



**Department of Agriculture,
Food and the Marine
Laboratories Quarterly Surveillance Report
Quarter 4 of 2020**



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Bia agus Mara
Department of Agriculture,
Food and the Marine

Introduction

The veterinary laboratories operated by the Department of Agriculture, Food and Marine (DAFM) provide data on the patterns and frequency of occurrence of non-regulated diseases in farmed animal populations in Ireland. This disease surveillance role is fulfilled through routine diagnostic, post-mortem and targeted surveillance activities. Data from these activities are published collectively on a monthly, quarterly and annual basis. Recent quarterly reports and other surveillance reports can be accessed on DAFM's animal health surveillance website here: <http://www.animalhealthsurveillance.agriculture.gov.ie/labreports/> .

The surveillance role of the laboratories complements the broader remit of DAFM in surveillance and control of diseases of animals. In addition to annual reports, periodical reports are published to ensure the timely feedback of accurate data to the relevant industry stakeholders to inform husbandry practices and disease control measures.

The quarterly surveillance reports are designed to provide a brief overview of disease trends in a given quarter. Further, and more detailed, commentary on individual cases or individual outbreaks can be accessed through monthly reports published in the Veterinary Ireland Journal and also available at: [Regional Veterinary Laboratory Reports](#). Because of differences in the availability of test results and in the way cases are counted in the short term compared to the long term, there are often discrepancies between the figures reported in the quarterly reports compared to the annual report. However, quarterly report figures are directly comparable to the figures published for the same quarter in previous years. Similarly, the annual report figures are counted in the same way every year, and so the figures for each year are directly comparable. This is important when assessing trends in disease occurrence over time.

This Quarter

The data presented in this report refer to the fourth quarter of 2020 (October to December). Met Éireann data indicate that rainfall levels were high for October, but the weather in November and December was typical for those months. There was an increase in the number of carcasses submitted compared to recent years. On closer examination, this was mainly due to an increase in avian submissions. This may have been due to the presence of avian influenza in wild birds and in some poultry flocks (with testing to rule out the disease in other flocks) during the period.

In cattle, there was a substantial increase in the number of foetuses submitted during this period compared to recent years. The DAFM RVLs have been running a bovine abortion study and communications were sent out to private veterinarians requesting the submission of foetuses. This may have increased submissions. Despite a decreasing trend over the last decade, the proportion of foetuses affected with salmonella was somewhat higher than it had been for the corresponding timeframe in recent years. Another finding of note in the bovine data was the relatively low proportion of cattle diagnosed with parasitic gastroenteritis through the RVLs during this period.

In sheep, respiratory diseases and pneumonia accounted for a higher than usual proportion of diagnoses among ovine submissions for this quarter. Parasitic gastroenteritis and acute liver fluke (fasciolosis) were diagnosed in a lower proportion of cases than would typically be seen at this time of year. It is possible that the extremely dry weather seen in the late spring and early summer have had an effect in reducing the burden of parasites on pasture into the autumn and winter months.

<https://www.gov.ie/en/service/7f9f7-laboratory-services/#regional-veterinary-laboratories>

The weather in Quarter 4 of 2020

Rainfall

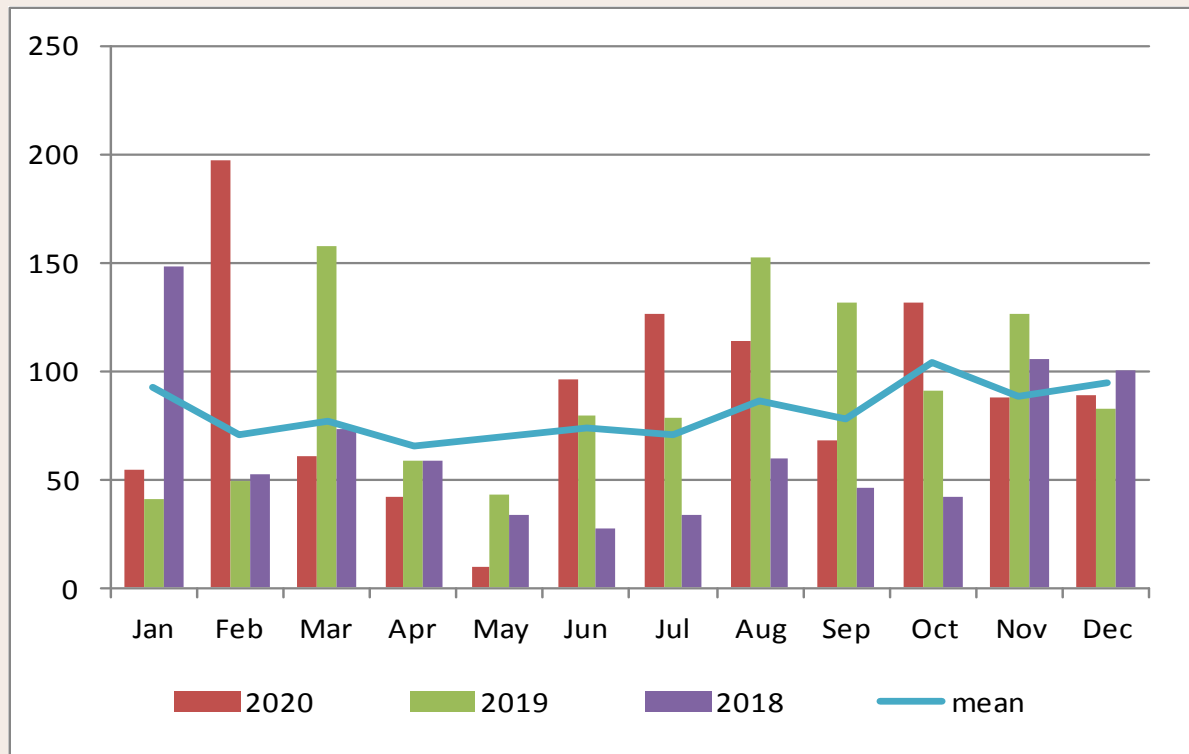


Figure 1: The average monthly rainfall (in millimetres) recorded for Quarter 4 of 2020 compared to the three previous years and the 30-year mean monthly rainfall (trend line). (Source: Met Eireann, www.met.ie).

Temperature

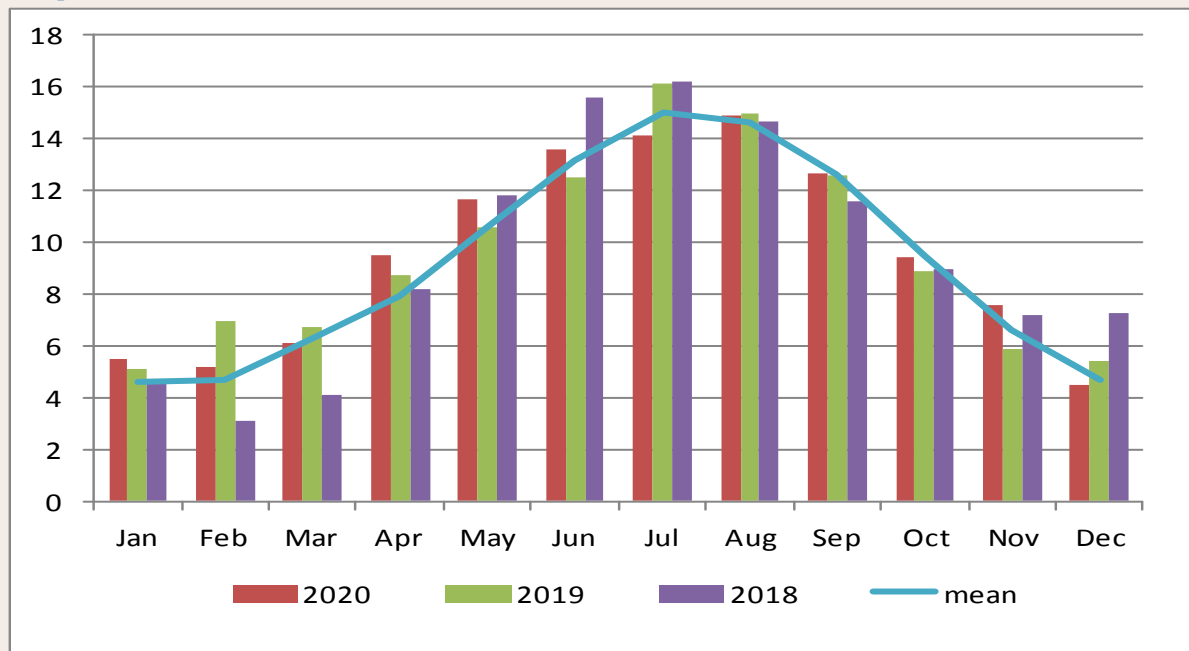


Figure 2: The mean monthly temperature (in degrees Celsius) for Quarter 4 of 2020 compared to the previous three years and the 30-year mean monthly temperature (trend line). (Source: Met Eireann www.met.ie).

Soil temperature

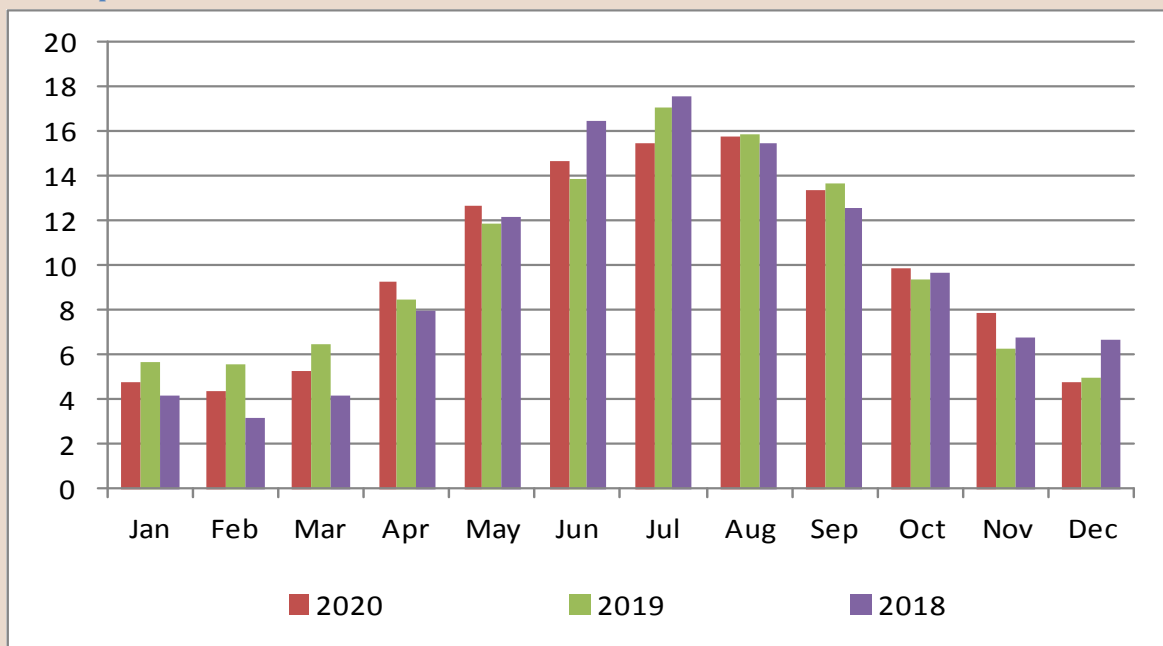


Figure 3: The mean monthly soil temperature (in degrees Celsius) for Quarter 4 of 2020 compared to the previous three years. (Source: Met Eireann www.met.ie).

Submission numbers to the RVLs in Quarter 4 of 2020

SPECIES	Carcass	Diagnostic	Foetus	Grand Total
Avian	243	136		379
Bovine	475	5089	848	6412
Canine	1	19		20
Cervine	32	2		34
Equine	4	50		54
Ovine	178	298	20	496
Porcine	65	36	24	125
Feline	3	5		8
Badger	123	59		182
Caprine	12	46	3	61
Exotic	47	2		49
Vulpine	458			458
Lagomorph	10			10
Murine	1			1
Grand Total	1652	5742	895	8289

Table 1: The submission numbers of carcasses, diagnostic samples and foetuses to the RVLs during Quarter 4 of 2020. Note that figures refer to sample numbers – one carcass or foetus counts as one sample under the carcass or foetus headings, one blood sample or faecal sample counts as one sample under the diagnostic heading.

Bovine disease surveillance

The causes of bovine mortality (all ages)

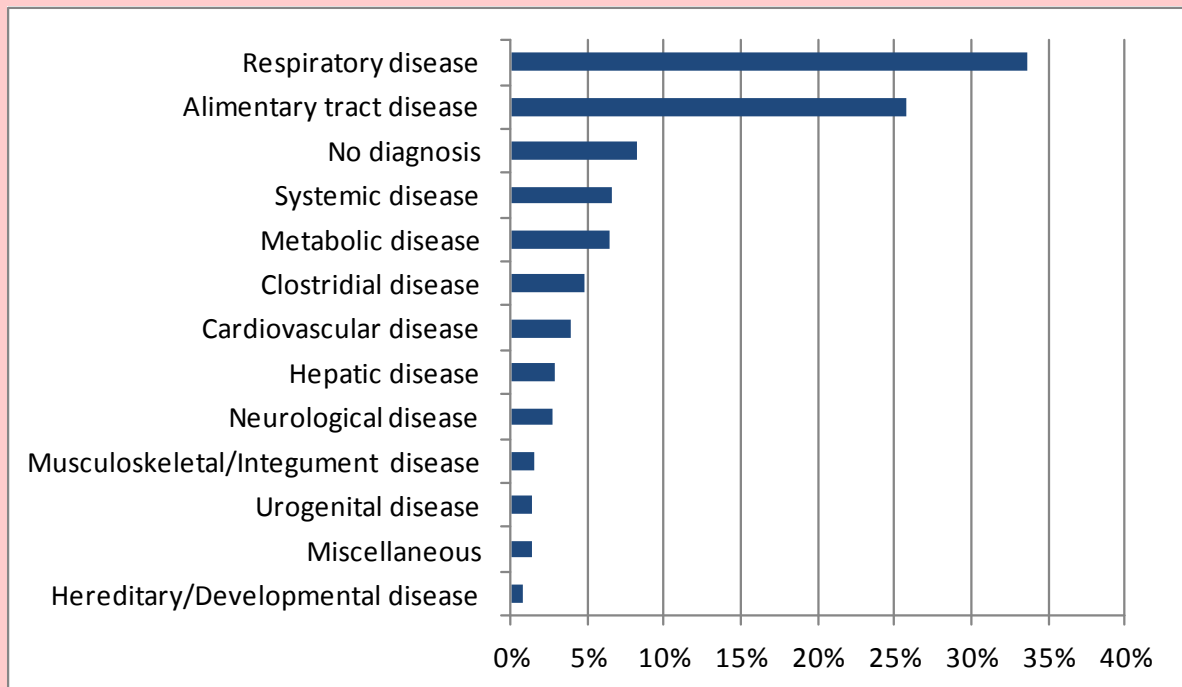


Figure 4: The causes of bovine mortality recorded on post-mortem examination in cattle of all ages by the RVLs, categorised by system or cause, during Quarter 4 of 2020 (n=389).

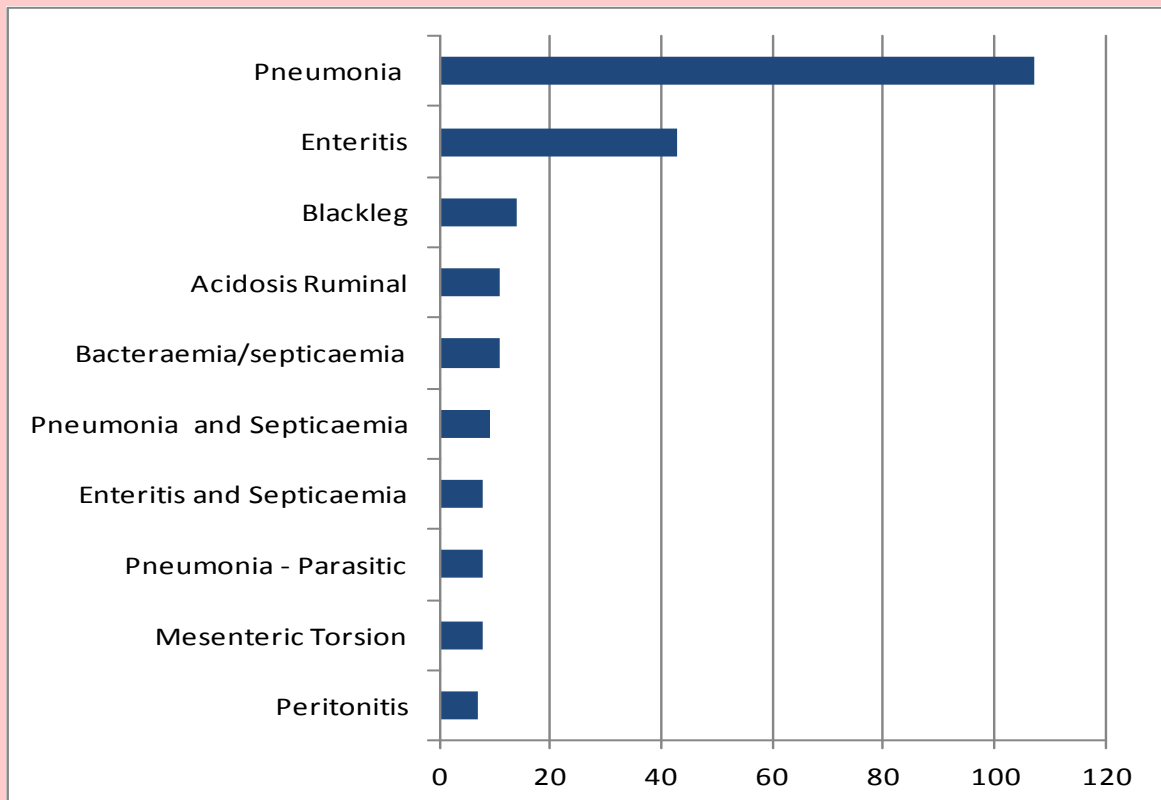


Figure 5: The ten most common individual diagnosed causes of death in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=389).

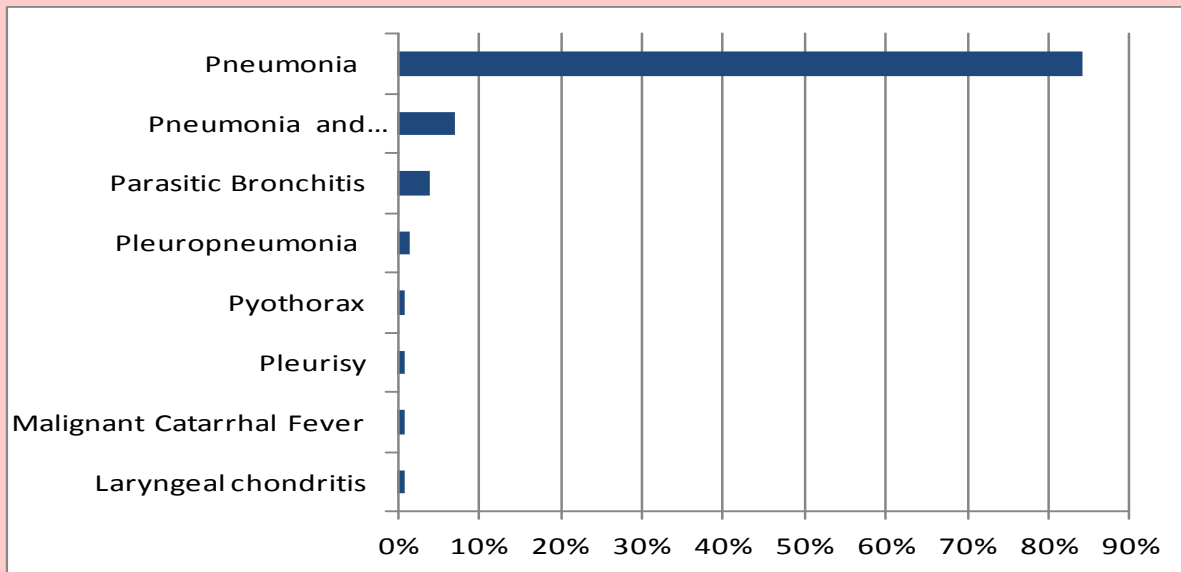


Figure 6: The relative frequency of the most common individual bovine respiratory disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=127).

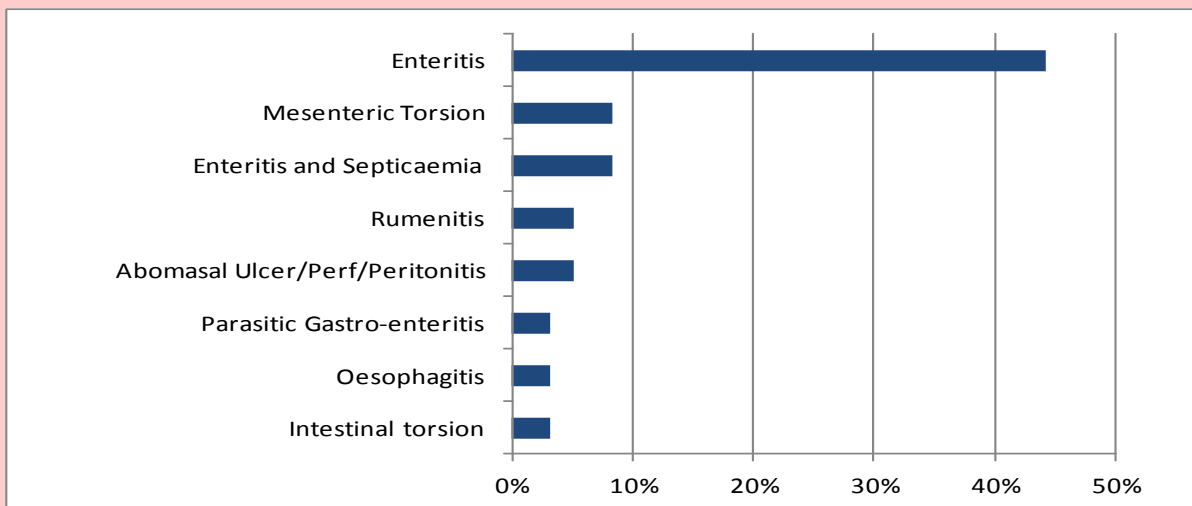


Figure 7: The relative frequency of the most common individual bovine alimentary tract disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=97).

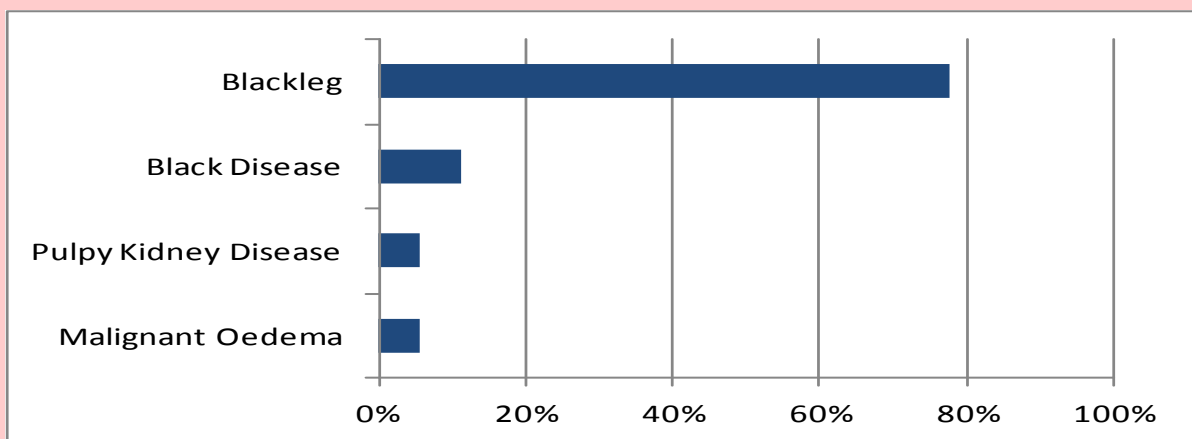


Figure 8: The relative frequency of bovine clostridial disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=18).

The causes of bovine mortality (age-specific)

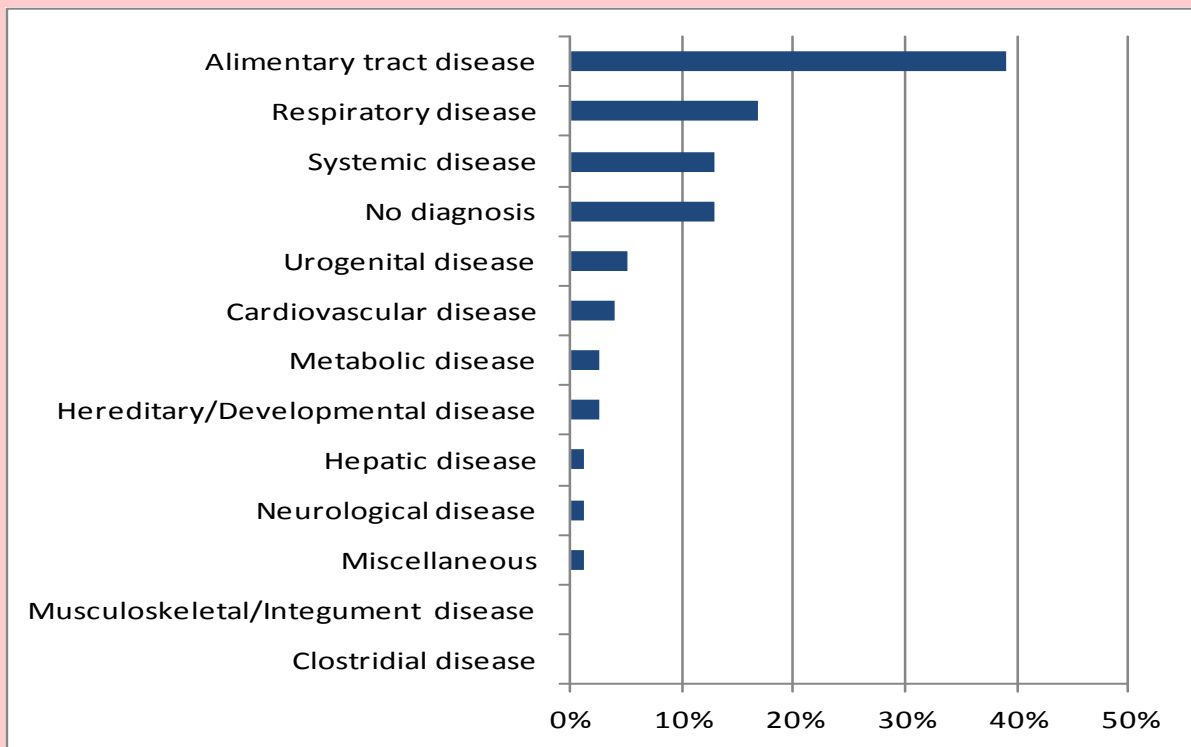


Figure 9: The causes of bovine mortality in neonatal calves (calves aged less than one month) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 4 of 2020 (n=77).

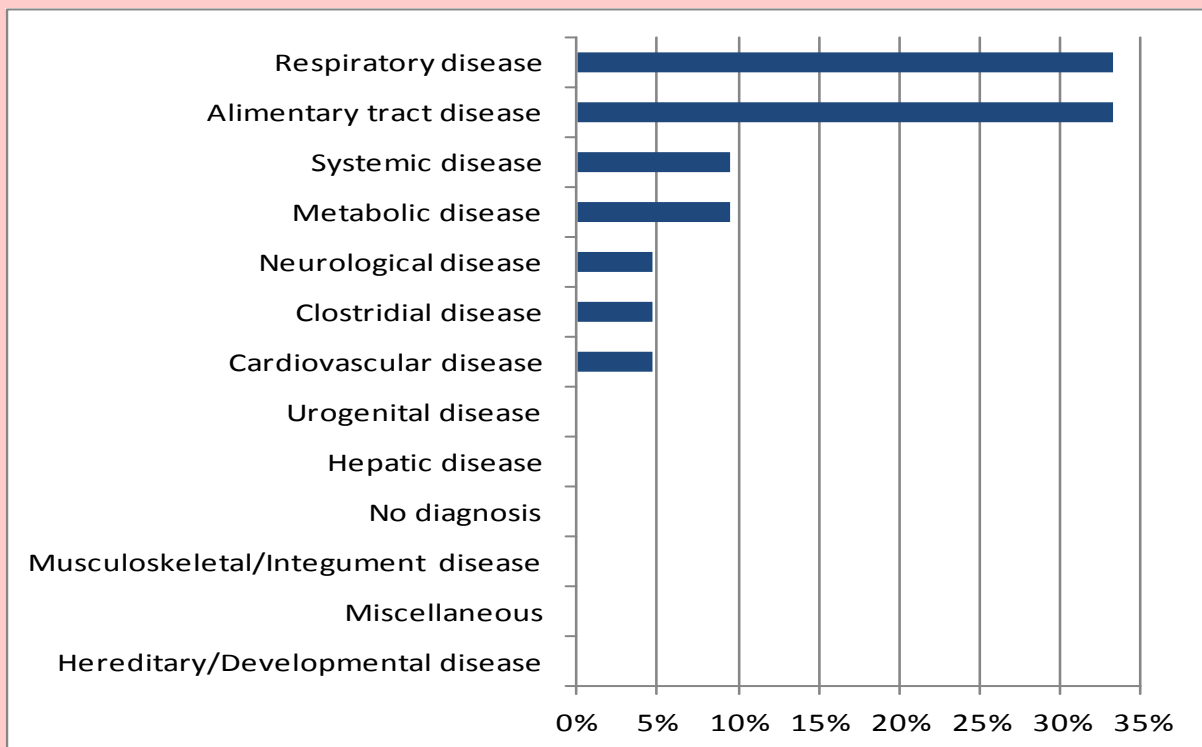


Figure 10: The causes of bovine mortality in calves (calves aged greater than one month but less than three months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 4 of 2020 (n=21).

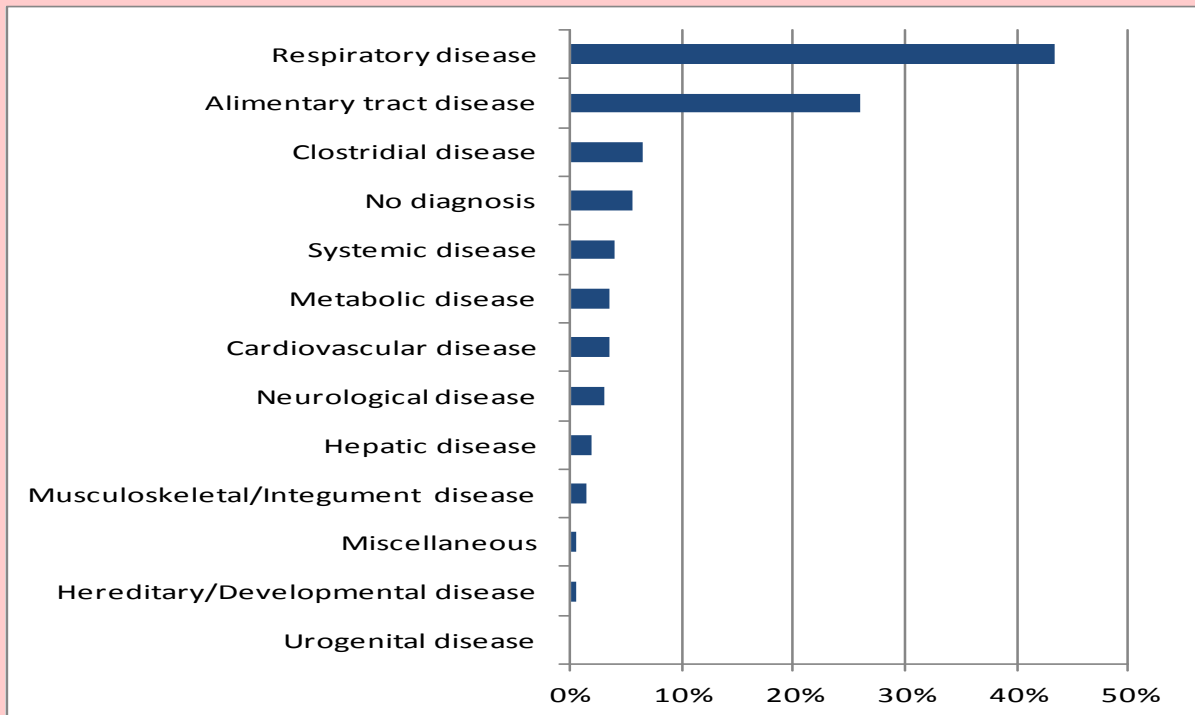


Figure 11: The causes of bovine mortality in weanlings (bovine animals aged greater than three months but less than twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 4 of 2020 (n=200).

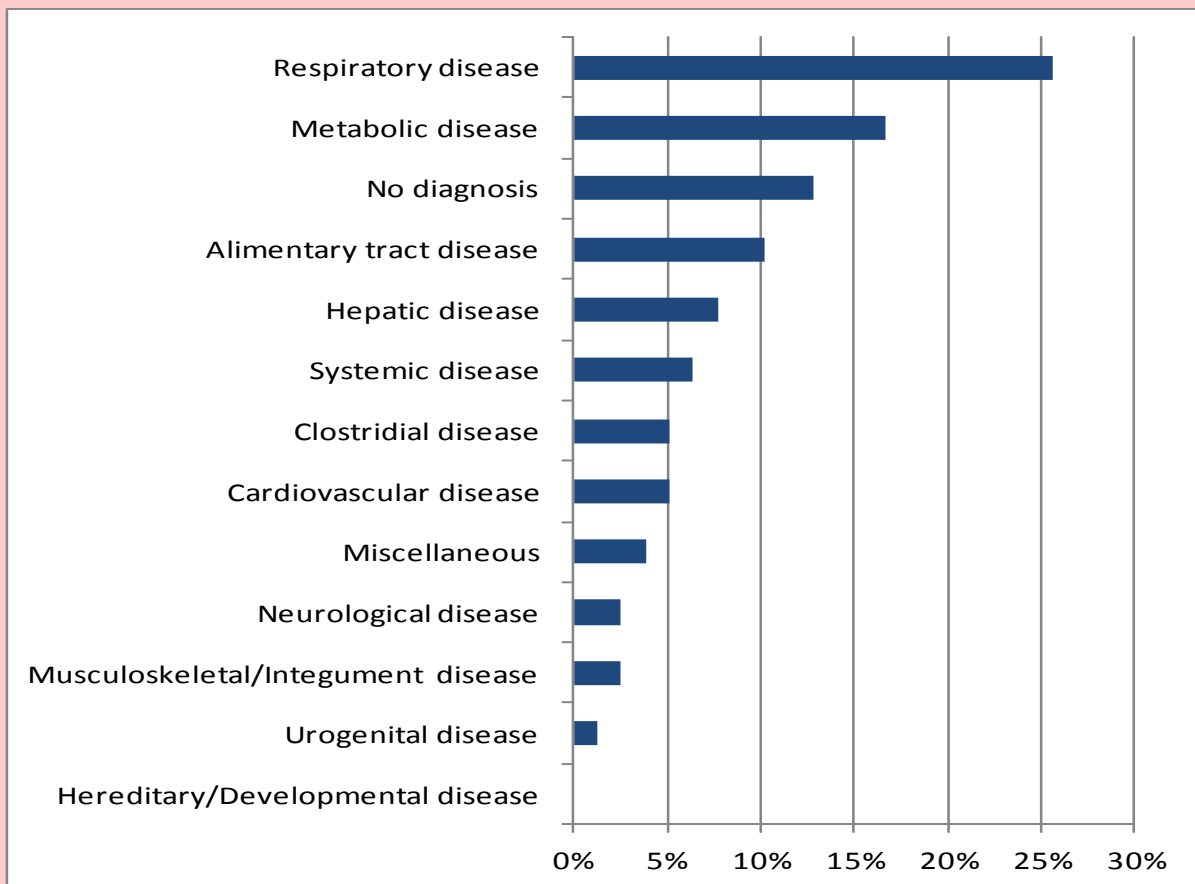


Figure 12: The causes of bovine mortality in adults (bovine animals aged greater than or equal to twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 4 of 2020 (n=78).

The relative frequency of pathogens identified in specific post-mortem examination diagnostic categories

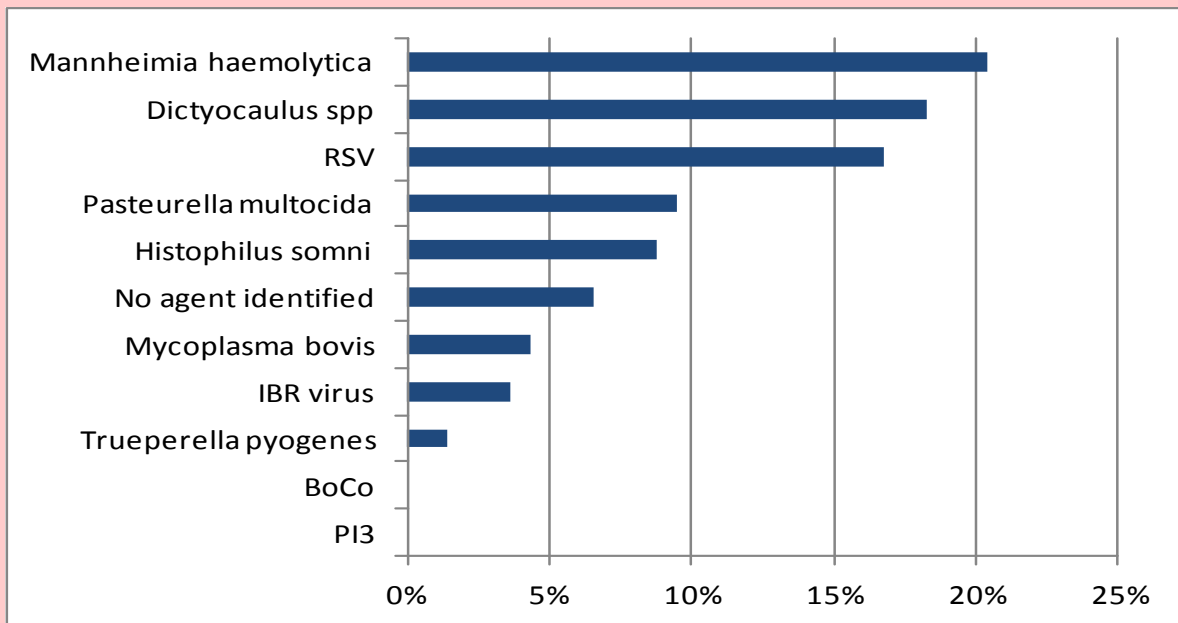


Figure 13: The relative frequency of specific respiratory pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of respiratory disease was made during Quarter 4 of 2020 (n=137).

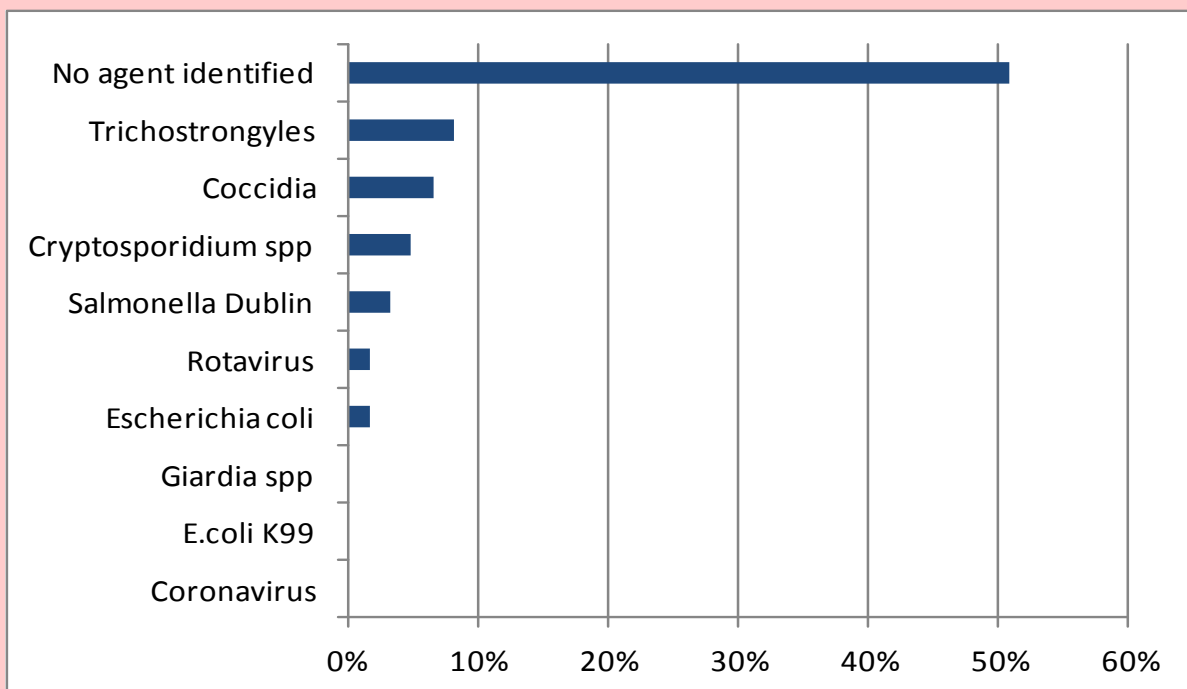


Figure 14: The relative frequency of specific alimentary tract disease pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of 'enteritis' or 'gastro-enteritis' was made during Quarter 4 of 2020 (n=61).

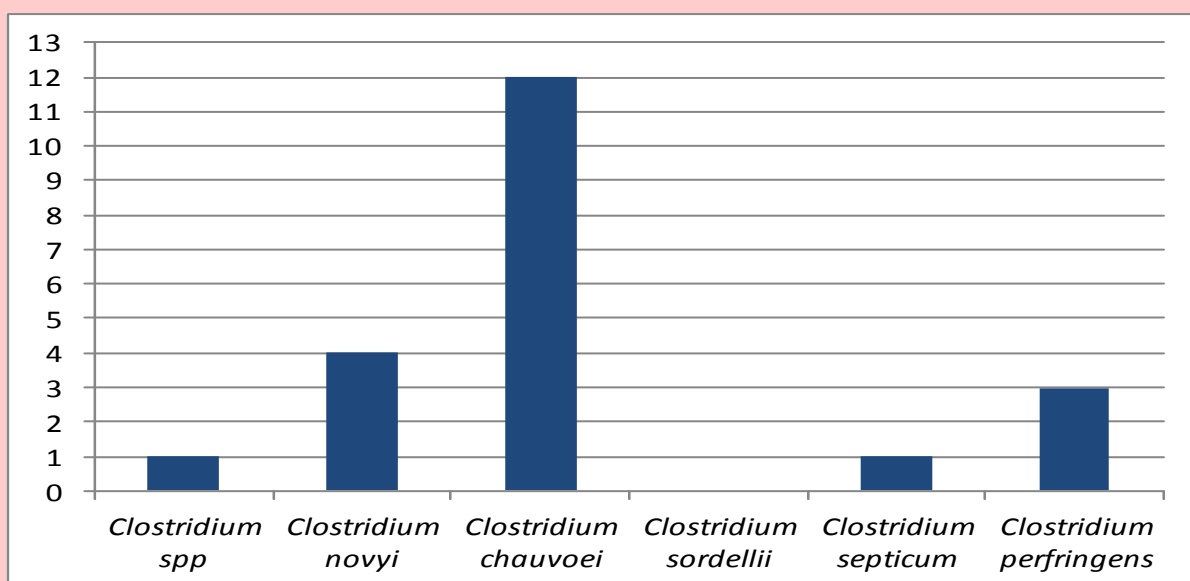


Figure 15: The frequency of identification of *Clostridium* species on post-mortem examination of bovine animal carcasses of all ages by the RVLs during Quarter 4 of 2020.

The frequency of detection of enteric pathogens in neonatal bovine enteritis cases

Enteric pathogen	Negative	Positive	%Positive
<i>E.coli</i> K99	91	0	0.0%
Coronavirus	125	1	0.8%
<i>Salmonella</i> culture	124	2	1.6%
<i>Cryptosporidium parvum</i>	112	13	10.4%
Rotavirus	105	21	16.7%

Table 2: The relative frequency of detection of enteric pathogens in the faecal samples of neonatal calves (aged less than one month of age) harvested during Quarter 4 of 2020 both from clinically ill animals by veterinary practitioners in the field and from bovine carcasses during post-mortem examination by the RVLs.

Results of the zinc sulphate turbidity (ZST) test in neonatal calves

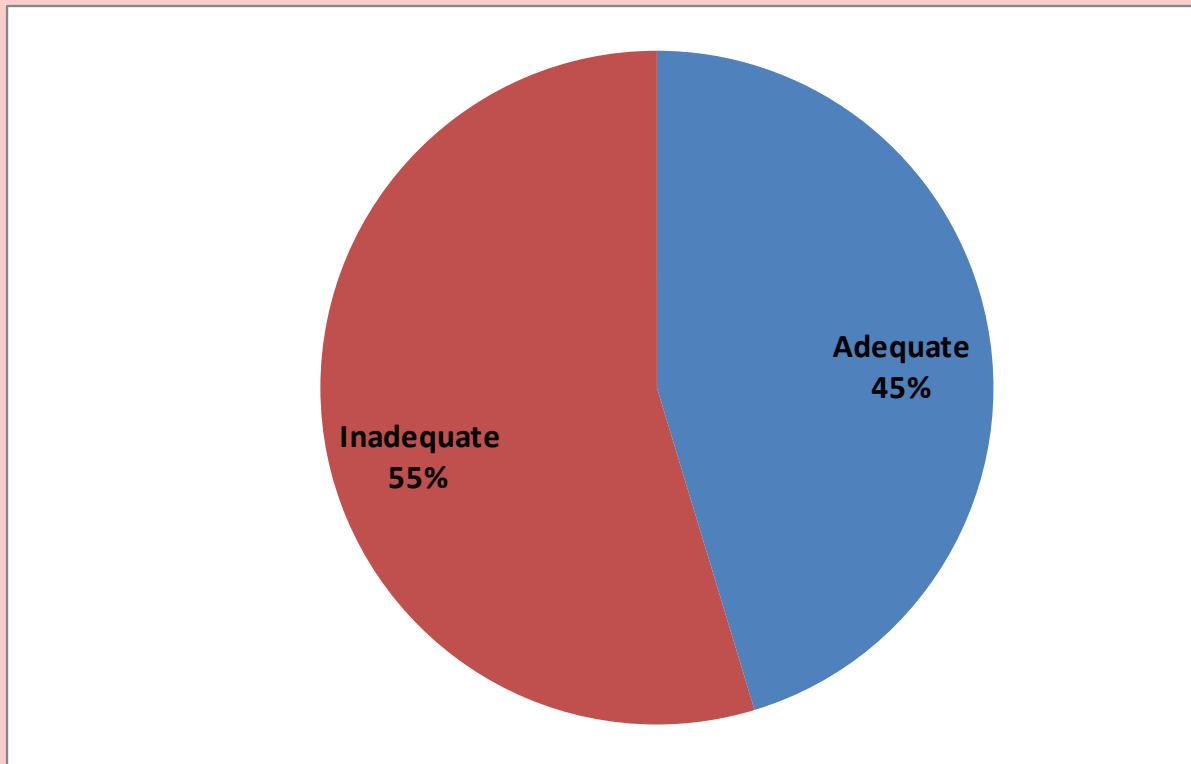


Figure 16: The results of the ZST tests performed both on clinically ill animals and on carcasses submitted for post-mortem examination by the RVLs during Quarter 4 of 2020 (n=64). The ZST test is used to determine the immunoglobulin status of the calf which can reflect the extent to which maternal colostrum immunity has been transferred to the calf *via* the colostrum. A value of greater than or equal to 20 units is considered indicative of adequate immunoglobulin levels in the calf.

Results of milk samples submitted for mastitis culture

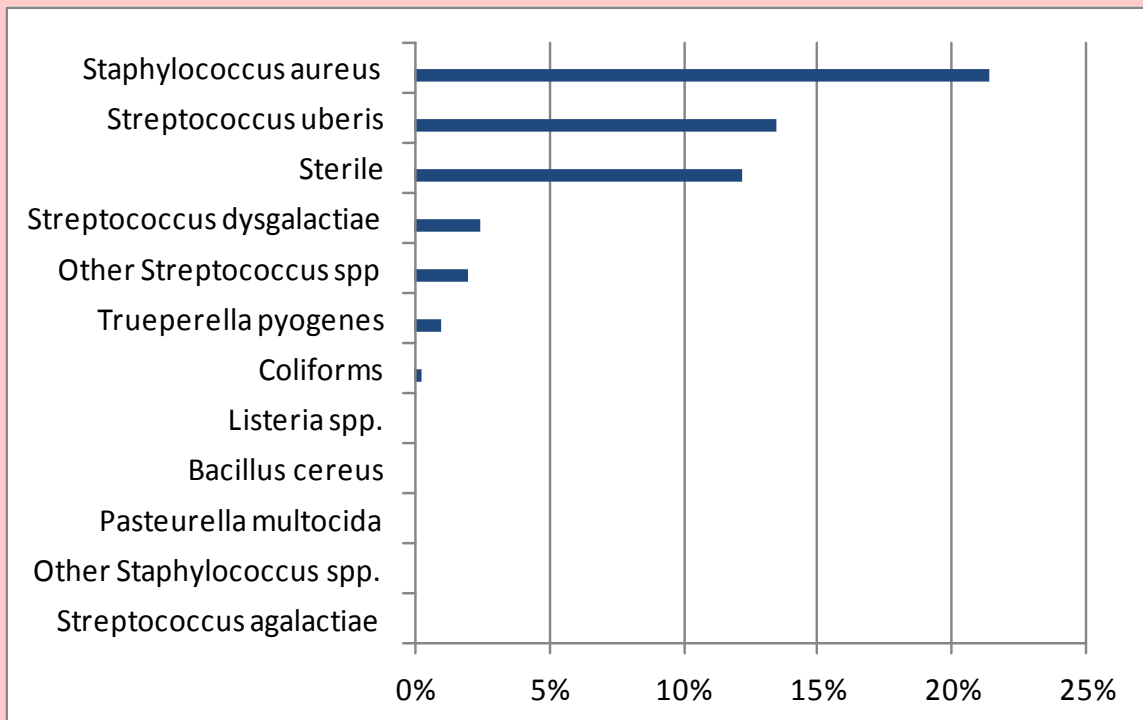


Figure 17: The relative frequency of isolation of specific mastitis pathogens in milk sample submissions (n=402) for bacteriological culture by the RVLs during Quarter 4 of 2020.

Bovine abortion and perinatal death

Foetal diagnosis	Number	Percentage
Abortion	409	92.3%
Anoxia/Hypoxia	2	0.5%
Hereditary and developmental anomalies	5	1.1%
Mummification	1	0.2%
Stillbirth	0	0.0%
Perinatal mortality	3	0.7%
Placentitis	4	0.9%
Goitre	1	0.2%
Dystocia	4	0.9%
Bacteraemia/Septicaemia	0	0.0%
Weak calf syndrome	0	0.0%
Aspiration pneumonia	0	0.0%
Haemorrhage	0	0.0%
Miscellaneous causes	7	1.6%
No Diagnosis	7	1.6%
Total	443	

Table 3: The causes of foetal (calves *in utero* up to 260 days gestation) or perinatal (calves from 260 days gestation to 48 hours post-delivery) death diagnosed on post-mortem examination (n=443) by the RVLs during Quarter 4 of 2020.

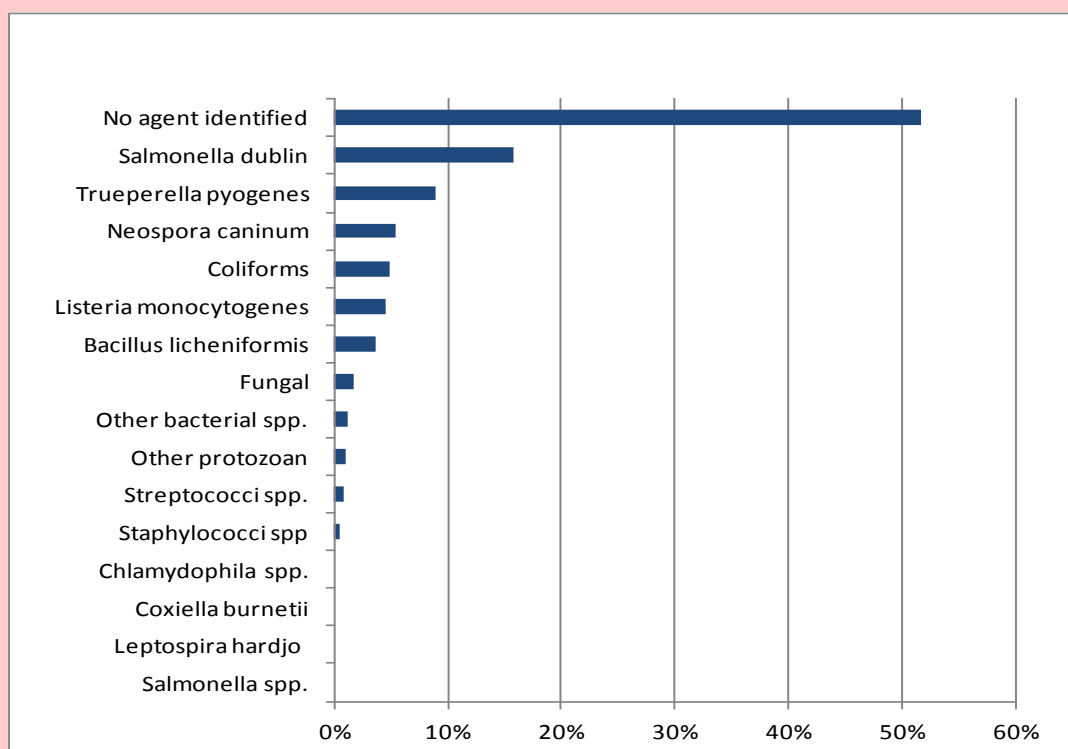


Figure 18: The relative frequency of detection of infectious agents in foetuses submitted to the RVLs for post-mortem examination during Quarter 4 of 2020 in which abortion, stillbirth or placentitis were diagnosed (n=406).

Ovine disease surveillance

Causes of ovine mortality

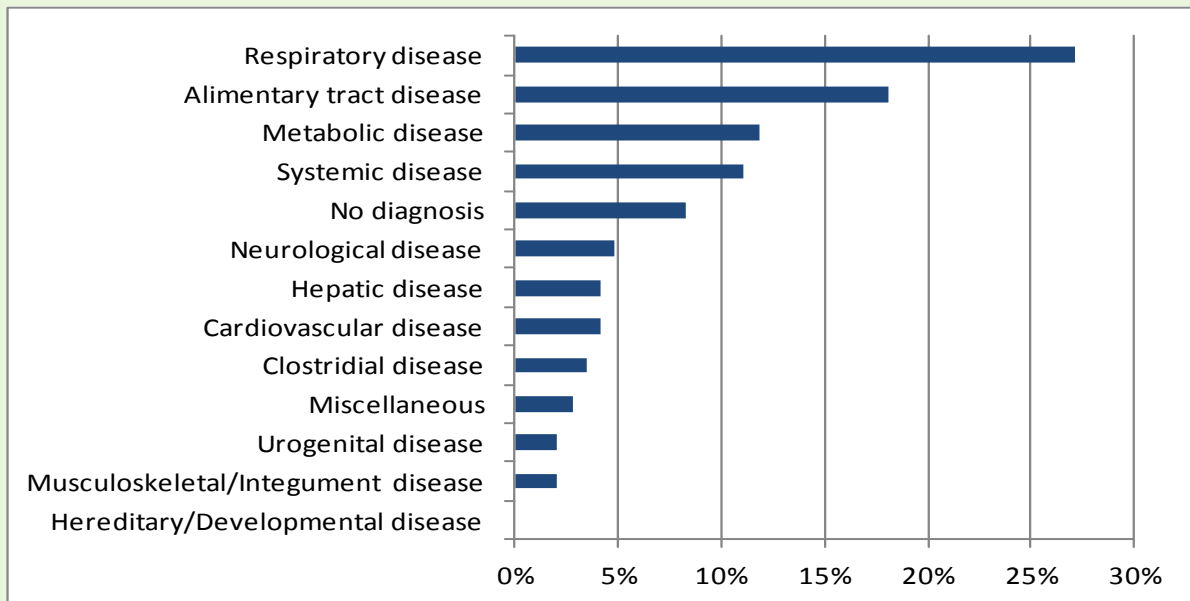


Figure 19: The causes of mortality in sheep carcasses recorded on post-mortem examination by the RVLs during Quarter 4 of 2020, categorised by the system affected or by cause (n=144).

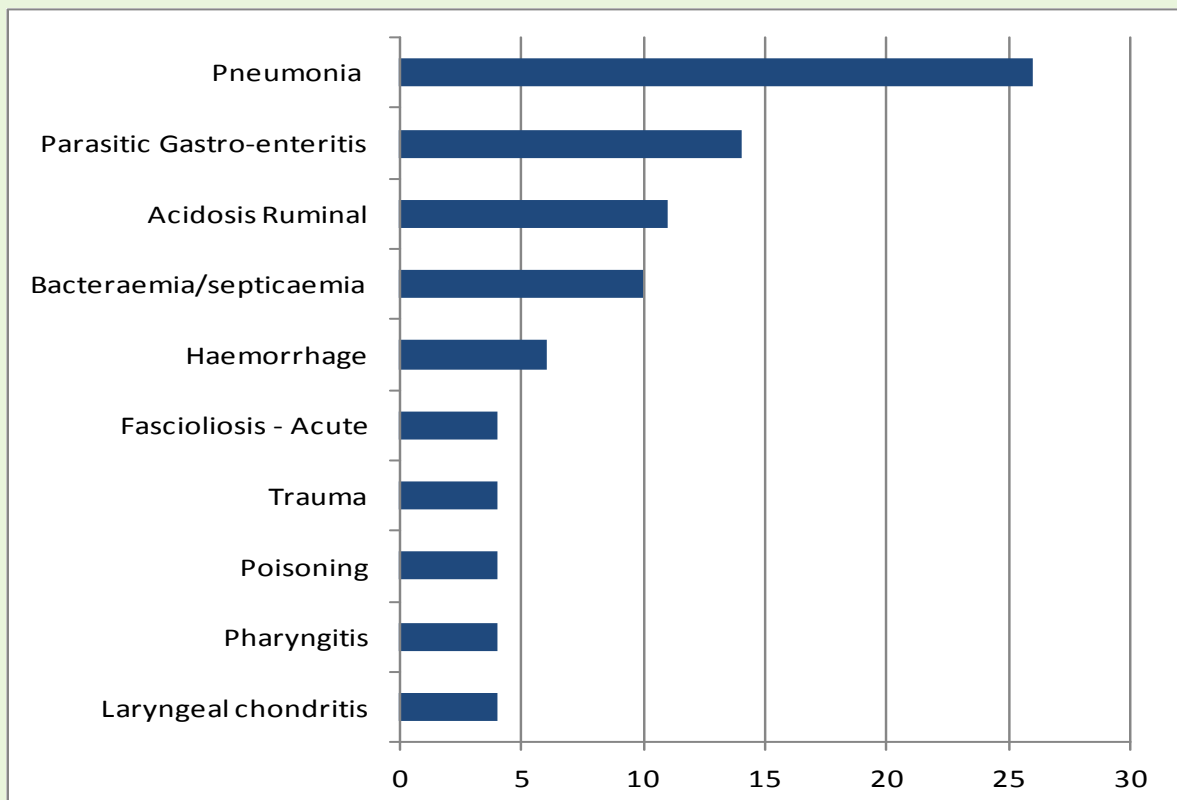


Figure 20: The ten most common individual diagnoses recorded in sheep carcasses on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=144)

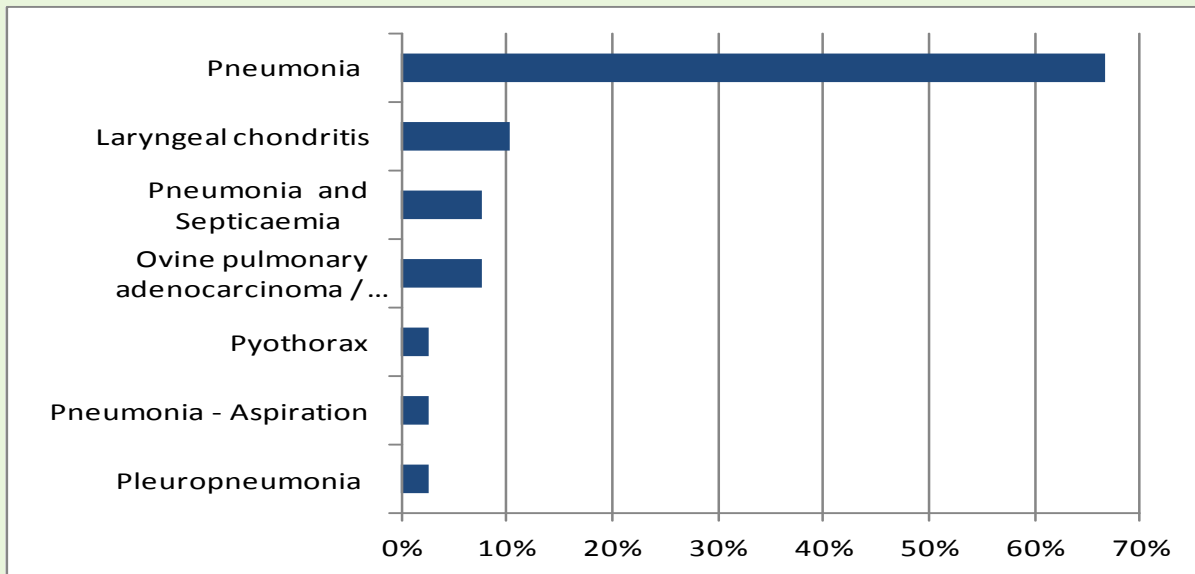


Figure 21: The relative frequency of respiratory disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=39).

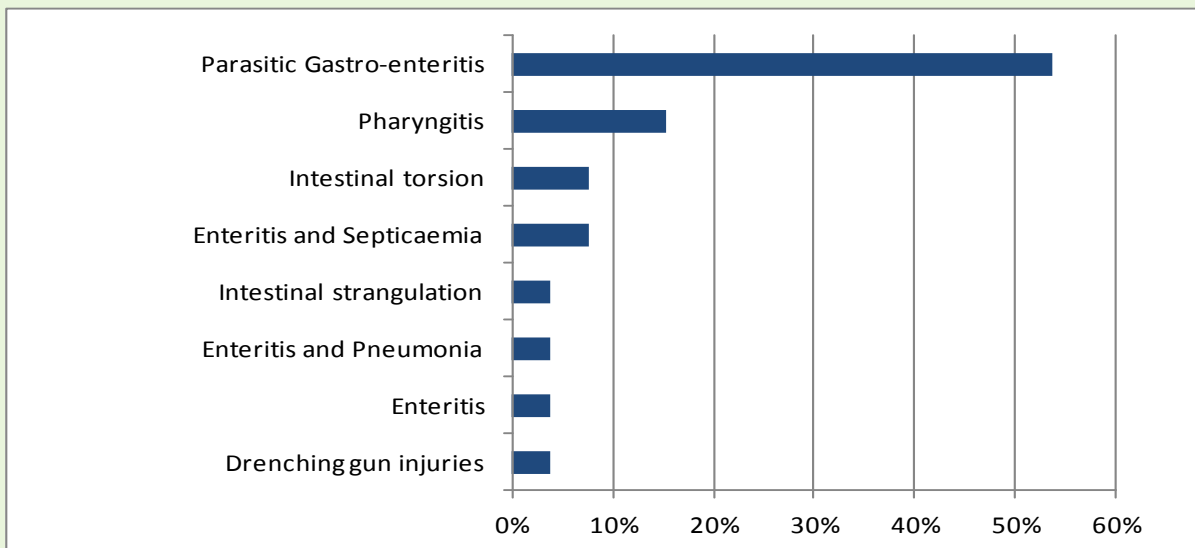


Figure 22: The relative frequency of alimentary tract disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=26).

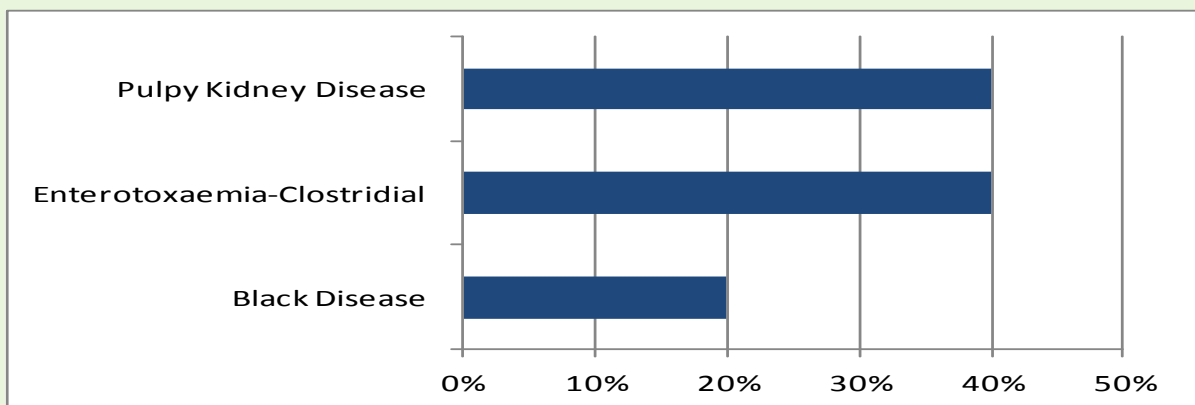


Figure 23: The relative frequency of clostridial disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=5).

Foetal diagnosis	Number	Percentage
Abortion	9	90.0%
Anoxia/Hypoxia	0	0.0%
Hereditary and developmental anomalies	0	0.0%
Mummification	0	0.0%
Stillbirth	0	0.0%
Perinatal mortality	0	0.0%
Placentitis	0	0.0%
Goitre	0	0.0%
Dystocia	0	0.0%
Bacteraemia/Septicaemia	0	0.0%
Weak calf syndrome	0	0.0%
Aspiration pneumonia	0	0.0%
Haemorrhage	1	10.0%
Miscellaneous causes	0	0.0%
No Diagnosis	0	0.0%
Total	10	

Table 4: The relative frequency of the diagnosed causes of death in ovine foetuses recorded on post-mortem examination by the RVLs during Quarter 4 of 2020 (n=10).

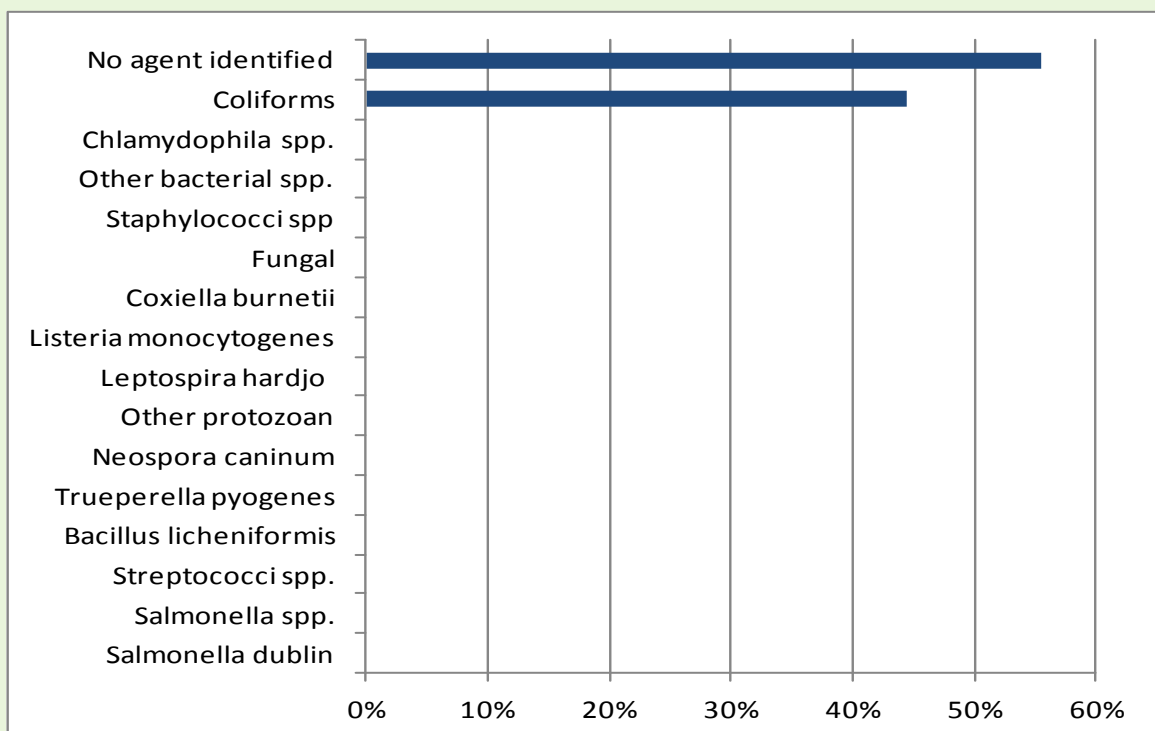


Figure 23: The relative frequency of abortion agents identified in ovine abortion diagnoses (n=9) recorded on post-mortem examination by the RVLs during Quarter 4 of 2020.