



SRUC

The Scottish Government's
Veterinary Services Programme

2020/21

Supporting Animal Health and Welfare in Scotland



Scottish Government
Riaghaltas na h-Alba
gov.scot

Programme Overview

The Scottish Government funded the Veterinary Advisory Services Programme to provide livestock disease surveillance, animal health planning and farm animal welfare support across Scotland during 2020/21. Animal disease surveillance is a statutory requirement and is provided by SRUC Veterinary Services through the collection of data from diagnostic samples and carcasses submitted to SRUC's Disease Surveillance Centres (DSCs). This programme monitors the current health and disease status of Scottish farmed livestock and enables changes in animal disease status to be detected quickly and information disseminated effectively to a range of stakeholders using multiple media platforms from websites and social media to scientific reports and newsletters.

Veterinary practitioners and livestock farmers use this information to support the implementation of disease prevention measures across Scotland. Thus, a proactive approach to biosecurity, health and welfare in Scottish livestock is achieved; and all producers, irrespective of size of enterprise or geographical location continue to have access to the relevant advice and information. Improving animal health and welfare increases the efficiency and resilience of Scotland's agricultural sector, which is vital not only for financial success, but also in relation to the drive to reduce greenhouse gas emissions.

Covid 19 restrictions did impact on SRUC Veterinary Services, but as diagnosis of animal disease is an essential support for food production, we continued to deliver all diagnostic services. We implemented risk mitigation within our laboratories and postmortem rooms that completely prevented the contraction of Covid 19 infection in our workplace. Our partnerships with the University of Glasgow's School of Veterinary Medicine to provide postmortem services on their Garscube Campus and with the Moredun Research Institute, to provide specialist diagnostic virology and neurohistopathology input to the surveillance programme were largely unaffected. The restrictions did impinge on our programme of development for outreach and knowledge exchange, but we used several media platforms to continue to develop our contact with veterinary practitioners.

Furthermore, we took the opportunity to use the scientific expertise that exists within SRUC Veterinary Services and the effective collaboration with Moredun Research Institute to provide diagnostic support for Covid 19 diagnosis during this year, providing a much-needed increase in testing capacity, for the NHS in south east Scotland.





Farm Animal Disease Surveillance Output

We summarise the work that has been undertaken and some of the conditions we recognised in the past year in this publication.

SRUC Vets consider the importance of any diagnosis made or condition encountered for the entire country. This requires consideration of the following questions:

- Is this a new or unusual outbreak of disease?
- Is the disease notifiable?
- Does the disease outbreak require further investigation?
- Is there a risk to public health or the food chain?



Surveillance News
Calf Crop 2018 Study

Characteristic	2018	2017
Number of farms	172	172
Number of calves	100	100
Number of calves at birth	100	100
Number of calves at 12 weeks	100	100
Number of calves at 24 weeks	100	100
Number of calves at 36 weeks	100	100
Number of calves at 48 weeks	100	100
Number of calves at 60 weeks	100	100
Number of calves at 72 weeks	100	100
Number of calves at 84 weeks	100	100
Number of calves at 96 weeks	100	100
Number of calves at 108 weeks	100	100
Number of calves at 120 weeks	100	100
Number of calves at 132 weeks	100	100
Number of calves at 144 weeks	100	100
Number of calves at 156 weeks	100	100
Number of calves at 168 weeks	100	100
Number of calves at 180 weeks	100	100
Number of calves at 192 weeks	100	100
Number of calves at 204 weeks	100	100
Number of calves at 216 weeks	100	100
Number of calves at 228 weeks	100	100
Number of calves at 240 weeks	100	100
Number of calves at 252 weeks	100	100
Number of calves at 264 weeks	100	100
Number of calves at 276 weeks	100	100
Number of calves at 288 weeks	100	100
Number of calves at 300 weeks	100	100
Number of calves at 312 weeks	100	100
Number of calves at 324 weeks	100	100
Number of calves at 336 weeks	100	100
Number of calves at 348 weeks	100	100
Number of calves at 360 weeks	100	100
Number of calves at 372 weeks	100	100
Number of calves at 384 weeks	100	100
Number of calves at 396 weeks	100	100
Number of calves at 408 weeks	100	100
Number of calves at 420 weeks	100	100
Number of calves at 432 weeks	100	100
Number of calves at 444 weeks	100	100
Number of calves at 456 weeks	100	100
Number of calves at 468 weeks	100	100
Number of calves at 480 weeks	100	100
Number of calves at 492 weeks	100	100
Number of calves at 504 weeks	100	100
Number of calves at 516 weeks	100	100
Number of calves at 528 weeks	100	100
Number of calves at 540 weeks	100	100
Number of calves at 552 weeks	100	100
Number of calves at 564 weeks	100	100
Number of calves at 576 weeks	100	100
Number of calves at 588 weeks	100	100
Number of calves at 600 weeks	100	100

We also provide the information on disease and disease trends in Scotland for addition to that collected by APHA laboratories and approved contractors in England and Wales to provide the picture for Great Britain. This can be accessed through the disease surveillance dashboards at <http://apha.defra.gov.uk/vet-gateway/surveillance/scanning/disease-dashboards.htm>. Monthly reports on SRUC Veterinary Services surveillance activities are available on the SRUC website. https://www.sruc.ac.uk/downloads/120613/monthly_reports

Veterinary Outreach

Over the course of the past year, we have transformed from a surveillance model that principally focussed on the provision of postmortem diagnosis to one that uses more diverse sources of information, whilst still recognising the value of the diagnostic precision that is provided by postmortem examinations. Central to that transformation was the construction of a network of contacts with both farm animal veterinary practitioners and their livestock clients from our surveillance hubs. This was to be achieved through the existing means of contact, but was further developed and supported by increasing the number of on farm investigations and initiating and supporting one-to-many knowledge exchange events centred on the veterinary practices with a focus on animal health and productivity. While we have made progress with these objectives, Covid 19 restrictions have prevented us from increasing the number of on-farm investigations and from delivering one to many knowledge exchange events.



Prior to this year we provided training to veterinary practitioners on sample selection for case investigation. This has resulted in a large increase in the number of investigations where the veterinary practitioner collects samples at postmortem with the support of SRUC veterinary expertise and submits these to the diagnostic system.



Telephone Surveillance used to Detect Trends

In spring 2020 SRUC Veterinary Services received multiple telephone reports from veterinary practitioners in south west Scotland concerning dairy cows at grass eating abnormal substances. This behaviour, known as pica, appeared to affect multiple groups of cattle, and ranged from cows eating soil and stones, to those manically digging at the ground and even ripping up astroturf cow tracks.

Nine farms reported these clinical signs from different practices in different areas across Dumfries and Galloway. SRUC Veterinary Services were also aware of similar issues in herds in Wales and Northern Ireland through the UK surveillance network.

Most affected herds were spring calving, New Zealand style grazing herds. Grass availability had been reduced because of the dry conditions. Where available, fresh grass analysis indicated that the grass while high in dry matter and sugar was low in fibre.

We were unlikely to have identified this trend on testing the samples sent to our laboratory alone, as many veterinary practices will carry out their own biochemical testing on blood samples. However, with the blood samples that we did receive, together with results passed on to us from the veterinary practices, the suspicion that low phosphorus may have been the cause was raised. Other possible causes considered included low sodium, lack of structural fibre or indeed a lack of energy and protein due to lack of grass.

In some herds there appeared to be a response to supplementation with phosphorus. This was either given through the water or in the parlour concentrate. Other

herds appeared to see the behaviour stop without any treatment, perhaps coinciding with a rise in temperature and rainfall making phosphorus more available to grass. Affected herds generally reported the behaviour to have stopped by the end of June.

SRUC Veterinary Services were able to rapidly let veterinary practitioners know that this was occurring and appeared to be a national problem. As a follow up to this there is now a nationwide research project ongoing, run by AHDB and APHA, to identify risk factors for pica in grazing dairy cows and improve advice on control and prevention.



Coronavirus Infection in Cattle

While the Covid 19 pandemic has brought coronaviruses to the forefront of public awareness, vets and stockmen are no strangers to this family of viruses. These pathogens can cause disease in a wide range of species and can have a significant impact in livestock due to their highly infectious nature. The two forms of coronavirus infection in cattle mainly affect the intestinal tract.

Bovine coronavirus is a common cause of diarrhoea in the first three weeks of life. Affected calves become depressed, pass profuse milky diarrhoea and dehydration can be so severe that calves die. There is no specific anti-viral treatment, but many calves require oral or intravenous fluids to aid recovery. Disease is best prevented by ensuring good hygiene and calf husbandry, with particular attention to ensuring adequate and timely colostrum intake. For farms with confirmed problems, vaccinating dams against coronavirus during pregnancy allows protection to be passed on to their calves. This helps to minimise virus shedding and environmental contamination. Diagnoses in Scotland are seasonal (Figure 1), reflecting an increase in infections towards the end of each calving period in spring and autumn, as environmental contamination with virus accumulates.

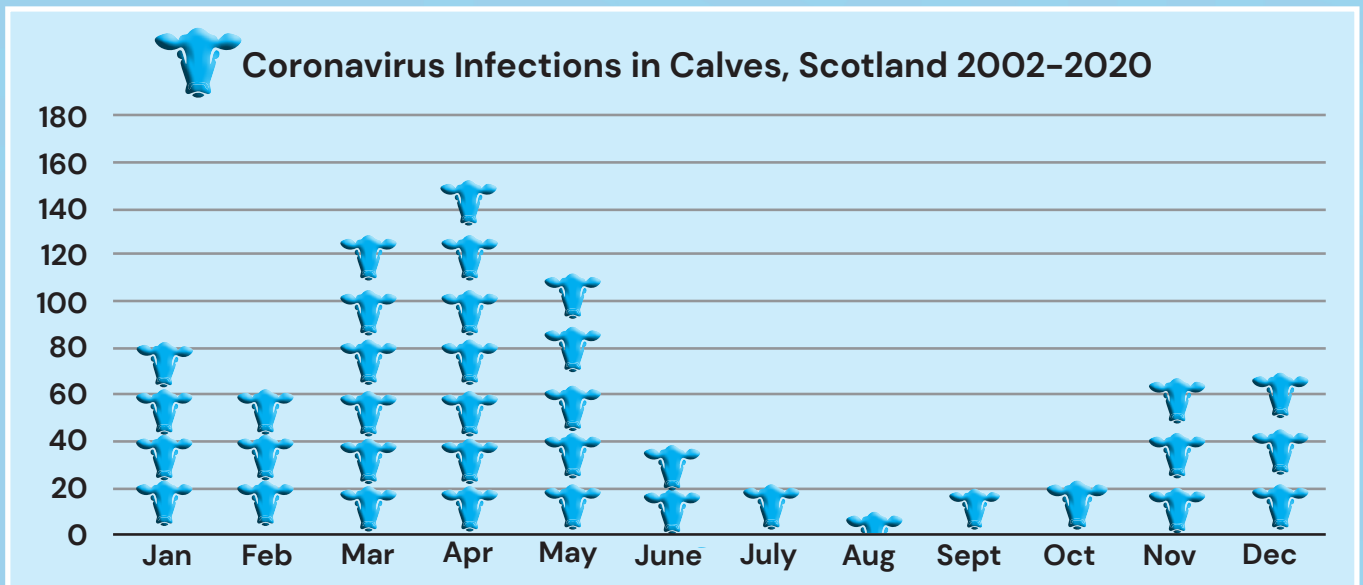


Figure 1: Diagnoses of coronavirus infection in calves by month from 2002 to 2020 based on carcase and faeces submissions received by SRUC VS from Scottish herds. Note the March to May peak associated with the large increase in the number of calves born at that time.

Adult cattle can also be affected, and herd outbreaks of diarrhoea occur, the condition is then termed "winter dysentery" as affected cattle have watery, dark and sometimes bloody diarrhoea. The virus is very infectious and will spread to the entire group rapidly. In some outbreaks the lungs can also be affected to a slight degree, resulting in increased breathing effort. While dramatic in appearance, the affected cattle usually continue to eat normally throughout the two-to-three-day course of illness, although a marked milk drop may occur. Occasionally supportive care such as rehydration is required, but in most cases a rapid and complete recovery follows.

The diagnosis is readily confirmed through testing the faeces and is particularly useful in young calves where several different causes of neonatal diarrhoea exist. Veterinary laboratories offer testing and pen-side kits are in use by some vets.

Good biosecurity is vital in controlling the diseases caused by bovine coronavirus. Thorough hygiene and rapid isolation of affected calves is essential to prevent spread to the rest of the crop. In adult cattle, outbreaks may occur when the virus is introduced to a susceptible herd with bought-in animals. While bovine coronavirus doesn't infect humans, movements of people between farms can also be responsible for spread, so ensuring disinfection of equipment, clothing, footwear and handwashing between holdings is important to protect stock from infection.



Congenital Dwarfism and Joint Laxity (CDJL)

Congenital Dwarfism and Joint Laxity (CDJL) is also termed congenital chondrodystrophy of unknown origin or 'long-bone disease'. It has a significant impact on animal welfare and causes financial loss at farm level every year in Scotland. Cases present as congenital disproportionate dwarfism, particularly affecting the long-bones, and usually accompanied by laxity of one or more joints of the limbs as seen in the image below.

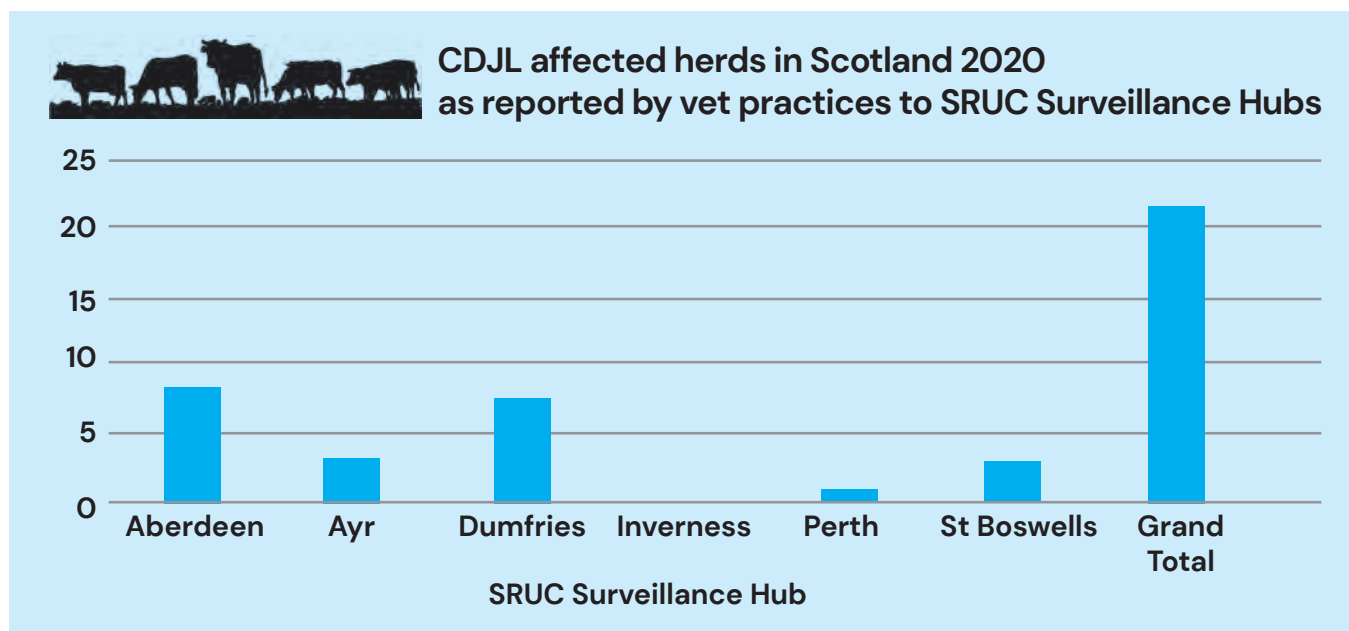
While the exact cause is unknown, the condition is associated with feeding good quality ensiled forage sometime in the first half of pregnancy. Standard preventative advice remains to ensure at least 25% of the diet of winter-fed suckler cows during winter housing / mid-gestation is from non-ensiled feedstuffs, along with mineral provision at NRC guidelines. Care needs to be taken to ensure the non-ensiled feed (often straw) is actually being eaten, particularly when there is no mixer wagon.

The condition is under-reported in our surveillance system because it is easily recognised and does not require post-mortem or laboratory diagnosis. Judging by the frequency of anecdotal reports the condition varies in incidence between different regions and between years.



SRUC Veterinary Services distributed a short survey to every vet practice that provides farm animal services in Scotland to make a first estimate of national occurrence of the disease.

- Response rate was excellent, with 75% of the practices contacted able to provide information to their local Surveillance Hub.
- In total, 22 herds were identified as having been affected in Spring 2020 (only three cases had been reported via diagnostic submissions to the surveillance system).
- This is 0.4% of the number of beef herds that responding practices estimated to be under their care.
- There was a significant effect of region on apparent occurrence rate as shown in the graph below
- Using crude assumptions around possible reporting bias on farm, to the vet-practice and then into the survey, we estimate that the true occurrence is likely to have been between 30 and 61 herds.



SRUC Veterinary Services would like to thank all the veterinary practices across Scotland that were able to participate in this important work. The initial results provide a useful base line for industry for the first time. We hope to be able to build on this survey to gain a better understanding of seasonal variation, and to continue to work together with industry toward a better understanding of this important condition.

Salmonella Mbandaka in Scottish Cattle Herds – An Emerging Problem

Salmonella Mbandaka was historically an uncommon isolate in Scottish cattle herds, but it has now overtaken *Salmonella* Typhimurium to become the second most common *Salmonella* serotype, after *Salmonella* Dublin. All three of these are serotypes (subtypes) of *Salmonella enterica*.

The figure below shows the number of isolates of *Salmonella* Mbandaka from clinical samples between 2010 and 2020 and demonstrates a clear increase in the number of isolations.

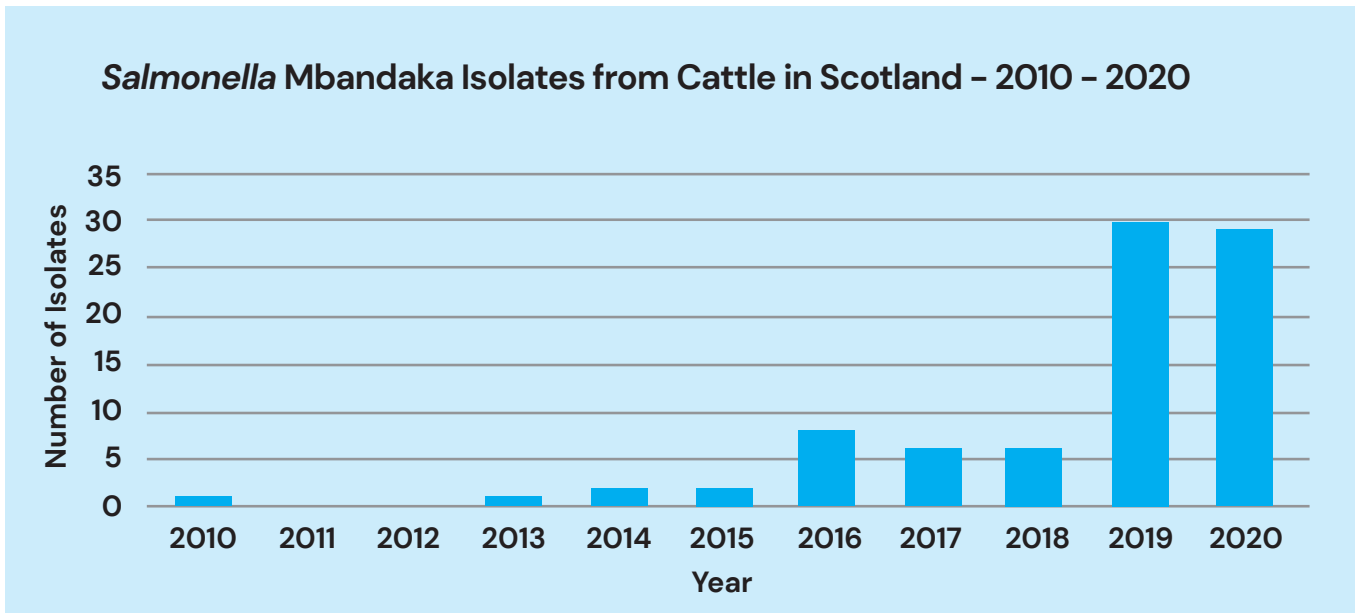


Figure: *Salmonella* Mbandaka isolates from Scottish cattle between 2010 and 2020

The 85 isolates were from 37 farms, with 16 farms having repeated clinical isolates. The most common clinical presentations are shown in the table, with diarrhoea being the most consistent clinical finding.

The most commonly affected age group was adult animals, with 58% of the isolates from this age of animal. 31% of isolations were from calves of less than three weeks of age.

Salmonella Mbandaka can be isolated from the faeces of animals that appear normal but is also found in animals that are showing signs of disease. It is often associated with predisposing factors, whether that be another infectious agent or a nutritional or management issue. This is particularly the case where deaths occur. Of the 85 clinical cases, 25 were known to have died and 68% of these had one or more predisposing factors such as coccidiosis, Johne’s disease, pneumonia, endocarditis or nutritional issues such as acidosis. Of the animals that died without obvious predisposing factors, 75% were less than three weeks of age, and thus their immune system was not fully developed.

Whole genome sequencing of *Salmonella* Mbandaka has been carried out at the Scottish *Salmonella* Shigella and *Clostridium difficile* Reference Laboratory and collaborative work linking the epidemiological data acquired from disease surveillance and the sequencing data is ongoing. As with most types of *Salmonella enterica*, *Salmonella* Mbandaka can cause disease in humans, but cases from this type are rare in Scotland and have been linked to international travel rather than animals or animal products.

Clinical sign	Percentage of animals exhibiting clinical sign
Diarrhoea	73
Found dead	13
Milk drop	11
Pyrexia	6
Increased respiratory rate	5
Ill-thrift	5
Hypothermia	4





Antimicrobial Resistance in Healthy Livestock

The food chain from farm to fork is recognised as an important contributor to the global threat of antimicrobial resistance. Monitoring of antimicrobial resistance in the bacteria found in the intestinal tract of healthy farm animals at slaughter provides a means to indicate the risk posed generally to humans and animals. An ongoing project with SRUC and Food Standards Scotland has monitored antimicrobial resistance in *Escherichia coli* from farm animals at the point of entry to the food chain. For the past four years, one *E. coli* isolate per animal sampled has been tested for antimicrobial sensitivity against the same 12 antibiotics that include compounds deemed to be the critically important antibiotics (CIA) in relation to human health https://www.ema.europa.eu/en/documents/report/categorisation-antibiotics-european-union-answer-request-european-commission-updating-scientific_en.pdf

During 2020, the proportion of *E. coli* isolates found to be resistant or non-sensitive to the antibiotics tested remained generally low for cattle and sheep, with percentages in single figures or absent altogether. The only exception was tetracycline in cattle where 12% of isolates were non-sensitive.

In contrast, the proportion of *E. coli* isolates from pigs and poultry that are non-sensitive to CIAs have been consistently higher. The proportion of non-sensitive *E. coli* isolates from pigs have largely remained static over the study period, and in 2020, there was a reduction for co-amoxyclav with latest results dropping to 2.9% (range for previous years 9.2 – 13.2%). Pigs continued to provide the highest levels of non-sensitivity to chloramphenicol, most likely influenced by the use of the phenicol drug, florphenicol.



In 2020, poultry had its third successive drop in non-sensitivity to gentamicin (5.5% from a high of 19% in 2017). A four-year high to 16% non-sensitive to ciprofloxacin (range for previous years 0 – 5.7%) was predominantly due to the addition of a single producer for the first time. Amongst other hosts, ciprofloxacin non-sensitivity was recorded in one isolate from a sheep and another from a bovine.

Amongst other CIAs, resistance to cabapenems was absent once again and resistance to 3rd generation cephalosporins remained very low and included just the one extended spectrum beta-lactamase (ESBL) producer.

For 2021 and subsequent years, sampling will be extended to include every month of the year, increasing the number of samples tested and data obtained.

This project exemplifies 'One Health' with SRUC Veterinary Services working alongside Food Standards Scotland and professionals at Health Protection Scotland to provide robust data on the occurrence of antibiotic resistance to the critically important antibiotics in healthy animals at slaughter. The *E. coli* isolates have been cryo-preserved and will be used for other studies. More detailed results have been published in the 2020 Scottish One Health and Antimicrobial Resistance (SONAAR) report <https://www.hps.scot.nhs.uk/web-resources-container/scottish-one-health-antimicrobial-use-and-antimicrobial-resistance-in-2020/>

1HEALTH

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Wildlife Crime

A regular annual activity is the contribution to the Wildlife Crime in Scotland report for the Scottish Government. SRUC undertakes postmortem and clinical pathology investigations for Police Scotland and other bodies that are involved in investigating potential poisoning, both intentional and accidental, and welfare cases in which a protected animal is harmed intentionally. Data of all investigations and outcomes is collated and submitted to the Scottish Government each year.



Support for Scottish Smallholders

Smallholder support in 2020 was tailored to the unique circumstances, with substantial innovation from both SRUC and the smallholder community to make sure that welfare and education activities were maintained during the Covid 19 pandemic. One of the most notable challenges of the year was the transfer of the annual Scottish Smallholder Festival (organised by Smallholding Scotland, a registered charity) to an online-only event. Another was the receipt of information from several sources such as local and national smallholder associations, property consultancies, and special interest magazines that there was a sharp increase in the demand for Scottish houses with holdings or land attached, and in particular, an increase in enquiries for information from novice small or backyard poultry keepers.





SRUC met multiple smallholder needs throughout the year. SRUC hosted webinars and supported the educational portion of the online Scottish Smallholder Festival, and integrated events on the prevention of welfare problems for novice smallholders. Opened by Fergus Ewing, the Scottish Government Cabinet Secretary for Rural Economy and Tourism, the Festival proved a great success and an opportunity for the SRUC team to demonstrate the positive outcomes of our collaboration and cooperation with national agricultural charities and organisations. The educational portion alone obtained 537 views on the day and 369 views in the week following the event – 906 views of a talk within a week – before hosting moved from SRUC to the Scottish Smallholder Festival website, where views continued. Five of the sixteen talks were by SRUC speakers; of note was a talk covering avian influenza and other welfare concerns in backyard poultry since the detailing of hygiene and housing requirements during an AI outbreak came in very handy a few weeks later when the severe 2020–2021 avian influenza outbreak began. Other SRUC speakers covered weather and infrastructure related welfare issues, polytunnel usage, rumen function and dietary requirements for newcomers to keeping ruminants, and a smallholder animal welfare research review, with tips on worming, footcare and ectoparasite control.

The spike in enquiries for health and welfare information from

purchasers of new backyard/small poultry flocks began during the first lockdown. An online talk was held in conjunction with the Scottish Smallholder Association in May and attracted 67 keepers on the night and 48 further views after the event. It has been speculated in the smallholding media that lockdown and panic-buying increased consumer interest both in local supplies of fresh food and in producing fresh eggs, vegetables, and other food at home. Two articles on poultry keeping were requested by Country Smallholding magazine in June, one on recognising ill health and providing good welfare, and the other on good nutrition and biosecurity. The new welfare guidance from Scottish Government for laying hens was also publicised throughout the year.

Support to APHA for a welfare visit to a smallholder pig keeper was provided in the summer, with postmortem examinations, health advice, and written guidance on nutrition. It is always worth keeping in mind that, although small in scale, smallholder producers frequently contribute produce to the local food economy e.g. supply of meat via a local butcher and may not have ready access to the same health education often associated with, or provided by, membership of larger agricultural industry bodies. The rise of laudable “zero waste” goals in the sustainability sector may result in well-intentioned but illegal use of kitchen waste as feed for poultry and farm animals by new keepers, and uncontrolled reproduction of livestock can quickly outstrip resources on small premises. Accessible and approachable educational support is necessary to ensure good biosecurity and compliance with the law.



Article by Julianne Robertson



Scottish Animal Health Planning System

SRUC Veterinary Services recognise that livestock health planning is an effective tool to improve health, welfare and productivity and that the involvement of the farm vet and other specialist consultants in health planning can maximise the farmer's enterprise productivity, while safeguarding animal health and welfare.

In order to facilitate proactive health planning SRUC Veterinary Services, supported by the Scottish Government, has produced the Scottish Animal Health Planning System (SAHPS) which is an online platform that allows farmers, vets and anyone involved in health planning to communicate in real time. The farmer, and anyone with access to SAHPS (e.g. vet or consultant), can record production and treatments data, disease incidents and information on biosecurity measures. The vet can then analyse the information, identify areas where changes need to be implemented, help farmers set priorities, and improve efficiency and animal health.



As the SRUC Health Planning Team recognises that time is precious for today's farmers and that taking notes while out in the field or in the shed and then copying them into the computer is time-consuming, it has recently launched the data-captured herd health planning mobile phone app (app). The new app, which allows farmers to collect and record data as events occur and share this immediately with their vet/consultant through SAHPS, will facilitate data recording, increase monitoring on farms and improve the farmer's, vet's and consultant's knowledge of the farm's system. The app is also connected to ScotMoves+ and the British Cattle Movement Service's tracing system (BCMS). This means that cattle records such as births, deaths and movements can be updated instantly. No internet is required to record events, with all data stored locally on the app and sent to ScotMoves+, BCMS and SAHPS as soon as Wi-Fi and/or mobile data become available. The app which is free for Scottish farmers registered to SAHPS includes an e-medicine book which complies with farm assurances and other statutory requirements.

The Scottish Government-funded app, which is now downloadable for Android and Apple devices, allows farmers to:

- Provide early communication of herd health to their vet
- Download all cattle currently on the holding through ScotMoves+ and BCMS
- Record bulls in/out dates
- Record movements, births, deaths, and upload to ScotMoves+ and BCMS
- Record disease incidents and production data
- Record animal treatments, creating the e-medicine book
- Record and save data off-line
- Enter information once and use it multiple times



For more information or to sign up to the app, visit:
www.sahps.co.uk
or email:
enquiries@sahps.co.uk

Continual Professional Development (CPD) for Vets



SRUC Veterinary Services recognises the importance of Continuing Professional Development (CPD) for vets and delivers CPD courses and Bitesize events as part of the Biosecurity, Animal Health and Welfare Advisory Activity. The CPD events provide practising vets with the latest information on livestock sector and with guidance on disease prevention/control and applications of biosecurity measures on livestock farms, allowing them to be kept up-to-date and develop expertise in key subjects. In order to increase outreach and knowledge transfer to vets during the Covid 19 pandemic the 2020/21 CPD events were delivered online with over 200 delegates attending.

A range of topics was covered as outlined below.

CPD Courses

- Sheep Health Planning
- Respiratory Disease in Cattle
- Infectious Diseases of Cattle
- Online BVD module

Bitesize CPD Talks

- Agricultural policy during Covid-19 and Brexit: potential impacts on beef and sheep sectors
- Fodder Beet in livestock systems
- Dairy Beef sector in Scotland
- Sheep Nutrition
- Cryptosporidium
- Making beef enterprises sustainable



"Brilliant notes given!"

"Would recommend the course!"

"I really enjoyed the course and felt it was well put together and delivered."

"Great courses, well-pitched, thank you."

"Useful topics from enthusiastic speakers!"

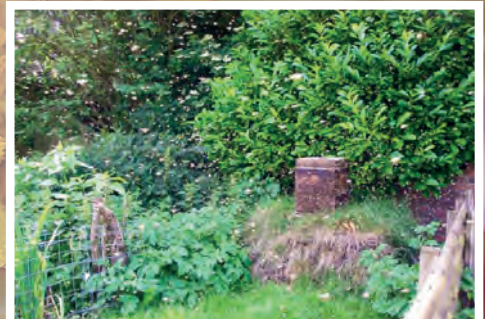
"Would recommend to others."

Feedback from delegates for these courses and talks has been very positive and they continue to be well-respected events.

Bee Health

Honey bees have an essential role in the environment and in preserving biodiversity by pollinating both wild flowers and many agricultural crops. Beekeeping therefore plays an indispensable role in the survival of honey bee population in Scotland where there are very few feral or wild colonies remaining due to parasite mite *Varroa destructor*. Beekeepers need to remain aware of the threat of pests and diseases and act to mitigate these risks. SRUC expertise supports the promotion of good standards of beekeeping and husbandry that in turn minimise pest and disease risks and contribute to sustaining healthy honey bee populations in Scotland.

Throughout the pandemic online support was provided to beekeepers wishing to report any concerns. Guidance was distributed to beekeepers through the usual channels in Scotland at the beginning of the pandemic and enquiries have been dealt with by phone, e-mail and in writing. Advice provided related to a wide range of beekeeping husbandry matters.



Disease Surveillance in Wild Birds

SRUC Veterinary Services carry out a significant number of post mortem examinations of wild birds each year providing both disease surveillance information and supporting investigations into crime. This includes pesticide poisoning cases where deliberate poisoning of raptors is suspected.

With domestic poultry at continuing risk of infection with avian influenza (AI) from wild birds, post mortem examinations and sampling of target species forms part of the surveillance of the wild bird population. The importance of this work and how it fits into the wider surveillance network for AI was highlighted over the winter of 2020–21. In the autumn 2020 a heightened risk of disease arriving in Scotland was identified through international disease surveillance networks with infection detected in wild bird populations in Northern Europe. The combination of the level of infection in migratory wild birds together with weather patterns that pushed migratory flyways across Britain meant levels of infection in wild bird populations were high with subsequent incursions into domestic poultry. Sampling by SRUC VS detected the high pathogenic type of avian influenza virus in a greylag goose (*Anser anser*), whooper swans (*Cygnus cygnus*) mute swans (*Cygnus olor*), and knots (*Calidris canutus*). The birds were found in coastal areas of eastern Scotland from the Dornoch Firth to Fife. Detection of infection in carrion feeders in areas where domestic poultry or gamebirds had been infected also pointed to a pattern of further spread within wild bird populations with infection detected in April 2021 in red Kites (*Milvus milvus*) and buzzards (*Buteo buteo*). These birds were presumed to have become infected after consumption of other species of wild birds that were carrying the virus.



Because of the disease incursion the number of wild birds submitted increased significantly over previous years.



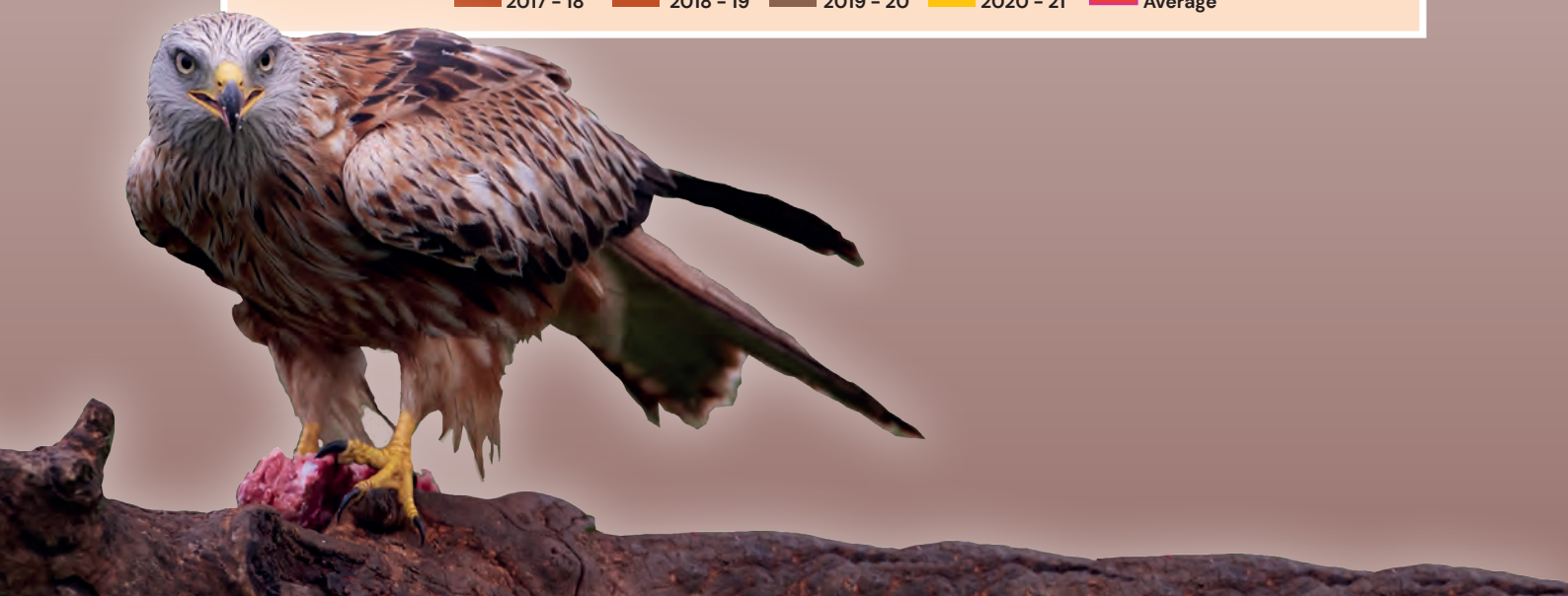
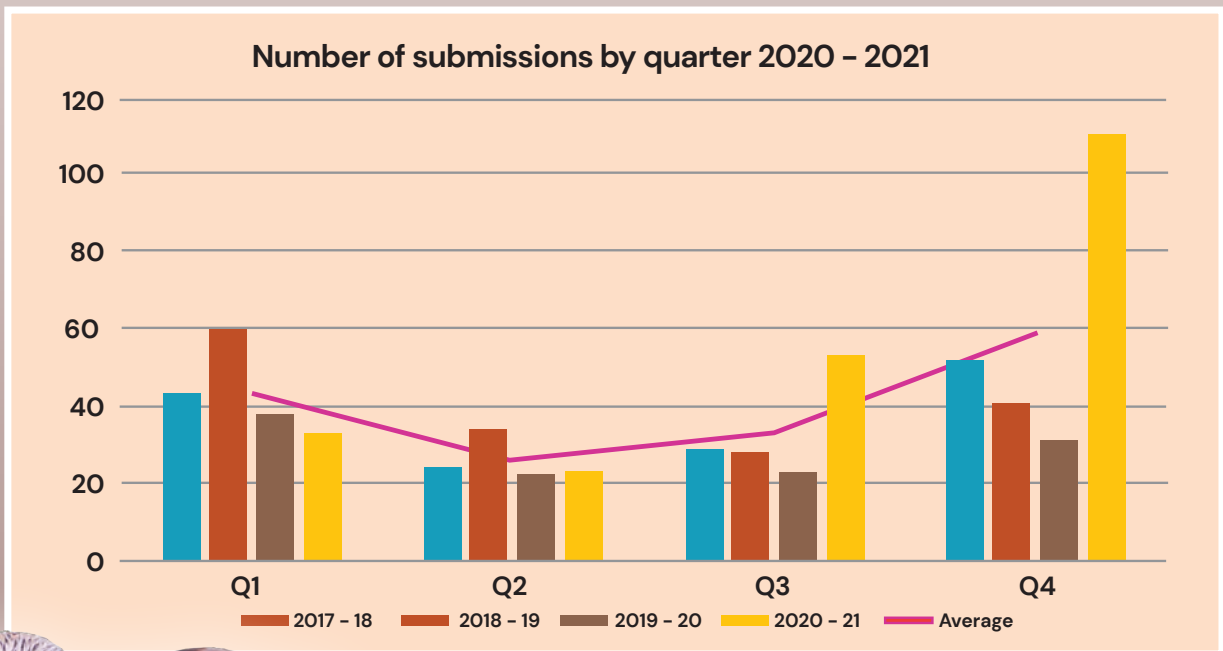
Post mortem examinations and sampling continued in “mortality events” where more than five birds of the same species are found in the same location at the same time. As well as potential AI incursion, these samples are tested for West Nile Virus (WNV). WNV has not been seen in the UK but surveillance is important as disease occurs in humans and horses as well as birds. Wild birds act as a reservoir of infection and the mosquito which transmits the virus to other animals has an increasing range which now includes parts of southern England.


Examination of wild birds also allows potential emerging diseases or changes in disease patterns to be identified and SRUC Veterinary Service contributes to worldwide wild life disease surveillance through the OIE – World Organisation for Animal Health.

Wild Bird Crime

Postmortem examinations are an essential element of the investigation of suspected crime including poisoning involving wild birds and a significant number wild birds examined are submitted because crime is suspected. SRUC Consulting vets can identify other causes of death or evidence consistent with poisoning. If poisoning is suspected tissue samples are taken for analysis. Where deliberate poisoning is suspected evidence from these examinations and analyses are used by Police Scotland to support their investigations and potential prosecutions. Tissues taken from birds dying from other causes are also used to check background levels of pesticides in the population and to monitor unintended effects of legal pesticide use.

Submissions for investigation of suspected crime continued at levels seen in previous years.





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