



Cattle Producer's Handbook

Animal Health Section

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Acidosis

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This fact sheet discusses why acidosis occurs, economic considerations, and methods to prevent and treat acidosis.

Acidosis is the most important nutritional disorder in feedlots today. Acidosis, which causes cattle to be stressed, is caused by a rapid production and absorption of acids from the rumen when cattle consume too much starch (primarily grain) or sugar in a short amount of time. As long as cattle are finished on grain, cows are grazed on cornstalk fields (grain consumption), or high energy (grain) diets are fed to dairy cows, acidosis will be an important problem. Cattle evolved digesting roughage that are fermented slowly in the rumen. The rumen microbes of forage-fed animal are selected for fiber digestion. Adjusting cattle to high grain diets from predominantly forage diets disrupts the normal microbial environment and precipitates acidosis.

Acidosis is not one disorder, but rather a continuum of degrees of acidosis. The effects of continuum of degrees of acidosis can be as slight as to reduce feed intake by .25 lb/day or as severe as to result in death of the animal. Several acidosis-related problems occur in the feedlot: sudden death syndrome, polioencephalomalacia ("brainers"), founder, rumenitis, liver abscesses, malabsorption, clostridial infestations, and off-feed or reduced feed intake. The dairy industry has an additional problem, low milkfat syndrome, that is, partly, related to acidosis.

Acute Acidosis

Although acidosis is a continuum of degrees of acidosis, for simplicity, acidosis can be divided into acute and subacute acidosis. Most feedlot managers readily recognize the effects of acute acidosis. Many cattle that are diagnosed as "sudden death" may have died from acute acidosis. Managers sometimes observe cattle that are wandering aimlessly

in the pen or cannot stand and appear to have "brain damage." When injected with thiamine, these cattle will recover quickly and show no signs of brain disorder. During acute acidosis, the production of thiamine by the rumen bacteria is impaired resulting in a thiamine deficiency. However, not all brain disorders are caused by acidosis and proper diagnosis and treatment are necessary.

Acute acidosis can have other, less obvious effects as well. During acute acidosis, ruminal pH drops to levels between 4 and 5, the lining of the ruminal wall is damaged, and abomasal and intestinal linings are severely inflamed. As mentioned earlier, animals may die suddenly or die later because of other acidosis-related problems. Destruction of papillae (finger-like projections lining the rumen wall that aid in absorption of nutrients) in the rumen and damage to the linings of intestines may result in poor absorption of nutrients, resulting in low gains and poor feed efficiencies ("poor doers"). Foundered cattle are an indication that acute acidosis occurred 40 to 60 days previously. Most of the problems associated with acute acidosis can be minimized with proper bunk management.

Subacute Acidosis

Subacute acidosis occurs more frequently, but is seldom recognized by the cattle feeder. The major response by the animal to subacute acidosis is reduced feed intake with an accompanying reduction in performance. When cattle are fed in groups of 100 to 200 head, identification of individual animals with subacute acidosis becomes extremely difficult. It is not until the entire pen is "off-feed" that low feed intakes or erratic intake patterns are observed. Some additional animal signs of subacute acidosis may be panting, excessive salivation, kicking at their belly, eating dirt, and diarrhea.

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