

Removing a brain

- for TSE Surveillance

These instructions apply to removal of brains from all species of animals. Samples must be accompanied by a submission form (MPI Biosecurity website), and must comply with all the requirements specified on the form to qualify for an incentive payment.

Materials required:

Reciprocating saw or good quality meat saw / screwdriver / knife or scissors / formalin / bucket / TSE submission form / sample containers

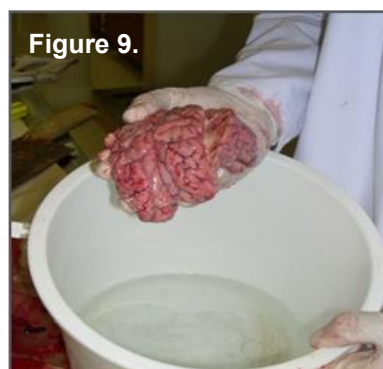
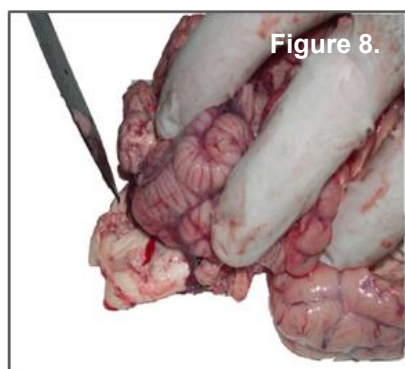
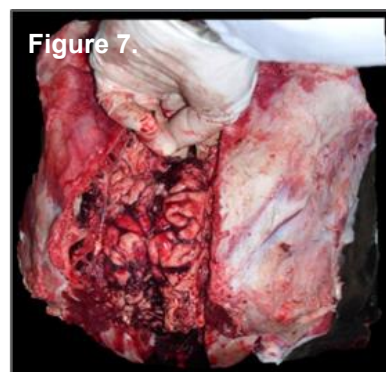
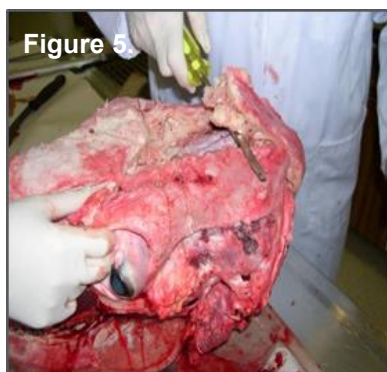
How to:

1. Euthanase animal using Pentobarbitone or Xylazine sedation (followed by rapid infusion of saturated solution of $MgSO_4$ or KCl 100mL/45kg) or by shooting with a .22 calibre rifle aimed into the frontal cortex only, vertical not towards foramen magnum.
 2. Remove the head, skin the caudal portion and remove the ears (Figure 1).
 3. Collect spinal cord from the carcass by grasping spinal cord with forceps, pull cord cranially, cut 2cm of cord free with knife or scissors, then place in sample container and keep fresh (this can also be frozen).
 4. Make saw cuts in skull:
 5. Transverse cut behind eyes to below the centre line of the eye (Figure 2).
 6. Intersect the midline of transverse cut with the lateral aspect of the poll on both sides (Figure 3).
 7. Sagittal cut medial to occipital condyle, from foramen deep into nuchal eminence (Figure 4).
- If an assistant is available get them to hold the head whilst sawing and/ or put the nose into a bucket to stabilise.
 - Using a reciprocal saw is much easier and quicker, though both methods are shown below.



5. Remove the brain -

- Lever the cut bone free using a screwdriver rather than a knife (Figure 5).
 - Tap head (condyles) firmly on a hard surface so the brain slumps free (Figure 6).
 - Cut away the meninges, roll brain out starting at olfactory lobes, sever internal carotid arteries and cranial nerves as brain is removed (Figure 7).
 - The brainstem including obex (Figure 8) must be included as it is a critical area to examine histologically.
- Place the brain in formalin (10 times the brain's volume) to fix.
 - Submit fixed brain (and fresh spinal cord) to Awanui Veterinary along with a TSE surveillance submission form.



Lab tips:

- Fix the brain in a bucket of formalin (10x volume of brain) and then transfer to a smaller container or plastic bag to submit to laboratory.
- More information on TSE Surveillance can be found online at: <https://www.biosecurity.govt.nz/tse>

Note: *The heads shown in the above diagrams are fully skinned (as were sourced from meat processing plant), this isn't necessary for routine brain removal.*