

## TUBE FEEDING A CALF

### 1. PURPOSE

Proper care of newborn and sick calves is critical for their long-term health and survival. If a calf is unable to suckle from a bottle to consume enough colostrum or fluids, then a stomach tube should be used.

### 2. RESPONSIBILITY

- 2.1 Veterinarian.
- 2.2 Experienced technician.
- 2.3 Students or casual employees may carry out procedure under supervision of an experienced technician or veterinarian.

### 3. MATERIALS

- 3.1 Calf esophageal feeder (feeder consists of a plastic ball probe with an attaching plastic tube and reusable plastic pouch or bottle that holds the fluid)
- 3.2 Fluids (Colostrum, transition milk, milk replacer, electrolytes) warmed to 98-100°F (38°C)
- 3.3 Marking equipment (e.g. pen, tape)

### 4. GENERAL

- 4.1 Feeding calves requires patience! If a calf refuses to drink from a bottle, notify the lead technician or herd supervisor. A second person should attempt to bottle feed the calf before implementing the use of an esophageal tube feeder.
- 4.2 Do not tube feed a calf that is so weak that it has little or no ability to swallow. Tubing calves in this state can result in liquid aspiration to the lungs. The veterinarian must be consulted.
- 4.3 Premature or small calves should not be tube fed more than 1 L per feeding.
- 4.4 Proper technique requiring training to ensure the correct placement of the tube is critical to success.
- 4.5 The esophageal feeder can cause damage to the animal if used improperly.

### 5. PROCEDURE

- 5.1 For Colostrum or MR, prepare the fluid as per related sop.

DC-501: [Colostrum management](#)

DC-502: [Milk Replacer Preparation](#)

- 5.2 Use a thermometer to ensure any liquid, including transition milk and electrolytes are at body temperature of 98-100°F (38°C),
- 5.3 Ensure that all equipment has been thoroughly cleaned and is in good working order.
- 5.4 Ensure the tube is the right length for the calf: The length of the tube and the size of the calf will dictate how far to insert the tube.
  - 5.4.1 Measure the distance between the tip of the calf's nose and the point of the elbow behind the front leg. This is the approximate distance that the tube should be inserted (Figure 1).



FIGURE 1: Measure the distance that the tube should be inserted

5.4.2 Mark this distance on the tube.

## 5.5 RESTRAIN CALF:

5.5.1 Work quietly and calmly as to avoid causing stress to other animals.

5.5.2 Position the calf between your legs in a standing position. (Fig. 2)

5.5.3 Back the calf into a corner with one hand under its muzzle to keep its head and neck upright.

Avoid tubing calves that are in lateral recumbency, as fluid can be aspirated into the lungs, causing death.

5.5.4 If the calf cannot stand:

5.5.4.1 Position the animal on its sternum and hold the head between your legs (Fig. 3).

5.5.4.2 Ensure the head and neck remain above stomach level throughout the feeding in order to prevent aspiration of fluids.



FIGURE 2: Calf restraint - standing



FIGURE 3: Calf restraint – sternum

## 5.6 INSERT THE FEEDING TUBE:

5.6.1 Moisten the probe end of the feeder with the fluid to lubricate and make the bulb slippery. Raise the calf's head slightly and squeeze the sides of its mouth gently to open its mouth. (Figure 4)

5.6.2 Kink the plastic tube and slowly push it over the tongue to the back of the mouth, aiming the tube to the left of the throat. This will stimulate the calf to swallow.

5.6.3 Once the calf swallows the end of the feeder, slide the tube gently down the esophagus to the pre-determined mark. The tube must remain kinked until it reaches the stomach to avoid aspiration into the lungs. (Fig. 5)

5.6.4 Stop immediately if you feel any resistance, pull the tube out slightly and redirect. THE TUBE MUST NEVER BE FORCED.



FIGURE 4: Tube insertion

5.6.5 Once in the correct place, the calf should appear comfortable and be swallowing.

**\* IMPORTANT**

Ensure the head and neck remain above stomach level throughout the feeding in order to prevent aspiration of fluids.

Do not use force when inserting the tube.



FIGURE 5: slide the tube gently down the esophagus



FIGURE 6: Palpate to ensure proper placement of the feeding tube

**5.7 CHECK PLACEMENT:**

- 5.7.1 Palpate the left side of the calf's neck to ensure proper placement of the feeding tube (Fig.6).
- 5.7.2 When the tube is in the correct position, you will distinctly feel two tube-like structures (esophagus and windpipe) in the neck. (Fig. 7)
  - 5.7.2.1 The trachea is firm and has rings or ridges obvious to the touch.
  - 5.7.2.2 The esophagus is a softer collapsible structure.

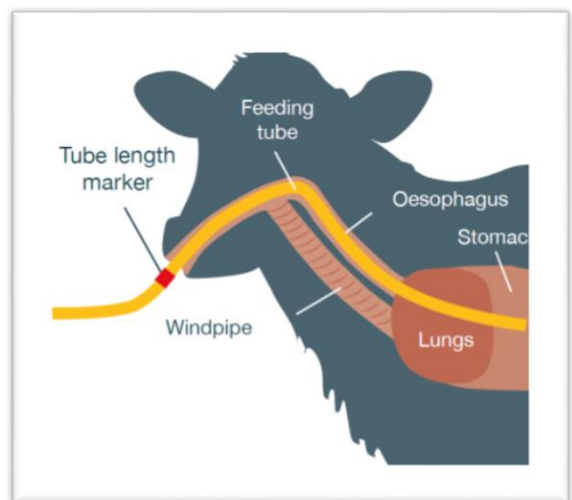


FIGURE 7: Placement of trachea and esophagus

**5.8 ADMINISTER THE FLUID: (Fig. 8)**

- 5.8.1 When the calf is comfortable the correct feeding tube has been confirmed, the fluid can be introduced.
- 5.8.2 The liquid should be fed at body temperature of 98-100°F (38°C)
- 5.8.3 Allow the fluid to flow by gravity. The calf will begin to move about when it feels pressure in its filling rumen.

- 5.8.4 Feed the fluid at a slow rate to ensure the calf regurgitates less.
- 5.8.5 Control the flow rate by raising and lowering the bag.
- 5.8.6 Split feeds into smaller volumes if uncertain about how much liquid the calf has already consumed.
- 5.8.7 Monitor the calf throughout the feeding for any discomfort, bloating or change in behavior. If the calf becomes uncomfortably full then stop the flow by lowering the bottle and kinking the tube before withdrawing. Refer to Table 1 : Reasons Fluid can Enter the Airway

**\* IMPORTANT**

If at any point you suspect something is wrong, immediately lower the bottle to stop fluid flow and kink the tube before withdrawing.

**5.9 REMOVE THE TUBE:**

- 5.9.1 Wait until all liquid has exited the tube and passed down the esophagus before removing.
- 5.9.2 Kink the feeding tube.
- 5.9.3 Hold the calf as still as possible and gently pull out the tube in one swift motion.

**5.10 CLEAN THE EQUIPMENT:**

- 5.10.1 Clean the feeding tube immediately after use.
- 5.10.2 Rinse the tube feeder with cold water and then wash in hot soapy water.
- 5.10.3 Follow with a chlorine and hot water rinse (5cc: 2L).
- 5.10.4 Hang to drain and dry.

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**TABLE 1: REASONS FLUID CAN ENTER THE AIRWAY:**

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| ▪ The tube is not passed far enough beyond the windpipe airway opening.   |
| ▪ The tube comes out of the esophagus during flow.  |
| ▪ The head and neck is lower than the stomach, resulting in gravity back flow.  |
| ▪ The tube is pulled out too early. Wait until all liquid has exited the tube and passed down the esophagus before removing.  |
| ▪ The calf is overfed resulting in overflow of fluid from the stomach and up the esophagus.   |
| ▪ The calf is sick and the stomach is not working properly resulting in backflow of fluid up the esophagus.   |
| ▪ The tube is punctured or damaged resulting in fluid leaking behind the tube tip.  |
| ▪ The tube has entered the airway. (It is much more difficult for the tube to enter the airway rather than follow the path of least resistance into the esophagus. However, it pays to double check the placement of the tube in the left groove of the neck. |
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## 6. REFERENCES

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Adams, Ragan and McPhail, Eric. Proper Use of the Bovine Esophageal Feeder. Retrieved from <http://veterinaryextension.colostate.edu/menu2/Cattle/TubeDoc.pdf>

Antahi Innovations Ltd. 2018. Preventing Aspiration (*How can milk get into the airway? What can go wrong?*). Retrieved from <http://antahi.com/preventing-aspiration/>

Agriculture and Horticulture Development Board 2018. Calf management. (*Tube feeding colostrum to calves*).

### *Document Status and Revision History*

DATE	PREVIOUS VERSION	NEW VERSION
15-Jan-2019	NEW	MacDonald Campus FACC approved