

Bovine Lameness Examination and Corrective Hoof Trimming

Category: P3- minor conscious intervention

Instructor to student ratio: 1:15

Objective

To return a hoof with deformed claws to a normal shape and function. To explore, repair and treat causes of lameness in the bovine foot.

Alternatives to animal use

Video, practice on abattoir specimens to introduce skills involved in paring and rasping.

Drugs, chemicals and biological agents

Lignocaine 2% for local anaesthesia if required. Xylazine or Acepromazine for sedation if required. Schedule 4 drug must be used under direct veterinary supervision.

Details of Procedure

Equipment:

Assorted ropes for lifting legs (or Hoofnak™ Leg Lifter/Lameness Crush)
Cow belts for supporting cattle
Cattle Crush suitable for restraining a cow and access feet
Gloves
Scrubbing brush and source of water for cleaning
Hoof testers
Assorted hoof knives
Hoof clippers
Cowslips or equivalent hoof blocks
Sheep hoof shears

Precautions:

Methods of restraint should be available to ensure the wellbeing of the animal and the safety of the operator. These facilities may include the use of a crush, ropes for leg lifting, and cow belts. In some cases, local anaesthesia and sedation may be required. Gloves providing protection against injury by hoof trimming equipment should be used.

Procedure:

1. Detailed Examination of the Foot:

In general, the examination should begin with visualizing the lame animal walking in the yards and laneways to identify the affected limb(s). 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. The sole of each claw should then receive a closer examination which requires elevation and restraint of the limb. There are several methods for lifting front and hind limbs and operator and animal safety should be considered when choosing the particular method.

2. Lifting and restrain of the front limb:

For calves or very quiet cattle, elevation of the limb may be achieved by manually grabbing the metacarpus such that both the carpal and elbow joints are flexed as the limb is lifted. Alternatively, a rope (or a Hoofnak™/Lameness crush) may be applied to the limb (canon bone) above the accessory digits, the limb lifted and the rope secured, with a quick release hitch, to the crush. A cow belt may be used to offer some support to the brisket and thereby prevent the animal from lying down during the procedure.

A Hoofnak™ is a portable device that can be applied to pipe railings on the crush. Elevation of the limb is made possible with a lever and ratchet system.

3. Lifting a hind limb:

The pelvic limb may be lifted using a rope (or a Hoofnak™/Lameness crush). In one rope method, the rope is tied around the leg above the hock on the affected limb. The rope is then looped over a rail, back under the hock and then over the opposite rail. This creates a pulley system that lifts and supports the limb in a more natural weight bearing position. Once the limb is elevated the rope is secure with a quick release hitch to the rail. A second rope can be used to secure the fetlock to a post if a cow belt is used to support the brisket and/or abdomen. A Hoofnak™ is a portable device that can be applied to pipe railings on the crush. Elevation of the limb is made possible with a lever and ratchet system.

Hoof-trimming technique

1. *Exploratory technique:* The sole should be washed and scrubbed to allow visual appraisal of the sole, interdigital space and surrounding structures. Hoof testers should then be used to identify localized regions of pain. Then hoof that is least likely to be affected should be tested first so as to avoid over sensitization of the animal (Hind: Medial Claw, Fore: Lateral Claw). Light paring may be needed to expose potential subsolar lesions or to explore readily visible surface lesions. If possible, the intent is to pare deep enough to expose normal horn.
2. *Corrective hoof trimming:* The objective is to restore the foot to its normal shape. Measurements in the following description are based on a mature cow. Adjustments will have to be made for other sizes of stock. Gradual removal of claw is advised to avoid trimming too short. The non-affected claw should be trimmed and tied up first so that it acts as a reference for the affected claw. There are three general stages to the hoof-trimming:
 - a. *Cut one:* Trim and cut the overgrown toe back to its correct length, approx 75-85mm from the coronary band.
 - b. *Cut two:* The angle formed between the crainial hoof wall and the sole should be 50-55 degrees. If this angle is more acute than this then horn will need to be progressively removed from the toe region of the sole to open this angle up. Visualize a line from the top of cut one at the toe to the bottom of the heel. Gradually remove the entire hoof beneath this line taking care to during the process to reassess sole thickness to avoid excessive trimming and damage to the underlying corium. The sole surface should be flat.
 - c. *Cut Three:* Remove any ledge of solar overgrowth into the interdigital space and smooth down any sharp edges.

Animal wellbeing

Minimal, if handled quietly.

Local infiltrative or regional anaesthesia and/or sedation should be considered when dealing with aggressive animals or when painful conditions of the foot exist. Changes in the technique may be required depending on animal and/or facility variations.

Animal reuse and repeated use

Repeated use is possible after the hoof has been allowed to regrow. Reuse at the same teaching session is not advisable, or the hoof may become over-trimmed. Hoof regrows at approximately 5mm/month.

Animal care

The use of low stress handling and restraint techniques are necessary for this procedure.

Pain relief

Non-steroidal Anti Inflammatory Drugs may be necessary when treating clinically lame animals.

Qualification and experience

Demonstrator: Experience in the procedure
Students: Competence in cattle handling.

Last Review date	23/11/2017
Reviewer	Chris Petzel