



SOP 9.14 CT scanning sheep

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Purpose

- (1) The objective of this standard operating procedure is to provide guidance to the Charles Sturt University staff on:
 - a. CT Scanning Sheep

Scope

- (2) This procedure applies to any person who is involved in AEC approved projects involving sheep who is seeking to CT scan them without the use of anaesthetic. The objective of the procedure is to effectively restrain sheep in a cradle to allow imaging.
- (3) All researchers and teaching staff using animals for scientific purposes must be competent. For definition of competency refer to Charles Sturt University's Policy on 'Animal Care Competency Training and Assessment'

Details of procedure

Transport of sheep to scanner at the Veterinary Clinical Centre:

- (4) The sheep are loaded into a trailer for transport from the sheep yards or the translational research facility to the Veterinary Clinical Centre (VCC).
- (5) If a large number of sheep are to be scanned, two sheep (not to be scanned) are loaded into a second trailer. This is the trailer that sheep will be loaded into after scanning. Having two sheep in the trailer already will reduce sheep stress post-scanning. Alternatively, a second portable yard adjacent to the first is used to hold animals post-scanning until all animals are ready to be loaded back on trailer.
- (6) The trailer(s) is taken to the VCC and parked in the bay outside of the CT scanning room.
- (7) Temporary yard panels are to be set up behind the trailer.
- (8) In the case of sheep coming from the translational facility and use of sedation, animals can be restrained in the sheep room of the facility, positioned in the cradle and transported to the CT Room (150m) with the help of a trolley.

Positioning for CT scanner:

- (9) An individual sheep is caught and removed from the trailer and secured in the cradle, which is positioned within the temporary yard. Two people (minimum) are required for this procedure. The first person catches the sheep and positions it in the sitting position in the cradle and restrains the sheep by keeping downward pressure on the sheep, while the second person secures the straps over the sheep.
- (10) The cradle with sheep (Figure 1) is carried into the room and placed in CT scanner.
- (11) All personnel exit room and animal is imaged (max duration 10 minutes).



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- (12) Once scanning is complete, the cradle with sheep is carried back outside to the temporary yard. Straps are removed and the sheep loaded into the trailer.
- (13) Once all sheep have been scanned and loaded into the second trailer, sheep are returned to the sheep yards.

Drugs, chemicals, or biological agents

- (14) Acepromazine, 0.01mg/kg iv or im; alpha-2 agonist (xylazine or detomidine iv or im; 0.05mg/kg) for sedation if required.

Impact of procedure on wellbeing of animals

- (15) Minor conscious intervention - Procedures are low impact, non-invasive and are considered normal management of sheep. Sheep will be handled quietly, and impact monitored by visual assessment. Handling by experienced operators will minimise that impact.
- (16) CT scanning is a routine diagnostic procedure. Time in the CT scanner will be kept to a minimum required for scanning as advised by the operator.

Animal care

- (17) Sheep are handled by experienced personnel and visually monitored throughout for stress responses - hyperexcitation, heavy breathing/panting. Should this be observed, animals are not imaged on this occasion or sedated if deemed appropriate by attending veterinarian. Imaging time is kept to a minimum as advised by the imager. Procedures are not associated with any after effect. Should sedation be used as advised by the attending veterinarian then animals will remain in observation in the temporary yard until all effects have subsided. animals will be observed immediately after release to ensure normal behaviour.

Pain relief

- (18) Not needed. The procedure should not cause pain.

Reuse and repeated use

- (19) Animals are usually measured at periods no more frequently than once weekly, depending on the needs of the investigation.

Qualifications, experience or training necessary to perform this procedure

- (20) Competence in handling small ruminants.
- (21) A suitable qualified CT operator is required.

Record requirements

- (22) Record which animals have been scanned.
- (23) Dose and time of sedation administration if used.



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Associated documentation (including pictures if available)



Figure 1. Sheep restrained in sitting position in cradle with straps over neck, shoulders, and hips.

Glossary

- (24) CT – Computed Tomography
- (25) IV – Intra-venous
- (26) IM – Intra-muscular

References and relevant links

- (27) N/A