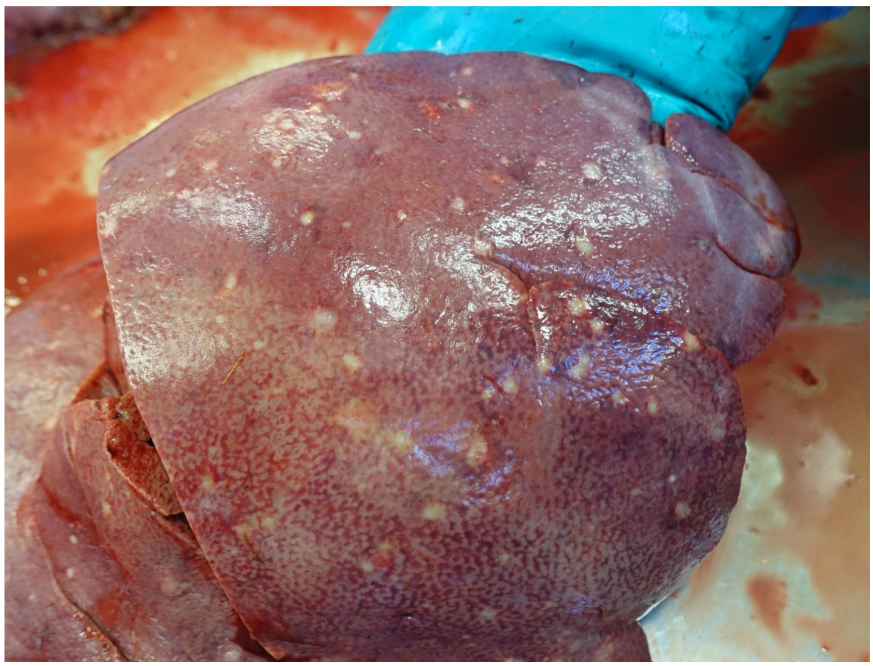

Figure 4: Multi-focal irregularly shaped foci on the liver surface of a guanaco with adenocarcinoma

Squamous cell carcinoma in an alpaca

A 10-year-old alpaca was submitted for postmortem examination. It was one of a group of 4 females in a herd of 8 animals. Three weeks earlier it had been 'hanging back' from the others with an apparently painful abdomen. It was examined by the practitioner who identified anaemia, which was symptomatically treated; ulceration of the third stomach (C3) was suspected.

A large firm irregularly shaped mass was found on the serosa of the first stomach (C1), the diameter was about 10cm and on sectioning comprised firm pale fibrotic dark tissue.

Beneath this mass the mucosa of C1 was irregularly thickened. There were also adhesions between the mass and the adjacent small intestine. Several similar coloured and firm textured masses were also found in the liver.

Histopathology confirmed the lesions to be a squamous cell carcinoma (SCC) with the C1 mass considered the primary lesion and the hepatic masses to reflect metastatic spread. Although SCCs are relatively commonly identified in ruminants few have been described in alpacas and llamas. The underlying aetiology is uncertain.

Suspected ruptured aneurysm in an adult llama

A 7- to 8-year-old llama was reported to have died suddenly in front of its owner, having not previously been unwell. At postmortem examination a large quantity of bloody fluid was found in the abdomen, and an irregular mass was identified adjacent to C1. This comprised loose connective tissue and haemorrhage. There was generalised pallor of the carcase.

The acute death was considered to have been due to internal haemorrhage, associated with the abdominal mass (see Figure 5) which was suspected to be a neoplasm, however on this occasion histopathology identified only connective tissue, fibrillary material suspected to be fibrin and haemorrhage, with evidence of haemosiderophages.

The lesion was considered more likely to be a thrombus, possibly originating from a ruptured aneurysm.

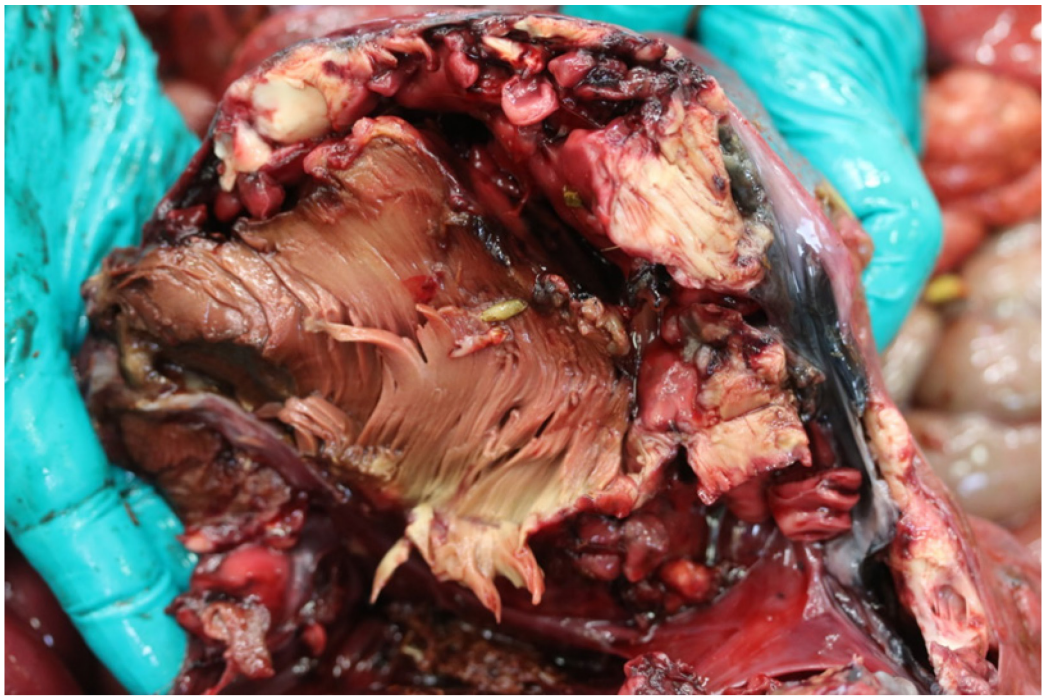

Figure 5: Mass in the abdomen of an adult llama consisting of fibrillary connective tissue

Farmed Deer

Ostertagiasis, fascioliasis and dental disease in a 4-year-old reindeer

An adult male reindeer was found dead in late December. Most of the reindeer were wormed late November but this one was not wormed at that time. They were at grass and fed reindeer pellets and straw. At postmortem examination, the reindeer was in poor body condition and:

- there were numerous fibrinous tags on the liver capsule and adult fluke were seen in the bile ducts (about 10 flukes seen) (see Figure 6)
- the 3rd right upper cheek tooth was missing. There was a gap between the 2nd and 3rd left lower cheek teeth and the 3rd cheek tooth was loose. The left mandible was swollen at this site (see Figure 7)
- the small and large intestinal content, including the rectal content, was liquid

Malignant Catarrhal fever (OvHV-2) and *Salmonella species* were not detected.

Table 5: Parasitology results

Test	Reindeer (Faeces)	Reindeer (GI tract)
Sample consistency(†)	Liquid	
Trichostrongyle-type eggs (per g)	50	
Coccidial oocysts (per g)	Less than 50	
Abo/C3 *Ostertagia spp.* twc		6,100
Abo/C3 Immature / L4 twc		200
SI - Comment twc		No worms seen

The dental abnormalities described (cheek teeth abnormalities and mandibular swelling), fascioliasis (adult liver fluke seen and lesions associated with fluke migration on capsule) and the Ostertagia worm burden (see parasitology results) may all have contributed to the poor body condition.

Ostertagia species may be inhibited at this time of year and this and the very dilute faeces sample may account for the low trichostrongyle-type egg count. It was suspected the diarrhoea was primarily due to the Ostertagia worm burden.

It was recommended that treatment for liver fluke and gastro-intestinal parasitism should be reviewed including checking which ones were treated with anthelmintic in November and treating untreated at-risk reindeer with anthelmintic.

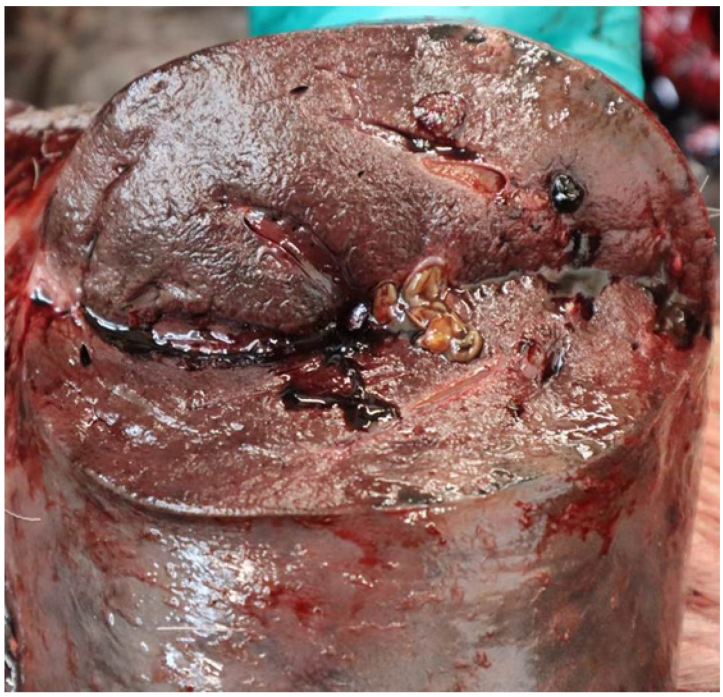

Figure 6: Liver showing fluke from bile duct and fibrinous tags on liver capsule of a reindeer

Figure 7: Lower cheek teeth showing dental abnormalities and swollen gum on the left side jaw of a reindeer

Horizon scanning

COVID-19 effects

As described, in the last 2 quarterly reports, the current COVID-19 pandemic has continued to have an impact on the number of camelid and farmed deer carcase submissions to the Great Britain scanning surveillance network during quarter 4 of 2020.

This may impact our ability to monitor endemic disease trends as well as detecting new and re-emerging diseases through the surveillance network. The other livestock species submission numbers have not been adversely affected to the same degree by the current pandemic crisis.

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.

Publications

Research article

French S, Sawran A, Betson M. Survey of anthelmintic use in South American camelids in the UK. Vet Rec. 2021;e774. https://doi.org/10.1002/vetr.774

References

Valentine BA, Martin JM. Prevalence of neoplasia in llamas and alpacas (Oregon State University, 2001-2006). J Vet Diagn Invest. 2007 March;19(2):202-4. doi:10.1177/104063870701900213

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