

CALVING EASE

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COLOSTRUM, AGAIN

Does anyone want to read about colostrum again? We already know the whole story. Just like a parent that has read a story to a child a zillion times. We know all the words ... good quality, feed enough, feed early and so on. But, like the radio commentator, "... and, now for the rest of the story."

First, the Technical Stuff

An effective colostrum management program has three essential parts. They are (1) quality, (2) quantity, and (3) timing. Recently reported research compared the effectiveness of delayed colostrum feeding (timing). All the calves received the same quantity of the same quality colostrum. Only the time of first feeding varied. Todd and Whyte estimated little difference in transfer of dams' antibodies to calves' blood among calves first fed colostrum at 2, 4, 6 and 8 hours after birth. They did not measure delays in colostrum feeding greater than 8 hours. For some reason they only fed a little more than one and one-half quarts of colostrum. Note, however not all the calves had adequate antibody levels in their blood when 24 hours old. Nineteen percent of the calves had very low antibody levels (less than 8mg/ml). These calves must have had very low exposure to pathogens because only 1 calf out of 85 died in the first two weeks.

Other researchers, Rajala and Castren, asked a similar question: "Does timing of first feeding influence antibody level in calves' blood?". But, they used different methods. They had the calves nurse their dams until they were satisfied. That means each calf received her own dam's colostrum. Quantity was different from calf-to-calf. Two-thirds of their dams were heifers, one-third were cows. We know that quality varied from calf-to-calf, too. When the calves first nursed varied, also. In this research we have an unknown quantity of marginal quality colostrum consumed with delays up to 6 hours before first nursing.

They found that antibody levels in these calves' blood dropped consistently depending on the delay in colostrum nursing. Specifically, for every half hour of delay the antibody concentration in the blood decreased 2 milligrams per milliliter (2mg/ml). One-third of these study calves had at least partial failure in transferring adequate amounts of antibodies from dam to calf.

Come on, Get to the Point. What's this say for me?

First, if we are sure we have excellent, first-rate colostrum and low pathogen exposure we may be able to live with delays up to 8 hours for first feeding without serious death losses due to low passive immunity. (Remember, passive immunity is acquired by transfer of Dam's antibodies into Calf's blood.) That is, delays up to 8 hours might not result in unacceptable sickness and mortality levels. This assumes we feed enough, also. In spite of good average absorption of antibodies, with delayed feeding we might run into an increase in the small proportion of calves with very low blood antibody levels. The advisability of delaying colostrum feeding may also depend on having an effective pathogen management program - too many "bugs" will make any calf sick no matter how soon we feed colostrum.

Second, if we have a more normal supply of colostrum - good quality but not exceptional - timing and quantity have increased importance. As Rajala and Castren estimated, every half-hour could result in as much as 5 percent decrease in effective transfer of dam's antibodies to calf's blood. If we had ideal sanitary conditions (no bacteria, viruses, parasites) we could just say, "So, I don't care ... my calves never get sick." Pam and Sam don't have "ideal" conditions. So, they feed a gallon of the best quality available as soon as practical in order to get a more uniformly high level of antibody transfer. That is, we try to minimize the number of newborn calves having very low blood antibody levels after their initial colostrum feeding.

Third, after the first couple of weeks, how we manage the calves has more impact on health and later growth than the initial maternal antibody levels from colostrum. Now, you can't get that conclusion from the research findings summarized above. Let us add a bit here. Todd and Whyte followed their calves out to 8 months of age. They did not find a connection between antibody levels at 24 and 48 hours after birth and average growth rate. Their observed weight gains were about 1.6-1.7 pounds per day. It seems that effective colostrum management (quality, quantity, timing) helps us keep them alive, healthy and rapidly growing for the first two or three weeks. Then, we are on our own. Also reflect on the goal of 2 pounds gain per day necessary to achieve calving under 24 months. If more effective colostrum management lowers my rate of respiratory illness in the first 2 to 3 weeks, how much more likely am I to reach the average of 2 pounds gain per day in my replacement heifers? As usual, research raises lots of questions and answers few of them.

CALF FEEDERS' TIP

In a presentation to the Western New York calf raisers' group, Dr. Gerald Mechor mentioned observing umbilical infections in a sample of replacement heifer calves. First, he said they were more frequent than he had expected. Fourteen percent of the calves had umbilical infections. Second, only 12 percent of these calves with umbilical infections were treated by the calf person - the other 88 percent went undiagnosed and untreated by the calf person. Third, when comparing average daily weight gain between calves with and without navel infections (excluding calves with respiratory illness), calves with navel infections gained 5.5 pounds less during the first 3 months. Dr. Mechor said that the consequences of this decreased weight gain for the remainder of their lives are unknown. What can we do? How about just feeling of navels on 10 to 14 day old calves? Have your veterinarian help you learn what feels "normal." Then, you will be better able to sense a navel that is unusually thickened or painful. A thermometer will confirm your diagnosis. Your vet will recommend appropriate treatment. Dr. Mechor

reminds us that treatment may require patience - this navel area has few blood vessels to carry antibiotics - often 7 to 10 days of treatment may be required.

References:

A.G. Todd and P.B.D. Whyte, "The effect of delays in feeding colostrum and the relationship between immunoglobulin concentration in the serum of neonatal calves and their rates of growth," in Australian Veterinary Journal, Vol.72, No. 11, pp415-417, November, 1995. and P. Rajala and H. Castren, "Serum Immunoglobulin Concentrations and Health of Dairy Calves in Two Management Systems from Birth to 12 Weeks of Age," Journal of Dairy Science, Vol.78:2737-2744, December, 1995.

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