

IMPORTANCE OF COLOSTRUM FEEDING

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INTRODUCTION:

Calves need to receive individual attention and care immediately following birth. There is a direct link between good calf care and improved milk production and longevity in the milking herd. Calves are born with no immunity against disease. Until they can develop their own natural ability to resist disease, through exposure to the disease organisms in their surroundings, they depend entirely on the passive immunity acquired by drinking colostrum from their dam.



Colostrum is the thick, creamy-yellow, sticky milk first produced by cows initially following calving, and contains the antibodies necessary to transfer immunity onto their calves. Colostrum should be given fresh as milked from the mother within 2 hours. During the first 3

days of its life the calf should receive colostrum. The feeding of colostrum is important because of the following:

1. The protein content of colostrum is 17% as against only 3.5% in ordinary milk. A major portion of the protein is globulin in nature. Globulins are found in blood but are present only in traces in ordinary milk. The globulins of colostrum contain antibodies which help the body system in fighting disease and are called immunoglobulins (IgM, IgG, IgA). The new born calf has little or no reserve of antibodies (antibodies cannot pass through the placental membranes) and its intestinal wall permits the passage of whole globulin at least during the first 12 hours of its life. Later in life, intact proteins are not absorbed.
2. The high content of vitamins (A, D and E) and minerals (Ca, Mg, Fe and P) help the calf to resist infections.
3. The laxative action of the colostrum helps the calf in evacuating the accumulated faecal matter from its intestines. The faecal matter if not excreted may undergo fermentation and release toxins, causing ill health or even death.

Composition of colostrum & of milk:

COMPONENT	COLOSTRUM	MILK
Total Solids (%)	22.5	12.5
Fat (%)	3.5	4.0
Lactose (%)	3.0	4.6
Protein (%)	14.3	3.3
Casein (%)	5.2	2.6
Albumin (%)	1.5	0.5
B-Lactoglobulin (%)	0.8	0.3
a-Lactalbumin (%)	0.27	0.13
Serum albumin (%)	0.13	0.04
Immunoglobulin (%)	5.5-6.8	0.09
Ash (%)	1.8	0.8
Vitamins		
Vitamin A (ug/g fat)	45	8
Vitamin D (ug/g fat)	30	15
Vitamin E (ug/g fat)	125	20
Thiamine (ug/100g)	60	40
Riboflavin	500	150
(ug/100g)	100	80

Niacin (ug/100g)		
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In certain situations, blood levels of antibodies in heifer calves are directly related to their milk production in later life. The chances of calves surviving the first few weeks of life are greatly reduced if they do not ingest and absorb these antibodies into their bloodstream. It takes far fewer disease organisms to cause disease outbreaks in such calves than if they can acquire immunity from their dam. Calves without adequate passive immunity are four times more likely to die and twice as likely to suffer disease, than those with it. Every half hour after birth that colostrum feeding is delayed, antibody transfer decreases by about 5%. A calf that does not drink until 6 hr old has then already lost the opportunity for 30% of the possible antibodies entering its bloodstream.

3 principles behind colostrum feeding: The principles can be categorised into 3 Q's namely:

1. Quality - is providing good quality colostrum
2. Quantity - is ensuring calves ingest sufficient antibodies.
3. Quickly- is the timing to ensure efficient absorption of the antibodies into the blood.

Colostrum is produced by the pregnant cow up to 5 weeks before she calves down. If cows are not well managed, colostrum quality could be reduced. Good management includes providing a good-quality diet for dry cows, ensuring they are in good general health and minimising stresses such as climatic or overcrowding during late pregnancy.

Newborn calves need to ingest at least 100 g of Ig within their first 3–6 hr of life, and the same amount no less than 12 hr later. The quality of colostrum is expressed in terms of its Ig concentration, with excellent quality colostrum containing at least 90 g/L, good quality 65–90 g/L, moderate quality 40–65 g/L and poor quality less than 40 g/L. The volume of colostrum that should be drunk to supply 100 g of Ig can then be calculated from its quality. The higher the colostrum quality, the faster and more efficiently the Ig are absorbed by newborn calves. With poor-quality colostrum, not only must calves be fed very large volumes to provide sufficient Ig intakes, but it is likely that, even then, inadequate amounts of Ig will be absorbed into the blood. For example, 2 L of colostrum containing 80 g/L of Ig will provide more passive immunity than 4 L of colostrum containing only 40 g/L of Ig. Bloody colostrum may also be lower in antibody levels. After their first milking, dairy cows begin to reabsorb the Ig back into their udder tissue. For this reason, colostrum from the second milking contains only half the Ig content as that from the first milking. Cows are generally deficient in Ig levels if they have been previously milked or are seen to be leaking milk prior to calving. Colostrum quality is also low in induced cows or those with less than 4 weeks between drying off and calving. Early ingestion of good quality colostrum is essential to both the early health and survival and also the long-term productivity of

newborn calves. In short, the benefits of proper colostrum feeding are immediate and long lasting.

CONCLUSION:

- Colostrum management makes a meaningful difference in calf development.
- Not feeding colostrum or poor feeding methods decrease calf health and increase morbidity as well as mortality rates.
- Feed maternal colostrum as the primary source of colostrum and rely on colostrum replacer as a backup or as needed.

