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Caring for Calves Separated from their Dams

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Calves orphaned or abandoned present a unique set of challenges on a cow-calf operation. These situations arise not only from dams dying at or shortly after birth, but also from behavioral or health issues that keep a cow or first-calf heifer from properly mothering her calf. Calves out of cows producing insufficient milk or born as multiples may need to be raised with special attention. In the dairy industry, calves are routinely separated from their dams at very young ages. The resulting calves are sometimes referred to as “bucket” or “bottle” calves.

Initial Calf Care Priorities

The first priority in caring for a bottle calf is to ensure adequate colostrum intake. Fresh colostrum from the dam is best and may require restraining and milking the dam or allowing the calf to nurse the restrained dam. This can be accomplished in a squeeze chute with removable sides that allow access to the udder. In the case of orphaned calves, providing colostrum from another source is critical. Timing of colostrum intake is particularly important, because the calf’s ability to absorb colostral antibodies decreases rapidly throughout the first day of life. Plan for calves to receive 5 to 6% of their body weight in colostrum within the first 6 hours after birth. Feed colostrum again 12 hours later.

Naval care is another calving management practice that should receive priority. Apply iodine or a similar topical disinfectant to the umbilical cord of the newborn calf. Continue to observe the naval closely to make sure that it dries and heals. Watch for signs of naval ill or infection, such as swelling of the naval. Muddy or wet calving grounds may be especially prone to producing naval infections. Treat infected navals immediately. Consult a veterinarian for treatment protocols.

Provide calves with clean, well-ventilated pens and shelter from the weather. Calf hutches can be purchased or barn pens used to house bottle calves. Individual penning can help prevent calves from sucking one another and reduce the spread of disease. It also facilitates individual monitoring of calf feed intake and feces consistency as signs of calf health. Allow 15 to 20 square feet of barn space for calves with access to an outdoor lot and 20 to 30 square feet of barn space for those without outdoor lots.

Feeding the Young Calf

For the first few months of life, bottle calves must be either artificially reared by humans on milk replacer diets or grafted onto nurse animals. These young calves are not yet mature ruminants, so they need a milk-based diet. A calf needs to consume approximately 8% of its birth weight in milk or milk replacer each day. Offer bottles twice daily in two equal feedings. As the calf grows, keep the amount of milk replacer

constant, but also offer calf starter feeds and good quality hay as its appetite increases. Make clean water available for the calf as well.

Grafting a calf onto a beef cow in the herd that has lost a calf or another nurse cow (often a dairy breed) purchased specifically for such use requires time and patience. Pen nurse cows and calves separately from the rest of the herd in a space that allows the calf to interact closely with the cow. If the cow repeatedly kicks at or butts the calf and does not allow it to nurse, restrain her in a squeeze chute to allow nursing to take place twice a day. Repeat until the cow claims the calf willingly.

Give the cow opportunities to accept the calf without restraint. Rubbing or tying the skinned hide (skin over the back along with the tail) of the nurse cow's dead calf onto the grafted calf can transfer scent and encourage the cow to accept the new calf. Afterbirth and commercial products consisting of synthetic pheromones are other scents that can help in grafting. Using these scents may be helpful during the first two to three days but is not likely to help much after that period. Introduction of a tight-bagged (full-uddered) cow and a hungry calf may be more likely to result in successful grafting.

In the absence of a nurse cow, use a milk replacer that contains at least 22% crude protein and 15% fat. Mix milk replacer with warm water to better dissolve the product and make it more attractive to the calf. Keep the temperature of the mix consistent between feedings and not more than 100 degrees Fahrenheit. Also use the same amount of milk replacer in the mix each feeding. Use separate bottles for each bottle calf to limit risk of disease spread. Sanitize all feeding equipment after each meal. To protect human health, particularly that of susceptible young children, keep bottle feeding supplies out of human food preparation areas.

Although a calf may instinctively nurse its mother, it may need to be taught to drink from a bottle. Start by inserting one or two fingers into the calf's mouth. As the calf begins to suck, insert the bottle nipple in its mouth. Straddling or standing beside the standing calf's back and supporting its head upward while the calf is backed against a solid fence or wall (corner is best) may be needed when trying to feed a bottle. This head position will also help close the esophageal groove present in young calves to shunt milk past the rumen and directly to the abomasum ("true stomach") instead.

Lethargic or ill calves may require significant handling time before actively sucking a bottle. If a calf refuses to take a bottle, a stomach tube can be used to infuse milk replacer directly to the calf's stomach. Take extreme care to ensure that the tube is in the esophagus and not the windpipe. Listen to make sure that breathing sounds are not coming from the tube. Sometimes, infusion of milk replacer into the stomach will stimulate a calf's appetite. Weak calves may require more frequent feedings. Continue to monitor calves for signs of unthriftiness such as poor growth, scours, and a "pot bellied" appearance.

Bucket feeding of milk replacer is also possible, but care should be taken to keep calves from stepping in and knocking over buckets. Make sure that buckets are not too tall for calves and are secured. To teach bucket feeding, place fingers moistened with milk into

the calf's mouth as described earlier. As the calf begins to suck, gently lower its mouth into the bucket of warm milk. Keep its nostrils clear of the liquid. Repeat as needed until the calf drinks on its own.

By 3 weeks of age, calves should be able to digest small amounts of solid feeds. Make sure feeders are not so high or deep as to be difficult for calves to reach the feed. Calf starter feeds should be dust-free, highly palatable feeds containing 75 to 80% total digestible nutrients (TDN), 15 to 20% crude protein, and adequate minerals and vitamins. They should be coarsely ground, rolled, or pelleted to facilitate feed intake and rumen development. Calves can be adapted from starter to grower rations at around 4 months of age.

After the calf finishes each milk replacer meal, place a small amount of solid feed in its mouth to encourage feed tasting. Keep small amounts of dry, fresh feed in a feed box or tub in the calf's pen. At first, calves will consume only about $\frac{1}{4}$ pound of grain per day. This will increase to about 2 to 3 pounds of starter feed by 3 months of age and approximately 3 to 5 pounds of feed at 6 months of age. Do not feed more than a calf will clean up in a day to avoid leaving stale or moldy feed.

Hay or pasture consumption encourages rumen development. Hay should be high quality and offered free choice. Provide limited exposure to green pasture, greenchop, or silage until calves are 6 months of age, because excessive feeding of these high-moisture forages to young calves can limit dry matter and nutrient intake.

Weaning Young Calves

Calves can be weaned at 4 to 8 weeks of age if eating well (1.5 to 2 pounds of starter feed daily). Wait longer to wean less vigorous calves or calves that still have low grain intake. Gradual weaning reduces calf stress. Do not change up other aspects of the calf's routine when weaning a young calf from milk.

Make sure that weaning records reflect the correct contemporary group status of the calf. It is not fair to compare weaning weights for an orphan calf receiving milk replacer to those of other calves raised by their own dams. Most breed associations have special weaning codes to account for this.

Raising a bottle calf requires patience and attention to care. It may take several days or even weeks of good management to get a bottle calf well on its way to surviving on its own. Close management of calf nutrition and health are keys to successful bottle calf raising. For more information about beef cattle production, contact an office of the Mississippi State University Extension Service.