Preventing Perinatal Beef Calf Mortality

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Perinatal calf mortality (PCM) refers to death loss from the time of calving through the first month of life. Previous USDA estimates put this loss at over 2.7 million calves ($976 million) annually, with nearly 70 percent coming within four days of calving. Financial estimates from a 1993 Colorado State University study put the cost of sick and dead calves at nearly $12.50 per weaned calf. This includes 35 pounds of lost weaning weight from each sick calf.

When calves are sick and dying, the emphasis is on diagnostics and medication, as opposed to prevention and management. Producers and veterinarians are forced to be reactive, rather than proactive. Virtually the same methodology used to diagnose the cause of a disease can be used to evaluate a herd for risk factors, prior to calving. Once these factors are identified, a team approach can he used to correct them.

Risk Factors. The enclosed table shows the results of a survey from 73 Colorado cow-calf operations. Approximately 1,100 calf deaths were classed by cause or body system affected. The average producer cost was $216 per dead calf. Most losses are associated with the reproductive tract in the form of stillbirths and dystocia. With dystocia, calves may have hypoxia, acidosis or musculoskeletal injury. They also fail to maintain their body temperature as well as calves born without assistance. This results in a hypothermic calf that is slow to get up and nurse. Intake of colostrum is inadequate which results in more calf sickness. This set of clinical signs result in what we commonly refer to as “weak calf syndrome”.

Another class of PCM is enteric disease. Calf diarrhea (scours) is the main culprit, and the level of colostral protection will determine disease severity. Factors associated with these outbreaks include pathogens on the ranch, nutritional status of the cow herd, animal crowding, and the general condition of the calving area. Since the bacterial, viral or protozoan agents involved vary considerably from ranch to ranch, generalizations as to cause are difficult to make. Your local practitioner should he consulted about the most common pathogens in your area and cost-effective treatment protocols.

Respiratory disease is less important in young beef calves. In fact, there is not a lot of information as to its incidence and severity. As weaning approaches, its incidence may increase and it may represent a higher per calf cost since the calf is older and worth more. Adequate intake of colostrum is probably the most important preventative measure in this regard. However, further research is needed to better define the pathogens and risk factors associated with the development of respiratory disease during the suckling period.

The main cause of death listed under the “miscellaneous” category was due to hypothermia (chilling). This type of loss can be very difficult to prevent, but adequate shelter and timely observation may help. Unfortunately nearly 20 percent of all cases in this survey were not diagnosed. This is extremely frustrating for producers since many of these calves may not show illness prior to death.

Nutritional management of the cow herd is another critical area to evaluate when looking at calf risk. Protein, energy, and micromineral deficiencies will negatively affect calf vigor. Body condition score is an excellent tool to monitor herd status. Copper, selenium, and zinc levels should be evaluated to make sure these requirements are being met. Cows that are thin or lack adequate reserves of trace minerals will have calves that are smaller, weaker, and take

longer to stand and nurse. This would be another cause of weak calf syndrome in your beef herd. There are excellent resources for nutritional information available from both public and private sources.

Prevention. When attempting to limit outbreaks of calf mortality, there are three principles that should be remembered. These principles can also be used right now as a means of planning a pre-calving strategy to improve calf health. The first is to limit exposure to disease organisms. This is accomplished by keeping the calving area clean, spreading the calves out over a greater area, calving heifers separately from mature cows, rotating bedding and feeding areas, and isolating sick calves. The isolation area can be constructed using a hot wire in a well-drained, sheltered area. Adapting the "Sandhills Calving System" to your operation will go a long way in stopping the spread of the organisms that cause calf scours. It is easier to plan this now than try to do so after problems arise.

The second principle says to maximize the resistance of the calf. The most important factor here is the intake of an adequate amount of colostrum within the first 12 hours of life. Colostral quality is a function of a solid herd heath program and proper nutritional management. Have nipple bottles, esophageal feeders, and a source of supplemental colostrum ready to go. Other factors to consider affect calf comfort and stress. Producers need to plan ahead so that they are ready to assist weak calves that may have suffered severe cold stress. Evaluate your calving area now for drainage and shelter and make needed changes. Review protocols with your veterinarian and maintain equipment for handling dystocia.

The last principle involves maximizing the specific immunity of the calf. This entails specific products used in the newborn calf to combat specific on-farm problems. An example would he the use of a calf diarrhea vaccine. Efficacy studies do show that under the right

circumstances, these vaccines can decrease losses. However, if you don't reduce calf exposure, baby calf vaccination isn't very helpful. New products arrive on the market each year, so review animal health protocols with your veterinarian annually.

Take some time now and evaluate your cowherd and management scheme. Since PCM is often a multifactor problem, use a multidisciplined approach to keep death loss below five percent. Get your veterinarian, nutritionist and extension personnel involved in the process. The calving season can be both rewarding and frustrating. Some advance planning now should reduce the number of headaches later.

Distribution and Costs of Calf Mortality among Disease Categories in 73 Colorado Beef Cow-Calf Herds

Disease Class	No. of Deaths	Percent of All Deaths	Cost per Death ($)	Percent of All Costs
Enteric	146	13.3	215	13.2
Repro Tract	375	34.0	177	27.9
Respiratory	88	8.0	263	9.8
Sudden Death	58	5.3	232	5.7
Miscellaneous	217	19.7	227	20.8
Undetermined	217	19.7	247	22.6
Total	**1101**	**100.0**	**216**	**100.0**

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