

Management of the Orphan or Early Weaned Calf

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Calves can be orphaned at birth, or a few days after birth. As calves orphaned at birth do not receive any colostrum, it is necessary to provide a suitable substitute as soon as possible

HEALTH CHECK

If you are purchasing calves for rearing on your property, you should inspect the animals first and only consider purchasing them if they do not show any of the following:

- wet or infected navels
- swollen joints
- discharge from the nose and/or eyes
- signs of diarrhoea
- breathing difficulties.

HOUSING

Provided calves have access to shade and shelter, their housing requirements are minimal. Protection from the elements is crucial for the first few weeks of life. Hay can be used for bedding, but should be replaced when it becomes wet or soiled.

COLOSTRUM

Colostrum is the first milk produced by a cow following calving. It contains less lactose (sugar), but more protein, vitamins and minerals than normal milk. It also contains immunoglobulins (antibodies) which are concentrated in the colostrum from five weeks prior to calving. The amount of immunoglobulins in colostrum depletes rapidly following calving due to hormonal changes and degradation of proteins.

It is extremely important that calves receive at least 2 litres of colostrum within six hours of birth. The immunoglobulin rich colostrum provides the calf with protection against disease.

The newborn calf absorbs immunoglobulins rapidly across the intestine directly into the blood. The efficiency of absorption declines following birth until absorptive cells are sloughed from the gut epithelium. Non-absorbed immunoglobulins remaining in the gut have the ability to neutralise bacteria and help prevent diarrhoea. Colostrum also contains transferrin and lactoferrin which bind iron and restrict bacterial growth.

If the newborn calf does not receive colostrum within the first six to 12 hours of life it will be hypoiimmunoglobulinemic, and susceptible to disease. Once the calf has received colostrum it can be fed solely on whole milk or milk replacers, until its rumen develops to a stage where it can digest solids.



COLOSTRUM SUBSTITUTE

If a calf has not received any colostrum from the cow, a substitute can be made from:

600 mL whole milk
300 mL water
½ teaspoon of castor oil
1 egg beaten
1 tablespoon of glucose.

The colostrum substitute should be fed three times a day for the first three days of life. The egg contains some immunoglobulins which may assist in preventing diarrhoea

FEEDING PROGRAM

It is important to establish a routine with calves, with feeds given at regular times each day. Calves are usually fed twice a day, in the morning and evening, for at least the first four weeks of life. Some producers choose to feed three times a day and others reduce feeding to once a day when the calf is about four weeks old.

Before the rumen develops, milk flows from the oesophagus directly to the abomasum via the oesophageal groove, by-passing the rumen (paunch), reticulum (honeycomb), and omasum (bible). Encouraging the calf to eat solid feed will enhance the development of the rumen and reduce its dependence on milk. Calves on once a day milk feeds usually have a good appetite for dry feed and are therefore easier to wean onto solids.

Fresh, dry concentrate should be available from day one. Calves should also have access to fresh, clean water and good quality fresh dry hay.

CALF DISEASE

The newborn calf has no active immunity and is highly vulnerable to infection. Passive immunity is provided when a calf receives colostrum within the first six hours of life. This provides protection against disease for the first three to five weeks of life. Calves which do not receive colostrum, synthesise immunoglobulins from birth, but it takes three months to reach similar levels to colostrum fed calves. Severely colostrum-deprived calves often die from scours within the first few days, or suffer chronic joint illness. Moderately colostrum-deprived calves are susceptible to diarrhoea and other diseases. Common causes of illness in calves include scours, pneumonia, and umbilical infection.

Scours

Generally, there are two causes of scours in calves, nutritional and infectious. Faeces become liquid with variable colour and smell. Calves can become dull, depressed and dehydrated with sunken eyes and are reluctant to eat or drink.

Causes of nutritional scours include lack of colostrum, too much or too concentrated milk being fed, too dilute or inadequately mixed milk, incorrect milk temperature, or irregular feeding times. Causes of infectious scours include viruses (rotavirus and coronavirus), bacteria (salmonella and *E. coli*), and protozoa (coccidia and cryptosporidia).

Pneumonia

Pneumonia is a respiratory disease that causes rapid breathing, wheezing, coughing and discharge from the nose. Force-fed calves can develop pneumonia as a result of the milk settling in the lungs.

Umbilical (navel) Infection

Umbilical infections are usually the result of birth in unhygienic conditions. The umbilical region may become swollen and painful with abscess formation. Infection through the umbilicus can also lead to septicaemia, joint illness, and meningitis. Umbilical infection can be prevented by applying iodine or chlorhexidine-based disinfectant to the umbilicus.

Sick calves should be isolated from others in a clean, dry pen with adequate bedding and should be kept warm and hydrated. **It is extremely important that a calf receives sufficient fluids when scouring to prevent dehydration.** An electrolyte replacement (Diarrest[®], Lectade[®], Res-Q[®], Scourlyte[®], Scourproof[®]) should be fed several times a day, if possible. Milk may be reduced for one to two feeds but fresh water, concentrates and hay should be provided.

If scours persist, seek veterinary advice to determine the cause. Administer antibiotics only following veterinary advice.

HYGIENE

It is extremely important to keep all feeding equipment clean to reduce the risk of introducing infection which can cause scouring. Scrub equipment with hot water and disinfectant and rinse with hot water and dry.

MILK REPLACERS

Milk replacers are used instead of fresh whole milk and are available at local rural merchandise stores. Milk replacers should be reconstituted and fed as directed by the manufacturers. Whether feeding once, twice or three times a day, it is important that milk temperature does not vary from feeding to feeding. Optimal temperature is either 15-20 °C (cool) or 36-42 °C (warm). Feeding milk replacer at the wrong temperature can lead to fat breakdown and reduced protein quality. Calves can be fed using individual or multiple teat feeders or buckets.

TRAINING THE CALF TO DRINK MILK

To train a calf to drink, back it into a corner, stand astride its neck and place a finger moistened with milk into its mouth. As the calf starts to suck, place the teat in its mouth or gently lower its mouth into a bucket of warm milk, taking care not to immerse the nostrils or it may inhale milk. This may have to be repeated several times before the calf will drink unaided.

WATER

Calves will begin to drink water between one to two weeks of age, and by six weeks may drink 4 to 5 litres a day. Milk feeding once or twice a day does not supply enough water for the calf, so fresh cool water should be available at all times.

SOLID FEED

The most important step towards successful weaning is to encourage the calf to eat as much solid feed as possible. When the calf is drinking milk it is being supplied with a highly digestible energy source with the correct balance of protein, vitamins, and minerals required for the first weeks of life. To ensure continued normal growth this balance must be maintained during weaning from milk and the transition to solid feed.

The calf should have access to solids from a few days of age in the form of concentrates and good quality hay. Concentrates can be introduced by placing a small amount in a bucket containing milk. As the calf finishes drinking, rub a little concentrate on the muzzle to encourage it to taste it. If you are feeding a number of calves, you will find that once one or two start eating the concentrate, the rest will follow. At this age the

calf is unable to consume and digest the volume of green feed required to support rapid growth, but green pasture in conjunction with milk replacer will be adequate for the calf to maintain live weight increase.

CONCENTRATES

Depending on the quality of the pasture, supplementary feed with hay and concentrates may be needed until the calf is approximately three months old. Calf concentrates should be highly palatable, coarse textured, high in energy (>75%) and protein (>16%) and low in roughage (<15%). Commonly used calf concentrates include calf meal, calf pellets and weaner pellets.

HAY

Calves should be provided with a good quality hay (>13% protein)

WEANING

It is recommended to wean calves from milk to solids as early as possible. If the calf has been offered solids from one week of age you may consider weaning it off milk at six to eight weeks of age. It is important that the solids offered are palatable and the protein content is equal to that in the milk being replaced. Early weaning can occur from four weeks of age. Milk feeding can be reduced to once a day, for one week and then stopped completely.

DRENCHING

Routine drenching of all calves with a broad spectrum anthelmintic is advisable to reduce internal parasite burden prior to weaning. It is important to follow the manufacturer's instructions when dosing calves.

CASTRATION AND DEHORNING

For information on dehorning and castration, see Agnote J83 "Dehorning and Castration of Calves under Six Months of Age."

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