RUM_016 Bovine Foot Examination and Corrective Hoof Trimming (Expiry: March 2029)

I. OBJECTIVE

To describe the safe lifting of front and rear feet in cattle for clinical examination and corrective/routine trimming

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

- Lifting feet is a relatively routine bovine procedure. If an animal does not tolerate this procedure (without sedation) it should not be used for teaching the procedure, without specific justification.
- Animals should be restrained using appropriate methods for the size and type of animal. For example, mature cattle should be restrained in a cattle crush using a head bail, with or without a halter and lead, for safety of both the animal and operator.

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 cattle 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 as well as injury with hoof trimming knives.
- For safety reasons, a rope should be tied to secure the top back-gate before securing a leg to the top back gate as in photos below.
- During the leg lifting procedures if the cow indicates weakness or unwillingness to support her weight or kicks more than usual, it's best to drop the leg down and start again. This allows the animal to adapt to the procedure being carried out.

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 instruction on the relevant aspects of cattle anatomy and physiology. If possible, they should practice techniques with abattoir-derived tissue 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

- PPE – including overalls, enclosed footwear such as leather or gumboots, cut resistant arm guards and gloves and eye protection.
- Hoof trimming crush - if available
- Assorted ropes and leg straps
- Belly straps
- Pulley
- Hoof knives and hoof trimmers
- Hoof testers
- Water and iodine



Image 1 | Foot examination and trimming equipment – 1 Hoof trimmers, 2 Hoof knives, 3 Hoof testers, 4 Assorted ropes, 5 Pulley 6 Pulley attachment, 7 Leg strap, 8 Water plus iodine, 9 Eye protection

VII. PREPARATION

- Ensure the pulley equipment is set up correctly (e.g. pulley is in working order and attached correctly to the crush). Ensure hoof knives are sharp as blunt knives increase the chance of injury.

VIII. PROCEDURE

There are several methods for lifting front and hind limbs, and operator and animal safety should be considered when choosing the method. Changes in the technique may be required depending on animal and/or facility variations.

Hindlimb lifting for examination

The pelvic/hind limb may be lifted using a rope or pulley.

- Rope method: The rope is tied above the fetlock on the lower limb. A second loop is made in the rope above the hock and passed over the top of the crush and back down through the loop to create a pulley mechanism to lift the limb. The leg is lifted to the desired height, and the free end of the rope can then be secured with a quick-release knot. A second rope may be used to secure the limb if there is movement limiting safe examination and trimming.
- A pulley may be applied to pipe railings on the top of the crush. The leg strap shown in image 1-7 is wrapped around the chosen hind limb above the hock. Elevation of the limb is made possible with a pulley system. Once the leg is lifted to the desired height a second rope is applied above the fetlock with a quick release knot to secure the leg to the crush to allow safe inspection and trimming. A cow belt may be used to offer some support and thereby prevent the animal from lying down during the procedure. This may be required when examining a bull or if the time the leg is lifted is expected to be longer than 10-15 minutes. Typically, a support belt is not necessary. If the animal begins to not support its own weight the quick release knots and quick release pulley mechanism should be deployed and the leg released so that the cow may support its weight on all limbs. At this point a support belt would be considered prudent.



Figure 1 – Use of ropes to lift the hind limb of cattle (Source: SVS teaching materials)

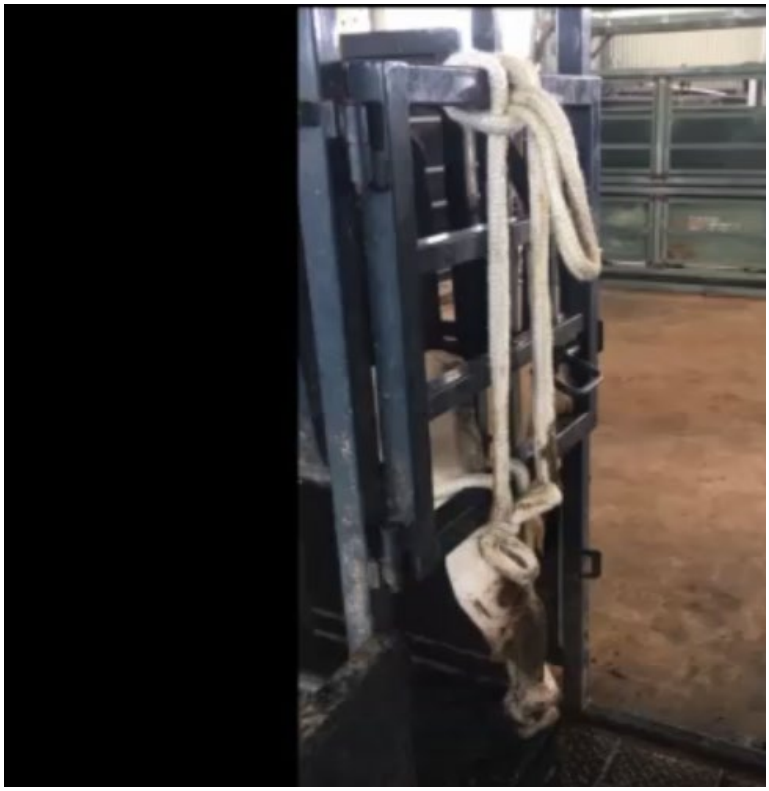


Figure 2 – Use of ropes to lift the hind limb of cattle with leg secured for examination (Source: SVS teaching materials)



Figure 3 – Use of pulley to lift the hind limb of cattle (Source: SVS teaching materials)

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).

Forelimb lift for examination

- A rope may be applied to the limb below knee and the limb lifted by creating a pulley system with the rope and crush. A second rope will be required to secure the limb
- A pulley can be applied to pipe railings on the top of the crush on the same side of the crush as the leg to be lifted. The leg strap shown in image 1-7 is wrapped around the chosen forelimb at the level of the cannon bone Elevation of the limb is made possible with a pulley system. Once the leg is lifted to the desired height a second rope is applied with a quick release knot to secure the leg to the crush to allow safe inspection and trimming.
- Monitor the animal for signs adverse events (e.g. abnormal jaw movements or mastication, coughing, difficulty breathing, increased respiratory rate, lethargy). If unexpected adverse events occur take immediate action (it is likely veterinary advice will be required) and follow the appropriate institutional procedures (see the animal ethics webpage for guidance).



Figure 4 – Use of pulley to lift the front limb of cattle (Source: SVS teaching materials)

Hoof examination and trimming technique

- Distant Examination of the Foot: In general, the examination should begin with the most affected limb and start with the claws. A complete examination should be performed regardless of any lesions found at early stages of the assessment. Examination of the digits should begin with the animal standing progressing from the hoof wall up each limb. Each foot should then receive a closer examination which requires elevation and restraint of the limb as detailed above.
- Exploratory technique: The examination should start with inspection of the interdigital skin. The sole should then be lightly pared to expose potential lesions or to explore readily visible surface lesions. If possible, the intent is to pare away the separated horn to expose normal horn. Use of hoof testers may be useful at this stage to identify if there are painful areas.
- Corrective hoof trimming: The objective is to restore the foot to its normal shape and create balance between the two claws of the same foot. Measurements in the following description are based on a mature Friesian cow. Adjustments will have to be made for other sizes of stock and beef cattle. Gradual removal of sole is advised to avoid trimming too short. Steps of a functional hoof trim are to trim the medial hoof, trim the lateral hoof, balance heels, modelling, treat lesions and remove loose horn
- There are three general stages to the hoof-trimming:
    1) Cut the overgrown toe back to its correct length, approx. 85 – 90 mm from the coronary band, this will vary with the size, age and breed of the animal.
    2) Visualize a line from the top of cut one at the toe to the bottom of the heel. Gradually remove the entire sole beneath this line, taking care during the process to reassess sole thickness to avoid excessive trimming and damage to the underlying corium. The sole surface should be flat on the weightbearing surfaces.
    3) Remove any ledge of solar overgrowth into the interdigital space and smooth down any sharp edges, allowing drainage between the claws.

- Upon releasing the animal from the crush, observations should be made for increased or differing limb lameness post leg lifting and hoof trimming procedure. Note that some increased favouring may occur due to the changed way in which the hoof strikes the ground post-trimming.

This SOP deserves notable reference and acknowledgement of authorship by Associate Professor Ben Wood – School of Veterinary Science, with review by Courtney Stewart –Animal Facility Manager UQ.

Version #	Reviewing AEC	AEC Review Date	Outcome
1.0	Production and Companion Animals	05/03/2026	Approved to 05/03/2029