

Calf Notes.com

Calf Note #08 – Can I use waste milk for my calves?

The question of using waste milk is one that is asked frequently. *Waste milk* is that milk that is unsaleable due to mastitis or treatment with antibiotics. It is often considered a "free" source of liquid to feed to their calves. However, increasingly, there have been questions about the true value of waste milk (also called "hospital" or "pot" milk), particularly when the risks associated with using waste milk are considered. Animal agriculture is under increasing pressure to reduce the reliance on antibiotics – particularly feed-grade antibiotics. Therefore, feeding milk from cows that have been treated with antibiotics (and may contain high levels of antibiotics in the milk) is increasingly difficult to justify.

Some research on the use of waste milk. Researchers in CA measured the number of viable bacteria and presumptive antibiotic residues in waste milk fed to calves (Selim and Cullor, 1997). The mean number of bacteria for waste milk was significantly higher than for other types of milk or milk-based products (milk replacer, colostrum). *Streptococcus* sp. (84/165) and *Enterobacteriaceae* (83/165) were predominant bacteria identified, followed by *Staphylococcus* (68/165). *E. coli* (32% of samples) was the most common gram-negative.

When waste milk was tested (using commercial kits) for antibiotic residues, 63% were positive for beta-lactams or tetracycline. As the study authors concluded "Waste milk that has not been effectively treated (e.g., pasteurization) to reduce microbial load prior to use as calf feed should be used with caution, because it may contain a high number of bacteria that may be pathogenic to cattle and human beings."

In a 1990 British study (Wray et al., 1990), the effects of feeding calves antibiotic-containing waste milk were studied in two trials. In the first trial both fermented and unfermented waste milk were fed and in the second trial only unfermented milk was used. Antibiotic-containing milk was unpalatable and rejection rates were high. Growth rates of the calves were poor and in the second trial differed significantly from those of the calves that were fed milk replacer. Fecal *E. coli* were monitored for antibiotic resistance and were higher (MIC for streptomycin) from calves fed antibiotic-containing milk, but no differences were observed for ampicillin. In the second trial, no differences were observed between isolations from calves fed antibiotic containing milk and control calves. The ambient conditions in the United Kingdom inhibited natural fermentation, which would degrade the antibiotics and make it an acceptable feed. The authors concluded that the high numbers of bacteria in the product may present disease risk. Other researchers have reported that waste milk contributed to diseases of preweaned calves (Walz et al., 1997).

Cost of waste milk. The opportunity cost of waste milk is significant. What is an *opportunity cost*? Well, the value of the milk if it weren't waste. Think of it as the loss you're sustaining by producing waste milk. Let's consider an example. If that milk wasn't "waste" - unsaleable - it would be going into the tank. Let's assume that it's worth \$12/cwt. That's your opportunity cost. If you're normally feeding whole milk, the waste milk you produce is simply replacing the whole milk you would

otherwise feed. The opportunity cost is zero. If you normally feeding milk replacer, the opportunity cost is a little different. Let's say you're feeding 10 lbs. of waste milk to each calf per day (cost = \$1.20) and you replace 1 lb of milk replacer powder (cost = \$0.80), then the "opportunity cost" of the waste milk is \$0.40 per calf per day. Remember, this isn't an actual cash cost, but it's the money you're losing by producing milk you can't sell. Therefore, it's important to consider the reasons for that waste milk and try to minimize the amount you produce.

The nutrients... Waste milk can be an excellent source of feed for calves. It has the nutrition of whole milk and can't be use for other purposes, so why not use it? Well, in many cases, it IS an excellent feed and can replace whole milk or milk replacer. But, before using waste milk for young calves, there are a few precautions you should take.

- Be very sure of the health status of the cows from which the waste milk is obtained. Cows that are shedding BVD or Johne's can infect all of your calves very quickly. If there is **ANY** chance that your cows are shedding pathogens that can infect your calves, **don't feed that milk!** Some producers who are concerned about transmission of BVD or Johne's will feed only milk replacer to eliminate this risk.
- Don't allow waste milk to sit at room temperature for extended periods. This can lead to tremendous increases in microbial load.
- Don't use waste milk from the first milking after antibiotic treatment - this milk contains too much antibiotic and may lead to residue problems from the antibiotic in the milk. This may be a very important problem if you're feeding bull calves prior to sending to market. If you're feeding replacement heifers, this shouldn't be a problem, but be careful.
- Don't use milk that is excessively bloody or unusual in appearance. This milk probably contains active pathogens, disease fighting white blood cells and other "stuff" that might not be well digested by a calf's sensitive digestive system. If it looks bad, don't feed it!
- Don't feed waste milk to group housed calves. Some research indicates that group calves that suck on each other after drinking waste milk might infect each other with the pathogens in the treated milk.
- Don't use milk from cows infected with *Escherichia coli* or *Pasteurella*. These bacteria might still be in the milk you feed the calf and can possibly infect the calf's intestine, leading to disease.

Every dairy producer will have some waste milk on occasion. If you follow the precautions above, it can be an effective source of nutrients for young calves. On the other hand, the risk of contaminating a large number of calves is giving many dairy producers pause. In fact, several calf raisers have made the decision NOT to use waste milk simply because they feel that the risk of transmission of disease is too great. Although pasteurization of milk can reduce the microbial load of waste milk, pasteurization is not sterilization. A heavy bacterial load in waste milk will not be completely eliminated by pasteurization. Of course, pasteurization does nothing to remove the potential contamination with antibiotics typical of most waste milk.

References:

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Wray C., S. Furniss, and C. L. Benham. 1990. Feeding antibiotic-contaminated waste milk to calves--effects on physical performance and antibiotic sensitivity of gut flora. Br Vet J. 146:80-87.

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