Animal & Plant Health Agency

SRUC

Great Britain miscellaneous and exotic farmed species quarterly report

Disease surveillance and emerging threats

Volume 36: Quarter 1 of 2023 (January to March)

Highlights

Contents

Editor: David Jorge, APHA (Animal and Plant Health Agency) Bury St Edmunds
Phone: + 44 (0)3000 600018
Email: david.jorge@apha.gov.uk

Introduction and overview

This quarterly report reviews disease trends and disease threats for the first Quarter of 2023 (January to March).

It contains analyses carried out on disease data gathered from the Animal and Plant Health Agency (APHA), Veterinary Services division of Scotland's Rural College (SRUC) and partner postmortem providers and intelligence gathered through the Miscellaneous and Exotic Farmed 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 on the APHA species disease surveillance reports: data analyses page on GOV.UK.

Issues and trends

Nothing to report this quarter.

Diagnostic Submission Data

The number of diagnostic submissions in Quarter 1 of 2023 (January to March) for alpacas, llamas and farmed deer (see Table 1). The APHA figures include submissions to partner post-mortem providers (PPP). Other miscellaneous and exotic species may also be received in small numbers.

Carcase and non-carcase submissions for the same Quarter (January to March) for period 2019 to 2023 are shown in Figure 1.

Table 1 - Diagnostic submissions in Quarter 1 (January to March) for alpacas, llamas, and farmed deer to APHA and Scottish Agricultural College (SAC).

January - March	Non-carcase submissions APHA	Non-carcase submissions SAC	Total non-carcase submissions	Carcase submissions APHA	Carcase submissions SAC	Total carcase submissions	Grand total
2019	14	20	34	25	9	34	68
2020	25	7	32	25	5	30	62
2021	13	15	28	23	10	33	61
2022	25	29	54	26	4	30	84
2023	10	40	50	18	3	21	71

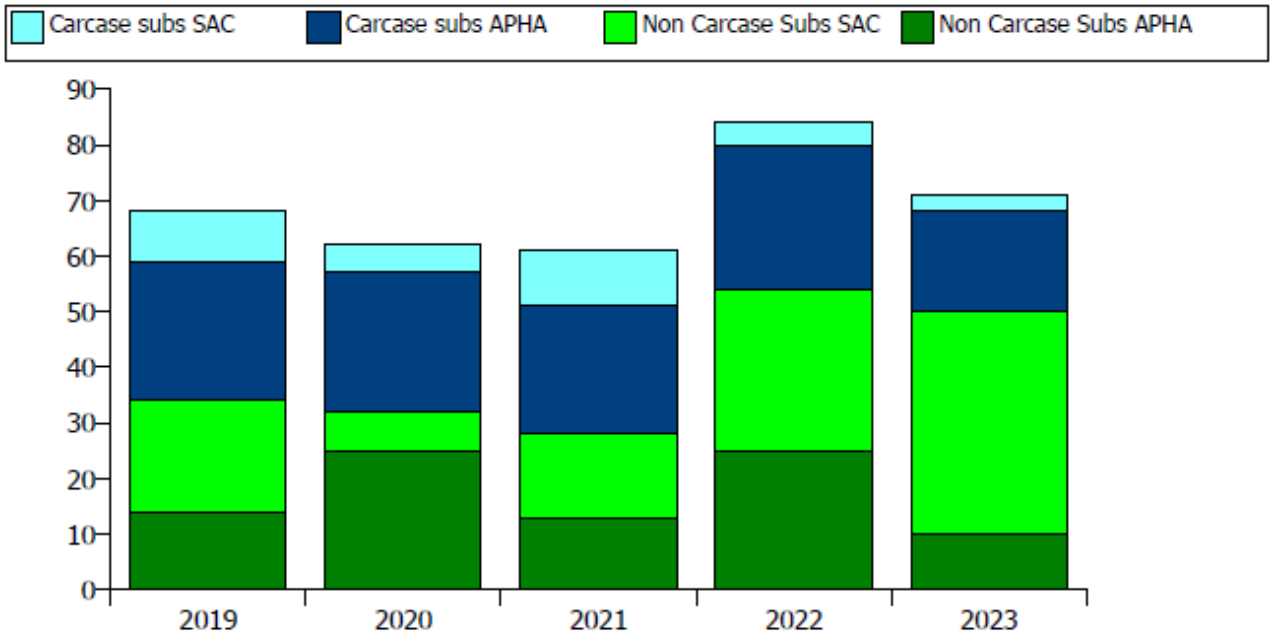

Figure 1 - Carcase and non-carcase submissions for Quarter 1 (January to March) Period 2019 to 2023

Total diagnostic submissions for Quarter 1 for all years (2019 to 2023) for each main species covered by this report and for each main geographical area (see Table 2).

Table 2 - Total diagnostic submissions for Quarter 1 for all years (2019 to 2023) in the different geographical areas.

All Years	Alpaca	Deer	Llama	Sum
Eastern England	60	12	2	**74**
Northern England	37	13	4	**54**
Scotland	58	37	6	**101**
Wales	16	6	2	**24**
Western England	43	12	4	**59**
Unknown	27	3	4	**34**
Summary	**241**	**83**	**22**	**346**

New and re-emerging diseases and threats

Nothing to report this Quarter.

Diagnoses from the Great Britain scanning surveillance network including unusual diagnoses

Camelids

Hypercuprosis and parasitic gastroenteritis in an adult alpaca

One 10-year-old female alpaca with one cria at foot died overnight and was submitted for postmortem examination with a history of malaise, wasting and anaemia for a period of one month. It had been with 20 other alpacas, and it was due to unpack (parturition in South American camelids) in July 2023 but aborted mid-November 2022. It had been grazing and was also fed haylage and alpaca specialist feed, and it was given a multivitamin drench and vitamin (A, D, E and B12) paste. Worm egg counting was done in May and reported as unremarkable, with the latest routine worming with ivermectin, triclabendazole and fenbendazole done in the previous month. Yearly vaccination of the herd against clostridial diseases was also carried out.

The submitted alpaca was in very poor condition, dehydrated, had pale palpebral conjunctivas, liquid large intestinal contents and loose faeces. Parasitic gastroenteritis was diagnosed, with significant numbers of adult worms (39000 abomasal Teladorsagia/Ostertagia spp.) and immature larvae (30500 abomasal C3 immature L4), with high egg counts in faeces (1400 trichostrongyle-type eggs per gram of faeces of which 47% were Haemonchus spp). Given the history reported this could have resulted from re-infestation from a highly contaminated environment, or worming failure from e.g. anthelmintic underdosage or resistance, and follow-up monitoring and investigation of dosing of the animals was recommended.

Microscopic examination of the liver identified acute coagulative necrosis of hepatocytes, and the extramedullary haematopoiesis observed suggested either a response to a severe regenerative demand or disturbance of the normal medullary haematopoiesis. The potential causes for anaemia were investigated, and a high copper concentration was identified in this alpaca (10200 µmol/kg DM (Dry Matter) with reference values between the range of 300-5000 µmol/kg DM) confirmed to be the most likely cause of hepatic necrosis and haemolysis. In fact, there was no gross evidence of blood loss (such as ulcerations or haemorrhages) although the presence of Haemonchus spp. likely contributed for the anaemia and malaise.

Gastric (C3) ulcer in an alpaca

A six-year-old alpaca became slow to come to feed, losing condition during a nine-day period, becoming lethargic and recumbent, and finally was culled by injection and sent for postmortem investigation. All the other alpacas on site were reportedly healthy. This

animal was treated with antibiotic and non-steroidal anti-inflammatory drugs (NSAID), as well as vitamins, with no apparent response. Blood biochemistry results for the practice suggested ketosis. An induction of labour was started before recumbency, but no labour had been observed.

The alpaca had a moderate amount of fat but had lost some muscle mass over the back, and there was a little serous atrophy of the fat consistent with fat mobilisation due to poor feeding and evidenced by a marked lack of fibre in the stomachs. Grossly the main finding was multifocal ulceration of the C3 mucosa. The underlying cause of this was not established, as is usually the case in such conditions, even relatively small ulcers seem to have a large impact on the demeanour and health of alpacas, creating discomfort and reluctance to feed, that leads to their deterioration.

Multifactorial disease in a cria

A severe case of *Clostridium sordellii* and *Yersinia pseudotuberculosis* enteritis was found to be the cause of death in a five-month-old cria. The animal had been losing weight gradually since weaning, approximately 3-4 weeks prior to submission. It was not eating hard feed well when in larger groups, although grass and hay intake were adequate. However, it seemed to be eating well when in a small group. Two days later, it was seen to sit down a lot, appeared to have a tender abdomen showing signs of pain and was hypersalivating. Suspected to have a stomach ulcer, it was treated with anti-inflammatories, antimicrobials, a spasmolytic and analgesic and vitamin B1, after which a temporary improvement was noted, followed by death on the evening of the same day. The adult animals were vaccinated against clostridial diseases and the crias had received two doses for protection against clostridial toxins at four and six weeks old.

Postmortem examination revealed dehydration, pink excess abdominal fluid with fibrin strands around the small intestine, thickened sections of the jejunal wall with reddened serosa and necrotic mucosa (Figure 2 and 3), grey, watery small intestinal content, excess pericardial fluid with a gelatinous fibrin clot and congested, oedematous lungs.

Figure 2 - Section of jejunum with reddened serosa.

Figure 3 - Incised section of the jejunum with thickened wall and necrotic mucosa.

On ancillary testing, the only findings of note were the isolation of *Yersinia pseudotuberculosis* and *Clostridium sordellii* from the small intestinal content, with bovine viral diarrhoea virus (BVDV) not detected by PCR (Polymerase Chain Reaction) and *Clostridium perfringens* toxins not detected by ELISA (enzyme linked immunosorbent assay).

Histological examination confirmed a severe, multifocal to coalescing, segmental, acute, ulcerative, necrosuppurative enteritis with vasculitis and severe, diffuse, acute, necrosuppurative, lymphadenitis with large intralesional bacterial colonies, in one of the mesenteric lymph nodes. The changes seen were striking and believed to be the result of a mixed bacterial infection due to both enteroinvasive and enterotoxic agents. Typical colonies of Yersinia spp. were seen within the examined sections, as well as large numbers of clostridial-looking rods dispersed throughout all the layers of intestine and lymph node. Some of these appeared to be forming clusters, while others were loose amongst structures and debris. To fully clarify the role C. sordellii played in this case, immunohistochemistry was performed with a strong immunopositivity identified within the centre of the lesions, which was supportive of a co-infection with *Yersinia pseudotuberculosis* leading to a severe ulcerative enteritis and death in the submitted alpaca. The detection of C. sordellii was an unexpected finding, as this agent is frequently related to abomasitis in calves and lambs. However, there is bibliography linking this agent to necrotising enteritis in other species (dogs, equines, and poultry). Y. pseudotuberculosis has been described in multiple species including ruminants and humans as being responsible for erosive to ulcerative enterocolitis. The species of Yersinia sp. isolated in our case is less frequent than Y. enterocolitica, though. It is still not entirely understood why this occurred in the first place as it is unusual for C. sordellii or Y. pseudotuberculosis to be primary pathogens in cases of enteritis. It is possible that, whatever caused the reported weight loss initially, may have acted as a primary insult in this case.

Farmed deer

Malignant catarrhal fever (MCF) was diagnosed in a yearling reindeer. The animal had been turned out to grass a few days earlier with three others and had been found dead with no premonitory clinical signs. The gross post-mortem findings were limited to a haemorrhagic colitis and generalised blood vessel engorgement throughout the carcase. A primary differential was malignant catarrhal fever and molecular analysis of splenic tissue found the animal to be positive for OvHV-2 DNA. Further information on the subject was provided by directing the practice to the useful guide on MCF produced by the Moredun Foundation.

Horizon scanning

APHA's new Endemic Disease Alert System

This is a new component of the communications from our scanning surveillance network and a new system that the APHA will be using to keep you up to date with significant disease alerts and information, projects, publication of reports and other items.

This is independent of the notifiable disease alert system.

To receive these notifications please email SIU@apha.gov.uk with your:

- email address
- mobile number if you wish to receive text alerts

We hope that you find this new messaging system useful, and we welcome any suggestions or feedback. Email Surveillance Intelligence Unit SIU@apha.gov.uk for more information.

Publications

1. Reindeer health and welfare – Vet Record surveillance focus article https://doi.org/10.1002/vetr.2509 prepared by Aiden Foster of the University of Bristol (which offers postmortem examination services as part of the APHA surveillance network) and Alan Wight, until recently the veterinary lead of the APHA Miscellaneous and Exotic Farmed Species Expert Group.

References

Nothing to refer this Quarter.

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.