

Colostrum Management and Delivery

What is colostrum, and why is it so important?

Colostrum is the substance expressed from the udder at the first milking after calving. It provides essential antibodies and high quality and high energy nutrition to the calf. Calves are born with a very immature and very slow responding immune system. Cows are unable to transfer antibodies and other essential vitamins across the placenta to their calves in vivo. Because of this, the only way calves can become protected from disease during the first few weeks of life is to receive antibodies from colostrum during the first 24 hours of life. Antibodies, or immunoglobulins, are a type of protein which identify and destroy pathogens in the body.

Ensuring Good Colostrum Quality

The quality of colostrum can vary depending on the dam's breed and genetics, vaccination history, disease exposure, length of dry period and diet. Once the colostrum is produced by the cow, its quality is greatly affected by how it is collected and handled. Colostrum should be collected from the cow as soon as possible after calving. The longer the colostrum remains in the cow, the lower quality it becomes. The colostrum needs to be collected using proper milking technique and into a clean container to be fed to the calf. Make sure to assess the colostrum visually before giving to the calf. The colostrum should look like and have the consistency of melted vanilla ice cream, without any signs of mastitis or blood clots. Quality of colostrum can be more objectively measured using a Brix refractometer. This is a tool which indirectly measures the percent of antibodies in colostrum. Good quality colostrum should measure greater than 22% on the Brix refractometer.

Feeding the right Quantity of Colostrum at the Right Time

The calf's ability to absorb antibodies in the colostrum begins to decline as soon as 30 minutes after the calf is born. Because of this, it is essential that colostrum is administered to the calf at sufficient amounts as soon as possible. The following is the gold standard for colostrum delivery:

FIRST FEEDING: 4 QUARTS (1 GALLON) BETWEEN 0-4 HOURS AFTER BIRTH

SECOND FEEDING: 2 QUARTS BETWEEN 8-12 HOURS AFTER BIRTH

THIRD FEEDING (OPTIONAL): 2 QUARTS BETWEEN 18-20 HOURS

Proper Colostrum Storage and Re-Heating

Colostrum that is saved for future feedings can be refrigerated or frozen in commercial or "zip lock" gallon freezer bags. Refrigerated colostrum should not be used after 3 days of storage. Colostrum which is frozen immediately after collection can be stored for up to one year. Be sure to write the date of collection on each bag before refrigerating or freezing and lay the bags flat to increase surface area and speed up the cooling process. Stored colostrum should be re-heated in water no hotter than 120° F and warmed to body temperature (102 ° F).

Monitoring the Colostrum Management Program

Calf Health- Determine the Morbidity Rate, or percentage of calves that are sick, and the Mortality Rate, or the percentage of calves that die, in a group.

Goals: Morbidity Rate <25%

Mortality Rate <5%

Measuring Blood Total Protein - Evaluate calves 2-5 days old, test 12 or more animals.

Goals: More than 90% of calves should have >5.0g/dL

More than 85% should have >5.5g/dL

Monitoring Colostrum Cleanliness – colostrum can be cultured like milk samples

Goals: TPC <100,000cfu/ml

Coliforms <10,000cfu/ml

ASK YOUR VETERINARIAN HOW TO EVALUATE COLOSTRUM MANAGEMENT IN YOUR HERD.