

Weak Calf Syndrome

Weak calf syndrome presents as a newborn calf that is weak, unable or slow to rise, stand or nurse. These calves often die within three days of birth. They may be also called “dummy calves” or “fading calves.” Although there are often just one or two of these calves born each year in a beef herd, occasionally, the syndrome can be seen in outbreak form and result in the loss of many calves. Developing preventive strategies for a herd problem may be difficult because the condition can be caused by many different factors, some of which are too late to correct once the syndrome is noticed.



(Photo from South Dakota State University)

Possible Reasons for Weak Calf Syndrome -- From research, a list of possible causes or factors associated with weak newborns:

- Bad weather (cold and/or wet) resulting in hypothermia (low body temperature)
- Poor nutrition for cows in late gestation (thin cows)
- BVD infection
- Calf involved in a dystocia (difficult calving)
- White Muscle Disease (Selenium deficiency)
- Leptospirosis
- Trauma to the calf (being stepped on or laid upon)
- Age of the cow – higher incidence in calves born to heifers and very old cows
- Higher incidence in the Western United States

Bad weather – Severe winter weather (cold and/or wet) is an added stress on pregnant cows soon to calve. This added stress can directly reduce cow immunity. Lower feed intake during severe weather can further decrease immunity and result in weight loss. Under these conditions parasite load (lice and worms) can increase, further compromising the cow. Combining these factors can result in the cow taking a longer time to push the calf out during delivery, resulting in a weaker calf at birth. Such calves born in cold (less than 50F) and wet conditions may develop low body temperature and not have the energy to stand to suckle.

Cow nutrition – Weak calf syndrome has been associated with low energy and protein nutrition in late pregnant cows. Researchers from the University of Idaho studied 19 herds to identify the role that pre-calving nutrition might play in "weak calf syndrome" and found the problem was associated with the *amount* of protein consumed by the cow during the last 60 days of pregnancy. Cows eating hay containing more than 10 percent crude protein had no problems with weak calf syndrome but cows eating hay with less than 10 percent crude protein had an average of 8.5 percent weak calves. Calves born to protein-deficient cows cannot generate body heat as well after birth. Therefore, during the last two months of gestation cows should receive at least 2 pounds of protein per head per day to reduce the incidence of weak calves. Energy in the diet of cows also seems to be important because calves born to thin cows are at increased risk of weak calf syndrome. Cow body condition is frequently used as an indicator of energy balance. The following table shows the impact of cow body condition score at calving on calf time to standing after birth, colostrum production, and immune function (IgG or immunoglobulins in the colostrum).

Cow body condition at calving:	BCS 3	BCS 4	BCS 5
Time to standing (minutes)	60	64	43
Colostrum production (ml)	1525	1112	1433
IgG1 (an immunoglobulin)	146	157	193

BVD Infection – BVD virus is often found in herds experiencing weak calf syndrome outbreaks. BVD infection of the cow during gestation can cause abortion and/or deformities in the calf (domed head, little eyes, cataracts, or sparse hair coat). If the cow is infected 40–140 days of gestation the calf can become persistently infected and may be weak or poor-doing after birth.

Dystocia – A calf involved in a difficult birth undergoes more stress but also can become hypoxic (low oxygen levels) which can result in neonatal acidosis. Acidosis results in a weak calf and if not corrected, can result in death. Calves involved in dystocia may die soon after birth. If they do happen to suckle, they don't absorb maternal antibodies from colostrum as well, making them more susceptible to scours and pneumonia later in life.

White muscle disease – White muscle disease is caused by selenium deficiency due to deficient soils in which forages grow. If pregnant cows are deficient, calves may be born with a weak heart or muscles and die soon after birth.

Leptospirosis – In one study, leptospira bacteria were found in a number of weak-born calves. However, a good association has not yet been established.

Age of the cow – First-calf heifers and very old cows are more likely to have weak calves. For both age groups, nutrition is likely to be the underlying reason – heifers are still growing when they are pregnant and if deficient in protein and energy, may give birth to a weak calf. Heifers are also more likely to have a difficult calving. Older cows may have difficulty keeping weight on.

What can I do if I am faced with an outbreak of Weak Calf Syndrome? -- If faced with an outbreak of weak calves, there are a few things to do in order to “rescue” the other calves.

Provide shelter during severe winter weather. A clean, well-drained calving location with windbreaks or woods will help decrease the impacts of poor weather on calves. In some cases, cows and calves may need to be moved to sheds or barns for the first day or two of the calf’s life. However, cows and calves should be moved to pastures as soon as the calf is strong and eating well, usually 1 to 2 days after calving. To prevent excessive exposure to the causative agents of diarrhea that can build up quickly in small calving areas.

Identify ‘at risk’ and weak calves promptly and provide ‘special care’. All calves should get up and nurse within one hour of birth. If this is not occurring, it indicates the calf is weak and may require special care. A calf born with brown to yellow staining of the haircoat (meconium) indicates the calf was likely stressed during birth. Such calves should receive special care (dry off with towels and warming in a ‘hotbox’ or with a calf blanket). Also, if the cow does not clean the calf, this indicates there is a problem and the calf should be given special care and watched closely.

Any calf that appears weak, is lying on its side, or looks dehydrated should be looked at immediately. You can determine if a calf is dehydrated by checking the membranes in the mouth – they will be dry and tacky and your finger will temporarily stick when you pull it off the gums. A dehydrated calf will likely have sunken eyes and cold feet. If a dehydrated calf is found early, giving warm fluids with electrolytes that contain bicarbonate, with a special feeding tube, can be effective in rehydration and correcting acidosis. If severely dehydrated, the calf may need intravenous fluids. Dehydrated newborns likely did not get colostrum and should be tubed with stored colostrum or a colostrum replacer.

Address Selenium. Evaluate the selenium levels in the ration or check the selenium level of weak-born or dead calves. Selenium injections can be given to calves at birth but is not as effective as supplementing pregnant cows prior to calving. Consult with your veterinarian for specific recommendations.

Evaluate protein and energy in the ration. Work with your veterinarian or nutritionist to determine if cows are receiving adequate protein and energy. Evaluate body condition of the cows. Addressing deficiencies may reduce 'weak calf' problems in cows due to calve in the next couple of months.

What can I do to prevent Weak Calf Syndrome in the next calving season?

- Vaccinate cows at least 4–6 weeks before calving for clostridial diseases ("7 way"), respiratory viruses, and BVD and inject with selenium if cows are eating deficient forages. Consider testing the herd for BVD to identify and remove persistently infected animals.
- Provide enough energy and protein for pregnant cows.
- Monitor cow body condition scores to ensure adequate condition at calving (BCS = 5).
- Provide shelter in case of bad weather for calving cows.
- Have enough help on hand at calving time to watch cows, assist with calving if necessary, and treat calves.

For more information on specific topics:

Body Condition Scoring Beef Cows – <http://www.ext.vt.edu/pubs/beef/400-795/400-795.html#L5>

BVD Control and Eradication Project – <http://www.vetmed.wsu.edu/BVDCEP/>

Calving Time Management for Beef Cows and Heifers –
<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-5171/E-1006web.pdf>

Vaccinations for the Beef Cow Herd – <http://www.aces.edu/pubs/docs/A/ANR-0968/ANR-0968.pdf>

Selenium Deficiency in Cattle – <http://www.4cattlemen.com/ncba2007/newsroom/PR104MassSeText.pdf>



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