

CALVING EASE

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Measuring and Mixing Milk Replacer

Why make my life difficult! All measuring and mixing milk replacer amount to is “scoop, dump and swish.” True. But if you think about how you tell an inexperienced person how to do measure and mix milk replacer, it requires doing several steps correctly. Too often calves get fed the incorrect amount of milk replacer powder that is inadequately mixed in water that is the wrong temperature.

The Correct Amount of Powder

When mixing for one calf it's relatively easy to be sure that the cup provided by the manufacturer is completely full. By the way, it is important when measuring by volume rather than by weight to use the manufacturer's cup. Cups are matched to the density or texture of the milk replacer and vary from product to product in volume.

When mixing for more than one calf most of us tend to get somewhat sloppy. For example, mixing for eight calves with a cup that requires two scoops per calf. When measuring into separate pails we tend to go “scoopidy, scoopidy, scoop” very quickly. Some calves get less, some get more. A more accurate method is to mix in a larger pail (three or five gallons) and pour into individual bottles or pails for feeding.

How? Using the manufacturer's cup carefully measure the volume needed into a larger container. Some folks use sherbet tubs. Others use small plastic pails. Once the powder is measured an eartag pen can be used to draw a line around the container showing the correct volume to feed. More than one line can be drawn to allow for different numbers of calves from day-to-day. The principle here is that measuring once is more accurate than measuring many times as is the case when we measure separately for each calf.

Mixing Adequately

Milk replacer that remains on the sides and bottom of either bottles or pails certainly is a waste. So, it's important to mix well. One of our first considerations in mixing is to add as few bacteria as possible to the milk replacer. While hands are convenient, they are usually heavily contaminated with bacteria, especially *E. coli* from heifer and cow manure. Not the best choice. Wooden sticks or paddles tend to retain both protein and fat from milk even when washed carefully. They also hold moisture that encourages bacteria growth between feedings. Not the best choice.

We recommend a stainless steel whip. They come in all sizes. They are relatively inexpensive. Even super-large ones cost less than \$20. Small ones are available in grocery and discount stores. Larger ones are available in restaurant supply stores like Batavia Restaurant Supply on West Main Street in Batavia NY. The advantages are obvious but let's just review them. Washing them after each use in hot soapy water containing bleach removes nearly all the protein, fat and

bacteria. If stored properly between uses they dry completely. They are very durable and can last for years if used only for mixing milk replacer. The whip design encourages complete mixing of the powder with a minimum of lumps and residue on the bottom of the pail.

Water of the Right Temperature

Almost all manufacturers recommend a mixing temperature for their product. It's printed right on the bag. Error creeps into the mixing process when we try to match the water from the faucet or hose with the number on the bag. In general, mixing milk replacer in batches (three, five, fifteen or thirty gallons) results in more uniform temperatures than mixing for one calf at a time. But, batch mixing for a large number of calves (for example, more than ten) may result in the last calf being fed lukewarm milk. Ideally, we want to feed either milk or milk replacer at or slightly above the calf's body temperature (that is, about 102 F). We don't want the calf to have to use part of the energy from the milk we just fed to warm up the milk. We want her to use this energy to grow bigger. In addition, excessively cold milk or milk replacer may not stimulate the esophageal groove to close properly as the calf drinks. Incomplete closure of the esophageal groove allows cold milk to enter the rumen rather than the abomasum which is where milk belongs. Too much milk in the rumen too often may cause undesirable bacteria growth and sick calves.

By using more than one batch container (for example, two five-gallon pails rather than one) we can mix one batch warmer than the other. Some larger operations use garbage pails for mixing. They just mix the one to be fed last warmer than the rest. In bottle feeding, the batch for the last bottles can be mixed warmer as well.

The temperature-trained hand. Have you ever said, "Yep, that feels about right" when mixing? It's true that we get pretty good at judging water temperature by feel. But remember that how warm water feels depends a lot on the environment. Lukewarm water on cold hands feels hotter than it actually is. If you are really serious about calf health and nutrition, get and regularly use a thermometer. The most convenient and least expensive are rapid-read dial thermometers. Care taken in feeding milk at the right temperature encourages thrifty, rapidly-growing calves.

Calf Raiser's Tip

We frequently need to mark an individual calf for special treatment. Examples are for feeding milk, grain or water or for medical treatments. One inexpensive method is to snap a shower curtain ring on the hutch or pen. Rings are available in discount stores in a variety of sizes and colors to fit your situation. We use them to mark calves that are being weaned or receive different amounts of starter grain.

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 .