Making Your Own Dairy Products Can Be A Fun Challenge

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LANCASTER — During the entire month of June, attention is focused on dairy products. A wide variety of tasty products is available in the dairy case at your local supermarket, but for those of you who are more adventurous, it may be a good time to try making your own yogurt or sour cream.

Sidney E. Barnard, professor of food science extension at The Pennsylvania State University, says that making your own dairy products can bring a lot of satisfaction. He continues, however, that, in general, making your own is not as economical as purchasing the finished product.

Furthermore, he notes, "The product will not be the same as that purchased in a supermarket, because home processors cannot homogenize.

Nevertheless, anyone wishing to try making their own products should consider it a challenge, and proceed with proper caution.

The most important consideration for dairymen using their own milk is that it is extremely important to pasteurize the milk before using it in a recipe. Barnard said this step will prevent any problems with salmonella poisoning.

Home pasteurizers are available, but a double boiler arrangement can also be used. The easiest method is to heat the milk to 161 degrees and hold it for 15 seconds, then cool it to 86 to 88 degrees as quickly as possible. An accurate stainless steel thermometer must be used, and the milk must not be heated beyond 165 degrees, or the curds will shatter.

Yogurt is a good product to try at home, though results may not be the same each time, and probably will not be the same as yogurt you purchase in a supermarket. Minimum equipment is needed, and ingredients are easily available.

Necessary equipment includes canning jars, a canner or double boiler, stirrer and a bow or cabinet for maintaining proper temperature. It is important to be able to maintain a temperature from 100 to 115 degrees, and this can be done by placing a light bulb in a box, or by purchasing a commercial incubator.

Whole raw milk or nonfat powdered milk can be used as well as pasteurized whole milk. Water used must be free of spoilage bacteria. Canned evaporated milk can be used, reconstituted with pure water.

You will have to either purchase special bacterial cultures or buy fresh, plain yogurt which has not been pasteurized after culturing so there are live bacteria. Two strains of bacteria, Lactobacillus bulgaricus and Streptococcus thermophilus, are necessary in equal quantities for proper flavor and texture, and can be purchased from health food stores. They are already present in purchased yogurt.

If you plan to use raw milk and intend to keep the yogurt a few days, heat treatment should be used. Heat the milk in a double boiler or directly in the canning jars in a canner to at least 180 degrees and hold for 15 minutes. Do not exceed 190 degrees and do not boil the milk!

The milk must then be cooled to 100 to 115 degrees, by leaving at room temperature or placing in a controlled temperature box.

If using commercial yogurt, an 8-ounce container will set a quart of milk. A commercial culture will give better results, but is more expensive. Two to three tablespoons of culture per quart will cause the milk to set in about 6 to 10 hours, and it must be stirred thoroughly after adding the culture.

The necessary bacteria will not grow below 100 degrees and they will be inactivated above 120, causing the yogurt not to set. Once set, the yogurt should be cooled to 40 degrees or below. Cooling can be done by setting the jar in ice water. Just cooling in a refrigerator is slow and will cause whey to appear. The taste will also be tangier with the slower refrigerator cooling.

Yogurt should be stored covered to prevent off flavors from developing, and should be at 40 degrees or below.

Of course, fresh or frozen fruits or preserves can be added.

Yogurt, plain, is low in calories and highly nutritious. It can be used as a snack, in salad dressings and in cooking.

Buttermilk and sour cream are also other cultured products that can be made at home with a minimum of work and equipment. For both these the Streptococcus lactis bacteria is necessary and can be purchased or obtained by buying fresh buttermilk where they are present. The growth of the added bacterial culture causes acid and flavor development.

Cream or skim milk can be used, but must be pasteurized. The milk should be heated to 185 degrees in a double boiler to kill all bacteria and spores, then cooled to 72 degrees prior to adding the helpful bacteria.

To make sour cream you can mix heavy cream and whole milk in about equal parts.

The active Streptococcus bacteria is either transferred from the culture or from fresh buttermilk to the pasteurized milk under almost sterile conditions. After two days, the bacterial activity decreases sharply, so transferring must be done two to three times each week.

When working with the product, use only clean and sanitized jars, spoons and ladles to handle the milk and cultures, otherwise undesirable bacteria will contaminate the skim milk or cream.

The skim milk or cream must be at 72 degrees or slightly above. Add about one-half cup of bacterial culture or commercial buttermilk to each quart of skim milk or cream. Mix the combination for about two to three minutes. If a screw-topped jar is used, shake it at least five times every 20 minutes durng the first hour.

A thickened body and desirable flavor should develop in about 16 hours. Standing at room temperature for more than 24 hours will cause spoilage.

It is important to keep in mind that the product you make will not be as thick and stable as commercial products.

Once the buttermilk or sour cream has reached an accepted thickness, refrigerate it and keep it cold. It will be best if used within two days.

Fresh buttermilk must be used within two days to culture another batch, and it can be done up to 10 times. After that it becomes contaminated with undesirable bacteria. Buttermilk and sour cream cannot be frozen or the whey will separate after thawing.

Whey will continue to separate from the sour cream, and this can simply be poured off before using.

If you prefer to use cultures rather than fresh yogurt or buttermilk, and cannot find a source of bacterial cultures, they can be purchased frozen or freeze dried from the following: Hansen's Laboratory, 9015 W. Maple Street, Milwaukee, WI 53214; Marschall Laboratories, P.O. Box 592, Madison, WI 53701; Microlife Technics, 1833 57th Street, Box 3917, Sarasota, FL 33578.

There may be other laboratories available with the cultures to help you get started in this do-it-yourself project.

Producers of goat's milk have been making products using that milk for years, since they often have an unsteady supply and must use the milk they have available.

Cleanliness and pasteurization is also important to making goat's milk cheese.

Rennet and a good starter or fresh, high quality buttermilk is necessary to make hard goat's milk cheese.

To begin, heat the sweet, whole goat's milk in a pan to 86 degrees to 88 degrees. Add one percent starter or good quality buttermilk and stir for two to three minutes. Add rennet at a rate of 25 drops to each gallon of milk. The rennet must be diluted in one-half cupful of clean tap water. Stir the rennet into the milk and allow the milk to set at 86 degrees to 88 degrees until a firm curd forms, which usually takes about 30 minutes. The curd is ready to cut when it breaks clean over a finger inserted into the curd at an angle and lifted slowly.

The curd must be cut into squares vertically about one inch on a side with a long blade knife. The curd is then cut into cubes, cutting horizontally with stiff bent wire. When cutting is completed, the curd particles should be uniformly cube-shaped about one inch in size.

The temperature of the curd should be slowly raised to about 98 to 100 degrees within one hour. Stir the curd very slowly at the beginning with a spatula so as not to break up the curd. During the heating, the curd should be stirred frequently enough to maintain an even temperature and to prevent the pieces of curd from sticking together. With a knife, cut any pieces of curd that are very large, keeping the curd particles as uniform in size as possible to promote even heating.

When the curd reaches desired firmness, it will tend to stick together. Then it should be poured into a muslin cloth or bag and

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These refreshing dairy products are readily available in the dairy case of your local supermarket, but you can take the challenge of creating them in your own kitchen.

Nicole Bushong enjoys a dish of cooling yogurt as she relaxes on her family's dairy farm near Columbia. The daughter of Mr. and Mrs. Glenn Bushong, Nicole takes her snack as she does some summer reading.

Homestead Notes

Try These Flavored Yogurt Recipes

These recipes for flavored yogurt were kitchen-tested by the American Dairy Association:

Apple-Raisin Yogurt

Place 3 tablespoons chopped, unpeeled apple, 1 tablespoon chopped raisins and 1 teaspoon sugar in the bottom of individual yogurt container. Fill with the warm milk/starter mixture to within ½ inch of top. Cover and incubate.

Pineapple-Carrot Yogurt

Place 1 tablespoon each drained crushed pineapple and shredded raw carrot in individual yogurt containers. Fill with warm milk/starter mixture to within ½ inch of top. Cover and incubate.

Maple-Nut Yogurt

Place ¼ teaspoon maple extract and 1 tablespoon chopped walnuts in individual yogurt containers. Fill with warm milk/starter mixture to within ½ inch of top. Cover and incubate.

Yogurt Cream Cheese

1 quart whole milk yogurt or lowfat milk yogurt
1/8 teaspoon salt

Line a colander or large sieve with 4 layers of white paper towels. Place yogurt in colander. Cover with 4 more layers of paper towels. Place colander over bowl at least 2 inches deep. Refrigerate at least 8 to 10 hours. As liquid drains, yogurt develops a soft, cream cheese-like consistency. Carefully remove yogurt from paper towels. Place in container; sprinkle with salt. Mix well. Store, covered, in refrigerator up to three weeks. Will yield 1½ cups.