

Calving Ease

November 2009

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Using a tube feeder: Yes or No

Set aside for a moment the issues of the calfcare person's competency in using an esophageal tube feeder and subsequent interest on the part of the calf in nursing from a bottle. Focus on the immunity outcome of feeding colostrum.

Volume fed makes a difference

In a research project all calves were fed colostrum replacer within two hours of birth. Colostrum replacer made from colostrum containing 100 grams of IgG antibodies per dose was fed to rule out variations in colostrum fed. Calves were fed either one (1.6 quarts = 100g IgG) or two (3.2 quarts = 200g IgG) doses.

Note especially the bottom line in Table A below (**bold print**). When fed the larger volume (2 doses or 3.2 quarts) there was no significant difference in passive transfer due to method of feeding.

Table A. Passive transfer indicies for newborn calves fed either small (1/6 Qt.) or large (3.2 Qt.) volumes of colostrum replacer using either a bottle or an esophageal tube feeder.

Parameter	Treatment Group			
	1.6 Qt by bottle	1.6 Qt by tube	3.2 Qt by bottle	3.2 Qt by tube
# of Calves	24	24	24	25
Total IgG fed	100 g	100 g	200 g	200 g
24 hr sample				
Total serum protein (g/dL)	5.3	5.0	5.8	5.9
Efficiency of absorption (%)	51	40	41	39
Calves with passive transfer failure (%)	None	58%	None	None

Table adapted from Godden, S. M, D.M. Haines, K. Konkol and J. Peterson, "Improving passive transfer of immunoglobulins in calves. II: Interaction between feeding method and volume of colostrum fed." Journal of Dairy Science Vol. 93 No. 4 1758-1764.

These researchers noted that sixty-eight percent of the bottle-fed calves fed 3.2 quarts drank all of it by bottle. If they did not finish all 3.2 quarts the balance was tube fed. Those that drank the entire feeding by nipple bottle were compared with those drank part of the 3.2 quarts and had to have the balance tubed. The efficiency of absorption was equal for both groups.

Proportion of 4 quarts fed by bottle or tubed does not make a difference

Calves were fed colostrum less than one hour after birth in varying proportions either by nipple bottle or esophageal feeder (see Table B below). The proportion fed by either method alone or mixed methods did not make a difference. The efficiency of absorption was essentially equal for both groups (see bottom line in **Bold print**). None of the calves had passive transfer failure.

Table B. Description of treatments and blood parameters at 24 hr of age in calves fed colostrum by nipple bottle, esophageal feeder or a combination of both.

	Treatments				
Item	1	2	3	4	5
# of Calves	13	6	7	7	7
Amount Fed, Qts.					
Nipple Bottle	4	3	2	1	0
Esophageal feeder	0	1	2	3	4
Antibodies (IgG) g/L in colostrum	23.4	24.5	25.6	24.0	25.8
Total serum protein (g/dL)	6.3	6.6	6.5	6.6	6.3
Efficiency of Absorption	35	35	36	32	35

Table adapted from: J.A. Elizondo-Salazar and A.J. Heinrichs, "Feeding colostrum with an esophageal feeder does not reduce IgG absorption in neonatal dairy heifer calves." ADSA Poster presentation M34, Monday July 13, 2009.

Bottom line: As long as you get plenty of colostrum into calves soon after birth the method does not affect the transfer of antibodies.

References: A.M.K. Virtala, G.D. Mechor, Y.T. Gröhn, and H.N. Erb, "The effect of calfhood diseases on growth of female dairy calves during the first 3 months of life in New York State." *Journal of Dairy Science* 79:1040-1049. T.F. Borferas, J. Rushen, M.A.G. von Keyserling and A.M.B. de Passillé, "Automated measurement of changes in feeding behavior of milk-fed calves associated with illness." *Journal of Dairy Science* 92:4549-4554.

this topic.

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** 585-591-2660 (Attica Vet Assoc. office) or **FAX** (585-591-2898) or **e-mail** calvingease@rochester.rr.com. A limited number of back issues may be accessed on the Internet at either www.atticacows.com or www.calfnotes.com and clicking on the link, Calving Ease.

Our thanks to Intervet/SP for supporting this issue of Calving Ease.

Arguments continue about how early to feed hay to young calves. For pictures showing the comparison of rumen development with and without hay feeding see:
<http://www.das.psu.edu/research-extension/dairy/nutrition/calves/rumen> Scroll down to view a number of different pictures. There is a good picture of the esophageal groove.

Diagnosing respiratory illness in preweaned calves can be made more consistent and easier with a picture guide provided at this web site:
http://www.vetmed.wisc.edu/dms/fapm/fapmtools/8calf/calf_respiratory_scoring_chart.pdf
Scroll down to page two for the picture