



SOP 9.04 Collection of blood in sheep and goats

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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. Collection of blood samples from sheep and goats.

Scope

- (2) This procedure applies to any person who is involved in AEC approved projects involving sheep or goats.
- (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

Collection of blood:

- (4) The animal can either be restrained in a sitting or standing position, or very young animals may be held. Wool may need to be clipped from the area of the jugular vein if considered necessary. Generally, no skin antiseptics are required but an antiseptic can be applied if the operator prefers. Either vacutainers or syringes with needle may be used as the operator prefers. To take blood, place the web and extended thumb and forefinger of the non-dominant hand and apply gentle pressure over the base of the jugular furrow, near the thoracic inlet. The jugular vein should be visible if wool is short and may also be detectable by gentle tapping with the index finger prior to inserting the needle. Insert the needle into the jugular vein at an angle of approximately 20 to 30 degrees from the skin surface to collect blood. If the needle is accurately placed in the vein blood should be observed in the flashback chamber of a syringe, or at the outer end of vacutainer needles if no sheath is present. If no blood is observed in the flashback chamber, then the needle is not accurately seated in the vein- slight movements of the needle under the skin, accompanied with gentle back pressure on the syringe, will often result in successful placement. Blood should then appear in the flashback chamber. If using a vacuum device, blood should now fill the attached tube. If using a syringe, gentle withdrawal of the plunger will allow the blood to be drawn. After withdrawal of the needle, gentle pressure should be applied at the injection site to minimise haematoma formation. When transferring blood from a syringe to a blood tube, the needle must first be removed, and the blood gently placed in the tube from the syringe. Excessive pressure on the syringe plunger can result in damage to blood cells, particularly erythrocytes, with resultant contamination of the sample. Weaner to adult sheep use an 18 to 22 g needle; young lambs use a 21 or 22 g needle – the smaller needle size is required if multiple, frequent sampling is required, and catheters are not used. Collect a maximum of 50 ml blood per adult sheep per day; for young lambs a maximum of 20 ml/day. Dispose of used



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needles in a suitable sharps container. If blood cannot be collected from one side, the other side of the neck should be attempted to avoid numerous needle entry points in one vein.

Drugs, chemicals, or biological agents

- (5) Antiseptic or 70% alcohol for venepuncture site if needed.

Impact of procedure on wellbeing of animals

- (6) Low impact, unless excessive volumes of blood are taken. Damage to jugular can cause haematoma.

Animal care

- (7) No special requirements.

Pain relief

- (8) Not required.

Reuse and repeated use

- (9) One animal for each blood sampling ie do not re-sample the same sheep in the one session. Up to three attempts per animal on a single occasion.

Qualifications, experience or training necessary to perform this procedure

- (10) Demonstrator: Proficient at restraining the sheep and locating jugular vein
- (11) Students: Trained to locate jugular and insert needle accurately and at correct angle

Record requirements

- (12) N/A

Associated documentation (including pictures if available)

- (13) N/A

Glossary

- (14) N/A



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References and relevant links

- (15) Note the techniques shown in these videos may not be the same as described in the SOP but will help the user with a visual demonstration of the important aspects of the procedure.
- (16) Purdue Extension. (2012, January 11). *Obtaining a blood sample from your small ruminant* [Video]. YouTube. <https://www.youtube.com/watch?v=47tlmqXX3eE>
- (17) University of Nebraska - Lincoln Animal Science. (2016, July 14). *Sheep jugular bleed demo* [Video]. MediaHub. <https://mediahub.unl.edu/media/6022>