ACCORDING to the National Animal Health Monitoring System, the mortality rate of preweaned dairy heifers is between 8 and 11 percent. One-third of the deaths occurring within the first 3 weeks of life mostly could be due to failure of passive transfer (FPT) of immunity. Maternal immunoglobulins are not transferred across the placenta to the fetus in cattle. That means calves are born with very low concentrations of serum immunoglobulins. Bovine colostrum is a very rich source of immunoglobulins, and their absorption is essential to protect newborn calves against infectious intestinal diseases, which are the principal reasons for mortality of calves during the first weeks of life.

For many years, we have known that high-quality colostrum in sufficient quantities is the critical factor to ensure adequate transfer of passive immunity in dairy calves. Both of these must happen during the first few hours of life. However, most calves do not nurse from their dams today for a variety of health-related reasons. In addition, some calves will not consume colostrum from a nipple bottle. For these reasons, an esophageal feeder should be used to administer colostrum to calves that are weak or reluctant to nurse.

An esophageal feeder is a long, flexible plastic tube that has a bag at one end and a short piece of stiff tubing with a small ball at the other end. The stiffer section is passed along the roof of the calf’s mouth into the esophagus. The ball on the end of the feeder helps stop the tube from going into the trachea or windpipe and helps prevent damage to the esophagus.

It works for many reasons . . .

The esophageal feeder is becoming an increasingly popular method of providing colostrum to calves. The esophageal feeder has several inherent advantages:

- control of the time of colostrum feeding
- control of the amount of colostrum fed
- and the ability to force the calf to consume a known amount of colostrum at the first feeding.

It can also be used to provide electrolytes and fluids to scouring or sick calves that are weak and to enhance labor efficiency by feeding a single dose of colostrum which requires less time per calf.

Calves get what they need . . .

There has been some research showing the advantages of using an esophageal feeder. In a study done over three years with a total of 52 dairy calves at Oklahoma State University, investigators administered colostrum within an hour after birth and at 12 and 24 hours afterward either by nipple bottle or esophageal feeder.

Blood samples were taken from the jugular vein of each calf before initial feeding and at 4, 8, 12, 16, 20, 24, 28, and 32 hours thereafter. The concentration of serum IgG attained by both treatments was well above the minimum (10 mg/ml) considered to be consistent with a high rate of calf survival. They concluded that the administration of colostrum by esophageal feeder is an effective method for introduction of immunoglobulins to calves too weak or otherwise reluctant to nurse soon after birth. Concentration of serum IgG following administration of colostrum by this method increased at a rate equivalent to that in calves fed by nipple bottle.

In another study conducted at Washington State University, the use of an esophageal feeder, nipple bottle, or nursing the dam at three dairy re sulted in 10.8, 19.3, and 61.4 percent of calves with failure of passive transfer, respectively (see table). There have been some reports that using the esophageal feeder to feed large quantities of colostrum has been associated with lower apparent efficiency of IgG absorption (AEA) and slightly lower serum IgG concentration compared to feeding colostrum by nipple bottle. A trial in which colostrum and other fluids given with an esophageal feeder refuses some of those reports. The study took place in newborn calves and in young calves up to 3 weeks of age. Radiographic techniques used in the study concluded that, although colostrum and other fluids entered the fore stomachs, the rapid flow to the abomasum and small intestine created the conditions for a sufficient absorption of immunoglobulins, producing acceptable IgG levels in calves at 8 or 12 hours.

To be successful using an esophageal feeder, keep these items in mind:

- Feed only high-quality colostrum with high IgG level and low bacteria count.
- Clean the esophageal feeder after every use, and replace it regularly.
- Use separate feeders for sick calves and newborn calves.
- Train your employees to apply the proper technique.

The esophageal feeder is an excellent aid to force-feed colostrum to weak newborn calves or electrolytes to weak scouring calves. The method used, nipple bottle or esophageal feeder, is less important than the time of first feeding, the IgG level of colostrum, and total amount of IgG provided. Feed 2 to 3 quarts of colostrum with IgG level greater than 50 g/L within one hour of birth and another 2 to 3 quarts eight hours later. If using an esophageal feeder, up to 4 quarts of colostrum with 50 g/L or more of IgG may be provided in a single feeding within the first hour of life.

Using an esophageal feeder can be easy

Young calves can be backed into a corner, allowing control of the head and adequate restraint. It is easier to pass the tube with the calf standing up. However, if calves are too weak to stand, it can be done while they are lying down. To open the calf’s mouth, apply pressure to the corner of the mouth, or grab over the bridge of the nose, applying pressure to the upper palate or gums. Once the mouth is open, pass the tube alongside the tongue to the back of the tongue. Do this slowly. In most cases, when the tube is over the back of the tongue, the calf starts chewing and swallowing; this helps to get the tube down the esophagus.

If the tube has been correctly passed, you should be able to feel it in the esophagus. The ball on the end of the tube can be felt quite easily. It is advisable to pass the tube almost the full length of the stiffest part. Fluid will then go into the lower esophagus. After the tube is passed, unclip the tube to allow the liquid to drain out of the bag. The bag can be held above the calf or hung on a nail. It will take a couple of minutes to drain. The liquid should be at body temperature to prevent the mouth from becoming chilled.