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TECHNICAL INFORMATION FOR TODAY'S FEED PROFESSIONAL

Newborn Calf Care

A look at the first 3 days of life

Good calf performance begins with proper care of the newborn calf. A proper review of any newborn calf program must start with the dry cow program, concentrate on colostrum management and end with the calf starting on it's regular liquid diet that it will be on for the next several weeks. The following will review each of the major areas associated with newborn calf care.

Dry Cow Program:
The dry cow is often overlooked as a major part of any newborn calf program yet it can have a major impact on calf performance. The following are key areas to review:

1. **Vaccination Program**: The dry cow period is a great time to vaccinate. Immune stimulation from the vaccine not only benefits the cow, it will also spike the immune levels in the colostrum which will benefit the calf. Key diseases to vaccinate for are IBR, BVD, PI3 and BRSV. In addition, vaccinating for Rotavirus, Coronavirus and Enterotoxemia Disease may be indicated if these diseases are known to occur on the farm. The herd vaccination program (cows and calves) should be written down and reviewed at least annually with the local veterinarian.

2. **Nutrition**: Proper levels of protein, energy and trace minerals are required to assure that the newborn calf is provided with a good base level of nutrients for proper health after birth. Maintaining proper dry cow body condition is also important.

3. **Dystocia**: A difficult calving can lead to problems with calf performance. Dystocias should be under 5% for the herd.

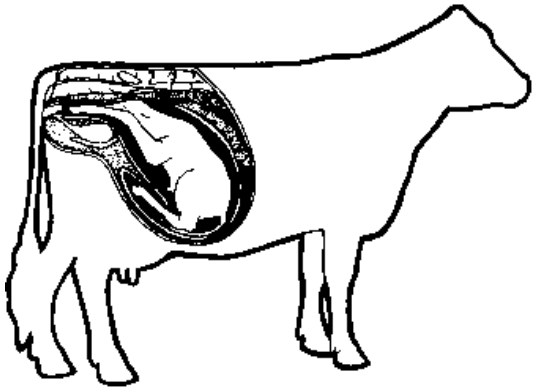
Colostrum Management:
The management of colostrum may be the single most important item to look at when a newborn calf program is evaluated. The reason for this is that preventing and treating disease is probably the greatest challenge when raising calves. The calf's only hope for overcoming disease is to have as high a level of immunity as possible. This is only possible if the newborn calf has received an ample amount of good quality colostrum. Key areas to a good colostrum management program are as follows:

1. **Quality:** First milking colostrum should be creamy in color, have a consistent texture and be free from mastitis, blood, manure and urine. The greatest concentration of immunoglobulin antibodies will be present in the first milking of colostrum from the cow. First milking colostrum should not be mixed or pooled with any colostrum other than first milking colostrum. A colostrometer can be used to help determine the quality of colostrum.

   Fresh colostrum contains high levels of white blood cells and other factors that may contribute positively to calf performance. For this reason, frozen colostrum should be used only after a supply of fresh colostrum is depleted. Older cow colostrum is often considered superior to first calf heifer colostrum. This is because the older cow has seen more diseases in its day and should have a wider variety of immunoglobulins present.

2. **Quantity**: Initial quantities of first milking colostrum that are greater than 18 pounds may indicate that the lactation process in the cow has begun. This could reduce the concentration of antibodies and lead to poor absorption by the newborn calf. Be sure to collect and save all unfed first and second milking colostrum.

3. **Storage:** Keep any unfed colostrum in either a refrigerator or a freezer for later use. Successful producers will commonly use two or four quart containers to store fresh colostrum, up to 7 days, in a refrigerator. Be sure to rotate any inventory of colostrum. Label containers according to date collected, source cow and if first or second milking colostrum. Try labeling containers with a green tape for good quality first milking colostrum. Put the date collected and source cow on the label. Use a different color tape for second milking colostrum.



4. **Feeding:** Producers are finding that two quarts of colostrum hand fed at birth do not provide an adequate level of antibody protection to the newborn calf. Current recommendations are to give four quarts of good quality fresh colostrum at birth. This should then be followed up with another two quarts of colostrum within 6-8 hours and another 2 quarts at 24 hours. These levels of colostrum should be force fed if not consumed normally by the calf. Do not allow the calf to nurse its mother naturally. Smaller Holstein calves or small breed calves should receive anywhere from 50-75% (based on body weight) of the volume recommended above.

5. **Alternative Uses:** The absorption of colostral antibodies by the calf is essentially over by the time the calf is 24 hours old. Producers can still see a benefit if they feed colostrum to a calf up to three days of age. The intestinal tract receives a coating of antibodies from colostrum and this can help to prevent disease. To preserve first milking colostrum, use only second milking or later colostrum for this purpose. Producers have even frozen colostrum in an ice cube tray. They will then use a couple of "colostrum ice cubes" per calf at each feeding when battling disease issues.

6. **Monitoring System**: A random blood check on 3 to 5 day old calves can be done to see if they are receiving adequate transfer of immunoglobulins from colostrum. A good colostrum management program should generate serum protein levels greater than 5.5 g / dl in over 80% of 3-5 day old calves.

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Calving Time:
Calving time is the first chance we have to directly affect the environment the calf is raised in. The key points to review here are:

1. **Parturition:** Have someone always available to make sure that there are no complications at birth. If the birth process becomes prolonged, intervention needs to occur so that the calf has a proper entry into this world.

2. **Environment:** The calving area needs to be as clean and dry as possible. Any excess moisture or manure can lead up to buildup of pathogens. Ideally, the calving area is cleaned, disinfected and rebedded between calvings.

3. **Remove the calf from its mother after birth:** The removal of the calf after birth minimizes exposure to pathogens in the maternity pen.

4. **Colostrum:** It is becoming common for the newborn calf to receive stored fresh colostrum so that it can be given early. Having to milk the cow giving birth before colostrum is given can often delay the actual first feeding by several hours. Colostrum supplements can be given to calves receiving less than ideal colostrum or for specific herds with specific disease challenges.

5. **Dipping the navel:** Each calf should have its navel dipped with a 7% iodine solution at birth. It is important to actually dip the navel, do not just spray it.

6. **Records:** Put an eartag into the calf's ear and record the number in the herd's record keeping system so that the date of birth, dam, sire (if known) and a record of any parturition difficulties is recorded. Any vaccinations given to the newborn calf need to be according to written protocols and written down n the calf's record.

Feeding Equipment:

The feeding equipment must be examined closely. It is easy to just assume that the equipment is clean and sanitized but the reality is that life on the farm is busy and the feeding equipment is often overlooked as a source of pathogens for the calves. Closely look at the following areas:

1. **Cleaning and Sanitizing**: All equipment associated with feeding calves must be cleaned and sanitized between feedings. This is especially true for the newborn calf. Cleaning should be done first. This means that hot water and soap should be used to first remove any organic matter. Organic matter is any saliva, milk, manure, etc. that will be found on bottles and nipples after feeding calves. Use a brush to clean it, then use a hot, fresh water rinse to remove all soap and residue. Next use a disinfectant such as bleach or some other commercial sanitizer. It may even be prudent to rotate disinfectants 2 to 3 times a year. After all surfaces have been disinfected, rinse thoroughly and store upside down so as to allow them to air dry completely.

2. **Bottles and Buckets**: These must be clean and free of scratches on the inside surfaces which are hard to clean and will allow bacteria to grow. Use a bottle brush to clean.

3. **Nipples**: Do not slit the opening to allow the milk to be drank faster. This can be harmful to the calf as it drinks. Use a nipple brush to clean nipples as described above.

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4. **Storage**: All feeding equipment should be stored upside down in a manner that all liquid can drain and air is allowed to dry the equipment naturally. Make or buy bottle racks so that storage of equipment is convenient and easy to use for the feeders.

Housing:

After the calf is born and colostrum is fed, a new home away from older animals should await the newborn calf. The calf should not remain with the cow any longer than necessary. Review the following items as they relate to housing for calves:

1. **Limited Nose to Nose Contact with other calves**: Other and especially older calves are most likely to carry potential pathogens. Limit the newborn calf's exposure to other animals as much as possible.

2. **Bedding**: Calves like and respond to lots of bedding. The calf must remain dry at all times. If bedding gets wet, calves are more likely to be dirty, lose their insulation ability, become sick, and perform poorly. If calves are placed on cement in cold housing, make sure extra bedding is used because calves on cement in cold housing can become chilled rapidly.

3. **Drafts**: Calves can handle cold temperatures very well once they are dry. They do not do well in a drafty environment. Make sure there are no drafts in the calves.

4. **Warming pens**: These are commonly used on farms to help warm and dry the calf shortly after birth. These are discouraged since they are seldom cleaned and are often a source of infection to newborn calves.

5. **Inside vs Outside housing**: Either type can work as long as it is kept clean, is well ventilated without drafts and minimizes calf to calf contact.

Nutrition:

The feeding of the newborn calf should always begin with colostrum for the first 24 hours of life. Transitional milk should then be fed for the next 48 hours. Beginning with the fourth day, the calf should then be switched over to milk replacer or milk as the primary source of nutrition until consumption of calf starter begins. Fresh water and free choice calf starter should be made available to the calf beginning on or around the third day of life. A quick review of the key nutritional items for the first three days of life are as follows:

1. **Colostrum**: Total colostrum intake should be 8 quarts in the first 24 hours of life.

2. **Transitional milk**: Two quarts of transitional milk should be fed twice a day to the newborn calf up until three days of age. Transitional milk is defined as that nonsaleable milk produced by the cow between colostrum and the time when the milk is able to be sold.

3. **Milk Replacer:** Milk replacer can be started on or around Day 3 of life. A blending of transition milk and milk replacer is an ideal way for the calf to be switched over to milk replacer.
4. **Calf Starter**: Begin with small amounts available to the calf by the third day of life. This should be offered in small quantities and replaced daily until the calf starts eating it regularly.

5. **Free Choice Fresh Water**: Should be available for the calf by day three.

6. **Forage:** Should not be needed until the calf is around the age of 8 weeks.

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