CALVING EASE

SEPTEMBER 2003

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WHAT IS COLOSTRUM?

Why ask a question for which everyone knows the correct answer? Well, unfortunately there is considerable confusion among dairy farm personnel over what is colostrum. Let's see if some facts can shed some light on the correct answer.

Why is it important to answer this question correctly?

First, newborn calves when fed colostrum shortly after birth absorb antibodies to build immunity. Second, calves absorb nutrients to feed their bodies. True colostrum is rich both in antibodies and nutrients.

How different are the first, second and third milkings after calving?

Table 1. Immunoglobulin & Total Solids Content of Selected Milkings Post-Calving (Shown as a percentage of First Milking Post-Calving)

Component	First milking (True Colostrum)	Second milking (Transition Milk)	Third milking (Transition Milk)
Immunoglobulins	100%	70%	40%
Total solids	100%	75%	59%

In Table 1. it is easy to see that both the antibody (immunoglobulins) and nutrient (total solids) change dramatically from first to third milking after calving. The first column, true colostrum or the very first milking is shown as 100 percent. The second and third columns, correctly named transition milk, show the percentage that milking is compared to colostrum. Reading across the "Immunoglobulins" row we can see that fully thirty-percent fewer antibodies are present in second milking transition milk compared to true colostrum. The antibody concentration is much lower by the third milking. Clearly, calves need the "high octane" true colostrum to build adequate immunity. Also, remember this assumes that the dam has not been leaking milk into the bedding before the first milking. Then all the antibody values are lower. It's possible with heavy leaking for the first milking antibody content to be very much like the second milking transition milk shown above.

Notice in the table how the total solids content drops between the milkings. By the third milking the solids have dropped to about 59 percent of colostrum.

What if we delay milking the dam after calving?

The values in the table also assume that the dam is milked promptly after calving (less than one hour) and that the second and third milkings are roughly twelve and twenty four hours later. What happens if the first milking post calving is delayed? One current estimate is that by six hours post calving the dam's milk production has diluted the antibody content to only sixty-percent of its original concentration. Of course the total solids content is similarly diluted as well. Thus, when the first milking is delayed its content is likely to be very similar to the "Second Milking" content show in the table.

How to feed "true colostrum" during the first 24 hours of a calf's life?

First, feed only the first milking. This may require keeping a small supply of stored colostrum either refrigerated or frozen. Second and third milking transition milk clearly are distant second choices for the first 24 hours of life.

Second, harvest colostrum as soon as possible after calving (naturally, taking into account the dam's physical condition and health). Every additional hour post calving that the harvest is delayed brings the colostrum content closer to transition milk.

Third, recognize that there is a lot of biological variation among cows in colostrum quality. Ideally, sort colostrum by antibody concentration and feed the highest first.

For Your Information

If you have the new Calf Manager CD, type the word "colostrum" in the search field and find 217 articles on colostrum. Primary articles include nine Calving Ease issues and twenty-two of Jim Quigley's Calf Notes.

On the Internet go to **http://www.calfnotes.com** for full access to all the Calf Notes by Jim Quigley. Or, go to **http://www.pdhga.org** and along the left margin under Heifer Reference Articles click on Calving Ease to find recent issues related to colostrum. At **http://www.das.psu.edu/dcn/CALFMGT/SLIDES2/S58.html** find a slide show on colostrum. This is one of a collection of slide presentations on calf management.

Reference: Davis, C. L. and J.K. Drackley, The Development, Nutrition and Management of the Young Calf. (Iowa State Univ. Press, 1998), p182.

Calf Feeders' Tip

Most of us can't be bothered to check the temperature of our wash water when cleaning up bottles and buckets. But, we really do know that when the temperature gets under 120 the milk solids begin to come out of suspension. They then stick back on to the equipment we are trying to get clean. Solution? You may have seen pictures in the March '03 issues of Dairy Herd Management of Pam Sojda's "floating thermometer." A small square of Styrofoam just below the head of the thermometer keeps it floating head up in the wash water so the dial is easy to read. Pam has even marked the crucial 120° line with a black ear tag pen. That way even some of us sight-impaired persons can see at a glance if the water temperature is adequate for effective cleaning.

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.

For reprints of Calving Ease, write to Calving Ease, 11047 River Road, Pavilion, NY 14525. Order by date or title. Prepaid orders only. Please make check or money order payable to Sam Leadley. The first reprint title costs $1.00. Additional reprint titles when requested in one order cost an additional $.50 each. Full sets of reprints (10 yrs) are $40.

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