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Make handling of post-pasteurized waste milk a priority

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All dairy operations have a supply of milk that is not saleable, commonly called waste or discard milk. Waste milk as documented

in one study, can range from 48 to 137 pounds per cow per year, representing a huge economic loss to the dairy farm, disposal problems

and environmental issues.

Waste milk has been fed to calves for many years, but concerns with microbial pathogens, such as *E. coli*, bovine viral diarrhea, *Streptococcus spp.*, *Salmonella spp.*, *Mycoplasma spp.*, *Listeria monocytogenes*, *Camphylobacter spp.* and *Staphylococcus spp.*, among others, as well as possible transmission of diseases such as Johne's, through feeding waste milk

have discouraged many producers from feeding calves this milk. However, pasteurization of waste milk is one option to reduce risk, while utilizing a valuable, low-cost liquid feed source for calves. Several companies produce on-farm pasteurizers in a variety of sizes specifically for the utilization of waste milk for calf feeding.

Feeding this milk to calves offers a series of advantages besides economics. The solids content of mixed colostrum and transition milk ranges between 16 and 18 percent and so produces good gains by calves. This mixture also contains a variety of highly digestible proteins and energy along with high levels of minerals, vitamins and a vast variety of immunoglobulins and growth factors that are found in colostrum. All of these have beneficial effects for the young calf.

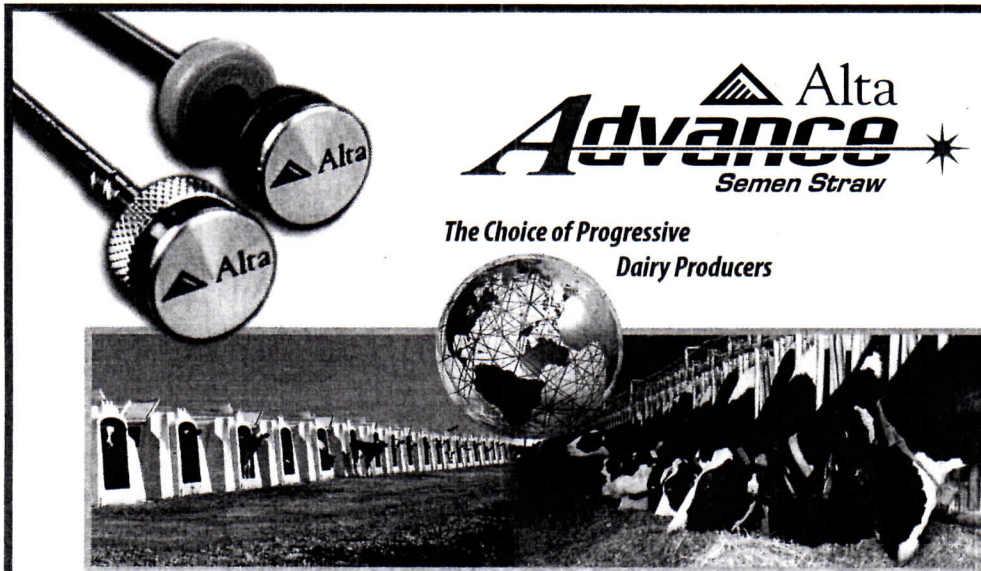
Pasteurization safely decreases pathogens in all types of milk fed to young calves. Research has shown that holding milk at 65.5°C (175.5°F) for 30 minutes is more than adequate to achieve total destruction of *Mycobacterium paratuberculosis*, the bacteria responsible for Johne's disease. It has also been shown that on-farm pasteurization of waste milk held at 65°C (174.6°F) for 10 minutes also destroyed common mastitic mycoplasma species such as *Mycoplasma bovis*, *M. californicum*, and *M. canadense*.

Other studies have demonstrated that high-temperature short-time (187°F for 15 seconds) pasteurization is effective in the destruction of *M. paratuberculosis*, *Salmonella spp.*, and *Mycoplasma spp.* in waste milk. The results of these and other studies suggest that on-farm pasteurization of waste milk is effective in generating a safe product to feed to young calves.

The problem with this feeding system often lies in failure to handle post-pasteurized waste milk in a proper manner. We have been taking waste milk samples from different farms before pasteurization, after pasteurization and in front of the calf being fed. The results are surprising, given the quality of product that leaves the pasteurizer.

Figure 1 shows data from a farm for three different feeding times. It can be seen that pasteurization very effectively reduces the bacteria counts of waste milk. However, the problem comes after pasteurization. The milk that was sampled from the bucket in front of the calf had much more bacteria, primarily non-coliforms, than did the original sample. This just means that people are not paying attention to the handling of pasteurized waste milk or they are not properly cleaning

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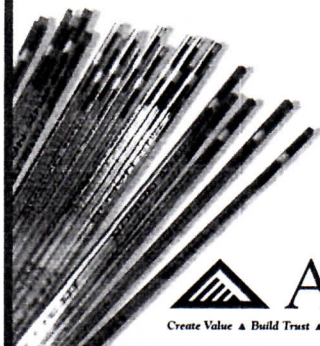
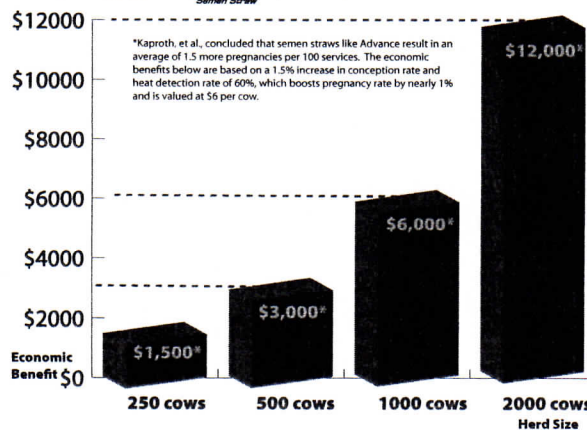
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“ Train employees in pasteurizer operation and concepts of pasteurization. Remember they are the ones that need to know the why's and how's. ”

the containers or equipment used to handle it. This means they are taking a clean product and handling it in such a manner that the calf is getting an inferior product. Obviously, this same thing could happen if it were milk replacer or any other liquid feed product.

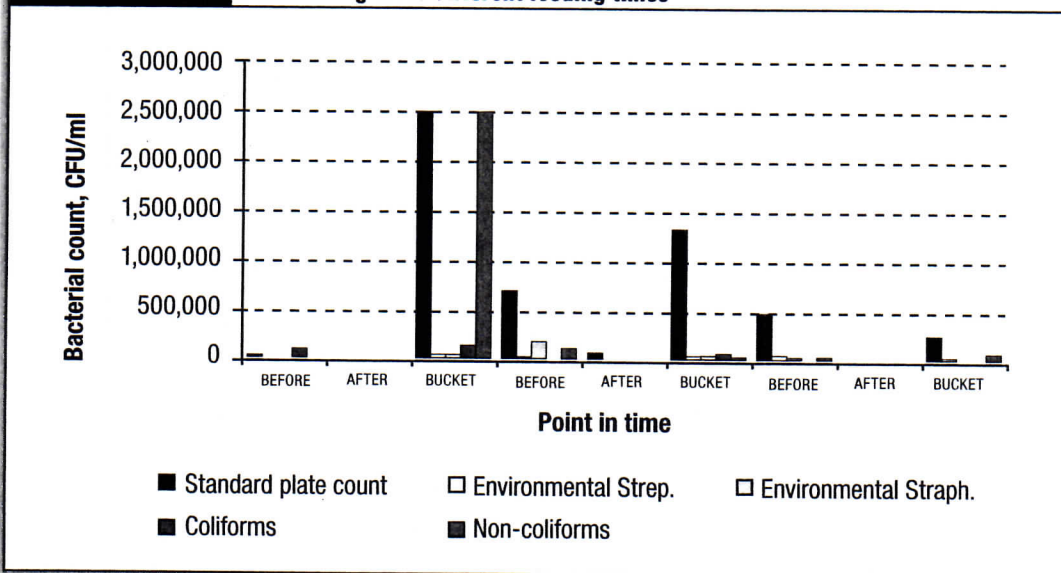
Tips for handling and storing post-pasteurized waste milk

- Milk must be fed or cooled immediately. Sitting at room temperature can allow bacteria to grow rapidly. Summertime may be more challenging.
- Store milk in clean, closed containers.
- Feed to calves in clean buckets or bottles.
- Clean pasteurizer after every use, following the procedure recommended by the manufacturer.
- Train employees in pasteurizer operation and concepts of pasteurization. Remember, they are the ones that need to know the why's and how's. **PD**

—Excerpts from Penn State University Dairy Digest, December 2007

Figure 1

Bacterial load of waste milk pre- and post-pasteurized and in-front-of-the-calf milk during three different feeding times



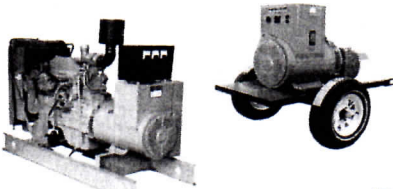
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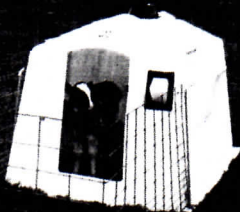
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