

CALVING EASE

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SCOURS IN TWO-WEEK OLD CALVES

Just when we have made it past the first fourteen days without calf diarrhea the calves between two and three weeks of age come down with scours. Where did this come from?

Importance of Newborn Calf Care

The most obvious culprit when young calves get sick is a weak link in newborn care. Colostrum management is at the core of newborn care. Heifer calves must have antibodies from their dams' colostrum. The only way that can happen is if the feeding takes place early in life with enough good quality colostrum.

Reducing the newborn calf's exposure to adult cow manure is essential, also. Once a calf is licked off and ready to stand she needs to have a clean environment. Usually that means being moved away from dirty bedding and away from a dam if she has manure on her hair coat and udder. If a cart, truck or trailer is used to move calves to hutches or pens, they need to be used only for newborn calves or have adult cow manure cleaned out of them before transporting newborns. Keeping pathogens out of both the navel and mouth is the important point to keep in mind.

Low-stress Housing

In the Northeastern U.S. climate the original bedding used in a hutch or pen will only last so long before it becomes saturated with urine and feces. Often around the end of two weeks this critical "too wet" point is reached. Calves have damp or even wet hair coats especially on their bellies. This wet hair may stress calves because of excessive body heat loss. Also, since calves seem to either lick or eat nearly everything in their immediate vicinity, the dirty bedding serves as a serious source of environmental bacteria. If your knees get wet kneeling in a hutch or pen there is a shortage of dry bedding.

Clean Feeding Equipment

How can it be that the same cleaning practices that don't cause diarrhea in calves less than two weeks old can contribute to diarrhea in calves three weeks old? Remember that the passive immunity present in a calf from her dam's colostrum doesn't last indefinitely. This protection usually peaks at about 30 to 36 hours of age. Then it declines. By the end of two weeks it has declined enough to increase a calf's susceptibility to bacteria, viruses and parasites. Immunity from her own resources increases daily. But it has not yet risen to a very effective level. The conclusion, therefore, is that our heifer calf is quite vulnerable to infections coming from dirty feeding equipment when she is between 14 and 21 days old.

What are the most common weak links in cleaning feeding equipment well enough to prevent infections?

The number one problem is exposing milk-covered equipment to excessively hot water. The hot water, rather than rinsing the milk protein away, causes the protein to bond to the pails and mixing equipment. This problem is very bad with plastic pails. Before plastic equipment is exposed to hot water (too hot to hold your hands in it, 150°F), it needs to be rinsed out with lukewarm water (you can hold your hands in it, 110°F). This will carry away most of the milk protein.

The second most common problem is not using hot enough water for the wash step in cleaning. If you can place your bare hands in the water it is not hot enough. When the wash begins we like to see the wash water between 150 to 160°F. At the end of the wash-up routine the water must be above 120°F. Why this temperature? When the wash water falls below 120°F the suspended milk protein and milk fat redeposit on the feeding equipment. For example, pails washed after the water falls below 120°F may end up dirtier after being washed than they were before being put into the wash water!

The third most common problem is not allowing the feeding equipment to dry between feedings. Bacterial growth is cut to nearly zero if the equipment surfaces are completely dry. If pails or other equipment (e.g., bucket milkers from the parlor) must be stored on a concrete floor, a space must be provided between the floor and the equipment. A just-washed pail stored upside down on a concrete floor draws bacteria-rich water inside as the air inside it cools and creates a vacuum. The result is consistent inoculation of milk or milk replacer with *E. coli* bacteria at every feeding. In contrast, drying is very inexpensive way to keep clean equipment clean.

The fourth most common problem is leaving out the post-wash rinse step in cleaning feeding equipment. What makes a good post-wash rinse? First, the water is hot in order to achieve a high rate of chemical activity when acid is added. Second, the correct amount of acid-rinse chemical is added to the water. Third, the feeding equipment is left in the rinse solution long enough for the chemical to do its job. The rinse does remove the soap solution from the equipment. More importantly, the rinse creates a low pH or acid condition on the feeding equipment surfaces. A low pH retards bacterial growth.

In sum, a good cleaning procedure is done correctly on time all the time. It rinses off milk protein before washing with hot water. Its wash solution never falls below 120°F. Post-wash equipment surfaces have a low pH and are dry between feedings. All of these minimize the growth of scour-causing bacteria.

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