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# Dairy Guidelines

COOPERATIVE EXTENSION SERVICE, V.P.I., BLACKSBURG, VIRGINIA

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## STORE MILK PRODUCTS AT HOME

(A Reference for Homemakers) **VIRGINIA POLYTECHNIC INSTITUTE  
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Concentrated milk products, such as butter, cream, ice cream, cream cheese, and aged cheeses, can be easily made and stored at home where there is an adequate supply of milk. These products contain part or all of the easily digested fats, proteins, sugars, minerals, and vitamins found in whole milk. Since they are concentrated, they are more easily and economically stored than whole milk.

### Important Factors To Be Considered

The quality of the milk from which dairy products are to be made is important. Only fresh, clean, good-flavored milk should be used. Inferior products made from inferior milk spoil quickly.

Products made from pasteurized milk or cream have keeping qualities superior to products made from raw milk or cream. Milk or cream may be pasteurized in the home by either of 2 methods: (1) Heat to 145°F. and maintain this temperature for 30 minutes, then cool; or, (2) Heat to 165°F. and cool immediately. Stir the milk constantly when direct heat is applied to the milk container. Milk or cream pasteurized in double boilers requires little stirring. (See V.P.I. Circular 482, "How Safe Is Your Milk Supply?")

Pasteurization kills 90 to 95% of the bacteria that cause spoilage in raw milk. The heat treatment also inactivates the natural enzymes that cause off-flavors in stored dairy products. When one day's supply of milk or cream is inadequate for processing, a 2- or 3-day accumulated supply of sweet cream or milk may be obtained if each day's supply is pasteurized and cooled before adding it to the accumulated supply.

### Storing Butter

Butter, made from cream that has been ripened to a mild acid flavor, keeps fairly well. If the milk or cream has been pasteurized and a ripened product is desired, add  $\frac{1}{2}$  cup of cultured buttermilk to each gallon of milk or cream to be churned. Set at a temperature of 68 to 70°F. until the desired flavor is obtained. Cool to churning temperature and hold for 2 hours prior to churning.

Butter made from pasteurized sweet milk or cream has keeping qualities superior to that made from ripened cream.

Home Freezer Butter keeps best in frozen storage when held at a constant temperature below 10°F., or better still, below zero degrees. Home freezers and community cold storage lockers usually provide ideal conditions.

Use storage space economically by printing butter in rectangular blocks. Wrap each block or print in parchment paper or plastic film to prevent absorption of off-flavors. Freeze blocks separately (at least 8 to 10 hrs.) and then pack closely, leaving no space between them. Sweet or ripened cream butter will store well at 0°F. for 6 months

Brine Storage If facilities for frozen storage are not available, butter may be stored in brine. Make a saturated brine solution by dissolving 1 part of salt in 3 parts of water.

Wrap rolled or printed butter in parchment paper to prevent them sticking during storage. Pack the butter in earthenware crocks or wooden tubs which have been thoroughly cleaned, scalded, and cooled. Cover the butter completely with the brine solution, and place a weighted lid on top to keep the butter fully immersed. Store in the coolest place available. If butter is kept in a cool cellar during summer, it should be moved in the fall to a place where it will be exposed to winter cold. Properly stored butter will keep for 6 months in brine.

#### Cream Storage

It is necessary to observe all known precautions to prevent development of off-flavors in stored frozen cream. Off-flavors likely to develop are rancid, fishy, oily, and tallowy flavors.

Only fresh, good-flavored sweet cream should be stored. Separate cream from fresh milk in a mechanical separator to a fat content of about 30%. Pasteurize the cream by heating it 160° to 165°F. and holding at that temperature range for 30 minutes. Cool at once by placing the container of cream in ice water. When cold, pour the cream into new plastic-film bags encased in rigid storage containers. Exclude all air from the bags and tie them tightly. Close lids on storage containers and immediately place them in the freezer. Maintain freezer temperatures below 0°F. Frozen cream, if stored properly, will retain its good flavor for several months.

Freezing and thawing of stored cream will destroy the normal butterfat emulsion, and a mass of clear butter oil will appear on the surface of the thawed cream. If the cream is to be used in cooking, or to be whipped, churned, or made into ice cream, this oiling-off is not objectionable.

#### Storing Ice Cream

Ice cream, either commercial or homemade, keeps better for a longer period of time if it is packaged in air-tight containers rather than in regular ice cream containers. Containers that cannot be tightly sealed allow moisture to evaporate from stored ice cream and serious defects in body and texture will develop during prolonged storage. Plastic bags inserted into rigid containers that protect them from puncturing, or rigid plastic containers with tight-sealing lids, are recommended.

Homemade ice cream frozen in a hand freezer has better keeping qualities than ice cream made in refrigerator trays. Ice cream made with fresh fruit juice also keeps its freshness in storage better than plain ice cream.

### Storing Cream Cheese

Cream cheese keeps fairly well in frozen storage if it has been made from a good flavored pasteurized cream. As with stored cream and ice cream, cream cheese must be packaged in tightly sealed containers to protect it from loss of moisture and absorption of off-flavors. Freezing and thawing will, however, cause the texture of the cheese to be slightly grainy and the body slightly loose. However, if the cheese is to be used in cooked foods these slight defects are not objectionable.

Cream cheese, neufchatel, and farm cheeses are easy cheeses to make in the home. Good quality cream cheese will maintain its freshness for 1 to 2 weeks in the refrigerator if properly protected. However, for table use it is best to keep a fresh supply on hand by making small batches weekly.

### Storing Aged Cheeses

The body and texture of American cheese and other aged cheeses is seriously affected by freezing and thawing. The body becomes crumbly and the texture becomes grainy or gritty. However, the flavor is not greatly affected, and the cheese can be used in cooking.

Cheeses that require aging to develop desirable flavors can be stored for a number of months. Temperature of storage, however, has a direct effect on the storage life of the cheese. Warm storage temperatures promote rapid aging, while cold temperatures retard aging. American cheese stored at 45° to 50°F. requires 4 to 6 months to develop a "medium-aged" flavor. The same degree of aging is developed in 4 to 6 weeks at 70°F.

More desirable flavor develops with slow aging of cheese. A temperature between 50° to 60°F. is recommended. When aged to the desired flavor, further aging can be prevented by storing the cheese at temperatures just above freezing (34° to 38°F.). Surfaces of cheeses must be properly paraffined and cleaned often with a damp cloth to prevent growth of mold during storage and aging.

### Recipes for Making Dairy Products at Home

Detailed recipes for making homemade cheeses, butter, cultured milk products, and frozen desserts may be obtained through county Cooperative Extension offices or upon request from the Department of Dairy Science, V.P.I., Blacksburg, Virginia 24061.

