



**Department of Agriculture,  
Food and the Marine  
Laboratories Quarterly Surveillance Report  
Quarter 3 of 2019**



An Roinn Talmhaíochta,  
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. This quarterly report and other surveillance reports can be accessed at: [Regional Veterinary Laboratory Reports](#).

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](#).

## This Quarter

The data presented in this report refer to the third quarter of 2019 (July to September). The number of carcass submissions recorded in this period returned to the levels seen in 2016 and 2017, after a dip for the corresponding period in 2018. Met Éireann data show that August and September of 2019 were unusually wet months. Wet weather and wet ground conditions are often associated with an increase in disease incidence, and so the variation in the numbers of carcasses submitted may be related to the contrast in weather conditions between the third quarter in 2018 and that in 2019.

In cattle, it is striking that alimentary tract disease was responsible for more mortality than respiratory disease. This is the case when considering all bovine carcasses examined, but the pattern is particularly strong in calves aged between one and three months of age.

In sheep, the data show that parasites of the gut are still causing problems on Irish sheep farms. Parasitic gastroenteritis was the most commonly recorded cause of death among sheep of all ages. It is also noteworthy that drenching gun injuries were diagnosed as the cause of death in a substantial number of cases during the quarter in question. Farmers are reminded to consult with their vet regarding the need to dose their flocks and the question of which products to use, and to exercise care and caution when administering anthelmintics or other medicines by drenching gun.

## The weather in Quarter 3 of 2019

### Rainfall

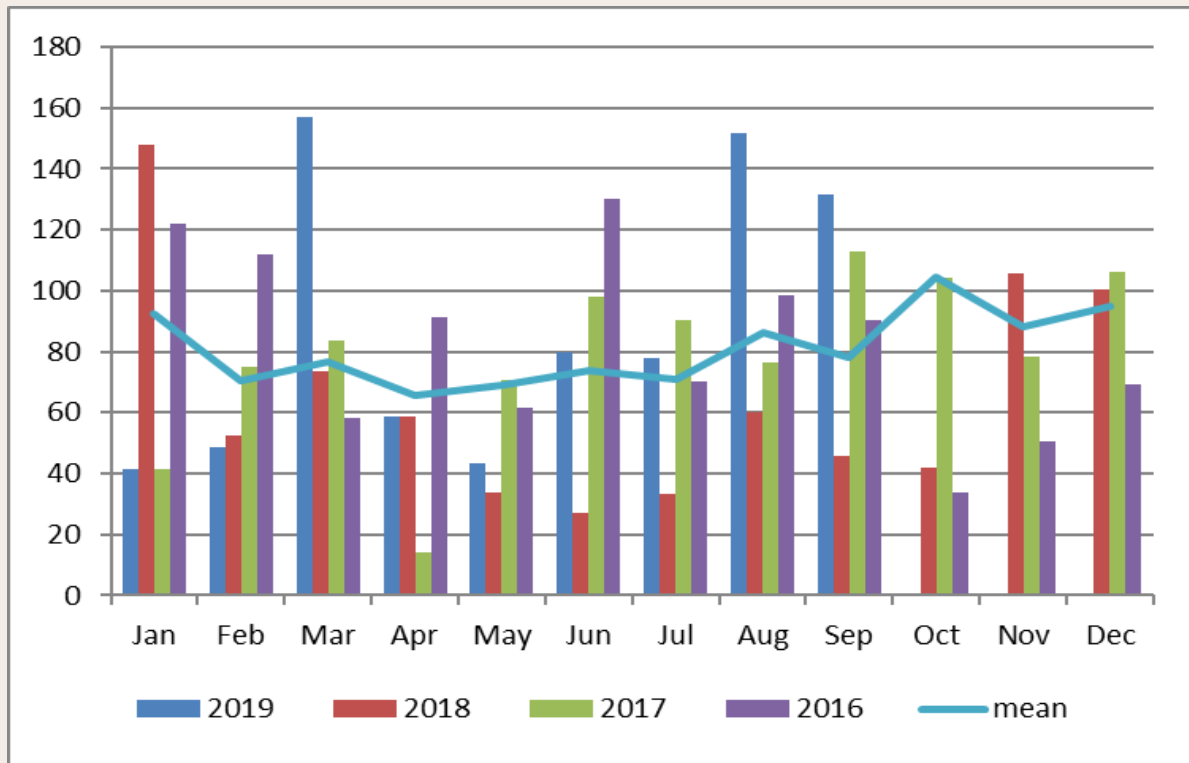


Figure 1: The average monthly rainfall (in millimetres) recorded for Quarter 3 of 2019 compared to the three previous years and the 30-year mean monthly rainfall (trend line). (Source: Met Eireann, www.met.ie).

### Temperature

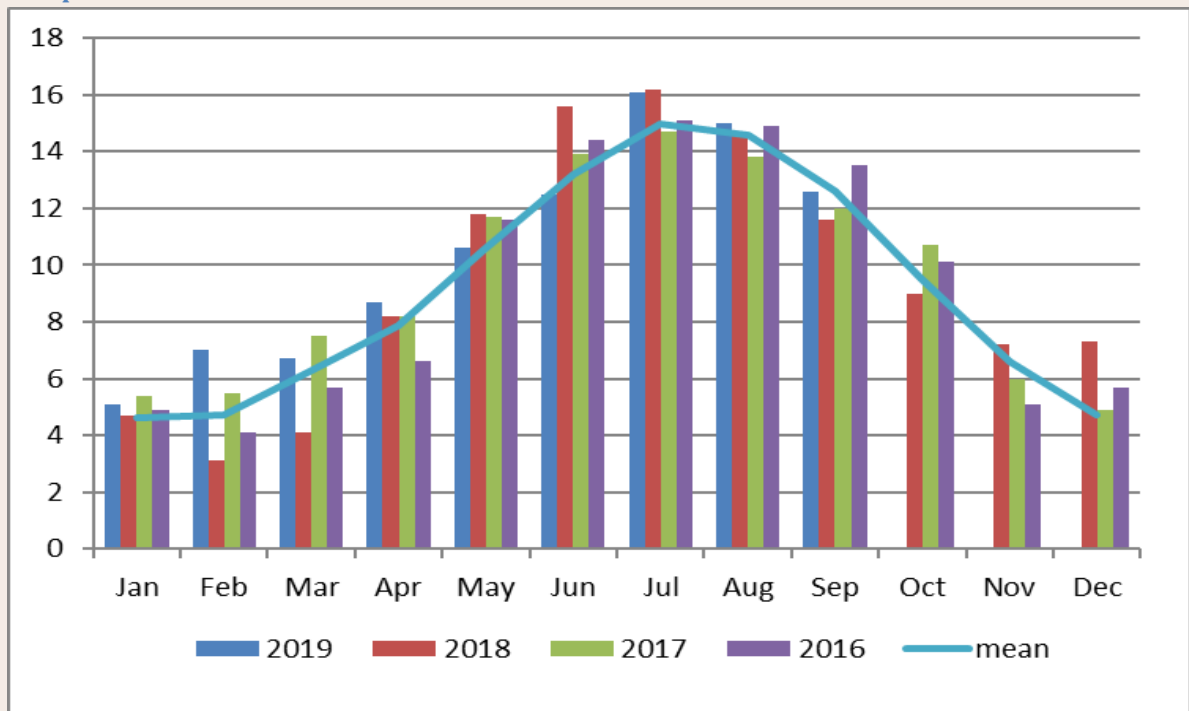


Figure 2: The mean monthly temperature (in degrees Celsius) for Quarter 3 of 2019 compared to the previous three years and the 30-year mean monthly temperature (trend line). (Source: Met Eireann www.met.ie).

## Soil temperature

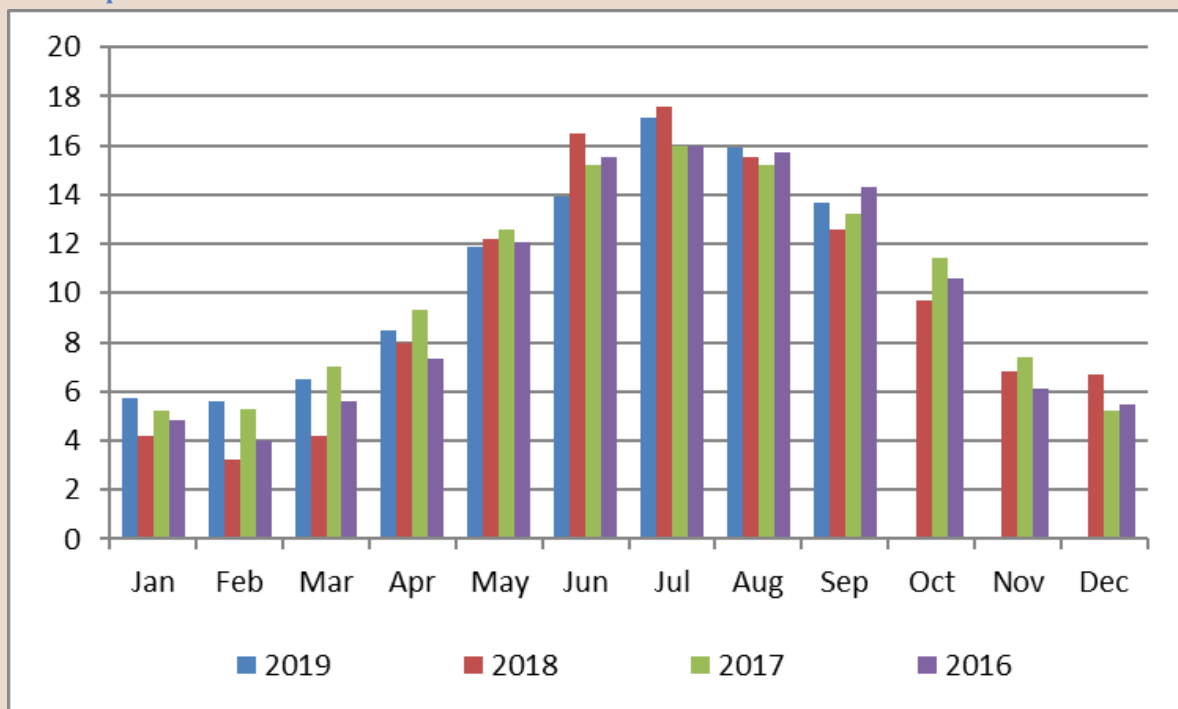


Figure 3: The mean monthly soil temperature (in degrees Celsius) for Quarter 3 of 2019 compared to the previous three years. (Source: Met Eireann [www.met.ie](http://www.met.ie)).

## Submission numbers to the RVLs in Quarter 3 of 2019

SPECIES	Carcass	Diagnostic	Foetus	Grand Total
Avian	130	164		294
Bovine	516	4756	131	5403
Cervine	73			73
Equine	5	50		55
Ovine	199	467		666
Porcine	132	42		174
Badger	39	19		58
Caprine	24	34		58
Exotic	14	3		17
Vulpine	9			9
Lagomorph	28			28
Dolphin	6			6
Buffalo	1			1
Grand Total	1176	5535	131	6842

Table 1: The submission numbers of carcasses, diagnostic samples and foetuses to the RVLs during Quarter 3 of 2019. 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)

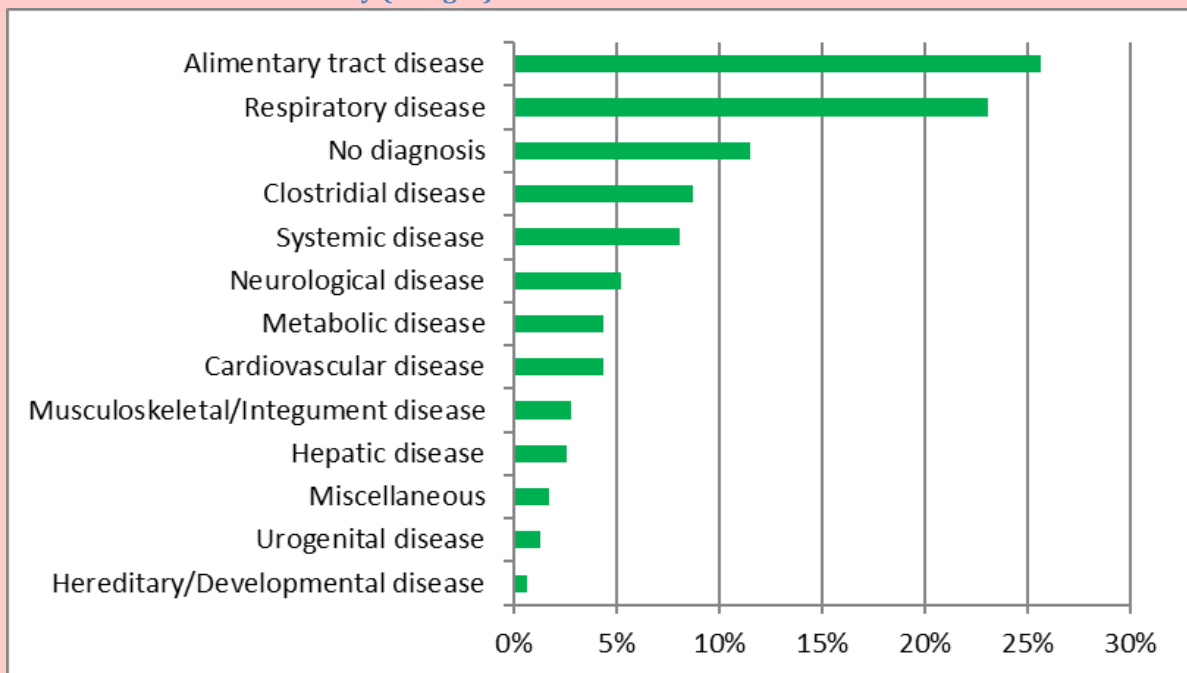


Figure 4: The causes of bovine mortality recorded on post-mortem examination in cattle of all ages by the RVLs, categorised by system or cause, during Quarter 3 of 2019 (n=460).

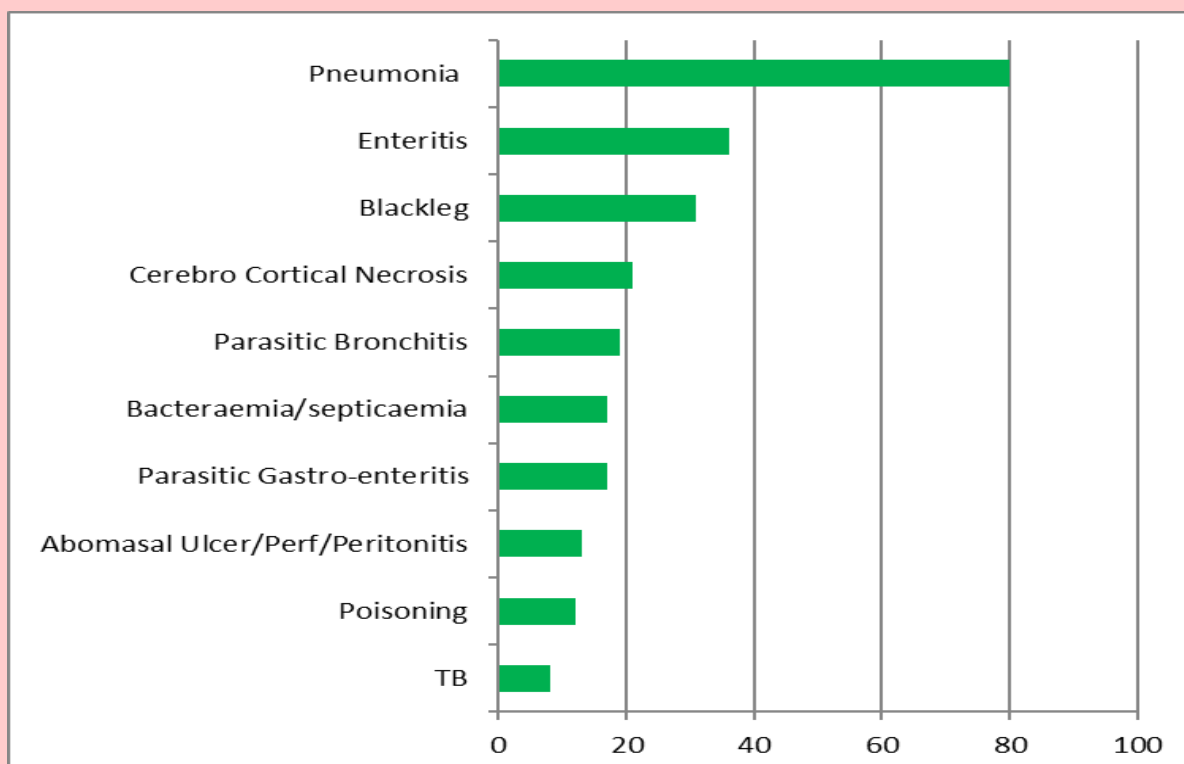


Figure 5: The ten most common individual diagnosed causes of death in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=460).

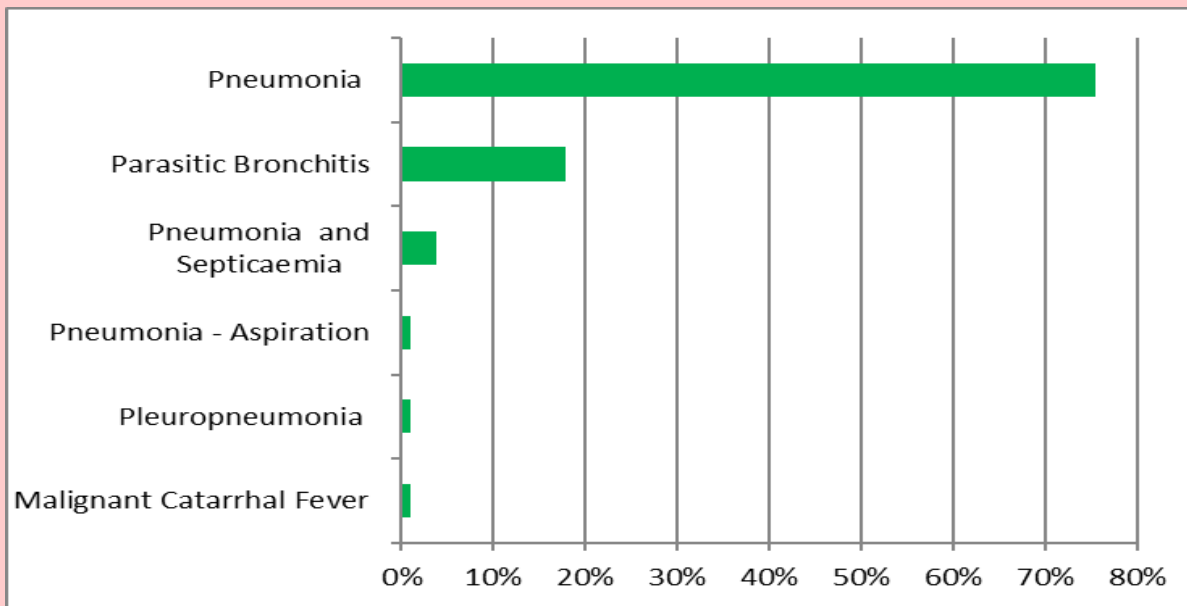


Figure 6: The relative frequency of the most common individual bovine respiratory disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=106).

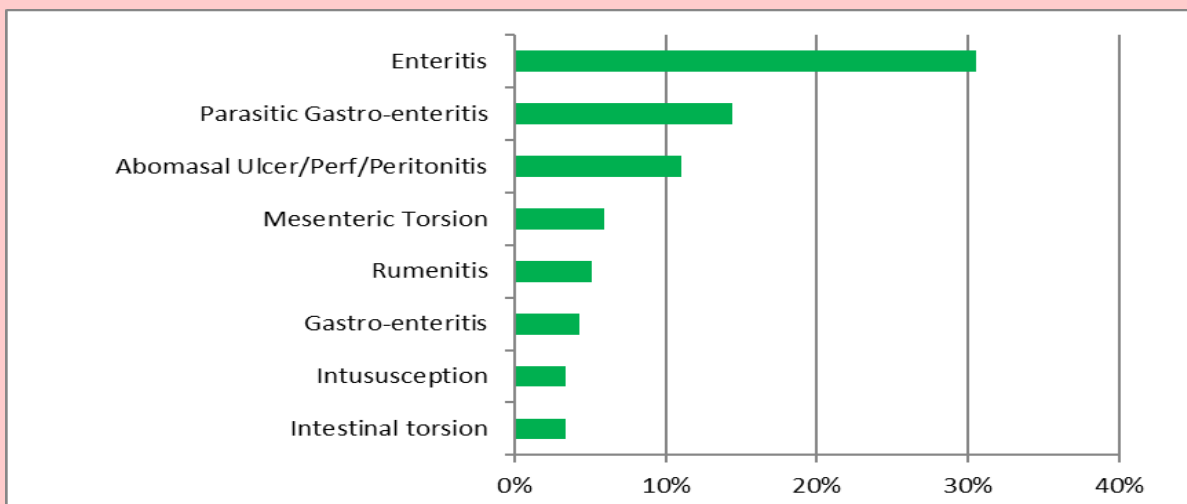


Figure 7: The relative frequency of the most common individual bovine alimentary tract disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=118).

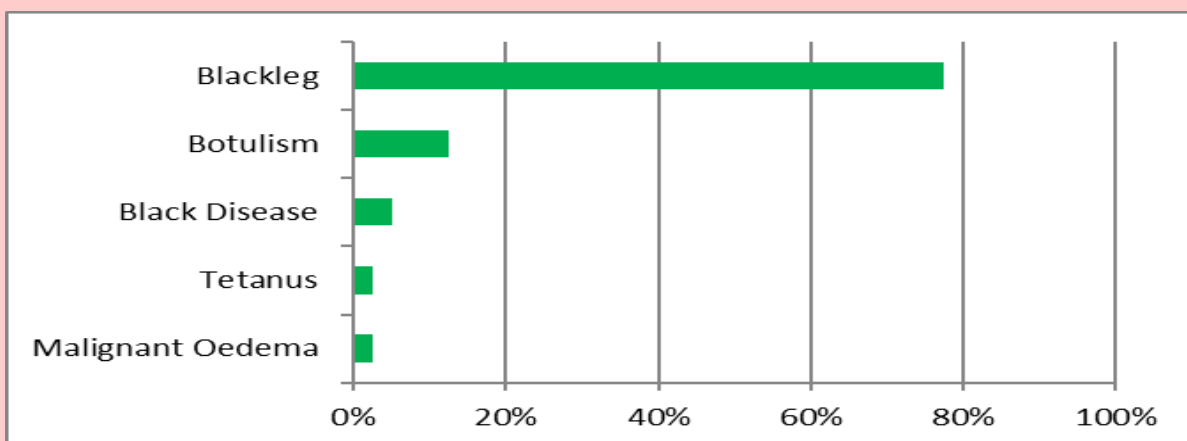


Figure 8: The relative frequency of bovine clostridial disease diagnoses, in cattle of all ages, recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=40).

### The causes of bovine mortality (age-specific)

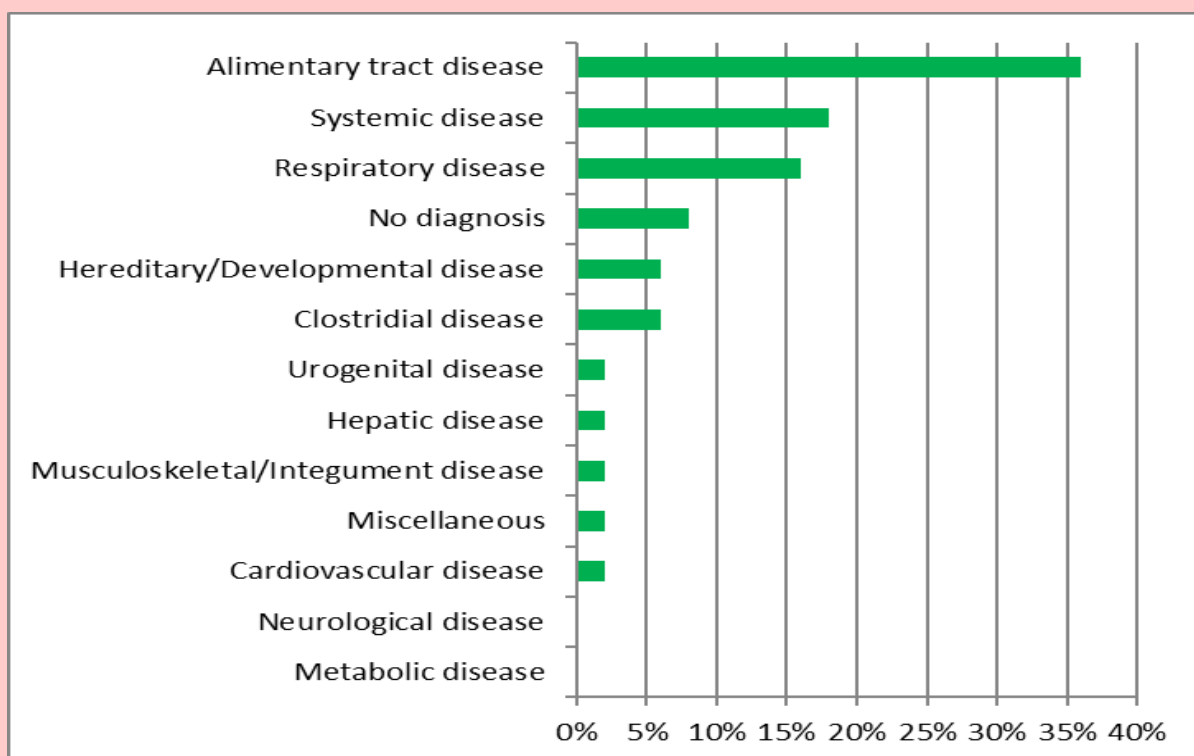


Figure 9: The causes of bovine mortality in neonatal calves (calves aged less than one month) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 3 of 2019 (n=50).

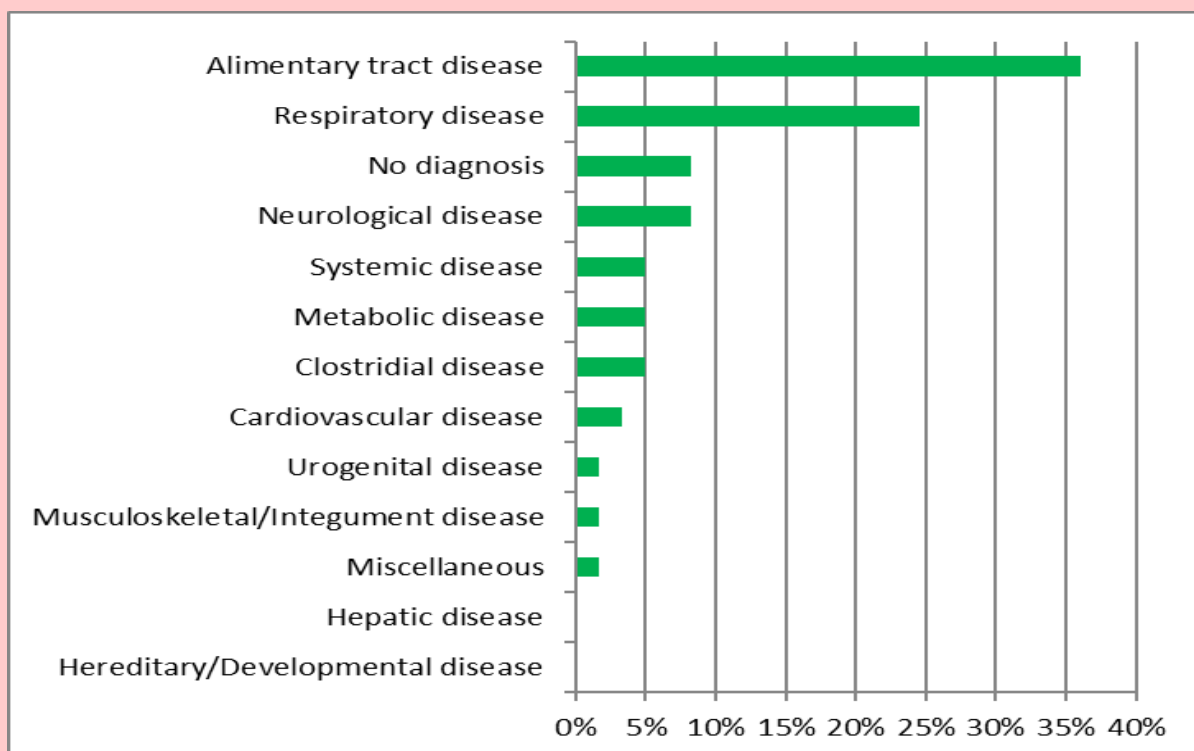


Figure 10: The causes of bovine mortality in calves (calves aged greater than one month but less than three months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 3 of 2019 (n=61).

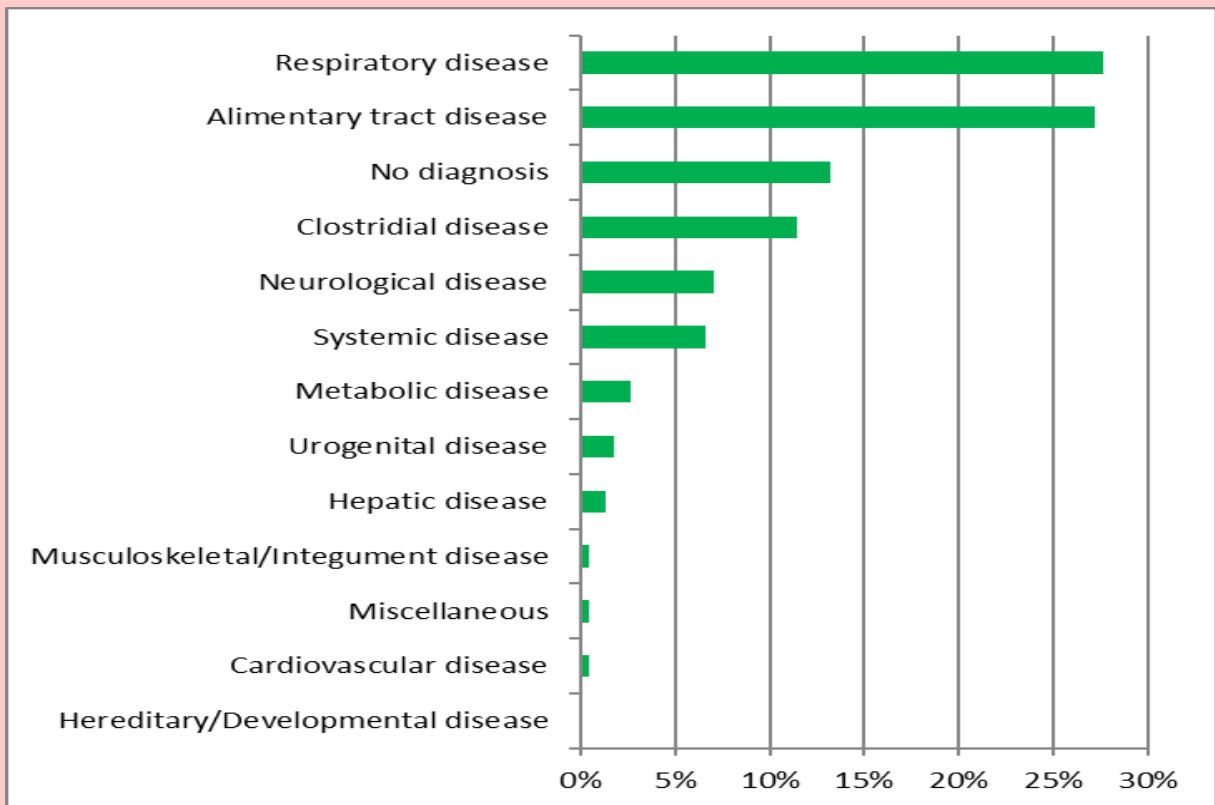


Figure 11: The causes of bovine mortality in weanlings (bovine animals aged greater than three months but less than twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 3 of 2019 (n=228).

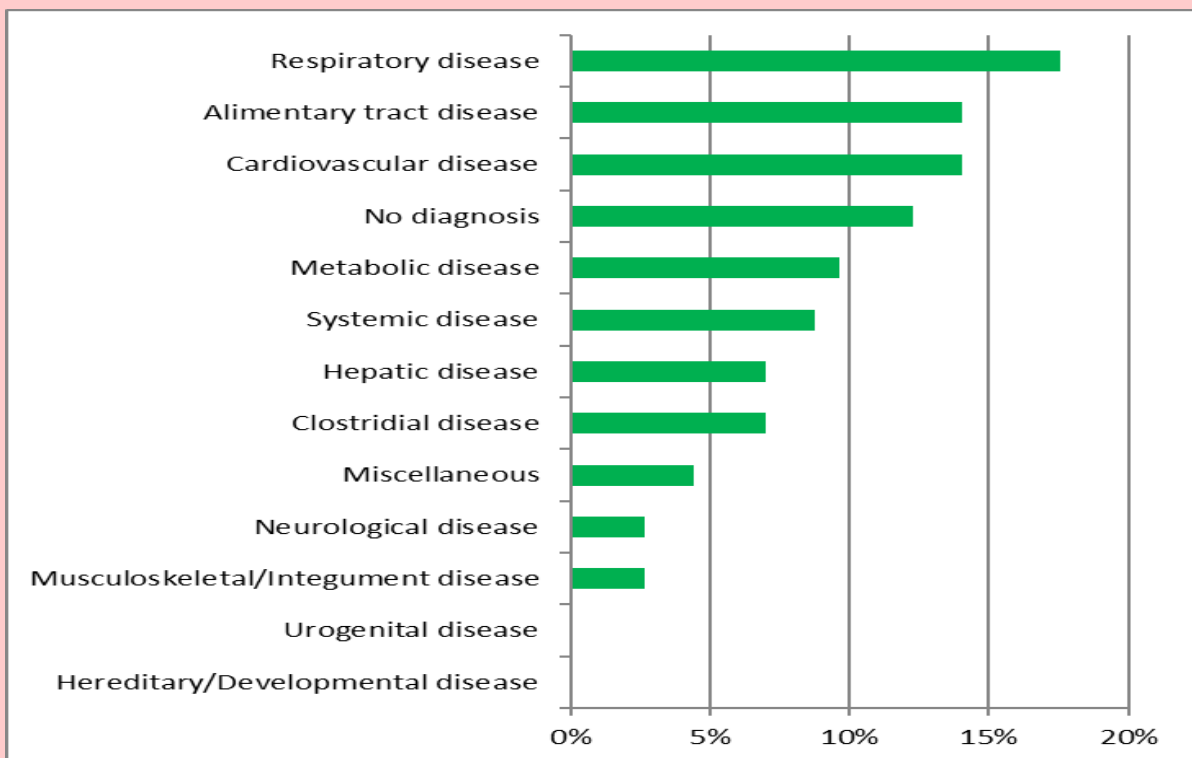


Figure 12: The causes of bovine mortality in adults (bovine animals aged greater than or equal to twelve months) recorded on post-mortem examination by the RVLs, categorised by system or cause, during Quarter 3 of 2019 (n=114).



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

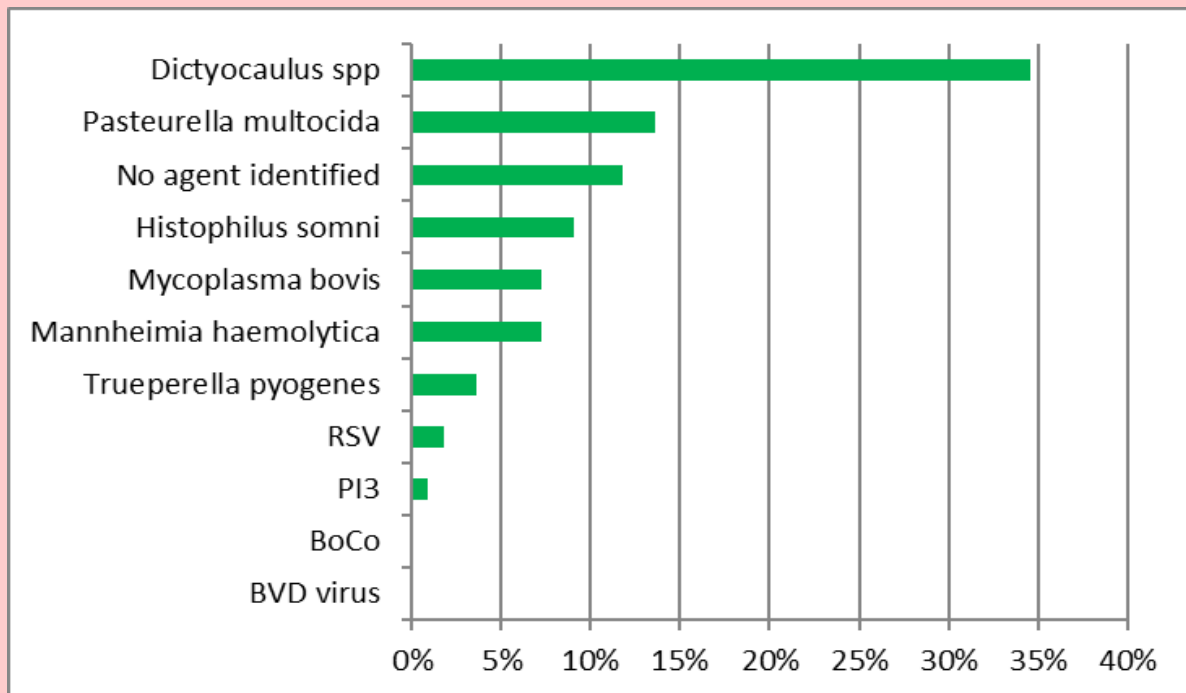


Figure 13: The relative frequency of specific respiratory pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of respiratory disease was made during Quarter 3 of 2019 (n=110).

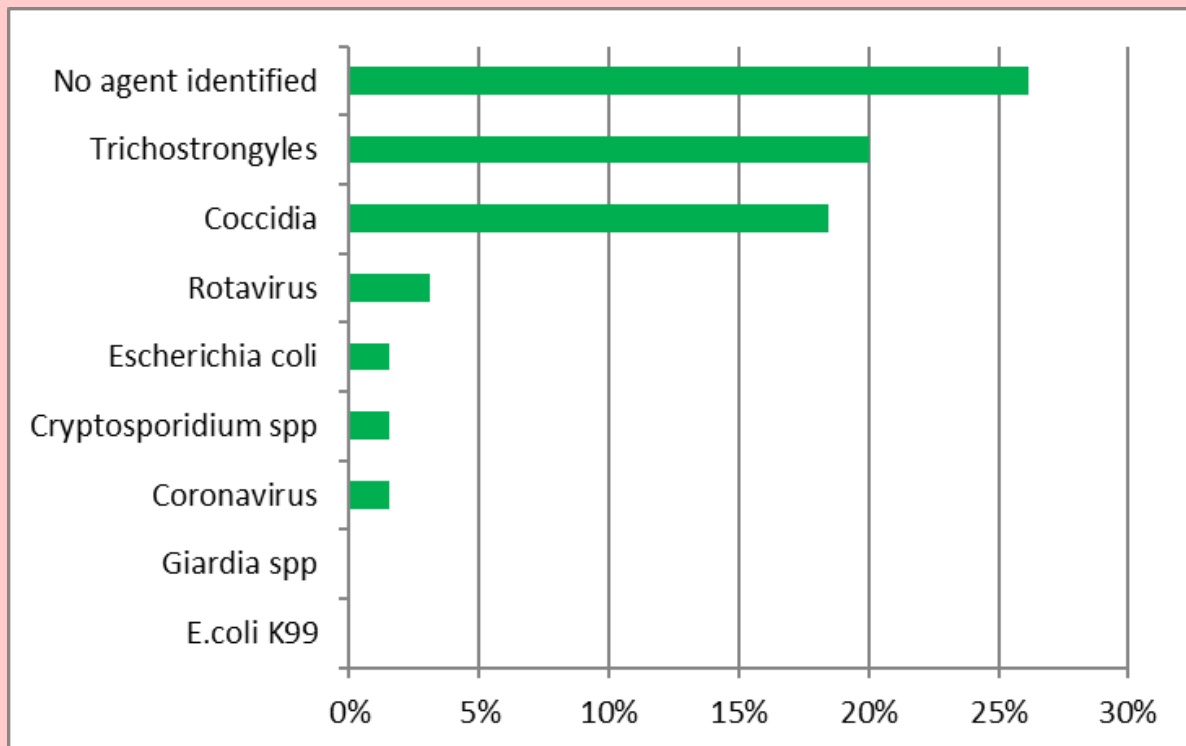


Figure 14: The relative frequency of specific alimentary tract disease pathogens identified in bovine carcasses examined on post-mortem examination by the RVLs, in which a diagnosis of 'enteritis' or 'gastro-enteritis' was made during Quarter 3 of 2019 (n=65).

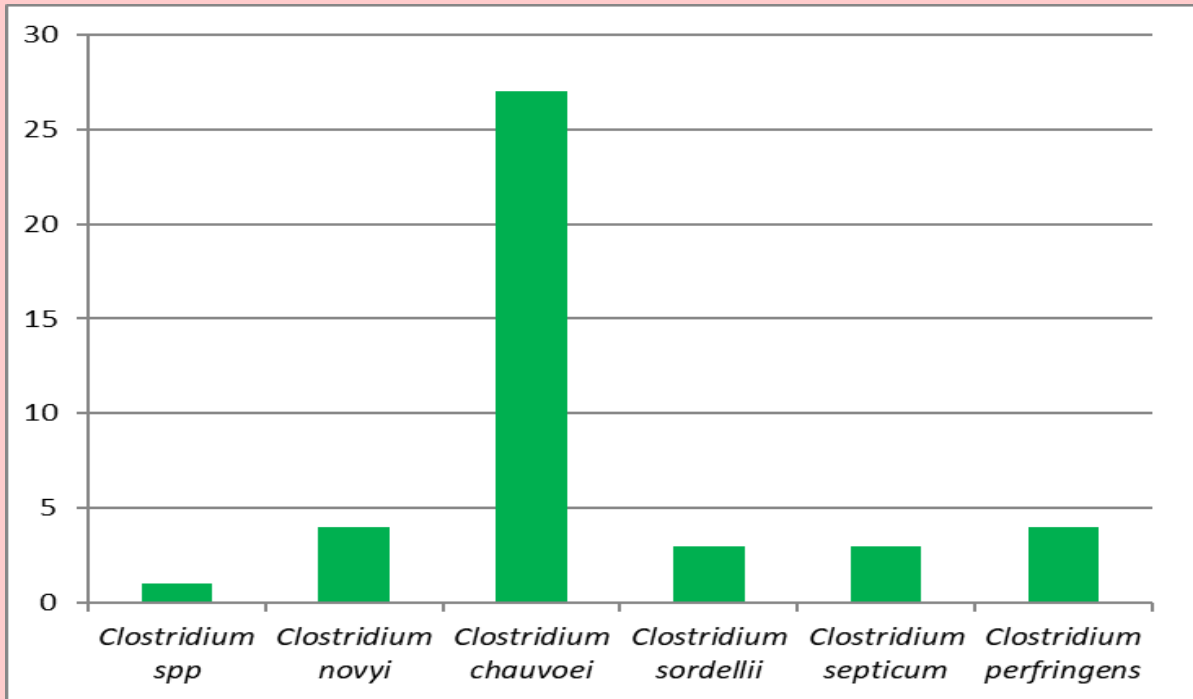


Figure 15: The frequency of identification of *Clostridium* species on post-mortem examination of bovine animal carcasses of all ages by the RVLs during Quarter 3 of 2019.

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

Enteric pathogen	Negative	Positive	%Positive
<i>E.coli</i> K99	42	0	0.0%
Coronavirus	61	0	0.0%
<i>Salmonella</i> culture	59	0	0.0%
<i>Cryptosporidium parvum</i>	66	5	7.0%
Rotavirus	51	6	10.5%

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 3 of 2019 from both 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

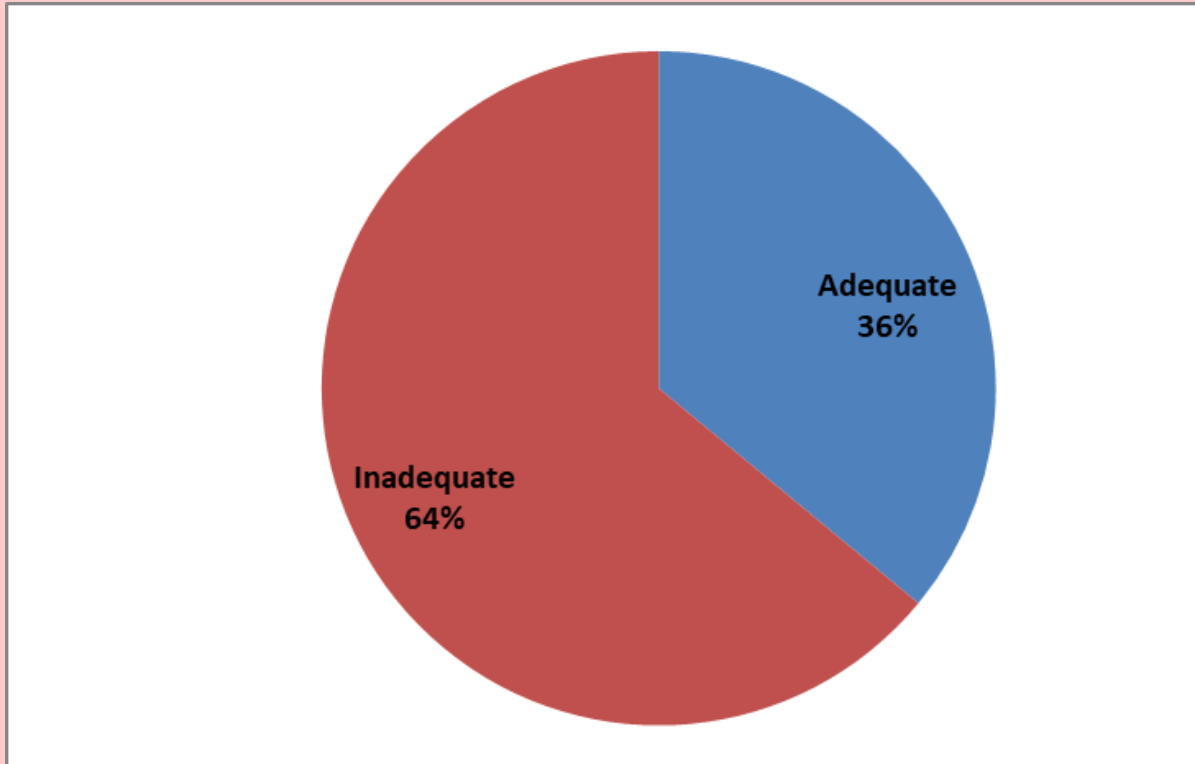


Figure 16: The results of the ZST tests performed on both clinically ill animals and on carcasses submitted for post-mortem examination by the RVLs during Quarter 3 of 2019 (n=25). The ZST test is used to determine the immunoglobulin status of the calf which can reflect the extent to which maternal colostrum 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

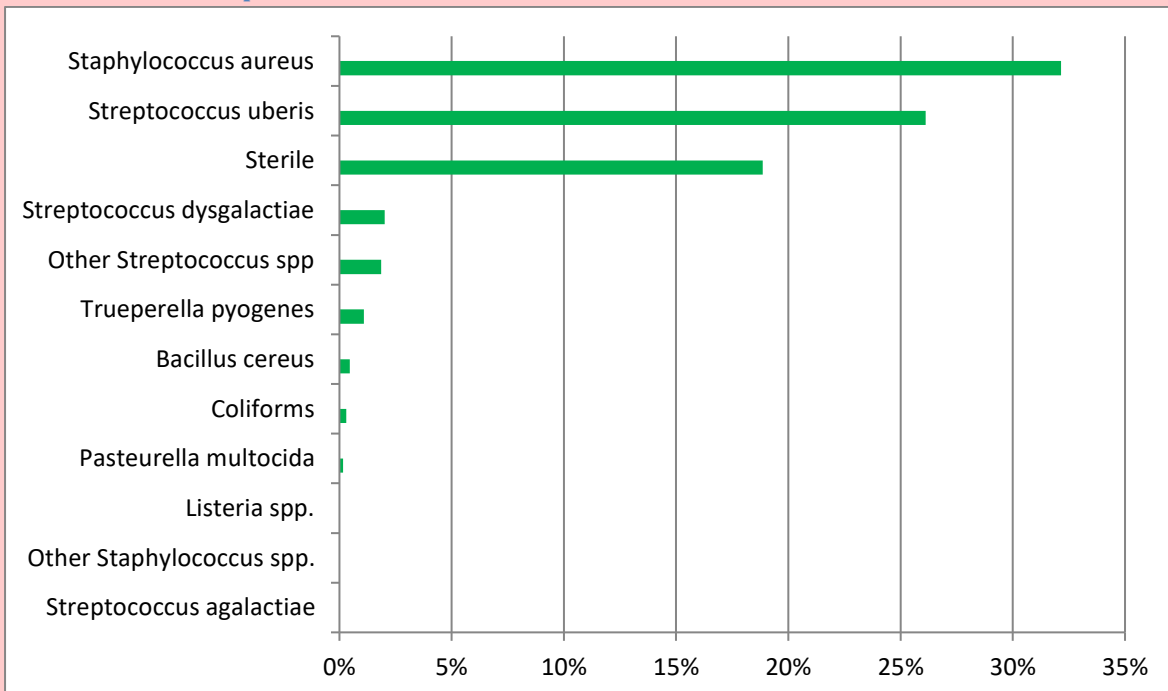


Figure 17: The relative frequency of isolation of specific mastitis pathogens in milk sample submissions (n=647) for bacteriological culture by the RVLs during Quarter 3 of 2019.

## Bovine abortion and perinatal death

Foetal diagnosis	Number	Percentage
Abortion	86	75.4%
Anoxia/Hypoxia	2	1.8%
Hereditary and developmental anomalies	0	0.0%
Mummification	0	0.0%
Stillbirth	0	0.0%
Perinatal mortality	2	1.8%
Placentitis	3	2.6%
Goitre	0	0.0%
Dystocia	5	4.4%
Bacteraemia/Septicaemia	1	0.9%
Weak calf syndrome	0	0.0%
Aspiration pneumonia	0	0.0%
Haemorrhage	0	0.0%
Miscellaneous causes	14	12.3%
No Diagnosis	1	0.9%

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=114) by the RVLs during Quarter 3 of 2019.

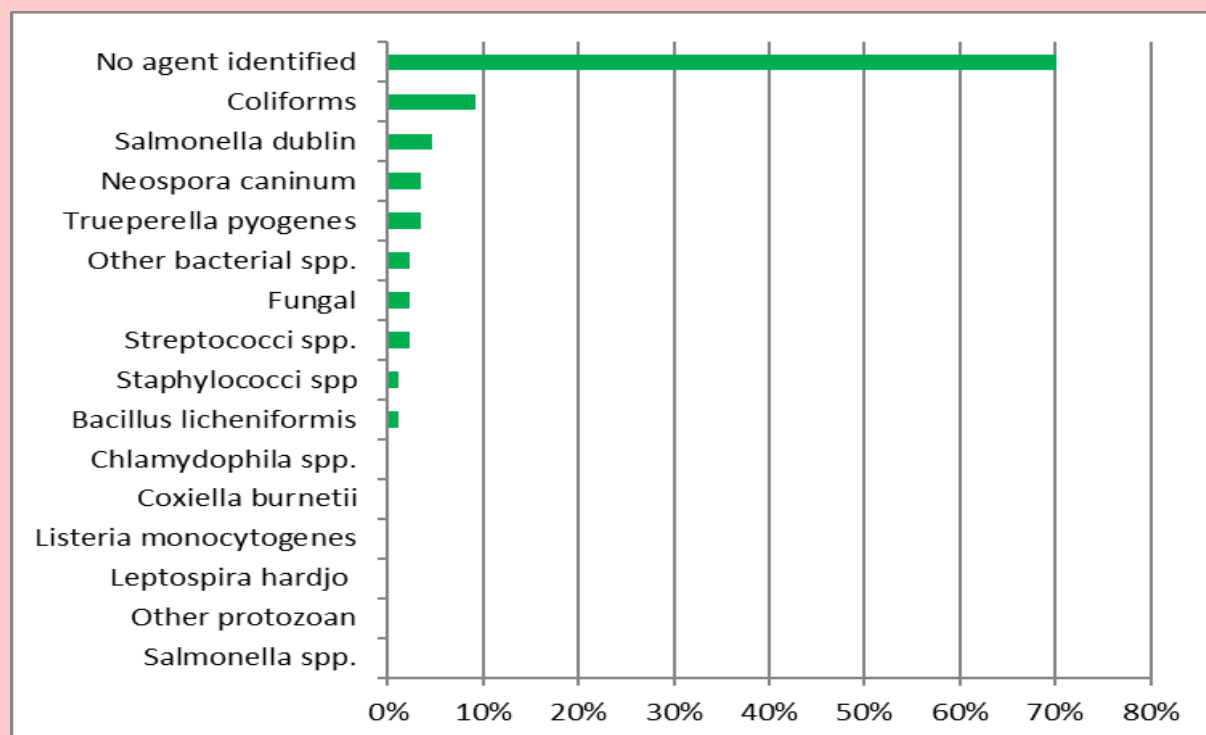


Figure 18: The relative frequency of detection of infectious agents in fetuses submitted to the RVLs for post-mortem examination during Quarter 3 of 2019 in which abortion, stillbirth or placentitis were diagnosed (n=87).

## Ovine disease surveillance

### Causes of ovine mortality

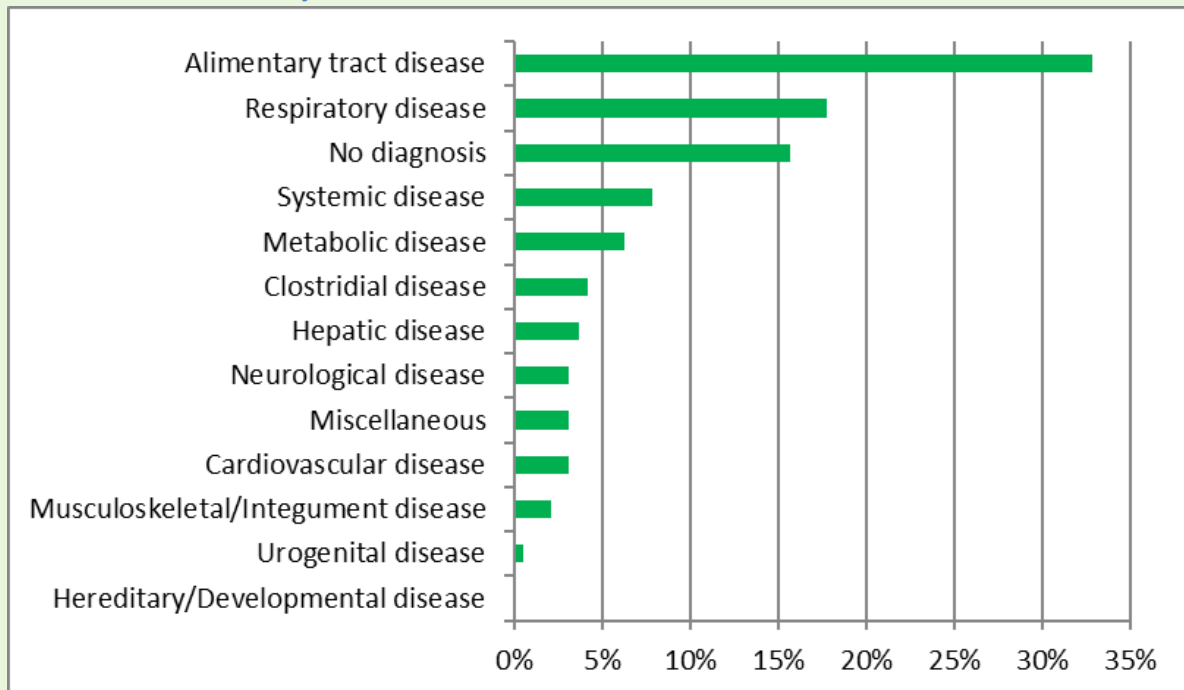


Figure 19: The causes of mortality in sheep carcasses recorded on post-mortem examination by the RVLs during Quarter 3 of 2019, categorised by the system affected or by cause (n=192).

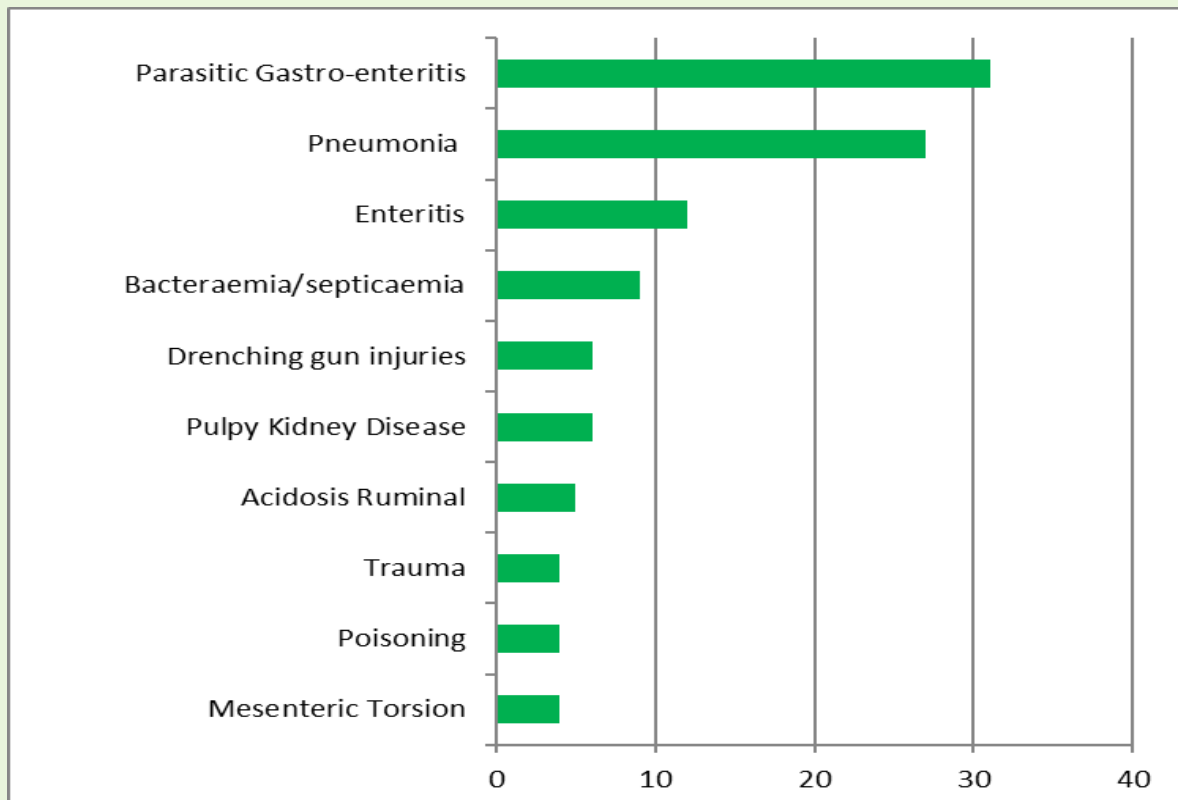


Figure 20: The ten most common individual diagnoses recorded in sheep carcasses on post-mortem examination by the RVLs during Quarter 3 of 2019

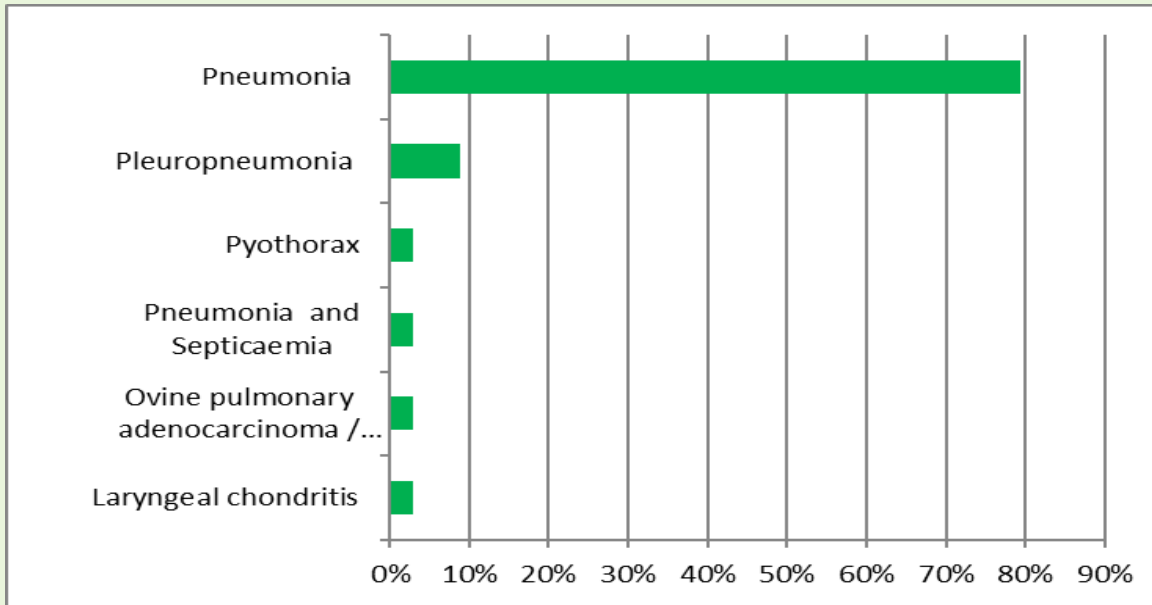


Figure 21: The relative frequency of respiratory disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=34).

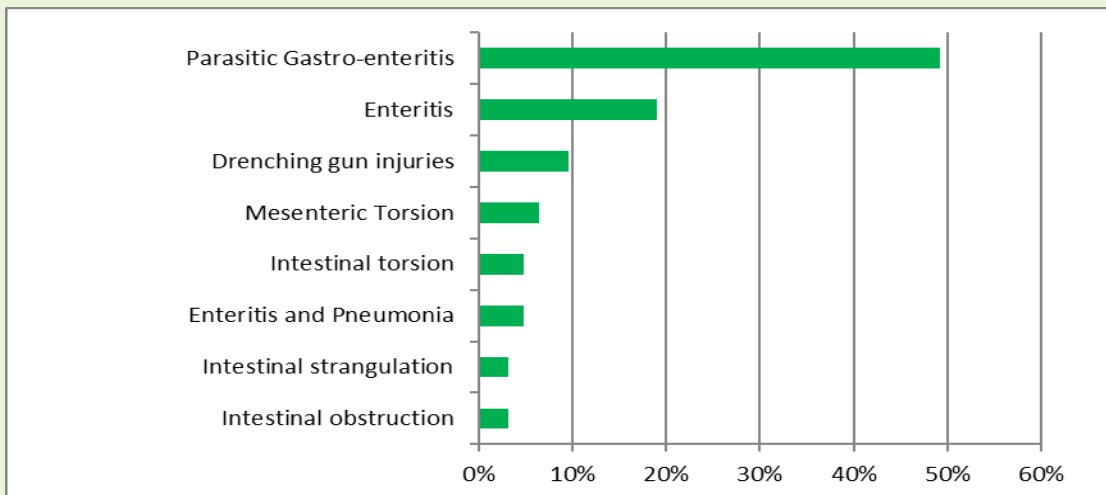


Figure 22: The relative frequency of alimentary tract disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=63).

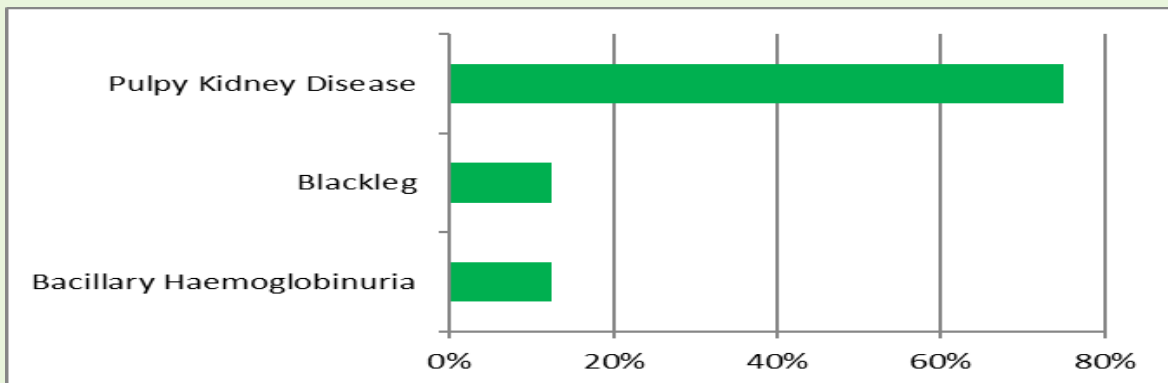


Figure 23: The relative frequency of clostridial disease diagnoses in sheep as recorded on post-mortem examination by the RVLs during Quarter 3 of 2019 (n=8).