

CALVING EASE

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Abomasal Ulcers

Nearly every calf raiser has had a calf die due to an ulcer in the abomasum. The ulcer penetrates the abomasal wall. Intestinal contents are released into the abdominal cavity. Infection results and the calf dies. We ask, "Why? Should I have done something differently to prevent this?"

Frustration

It's enough to make a calf raiser's blood boil. Why can't someone figure this out? We have observed that rates do vary from farm to farm. They seem to vary from season to season. Several will happen in a short period of time. Then, no more will occur for weeks, months or even years.

Partial proposed explanations

At the present we know of no scientific evidence that conclusively proves that any one condition will always cause abomasal ulcers in dairy replacement heifer calves. There have been guesses about causes. One of them is that rough materials eaten by calves cause abrasion and weaken the tissue. Another is that pathogens such as bacteria or fungi grow in the abomasum and somehow destroy the tissue. A third guess is that calves are deficient in some unidentified trace mineral. Finally, some persons have suggested that ulcers might be caused by stress.

The problem with all of these proposed explanations is that we can find many exceptions. For example, veal calves receiving an all-liquid ration without grain or roughage still have ulcers. No pathogen has been consistently associated with ulcers. No clinical study is available that compares rates of ulcers among calves with a known trace mineral deficiency with those with adequate amounts of the same mineral. We know that stress increases certain substances in the blood but they have not been linked directly to ulcers.

Recent research

A research group predicted that when a calf's abomasum empties out after a milk feeding the acidity would increase. Scientifically, we say that the pH reading goes down – low pH is acid (like vinegar), high pH is basic (like baking soda). Their measurements showed this to be true. The condition is called "hyperacidity." Their educated guess is that more acid conditions favor the penetration of the abomasal lining by a destructive enzyme encouraging ulcer formation.

Then they set up another investigation to find out what would happen if calves' abomasums were empty less often. That means feeding calves more frequently than twice a day. So, they got six five-day-old calves and alternated feeding them 2X, 3X, 4X and 8 times a day over several weeks. The feedings were timed so that the intervals between feedings were equal. They measured the changes in abomasal pH for each feeding schedule.

The amount of time when the pH level favored enzyme activity that might hurt the abomasum did vary depending on the number of daily feedings. Eight daily feedings (every three hours) resulted in less acidity. However, for the other three feeding schedules (2X, 3X and 4X) the amount of high acidity time was similar. This was true even though the 3X, 4X and 8X programs had slightly less average acidity than the 2X schedule.

What does all this mean for a calf raiser?

One, we still have very little solid scientific evidence about what factors increase the rate of abomasal ulcers in our dairy replacement heifer calves. There are many persons willing to give advice based on their experience. Almost none of this advice, unfortunately, would stand up under rigorous scientific testing.

Two, if you do adopt a more frequent feeding schedule in order to solve an ulcer problem the chances of success are very low unless an eight-feeding per day schedule is used. Three and four time a day feeding programs in the research reported above did not have substantially different abomasal conditions than twice a day feeding.

Three, if you feel that your ulcer rate is unacceptably high try something. Just by chance you might hit on an idea that works in your unique situation. I'd guess that feeding plenty of clean, wholesome colostrum that's high in antibodies as soon as possible after birth might help. I'd guess that keeping all the feeding equipment squeaky clean might help. I'd guess that feeding enough milk or milk replacer so the calf has energy and protein left over for growth after her maintenance needs are met might help. Who knows?

CALF RAISER'S TIP

Josh Kilmartin from Fultonville, NY built an insulated box around his water hydrant next to the hutches. It's large enough to keep the hydrant from freezing and plenty of space for hoses to reach all the hutches. Hoses are used to water calves all winter long. The box is well insulated and warmed by several heat lamps during freezing weather.

References: Ahmed, A.F., P.D. Constable and N. A. Misk, "Effect of Feeding Frequency and Route of Administration on Abomasal Luminal pH in Dairy Calves fed Milk Replacer." J. Dairy Sci. 85:1502-1508, 2002 and Dirksen, G.U., "Ulceration, dilatation, and incarceration of the abomasum in calves: Clinical investigations and experiences." Bovine Practitioner 28: 127-135, 1994.

If you know of someone that doesn't currently receive **Calving Ease** but would like to, tell them to **WRITE** to **Calving Ease**, 11047 River Road, Pavilion, NY 14525 or to **CALL** either 585-591-2660 (Attica Vet Assoc. office) or 585-343-8128 (Offhaus Farms Office) or **FAX** (585-591-2898) or **e-mail** sleadley@frontiernet.net or pams91@2ki.net. A limited number of back issues may be accessed on the Internet at www.calfnotes.com and clicking on the link, Calving Ease.