RUM_008 Transrectal Palpation (+/- Ultrasonography) in Cattle

I. OBJECTIVE

To describe a standard method of examining reproductive structures via trans-rectal palpation or ultrasonographic assisted visualisation. This technique most commonly applies to female cattle for the purpose of pregnancy diagnosis, artificial insemination or embryo transfer, however, it may also apply to male cattle, e.g. when conducting a Breeding Soundness Examination (BSE).

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."[1]

III. COMMENTS / RECOMMENDATIONS

- Relative to animal ethics applications, when using this SOP, the following should be identified within the individual application: the rationale, duration, frequency, and any intended variation to this procedure.
- When performed by a competent and experienced operator this procedure should be relatively short (often <5min per animal) and should cause only minor impact to animal wellbeing.
- When performed by students (under direct supervision), this technique may be performed
    - a maximum of 8 times in one day,
    - and animals must be permitted a 1-week "recovery" (during which time no other 'invasive' procedures are performed)
- It is extremely important when performed multiple times in the one-day (e.g. when teaching students) that the potential welfare impacts of rectal "air sucking" and "ballooning" are appropriately managed. This includes prevention (e.g. palpation technique), monitoring and response. Ballooning of the rectum makes subsequent diagnostic palpation difficult and increases the risk of palpation-associated trauma.
- If evidence of rectal bleeding is observed, an animal's use in that session should be considered complete (i.e. 1-week "recovery" is indicated)
- The risk of pregnancy loss due to transrectal palpation is greatest in the first 30 days of gestation, and pregnancy loss in general is greatest in the first 56 days of gestation. These statistics should be taken into consideration when planning to transrectally palpate female cattle.
- Additional care should be taken with the use of heifers and bulls, as transrectal palpation is potentially a novel stimulus for them.

IV. EQUIPMENT

- Personal Protective Equipment (PPE), as appropriate
  (for advise consult the relevant course coordinator, facility manager, or UQ biosafety advisor)
- Obstetric lubricant
- Transrectal palpation glove
- Suitable infrastructure for animal restraint (e.g. cattle crush, palpation stalls etc)
- Trans-rectal ultrasound equipment: probe and receiver (if applicable)
- Artificial insemination catheter (if applicable)

[1] Australian code for the care and use of animals for scientific purposes. 8th Edn 2013 (updated 2021) National Health and Medical Research Council (NHMRC).

Conditions:

- Investigators named in an animal ethics application, relative to this SOP, must be competent to implement the SOP
- Any variation to this SOP must be described in the relevant animal ethics application
- If this SOP has not been reviewed and approved by a UQ AEC within the last three years it is no longer valid and cannot be used in animal ethics applications until reapproved (see "AEC Reviewed/Approved" date in this document's header).

V. PROCEDURE

1. Ensure the animal is appropriately restrained for the procedure.
2. Remove any bulky items (e.g. watches and jewellery) and ensure fingernails are clipped to an appropriate length (on the arm that will be used for the palpation). This will help to reduce the risk of trauma to the rectal mucosa.
3. Apply a rectal glove and ample lubricant to the palpating-arm.
4. Gently, and initially only to the level of the wrist, insert the gloved and well-lubricated palpating arm into the rectum.
5. Using the non-palpating hand, the tail may be clasped to position it out of the way.
6. Observing contractions and the animal's response, gradually and gently extend the arm further into the rectum. Do not "push through" the peristaltic contractions but rather let them slide over your arm.
7. Assess the volume of faeces within the rectum. Excessive volumes of faeces should be gently directed to the anus and expressed without completely withdrawing the arm. Withdrawing the arm may allow aspiration of air into the rectum ("air sucking"), and subsequent rectal "ballooning".
8. If the rectum contains excessive volumes of air (ballooning of rectum) this may be reduced enough to enable diagnostic palpation to proceed by grasping the most caudal contracted peristaltic ring and gently pulling it caudally. This step may only be performed by a competent and experienced operator.
9. Once the palpating arm is appropriately positioned within the rectum gently and systematically identify all relevant anatomical structures (reproductive or otherwise).

   It is within this step that artificial insemination and ultrasonography may commence:

   a. Artificial insemination requires brief, but careful placement of the insemination catheter into the vagina within this step.
   b. Ultrasonography usually involves introduction of the ultrasound probe into the rectum within the hand in step 4 and removal within the hand in step 10.
10. The palpating arm is then gently withdrawn from the rectum and the glove inspected for any signs of blood (a potential indication of trauma caused by the procedure). Scant amounts of blood on the glove may not require any intervention. Veterinary advise must be sought if there is any matter of uncertainty.
11. Make a clear record of the procedure and assessment, noting pregnancy status, and any other relevant findings.
12. Release the animal from the restraint and monitor it for signs adverse events (e.g. weakness, lethargy, bleeding from the rectum). If an unexpected adverse event(s) occurs take immediate action as outlined on the animal ethics webpage.

Version #	Reviewing AEC (note: all other relevant AECs ratify the approval)	AEC Review Date	Approval To Date
1	PCA	20/07/2022	20/07/2025

Conditions:

- Investigators named in an animal ethics application, relative to this SOP, must be competent to implement the SOP
- Any variation to this SOP must be described in the relevant animal ethics application
- If this SOP has not been reviewed and approved by a UQ AEC within the last three years it is no longer valid and cannot be used in animal ethics applications until reapproved (see "AEC Reviewed/Approved" date in this document's header).