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	<b>Revision Number</b>	<b>000</b>
	<b>Effective Date</b>	<b>June 24, 2020</b>
<b>DISBUDDING</b>		

## 1. PURPOSE

1.1 This Standard Operating Procedure (SOP) instructs students and farm staff on the humane methods of disbudding calves at the UBC Dairy Education and Research Centre.

## 2. SCOPE

2.1. This SOP will describe the method used for disbudding calves born at the UBC Dairy. This document will also provide a general overview of important points to remember, which impact the welfare of the animal.

## 3. RESPONSIBILITY

3.1. The Operations Manager is responsible for reviewing and updating this procedure as required

3.2. The Operations Manager is responsible for ensuring all staff are trained in this procedure.

3.1. Farm workers performing calf disbudding are responsible for reading, adhering to and understanding the procedure outlined in this SOP.

## 4. DEFINITIONS


4.1. *Disbudding*- Refers to the removal of the horn bud prior to three weeks of age. Removal of the horn after this age is referred to as dehorning.

## 5. TRAINING

5.1. Training will include animal handling, giving injections, disbudding procedure and assessing animal health and welfare (e.g. pain, infection).

## 6. SAFETY PRECAUTIONS


6.1. Personnel disbudding calves will follow routine health and safety procedures to protect against contamination or transfer of zoonotic diseases.

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- 6.2. All personnel entering the calf barn will wear personal protective equipment. Coveralls and dedicated facility footwear is to be worn when entering the animal holding area.
  - 6.2.1. Boots need to be rinsed with hot water upon entry into the barn.
  - 6.2.2. Gloves are worn to protect workers from the caustic paste.
- 6.3. Care will be taken when handling sharps; needles and syringes will be disposed in appropriate sharps containers.

## 7. GENERAL


- 7.1. Calves are disbudded when they are 4 days old. Calves are vaccinated and receive a second ear tag at this time.
- 7.2. Unless noted, calves are disbudded using caustic paste.
- 7.3. Disbudding is recommended over dehorning because it is less invasive and considered less painful. All calves should be disbudded to avoid injuries and behavioral problems associated with horns in later life.
- 7.4. It is important that the job of disbudding is done correctly to minimize calf pain and distress and to avoid the re-growth of horn in the future.
- 7.5. The NFACC Code of Practice for the Care and Handling of Dairy Cattle, 2009 requires pain control to be used when disbudding and recommends as best practices the use of combination of sedatives, local anesthetics and analgesics.
- 7.6. According to the CVMA Disbudding and Dehorning of Cattle Position Statement, 2016:
  - 7.6.1.1. Cattle without horns cause fewer injuries to other animals and humans than do horned animals.
  - 7.6.1.2. Where prevention of horns by genetics selection is not currently an option, calves should be disbudded in preference to dehorning.
  - 7.6.1.3. Individual animals subjected to disbudding or dehorning by any method should receive a local anesthetic and peri-operative analgesia.

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- 7.6.1.4. Any bleeding during dehorning must be controlled.
- 7.7. Monitoring sheets will be filled out for each calf that is disbudded and hung on individual pen gate.
  - 7.7.1. Record the amount of Rompun (Xylazine) and Metacam (Meloxicam) administered.
  - 7.7.2. Perform and record the post procedure checklist (Reference Disbudding Monitoring Sheet at the end of this protocol).
- 7.8. Record vaccination and disbudding information in the calf day book.

## **8. MATERIALS AND EQUIPMENT**

- 8.1.1. Xylazine (Rompun) 20mg/ml
- 8.1.2. Meloxicam (Metacam) 20mg/ml
- 8.1.3. 2% Lidocaine Hydrochloride
- 8.1.4. Inforce 3 Vaccine
- 8.1.5. 4 x 4" gauze
- 8.1.6. 20 to 18 gauge, 1.0" needles
- 8.1.7. Latex gloves
- 8.1.8. Syringes
- 8.1.9. Hair clipper
- 8.1.10. Caustic paste
- 8.1.11. RFID ear tags, buttons and ear tag applicator.

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## PROCEDURE

### 8.2. Animal Preparation

8.2.1. Verify the identification of calf

8.2.2. Using the birth weight of the calf, calculate the appropriate dosage of the sedative xylazine at a dose of 0.2 mg/kg. (dosage sheet by body weight is hanging in the calf barn vet room).

8.2.3. Wipe and clean the top of the bottle with an alcohol pad before inserting the needle.

8.2.4. Administer the sedative intramuscularly in the neck region (see SOP for IV, SC and IM injections).

8.2.5. Allow 10-15 minutes to allow the full effect of the drug to take place. The calves are disbudded and vaccinated at the same time, so it is prudent to administer the intranasal Inforce 3 vaccine just after the dose of xylazine.

8.2.5.1. The Inforce 3 vaccine can be located in the fridge in the main barn vet room. It involves 2 small bottles, one diluent and one powdered vaccine. Add the diluent to the powder, shake well and draw up into the syringe. See SOP on vaccinations. Remove the needle and attach a nasal cannula to the syringe to administer the vaccine. Discard the cannula after use.


8.2.6. Administer 5mL lidocaine cornual nerve block to each side of the calf's head, a total of 10mL lidocaine will be used.

8.2.6.1. Nerve block should be performed by a trained and competent individual. Consult a Senior Farm Worker.

8.2.7. Using the birthweight of the calf, calculate the appropriate dosage of NSAID Meloxicam (Metacam), at a dose of 0.5 mg/kg

8.2.8. Administer the Metacam subcutaneously in the neck region (opposite side of the neck to Xylazine injection)

8.2.9. After the calf is sedated, the vaccine and Metacam have been administered, tag the calf with the proper ID tag. (See SOP on Ear Tagging)

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8.2.10. Clip the hair surrounding each horn bud with the clippers. Clean clippers after use. See SOP on Calf Barn and Equipment Cleaning.

8.2.11. Wearing latex gloves, apply a thin film of caustic paste, approximately 2 cm in diameter, by rubbing the paste into the scalp until each horn bud is evenly and fully covered.

8.2.11.1. Be cautious to not use too much caustic paste as it is an irritant that can be painful.

8.2.12. Allow the calf to rest in its pen and recover from the sedation.

8.2.13. Fill in the monitoring sheet see Fig 1.

8.2.14. Monitor the calf twice over the first 8 hours after the procedure to ensure there are no adverse health effects to the sedative or disbudding. Contact the herd veterinarian if there are any concerns.

8.2.15. Record vaccination and disbudding information in the day book in the calf barn


8.2.16. Approximately 24 hr later, give the calf a 2<sup>nd</sup> injection of Meloxicam, following same method/dosage as before and record on the monitoring sheet along with a health assessment. Following this 2<sup>nd</sup> injection, the calf can be moved to the group pen.

8.2.17. Animals are health checked once or twice every 24 hours for 72 hours post-procedure and observations recorded. See Fig 1.



**DISBUDDING**

Calf Identification				
Calf # _____	Weight _____ kg	Dam # _____		
Birth date _____	Birth time _____ am / pm			
Colostrum details				
Cow # _____	Quality _____			
Volume _____	Time fed _____ am / pm			
Method	Bottle / Tube	Signature _____		
Disbudding Monitoring Sheet (Caustic Paste)				
Date _____	Time _____			
Xylazine (0.2 mg/kg- SC-V: _____ mL)	<input type="checkbox"/>			
Lidocaine _____ mL	<input type="checkbox"/>			
Melexicam (0.5 mg/kg- SC-V: _____ mL)- [at disbudding]	<input type="checkbox"/>			
	-[24h later]			
	<input type="checkbox"/>			
Vaccination (Inforce-IN)	<input type="checkbox"/>			
Signature _____				
Post Procedure Checks				
	Time	Standing/ Sternal Sitting	No obvious intense discomfort*	Signature
Within 1-3h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Within 4-8h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
24hr	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
48h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
72h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
* No excessive recumbency, head shakings, head rubbing, ear flicks. If so, provide extra analgesic and note your observations and treatment details on the back of this sheet.				


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<u>Disbudding Monitoring Sheet (Caustic Paste)</u>				
Date _____	Time _____			
Xylazine (0.2 mg/kg- SC-V: _____ mL)	<input type="checkbox"/>			
Lidocaine _____ mL	<input type="checkbox"/>			
Meloxicam (0.5 mg/kg- SC-V: _____ mL)- [at disbudding]	<input type="checkbox"/>			
	-[24h later]	<input type="checkbox"/>		
Vaccination (Inforce-IN)	<input type="checkbox"/>			
Signature _____				
Post Procedure Checks				
	Time	Standing/ Sternal Sitting	No obvious intense discomfort*	Signature
Within 1-3h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Within 4-8h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
24hr	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
48h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
72h	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<small>* No excessive vocalization, head shakings, head rubbings, ear flicks. If so, provide extra analgesic and write your observations and treatment details on the back of this sheet.</small>				

Fig 1. Calf monitoring sheets

## 9. REFERENCES

- 9.1. Canadian Veterinary Medical Association. Disbudding and Dehorning of Cattle – Position Statement 2016. Accessed October 2019.  
<https://www.canadianveterinarians.net/documents/disbudding-and-dehorning-of-cattle>
- 9.2. CCAC Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009
- 9.3. NFACC Code of Practice for the Care and Handling of Dairy Cattle. 2009.

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**10. REFERENCE SOPS**

- 10.1. SOP-Calf-004-Ear Tagging
- 10.2. SOP-Cow-011 Giving Vaccinations
- 10.3. SOP-Cow-012 Giving IV, SC and IM Injections

**11. APPROVAL AND REVISION HISTORY**

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