

 University of British Columbia Centre for Dairy Education and Research	Document Number	SOP-Cow-013
	Revision Number	000
	Effective Date	October 26, 2020
GIVING CALCIUM		

1. PURPOSE

- 1.1. This Standard Operating Procedure (SOP) instructs farm workers on the two methods used to give calcium to cows at the UBC Dairy Education and Research Centre.

2. SCOPE

- 2.1. This SOP will describe how and when to give calcium to cows who have recently calved, and why it is important for the animal's welfare to do so.

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 farm workers are trained in this procedure.
- 3.3. Training will include animal handling, use of a bolus gun and drenchmate system, as well as how to administer an IV. See SOPs on Handling of Cattle, Giving Oral Medications, and Giving Injections.

4. DEFINITIONS

- 4.1. Milk fever (hypocalcemia): a metabolic disease caused by low blood calcium following calving when the demand for calcium for milk production exceeds the ability of the body to mobilize it. It is more commonly seen in older animals (after 3rd parity) which have a reduced ability to mobilize calcium from bone. It is also seen in higher milk producers. Treatment consists of providing calcium until blood levels return to normal.

5. SAFETY PRECAUTIONS

- 5.1. All personnel entering the cattle holding area will wear personal protective equipment -coveralls and dedicated facility footwear. Disposable gloves are also recommended.
- 5.2. Thoroughly wash hands with hot soap and water when exiting the barn facility.

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6. GENERAL

- 6.1. After calving, cows of parity 3 or higher are routinely given additional calcium as a preventative against hypocalcemia.

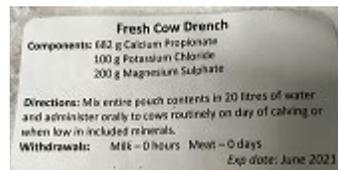
Cows are closely watched for signs of hypocalcemia for the first few days after calving. This is done by observing the animal's thriftiness, gut fill, hydration and milk production.

- 6.2. Cows showing signs of hypocalcemia (stumbling, lethargy, cold ears) or who are 'down' (collapsed) are given a bottle of CalPlus IV.
- 6.3. Record all treatments in the dairy day book located in the vet room.
- 6.4. Thoroughly wash hands with soap and water when leaving the barn.

7. MATERIALS AND EQUIPMENT

- 7.1. Preventative Treatment for Cows

- 7.1.1. Fresh Cow Drench – 1 package



- 7.1.2. Drench-Mate drenching system

- 7.1.3. Bovikalc oral calcium supplement – 2 boluses



- 7.1.4. Bolus gun



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7.2. For 'Downed' cows with hypocalcemia

7.2.1. Cal-Plus – one bottle



7.2.2. 14 gauge, 2" needle

7.2.3. Rubber IV tubing

7.2.4. 4x4" sterile gauze

7.2.5. 70% isopropanol

8. PROCEDURE

Fresh Cows Receiving the Preventative Treatment

8.1. Divert the animal when she leaves the milking parlour into the holding area.

8.2. Allow the cow to headlock. See SOPs on Moving and Chasing Cattle, and Handling Cattle.

8.3. Retrieve the supplies from the vet room while the animals are locking up. Wash hands with soap and water.

8.4. After the first milking cows receive:

8.4.1. One package of Fresh Cow Drench mixed in 40 L of warm water.

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- 8.4.2. Administer to the animal as a drench. See SOP on Administering Oral Medications.
- 8.5. Twelve hours later, the same cow will receive one Bovikalc bolus. See SOP on Administering Oral Medications.
- 8.6. After an additional twelve hours (24 hrs after calving), the animal will receive a 2nd Bovikalc bolus.
- 8.7. After each treatment, the cow is released from the headlock and moved back to her pen. See SOP on Moving & Chasing Cattle.

‘Downed’ cows – This is an emergency and cows needs immediate attention

- 8.8. Do not attempt to move the downed cow. See SOP on Downer Cows. Call the Farm Worker II on duty to treat the animal as quickly as possible.
- 8.9 Retrieve supplies for ‘downed’ cow.
- Review SOP on Giving Injections
- 8.5. Remove the red cap and top from the bottle of Cal-Plus and place the rubber IV tube on the open end of the calcium bottle. Hold bottle upside down and allow the fluid to flow through the rubber IV tube. Keep supplies sterile.
- 8.6. Once the liquid has filled the rubber tube, pinch it off with the white clasp. Ensure there is **no air present in the IV tubing.** It is now ready to attach to the needle after insertion into the vein.
- 8.10 Clean area over the jugular vein with a 70% isopropanol swab. Insert 14 gauge needle into the cow’s jugular vein and ensure blood flows out of needle.
- 8.7. Attach IV tubing to needle.
- 8.8. Raise the bottle as high as you can and release the white clasp so the calcium starts to flow. It should take 5-10 minutes to get the calcium into the cow. It should flow in a **SLOW**, steady stream. You will notice the liquid bubbling, and the level in the bottle dropping, indicating that it is flowing.
- 8.9. As the calcium is flowing, monitor the cow’s heart rate by feeling the carotid pulse in the cow’s neck. If it starts to increase dramatically, slow down the stream of calcium through the IV line.



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8.10.



- 8.11. Once the Cal Plus is completely administered, remove the IV needle, and apply pressure to site to stop further bleeding.
- 8.12. Leave the cow propped up in a recumbent position, and keep her under observation. She should recover and regain her footing within the hour. If not, notify the Operations Manager, or if he's not available, consult the herd veterinarian.
- 8.13. The herd veterinarian will be able to advise if a repeat dose of Cal Plus is needed.
- 8.14. Follow up with a fresh cow drench 12 hours after the IV treatment.
- 8.15. Monitor cow over the next couple of days. Consult herd veterinarian if animal relapses.
- 8.16. If the animal is sound, she is milked with the herd as usual. As a fresh cow, she is flagged with a green leg band and any incidents of milk fever recorded in the dairy day book located in the vet room.
- 8.17. Wash hands thoroughly with soap and hot water when leaving the barn.

9. REFERENCES

- 9.1. CCAC Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009.

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- 9.2. Code of Practice for the Care and Use of Dairy Cattle. National Farm Animal Care Council. 2009
- 9.3. Farm Health online. <https://www.farmhealthonline.com/disease-management/cattle-diseases/milk-fever/> Accessed Oct 2019

10. RELATED SOPs

- 10.1. SOP – Cow-004 Downer cows
- 10.2. SOP-Cow-006 Moving and Chasing Cattle
- 10.3. SOP-Cow-012 Giving IV, SC and IM Injections.
- 10.4. SOP-Cow-014 Administering Oral Medications to Cattle
- 10.5. SOP-Cow-023 Handling Cattle

11. APPROVAL AND REVISION HISTORY

Author/Approver	Date	Signature
History		
Document #	Revision #	Changes