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Preparing Food with Non-Fat Dry Milk

Michigan State University Agricultural Experiment Station

Circular Bulletin

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# Preparing Food with

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Revised February 1957



**MICHIGAN STATE UNIVERSITY**

**Agricultural Experiment Station  
Cooperative Extension Service**

Department of Foods and Nutrition • East Lansing

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# Preparing Food With Nonfat Dry Milk

*By PAULINE PAUL, ARLENE BRILL and SHIRLEY MEANS*

*Revised by MARCILLE PRIDGETON and BETTY TAYLOR*

Milk adds much to the diet of people of all ages. It contains many substances necessary for good nutrition, and is one of the finest and most widely accepted protein sources in our diet. The minerals of milk are important in the diets of growing children and adults. Too often the diets of families contain less milk than is needed for good health and normal growth.

Millions of pounds of fluid skim milk are lost annually because of the lack of a market for the product. In the liquid form the handling of this bulk of fluid is so expensive that it is not commercially practical; the powdered form of defatted milk greatly reduces this bulk. Also, because milk is so high in nutritive value, it is an excellent food for bacteria as well as for human beings. That is the reason milk spoils so easily. In making dry milk, the processing temperature and the removal of water destroy most of the micro-organisms and, therefore, increase the storage life of the product. Milk is easily handled, stored and preserved in the dry form for use during the slack seasons of milk production, for shipment into areas with limited milk production and for commercial use in prepared food items.

Nonfat dry milk is equal in food value to fresh skim milk. By federal definition, "Nonfat dry milk is the product resulting from the removal of fat and water from milk, and contains the lactose, milk proteins, and milk minerals in the same relative proportions as in the fresh milk from which made. It contains not over 5 percentum by weight of moisture. The fat content is not over 1½ percentum by weight unless otherwise specified."

During the war years, the production of dry milks increased considerably. Our army used great quantities of the nonfat dry milk, since the powder form is easy to transport and store and has excellent keeping qualities. The reduced needs of the army and UNRRA

have made much of this annual production available. It is now sold in small packages for home use. The ease and convenience of its use, as well as the high food value, justify its place along with flour, sugar and salt on the pantry shelf.

Two great advantages to the consumer in using nonfat dry milk are:

1. It reduces waste and increases efficiency;
2. It supplies more essential food values at a low cost.

Nonfat dry milk has a high energy value and furnishes material for growth and repair of body tissue. The minerals and vitamins in nonfat dry milk help to improve the nutritional value of the diet at a low cost. By using increased amounts of nonfat milk in the powder form, you can produce a higher nutritional value in a food product than would be possible using fresh fluid skim milk.

If nonfat dry milk is used instead of whole milk in the diet, add certain food materials to replace the fat and fat-soluble materials which have been removed. The use of butter, eggs, cheese, green vegetables, carrots, liver, sweet potatoes and yellow corn will insure that these food materials are present to provide a good balance.

Nonfat dry milk is made by removing water from skim milk through heat treatment. The character of the resulting product depends on the time and temperature of treatment as well as the way in which heat is applied. The nonfat dry milk, which appeared in small packages on the retail market after World War II, was prepared by forcing the milk into a heated chamber in the form of a fine spray.

The heat-evaporated water was removed by forced draft, and the dried milk fell to the bottom of the chamber. This milk, which now can be bought on wholesale markets only, could be used in recipes without consideration of the brand name under which the milk was marketed.

More recently, the industry has developed a number of instantly soluble nonfat dry milk products. Each manufacturer has used a slightly different heat treatment. The result is a number of market products of high solubility but which differ in other characteristics; this limits their interchangeability in certain recipes, especially in baked products. However, in each case, except those recipes for which a weighed quantity is given, you can choose any of the various

commercial brands of milk; and the final product should have acceptable eating quality.

This bulletin was developed to provide recipes for increasing the amount of nonfat dry milk in food products, since many adults and children take less than a desirable amount of fluid milk. Recipes in this booklet have been adapted in accordance with the increase in nonfat dry milk. (In most other recipes available, nonfat dry milk is reconstituted to its fluid milk equivalent according to directions on the package.)

If tenderness or flavor of the product depends upon the fat present in the recipe, add 2 teaspoons of fat for each cup of reconstituted nonfat dry milk.

The most important variable from the standpoint of baking quality is the difference in volume of an ounce of dry milk of the various commercial brands. Thus, in revising this bulletin, certain recipes have been omitted entirely. In others, the measured amount of milk suggested is given as a range of the smallest to the largest volumes of the milks tested, and the equivalent weight of that amount of milk is given in parentheses. For best baking results, weigh the milk. In this revision of the bulletin, all recipes have been retested, using at least three commercial brands of NFDM; all differed in weight to volume relationships.

In most recipes, nonfat dry milk is easiest to use in the dry form. Mix the powder with other dry ingredients, then add the liquid.

This eliminates the use of more equipment for reconstitution, and the results are equally good. Increased amounts can be added to a product where fresh milk is used as the liquid. In a few recipes, such as custards, omelets, chocolate milk and ice creams, it is better to reconstitute the nonfat dry milk before using.

If you are using large amounts in products such as cakes, cookies, or bread, you may have to change the recipe. This may include (1) reducing the flour, (2) reducing the flour and sugar, and (3) slightly increasing liquid or fat. Nonfat dry milk is about half lactose (milk sugar). This may influence the resulting product if the nonfat dry milk is added in large amounts without some change in recipe.

To the average homemaker and mother of growing children, the advantages of nonfat dry milk are: (1) It provides a readily available source of nonfat dry milk, easily stored and convenient to use; (2)

it is an economical way of adding important nutritional values to the diet, and particularly of stepping up the nutritional value of foods over those made with fresh fluid milk; (3) it provides a means of adding milk to the diets of children and adults who accept milk reluctantly in the fluid form; (4) it improves the flavor and the palatability of many products.

## STORAGE

Dry milk may absorb moisture and become lumpy. Therefore, keep it in a tightly closed container and store in a cool place, as high storage temperatures favor the development of off-flavors. Since the fat content of nonfat dry milk is low, the milk does not become rancid readily; and, with a few precautions, it will have a good shelf life.

## USE

It is not usually necessary to reconstitute nonfat dry milk to a fluid before using. You can use it in the dry form by combining with other dry ingredients, adding the water as you would with fluid milk.



Fig. 1. For most recipes, nonfat dry milk is sifted in with other dry ingredients.

Certain dishes require the fluid product, and when nonfat dry milk is reconstituted, it can be used exactly as fluid milk.

### **Methods for Reconstitution:**

Since each commercial brand of nonfat dry milk is different, follow exactly the directions for reconstitution on the package. If you want milk of greater concentration, add more milk to each cupful of water. For instance, if  $\frac{1}{4}$ -cup of nonfat dry milk to 1 cup of water provides milk of standard strength,  $\frac{1}{2}$  cup to the same amount of water would give milk of double strength.

### **Use with Dry Ingredients:**

Measure the desired amount of nonfat dry milk; mix or sift with the other dry ingredients. Combine in recipe as you would normally any dry ingredients, and add water as the liquid.

## **RECIPES**

The recipes below are intended to provide more nonfat dry milk than would be present if the milk were reconstituted to the consistency of fluid skim milk. Because of the differences in commercial brands of milk, the amount of additional nonfat dry milk needed will vary with the commercial brand used.

### **SPLIT PEA SOUP**

|                          |                     |
|--------------------------|---------------------|
| 2 cups split peas        | 2 tablespoons flour |
| 2 quarts water           | 1 cup NFDM          |
| 1 large onion, sliced    | 2 cups water        |
| 4 tablespoons shortening | 2 teaspoons salt    |
|                          | Dash of pepper      |

Wash and sort peas, soak overnight in 1 quart water. The next morning, add 1 more quart water and the onion; cover and simmer for  $1\frac{1}{2}$  hours, or until peas are soft. Press through sieve, saving all liquid. Melt shortening in pan; add flour and NFDM; and mix. Add 2 cups water slowly, stirring until smooth. Cook over low heat until thickened. Add pea pulp and liquid and seasonings, and heat thoroughly. Serves eight.



### CREAM OF VEGETABLE SOUP

|                                     |              |
|-------------------------------------|--------------|
| 1 cup diced raw or cooked vegetable | 1 cup NFDM   |
| 2 tablespoons chopped onion         | 2 cups water |
| 2 tablespoons chopped celery        | Salt         |
| 2 tablespoons shortening            | Pepper       |
| 2 tablespoons flour                 |              |

Saute vegetables, onion and celery in shortening over low heat for 10 minutes. Mix flour and NFDM; add water slowly to make a smooth paste. Add to vegetables, place over boiling water, and cook 30 minutes. Season to taste, and serve hot. Serves four.

### CORN CHOWDER

|   |                               |
|---|-------------------------------|
| 4 cups diced raw potatoes                   | 1 cup NFDM                    |
| 2 cups boiling water                        | 2 cups water                  |
| 4 tablespoons diced salt pork               | 1½ teaspoons salt             |
| 1 onion, chopped                            | Dash of pepper                |
| 2 cups canned, fresh or frozen corn kernels | 2 tablespoons chopped parsley |

Cook potatoes in 2 cups water for 10 minutes. Saute salt pork and onion gently for 5 minutes or until pork is crisp; add to potatoes. Add corn, and cook gently until potatoes are done. Mix NFDM to a smooth paste with 2 cups water; add paste, salt and pepper to the soup. Heat thoroughly over boiling water; add chopped parsley, and serve. Serves six to eight.

### MEAT LOAF

|                     |                        |
|---------------------|------------------------|
| 1 cup NFDM          | 1 small onion, chopped |
| 1 cup breadcrumbs   | 1½ teaspoons salt      |
| 1 pound ground beef | ⅛ teaspoon pepper      |
| ½ pound ground pork | 1 cup water            |
| ½ pound ground veal |                        |

Mix NFDM and breadcrumbs. Add to ground meat, and mix. Add chopped onion, salt, pepper and water; mix thoroughly. Place in loaf pan, and bake in moderate oven (350° F.) 1 hour or until done. Serves six to eight.

The kind and proportion of ground meat and seasonings can be varied to taste.

## SCALLOPED POTATOES

$\frac{1}{4}$  cup flour  
2 teaspoons salt  
 $\frac{1}{16}$  teaspoon pepper  
1 cup NFDM

4 large potatoes, peeled and sliced  
1 tablespoon butter  
2 cups water

Combine flour, salt, and pepper. Dissolve NFDM in water. Place one-third of the potatoes in casserole, sprinkle one-half of the flour mixture over potatoes; add another one-third of the potatoes; then add remainder of flour mixture and the remainder of the potatoes. Add reconstituted nonfat dry milk; dot top with butter, and bake in moderate oven ( $350^{\circ}$  F.) for 1 to  $1\frac{1}{2}$  hours, or until potatoes are done. Cook covered first hour. Serves six to eight.



Fig. 2. Meat loaf and scalloped potatoes form the basis for a hearty meal.

## CHEESE SOUFFLE

|                  |  |
|------------------|--|
| ¼ cup shortening | Few grains cayenne                                   |
| ¼ cup flour      | ½ cup grated cheese                                  |
| ½ cup NFDM       | 3 egg yolks, beaten until thick and<br>lemon colored |
| 1 cup water      | 3 egg whites, stiffly beaten                         |
| ½ teaspoon salt  |  |

Melt shortening, add flour and NFDM, and mix thoroughly. Add water gradually; cook over low heat until thickened, stirring constantly. Add salt, cayenne and cheese; and continue to cook slowly until cheese is melted. Remove from fire, and stir in egg yolks. Fold into beaten egg whites. Turn into greased baking dish; set in pan of hot water, and bake in slow oven (325° F.) 45 minutes, or until set. Serve at once. Serves six.

## FISH FONDUE

|                                   |                              |
|-----------------------------------|------------------------------|
| 1 tablespoon chopped green pepper | ¾ teaspoon salt              |
| 2 tablespoons shortening          | Dash of pepper               |
| ¾ cup NFDM                        | ¼ cup grated cheese          |
| 2 cups breadcubes                 | 2 cups flaked cooked fish    |
| 1¼ cups hot water                 | 1 tablespoon lemon juice     |
| 3 egg yolks, well beaten          | 3 egg whites, stiffly beaten |
| ¼ teaspoon grated onion           |                              |

Saute green pepper gently in shortening in top of double boiler. Combine NFDM and bread; add to green pepper. Add water slowly, stirring well. Add egg yolks, onion, salt, pepper and cheese. Place over boiling water, and cook until thickened. Remove from heat; add fish and lemon juice. Fold into egg whites. Turn into greased casserole; place in pan of hot water; bake in moderate oven (350° F.) 1 hour, or until set. Serve at once. Serves six.

## FISH MOUSSE

|                             |                              |
|-----------------------------|------------------------------|
| 1 pound fish, raw or cooked | Dash of pepper               |
| 2 tablespoons shortening    | ¼ cup water                  |
| 1 tablespoon flour          | 2 egg yolks, well beaten     |
| 2 tablespoons NFDM          | ¾ cup whipped NFDM           |
| ¼ teaspoon dry mustard      | 2 egg whites, stiffly beaten |
| ½ teaspoon salt             |                              |

Grind fish if raw; flake if cooked. Melt shortening in saucepan; add flour, NFDM, mustard, salt, and pepper; mix well. Add water;

cook slowly until thickened, stirring constantly. Remove from fire. Stir in egg yolks, then fold in whipped NFDM, fish and egg whites. Turn mixture into greased casserole; set in pan of hot water, and bake in moderate oven (350° F.) 1 hour, or until set. Serve at once. Serves six.

### COOKED CEREAL

| Cereal            | Cereal | Water | NFDM  | Salt       | Cooking time |
|-------------------|--------|-------|-------|------------|--------------|
| Cream of Wheat .. | ¼ cup  | 1 cup | ¼ cup | ¼ teaspoon | 5 min.       |
| Cornmeal.....     | ¼ cup  | 1 cup | ¼ cup | ¼ teaspoon | 10 min.      |
| Oatmeal.....      | ¼ cup  | ¾ cup | ¼ cup | ¼ teaspoon | 15-20 min.   |

Mix cereal and NFDM. Add water slowly, stirring to prevent lumping. Cook required length of time. These amounts make two servings.

### COCOA MIX

½ cup sugar  
 ½ to ¾ cup cocoa

3 cups NFDM  
 ⅛ teaspoon salt

Combine sugar, cocoa, NFDM, and salt. Store in covered container. To make beverage, use ½ cup mixture and 1 cup water. (½-cup cocoa makes beverage of average strength. For stronger flavor, use ¾-cup cocoa.) Add water gradually, stirring until smooth. Bring to a boil over low flame, stirring constantly; then place over boiling water and cook 15 minutes. Beat until frothy with rotary eggbeater just before serving.

### CHOCOLATE MILK

Chocolate sirup:

¼ cup sugar  
 Dash salt  
 ½ cup hot water

1 square chocolate, melted  
 ¼ teaspoon vanilla

Add sugar, salt, and water to melted chocolate. Mix well. Boil gently 5 minutes, stirring occasionally. Cool, and add vanilla. Pour into jar; cover, and keep in cool place.

### Beverage:

Mix  $\frac{1}{4}$ -cup sirup with  $\frac{1}{2}$ -cup NFDM. Stir water into NFDM. Add chocolate sirup and stir well. Makes one glass.

### MILKSHAKE

2 cups chocolate milk                       $\frac{1}{2}$  cup vanilla ice cream

Shake in a beverage mixer or beat with rotary eggbeater until foamy.

### EGGNOG

1 egg, well beaten                      Few grains salt  
 $\frac{1}{2}$  cup NFDM                              1 cup water  
1 tablespoon sugar                       $\frac{1}{4}$  teaspoon vanilla

Add NFDM, sugar and salt to egg; mix until smooth. Add water slowly, beating with rotary eggbeater until foamy. Add vanilla; chill, and serve. Makes one glass.

### BREAD

4 to 5 cups all-purpose flour              4 tablespoons sugar  
 $1\frac{1}{2}$  cups NFDM                              2 teaspoons salt  
2 cups warm water                        4 tablespoons shortening  
1 to 2 cakes compressed yeast or      1 egg (if desired)  
1 package active dry yeast

Sift NFDM with 2 cups flour. Soften yeast with a small amount of lukewarm water. Heat remaining water until hot; pour over sugar, salt and shortening. Allow to cool. When lukewarm, add softened yeast and flour-NFDM mixture. If egg is used, add at this time. Add enough more flour to give a dough which can be handled. Allow to rest 5 to 10 minutes. Knead until elastic and smooth (about 5 minutes). Place in greased bowl; lightly grease top, and cover. Keep at 80 to 85° F. until double in bulk. Shape in rolls or loaves, and place in lightly greased pans. Let rise. Bake at 375° F. for  $1\frac{1}{4}$  hours for loaf or 35 minutes for rolls. Makes two loaves 8 by 4 by 3 inches.

### WHOLE WHEAT BREAD

3 teaspoons salt                              1 cake yeast or  
3 tablespoons honey                        1 package active dry yeast  
 $2\frac{1}{2}$  tablespoons dark molasses            1 cup NFDM  
 $\frac{1}{4}$  cup shortening                              6 to  $6\frac{1}{2}$  cups whole wheat flour  
2 cups hot water

Mix salt, honey, molasses, and shortening. Add hot water; cool to 80° F. Mix yeast with a little of this cooled mixture. Add to the rest of the contents of the bowl. Add NFDM and one-half of the flour. Stir until smooth. Continue adding flour until mixture is stiff enough to knead. Knead until smooth. Place in lightly greased bowl, and allow to double in bulk. Keep at about 80° F. for best rising. Knead about 2 minutes; let rise again. Knead and place in loaf pans. Let rise until double. Bake at 425° F. for 15 minutes; reduce to 350° F. for a total baking time of 45 to 50 minutes. Makes two loaves 8 by 4 by 3 inches.



Fig. 3. A variety of breads, rolls, and hot breads, all containing increased nonfat dry milk.

## SWEET ROLLS

|                        |                                 |
|------------------------|---------------------------------|
| 1 cake yeast           | 4 to 4½ cups flour              |
| 1½ cups lukewarm water | 1 cup NFDM                      |
| 1 teaspoon salt        | 1 cup chopped fruit and nuts    |
| 2 tablespoons sugar    | 2 tablespoons melted shortening |

Soften yeast in water. Sift NFDM with 2 cups of flour. Add salt, sugar, shortening, chopped fruit and nuts, NFDM, and flour to yeast-water mixture; mix thoroughly. Then add enough more flour to make a smooth dough. Turn out on floured board, and knead until smooth and elastic. Turn into lightly greased bowl; grease top, and let stand until double in bulk. Knead down. Cut dough into small pieces. Shape into balls; dip in additional melted shortening, and place in greased muffin tins. Let rise again until double in bulk; then bake in a hot oven (400° F.) 25 to 30 minutes.

## RAISIN COFFEE CAKE

|                                     |                               |
|-------------------------------------|-------------------------------|
| 1½ cups all-purpose flour           | ⅓ cup shortening              |
| ⅓ to ½ cup NFDM (35 grams or 1 oz.) | 1 egg, well beaten            |
| 2½ teaspoons baking powder          | ½ cup water                   |
| ½ teaspoon salt                     | ¼ cup chopped raisins         |
| 3 tablespoons sugar                 | 1 teaspoon grated orange rind |

### Topping:

|                      |                     |
|----------------------|---------------------|
| 2½ tablespoons sugar | ¼ teaspoon cinnamon |
| ⅛ teaspoon nutmeg    |                     |

Sift flour, NFDM, baking powder, salt, and sugar together. Cut in shortening. Combine egg, water, raisins, and orange rind; add to dry mixture, stirring just enough to form soft dough. Spread in greased, 9- by 9- by 3-inch pan. Combine topping ingredients; sprinkle over dough in pan. Bake in hot oven (400° F.) 15 to 20 minutes.

## BISCUIT MIX

|                             |                  |
|-----------------------------|------------------|
| 7½ cups flour               | 3 teaspoons salt |
| 1½ cups shortening          | 1½ cups NFDM     |
| 3 tablespoons baking powder |                  |

Proportions of liquid to use: ¼- to ⅓-cup water to 1 cup mixture; for total mixture, 3 to 3½ cups warm water.

Sift the dry ingredients together very thoroughly, and cut in the fat with pastry blender, knives or fingers. Place in a container which can be tightly closed. Store in refrigerator.

When ready to use, measure the amount desired into bowl. Make a shallow well in center of mixture, add the water slowly, and stir from the center with a fork until ingredients are moistened and soft dough is formed. Remove from bowl to lightly floured board. Knead for a few seconds until smooth; then roll out until  $\frac{1}{2}$ - to  $\frac{3}{4}$ -inch thick. Cut into small rounds and bake in hot oven ( $400^{\circ}$  F.) for 12 to 15 minutes. Serve at once. Two cups mixture plus  $\frac{1}{2}$ - to  $\frac{2}{3}$ -cup of water make about 14 2-inch biscuits.

#### MUFFINS

|                           |                              |
|---------------------------|------------------------------|
| $1\frac{1}{2}$ cups flour | $\frac{1}{2}$ teaspoon salt  |
| $\frac{1}{4}$ cup sugar   | $\frac{1}{2}$ cup water      |
| $\frac{1}{3}$ cup NFDM    | 1 egg, well beaten           |
| 2 teaspoons baking powder | $\frac{1}{4}$ cup melted fat |

Sift dry ingredients together. Add water to beaten egg and melted fat; mix thoroughly. Combine liquid and dry ingredients, stirring only enough to dampen. Drop into greased muffin tins, and bake in hot oven ( $400^{\circ}$  F.) 15 to 20 minutes. Makes 12 medium-sized muffins.

#### GRIDDLECAKES

|  |                                 |
|--|---------------------------------|
| $1\frac{1}{2}$ cups flour              | 1 egg, well beaten              |
| $1\frac{1}{2}$ teaspoons baking powder | 1 cup water                     |
| $\frac{1}{2}$ teaspoon salt            | 2 tablespoons melted shortening |
| $\frac{1}{2}$ cup NFDM                 |                                 |

Sift flour, baking powder, salt, and NFDM together twice. Combine egg, water, and shortening. Add to flour mixture; stir gently until blended. Bake on a hot, greased griddle. Makes 24 small or 12 large griddlecakes. This recipe is for a thick batter, and it makes thick griddlecakes.

#### POPOVERS

|                             |                                |
|-----------------------------|--------------------------------|
| 1 cup sifted flour          | 2 eggs, well beaten            |
| $\frac{1}{2}$ teaspoon salt | $1\frac{1}{4}$ cups water      |
| $\frac{1}{2}$ cup NFDM      | 1 tablespoon melted shortening |

Sift flour, salt, and NFDM together. Combine eggs, water, and shortening. Add dry mixture, and beat with rotary eggbeater until smooth. Fill lightly-greased deep muffin tins or custard cups one-third full. Bake 20 minutes in a hot oven ( $400^{\circ}$  F.); then reduce heat to moderate ( $350^{\circ}$  F.), and continue baking for 20 minutes. Makes six to eight popovers.



## PUDDING MIX

1½ cups sugar  
1½ cups cornstarch

1 teaspoon salt  
7 cups NFDM

Combine ingredients thoroughly, and store in covered container. To prepare pudding, use ¾-cup pudding mix to 1¼ cups water. Add water gradually, stirring until smooth. Bring to a boil over gentle heat. Add 1 teaspoon butter and ¼ teaspoon vanilla. Makes three to four servings.

For variations, to ¾-cup mix and 1¼ cups water, add:

1. 1 square bitter chocolate, ¼ teaspoon vanilla;
2. ¼ teaspoon vanilla and 1 teaspoon butter;
3. ¼ cup chopped fruit, fresh, canned or dried;
4. ¼ cup cinnamon drops or crushed peppermint candies;
5. ¼ cup chopped nuts;
6. ½ cup toasted cake cubes;
7. ¼ cup toasted cocoanut.



Fig. 4. Make your own prepared pudding mix and keep it on the shelf, ready to whip up into a pudding which can be served in many different ways.

If desired, pudding can be served with topping of chocolate or butterscotch sauce, honey, jam or whipped cream. Or pudding can be used to fill pie or tart shells, or as filling between layers of cake. Consistency of pudding can be varied to taste by increasing or decreasing the amount of water added.

### QUICK RICE PUDDING

|                                 |                              |
|---------------------------------|------------------------------|
| 2 egg yolks, beaten until light | ¼ teaspoon salt              |
| ½ cup sugar                     | 2 egg whites, stiffly beaten |
| 1 cup NFDM                      | ½ teaspoon vanilla           |
| 2 cups water                    | 1 tablespoon butter          |
| 1 cup cooked rice               |                              |

Mix egg yolks, sugar, and NFDM. Add water gradually, stirring until smooth. Add rice and salt. Cook in double boiler over boiling water until thickened. Remove from heat; fold in egg whites, vanilla and butter. Serves six.

### CUSTARD

|                     |                    |
|---------------------|--------------------|
| ½ cup NFDM          | 1½ cups water      |
| 3 tablespoons sugar | 1 teaspoon vanilla |
| Few grains salt     | ¼ teaspoon nutmeg  |
| 2 eggs              |                    |

Beat eggs slightly. Mix sugar and NFDM; add to eggs, and mix. Add water; beat gently with rotary eggbeater until mixture is smooth. Flavor baked custards before baking. Flavor soft custards after slightly cooled.

#### Soft Custard

Cook over hot water, stirring constantly until thickened enough to coat the spoon. As soon as done, remove from hot water. Cool slightly; flavor. If custard should curdle from overcooking or insufficient stirring, beat with a rotary eggbeater.

#### Baked Custard

Set baking dish in pan of hot water. Bake in moderate oven (350° F.) until custard is firm. Remove at once to avoid overcooking.

## ICE CREAM

|                 |                        |
|-----------------|------------------------|
| ½ cup sugar     | 1 egg, slightly beaten |
| ½ cup NFDM      | 2 cups light cream     |
| ⅛ teaspoon salt | 1½ teaspoons vanilla   |
| 1 cup water     |                        |

Mix sugar, NFDM, and salt. Add water gradually. Stir in egg. Cook over low heat until mixture coats a spoon. Cool. Add cream and vanilla. Freeze, using eight parts of ice to one part salt as freezing mixture; or turn into refrigerator tray, freeze until mushy, take out and stir until smooth, return to refrigerator, and finish freezing. Makes 1 quart.

## ORANGE CREAM SHERBET

|                   |                             |
|-------------------|-----------------------------|
| 1½ cups sugar     | ¼ cup lemon juice           |
| ½ cup NFDM        | 1½ cups orange juice        |
| ½ cup water       | 1 egg white, stiffly beaten |
| 1 cup light cream |                             |

Mix sugar and NFDM; add water gradually, then add other liquids. Turn into refrigerator tray; freeze until mushy. Take out; beat until smooth but not melted. Fold in egg white; return to refrigerator and finish freezing. Makes about 1 quart sherbet.

For hand freezer, combine ingredients in order given, folding in egg white at the last. Turn into freezer, and freeze in mixture of eight parts of ice to one part of salt.

## PASTRY

|                 |                          |
|-----------------|--------------------------|
| 1½ cups flour   | ½ cup shortening         |
| ½ teaspoon salt | 3 to 4 tablespoons water |
| ½ cup NFDM      |                          |

Sift flour, salt, and NFDM together. Cut in shortening. Add enough water to form stiff dough. Roll on lightly floured board. Fit into pan; bake in moderately hot oven (375° F.) until browned. Best suited to one-crust pies and tart shells.

All pastry made with NFDM is crumbly rather than flaky immediately after baking; it will be more tender after 24 hours of storage.

## PUMPKIN PIE

|                     |                             |
|---------------------|-----------------------------|
| 1 cup NFD           | ½ teaspoon cloves           |
| ½ cup sugar         | 1⅓ cups cooked pumpkin pulp |
| ½ teaspoon salt     | 3 eggs, well beaten         |
| 1 teaspoon cinnamon | ¼ cup light molasses        |
| 1 teaspoon nutmeg   | 1⅓ cups boiling water       |
| 1 teaspoon ginger   | 1 tablespoon butter         |

Mix dry ingredients thoroughly. Add pumpkin, eggs and molasses; stir until smooth. Add water, and mix. Turn into 9-inch pie plate lined with pastry; bake in a moderate oven (350° F.) 1 hour, or until filling is set.

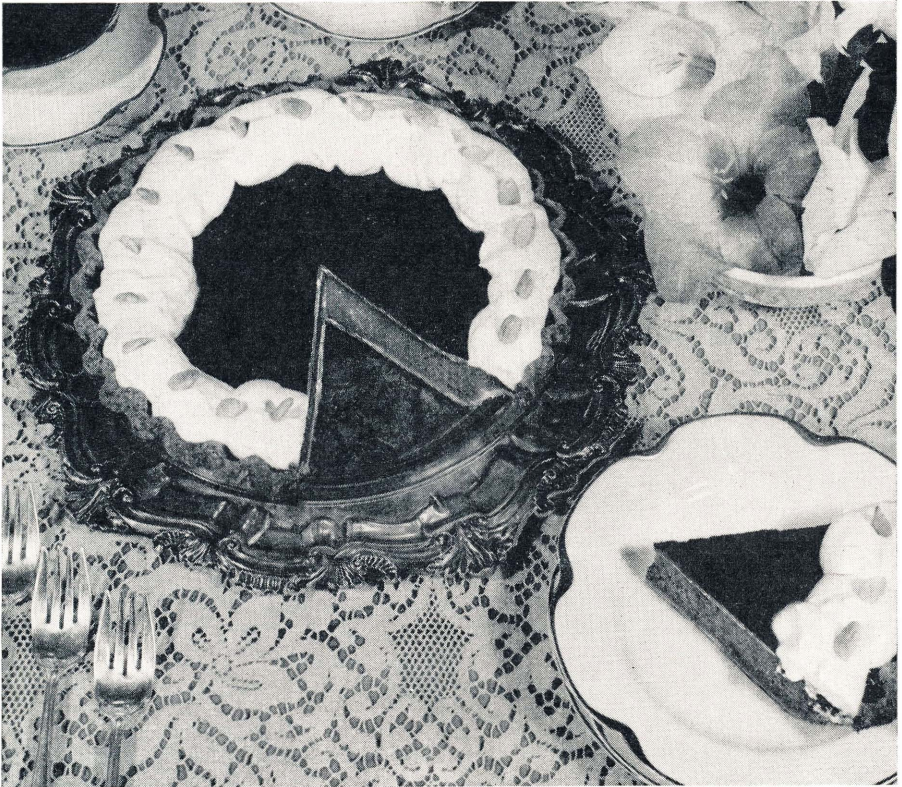


Fig. 5. Spicy pumpkin pie with whipped nonfat dry milk and toasted nuts.

## CHOCOLATE CREAM PIE

2 squares chocolate  
½ cup sugar  
¼ cup water  
6 tablespoons flour  
¼ teaspoon salt  
1 cup NFD  
2 cups water

3 egg yolks, slightly beaten  
1 tablespoon butter  
1½ teaspoons vanilla  
1 baked 9-inch pie shell  
3 egg whites  
¼ cup sugar

Combine chocolate, ¼-cup sugar and ¼-cup water in saucepan. Cook 5 minutes, stirring constantly. Combine flour, ¼-cup sugar, salt, and NFD in top of double boiler. Add 2 cups water gradually, stirring until smooth. Add chocolate mixture. Cook over boiling water until well thickened, stirring frequently. Pour small amount of hot mixture into egg yolks and stir well. Return all to double boiler; blend. Cook 2 minutes longer. Remove from boiling water; add butter and vanilla; cool, and turn into baked pie shell. Top with meringue made of three egg whites and remaining ¼-cup sugar. Bake in a moderate oven (350° F.) 15 minutes until delicately browned.

## WHIPPED NFD

¾ cup water

¾ cup NFD

Combine gradually; stir until smooth. Scald in double boiler for 3 minutes. Chill thoroughly, and whip. Flavor to taste with sugar and vanilla. Whipped NFD is not uniformly successful with all brands of milk. It is recommended that the homemaker experiment with this product.

## GINGERBREAD

¼ cup shortening  
½ cup sugar  
1 egg, well beaten  
1½ cups flour  
⅛ teaspoon salt  
⅓ to ½ cup NFD (35 grams or 1 oz.)

1 teaspoon ginger  
1 teaspoon cinnamon  
1 teaspoon soda  
½ cup water  
½ cup molasses

Cream shortening; add sugar gradually, and cream thoroughly. Add egg, and beat well. Sift the remaining dry ingredients together; add to creamed mixture alternately with water and molasses. Beat until smooth after each addition. Turn into greased 8- by 8- by 2-inch pan. Bake in moderate oven (350° F.) 30 to 40 minutes.

## SPICECAKE

|                            |                  |
|----------------------------|------------------|
| 2¼ cups cake flour         | ½ cup NFDM       |
| 2½ teaspoons baking powder | ½ cup shortening |
| ¼ teaspoon salt            | 1 cup sugar      |
| 1 teaspoon cinnamon        | 2 eggs           |
| ½ teaspoon mace            | ⅓ cup molasses   |
| ¼ teaspoon cloves          | ¾ cup water      |

Sift flour, baking powder, salt, spices, and NFDM together. Cream shortening; add sugar gradually, and cream until light and fluffy. Add eggs, one at a time, and beat thoroughly. Add flour mixture alternately with molasses and water, beating well after each addition. Bake in two greased 8-inch layer pans in a moderately hot oven (375° F.) for 20 to 25 minutes, or until done.

## CHOCOLATE FROSTING

|                              |                              |
|------------------------------|------------------------------|
| 1¾ cups confectioner's sugar | 4 to 6 tablespoons hot water |
| 2 squares chocolate          | 1 egg                        |
| ¾ cup NFDM                   | 2 tablespoons soft fat       |
| ¼ teaspoon salt              |                              |

Add hot water to NFDM; stir well; add melted chocolate and egg. Beat well. Add sifted confectioner's sugar and salt. Blend. Add soft shortening. Beat well.

## BUTTERSCOTCH COOKIES

|                           |                      |
|---------------------------|----------------------|
| 1¼ cups flour             | ¾ cup sugar          |
| 2 teaspoons baking powder | 1 egg or 2 egg yolks |
| ½ cup NFDM                | 3 tablespoons water  |
| ½ teaspoon salt           | ½ teaspoon vanilla   |
| ⅓ cup melted shortening   |                      |

Sift flour, baking powder, NFDM, and salt together. Stir sugar, egg, water, and vanilla into softened shortening. Add flour mixture; blend. Drop from spoon on greased cookie sheet, bake in moderate oven (375° F.) 8 to 10 minutes. Yields 3 dozen.



Fig. 6. Fancy cookies for dessert. Have plenty for the children too, with increased nonfat dry milk to bring up the milk content of their diet.

#### OATMEAL RAISIN COOKIES

6 tablespoons shortening  
 1 cup brown sugar  
 1 egg  
 1 cup flour  
 ½ cup NFDM  
 ¾ teaspoon salt  
 ½ teaspoon soda

¼ teaspoon cinnamon  
 ¼ teaspoon allspice  
 ¼ cup water  
 ½ teaspoon vanilla  
 2 cups oatmeal  
 1 cup raisins

Cream shortening and sugar thoroughly. Add egg, and beat well. Sift dry ingredients together. Add to the creamed mixture. Stir in water and vanilla, then oatmeal and raisins. Drop from teaspoon onto greased cookie sheet. Bake in a moderately hot oven (375° F.) 12 minutes. Makes 4 dozen cookies.

## SOFT MOLASSES COOKIES

|                       |                      |
|-----------------------|----------------------|
| 3 cups flour          | 1½ cups brown sugar  |
| 1½ teaspoons soda     | 1 egg                |
| ½ teaspoon salt       | ½ cup molasses       |
| ¾ cup NFDM            | 1 cup water          |
| 1½ teaspoons ginger   | 1 tablespoon vinegar |
| 1½ teaspoons cinnamon | ½ teaspoon vanilla   |
| ½ cup shortening      |                      |

Sift flour once; measure; add soda, salt, and spices; and sift together three times. Cream shortening; add sugar gradually; and cream until light and fluffy. Add egg, and beat well. Add molasses; mix. Dissolve NFDM in water. Add flour mixture alternately with reconstituted nonfat dry milk and vinegar, mixing well after each addition. Add vanilla. Chill until firm. Drop from teaspoon onto lightly greased baking sheet. Bake in hot oven (400° F.) 12 to 15 minutes. Makes 7 dozen cookies.