

# CALF SUCCESS

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## Newborn calf care: The first 72 hours

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Superior calf performance begins during the birthing process and is followed by quality care of the newborn calf. A proper review of any newborn calf program must start with the dry cow program, with a particular focus on colostrum management and sanitation, and end with the calf taking off on its regular liquid diet. The following will review each of the major areas associated with excellent newborn calf care.

**Dry cow program:** Dry cow nutrition and management is often overlooked when considering any newborn calf program, yet it can have a major impact on calf performance.

- **Vaccinations:** Vaccinating the dam while she is in the dry cow period is an excellent management choice. Immune stimulation from the vaccines not only benefits the cow, but also provides increased immunity through the colostrum, which benefits the calf. Key diseases to vaccinate for include IBR, BVD, PI3 and BRSV. In addition, vaccinating for rotavirus, coronavirus and enterotoxaemia disease may be required if these diseases are known to occur on the farm. The herd vaccination program — for both cows and calves alike — should be written down and reviewed at least annually with the herd veterinarian.
- **Nutrition:** Appropriate levels of protein, energy and trace minerals are required to assure the newborn calf is provided with a good base level of nutrients for proper health after birth. Maintaining dry cow body condition score is also important for both calf and cow health post-calving.
- **Dystocia:** A difficult calving can lead to problems with calf performance and can negatively impact the dam as she re-enters the milking herd. Work with your herd veterinarian to determine when manual calving assistance should begin. Difficult calvings can be reduced if cows are comfortable, have limited stress and are moved to a private maternity pen at the first signs of calving. The rate of dystocia should be under 5% for the herd.

**Colostrum management:** Managing colostrum may be the single most important item to look at when a newborn calf program is being evaluated. The greatest challenge when raising calves is often preventing and treating disease, which can be significantly minimized when colostrum management protocols are developed and strictly followed. During the first few weeks of life, a calf's only line of defense is the immunity it receives from an ample amount of high-quality colostrum, whether that be from maternal colostrum or a colostrum replacer like [OptiPrime™](#).

- **Quality:** First milking colostrum should be creamy in color, have a consistent texture and be free from bacteria, blood, manure and urine. High-quality colostrum is defined as containing more than 50 g/L of [immunoglobulin G \(IgG\)](#), which can be tested using a Brix refractometer. When using a refractometer, a Brix value at or above 22 indicates high-quality colostrum. A colostrometer can also be used, although these instruments are temperature-sensitive and are really only useful in distinguishing between high- and low-quality colostrum. Cleanliness goals for high-quality colostrum are less than 100,000 cfu/mL TPC and less than 10,000 cfu/mL TCC.
- **Quantity:** Calves should receive four quarts of clean, high-quality colostrum within two hours of birth. This should then be followed up with another two quarts within 6-12 hours. Colostrum should be offered via a nipple bottle and an esophageal tube feeder should only be used if a calf won't consume the initial four quarts on its own. Smaller-breed calves can usually handle four quarts on the initial feeding, although industry standards recommend decreasing the volume of the first colostrum feeding to three quarts for smaller animals.
- **Storage:** Any unfed colostrum should be stored in either the refrigerator or a freezer for later use. Successful producers will commonly use 2- or 4-quart Ziploc® bags to store fresh colostrum. Colostrum should be stored in a refrigerator for a maximum of three days to limit bacterial growth. If in a freezer, colostrum can be stored for up to six months. Label storage bags with the date collected, source cow and quality measurement.

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- **Monitoring colostrum program:** Analyzing blood serum samples of calves is an effective way to monitor your colostrum program, as serum protein levels directly correlate to the level of passive immunity the calf has due to colostrum consumption. Blood can easily be collected from the jugular vein into a red-top tube. By spinning it down, or allowing it to sit overnight, the serum will separate from the blood cells. Pipetting this serum into the reservoir of a refractometer will give you a serum total protein reading in g/dL. The goal is to have 90% of calves read over 5.2 g/dL. Blood should only be sampled on calves that are well-hydrated and between 1-7 days of age.

**Calving time:** Keep in mind this is the first chance we have to directly affect the future of a calf.

- **Parturition:** Ensure an employee is available at all times to help avoid any complications that may arise during the birthing process. If the calving process becomes prolonged, careful and timely intervention needs to occur so calf vigor is maximized and stress/injury to the dam is minimized.
- **Environment:** Maternity pens and calving areas need to be as clean and dry as possible. Any excess moisture or manure promotes fast bacterial growth, which puts both the calf and the dam at increased risk for contracting an illness or disease. The calving area should be cleaned, disinfected and re-bedded with thick, comfortable bedding between calvings.
- **Calf removal:** The removal of the calf from the dam after birth minimizes exposure to pathogens in the maternity pen. Do not allow the calf to suck on the dam. Many producers allow the dam to lick off the calf, which can help increase calf vigor.
- **Dipping the navel:** Each calf should have its navel and umbilical stump dipped with a 7% tincture iodine solution immediately after birth. Re-dipping may be necessary at 24 hours of age if the farm has a history of navel infections and/or joint ill.
- **Records:** Keeping detailed records is essential to a successful newborn calf program. The minimum records that should be taken include dam ID, sire ID (if known), calf ID, date and time of birth, calving score, any vaccinations given, time of first colostrum and colostrum quality reading.

## Feeding and equipment

- **Cleaning and sanitizing:** All equipment associated with feeding calves must be cleaned and sanitized between feedings. A proper cleaning routine begins with removing any organic matter with luke warm water rinse. Organic matter includes saliva, milk, manure, bedding, etc. which can be found on bottles or buckets after feeding calves. Once organic matter is removed, use fresh, hot water, soap and a brush to thoroughly clean equipment. Ensure your water temperature is hot enough to activate the active ingredient in your detergent. Use a brush that will not put scratches in bottles or buckets. Bacteria can build up in scratches and cause illness in calves. After washing, rinse equipment to remove soap and allow equipment to air dry completely on a clean, dry surface. Sanitize equipment before the next feeding. It is important to remember that sanitizers only work on clean equipment and should never be used during the washing step. It is also worth noting that high amounts of organic material will overwhelm and deactivate most sanitizers, thereby rendering them ineffective.
- **Nipples:** Do not slit the opening to allow milk to flow through faster. This can cause calves to essentially inhale the milk, which can lead to pneumonia and other respiratory diseases.

## Housing

- **Bedding:** Calves respond well to lots of bedding. Bedding should be thick enough for calves to fully nest in, especially during the [cold winter months](#), and should be clean and dry. Wet, dirty bedding promotes bacterial growth and ammonia release, which can lead to illness and respiratory disease.
- **Ventilation:** Calves need to be housed in a well-ventilated, draft-free environment with a suggested air exchange rate of four air changes an hour. This means that the air in the calf barn should be 100% fresh every 15 minutes. Under heat stress conditions, the air exchange rate should be increased to 10 air changes an hour.
- **Warming pens:** These are commonly used on farms to help warm and dry the calf after birth, especially during the winter months. Warming pens should only be used if the farm can manage keeping the pens disinfected, clean and dry, with fresh bedding.

## Nutrition after colostrum

**Milk replacer or whole milk:** The milk diet, of either milk replacer like [Calf Beginner](#), or [pasteurized whole milk](#), should start within 12-24 hours after the last colostrum feeding.

**Calf starter and water:** Offer small amounts of fresh, palatable calf starter, such as [Elite 18% Texturized](#), within the first day of life. Replace calf starter daily and increase the amount offered as they begin to consume it regularly. Clean, fresh water should also be offered early on and refreshed daily.

Work with your [local Hubbard Feeds representative](#) to determine which milk replacer and calf starter program will best meet your needs.