



Below is a visual guide to a thorough ruminant animal post-mortem. Correct post-mortem and sampling will increase the likelihood of a definitive diagnosis. Refer to the document *Basic diagnostic sampling protocol – livestock* and *Brain removal techniques* available on the Animal Health Laboratories (AHL) web page at [agric.wa.gov.au](http://agric.wa.gov.au) for sampling for specific pathology procedures. Include a detailed history and description of lesions on the AHL submission form. For more information contact the AHL on +61 (0)8 9368 3351.

## Post-mortem approach

Observe, describe and photograph lesions found during the post-mortem.

Where possible, sample transitional zones from healthy to diseased tissue for histopathology.

### Laboratory samples

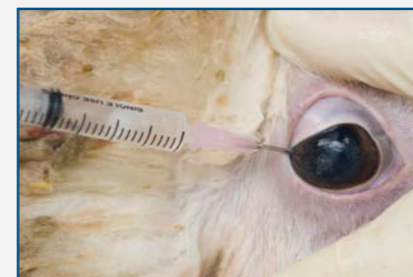
#### Basic sample set

A basic sample set of blood, fresh and fixed samples is sufficient to diagnose common endemic diseases present in Western Australia.



#### Collection from recently dead animals (<24 h)

If live animals are not available to collect blood samples, collect vitreous humour from the posterior chamber of the eye for calcium and magnesium testing.



#### Equipment required:

- standard post-mortem kit including boning and skinning knives, scissors, scalpel blades, forceps, laboratory submission forms, permanent markers
- dry swabs, swabs in media, specimen jars for individual fresh samples, large containers for pooled formalin fixed samples
- large pruning secateurs to cut through ribs and jaw
- bone saw, small axe and hammer for brain removal
- personal protection equipment – overalls, gloves, mask, knee protectors.

### 1: Expose the thorax and abdomen



Lay the animal in **left** lateral recumbency. Reflect the right forelimb and hindlimb. Carefully incise abdominal muscles to expose the abdominal organs without rupturing the intestine or forestomachs. Using rib cutters, cut the rib cage along the ventral and dorsal aspects to expose the thoracic contents.

### 2: Expose the oral cavity



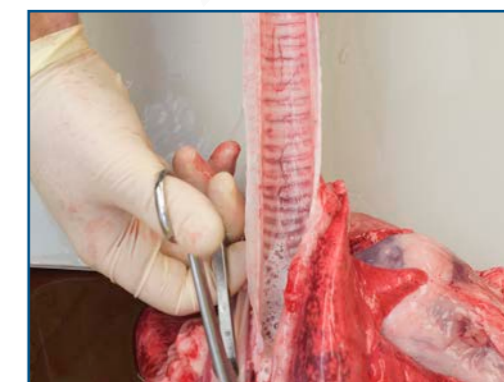
Extend the excision up the neck to the chin. Using rib cutters, cut throughout the mandibular symphysis to expose the oral cavity. Check for loose teeth, abscesses, injuries, erosions and vesicles.

### 3: Dissect the neck



Hold the tongue and dissect through the hyoid bone joint to release the pharynx and larynx. Continue dissecting the oesophagus and trachea down to the thoracic inlet.

### 4: Open the trachea



Using scissors, cut down the trachea extending along the major bronchi into the lungs. Check for the presence of lung worms. Evidence of excessive froth may indicate left heart failure or hypoproteinaemia due to parasitism or inanition.

### 5a: Sample the lungs



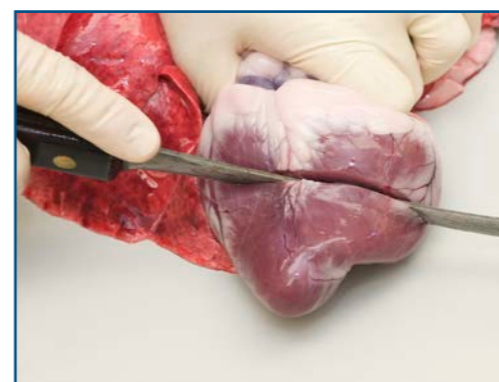
Collect a 1 x 2.5 centimetre section of lung tissue into formalin. Pool all fixed tissues.

### 5b: Sample the lungs



Collect a similar sized piece of tissue fresh for bacteriology. Chill fresh tissues intended for bacteriology as soon as practicable to inhibit any overgrowth of bacterial contaminants.

### 6a: Dissect the heart



Make two transverse sections (1 cm apart) two-thirds of the distance from the apex of the heart.

### 6b: Dissect the heart



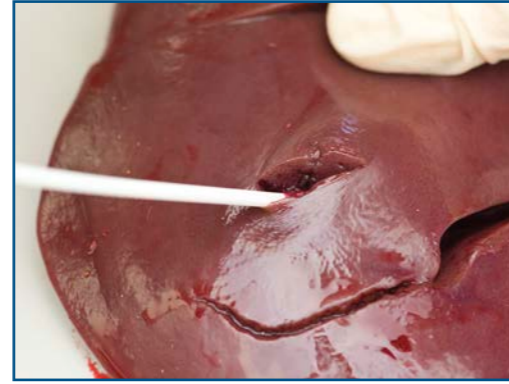
Examine the A-V valves through the exposed ventricles. The aortic valve and pulmonary artery can be examined by dissecting down the great vessels into the heart.

6c: Dissect the heart



Trim a 1 cm slice of heart into a 'T' section that includes both left and right ventricular free wall and interventricular septum and place into fixative.

7a: Dissect the liver



Using a sterile scalpel, make a stab incision through the liver capsule allowing a swab to be passed into the tissue.

7b: Dissect the liver



Make multiple slices through the liver to detect any abnormalities that may not be visible on external examination. Collect a 1 x 2.5 cm fixed section. Collect 50 grams (3 x 3 cm) of fresh liver for biochemistry.

8a: Dissect the intestines



Cut 2.5 cm long tubes of duodenum and jejunum. Make a small cut in each end of the tube to allow the ends to curl in the formalin to prevent the tube from collapsing. These two sites are good indicators of parasitic burdens.

8b: Dissect the intestines



Expose the **ileo-caecal junction** by lifting the small intestines over the dorsal aspect of the carcass. Collect a 2.5 cm tube of ileum into formalin. This site is commonly affected in salmonellosis, parasitism and Johne's disease. Collect 50 millilitres of ileal contents for bacterial culture and enterotoxaemia ELISA testing.

8c: Dissect the intestines



Collect a 2.5 x 2.5 cm piece of **caecum and colon** into formalin. Do not scrape the surface.

9a: Examine the abomasum



Examine the **abomasum** for the presence of *Haemonchus* parasites or hyperplasia and nodular changes common associated with ostertagiosis. Collect a 1 x 2.5 cm piece of tissue into formalin.

9b: Examine the rumen



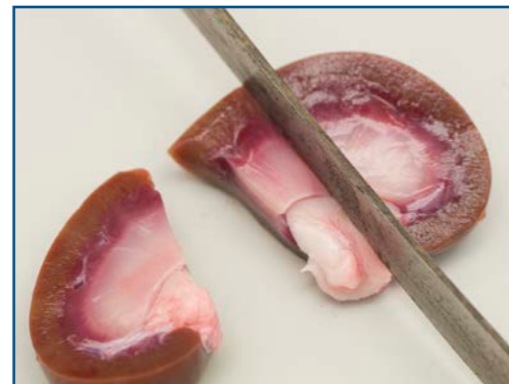
Test **rumen pH** (normal 5.5 – 7.0). Examine contents for intact leaves of poisonous plants e.g. *Gastrolobium*). If ARGV is suspected, collect 50 mL of rumen fluid for an ARGV ELISA test.

9c: Examine the forestomachs



Empty the **forestomachs** and examine the ventral rumen mucosa for evidence of rumenitis. The ventral pillars are often affected, however most cases of rumenitis are not apparent on gross examination. Collect 1 x 2.5 cm sections of rumen, omasum and reticulum into formalin.

10: Dissect the kidneys



Cut the kidney into two halves along the sagittal plane. Trim a 1 cm section into formalin. If copper or lead toxicity is suspected, submit the other whole half kidney chilled.

11: Take samples of muscle tissue



Slice the **hindlimb muscles** looking for areas of pallor suggestive of nutritional myopathy. Collect 1 x 2.5 cm samples from two muscle groups. Vitamin E and selenium levels are measured in plasma and liver. Do not submit fresh muscle for this purpose.

12: Collect faecal samples



Collect 50 g of faeces for faecal worm egg counts, bacterial and mycobacterial culture.