RUM_004 Clinical Assessment in Small Ruminants (Expiry: December 2028)

I. OBJECTIVE

To describe the expected standard of clinical assessment in sheep, goats and alpaca, when used for scientific purposes [PLEASE NOTE: operationally veterinary discretion may be required to help guide this assessment].

II. DEFINITIONS

Competent - "the consistent application of knowledge and skill to the standard of performance required regarding the care and use of animals. It embodies the ability to transfer and apply knowledge and skill to new situations and environments." (as per, Australian code for the care and use of animals for scientific purposes, 2013 (updated 2021))

III. COMMENTS / RECOMMENDATIONS

- Relative to animal ethics applications, when using this SOP, the following must be described in the individual ethics application: expected duration and frequency of animal use, any invasive ancillary assessment modalities (e.g. abdominocentesis, transrectal palpation or rectal ultrasonography), and any variation to this SOP.
- Many of the common ancillary assessment modalities in small ruminants have separate SOPs which may be used.
- Clinical assessment in small ruminants should be considered a quick and non-invasive procedure (assuming a relatively compliant animal temperament).
- When using animals for scientific purposes all personnel must be competent in the procedures they perform or be under the direct supervision of a person who is competent to perform the procedure.

IV. SAFETY AND COMPLIANCE

- The person undertaking this task must ensure all relevant approvals are in place, training has been undertaken and risk assessments (including those for working with small ruminants in a small pen) have been performed. If unsure, consult your supervisor.
- Operators should be advised about protection against Q fever or tested for immunity and vaccinated if not immune.
- Facility protocols should be followed.
- Possible risks could include blunt force injury, musculoskeletal injury and psychosocial harm.

V. TRAINING CONSIDERATIONS

- All unsupervised procedures must be performed by appropriately trained personnel who have been deemed to be competent in the procedure.
- Students must receive prior instructions on the relevant aspects of small ruminant anatomy and physiology. If possible, they should practice techniques with cadaver specimens and/or appropriate models before using live animals.
- An acceptable level of competence in trainees can only be achieved by providing supervised training with live animals.
- Animal temperament should be assessed as suitable prior to commencement.

VI. EQUIPMENT

- Relevant Personal Protective Equipment (PPE); appropriate clothing (e.g. overalls), closed-in shoes (preferably steel cap boots), disposable gloves
- Equipment for appropriate animal restraint (e.g. crush and halter)
- Stethoscope
- Digital thermometer
- Obstetric lubricant
- Sample container for the collection of faeces

VII. PREPARATION

1. Ensure AEC approvals cover all procedures, personnel, and animal details for the planned work.
2. If working with students, teachers must ensure that students have had the opportunity to discuss the ethical and social issues, and legal responsibilities, involved in the care and use of animals for scientific purposes, at a level appropriate to their learning ability and comprehension. This must occur before the use of animals commences.
3. Ensure good hygiene practices. This includes washing hands before and between animals of different epidemiological origins.

VIII. PROCEDURE

1. **Distance exam** - Begin by observing the animal's environment, as well as the animal's appearance and general behaviour in its environment. From this, broad assessments can be made relative to environment and husbandry, as well as the animal itself (e.g. the animal's demeanour, responsiveness, respiratory rate and effort, gait, body contour, symmetry, body condition, coat condition etc.). Small ruminants are flock and herd animals, consequently, the distance examination will typically occur as examination of a group.
2. **Restraint** – The animal should be moved through yards and race into an appropriate small holding pen or yard. The animal will be restrained by an assistant for the examination. Depending on the demeanour of the animal this may be by being restrained next to or against the pen fencing for sheep and goats. In the case of alpacas the animal may be restrained in the cush position on the ground but typically restraint will be with a halter and the assistant holding the animal under the neck. Once the animal is appropriately restrained proceed with the clinical assessment.
3. **Respiratory rate sounds and effort** - Visually observe respiratory rate (recorded in breaths per minute), effort and pattern while the animal is at rest. With the stethoscope, auscultate the various lung fields for abnormal acoustic findings.
4. **Cardiovascular** – Using a stethoscope, auscultate the heart to obtain a heart rate while the animal is at rest (record in beats per minute). While auscultating with the stethoscope, consider any abnormal acoustic findings. Femoral pulses can be palpated to assess their rate and strength.
5. **Mucosal membranes** – Vulval mucosal membranes should be assessed for colour, moisture, as well as capillary refill time in females. Conjunctiva should be assessed for colour using the FAMACHA scoring system.
6. **Gastrointestinal sounds and faeces** - Using a stethoscope, auscultate various abdominal fields for gut and rumen sounds. The paralumbar fossa and left abdomen should be auscultated, balloted and palpated for rumen/C3 motility and fill. A gloved finger can be used to obtain a diagnostic faecal sample from the rectum (2g) for faecal egg count assessment – refer to RUM_005 Rectal Collection of Faeces in Sheep and Goats. Observe faecal contents and consistency.
7. **Lymph nodes** – Prefemoral, submandibular, retropharyngeal, and prescapular lymph nodes should be palpated for size and consistency.

8. **Rectal temperature** – after application of lubricant, gently insert the thermometer ~5cm into the rectum of the animal. Most digital thermometers will beep once the temperature is measured – these thermometers are preferred.
9. **Head and oral cavity** - Using manual restraint, the oral cavity and teeth of the animal may be examined. The eyes can be examined using menace and palpebral response.
10. **Mammary glands (non-lactating)** - the udder and teats should be observed and palpated.

IX. REFERENCE INFORMATION

Table 1. Reference ranges for the basic vital signs in small ruminants.

Note: The normal vital signs for small ruminants will vary according to the circumstances (e.g. transport, exercise and mental status) both external and internal factors may influence them, and due note should always be made of the circumstances under which they are obtained. There are some circumstances when abnormalities can be masked by temporary or intermittent physiological alterations in vital signs. There are physiological/natural variations that are the result of breed and age.

	Pulse rate (b/min)	Respiration rate (b/min)	Temperature (rectal) (°C)	Capillary refill time (seconds)
Sheep	60–80	20–30	38.3–40.0 °C	< 2
Goats	70–120	15–40	38.6–40.0 °C	< 2
Alpaca	60–90	10–30	37.5–39.0	< 2

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#1.0	PCA	10/12/2025	Approved to December 2028