

CALVING EASE

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Value of Colostrum Feeding Fact and Speculation

For well over one hundred years knowledgeable persons in dairy farming have observed that calves that drink plenty of colostrum right after birth do better than ones that don't. Careful research for over fifty years has described the scientific processes that are the basis of earlier observations. We have isolated and described the various components of colostrum. Others have studied the processes by which colostrum builds a calf's immunity. The nutritional values have been documented, as well.

Value has been studied, too.

In the late 1990's an investigation focused on the effect of calves' early immunity status on their calf performance and health. Over 2000 calves were in the study. Researchers measured the antibody (immunoglobulin G) levels in all the calves. Then, as the calves grew for the next four weeks records were kept on weight gain, feed conversion, mortality and health treatments.

They compared calves with high antibody levels with calves with low levels. When dollar values were assigned to these four different measures this is what they found:

Performance Measure	Benefit of High IgG Status Calves	Potential Economic Benefit (\$/ Calf)
Weight Gain	2.2 pounds more	\$ 1.53
Feed Conversion	12 pounds less feed/calf	\$ 5.70
Mortality (%)	12.1 % (less numerically)	\$12.10
Health Treatment Cost/calf	\$3.74 less per calf	\$ 3.74
Total Potential Benefit		\$23.07

Another study

In the late 1980's several scientists asked the question, "What are the effects of passive immunity on subsequent production in heifers?" They followed 1000 heifers from birth through 180 days into their first lactation. They measured antibody levels of calves between one and two days of age. Later they recorded age at first calving, milk production and survival in the herd.

Calf antibody levels were not related to age at first calving. These levels were related to both milk production and survival. Heifers with higher levels of antibodies (IgG) produced more milk than their counterparts with low levels. Survival in the herd was more likely if the calf had a high antibody level.

By making several assumptions about milk prices and cattle values it is possible to estimate the value of these differences. Heifers that had high IgG levels as calves returned to the herd an average of \$70 more per head by 180 days in milk their first lactation compared to their low IgG herd mates.

Speculation

In both of the studies cited above the presence of colostrum-derived antibodies in the calves' blood somehow made a significant difference in their performance.

Speculation. Now, I just read about the recent discovery of large molecules from colostrum in the cerebrospinal fluid of young calves. Oh, really? Everyone has been told about a blood-brain barrier in mammals. Supposedly big antibody molecules in colostrum can't go across this so-called barrier.

But, this research found these colostrum molecules where they should not have occurred. If they and other significant "macromolecules" do have access to the brain maybe, just maybe, they might have an opportunity to influence many elements of the heifers' development. Who knows what we may learn in the next couple of years?

Bottom Line: Good colostrum management is worth close to \$100 per calf. Keep up the good work!

References: DeNise, S.K., J.D. Robison, G.H. Stott and D.V. Armstrong, "Effects of Passive Immunity on Subsequent Production in Dairy Heifers." 1989 Journal of Dairy Science 72:552-554. Fowler, M, "What is it worth to know a calf's IgG level" in Proceedings of Professional Dairy Heifer Growers Association, 1999 31-35. Taluker, M.J.R., T. Takeuchi and E. Harada, "Transport of Colostral Macromolecules into the Cerebrospinal Fluid via Plasma in Newborn Calves." 2002 Journal of Dairy Science 85:514-524. 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.calnotes.com and clicking on the link, Calving Ease.