

# Animal Disease Surveillance, AFBI

*Agri-Food and Biosciences Institute*

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# Chapter 1

## Introduction

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## Chapter 2

# Cattle Diseases

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**2.1 Neonatal Calves (0-1 months)**

**2.2 Calves (1-5 months)**

**2.3 Calves (6-12 months)**

**2.4 Adults ( $> 12$  months)**

Table 2.1: The conditions most frequently diagnosed on \*post-mortem\* examinations of neonatal calves (0-1 months) in 2017, (n= 610 )

| Category  | Count | Percentage |
|---|-------|------------|
| Enteric infections                                    | 254   | 41.6       |
| Respiratory infections                                | 89    | 14.6       |
| Nutritional /metabolic conditions                     | 50    | 8.2        |
| Septicaemia / toxaemia                                | 47    | 7.7        |
| Navel ill /Joint ill                                  | 43    | 7.0        |
| Other diagnoses                                       | 36    | 5.9        |
| Salmonellosis   | 23    | 3.8        |
| Diagnosis not reached                                 | 16    | 2.6        |
| CVS/circulatory                                       | 10    | 1.6        |
| GIT torsion /obstruction                              | 10    | 1.6        |
| Peritonitis   | 6     | 1.0        |
| CNS   | 6     | 1.0        |
| BNP   | 5     | 0.8        |
| Hereditary and developmental abnormality              | 5     | 0.8        |
| Fractures / skeletal abnormalities / calving injuries | 4     | 0.7        |
| Urinary tract   | 3     | 0.5        |
| GIT ulcers / perforations                             | 3     | 0.5        |

Table 2.2: The conditions most frequently diagnosed on \*post-mortem\* examinations of calves (1-5 months) in AFBI during 2017 (n= 369 )

| Category                           | Count | Percentage |
|------------------------------------|-------|------------|
| Respiratory infections             | 186   | 50.4       |
| Enteric infections                 | 35    | 9.5        |
| Diagnosis not reached              | 19    | 5.2        |
| Nutritional / metabolic conditions | 18    | 4.9        |
| GIT torsions /obstruction          | 17    | 4.6        |
| Peritonitis                        | 15    | 4.1        |
| Other diagnoses                    | 14    | 3.8        |
| Septicaemia / toxaemia             | 13    | 3.5        |
| Clostridial disease                | 11    | 3.0        |
| Navel ill / Joint ill              | 11    | 3.0        |
| Cardiovascular conditions          | 9     | 2.4        |
| Urinary tract conditions           | 6     | 1.6        |
| CNS conditions                     | 6     | 1.6        |
| GIT ulcer / perforation            | 5     | 1.4        |
| Poisoning                          | 2     | 0.5        |
| BVD /Mucosal disease               | 2     | 0.5        |

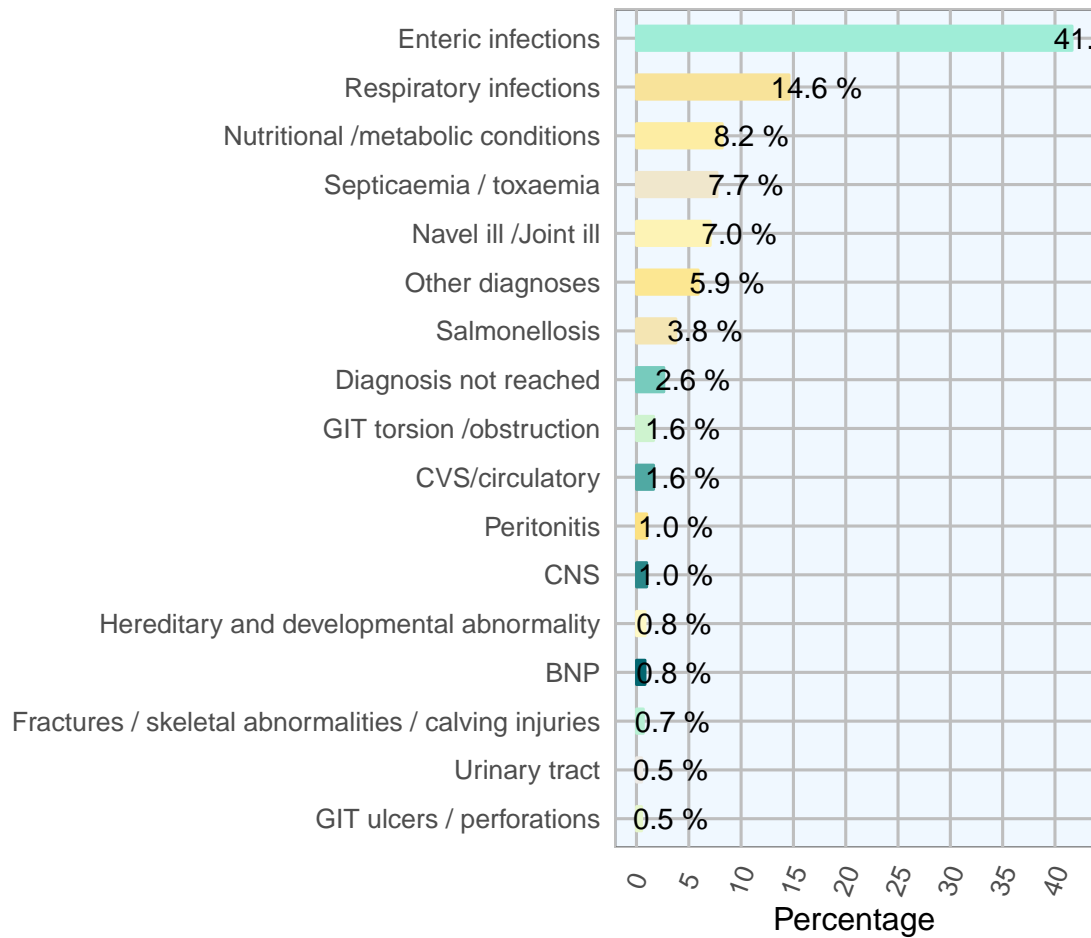


Figure 2.1: The conditions most frequently diagnosed on post-mortem examinations of neonatal calves (0-1 months) by AFBI during 2017 (n= 610 )

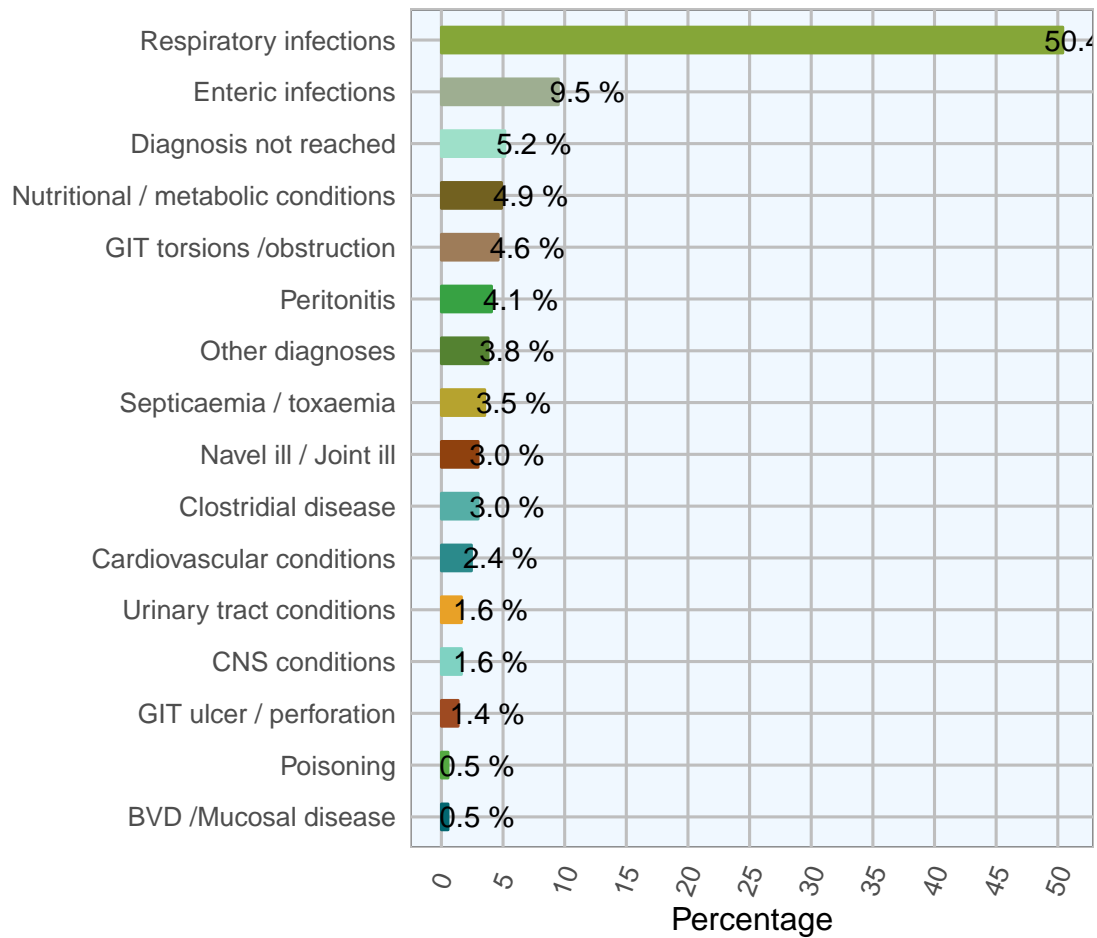


Figure 2.2: The conditions most frequently diagnosed on \*post-mortem\* examinations of calves (1-5 months) by AFBI during 2017 (n= 369 )

Table 2.3: The conditions most frequently diagnosed on \*post-mortem\* examinations of calves (6-12 months) in AFBI during 2017 (n= 163 )

| Category                           | Count | Percentage |
|------------------------------------|-------|------------|
| Respiratory tract infections       | 80    | 49.1       |
| Clostridial disease                | 18    | 11.0       |
| Diagnosis not reached              | 17    | 10.4       |
| Nutritional / metabolic conditions | 11    | 6.8        |
| Enteric infections                 | 8     | 4.9        |
| Other diagnoses                    | 6     | 3.7        |
| urinary tract conditions           | 3     | 1.8        |
| GIT ulcer, perforation, for body   | 3     | 1.8        |
| liver disease                      | 3     | 1.8        |
| Poisoning                          | 3     | 1.8        |
| GIT torsion / obstruction          | 2     | 1.2        |
| Cardiac conditions                 | 2     | 1.2        |
| BVD / Mucosal disease              | 2     | 1.2        |
| CNS conditions                     | 2     | 1.2        |
| Skeletal conditions                | 2     | 1.2        |
| peritonitis                        | 1     | 0.6        |

Table 2.4: The conditions most frequently diagnosed on \*post-mortem\* examinations of adults (>12 months) by AFBI during 2017 (n= 464 )

| Category                                    | Count | Percentage |
|---|-------|------------|
| Respiratory infections                      | 95    | 20.5       |
| Other diagnoses                             | 56    | 12.1       |
| Diagnosis not reached                       | 55    | 11.8       |
| Cardiac/ circulatory system                 | 50    | 10.8       |
| Clostridial disease                         | 39    | 8.4        |
| Nutritional /metabolic conditions           | 36    | 7.8        |
| Liver disease                               | 29    | 6.2        |
| GIT ulceration / perforation / foreign body | 24    | 5.2        |
| Enteric infections                          | 19    | 4.1        |
| Reproductive tract infections/Mastitis      | 12    | 2.6        |
| Intestinal or gastric torsion /obstruction  | 10    | 2.2        |
| Peritonitis                                 | 10    | 2.2        |
| Urinary tract conditions                    | 9     | 1.9        |
| Poisoning                                   | 9     | 1.9        |
| Tumour                                      | 6     | 1.3        |
| CNS infections                              | 5     | 1.1        |

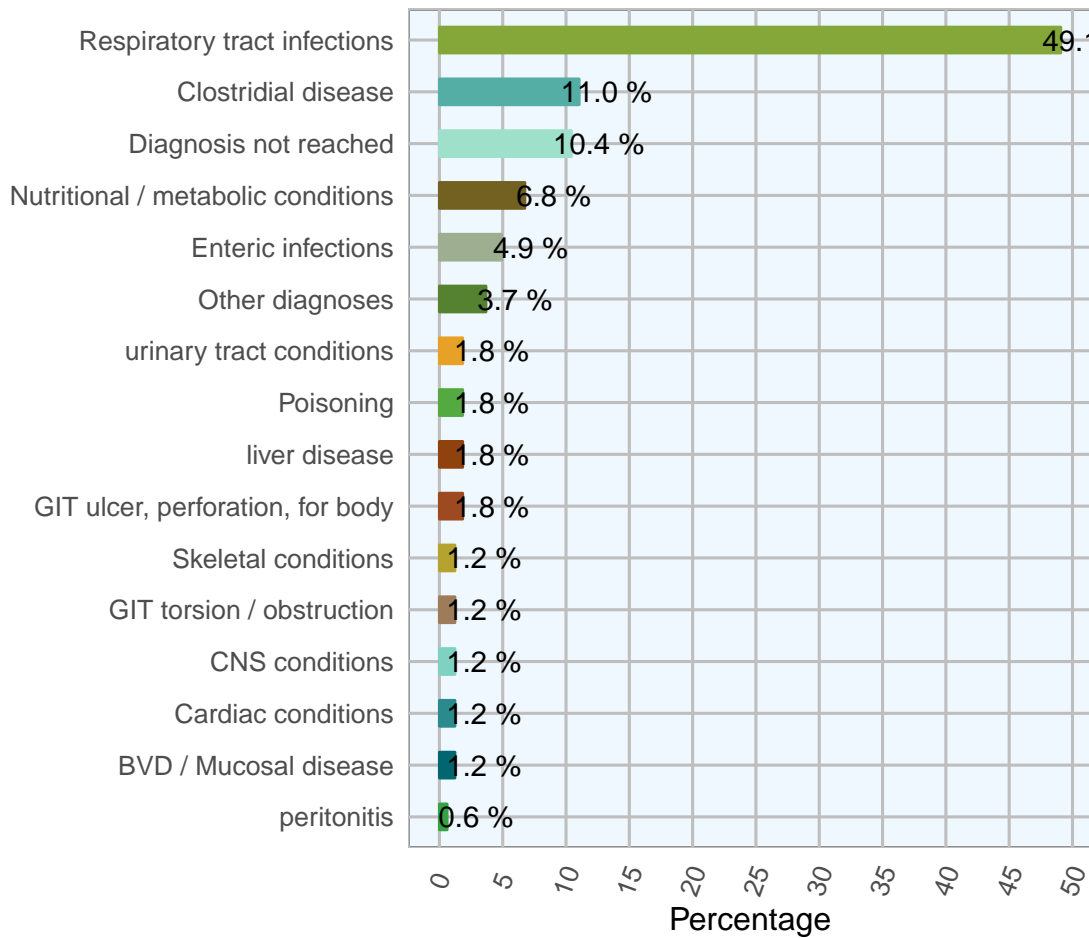


Figure 2.3: The conditions most frequently diagnosed on \*post-mortem\* examinations of calves (6-12 months) by AFBI during 2017 (n= 163 )

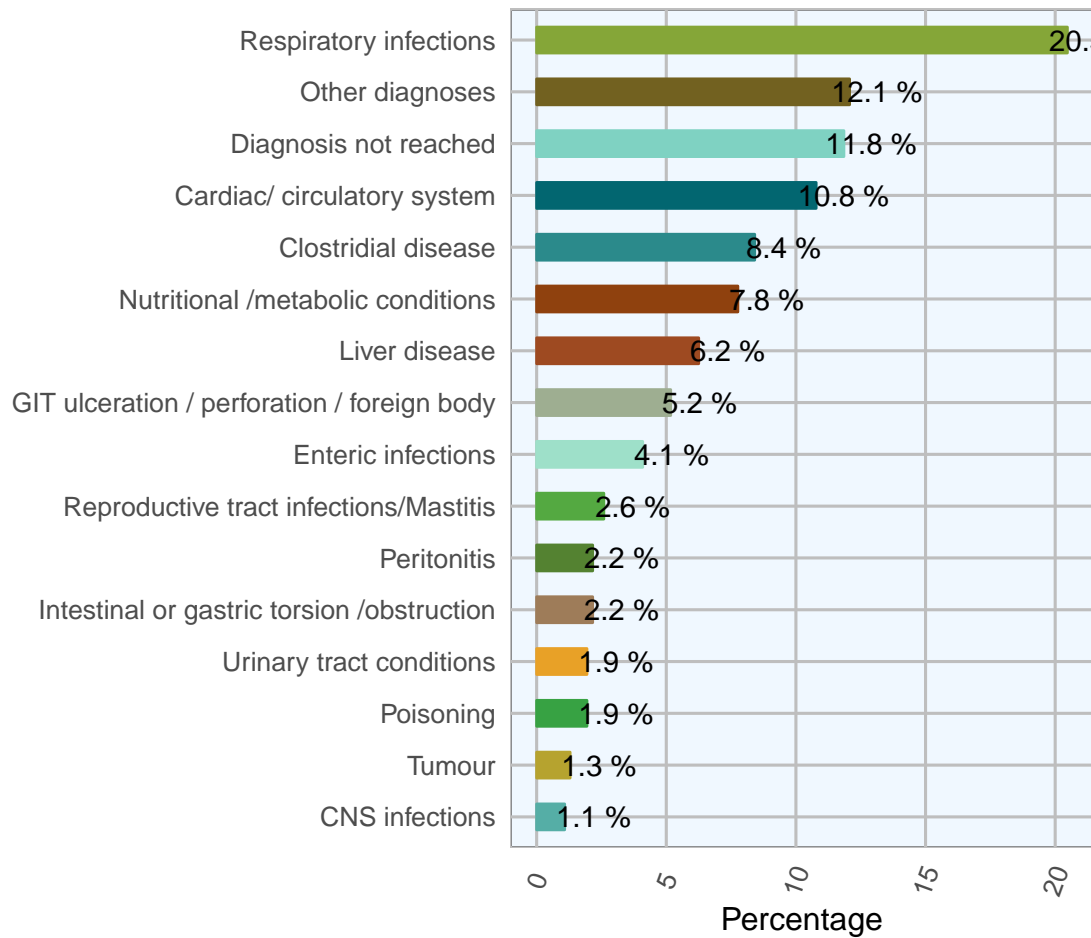


Figure 2.4: The conditions most frequently diagnosed on \*post-mortem\* examinations of adults (>12 months) by AFBI during 2017, (n= 464 )





## Chapter 3

# Ovine Diseases

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### 3.1 Diagnoses by Group

#### 3.1.1 Septicaemia

#### 3.1.2 Respiratory Disease

#### 3.1.3 Poisoning

#### 3.1.4 Parasitic Disease

#### 3.1.5 Metabolic

#### 3.1.6 Enteritis

#### 3.1.7 CNS

#### 3.1.8 Clostridial diseases

Table 3.1: The most common diagnostic groups on \*post-mortem\* examinations of ovine by AFBI in 2017 (n= 559 )

| Category             | Count | Percentage |
|----------------------|-------|------------|
| Parasitic Disease    | 188   | 33.6       |
| Enteritis            | 158   | 28.3       |
| Respiratory Disease  | 73    | 13.1       |
| Septicemia           | 36    | 6.4        |
| Clostridial diseases | 32    | 5.7        |
| CNS                  | 27    | 4.8        |
| Metabolic            | 23    | 4.1        |
| Poisoning            | 22    | 3.9        |

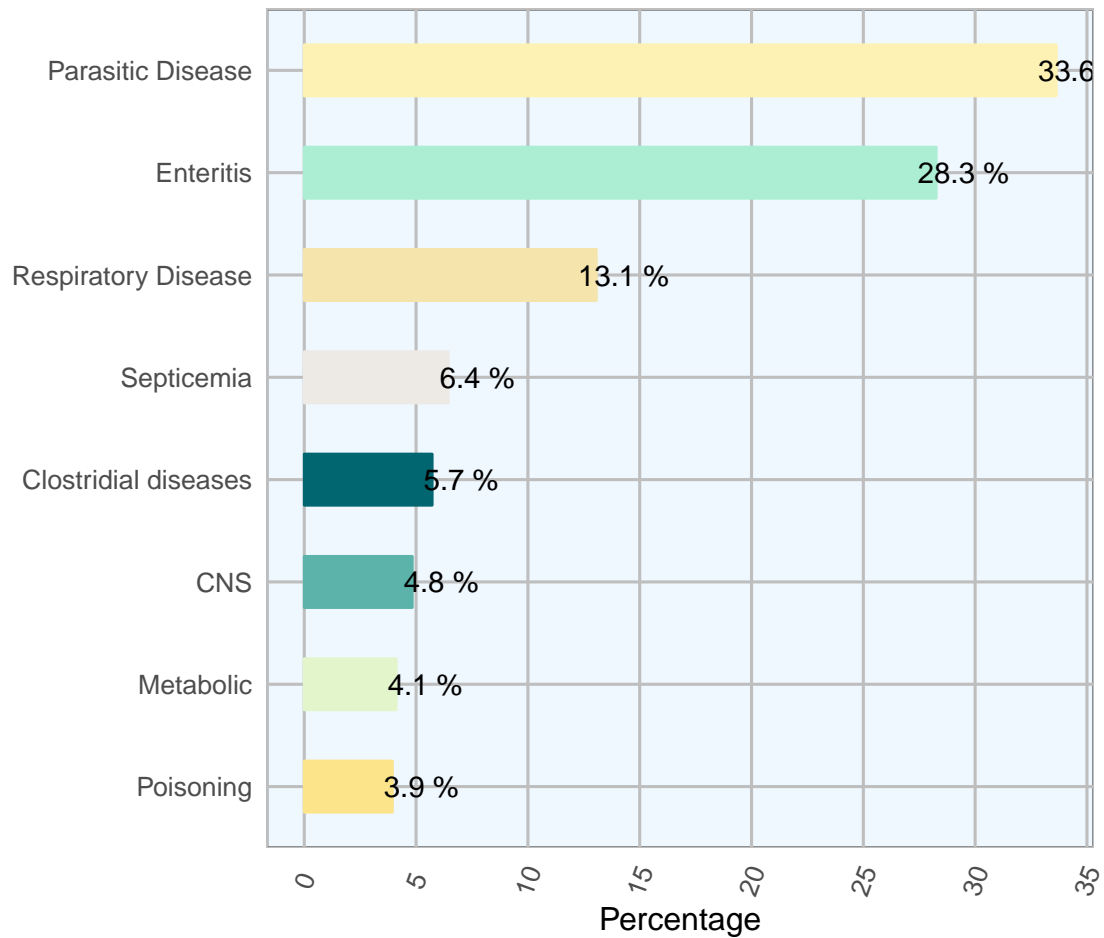


Figure 3.1: The conditions most frequently diagnosed on \*post-mortem\* examinations of ovine carcasses in 2017(n= 559 )

Table 3.2: The frequency of the most common diagnostic group on \*post-mortem\* examinations of ovine carcasses by during 2017 (n= 559 )

| Category             | Disease                               | Count | Pct within group | Pct  |
|----------------------|---------------------------------------|-------|------------------|------|
| Septicemia           | Pasteurella septicaemia               | 18    | 50.0             | 3.2  |
| Septicemia           | Colisepticaemia                       | 9     | 25.0             | 1.6  |
| Septicemia           | Septicaemia NOS                       | 5     | 13.9             | 0.9  |
| Septicemia           | Systemic pasteurellosis               | 3     | 8.3              | 0.5  |
| Septicemia           | Navel-ill / joint-ill                 | 1     | 2.8              | 0.2  |
| Respiratory Disease  | Pulmonia Adenomatosis - Jaagsiekte    | 29    | 39.7             | 5.2  |
| Respiratory Disease  | P Haemolytica                         | 18    | 24.7             | 3.2  |
| Respiratory Disease  | Pneumonitis Nos                       | 10    | 13.7             | 1.8  |
| Respiratory Disease  | Parasitic pneumonia                   | 6     | 8.2              | 1.1  |
| Respiratory Disease  | Bronchopneumonia                      | 3     | 4.1              | 0.5  |
| Respiratory Disease  | Laryngel Chondritis                   | 3     | 4.1              | 0.5  |
| Respiratory Disease  | Fibrinous Pleurisy                    | 2     | 2.7              | 0.4  |
| Respiratory Disease  | Necrotising Laryngitis                | 1     | 1.4              | 0.2  |
| Respiratory Disease  | Viral Pneumonia                       | 1     | 1.4              | 0.2  |
| Poisoning            | Poisoning DT pieris                   | 14    | 63.6             | 2.5  |
| Poisoning            | Poisoning DT copper                   | 4     | 18.2             | 0.7  |
| Poisoning            | Poisoning DT plant NOS                | 2     | 9.1              | 0.4  |
| Poisoning            | Poisoning DT rhododendron             | 2     | 9.1              | 0.4  |
| Parasitic Disease    | PGE Nos                               | 69    | 36.7             | 12.3 |
| Parasitic Disease    | Chronic Fascioliasis                  | 50    | 26.6             | 8.9  |
| Parasitic Disease    | Coccidiosis                           | 24    | 12.8             | 4.3  |
| Parasitic Disease    | PGE- Nematodiriasis                   | 24    | 12.8             | 4.3  |
| Parasitic Disease    | Acute Fascioliasis                    | 21    | 11.2             | 3.8  |
| Metabolic            | Acidosis                              | 10    | 43.5             | 1.8  |
| Metabolic            | Twin lamb disease                     | 7     | 30.4             | 1.2  |
| Metabolic            | Hypocalcaemia                         | 3     | 13.0             | 0.5  |
| Metabolic            | Pregnancy toxaemia                    | 2     | 8.7              | 0.4  |
| Metabolic            | Hypomagnesaemia                       | 1     | 4.3              | 0.2  |
| Enteritis            | PGE – NOS                             | 69    | 43.7             | 12.3 |
| Enteritis            | Coccidiosis                           | 24    | 15.2             | 4.3  |
| Enteritis            | PGE – nematodiriasis                  | 24    | 15.2             | 4.3  |
| Enteritis            | Diarrhoea NOS                         | 10    | 6.3              | 1.8  |
| Enteritis            | Enteritis NOS                         | 8     | 5.1              | 1.4  |
| Enteritis            | Abomasitis                            | 6     | 3.8              | 1.1  |
| Enteritis            | Colibacillosis – enteric              | 3     | 1.9              | 0.5  |
| Enteritis            | Colienteritis                         | 3     | 1.9              | 0.5  |
| Enteritis            | Cryptosporidiosis                     | 2     | 1.3              | 0.4  |
| Enteritis            | Johne's disease                       | 2     | 1.3              | 0.4  |
| Enteritis            | Perforated intestine                  | 2     | 1.3              | 0.4  |
| Enteritis            | Watery mouth                          | 2     | 1.3              | 0.4  |
| Enteritis            | Colibacillosis enteric – K99 positive | 1     | 0.6              | 0.2  |
| Enteritis            | Red gut                               | 1     | 0.6              | 0.2  |
| Enteritis            | Tapeworm infestation                  | 1     | 0.6              | 0.2  |
| CNS                  | Encephalitis DT Listeria sp           | 11    | 40.7             | 2.0  |
| CNS                  | Meningitis / encephalitis             | 6     | 22.2             | 1.1  |
| CNS                  | Listeriosis                           | 4     | 14.8             | 0.7  |
| CNS                  | Cerebrocortical necrosis              | 3     | 11.1             | 0.5  |
| CNS                  | Encephalitis NOS                      | 2     | 7.4              | 0.4  |
| CNS                  | Brain hemorrhage                      | 1     | 3.7              | 0.2  |
| Clostridial diseases | Pulpy kidney diseases                 | 12    | 37.5             | 2.1  |
| Clostridial diseases | Pulpy kidney                          | 11    | 34.4             | 2.0  |
| Clostridial diseases | Black disease                         | 4     | 12.5             | 0.7  |
| Clostridial diseases | Clost Dis NOS                         | 3     | 9.4              | 0.5  |
| Clostridial diseases | Enterotoxaemia                        | 2     | 6.2              | 0.4  |

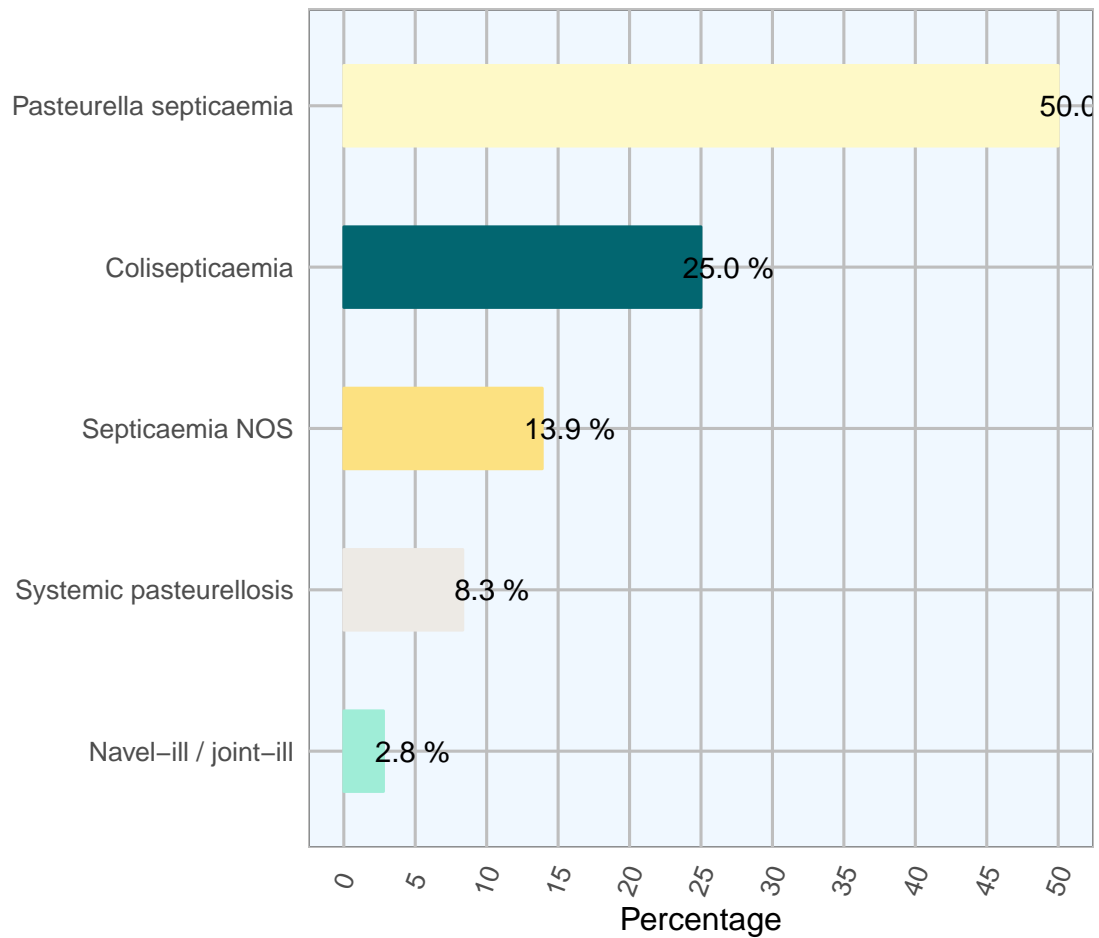


Figure 3.2: The septicemic conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017(n= 36 )

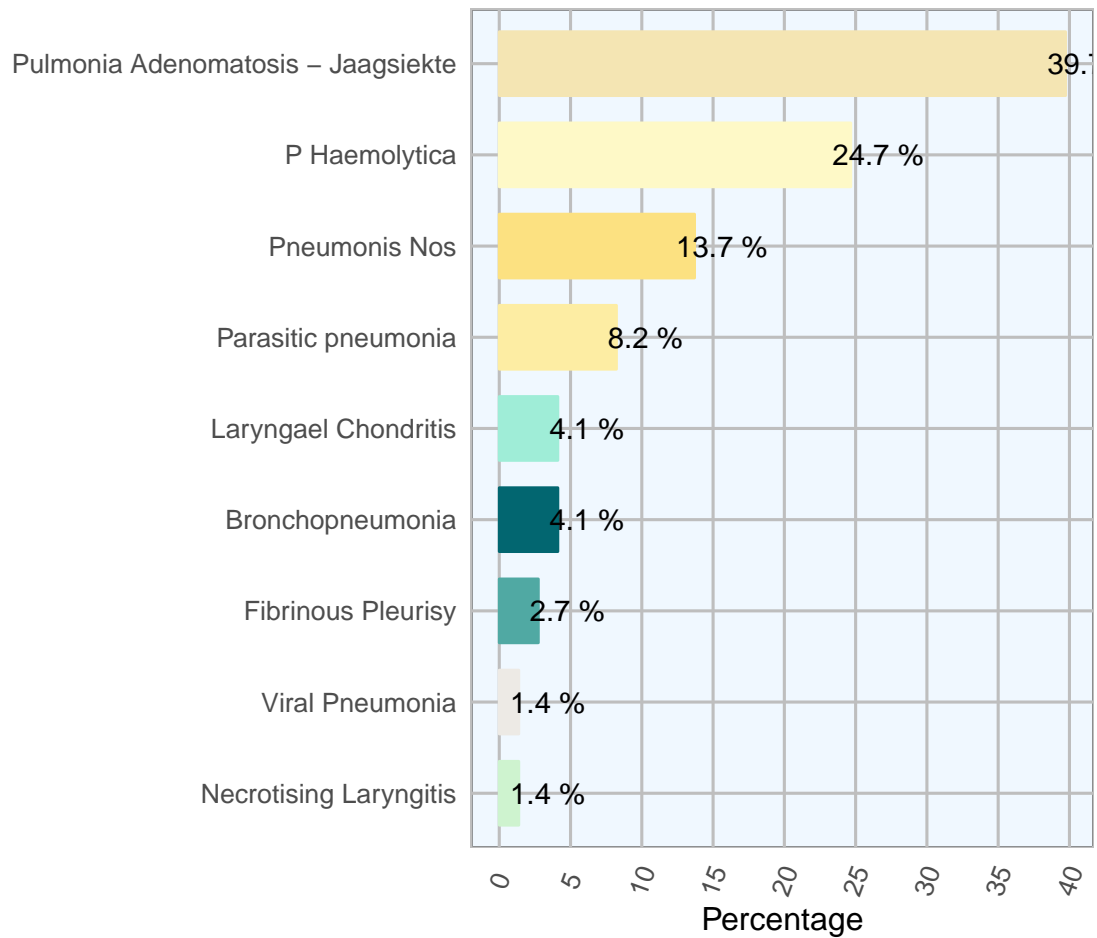


Figure 3.3: The respiratory conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017 (n= 73 )

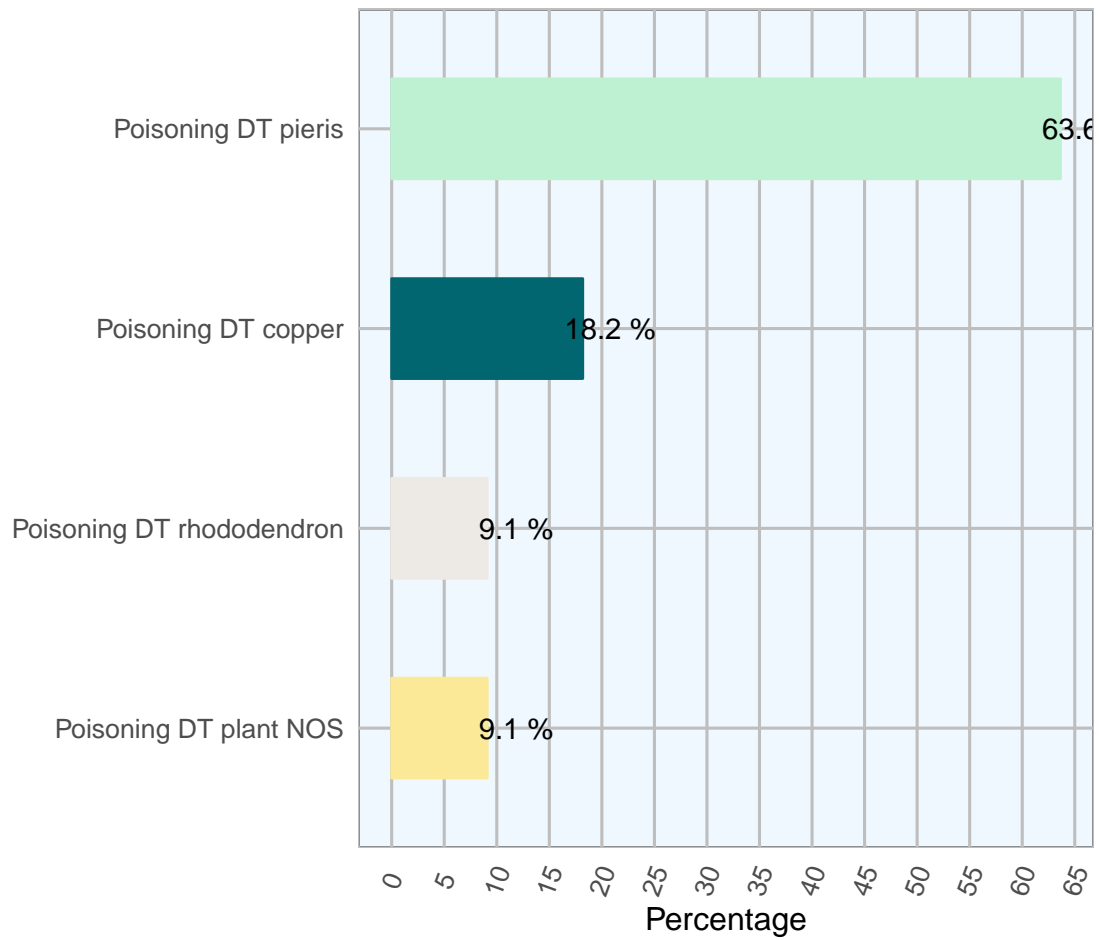


Figure 3.4: The poisoning agents most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017 (n= 22 )

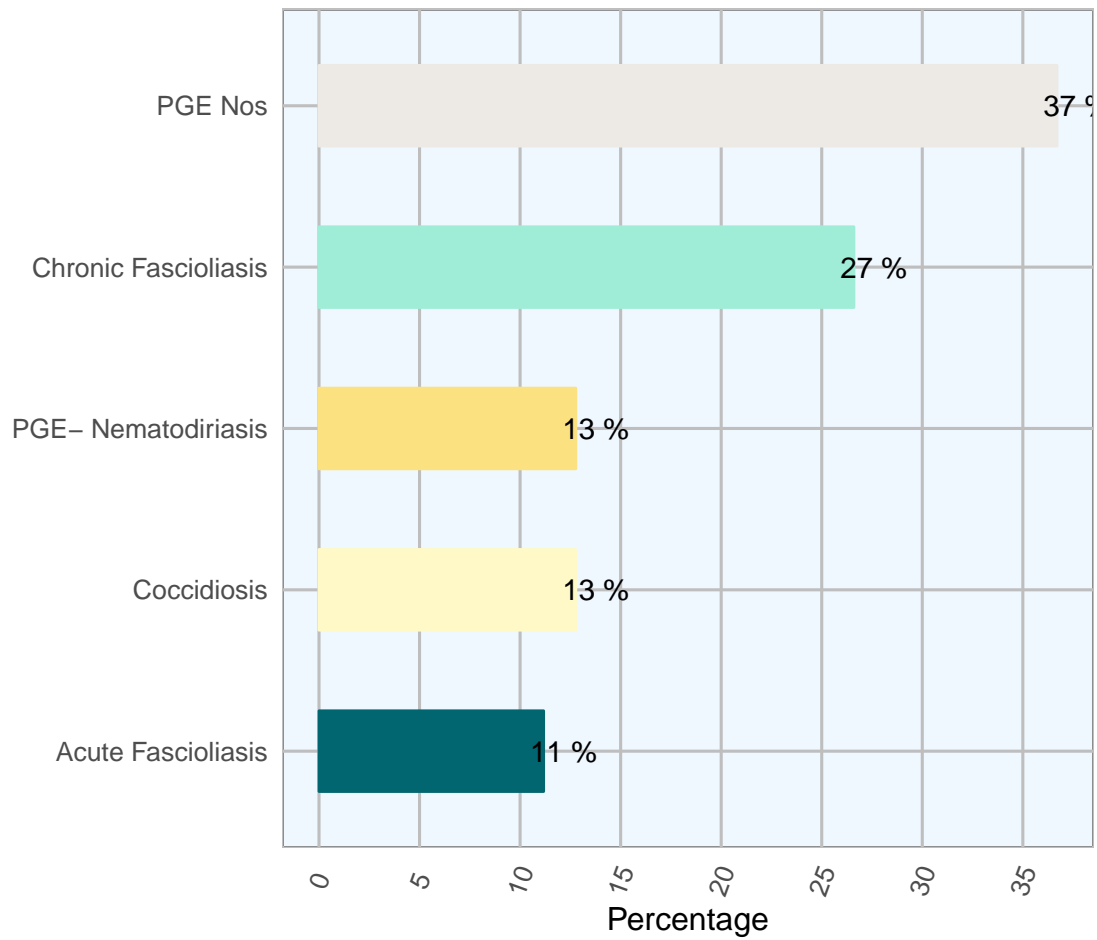


Figure 3.5: The parasitic conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017 (n= 188 )

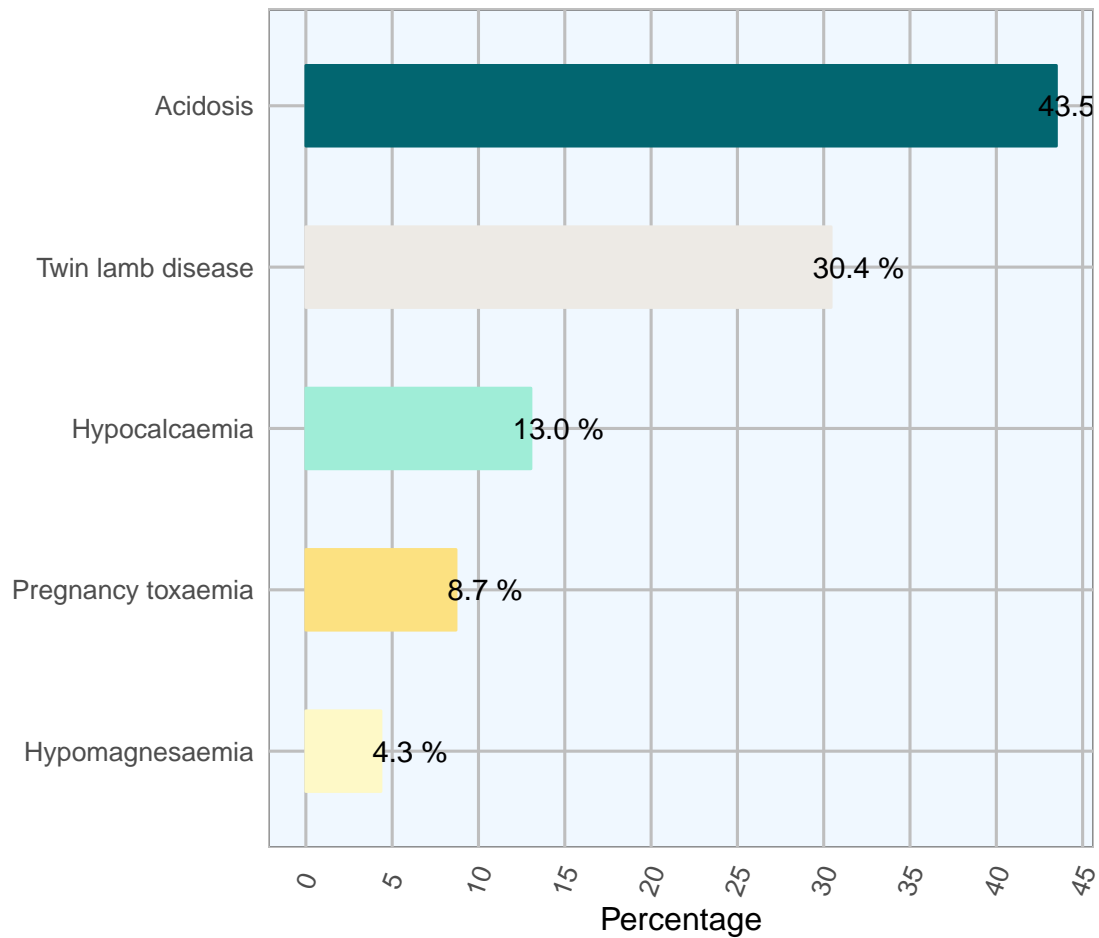


Figure 3.6: The metabolic conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017(n= 23 )



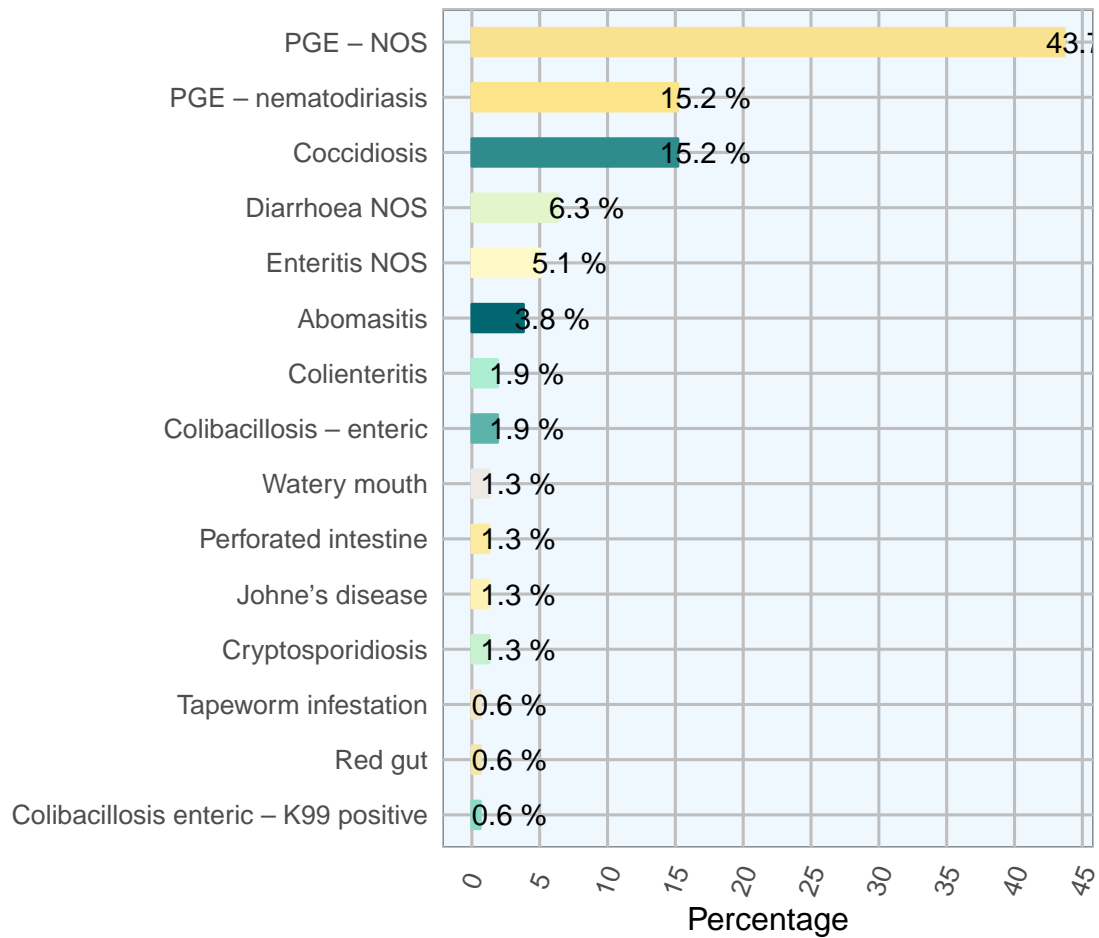


Figure 3.7: The enteric conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017 (n= 158 )

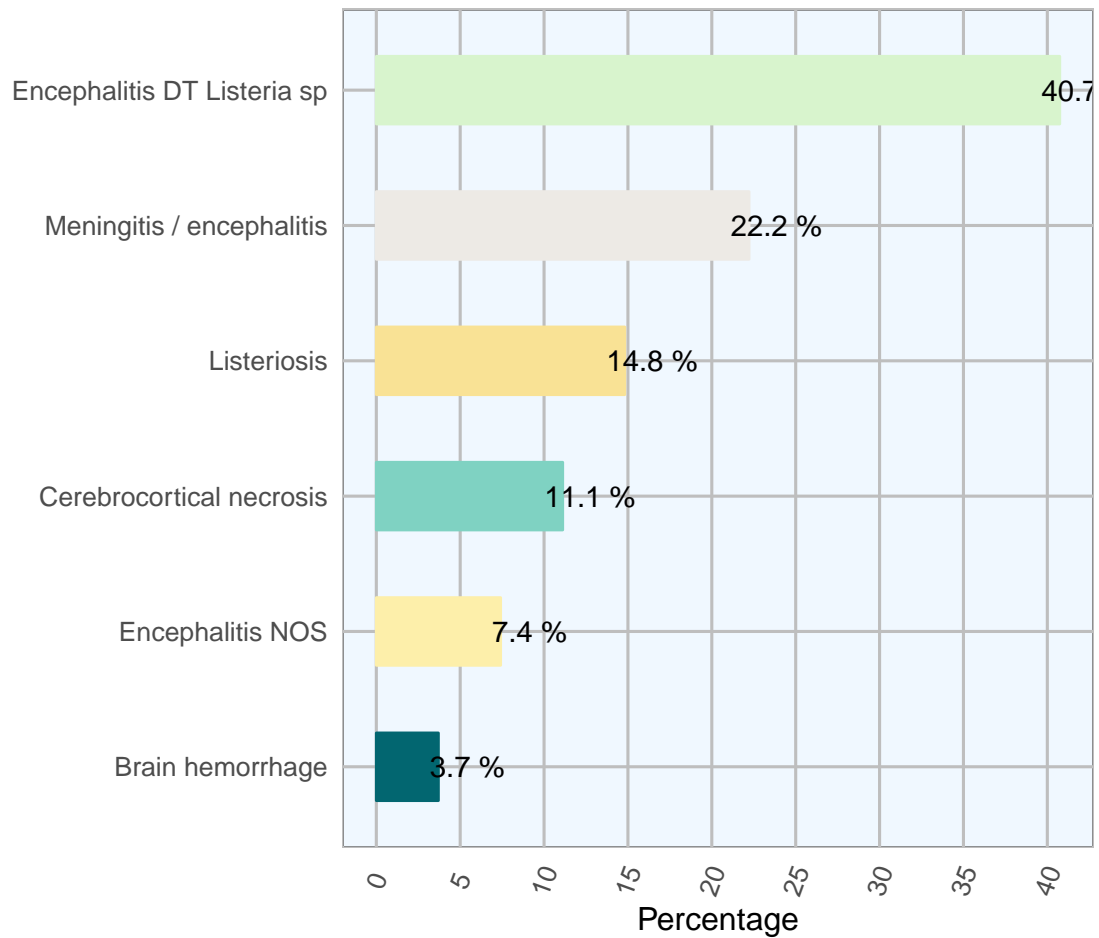


Figure 3.8: The CNS conditions most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017 (n= 27 )

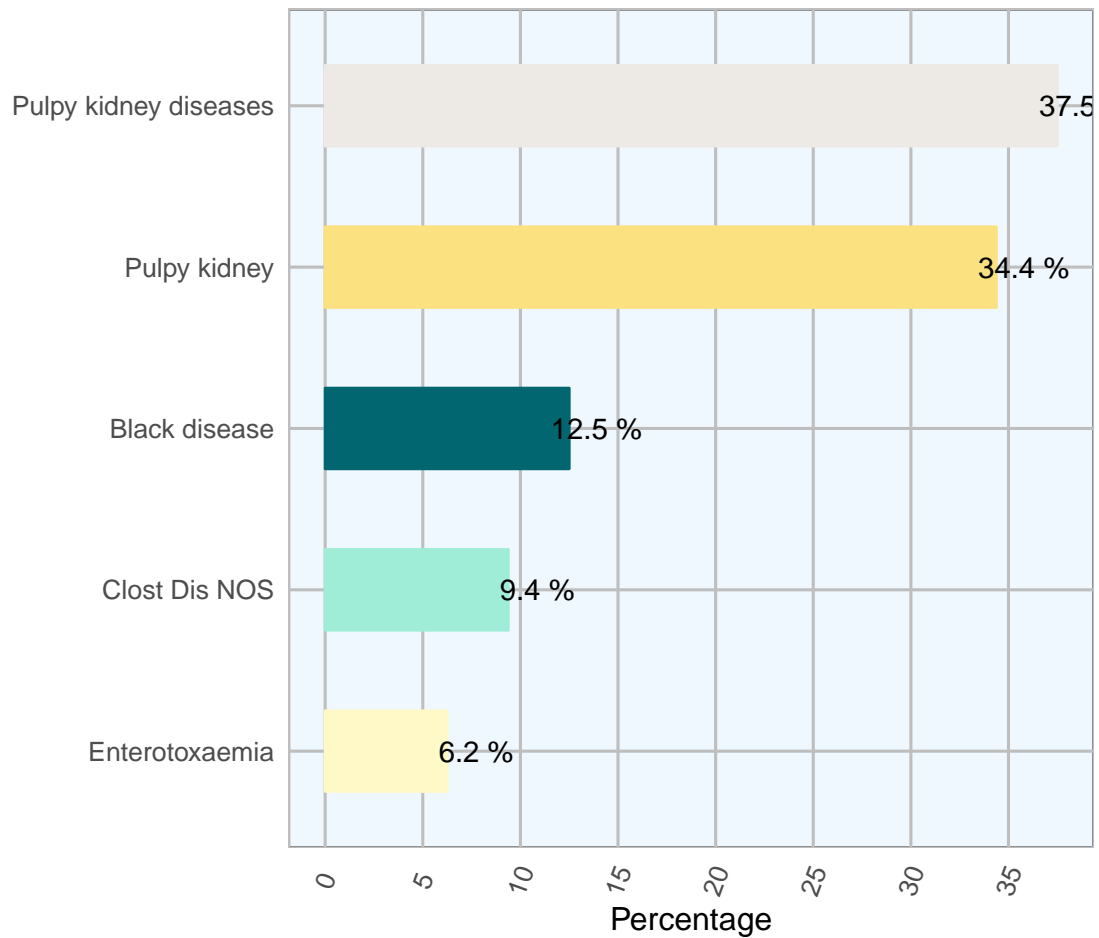


Figure 3.9: The clostridial diseases most frequently diagnosed on post-mortem examinations of ovine by AFBI during 2017(n= 32 )



## Chapter 4

# Bovine Respiratory Disease (BRD)

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### 4.1 Diagnoses by Group

#### 4.1.1 Bovine Respiratory Disease Diagnoses

#### 4.1.2 Lungworm

Table 4.1: The most common diagnostic groups on \*post-mortem\* examinations of bovine respiratory disease by AFBI during 2017 (n= 391 )

| Category      | Count | Percentage |
|---------------|-------|------------|
| Bacterial     | 220   | 56.3       |
| Miscellaneous | 135   | 34.5       |
| Viral         | 36    | 9.2        |

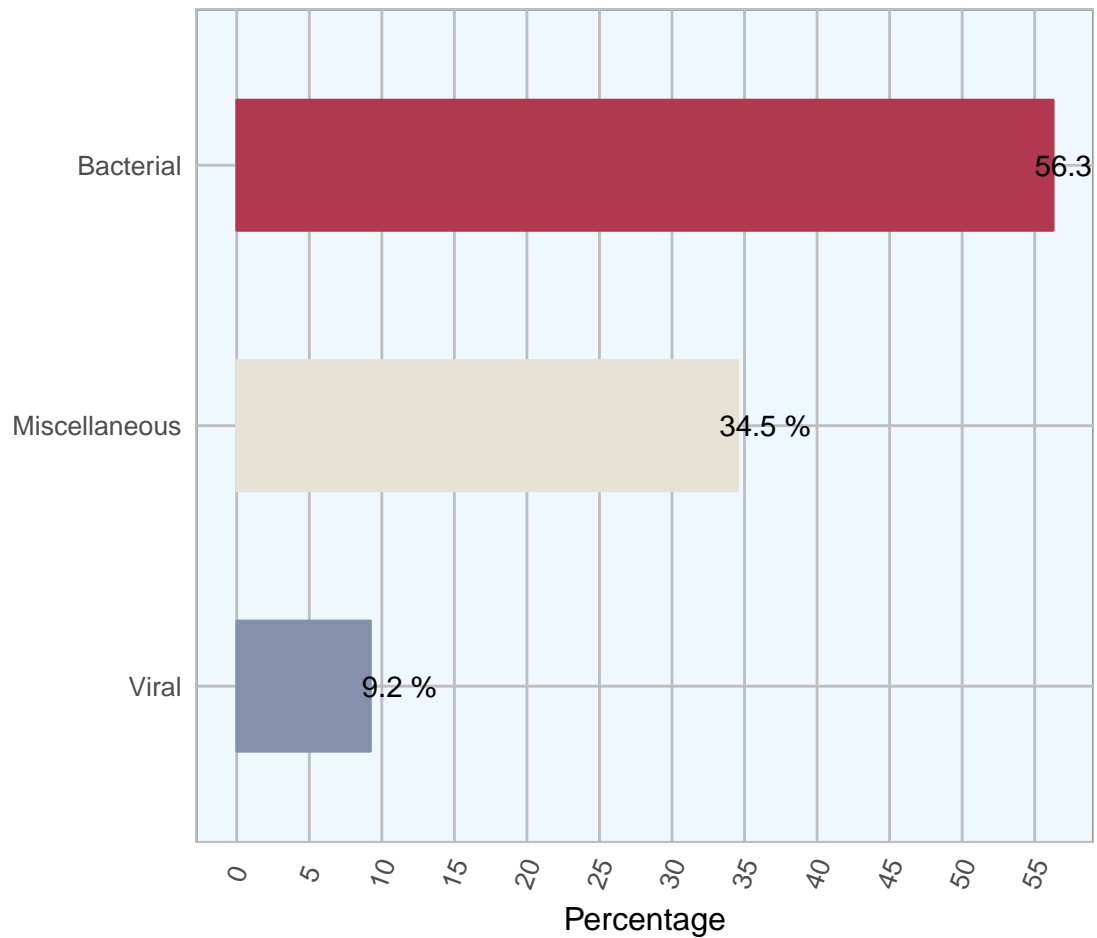


Figure 4.1: The most common diagnostic groups on \*post-mortem\* examinations of bovine respiratory disease by AFBI during 2017 (n= 391 )

Table 4.2: Relative frequency of diagnoses in bovine respiratory disease recorded by AFBI during 2017, (n=391 )

| Category                      | Count | Percentage |
|-------------------------------|-------|------------|
| PNEUMONIA DT MYCOPLASMA BOVIS | 90    | 23.0       |
| PNEUMONIA NOS                 | 70    | 17.9       |
| PNEUMONIA DT P MULTOCIDA      | 45    | 11.5       |
| PNEUMONIA A PYOGENES          | 35    | 8.9        |
| PNEUMONIA DT M HAEMOLYTICA    | 33    | 8.4        |
| PNEUMONIA - PARASITIC - HUSK  | 27    | 6.9        |
| PNEUMONIA - RSV               | 15    | 3.8        |
| FIBRINOUS PLEURISY            | 14    | 3.6        |
| IBR                           | 12    | 3.1        |
| PNEUMONIA - H SOMNUS          | 10    | 2.6        |
| CHRONIC BRONCHOPNEUMONIA      | 6     | 1.5        |
| PNEUMONIA - BVD               | 5     | 1.3        |
| PNEUMONIA DT ASPIRATION       | 4     | 1.0        |
| SEVERE TRACHEITIS             | 4     | 1.0        |
| FRACTURED RIBS                | 3     | 0.8        |
| PASTEURELLOSIS                | 3     | 0.8        |
| MALIGNANT CATARRH             | 2     | 0.5        |
| PNEUMONIA - FUNGAL            | 2     | 0.5        |
| PNEUMONIA - P13               | 2     | 0.5        |
| PNEUMONIA DT ACTINO           | 2     | 0.5        |
| PULMONARY EMBOLISM            | 2     | 0.5        |
| TUBERCULOSIS                  | 2     | 0.5        |
| ADENOCARCINOMA                | 1     | 0.3        |
| ATELECTASIS                   | 1     | 0.3        |
| PULMONARYHAEMORRHAGE          | 1     | 0.3        |

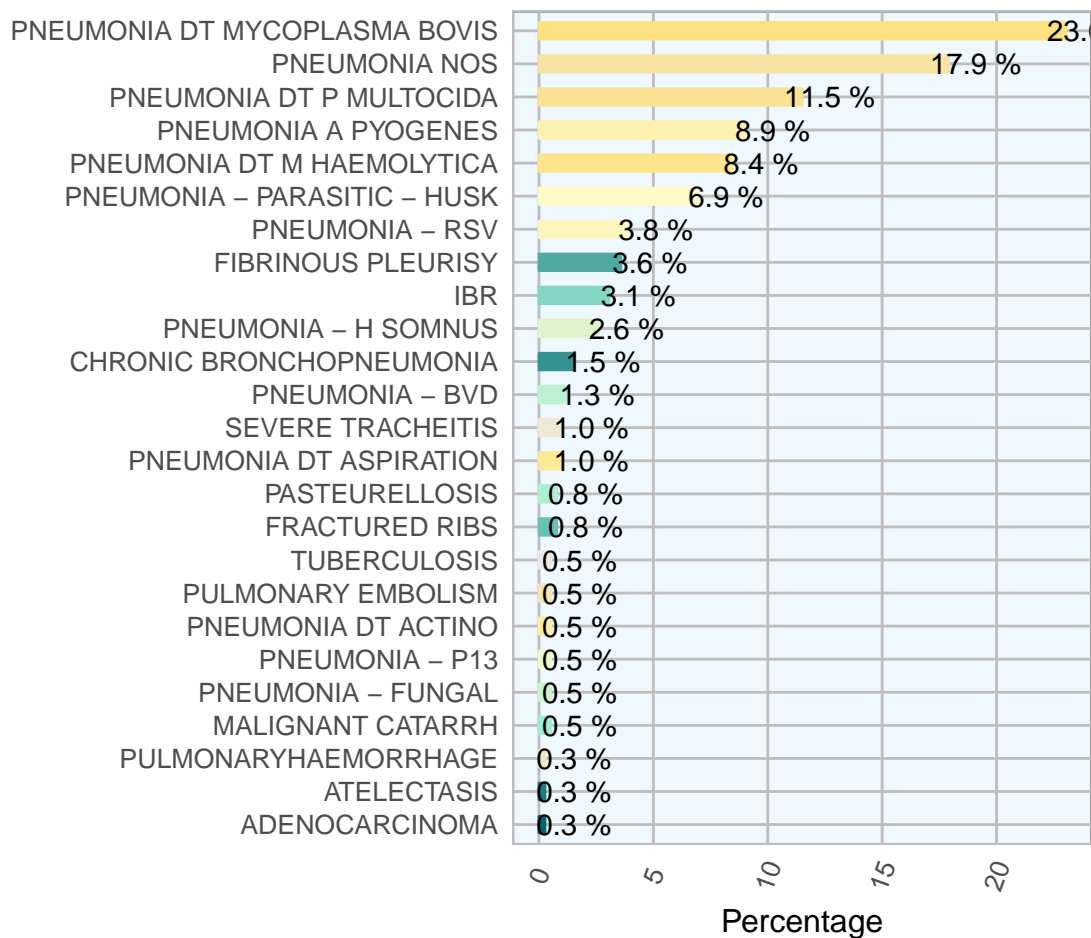


Figure 4.2: Relative frequency of diagnoses in bovine respiratory disease recorded by AFBI during 2017, (n=391 )



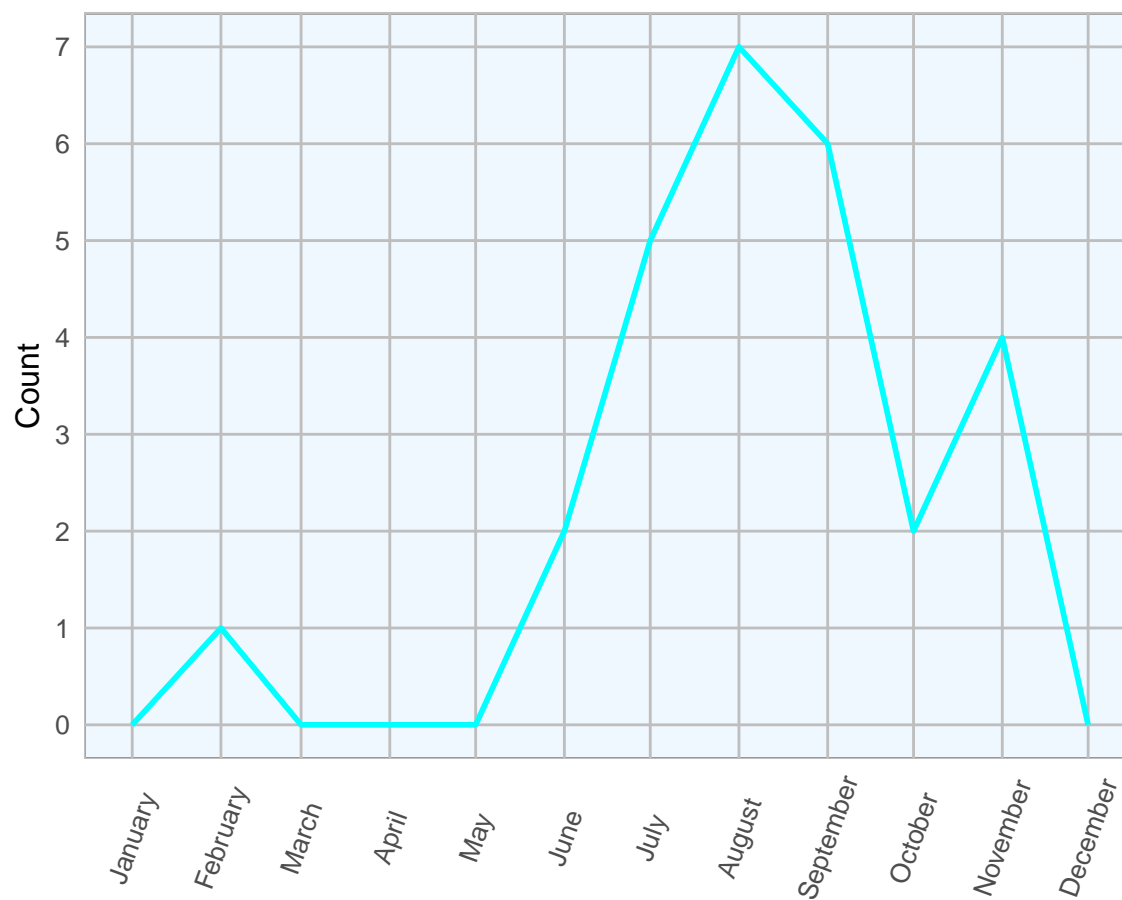


Figure 4.3: Evolution of the number of lungworm respiratory disease recorded by AFBI during 2017, (n= 27 )



## Chapter 5

# Bovine Abortions

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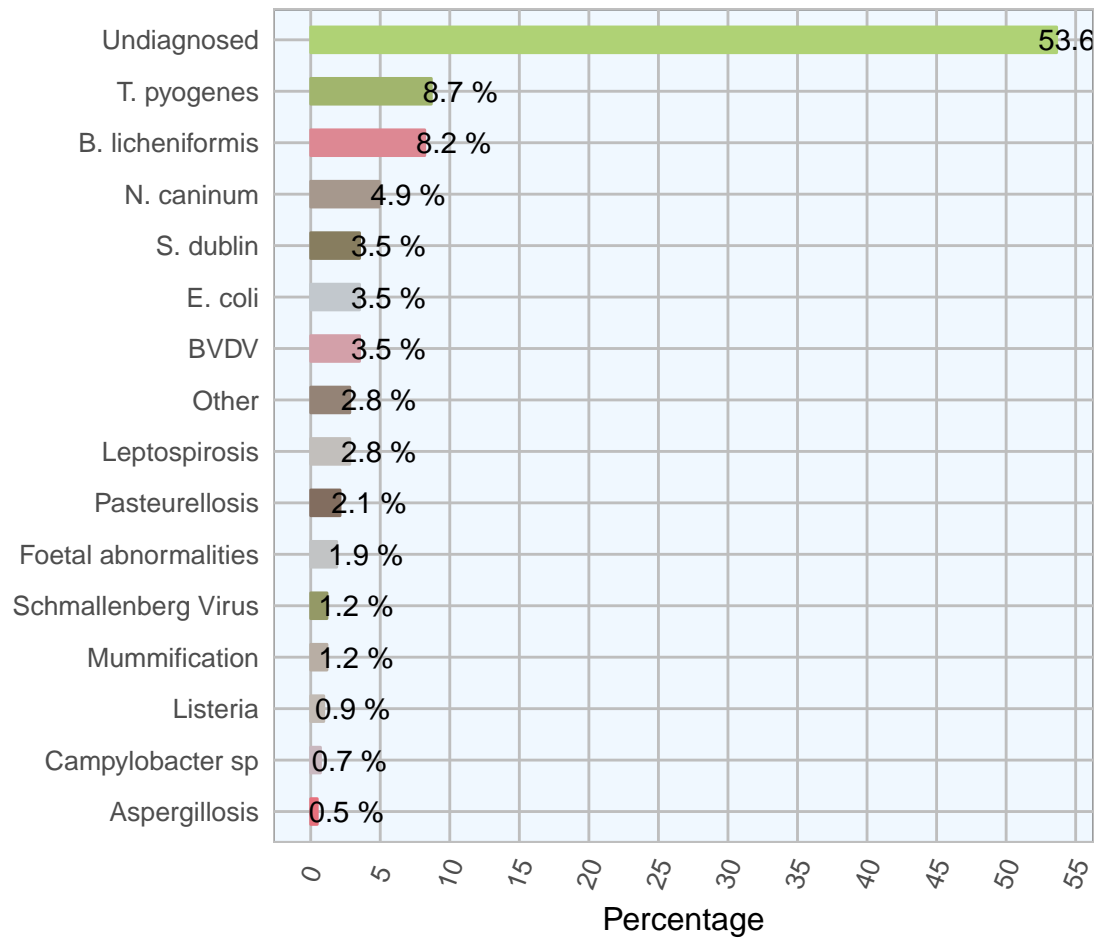


Figure 5.1: The conditions most frequently diagnosed on post-mortem examinations of ovine carcasses by AFBI during 2017 (n= 427 )

Table 5.1: The frequently of the most common diagnoses in bovine abortion in AFBI during 2017 (n= 427 )

| Category             | Count | Percentage |
|----------------------|-------|------------|
| Undiagnosed          | 229   | 53.6       |
| T. pyogenes          | 37    | 8.7        |
| B. licheniformis     | 35    | 8.2        |
| N. caninum           | 21    | 4.9        |
| BVDV                 | 15    | 3.5        |
| E. coli              | 15    | 3.5        |
| S. dublin            | 15    | 3.5        |
| Leptospirosis        | 12    | 2.8        |
| Other                | 12    | 2.8        |
| Pasteurellosis       | 9     | 2.1        |
| Foetal abnormalities | 8     | 1.9        |
| Schmallenberg Virus  | 5     | 1.2        |
| Mummification        | 5     | 1.2        |
| Listeria             | 4     | 0.9        |
| Campylobacter sp     | 3     | 0.7        |
| Aspergillosis        | 2     | 0.5        |



## Chapter 6

# Ovine Abortions

Table 6.1: The frequency of the most common diagnostic group on \*post-mortem\* examinations ovine by AFBI during 2017

| Category                         | Count | Percentage |
|----------------------------------|-------|------------|
| Toxoplasma gondi                 | 74    | 30.3       |
| No significant agent identified. | 67    | 27.5       |
| Chlamydia abortus                | 44    | 18.0       |
| E.coli                           | 20    | 8.2        |
| Campylobacter spp                | 12    | 4.9        |
| Streptococcus spp                | 9     | 3.7        |
| Leptospirosis                    | 8     | 3.3        |
| Arcanobacter pyogenes            | 5     | 2.0        |
| Listeria monocytogenes           | 5     | 2.0        |

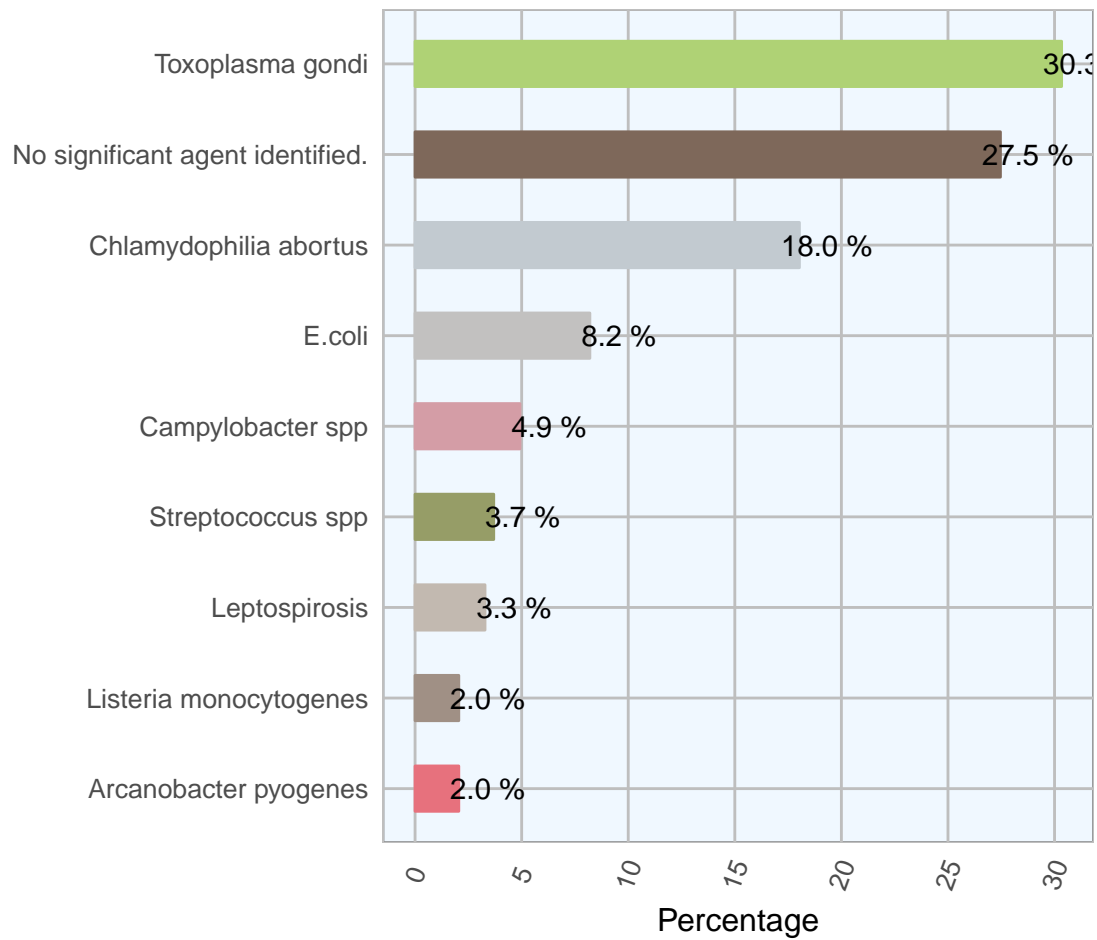


Figure 6.1: The conditions most frequently diagnosed on post-mortem examinations of ovine carcasses by AFBI during 2017



## Chapter 7

# Bovine Mastitis

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Table 7.1: hkd hkd in 2017

| Microorganism         | Count | Pct of Total |
|-----------------------|-------|--------------|
| E.coli                | 261   | 22.8         |
| Streptococcus uberis  | 156   | 13.6         |
| Staphylococcus aureus | 97    | 8.5          |
| Strep dysgalactiae    | 28    | 2.4          |
| Contaminated samples  | 110   | 9.6          |
| No bacteria cultured  | 143   | 12.5         |
| Other                 | 352   | 30.7         |

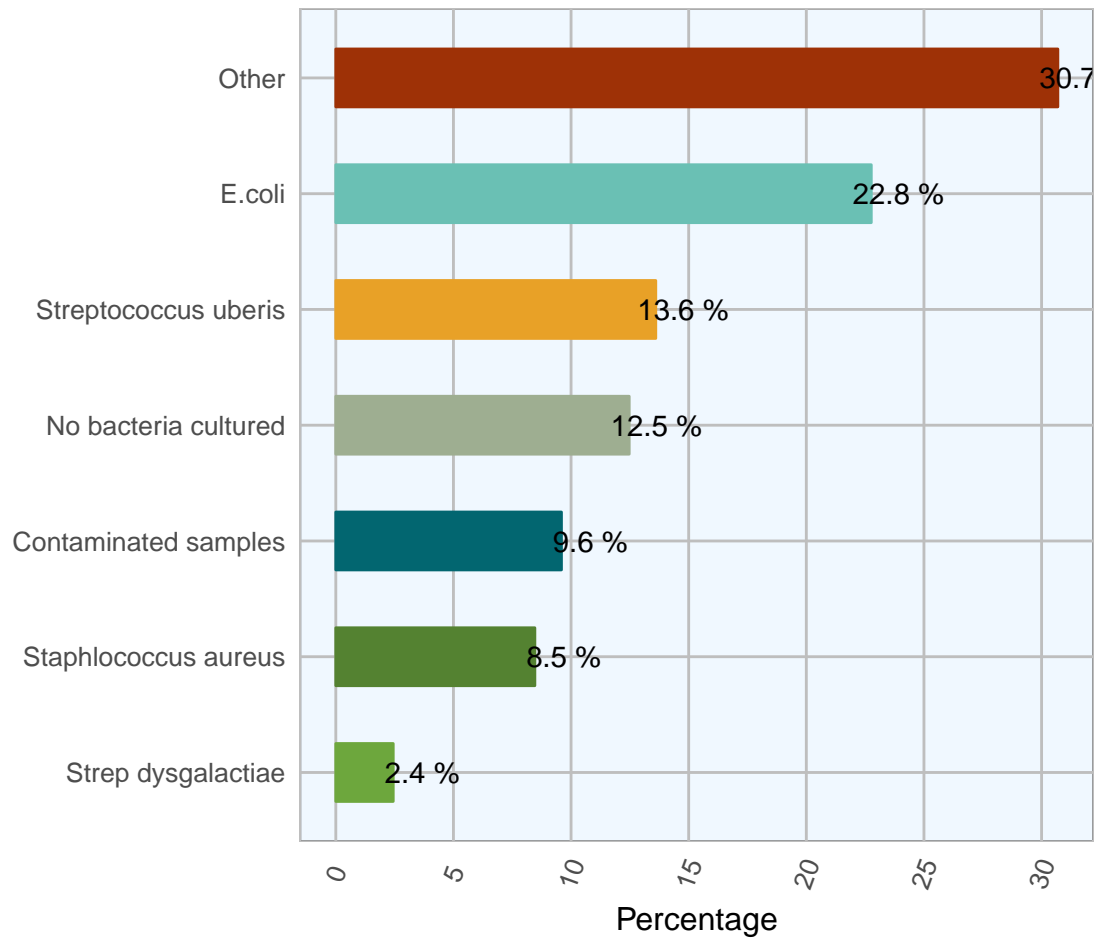


Figure 7.1: Relative frequency of detection of selected mastitis pathogens by AFBI

## Chapter 8

# Bovine Parasites

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Table 8.1: Count and percentage of positive results detected in bovine faecal samples examined by AFBI during 2017

| Parasite           | Negative | Positive | Pct of Positive |
|--------------------|----------|----------|-----------------|
| Coccidia           | 2205     | 814      | 27.0            |
| Fluke eggs         | 2483     | 268      | 9.7             |
| Nematodirus epg    | 2984     | 36       | 1.2             |
| Paramphistome eggs | 1266     | 1464     | 53.6            |
| Strongyle epg      | 2390     | 617      | 20.5            |

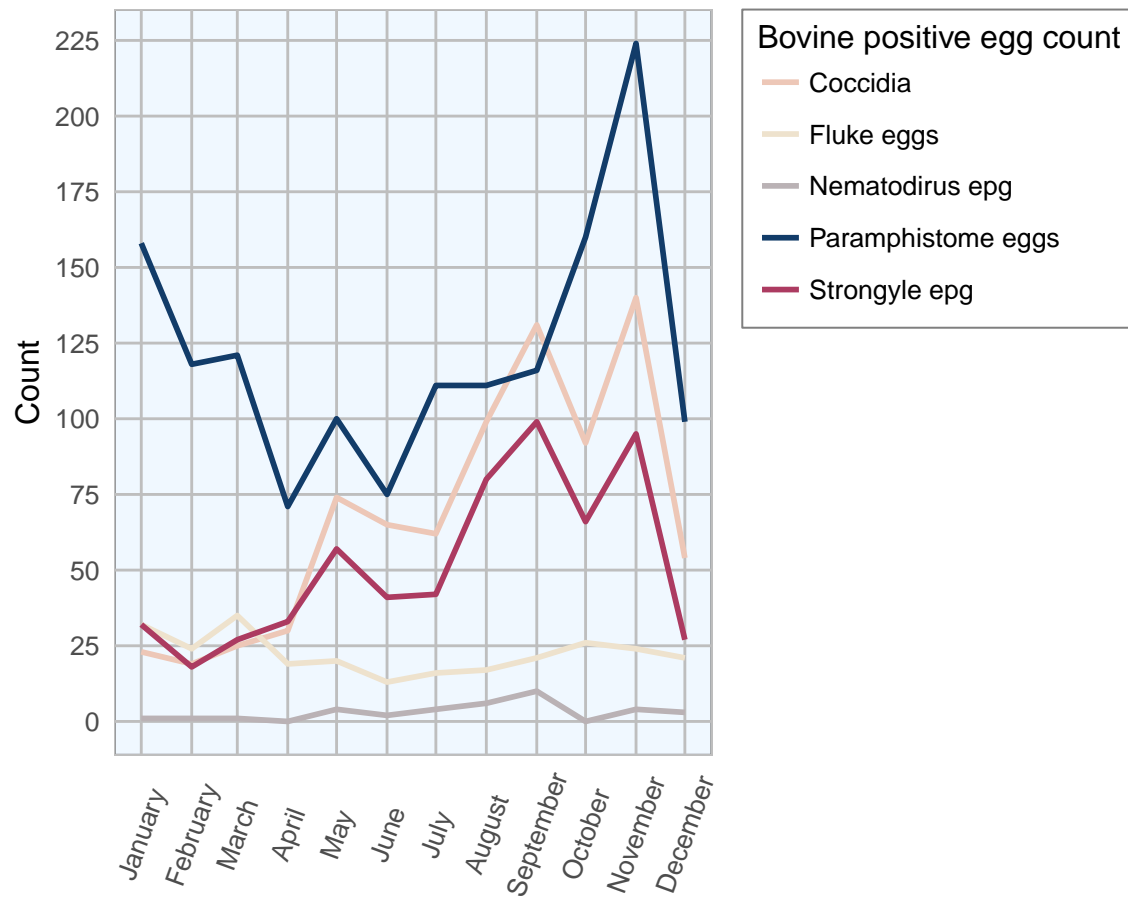


Figure 8.1: Evolution of the number of positive results in bovine samples in fecal submissions to AFBI during 2017

## Chapter 9

# Ovine Parasites

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Table 9.1: Count and percentage of positive results detected in ovine faecal samples examined by AFBI during 2017

| Parasite           | Negative | Positive | Pct of Positive |
|--------------------|----------|----------|-----------------|
| Coccidia           | 533      | 1349     | 72              |
| Fluke eggs         | 1564     | 217      | 12              |
| Nematodirus epg    | 1635     | 278      | 14              |
| Paramphistome eggs | 1219     | 561      | 32              |
| Strongyle epg      | 821      | 1065     | 56              |

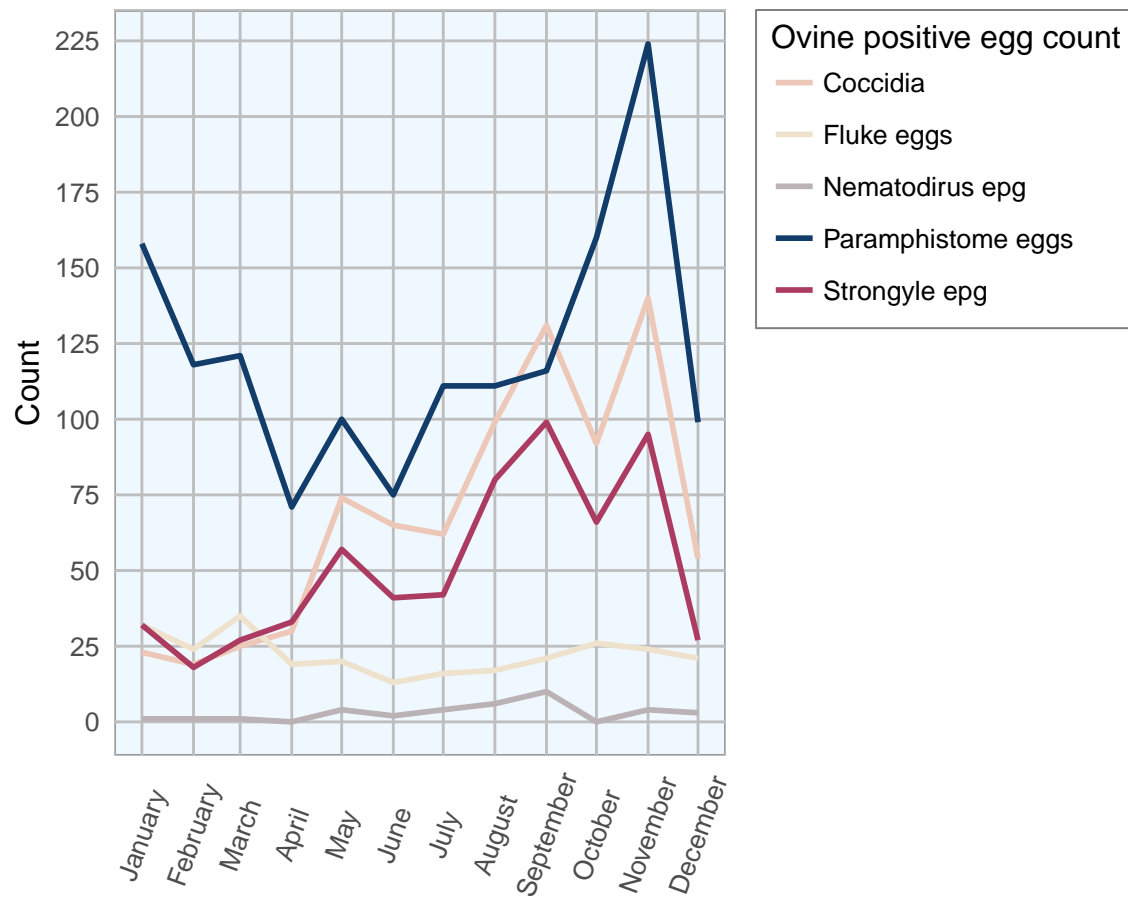


Figure 9.1: Evolution of the number of positive results in ovine samples in fecal submissions to AFBI during 2017

## Chapter 10

# Zinc Sulphate Turbidity (ZST) Test

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Table 10.1: Zinc Sulphate Turbidity Test

| Status   | Count | Mean | Median | Minimum | Maximum |
|----------|-------|------|--------|---------|---------|
| Adequate | 75    | 33   | 28     | 20      | 93      |