



**Department of Agriculture,
Food and the Marine
Laboratories Quarterly Surveillance Report
Quarter 1 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 those in 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 first quarter of 2020 (January to March). Met Éireann data show that rainfall levels in February were unusually high. Wet weather is often associated with increased disease prevalence for various reasons. The number of carcase submissions recorded in this period was higher than that seen in the first quarter of 2019. This is remarkable as the RVLs were forced to limit the number of submissions accepted into the laboratories in the last two weeks of March due to COVID-19 restrictions.

In cattle, Infectious Bovine Rhinotracheitis (IBR) contributed substantially as a cause of respiratory disease, being identified relatively frequently in submitted carcasses during Q1 of 2020 compared to the same period in recent years. Regarding neonatal enteritis (calf scour), the frequency of detection of rotavirus has increased in recent years, whereas the frequency of detection of *Cryptosporidium parvum* has declined. This trend continued in quarter one of 2020, with roughly three times as many positive results for rotavirus as there were for cryptosporidiosis.

In sheep, the most frequently recorded ovine abortion agent following the testing of aborted fetuses submitted to the RVLs in Q1 of 2020 was *Toxoplasma gondii* (which causes toxoplasmosis). This has tended to be the case for ovine fetus submissions for recent years, but Q1 of 2019 where *Chlamydophila abortus* (which causes enzootic abortion of ewes – EAE) was the most frequently recorded ovine abortion agent, was a notable exception.

The weather in Quarter 1 of 2020

Rainfall

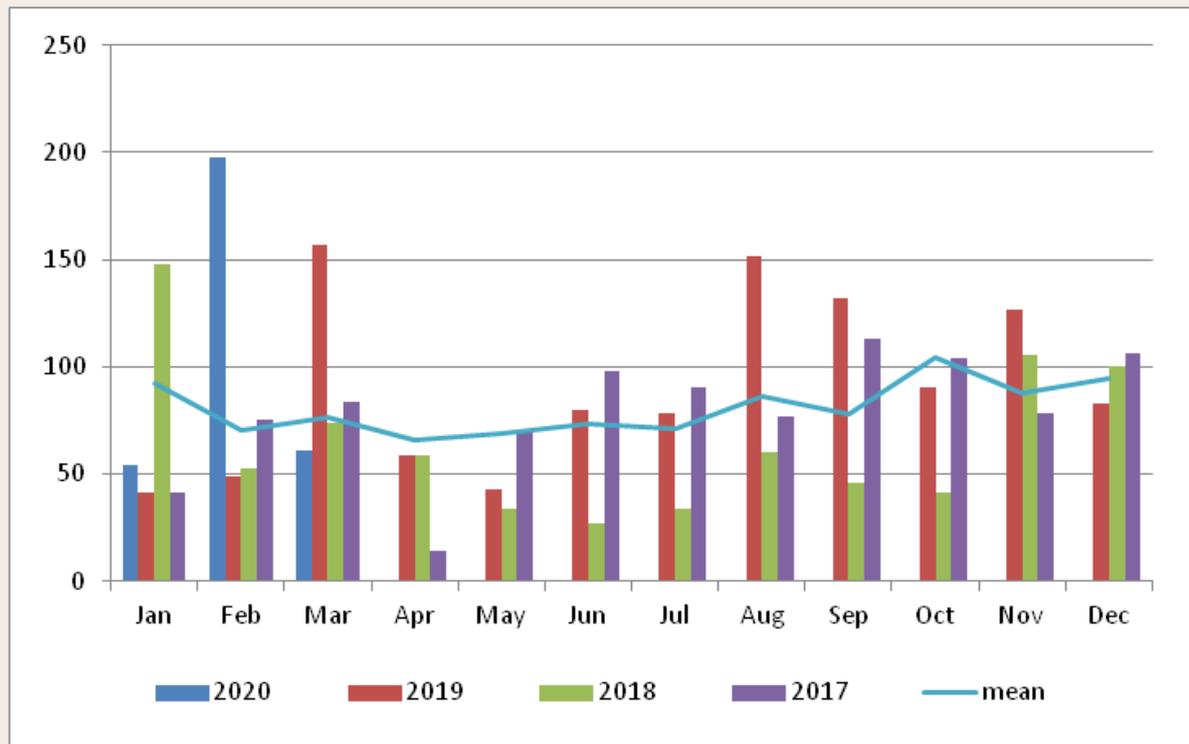


Figure 1: The average monthly rainfall (in millimetres) recorded for Quarter 1 of 2020 compared to the three previous years and the 30-year mean monthly rainfall (trend line). (Source: Met Eireann, www.met.ie).

Temperature

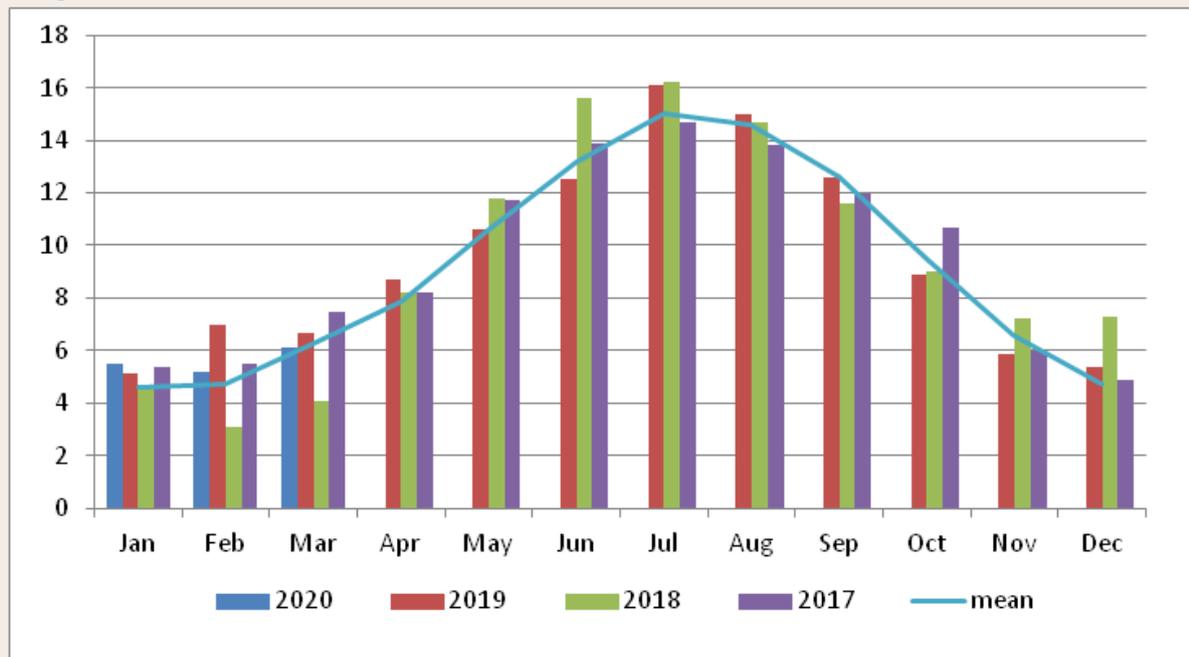


Figure 2: The mean monthly temperature (in degrees Celsius) for Quarter 1 of 2020 compared to the previous three years and the 30-year mean monthly temperature (trend line). (Source: Met Eireann www.met.ie).

Soil temperature

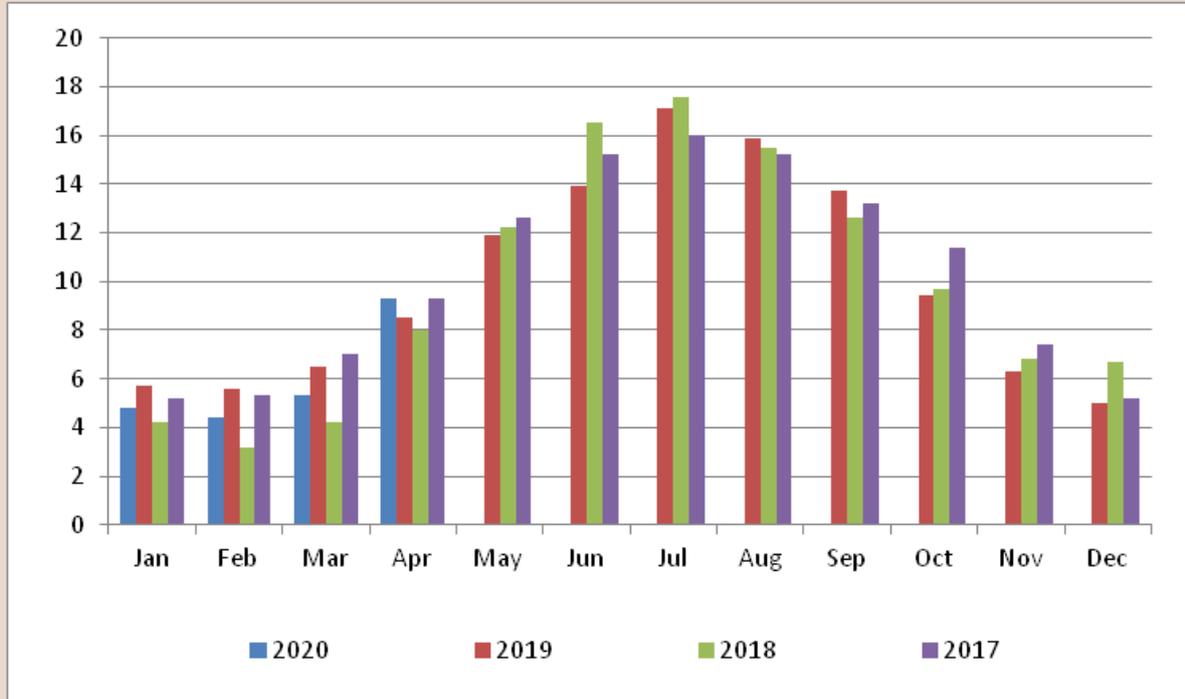


Figure 3: The mean monthly soil temperature (in degrees Celsius) for Quarter 1 of 2020 compared to the previous three years. (Source: Met Eireann www.met.ie).

Submission numbers to the RVLs in Quarter 1 of 2020

SPECIES	Carcass	Diagnostic	Foetus	Total
Avian	150	65		215
Bovine	663	6006	849	7518
Canine	6	47		53
Cervine	30			30
Equine	3	28	3	34
Ovine	381	368	385	1134
Porcine	136	74	3	213
Badger	137	3		140
Caprine	6	12	3	21
Exotic	6	7		13
Vulpine	1			1
Lagomorph	5			5
Total	1524	6610	1243	9377

Table 1: The submission numbers of carcasses, diagnostic samples and foetuses to the RVLs during Quarter 1 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)

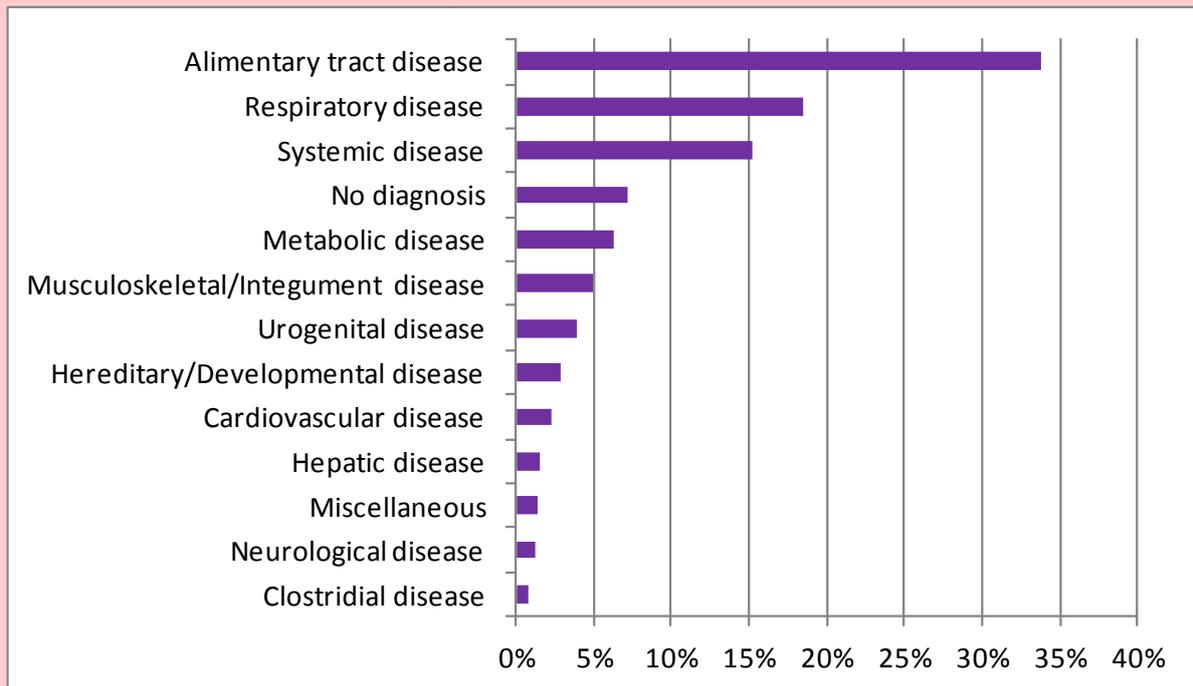


Figure 4: The causes of bovine mortality recorded on post-mortem examination in cattle of all ages by the RVLs, categorised by system or cause, during Quarter 1 of 2020 (n=590).

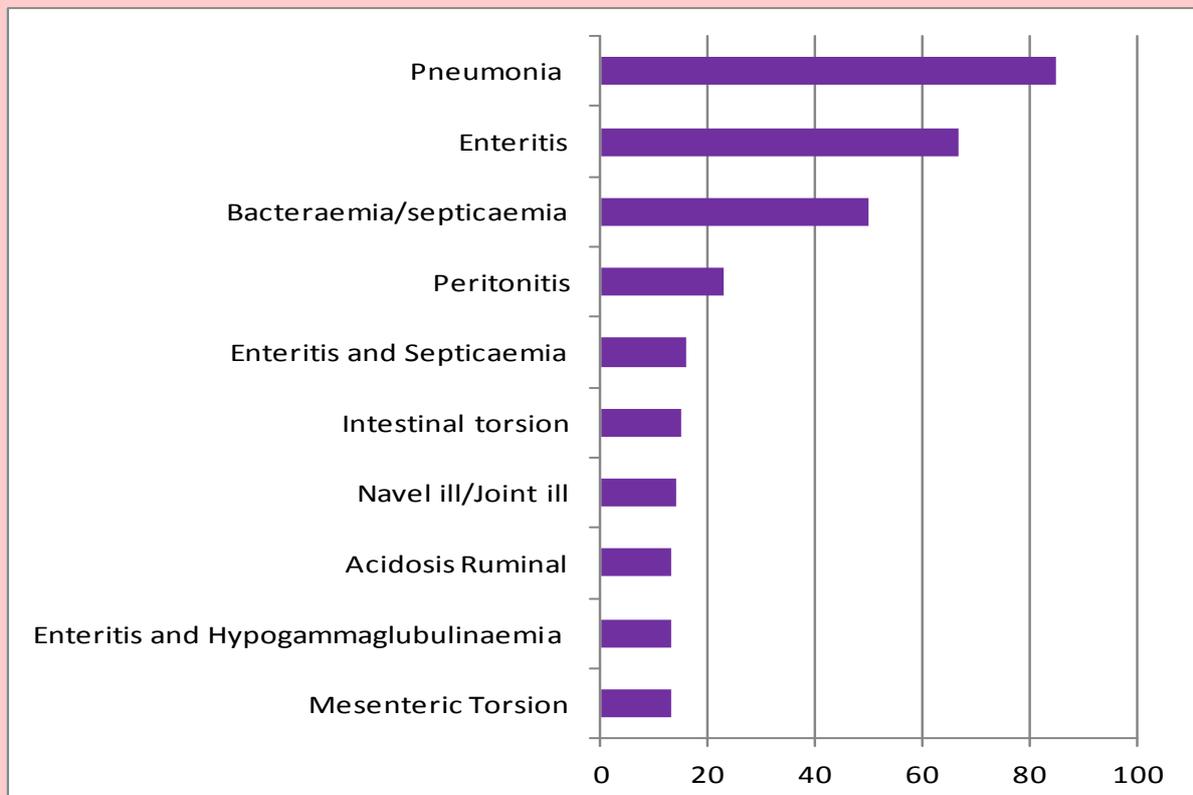


Figure 5: The ten most common individual diagnosed causes of death in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=590).

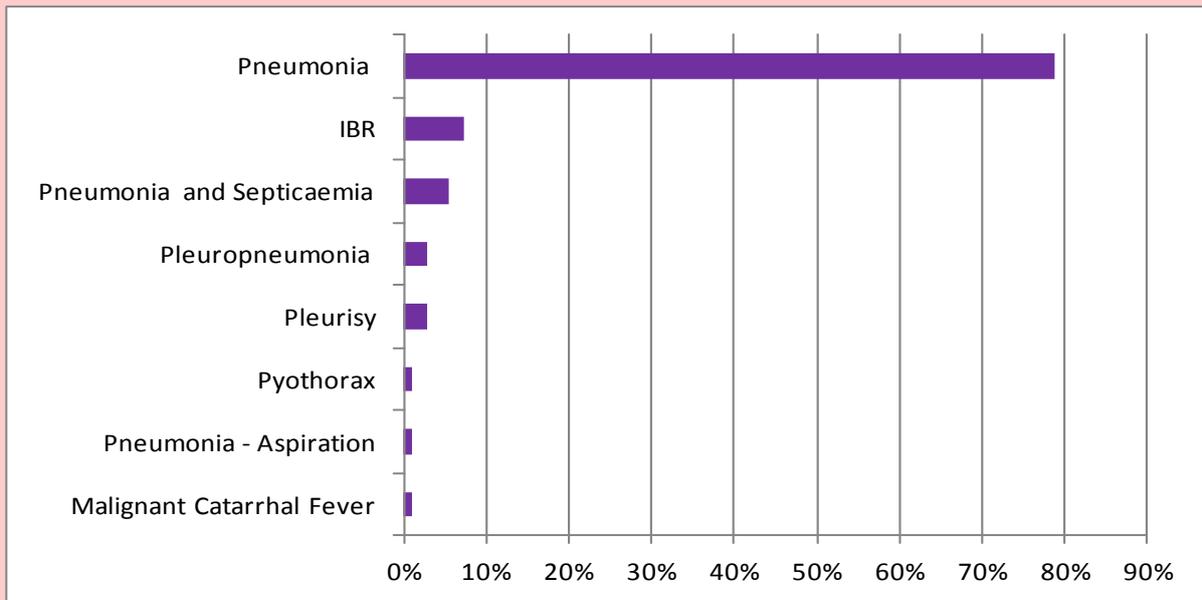


Figure 6: The relative frequency of the most common individual bovine respiratory disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=108).

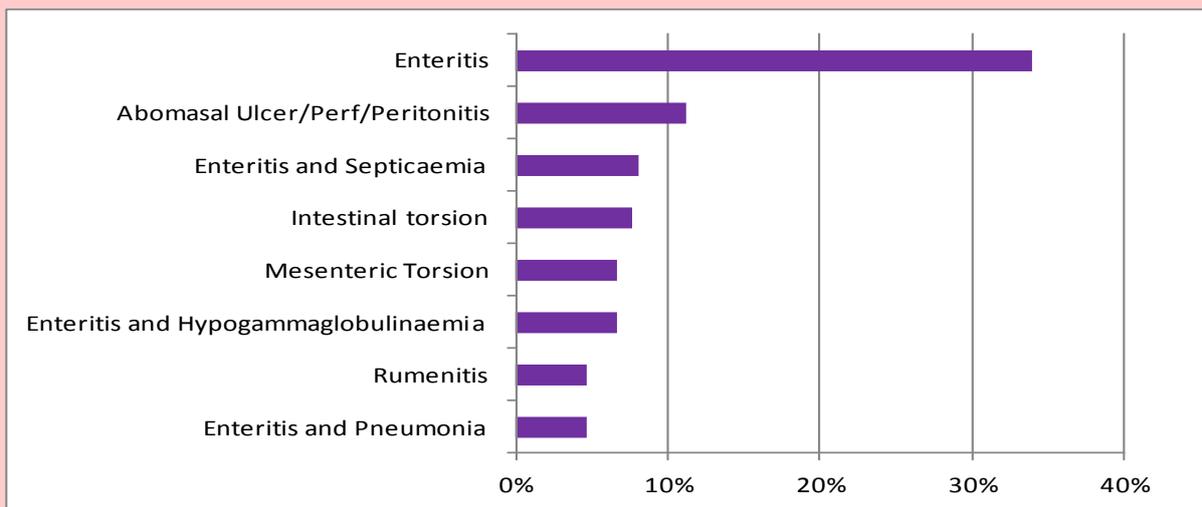


Figure 7: The relative frequency of the most common individual bovine alimentary tract disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=197).

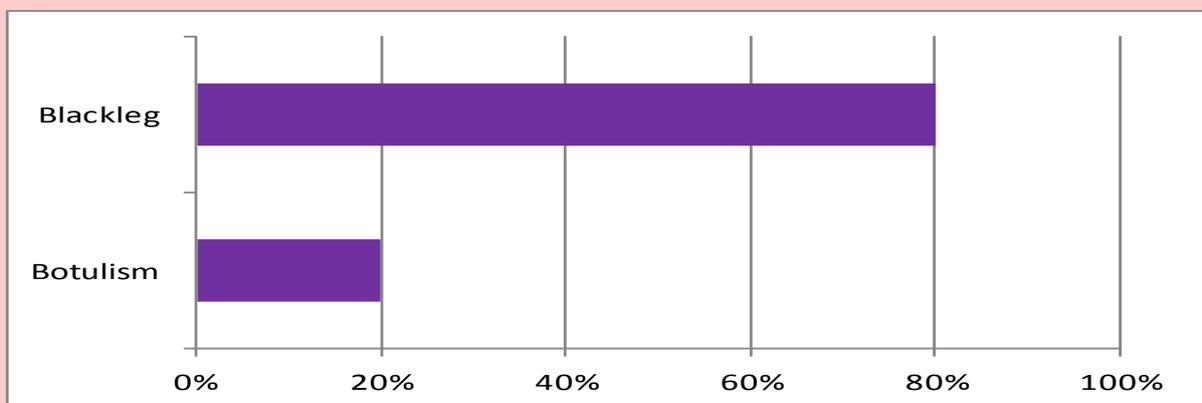


Figure 8: The relative frequency of bovine clostridial disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=5).

The causes of bovine mortality (age-specific)

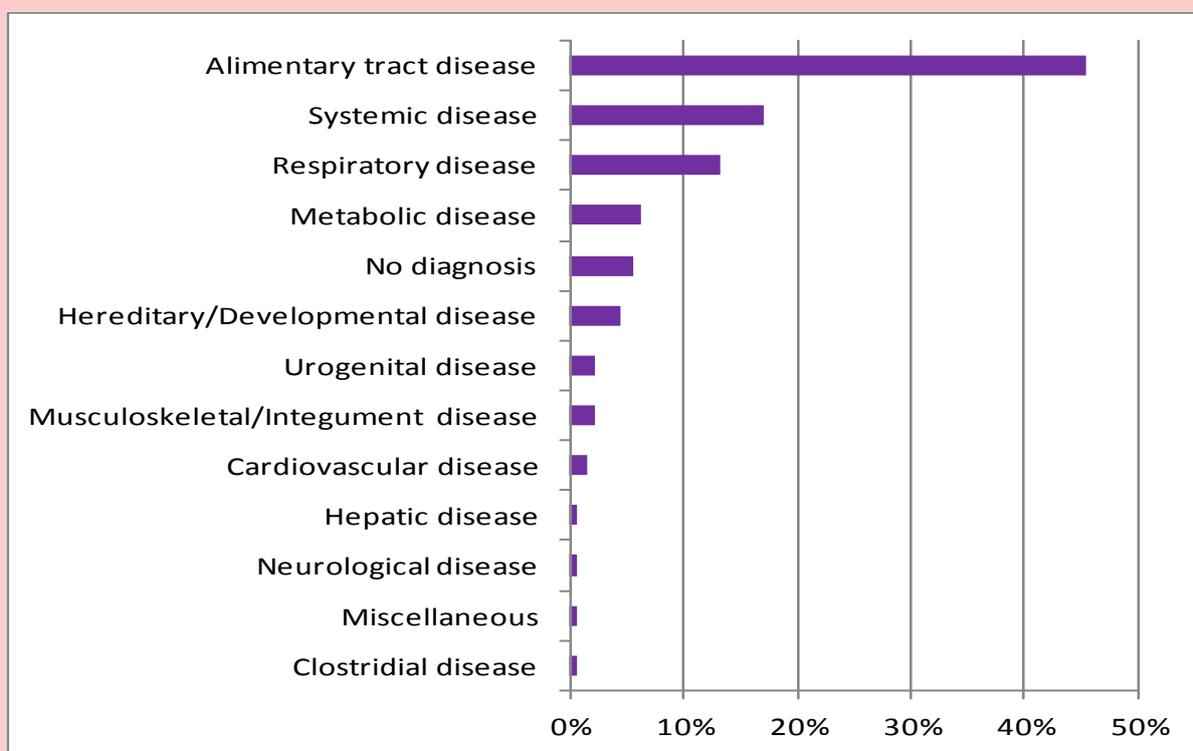


Figure 9: The causes of bovine mortality in neonatal calves (calves aged less than one month) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 1 of 2020 (n=294).

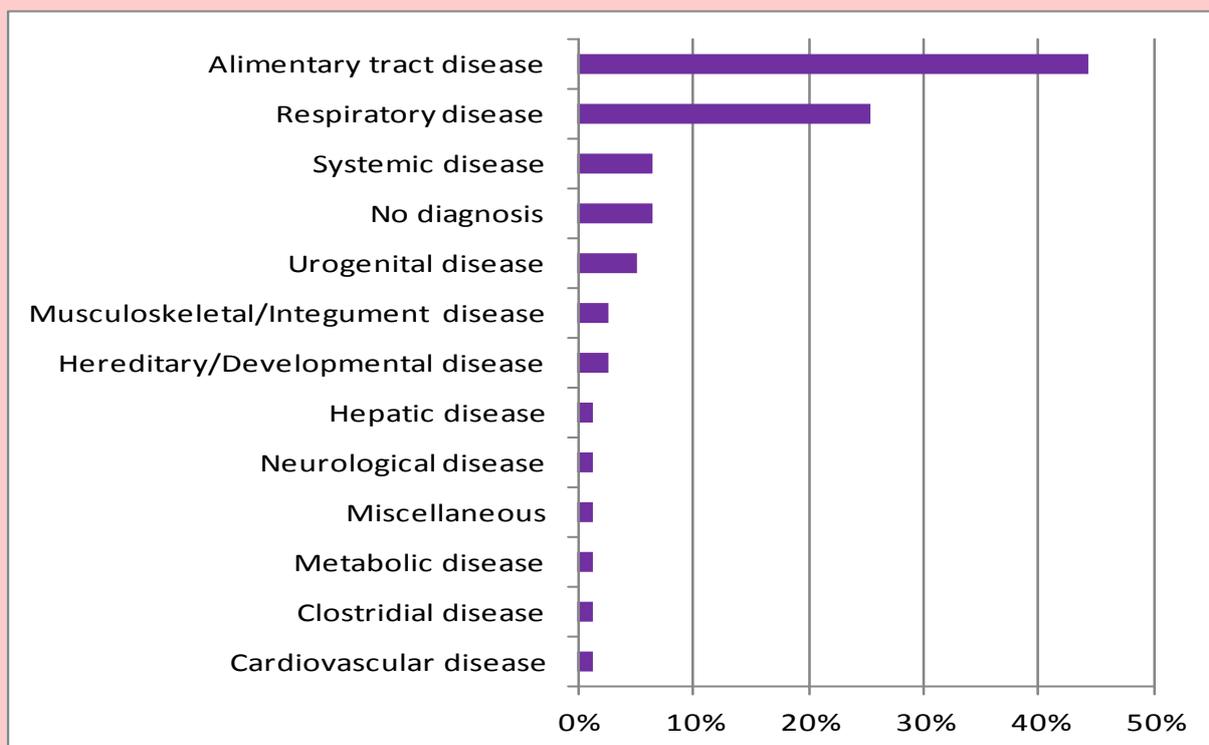


Figure 10: The causes of bovine mortality in calves (calves aged greater than one month but less than three months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 1 of 2020 (n=79).

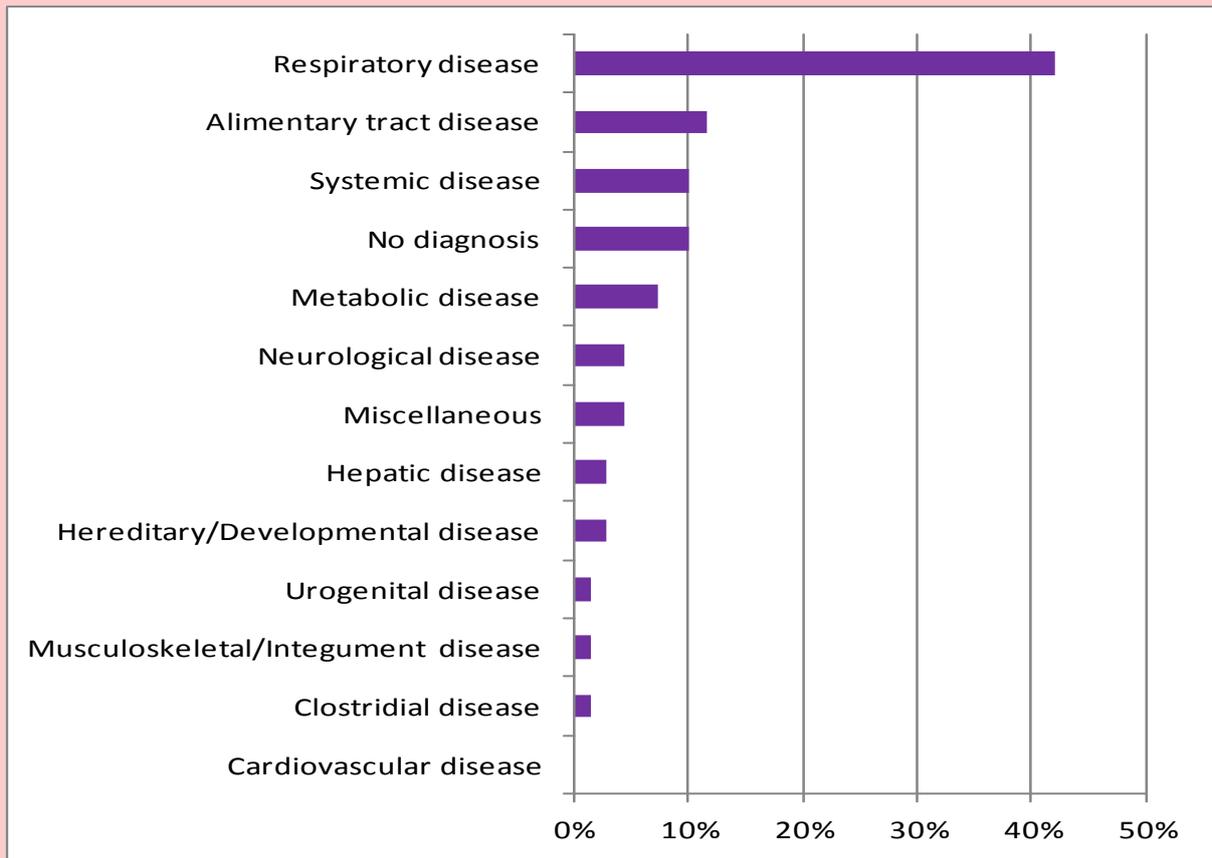


Figure 11: The causes of bovine mortality in weanlings (bovine animals aged greater than three months but less than twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 1 of 2020 (n=69).

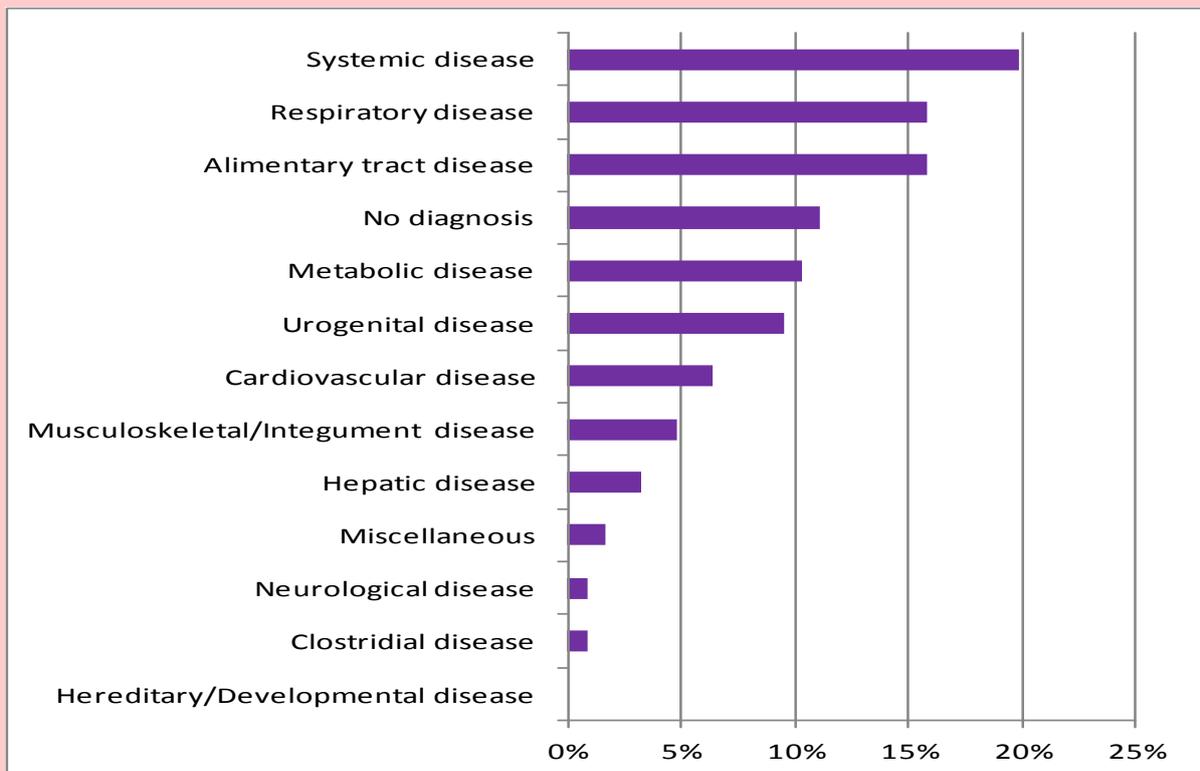


Figure 12: The causes of bovine mortality in adults (bovine animals aged greater than or equal to twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 1 of 2020 (n=126).

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

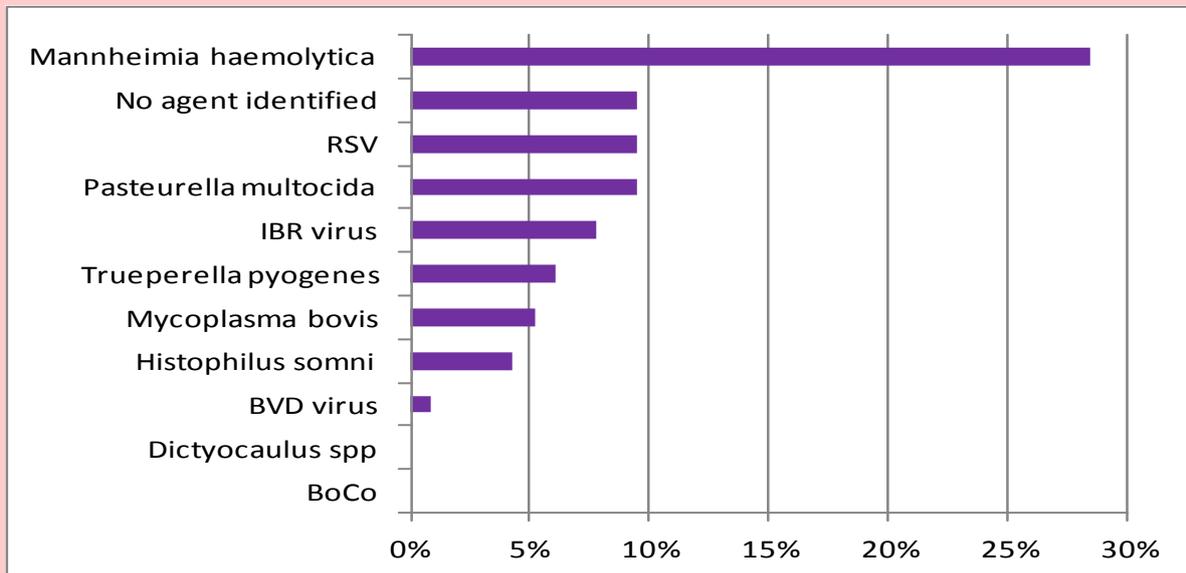


Figure 13: The relative frequency of specific respiratory pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of respiratory disease was made during Quarter 1 of 2020 (n=116).

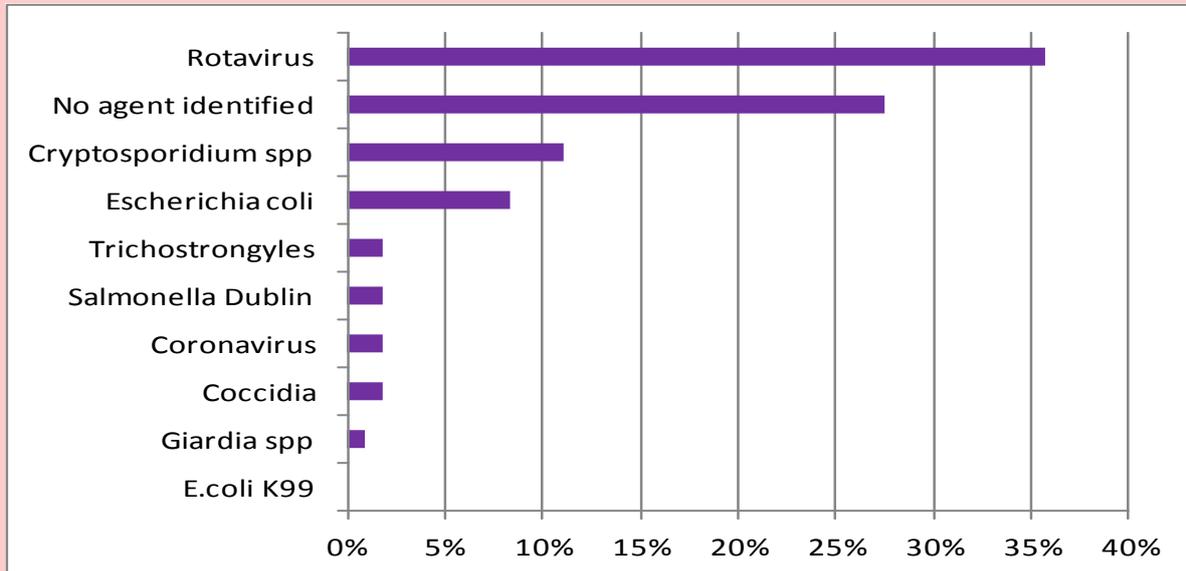


Figure 14: The relative frequency of specific alimentary tract disease pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of 'enteritis' or 'gastro-enteritis' was made during Quarter 1 of 2020 (n=109).

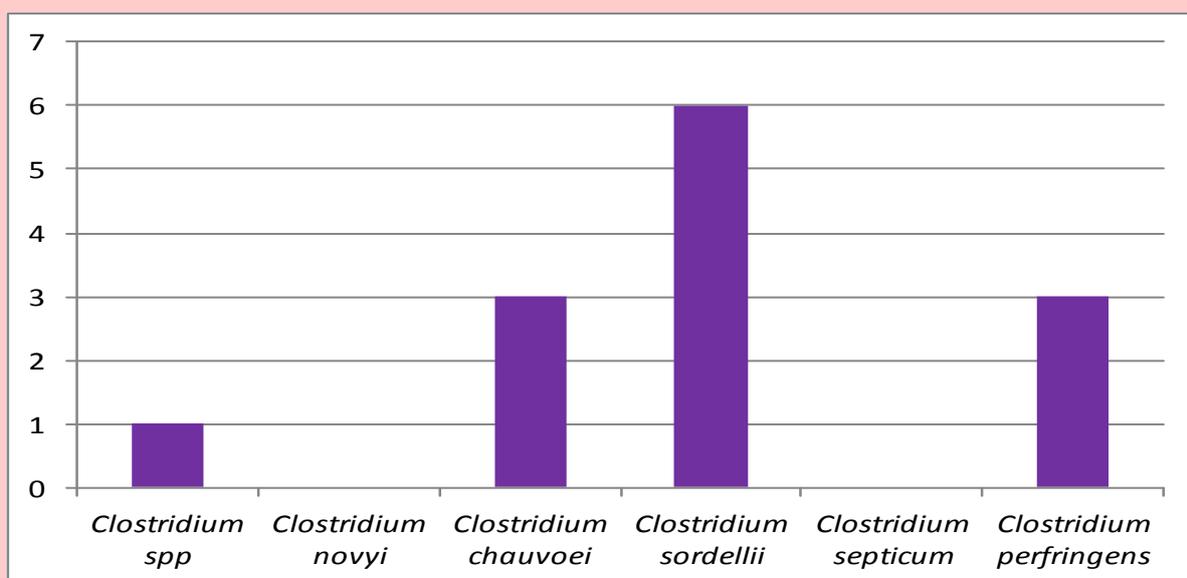


Figure 15: The frequency of identification of *Clostridium* species on post-mortem examination of bovine animal carcasses of all ages by the RVLs during Quarter 1 of 2020 .

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

Enteric pathogen	Negative	Positive	%Positive
<i>E.coli</i> K99	621	6	1.0%
Coronavirus	789	10	1.3%
<i>Salmonella</i> culture	799	1	0.1%
<i>Cryptosporidium parvum</i>	696	104	13.0%
Rotavirus	492	310	38.7%

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 1 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

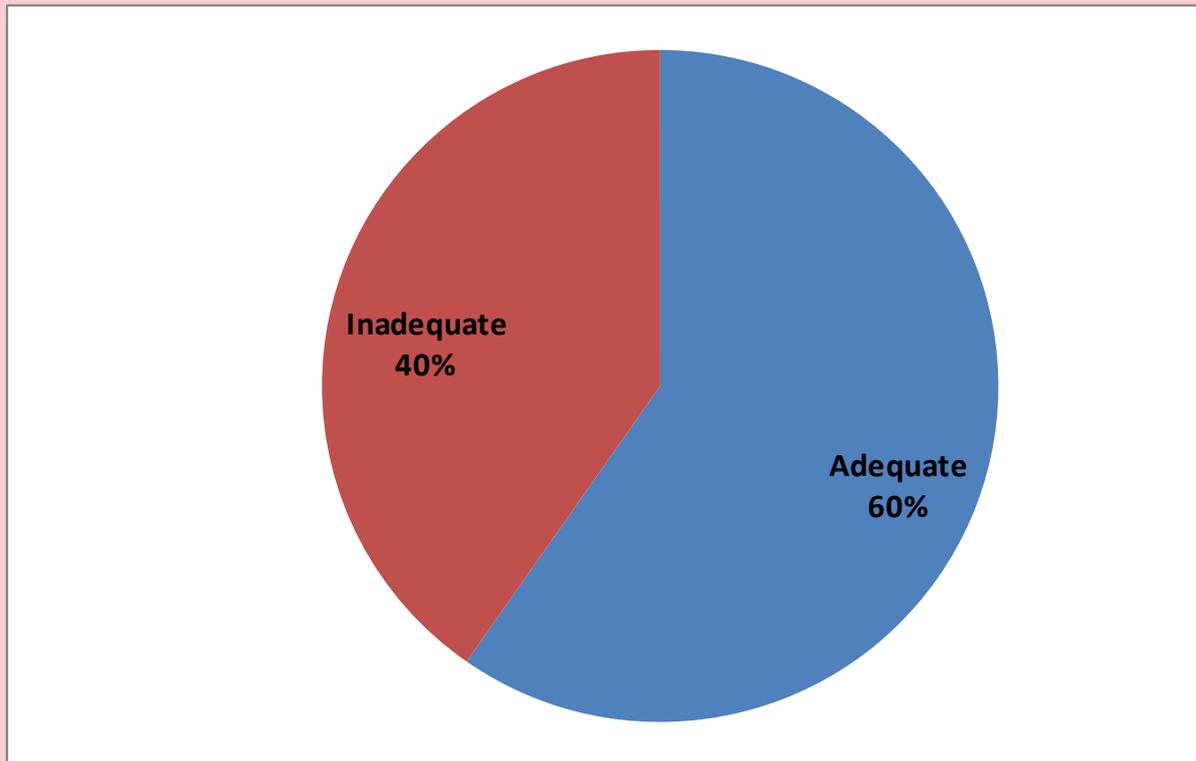


Figure 16: The results of the ZST tests performed both on clinically ill animals and on carcasses submitted for post-mortem examination by the RVLs during Quarter 1 of 2020 (n=866). The ZST test is used to determine the immunoglobulin status of the calf which can reflect the extent to which maternal 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

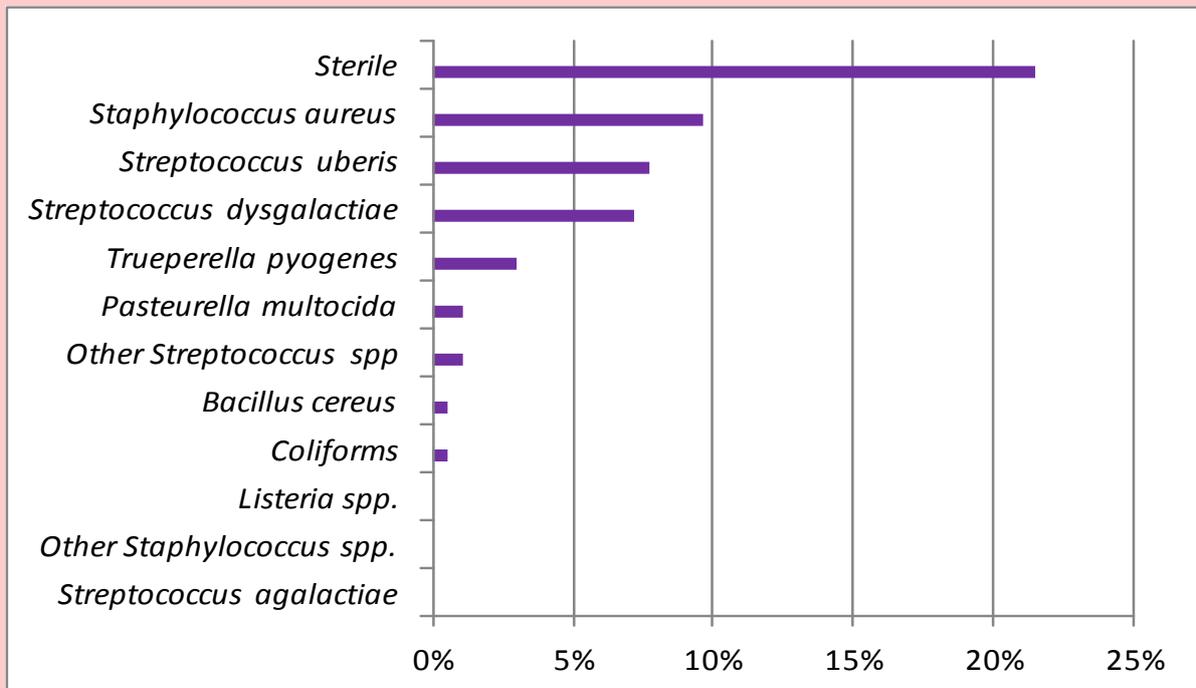


Figure 17: The relative frequency of isolation of specific mastitis pathogens in milk sample submissions (n=363) for bacteriological culture by the RVLs during Quarter 1 of 2020.

Bovine abortion and perinatal death

Foetal diagnosis	Number	Percentage
Abortion	497	68.6%
Anoxia/Hypoxia	24	3.3%
Hereditary and developmental anomalies	29	4.0%
Mummification	2	0.3%
Stillbirth	0	0.0%
Perinatal mortality	10	1.4%
Placentitis	6	0.8%
Goitre	1	0.1%
Dystocia	11	1.5%
Bacteraemia/Septicaemia	3	0.4%
Weak calf syndrome	0	0.0%
Aspiration pneumonia	2	0.3%
Haemorrhage	1	0.1%
Miscellaneous causes	115	15.9%
No Diagnosis	24	3.3%

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=725) by the RVLs during Quarter 1 of 2020.

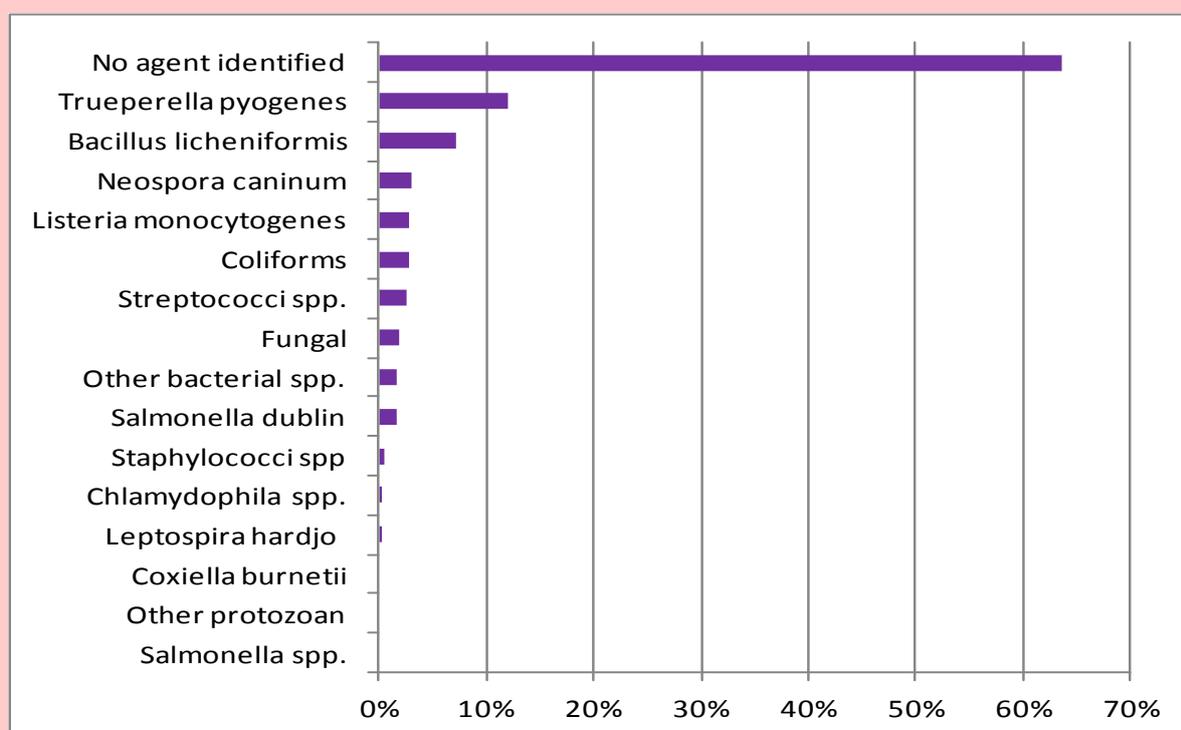


Figure 18: The relative frequency of detection of infectious agents in fetuses submitted to the RVLs for post-mortem examination during Quarter 1 of 2020 in which abortion, stillbirth or placentitis were diagnosed (n=503).

Ovine disease surveillance

Causes of ovine mortality

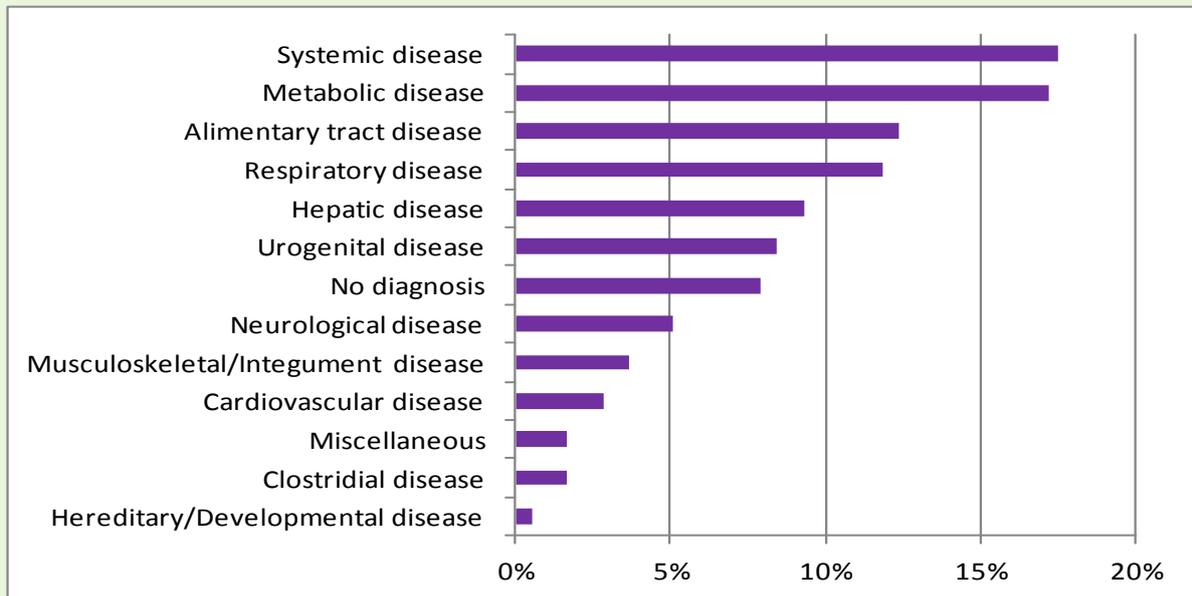


Figure 19: The causes of mortality in sheep carcasses recorded on post-mortem examination by the RVLs during Quarter 1 of 2020, categorised by the system affected or by cause (n=361).

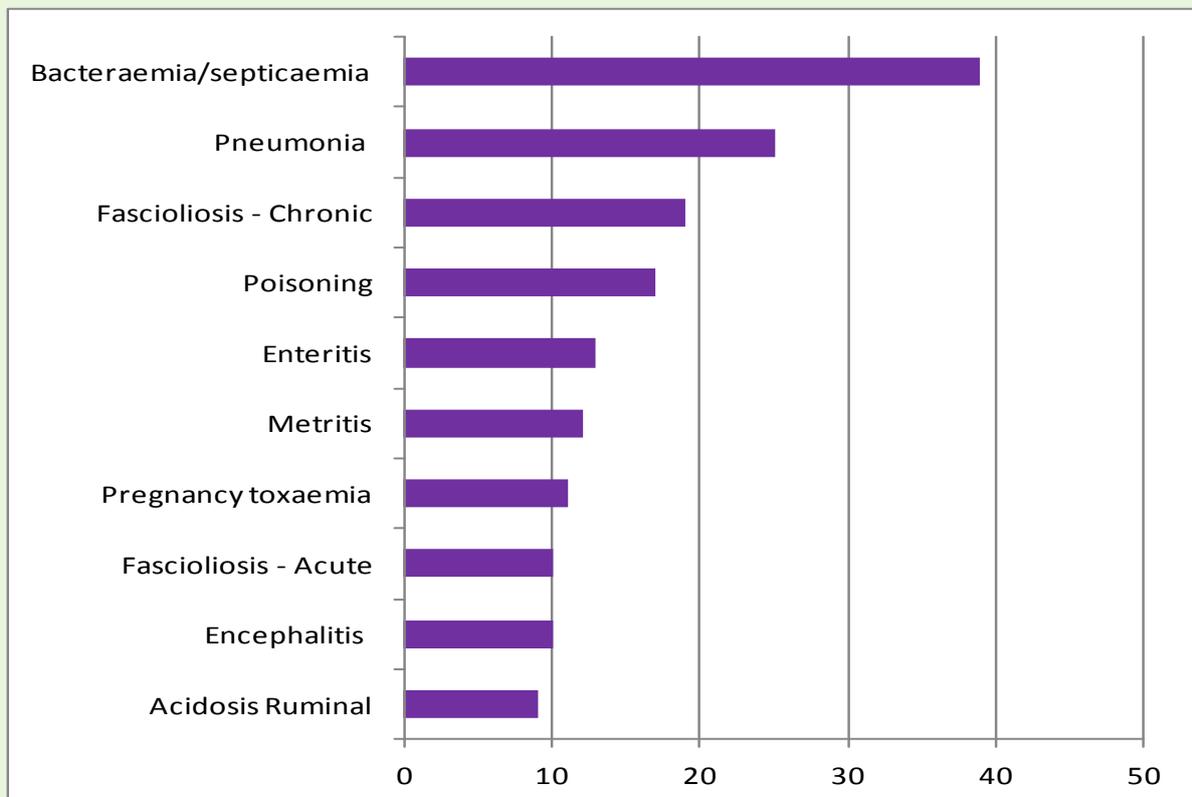


Figure 20: The ten most common individual diagnoses recorded in sheep carcasses on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=361).

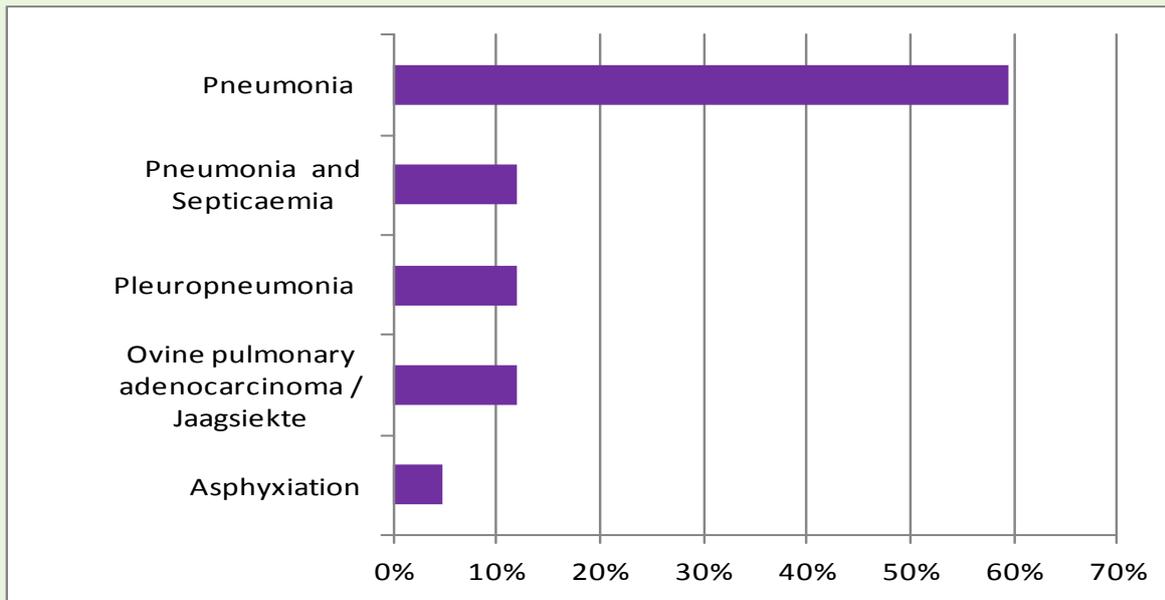


Figure 21: The relative frequency of respiratory disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=42).

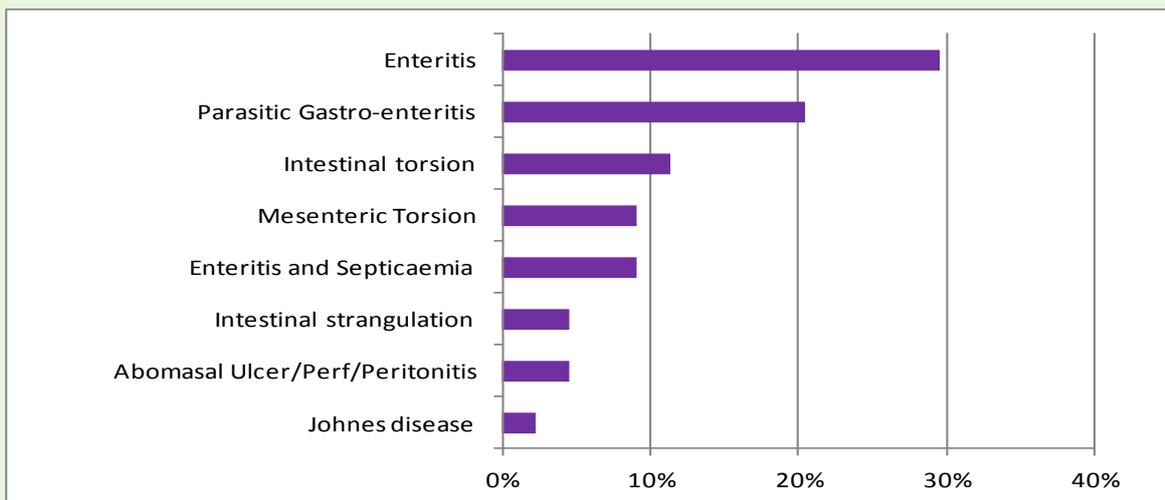


Figure 22: The relative frequency of alimentary tract disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=44).

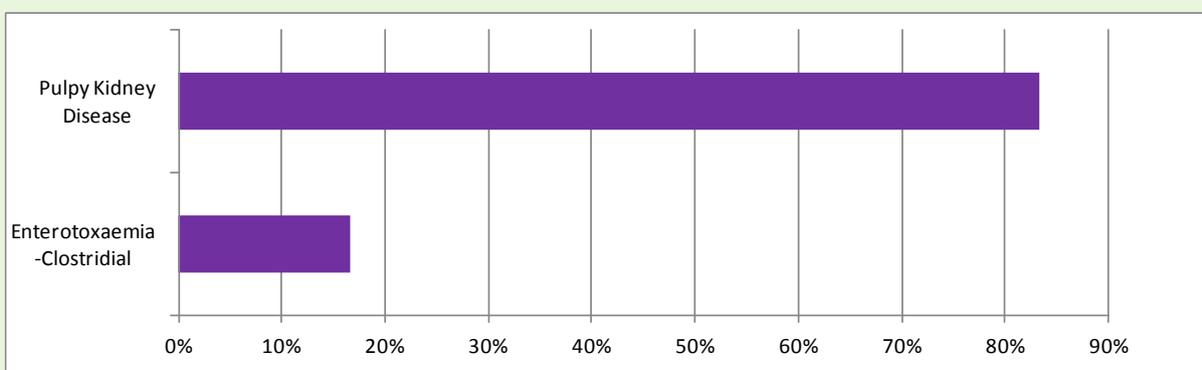


Figure 23: The relative frequency of clostridial disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=6).

Diagnosed cause of foetal death	Number	Percentage
Abortion	307	89.5%
Miscellaneous causes	18	5.2%
Perinatal mortality	6	1.7%
Placentitis	4	1.2%
Hereditary and developmental anomalies	3	0.9%
Bacteraemia/Septicaemia	2	0.6%
No Diagnosis	2	0.6%
Dystocia	1	0.3%
Goitre	0	0.0%
Mummification	0	0.0%
Anoxia/Hypoxia	0	0.0%
	343	

Table 4: The relative frequency of the diagnosed causes of death in ovine foetuses recorded on post-mortem examination by the RVLs during Quarter 1 of 2020 (n=343).

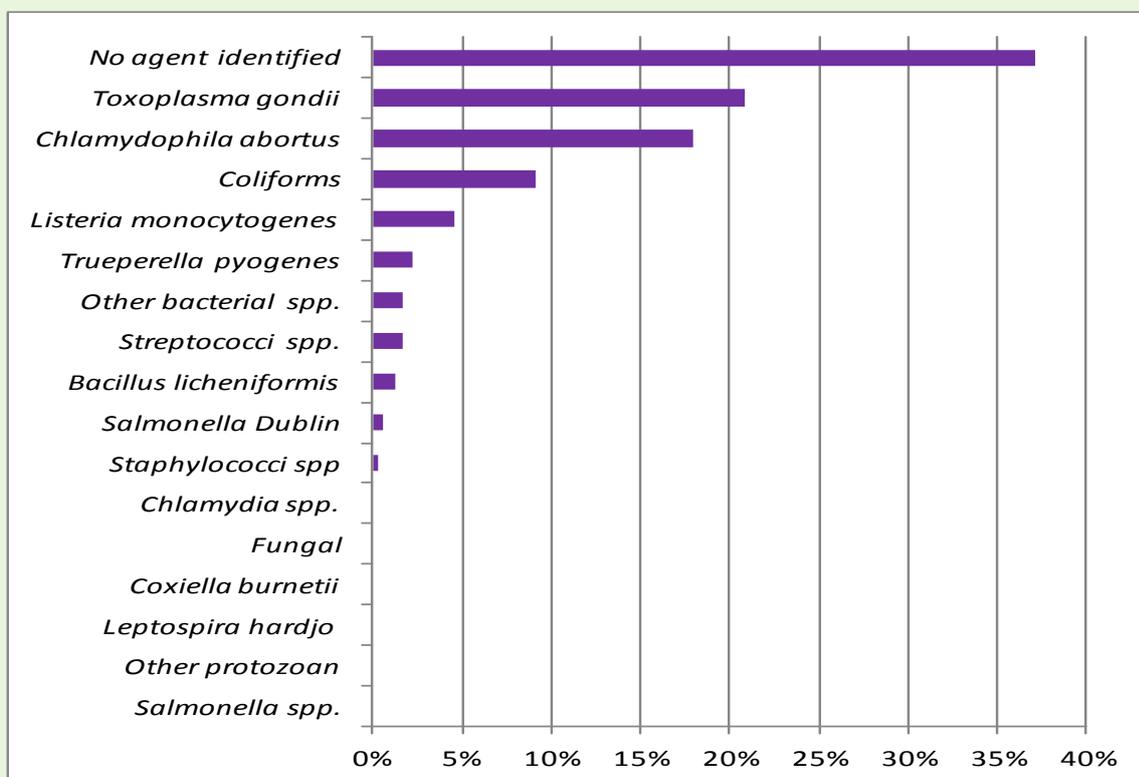


Figure 23: The relative frequency of abortion agents identified in ovine abortion diagnoses (n=307) recorded on post-mortem examination by the RVLs during Quarter 1 of 2020.