VETERINARY CALL

by Bob Larson, Kansas State University

Weak Calf Syndrome

Defining and pinpointing various problems in young cattle.

Weak calf syndrome is used to describe a situation where apparently normal calves at birth fail to thrive and die at a young age. Because the syndrome is not a specific disease, it often means different things to different veterinarians and producers.

A typical description of a "weak calf" is one that is depressed, does not stand or suckle, and may have difficulty breathing.

For some people, weak calf syndrome is confined to those calves that are weak from the time of birth, while others include calves that are healthy at birth but become weak and listless in the first days of life.

A typical description of a "weak calf" is one that is depressed, does not stand or suckle, and may have difficulty breathing. The exact cause of weak calf syndrome is not known and probably involves several factors. Because the syndrome primarily involves calves born to heifers, calving difficulty is considered a primary cause because calves born after a prolonged and difficult birth are often deprived of oxygen and may have broken ribs that impair their ability to breathe normally once on the ground. Evidence such as a swollen head and/or tongue, bruising, fractures, excessive fluid in the trachea and lungs, or use of mechanical calf-pullers are all indications of a difficult birth.

Wet and cold weather is also associated with weak calf syndrome. Calves lose heat very quickly after birth. If born in a harsh environment and their body temperature drops below 94˚F, they can have the same symptoms that are described for weak calf syndrome: depression, lack of interest in suckling and inability to stand.

Another theory for the cause of weak calves is a prolonged birth process caused by mineral imbalances. The minerals likely to cause a prolonged parturition if deficient include calcium, phosphorus and magnesium. Selenium toxicity has been linked with the birth of weak calves in at least one instance, while others have suggested selenium deficiency may be involved with the syndrome.

A direct relationship has been shown between weak calf syndrome and the consumption of low-protein diets by pregnant cows. Vitamin A deficiency has also been reported to result in late-term abortion and weak, uncoordinated, or blind calves. Iodine deficiency can also cause hairless, weak calves, and experimentally induced cobalt deficiency also results in weak calves.

Besides nutritional causes, infectious agents have also been identified as causing weak calves and may be associated with the syndrome in some herds. Bovine viral diarrhea (BVD) and *Leptospira interrogans* serovar Hardjo have both been implicated as causing the birth of weak calves. BVD virus is common, and is easily transmitted from one animal to another. Exposing a pregnant cow to BVD during Day 42 to Day 125 of pregnancy can result in the birth of weak calves, as well as other problems such as abortions and birth defects. Leptospiral organisms from a number of wildlife species can be passed to pregnant cows when cattle come into contact with urine-contaminated waterholes.

Because weak calf syndrome means different things to different people and no single cause has been linked to the problem, the best prevention strategy is good heifer development with proper bull selection based on acceptable calving ease or birth weight; a cow nutrition program that ensures cows receive proper amounts of energy, protein and minerals throughout gestation; and vaccination/biosecurity management of the herd that minimizes the risk of exposure to disease. AJ

Editor's note: Robert L. Larson is a professor of production medicine and executive director of Veterinary Medicine Continuing Education at Kansas State University.

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