

REVIVING THE CREAMERY

Milk Quality

Barbara and Steve Smith

This month we are continuing with our theme of operating an on-farm dairy processing business and selling high quality food to local customers. And, milk quality is the key word this month. Over the 6 years we've been dairying and selling milk, yogurt, kefir and cheese, we have learned a lot about the difference between the milk we produce and the milk available in most stores. We are convinced of the superior nutritive value of raw milk from grass-fed cows, and this motivates us to produce, sell and seek out nutritious dairy products. Hopefully, this information will motivate consumers to demand these products for themselves and their families and will give dairy farmers a sense of mission and purpose.

Milk processors have done a wonderful job of producing fluid milk that looks and tastes the same anywhere you buy it in the United States, just as a Coke tastes the same no matter what machine you get it from. This sameness comes from the manufacturing process in which the milk is homogenized to a uniform consistency, then the fat content is standardized to produce whole, reduced-fat and skim milk. Fat content standardization is the result of the standards of identity the Food and Drug Administration has set for milk and economic incentives. For instance, the Standard of Identity for whole milk states that it must have a minimum milkfat content of 3.25%. Couple that minimum standard with the profit that can be made from other uses of milkfat in butter or ice cream and you'll find that the 'whole' milk on the shelf has been manufactured to have a milkfat content of exactly 3.25%, while the average butterfat content of all milk delivered to processors is 3.5%. Clearly, the store-bought, whole milk is unnaturally low in butterfat. And finally, the milk is pasteurized to minimize any pathogenic bacteria that may be present.

Store milk usually loudly proclaims fortification with Vitamins A and D. Those vitamins are fat-soluble and are extracted along with the butterfat. Federal law requires them to be added back into reduced fat and skim milks to the levels that would be present in whole milk. Yogurt manufacturers are exempt from this requirement because the added vitamins would make lowfat and fatfree yogurt taste bad. However, all other milk enzymes and vitamins extracted with the butterfat are not required to be added back, rendering lowfat and skim milk and milk products nutritionally deficient relative to whole milk. Our milk is not standardized, skimmed or homogenized and has all the vitamins, butterfat and protein that our cows produce on our Finger Lakes farm.

We milk Jerseys for several reasons, not the least of which is that they are fairly small and our feet don't hurt quite as much as they would if a Holstein had stepped on them. More importantly, Jerseys are excellent grazers and produce the most nutrient-rich milk from our grass and clover pastures. Jersey milk has more butterfat, protein and total solids than the milk from any other breed of cow. Steve has started tours of our farm by stating that we are one of the most vertically-integrated fuel companies in the world, and certainly produce the freshest fuel available. Our farm can transform solar energy into human fuel in less than 3 or 4



days, whereas other fuel companies use solar energy that has been stored underground for a number of years. Our grass/clover pastures respond immediately to solar energy and increase in height. The cows graze off that increased height and produce milk from it after about a day of rumination. We harvest the milk twice a day in our stanchion barn using vacuum milking units, emptying the buckets into a refrigerated bulk

tank. The milk from the bulk tank is turned into yogurt after about 3 hours of fermentation in the vat (during which the yogurt bacteria do their own grazing) and an afternoon of packaging. After cooling overnight the yogurt is ready for breakfast grazing by humans. Thus, in summer, Meadowsweet Yogurt is 3 day old sunshine. (In winter the cows eat primarily hay, or solar energy that was harvested roughly six months earlier.) Our yogurt and kefir are delivered to stores in Ithaca within 4 days of being packaged (kefir follows the same process as yogurt but ferments overnight and at a lower temperature than yogurt). This makes our products unique in two connected and important aspects: freshness and a relatively short delivery path.

Our yogurt and kefir are fresher than other brands because of our small market focus. Yogurt with regional or national distribution spends time in warehouses and in several different trucks being routed from the dairy plant to possibly a distributor or to the central grocery chain warehouse, then moving to the receiving dock of individual stores, into the stores' coolers, and finally onto the grocery shelves. We deliver straight from our farm to the store shelves. The short delivery path (about 25 miles from the yogurt plant to Ithaca's grocery stores and Farmers' Market and 25 miles and 80 feet from the milking barn) is much, much smaller than the average distance food travels from harvest to the American dinner table, which has been estimated by the USDA to be about 1500 miles. (At least one store in Ithaca air freights lettuce and arugula from California, even during the season such produce is harvested in New York.) This short distance allows us to deliver the freshest yogurt/kefir in town and also save the local consumers from paying for the fuel, air pollution, highway maintenance, truck/airplane maintenance, etc. needed to bring other brands over that average 1500 mile distance.

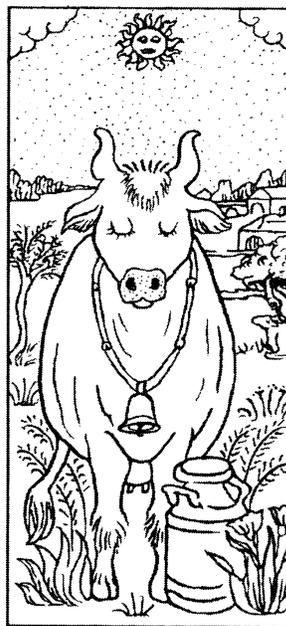
Freshness not only provides a better taste but also more live and active yogurt cultures. Yogurt cultures are still active under refrigeration, albeit at a low level of activity, and over time they increase the acidity (sourness) of the yogurt thereby making their environment inhospitable to themselves and they expire. An Ithaca chiropractor was at a presentation on the need for acidophilus supplements in everyone's diet. When she asked if one could just eat yogurt instead, she was told that store-bought yogurts may start with active cultures, but by the time they get into consumers' hands the cultures have aged and need to be supplemented unless fresh, local yogurt is available. The folks selling us yogurt and

kefir cultures have confirmed that the number of active yogurt/kefir bacteria decreases to one half of the original concentration in two weeks, and to one tenth in four weeks after manufacture. With this in mind, we buy back from the store any yogurt/kefir that is more than two weeks old. Many national brands have shelf lives of 60 days or more, which is very desirable for manufacturers and retailers but not so desirable for consumers looking for the health benefits of live and active cultures and not just sour milk.

So why should consumers spend time hunting for raw milk when it is very convenient to get milk at the same time as all the other grocery shopping? Two places to look for reasons why raw milk should be preferred over pasteurized milk are the Campaign for Real Milk website (www.realmilk.com) and *The Milk Book* by William Campbell Douglas. We know that the NY State Department of Agriculture and Markets (Ag and Markets) sends monthly samples of our yogurt/kefir to the state lab to ensure that the milk they contain was legally pasteurized. The lab checks for the remains of one of many enzymes that are broken down at pasteurization temperatures. And it is these breakdown products, not found in raw milk, which may cause allergic reactions in some people. Also, we have been cautioned by Ag and Markets inspectors to be very careful with pasteurized milk, as all the natural defense mechanisms (various lactobacilli and enzymes) present in raw milk have been destroyed by pasteurization. Pasteurized milk is a sterile medium and the perfect food for a host of pathogenic bacteria. For other facts and figures on the properties of fresh, raw milk and seasonal changes in that milk consult the website of Jo Robinson, the author of *Grass-Fed is Best* at www.eatwild.com.

One of the arguments used for making pasteurization the law in the 1960s was the potential for transmission of disease through milk. (There is an article at the Real Milk website, written in the 1940s, calling such arguments false propaganda.) Advances in sanitation, animal health and milk cooling have lessened the need for universal pasteurization, but instead the milk processing system and the current method of paying US farmers for their milk has made pasteurization necessary. Farmers are paid primarily for the volume of milk they produce and are offered quality incentives for cleaner milk. However, the quality incentives are relatively small and not always effective. A feed analyst once showed us that if one cow had unclean milk (with too high a bacteria count) and would preclude earning any quality incentives, it would still pay to put her milk in the tank as long as she was producing an above average volume of milk. Our goal is not to produce as much milk as we can from our pastures and get someone to haul it away and pay us for it, but to produce the best quality and best tasting milk we can and then to process it into excellent tasting yogurt, kefir and cheese. To learn about some of the practices dairy farmers can use to produce best quality milk and best quality, raw milk cheese, go to the UK's Specialist Cheesemaker's Association website at <http://www.cheese.onyxnet.co.uk/sca/> and examine their Code of Best Practices. They suggest that a test of whether raw milk can yield a quality, raw milk cheese is to determine if the milk will survive for 14 days in the refrigerator without 'going sour'. The shelf life of pasteurized milk is not much longer than 14 days.

Milk producers in NY have the good fortune to be able to obtain a permit to sell raw milk from the farm. Many other states make it illegal to sell raw milk, which seems to make dairy



www.realmilk.com

farming just a little more legal than raising marijuana since, in those states, neither milk nor marijuana can be legally sold but it is still legal to harvest milk. A raw milk permit calls for a warning sign in the milk house stating raw milk does not provide the protection of pasteurization, for the milk to be transferred from the farmer's hand directly to the consumer's hand and to be sold only on the farm at which it is produced. Additionally, we get the privilege of monthly Ag and Markets farm inspections and testing for the presence of pathogens in samples of our milk. While it is possible to get a permit and sell some raw milk, the activity is clearly not encouraged. It is also not an environmentally sound permit, as consumers are made to

drive to the farm in many separate vehicles on weekly trips, instead of permitting farmers to sell their milk at centrally located farmers' markets that would greatly reduce the fuel and pollution costs of raw milk.

Finally, we come back to the taste of our milk. Jerseys are known for producing creamy, colored milk. The rich, yellow color comes from the carotene in fresh grass and is a sign of the high vitamin content of spring and summer milk. Several people have noticed that our yogurt becomes paler over the winter while the cows are eating mostly hay but then once again, turns golden yellow as the grass starts growing. (Our cheeses are also very yellow and were an amazement to a university cheesemaking professor who didn't believe cheese could be that yellow without the addition of coloring agents.) Then there are subtler variations in flavor as the cows' diet changes from dandelions and bluegrass, to orchardgrass and timothy, to greater amounts of clover and alfalfa from spring to summer and then back again to cool-season grasses as the shorter days and rains of fall come along. Our milk is also tastier than store-bought milk because it comes from a single herd and is not the result of pooling milk from dairy farms all over the whole region.

We feel there should be more cooperation between farmers and consumers designed to increase the health and pleasure of both groups. We dairy farmers need to produce the highest quality milk and milk products possible and to find ways to get them to local consumers, and we consumers need to seek out and enjoy the rich tastes of our neighborhoods and monetarily reward and spiritually encourage local farmers.

Barbara and Steve Smith and family produce yogurt, kefir and cheese at Meadowsweet Farm in Lodi, NY.

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