

Care of New Born Calf

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Calf should be positioned in sternal recumbence immediately after its birth. This position allows both lungs to expand. Remove the mucus from the nose and mouth and clean it. If the calf does not start breathing, artificial respiration should be used by pressing and relaxing alternatively, the chest walls with hands. Another method is to hold the calf by the rear legs and lift from the floor with the head down. This may be repeated several times and helps in restoring respiration.

- Then, if the cow does not lick the calf dry, or if the weather is cold, the owner should wipe the calf to clean and dry.
- The calf should be capable of lifting its head within **three minutes**, begins to breathe within **30 to 60 sec**, sitting up on its own within **five minutes**, trying to stand after **20 minutes** and should be stand **after an hour**.

Disinfection of navel cord:

As soon as the calf starts breathing, observe as to whether the navel cord is still



attached. The navel cord should be disinfected. The navel cord of the calf is tied about 2.5 cm away from the body and cut about one centimeter below the ligature. Apply tincture of iodine/ povidone iodine to the cut end to prevent infection like joint ill, etc.,

Feeding of Colostrum:

- The colostrum is the first secretion of cow after calving. It is thick and yellow in color. It contains 4 to 5 times more protein and 10 to 15 times more vitamin-A than normal milk.
- Protein of colostrum contains much higher proportion of globulins. The globulins are to be the source of antibody presumed developing the defense mechanism in the calf for many infections.
- Colostrum is also rich in minerals like Cu, Fe, Mg and Mn. It also contains several other vitamins like Riboflavin, Choline, Thiamine, Pantothenic acid etc., which are for growth of calf.
- The Colostrum should be fed **within 15 minutes** of calving, the calf should be fed with colostrum at the rate- **1/10th of body weight** and buffalo calves at the rate **-1/15th** of body weight.

Importance of colostrum feeding:

- Colostrum of mature cow possess large quantities of **gamma globulins** because they have greater chance of exposure to many infection. The gamma globulins must be **absorbed** as such across **the intestinal wall into blood stream** without being broken down into the constituent peptides or amino acids.
- This permeability is rapidly lost after the first **1-2** hours of life. It will be highly useful to feed colostrum's in the **first 15-30 minutes** followed by a second dose in approximately **10-12 hours**.
- The absorptive cells lining the small intestine are immature at birth. In this stage they indiscriminately take up large molecules like immunoglobins.
- As the calf grows older hour by hour, there is a transition of epithelia cells of small intestine from immature type to mature type which cannot allow large protein molecules.
- As the more and more cells mature the capacity of the calf to absorb immunoglobins diminishes proportionately until '**closure**' when no more absorption can take place. This phenomenon is called '**gut closure**'.
- **Concentration of antibodies at 'closure' is directly related to the disease resistance of the calf.**



If the calf unable to suck the colostrum,

Collect colostrum hygienically, then feed via,

- **Bottle** – Promotes transit of the colostrum to the true stomach
- **Tube feeding** – Ensures that the full volume of colostrum is received by the calf – however, this is a skilled technique that can only be undertaken safely by trained staff

Rumen development:

- If stimulated early on, a calf's rumen can start to function from as early as 5 days of age. Most calves are actively ruminating by 28 days of age. Consumption of concentrates and water provides the rumen microbes with the nutrients they need to grow and multiply.
- After 3 weeks of eating starter concentrate, the rumen will have enough microbes to ferment the feed and supply the calf with energy.

Feeding management of calf:

- Reticulo-rumen is nonfunctional in calves and hence feeding of calves should be treated as non-ruminant and they are not equipped to utilize cellulose.
- The calves cannot utilize roughages containing higher amount of cellulose.
- To encourage the early development of rumen and reticulum the calves should be fed with good quality **leguminous hay and other roughages**.
- Because of non-availability of good quality protein due to **lack of ruminal microbial digestion**.
- The calves have little capacity to utilize non-protein nitrogenous compounds and therefore substance like urea should not be included in their ration.
- Due to the same reason, B-complex vitamins also are dietary essential for calves in addition to vitamin A and D.
- For digestion of milk and enzymatic digestion in the abomasum's and small intestine is more important than bacterial fermentation in the rumen, which is more wasteful.
- To avoid this esophageal groove, exist in the reticulum connecting the esophagus with the omasum.



- During nursing and milk feeding, the sides of the groove are raised by reflex action to form a tunnel through which milk passes from esophagus to omasum by-passing the rumen and reticulum.
- This continues to function even after considerable development of the rumen if milk feeding is continued.

Calf starter

- They are first day concentrating mixture fed to calves.
- Calves starts eating small amount of dry starter from the 2nd week of life.
- To train them to eat starter mix, the following procedure may be useful.
- A calf starter should be highly palatable.
- It should be high energy (75% TDN) and contain 14-16 per cent digestible crude protein.
- Calf starter may be fed on free-choice basis until the calf starts consuming about 1-1.5 kg of the starter mix a day after which the amount may be restricted.
- Generally, calves reach this stage by 2 ½ months to 3 months of age.
- Milk feeding can be discontinued earliest which the calf is consuming 0.4-0.5 kg of concentrate per day deepening upon the breed.
- All calves must be provided with fresh, **clean water**. Water accounts for 70–75% of a calf's body weight. Calves perform best when fresh drinking water is available to them from birth

Meconium:

- **First fecal matter voided by calf.** Colostrum gives a laxative effect which is helpful in expulsion of meconium.
- If it is not voided out, mild enema [dissolving soap water enema/ phosphate enema] should be given. Sometimes congenital defects may be present like atresia ani, atresia coli, etc.,

Weaning of calf:

- Making the calf independent of its mother is known as weaning.



When to wean

- Healthy calves should be weaned based on concentrate intake and not on weight, size or age. Calves are at least 5 weeks of age.
- From a nutritional perspective, the most suitable time to wean a calf is when it is consuming enough concentrate. **Concentrate intake is a good indicator of rumen development.**
- Calves weaned before 5 weeks of age tend to be more susceptible to disease. Only wean healthy calves that are growing well. Delay weaning for ill calves or for those with poor intakes

The recommendation is to wean calves eating, for three consecutive days, at least:

1 kg if calf starter is >22% crude protein or

2 kg if calf starter is <22% crude protein

How to wean:

- Weaning should be done gradually by reducing milk over a period of 7–14 days.
- This will lead to increased concentrate intake, avoid a growth check after weaning and minimize weaning distress.
- Reducing milk can be achieved by:
 - Reducing the volume of milk fed per feed
 - Reducing the number of feeds per day

Reduce stress at weaning:

- Stress at weaning can compromise calves' immune systems for at least 2 weeks after weaning. This can make calves more susceptible to disease, particularly pneumonia, and can compromise growth.
- Make no changes to housing, feed, water or social groups for the 2 weeks after weaning.
- Avoid stressful procedures at weaning such as vaccination, disbudding and castration.

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