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Calf Note #83 – Using the esophageal feeder to administer colostrum

Introduction. Feeding colostrum is – of course – essential to the health and survival of the calf. There is a tremendous need to provide an optimal mass of IgG to calves prior to "closure" of the intestine that occurs at approximately 24 hours of age. And, sometimes, it seems like calves are reluctant – or unable – to willingly nurse the amount of colostrum that we know they need.

The value of an esophageal feeder is apparent to anyone who has tried to feed a reluctant calf. Remember, the birth process is very traumatic for the calf. In some cases, it may have been deprived of oxygen for a time. Other calves may have bruised (or broken) bones or organs during birth. Therefore, it is important to remember that the calf's unwillingness to nurse may not be voluntary. The calf may simply not be able – physically – to consume colostrum within the first hour of birth. Enter the esophageal feeder.

Increasingly, veterinarians are recommending that producers feed larger amounts of colostrum at the first feeding, which should occur as soon as possible after birth. Many vets are now recommending that Holstein calves should receive 1 gallon (3.8 liters) of colostrum at the first feeding in an effort to maximize the absorption of IgG. Well, in many cases, calves are either unwilling or unable to consume that amount of colostrum in one feeding. What is the alternative? Using an esophageal feeder.

Why use the esophageal feeder? Well, there a couple of compelling reasons to reach for the "tube". The first is when the calf cannot or will not voluntarily consume colostrum. The second is that you, not the calf, determines the amount of liquid that will be consumed. What are the implications for using the esophageal feeder? Well, there are several. First, the use of the esophageal feeder to feed large quantities of colostrum has been associated with reduced AEA and slightly lower serum IgG concentration compared with colostrum administered by nipple bottle (Lee et al., 1983).

Colostrum administered by esophageal feeder enters the rumen before moving into the abomasum and intestine (Lateur-Rowet and Breuink, 1983). Thereafter, it takes 2 to 4 h for the colostrum to leave the rumen. This interval may actually be the reason for lower AEA, because the intestine may mature during this time, thereby reducing the number of actively absorbing cells in the intestine. However, many veterinarians recommend feeding 4 L of colostrum as soon as possible after birth to ensure that all colostrum is consumed. Others (Adams et al., 1985; Molla, 1978) support the use of esophageal feeders to provide large amounts of colostrum without significant effect on serum IgG concentrations. Generally, calves are able to absorb IgG from colostrum administered by a feeder.

Potential pitfalls. The "tube" is not without risk. It should be used carefully. I have talked to producers who raise small breed calves (i.e., Jersey, Wagyu) who have reported damaging the epiglottis, larynx or other organs in the oral tract of calves when a tube containing a large ball on the end of the feeder. Another problem occurs when the ball is removed (bad idea!) or when the tube is

frayed, broken or otherwise has sharp edges. Keep your feeder in good repair. I've had personal experience of having to retrieve the end of a feeder from the esophagus of a calf after it had chewed through the feeder (which was badly damaged to begin with). Feeders are fairly cheap. Change them when they begin to show signs of wear – especially where calves have chewed on them! I prefer stainless steel, but most products can be used with proper care and sanitation.

Another very important – and usually overlooked – requirement for esophageal feeders is sanitation. It is my experience that a majority of esophageal feeders are inadequately sanitized between uses. This is especially true on larger farms that use the tube feeder on all calves. When the esophageal feeder is not properly cleaned and disinfected, you risk inoculating bacteria directly into the intestinal tract at the time when the calf is most vulnerable to infections. Remember, the normal defense mechanisms the calf uses to reduce the risk of infections (stomach acid, digestive enzymes, commensal bacteria) are not working in the newborn calf. So, bacteria growing in the esophageal feeder can pose a tremendous danger to the animal.

Finally, another potential pitfall is the inability of the animal to physically hold the colostrum fed. The amount of liquid that an animal can physically hold is limited – therefore, it is possible to administer too much colostrum. The risk is that excess colostrum introduced into the rumen will be aspirated into the lungs, possibly causing pneumonia. The maximum amount of colostrum depends very much on the size of the calf. However, Holstein calves can readily handle 4 liters (about 1 gallon) of colostrum administered by an esophageal feeder. For smaller breed calves, it seems prudent to reduce this amount in proportion to body weight.

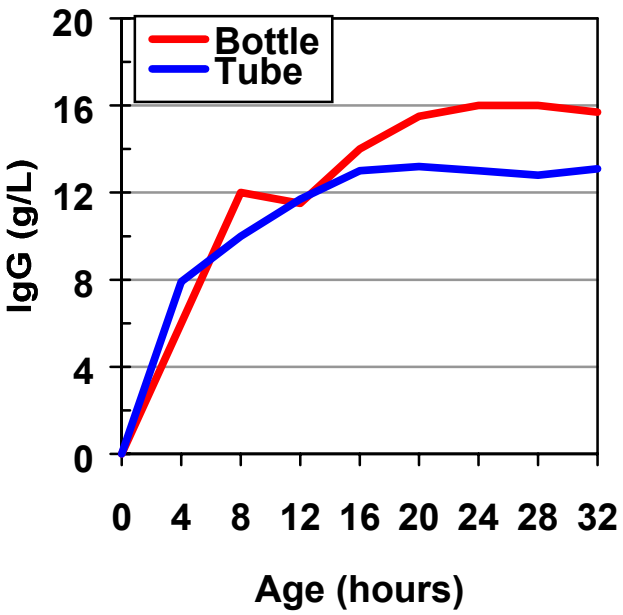

Figure. Effect of method of feeding on IgG concentration in day-old calves.

Proper technique is critical to success. The esophageal feeder can cause damage to the animal if used improperly. The calf should be standing to avoid aspiration of the colostrum into the lungs. Moisten the end of the feeder with colostrum to make it a little more slippery. Gently insert the tube into the animal's mouth and into the esophagus. The length of the tube and size of the calf will dictate how far to insert the tube. Then you can administer the colostrum, which will enter the rumen.

Recommendations. Here are my recommendations for using esophageal feeders:

- Don't hesitate to use the feeder when necessary;
- Administer no more than 4 liters (approximately 1 gallon) of colostrum at one time for Holstein calves;

- Make sure the calf is standing (or at least dorsally recumbent) to minimize the risk of aspiration;
- Be METICULOUS in sanitation of the feeders – remember that you need to remove fat and protein from the feeder! Use a strong chlorine (or other disinfectant) and hot soapy water solution;
- Be sure that all employees are sufficiently trained to use the feeder;
- Inspect the feeder regularly for sharp objects, damage to the ball, and replace it when necessary.

Summary. Using an esophageal feeder to administer large amounts of colostrum – regardless of colostrum quality – is increasingly common. In many cases, it is quite necessary, when the calf is unwilling to eat, or when the colostrum to be fed is of poor quality. However, in the latter case, this may be something of a "Band-Aid" approach to colostrum management. But the esophageal feeder can be a good management tool when used properly. The key points are sanitation, being gentle with the calf when using the feeder, keeping the calf calm and avoiding the risk of aspiration, and keeping the feeder in good repair.

References:

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