

Practice the 5 C's of Dairy Calf Management



By Donna M. Amaral-Phillips

Colostrum: Calves should be **fed 4 quarts** of high-quality (>22 as measured with brix refractometer) colostrum (Jerseys- 3 quarts) within 4 to 6 hours of birth and an additional 2 quarts within 6 to 8 hours of the first feeding. Calves fed 4 versus 2 quarts of colostrum give 2500+ lbs more milk that first lactation!! Calves are born with an immature immune system and have to acquire immunity to disease from the antibodies found in this first milk. The absorption of antibodies by the newborn calf decreases with time and is non-existent by 24 hours of age. Thus, the recommendation to feed newborn calves quickly after birth. Besides antibodies, colostrum also contains various growth and nutritional factors which increase growth of tissues in the intestines and their ability to absorb nutrients throughout their life.

Calories: Energy or calories come from both the intake of milk and starter grain mix. Both are important in raising healthy, productive calves. Recommendations are to feed daily at least 6 quarts of milk or reconstituted milk replacer to Holstein calves. Starter should be available along with free-choice water starting at 3 days of age. Small amounts (a handful in a clean bucket) of starter are provided early in life—day 3 of age-- and needs to be changed out daily so that fresh starter is always available. The amount of starter consumed increases with age, especially as calves are being weaned from milk. Free-choice water is necessary to provide moisture in the rumen for rumen development. Remember that milk goes directly into the abomasum or true stomach, not into the rumen. For the best rumen development, free-choice water is needed. To prevent pens from getting wet when calves spill their water buckets, consider placing water bucket directly outside the pen in a container that minimizes the calf's ability to easily spill the bucket.



Cleanliness: Limiting exposure to disease-causing organisms helps get calves off to a good start. Cleanliness in both the calving pen and housing after calving are important. Leaving a cleaned calf pen vacant for 10 to 14 days can help break potential disease cycles. Feeding equipment (bottles, pails, tube feeder) needs to be cleaned identical to procedures used when cleaning milking equipment—warm water rinse, washed with hot water and soap with a brush, and acid rinse). Automatic feeders need to be cleaned daily (if automatically cleaned, checked that they are cleaning properly) and milk hoses replaced routinely. Calves that are sick should be cared for and fed last to decrease spread of disease.

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Consistency: Just like their mature cohorts, calves require consistency in feeding and handling routines (i.e. fed same time each day) as well as consistency in the composition of feeds they consume. Milk replacer, if source of milk, needs to be reconstituted according to the label's directions and an identical amount of powder and water fed at each feeding. To accomplish this, weighing out the powder and water decreases the inconsistencies between feeders and from day to day.

Comfort: Calves need a dry and draft-free area to rest. During the first week of life calves spend 80% of their time lying down and this decreases to only 75% by week 2 of life. Ventilation is also critical! Air movement, not down on but just above calves, is needed to move bacterial laden air away from calves. In the winter, air should turn over 4 times per hour and increase during the summer (up to 60 times/hour). Calves are born with very little body fat, thus environmental temperatures influence their comfort and ability to stay warm. Calves in the first 3 weeks of life are most comfortable when temperatures are between 60 to 75°F and when temperatures drop below 60°F, need to use energy they could have used for growth to stay warm. Calves over 3 weeks of age have a wider comfort zone with the lower end at 40°F. Heat stress on calves decreases their immunity and their ability to fight off disease. Calf hutches can be well over 100°F in the summer if they are not shaded from the sun. Placing hutches under shade cloth or trees help reduce the temperatures inside hutches and can help improve the immunity of calves. Remember that calves will drink more water when environmental temperatures increase.