

DISBUDDING AND DEHORNING

1. PURPOSE

Removal of horn buds or horns is necessary for human and animal safety reasons.

The purpose of this SOP is to describe the procedures for disbudding and dehorning cattle.

2. RESPONSIBILITY

- 2.1. Trained and qualified personnel.
- 2.2. Herd Manager
- 2.3. Veterinarian

3. MATERIALS

3.1. GENERAL

- Halter
- Weigh scale or weight tape
- Measuring stick
- Clippers
- Nitrile Gloves
- Pail with warm water and disinfectant (Virkon)
- 1, 3, 5 and 10cc syringes
- 18gx 1" needles
- 20gx 1" needles
- Sedative: Xylazine (20mg/ml) (e.g. Rompun®, Xylamax®)
- Local anesthetic: Lidocaine 20mg/ml
- Systemic analgesic: Meloxicam (20mg/ml), (e.g., Metacam® Rheumocam®)
- Sharp surgical scissors
- Alcohol towelette
- Topical bandage (e.g.) Aluspray®
- Antimicrobial spray (e.g., IntraRepiderma®).

3.2. DISBUDDING:

- Disbudding iron
- Disbudding Weight and Medication Chart

3.3. DEHORNING

- Dehorning Iron
- Scoop gouger
- Metal bristled brush.
- Dehorning Weight and Medication Chart

4. GENERAL

- 4.1. When the disbudding is performed by a non-veterinarian (e.g., by livestock producing clients), the CVMA strongly encourages that veterinarians provide training and advance input on technique and pain management through a provincially defined and mandated VCPR (veterinarian-client-patient relationship).

4.2. Definitions:

- 4.2.1. Disbudding involved the removal or destruction of the horn-producing cells of the horn buds before they have attached to the skull. Once the horn buds have attached to the skull, they are horns and must be removed by the process of dehorning.
- 4.2.2. Dehorning involves the removal of the horn *after* attachment of the horn bud to the skull. It is a more invasive and traumatic intervention.
- 4.3. Aim to disbud healthy calves after adequate colostrum intake and prior to 4 weeks of age.
- 4.4. Only in exceptional circumstances can a calf be dehorned after 2 months of age. (e.g., sick calf)
- 4.5. Avoid disbudding day-old calves as it may interfere with colostrum intake.
- 4.6. Avoid disbudding calves at the same time as other stressors (e.g., sickness, at the same moment as weaning or grouping).
- 4.7. All cattle undergoing any form of horn management receive a local anesthetic block and non-steroidal analgesics.
- 4.8. Never leave a sedated or anesthetized animal unattended.
- 4.9. Any notable bleeding or wound resulting from dehorning must be promptly attended to in an appropriate manner.
- 4.10. Appropriate standards of cleanliness and hygiene must always be observed.
- 4.11. Animals that have recently been disbudded or dehorned are at risk of the incision opening for some time following the surgery and therefore, should not be transported. The advice of the veterinarian is required before transporting a recovering animal.
- 4.12. Breeding to polled sires is preferable, as calves will be polled and will not require disbudding.

*** IMPORTANT**

- HORN BUD REMOVAL MUST BE DONE BEFORE 8 WEEKS OF AGE. ONLY IN EXCEPTIONAL CIRCUMSTANCES CAN INDIVIDUAL CATTLE BE DEHORNED AFTER 8 WEEKS OF AGE.
- BANDING IS NOT AN ACCEPTABLE METHOD OF DEHORNING.

5. PROCEDURE

- 5.1. Don nitrile gloves during all manipulations.
- 5.2. Clean the pens of the calves prior to procedure (See [SOP DC-209 Calf Pen Sanitation](#))
- 5.3. Remove any food from buckets, grain bottles, and in manger.
- 5.4. Place a halter on the calf and walk it to the weigh scale.
- 5.5. Measure and record the calf's hip height using the measuring stick.
- 5.6. Record the calf's number, date, weight, hip height, and calculated drug dosages in the Treatment Logbook.
- 5.7. Ensure that all materials are at hand.
- 5.8. Return the calf to its pen and loosely tie the halter to the gate of the calf pen.
- 5.9. Refer to the Appendix DC-A-3A: Dehorning Weight and Medication Chart to determine the required dosage dosages for the sedative, local anesthetic, and systemic analgesic according to the weight.
 - 5.9.1. Have a second person confirm the calculation.

- 5.9.2. Check the concentration of the drugs being used to ensure that they correspond to the disbudding weight and medication chart. If the concentration is different, inform a technician. You must calculate out the dosage using the new concentration.

*** IMPORTANT**

CHECK THE CONCENTRATION OF THE DRUGS BEING USED TO ENSURE THAT THEY CORRESPOND TO THE DISBUDDING WEIGHT AND MEDICATION CHART. (e.g., ROMPUN IS AVAILABLE IN 20MG/ML AND 100MG/ML CONCENTRATIONS). CHECK THE PRODUCT CONCENTRATION PRIOR TO USAGE TO AVOID OVERDOSING.

- 5.10. Restrain the head of the animal.
- 5.11. Pre-emptively (20 minutes prior) and simultaneously administer analgesic Meloxicam 20mg/ml and sedative Xylazine 20mg/m subcutaneously in different sites. Refer to [SOP DC-701: Substance Administration in Dairy Cattle](#) and [Appendix DC-A-3A: Dehorning Weight and Medication Chart](#) for dosages and route of administration.
- 5.12. 20 minutes prior to disbudding/dehorning, restrain the head of the calf and administer:
- The sedative (Rompun® 20mg/ml) intramuscularly, and
 - The systemic analgesic (e.g. Meloxicam® 20mg/ml) subcutaneously,
- at different sites using the pre-calculated dosages. Refer to [SOP DC-701: Substance Administration in Dairy Cattle](#).
- 5.13. Pre-heat the disbudding iron (3 minutes) or dehorning iron (about 10 minutes).
- 5.14. When the calf is drowsy, untie and remove her halter.

*** IMPORTANT**

NEVER LEAVE A FULLY SEDATED ANIMAL UNATTENDED.

- 5.15. Clip the hair surrounding each **horn bud**.
- 5.16. Verify the effect of the sedative by observing:
- physical movement
 - jaw chewing in response to stimulation.
 - eye position, and degree of muscle tone
 - presence/absence of palpebral reflexes etc.
- 5.17. Repeat on the opposite side of the head to block the second corneal **nerve**.

5.18. DISBUDDING PROCEDURE:

- 5.18.1. When the calf is fully sedated, administer the local anesthetic lidocaine subcutaneously in the groove of both horns as a corneal nerve block using the pre-calculated dosage. (Refer to [SOP 701: Substance Administration in Dairy Cattle](#), section 5.14).
- 5.18.2. Wait 5 minutes and test the effectiveness of the block by firmly pinching the skin around the horn bud with tweezers and watching for any response (movement, ear flicking, vocalizations). If a response is observed:
- 5.18.2.1. Give additional local anesthetic (1cc LIDO-2®) if a response is observed.
 - 5.18.2.2. Wait an additional 5 minutes before retesting the reflexes.
- 5.18.3. Once the nerve block is successful, hold the calf's ear away from the horn bud area.

- 5.18.4. Place the hot end of the disbudding iron directly over the horn bud with mild pressure.
- 5.18.5. Slowly rotate or rock the iron to form a uniform copper ring around the horn bud for 10- to 15-seconds (maximum).

*** CAUTION**

DO NOT HOLD THE IRON ON THE CALF FOR MORE THAN 15 SECONDS. BURNING LONGER CAN DAMAGE THE BONE AND BRAIN OF THE CALF.

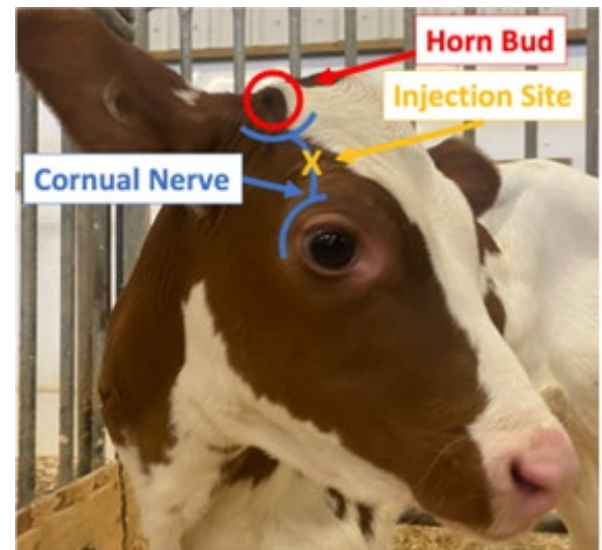


Figure 1: Cornual Nerve Block

- 5.18.6. Remove the iron. As a guide, if you observe white fat in the cautery area, the iron was left on too long and readjustment in procedure is required.
- 5.18.7. Spray the wound with antimicrobial spray (e.g., IntraRapiderma ®)
- 5.18.8. Apply the topical bandage (Aluspray ®).
- 5.18.9. Allow the iron to heat up to temperature for a minute and repeat the iron application Steps 5.13 to 5.16) on the opposite side.
- 5.18.10. If at any point the calf responds to the hot disbudding iron, STOP immediately and:
 - 5.18.10.1. Administer additional local anesthetic (1cc LIDO-2®)
 - 5.18.10.2. Wait 5 minutes.
 - 5.18.10.3. Re-test by pinching with tweezers before reapplying the iron.
- 5.18.11. Immediately after dehorning:
 - 5.18.11.1. lift the calf's hind leg that is exposed to identify any extra teats. If in doubt, consult with the Technician or Veterinarian.
 - 5.18.11.2. If an extra teat is observed, follow the procedures described in [SOP DC-307: Extra Teat Removal: Calves](#).
- 5.18.12. Position the calf in a resting position and continue to monitor her regularly until the sedation wears off (stable on their feet).

5.19. DEHORNING PROCEDURE:

- 5.19.1. When the calf is fully sedated, administer the local anesthetic (LIDO-2®) subcutaneously in the groove of both horns as a cornual nerve block using the pre-calculated dosage. (Refer to [SOP 701: Substance Administration in Dairy Cattle](#), section 5.14).
- 5.19.2. Repeat on the opposite side of the head to block the second cornual nerve.
- 5.19.3. Hold the calf's ear out of the way to keep it from being burned.
- 5.19.4. Place the hot end of the dehorning iron over the horn so that the iron is in direct contact with the skin at its base (Fig. 3).
- 5.19.5. If the calf reacts to the burner, STOP and:
 - 5.19.5.1. Administer additional local anesthetic (1cc LIDO-2®)

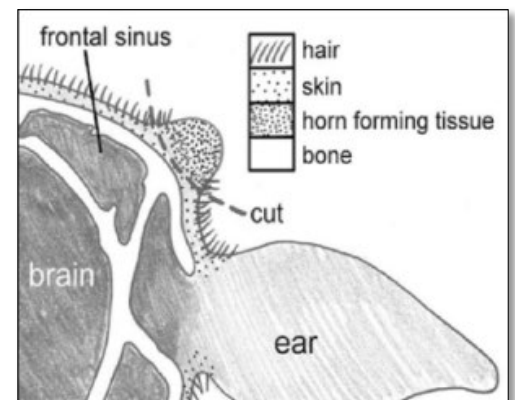


Figure 2: Dehorning Location

- 5.19.5.2. Wait 5 minutes.
- 5.19.5.3. Re-test by pinching with tweezers before reapplying the iron.
- 5.19.6. Press the iron with mild pressure. When the burning hair begins to smoke, slowly rotate the dehorning iron by twisting your wrist.
- 5.19.7. Continue the application for about 10-15 seconds.

*** CAUTION**

DO NOT LEAVE DEHORNING IRON IN PLACE FOR TOO LONG. HEAT CAN BE TRANSFERRED THROUGH THE THIN BONES OF THE SKULL AND DAMAGE THE CALF'S BRAIN.

- 5.19.8. Cut off the remaining bud using the scoop gouger.
- 5.19.9. Press the gouger gently against the head. Maintain the pressure and quickly spread the handles apart to bring the blades together to remove the horn bud.
- 5.19.10. Spray the wound with antimicrobial spray (e.g., IntraRapiderma ®)
- 5.19.11. Apply the topical bandage (Aluspray ®).
- 5.19.12. Soak the gouger in a pail with disinfectant (e.g., Virkon) between horns and between animals.
- 5.19.13. Clean the dehorning iron with metal bristled brush to remove any ash.
- 5.19.14. Repeat steps 6.15.3 to 6.15.11 for the other horn.
- 5.19.15. Immediately after dehorning:
 - 5.19.15.1. lift the calf's hind leg that is exposed to identify any extra teats. If in doubt, consult with the Technician or Veterinarian.
 - 5.19.15.2. If an extra teat is observed, follow the procedures described in [SOP DC-307: Extra Teat Removal: Calves](#).
- 5.19.16. Position the calf in a resting position and continue to monitor her regularly until the sedation wears off (stable on their feet).

5.20. POST-OPERATIVE CARE

- 5.20.1. Monitor appetite and wound site twice daily for 1-2 weeks.
- 5.20.2. Additional systemic analgesia (Metacam®) may be given after 3 days if pain persists, and appetite is depressed. Consult with technician or a veterinarian.
- 5.20.3. Apply a topical bandage if the wound is bleeding.
- 5.20.4. Consult with a veterinarian if the wound is showing signs of infection (purulent discharge, inflammation, hot to touch).
- 5.20.5. Document monitoring and observation on the Dairy Log Sheet and Herd Management Software (DSA)

5.21. POST PROCEDURE:

- 5.21.1. Unplug the iron and return all items to the pharmacy, leaving the iron on the blue cart until fully cool.
- 5.21.2. Dispose of used needles in the sharps container and used syringes in the bio-box.
- 5.21.3. Record the substances administered in the Treatment Logbook.
- 5.21.4. Inform the evening personnel of the procedures done so they can continue to monitor the calves.

DISBUDDING AND DEHORNING**6. REFERENCES**

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Document Status

3-May-2018	Version 01 (New): Reviewed by Dr. Maxime Despots
6-June-2018	Version 01 (New): MAC FACC Approved
9-April-2019	Modified Version 02: MAC Campus FACC approved with minor changes:
9-March-2023	Modified Version 03: MAC Campus FACC approved.
15-Feb-2024	Reviewed and Modified: Version 04: MAC Campus FACC approved