

CALVING EASE

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Managing for High Antibody Colostrum

We know that feeding colostrum to a calf is a best management practice. The sooner the colostrum is fed after birth, the higher the percentage of colostral antibodies that pass through the gut wall into a calf's blood. These antibodies in her blood provide immediate protection against harmful pathogens.

Unfortunately, when the antibody concentration in the colostrum is too low, two undesirable conditions are created. First, we cannot feed enough volume to provide adequate calf immunity. It is not feasible to feed eight or ten quarts during the first six hours of life. Second, the percentage of antibodies absorbed from poor quality colostrum is quite low. These two factors combine, resulting in inadequate immunity.

Are you harvesting poor quality colostrum?

Forget the idea that you can look at colostrum and predict accurately its antibody concentration. Sure, if it is extremely abnormal, it could be low. But, for nearly all colostrum, you cannot tell by looking at it.

There are laboratory tests to measure antibody concentrations. However, they require laboratory equipment and personnel. And, they are slow. A Penn State bulletin explains how to use on-farm equipment (Colostrumeter, refractometer). Click [HERE](#) or type in this: <http://extension.psu.edu/animals/dairy/nutrition/calves/colostrum/das-11-174>. Threshold levels for both instruments are given in this publication (e.g., 50g/L and 23percent).

The Brix refractometer can be used to estimate antibody concentration in colostrum. To use on-farm you simply place several drops of colostrum on the optic surface, lower the lid and read the value through the eye piece.

The Colostrometer® is another way to estimate antibody concentration in colostrum. The instrument is floated in colostrum. Because the Colostrometer measures antibody concentration indirectly using specific gravity, the values shown are very rough estimates. The results are read on the stem or upper end of the Colostrometer. For a good background article, go to <http://www.calfnotes.com> and in the left hand menu, choose "Calfnotes in order." You want Calfnote #22, "Using the Colostrometer to Measure Colostrum Quality." This instrument allows quick, on farm sorting of colostrum by antibody concentration.

How can we manage to improve the quality of colostrum?

Managing for high quality colostrum can take several different routes. One of the best management practices is to milk fresh cows soon after calving. It is estimated that a six-hour delay after calving for the first milking may reduce antibody concentration by 17 percent compared to milking promptly after calving. Longer delays mean higher losses (10 hours delay = 27 percent loss, 14 hours = 33 percent loss).

Another best management practice is to plan and implement a whole herd vaccination program. When properly planned with the herd veterinarian, a vaccination program provides exposure to pathogens most likely to cause health problems on the farm. We want to build immunity to these pathogens in the milking herd. As a bonus, beyond milking herd health, the higher the antibody levels circulating in the cows blood, the higher the possible antibody levels in the colostrum.

Another good management area is stress reduction. The higher the stress levels for dry cows in late gestation, the greater the suppression of their immune system. That means antibody levels in the colostrum she produces are less than optimal. A major cause of stress is overcrowding in close up dry cow housing. As evidence of this stress, one study reported a 1.6 pound decrease in daily milk production during at least the first eighty days in milk for every ten percent increase over eighty percent stocking for dry cows housed in free stall facilities. If overcrowding stress is high enough to cause long-term milk production decreases, then think what impact it may have on dry cows making colostrum.

Milk cows as soon as possible after calving. Plan and follow a whole herd vaccination program. Avoid overcrowding close up dry cows. These practices lead to better quality colostrum.

Reference: Nordlund, K. "Interactions of cow behavior, housing, and management on dairy cow health." Paper presented at Middle Atlantic Consortium, Dairy Extension Program, June 2004, Wilkes-Barre, PA.

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