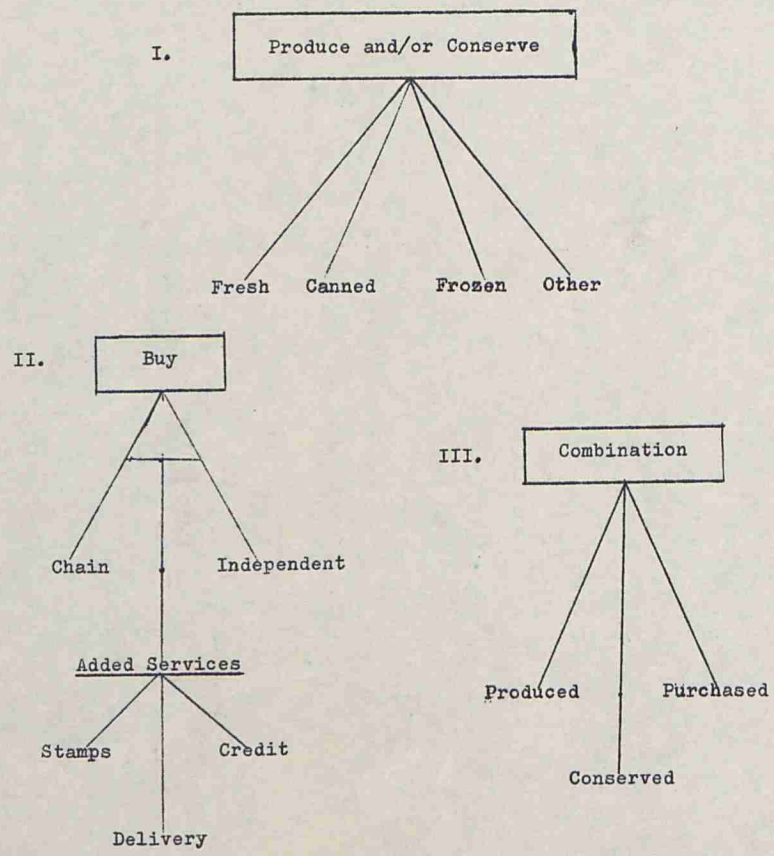
Food Conservation

FAMILY FOOD SUPPLY

A person eats per year approximately 200 quarts of fruits and vegetables, 200 pounds of meat, poultry and fish in addition to eggs, dairy products, breads etc. We also eat about 25 quarts of pickles, relishes, preserves and jellies. For these foods we are spending about 20% of our income. Low income families are spending a considerably higher percentage.

How may these foods be supplied for your family? Planning in advance will pay dividends whether the food is produced at home or bought.



I. Produce and/or Conserve

... Approximately 1/10 acre, properly managed, is sufficient to produce enough vegetables and fruits for one year per person.

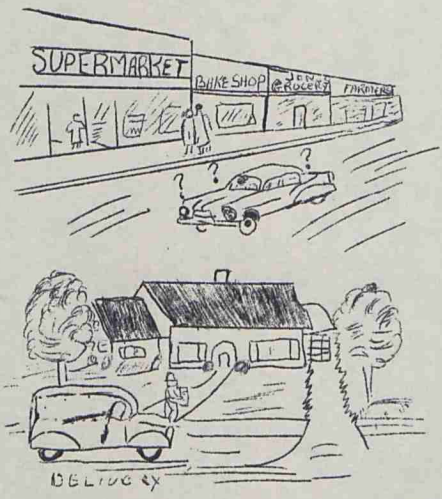
... What equipment is available for conserving food at home? Freezer, pressure canner? What size? Pressure canners should be tested for accuracy.

... What facilities are available for storage? Convenience of freezer and canned food storage are important.

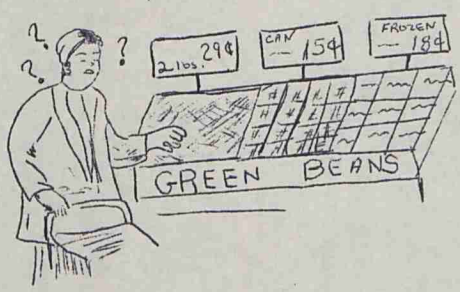
II. Buy

... Where - There is a right place to buy for quality, variety, dependability, and economy. Is this market also convenient, have ample parking, are employees courteous, does it provide credit, delivery, etc.?

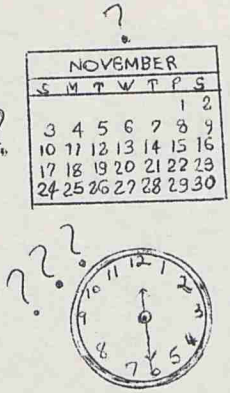
Prices vary from store to store and item to item. Food advertisements often help the shopper. Newspaper, radio, TV offer helpful information to assist the food buyer. Decisions, however, must be made based on the nutritional, financial, and other needs of the family.



... Form - Most foods may be purchased in a variety of forms. In order to meet the requirements of the family for use, quality, convenience, economy, it is wise to consider the product fresh, frozen, canned ----others. Pre-cooked foods often cost more. Are time and convenience more important than the money saved?



... When - Better buys are usually available when the grocer's stock is largest. There is a better selection and quality and prices are usually better. Many stores do their largest volume of business in late afternoon and early evening. There has been a shift from late to early weekend shopping. Determine the best days and time for your market. There are also seasons of the year that certain items may be purchase d cheaper. (i.e. canned food s when supply fresh and conserved is large).



... How Much - quantity buying usually reduces the per unit cost. In order for these to be good buys the shopper must consider storage (is storage ample and does the product store well?), convenience, use, family needs.

... Quality - a wise food shopper buys foods with a use in mind. Money may be saved without sacrificing food value if this is kept in mind. Powdered milk and Grade B eggs may be used in cooking and they save on the food budget.

III. Combination - The food supply of many families today is a combination of home produced and conserved and purchased foods. Space and labor for produced and conserved food, time of the homemaker, location, needs of family members, and money available are factors usually considered in determine the best choice of the family.

Some consumers are better food shoppers than others because they put good buying habits into practice in order to meet the nutritional and financial needs of the family. Either consciously or unconsciously many factors that affect good buying practices are considered. These factors, with some practice, are easily identified and the food shopper is wise to consider them in making buying decisions. Considered together, they mean greater satisfaction to the family both nutritionally and dollar wise.

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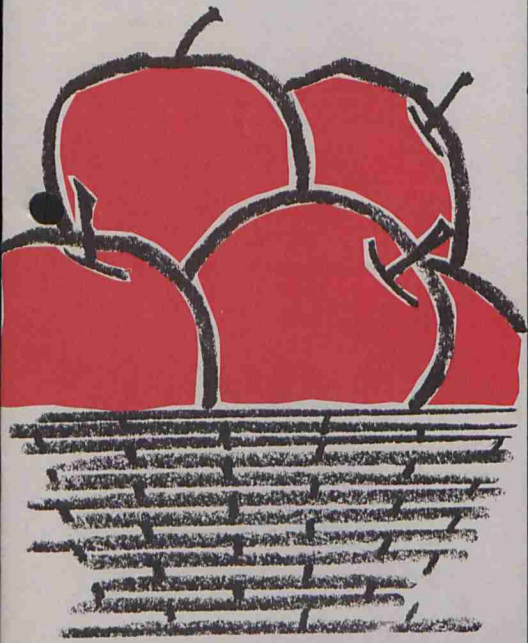
Agricultural Extension Service
September, 1963 Raleigh, N. C.

Good Apple Recipes



Apples are the most important fruit crop in North Carolina. Production is centered around five distinct areas. These are, in the order of volume of production: Henderson area, Brushy Mountain area with Wilkesboro as the center, Haywood area with Waynesville as the center, Mt. Mitchell area with Bakersville as the center, and the newest, the Cleveland-Lincoln-Gaston-Catawba area.

Annual production is close to three million bushels and is increasing each year; by 1966 five million bushels seem possible.

The 1961 production was 36 percent Rome Beauty, 32 percent Red Delicious, 13 percent Stayman, 10 percent Golden Delicious and 9 percent for all others.

Research reports from England, Russia and the United States point out the health benefits of apples in the diet. Read these for more details.

This publication is prepared for your use in making apples part of your daily menu. Try the fresh, dried, canned or frozen apples in your favorite dish.

APPLE SAUCES

Apple Sauce With Coconut

2 cups apple sauce, sweetened to taste
6 drops red food coloring
1 cup grated or flaked coconut

Combine apple sauce, coloring and one-half coconut. Mix well. Top with remainder of coconut.

Orange-Apple Sauce

2 cups apple sauce, sweetened to taste
Juice of 2 oranges
1 tablespoon grated orange rind

Combine all ingredients, mix well.

Spiced Apple Sauce

2 cups apple sauce
½ cup brown sugar
¼ teaspoon ground nutmeg
½ teaspoon ground cinnamon
2 tablespoons butter or margarine

Combine all ingredients, bring to boil. Simmer 5 minutes. Serve hot. Very good served on hot pancakes or waffles.

Ham-Apple Sauce Casserole

2 cups lean baked ham (ground)
½ cup dry bread crumbs
1 teaspoon prepared mustard
¼ teaspoon salt
2 eggs
1 tablespoon butter or margarine
2 cups apple sauce, sweetened to taste
¼ teaspoon ground cloves
½ teaspoon ground cinnamon

Grind cooked ham with coarse blade of meat grinder (or chop in blender or with knife). Add bread crumbs, mix well. Add beaten eggs and salt. Shape meat mixture into patties. Fry slowly in a small amount of fat until golden brown on both sides. Put meat patties in casserole which has been greased with the butter or margarine. Mix apple sauce, cloves and cinnamon. Put around and over the meat patties. Place in oven at 350°. Bake until apple sauce is hot. Serve at once. Serves 4 to 6.

Apple Upside Down Cake

½ stick margarine or butter
1 cup brown sugar
¼ cup raisins
2½ cups diced apples
1 package jiffy cake mix (Spice)

Melt butter in baking dish, sprinkle raisins, arrange apples in pattern fashion. Follow directions on box for mixing cake mix. Cover apples with cake mixture. Bake at 350° for 30 minutes. Turn out of pan. Serve upside down or with fruit mixture on top.

Apple-Sauce Cream

1½ cups apple sauce
1 cup thin cream
1/3 cup sugar
1/4 cup lemon juice

Combine ingredients, stirring until sugar is dissolved. Pour into freezing tray and freeze at the coldest refrigerator temperature until firm.
Turn into chilled bowl and beat smooth. Return quickly to tray; freeze. Four servings.

* * * * * *

Apple-Turkey Salad

1 envelope unflavored gelatin
¼ cup cold water
1¾ cups apple juice
¼ cup cider vinegar
¼ cup sugar
½ teaspoon salt
3 cups chopped cooked turkey (or chicken)
1 cup diced celery
1 cup diced raw apples
Salad greens
Mayonnaise

Soften gelatin in cold water. Heat together apple juice, vinegar, sugar and salt; add gelatin, stirring until dissolved. Cool until syrupy; add turkey (or chicken), celery and diced apples. Pour into 1 quart mold, which has been rinsed in cold water. Chill until firm. Unmold on salad greens. Serve with mayonnaise. Makes 6 servings. Serve as a main dish for lunch or supper.

Apple Pancake Syrup

—the syrup to make a pancake famous

1¼ cup apple juice
2 sticks cinnamon
12 whole cloves
½ cup sugar
2 tablespoons light corn syrup

Combine apple juice, cinnamon, broken in pieces, and cloves; cover, simmer 10 minutes. Strain. There should be ¾ cup juice. Combine apple juice, sugar and corn syrup; bring to boil; boil briskly 4-6 minutes. Cool slightly to serve warm on pancakes.

Apples on a Stick

6 red apples
6 wooden skewers
1 cup sugar
Few drops red vegetable coloring
Few drops cinnamon or peppermint flavoring
½ cup water

Wash and dry apples; remove stems. Insert skewers in stem end of apples. Have apples at room temperature. Combine sugar, sirup, water, and red coloring in saucepan. Cook over medium heat, stirring constantly until mixture boils. Then cook, without stirring, to the crack stage (280° F.) but not brittle when tested in very cold water. Remove from heat; add flavoring and stir only enough to mix. To keep sirup from thickening, place pan over boiling water immediately. Hold apple by skewer and dip in sirup. Remove quickly and twirl so sirup spreads smoothly over apples. Place on wire rack over wax paper to cool.

APPLE JELLY

Apple Jelly Stock

Wash apples, cut in small pieces and cover with water. After boiling point is reached, cook from 35 to 45 minutes. Strain and pour juice at once into hot sterilized jars and process 20 minutes. Store in a cool place until ready to make jelly.

Apple Jelly

1 pint apple jelly stock **Usually 1½ cup sugar**

Test with jelmeter to determine amount of sugar to be added. Cook to 222 degrees F., or 105½ degrees C. Skim and pour into sterilized glasses. Paraffin.

Winesap Apple Jelly Stock

4 pounds apples **5 pints water (to cover)**

Wash apples, cut in small pieces, weigh them and add water to cover. After boiling point is reached, cook for 35 minutes. Proceed as in apple jelly stock.

Winesap Apple Jelly (Made from stock)

2 cups winesap apple jelly stock **1½ cup sugar**

Cook to 222 degrees F. and pour into hot sterilized glasses.

Crab Apple Jelly

Cut apples in small pieces, cover with water, and when the boiling point is reached, cook for 45 minutes. Strain through cheese cloth. Filter by pouring juice through a heavy flannel bag and for each cup of juice use a cup of sugar. Crab apples contain a large amount of pectin and are very acid. The jelly stage will be reached at 220 degree F. This jelly is very firm and is excellent in flavor.

CANNING APPLES (212° F.)

Apples

Pare and core apples. Cut in slices.

HOT-PACK—Drop prepared apples in water containing 2 tablespoons each of salt and vinegar to prevent apples from darkening. Drain, then boil 5 minutes in thin syrup or water. Pack hot fruit to ½ inch of top. Cover with hot syrup or water, leaving ½ inch head-space. Process. (212° F.)

RAW-PACK—Pack prepared apples raw. Cover slices with hot medium syrup. Process. (212° F.) Glass jars. Pints—20 minutes. Quarts—20 minutes.

Apple Sauce

Wash apples. Cut unpeeled apples into halves or quarters. Remove stem, blossom end and bruised spots. Place apples in saucepan with small amount of water, steam until tender. Press through a sieve. Add sugar, if desired, ½ cup to a quart. Heat to simmering point (185-210° F.) stirring to keep it from sticking. Pack into hot jars. Process. (212° F.) Glass jars. Pints—10 minutes. Quarts—10 minutes.

TO FREEZE APPLES

Apple Juice

Pour freshly made cold apple juice (from good quality apples) into any good rigid frozen food container. Leave a little less than 1/10 of the space in the container for the juice to expand.

When juice thaws, pour gently from the freezer container into a pitcher, leaving the sediment in the container. Stir the juice quickly. Pour into glasses and drink.

Raw Apples

Fill containers about ½ full of 50% syrup (in which you have just dissolved the amount of citric-ascorbic acid mixture called for on the acid container). Slice washed, peeled apples into syrup. Be sure all slices are well covered. You may want to adjust the amount of syrup.

Baked Apples

Stuff cored, raw apples with a mixture of cooked dried fruits (dates, apricots, and prunes, for example) and nuts or other good mixture. Bake and chill. Pack in frozen food containers and freeze. Serve hot or cold.

Use your favorite recipe for quartered apples baked with butter and sugar. Cook them slightly underdone. Chill. Pack in frozen food containers, preferably ones in which you can reheat the apples. Freeze. Heat and serve.

Apple Pies

Prepare your favorite apple pie for baking but use citric-ascorbic acid mixture as for raw apples for any other use. Use cornered pan for easy wrapping and good use of freezer space. For best pie, freeze uncooked and pop in the oven directly from the freezer. (If you cook and cool your pie before you freeze it, you need not protect the fruit from browning—but the precooked pie won't be as good!)

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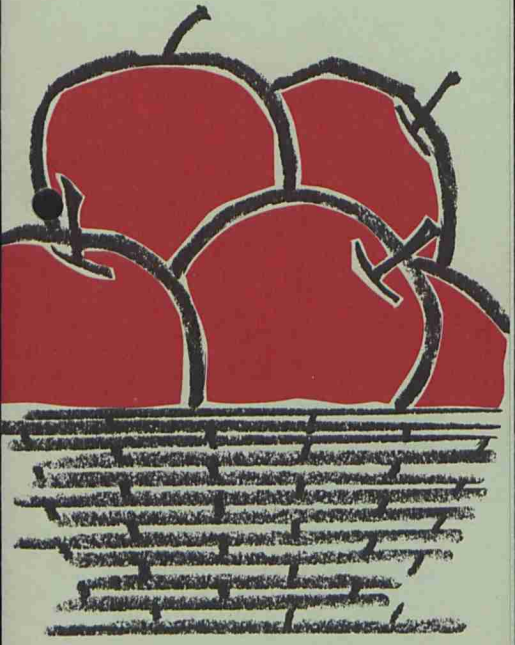
September 1962 **(Revised) Folder 189**

Good Apple Recipes



Apples are the most important fruit in North Carolina. Approximately 3 million bushels are produced annually; this figure is increasing yearly. Enough trees are already planted to increase this to 5 million by 1967.

Apples are produced in five areas, listed in the order of their 1962 production: Henderson area—Henderson, Polk, Buncombe, Transylvania, Burke; Wilkes Area—Wilkes, Alexander, Watauga, Caldwell, Stokes, Yadkin, Ashe, Surry, Rockingham; Haywood Area—Haywood, Macon, Swain, Jackson, Graham; Mt. Mitchell Area — Mitchell, Avery, Yancey, McDowell; and the newest area made up of Cleveland, Lincoln, Gaston and Catawba.

Four varieties made up the bulk of the 1962 production: Rome Beauty 27.1%; Red Delicious, 26.9; Stayman 15.7; Golden Delicious, 12.0 and all others 18.3. The latter is made up of some 20 good varieties but due to lack of popular demand they have become unprofitable for many growers to produce in volume.

Fresh apples under controlled refrigeration can now be obtained 12 months of the year. Apple juice, frozen apple slices, canned apples and sauce help to vary the diet and stretch the budget.

APPLES
in
Bread — Cake

Apple Bran Muffins

1¼ cups sifted flour
3 teaspoons baking powder
½ teaspoon salt
2 tablespoons sugar
1 cup bran, cereal
1 egg, beaten
⅓ cup milk
⅔ cup applesauce
¼ cup melted fat

Sift together flour, baking powder, salt, and sugar. Mix in bran cereal.

Combine egg, milk, applesauce, and fat. Add to the dry ingredients all at once, stirring only enough to moisten.

Fill greased muffin pans two-thirds full. Bake at 400° F. (hot oven) about 20 minutes.

Makes about 12 medium-size muffins which will be softer than most bran muffins.

Apple Griddlecakes

1½ cups flour
1½ teaspoons baking powder
¾ teaspoon salt
1 tablespoon sugar
1 egg, beaten
1 cup milk
2 tablespoons melted fat
2 cups very finely chopped apples

Sift dry ingredients together.

Combine the egg, milk, and fat. Add gradually to the dry ingredients; stir only until batter is smooth. Fold in apples.

Drop by spoonfuls onto a hot greased griddle. Cook slowly until the surface is covered with bubbles, turn, and cook as you do regular griddlecakes. Makes about 18 medium-size cakes.

Apple Nut Bread

¼ cup shortening
½ cup sugar
1 egg
⅔ cup apple sauce (unsweetened)
2 cups plain flour
½ teaspoon baking powder
½ teaspoon soda
¼ teaspoon salt
3 tablespoons sour milk
½ cup chopped nuts

Cream shortening, sugar, and egg together. Stir in apple sauce. Sift flour, measure, add other dry ingredients and sift together; add to egg mixture. Stir in sour milk and chopped nuts. Place in greased, 5-by 10-by 4-inch loaf pan and bake in moderate oven (350° F.) 45 minutes or until done. Makes a 1-pound loaf.

Apple—Oatmeal Crisp

3 to 4 cooking apples
¾ cup quick-cooking oatmeal
¾ cup brown sugar
½ cup flour
1 teaspoon cinnamon
½ cup butter

Pare apples and slice thin. Arrange slices in a buttered 8-inch round pan. Combine oatmeal, sugar, flour, and spices. Cut in butter. Sprinkle this mixture over apples. Bake in a 350° F. oven 35 to 40 minutes. Serve warm with cheese wedges or whipped cream.

Apple Cobbler

1 quart apples
1 cup sugar
Rich biscuit dough

Peel and quarter tart apples and place in a deep, buttered baking pan. Add sugar. Cover with a rich biscuit dough made soft enough to stir. Spread over the apples without rolling. Make several cuts in the center to allow the steam to escape. Bake at 375° F. for 45 minutes. Serve hot with cream.

Apple Pan Dowdy

Line a baking dish with thin slices of lightly buttered bread. Fill in the center with sliced apples, sprinkle over the top four tablespoons of dark brown sugar and one-half teaspoon of cinnamon. Add half a cup of water and cover with another layer of buttered bread, with the buttered side up. Bake for one hour at 300° F. Serve with lemon or other liquid pudding sauce.

Apple Roll

6 apples
Rich biscuit dough
¼ cup brown sugar
3 tablespoons butter

Pare, core, and cut apples into small slices. Roll dough to less than ½ inch thickness. Spread apples on evenly, sprinkle with brown sugar, dot with butter. Roll in jelly-roll fashion, cut 1½ inch slices across roll. Place each slice cut side down in buttered muffin tin or in buttered shallow baking pan. Bake in moderate oven for 30 minutes. Serve with cream.

Apple Upside Down Cake

¼ cup butter
½ cup light brown sugar
3 or 4 apples
¼ cup chopped nuts
¼ cup raisins

Put butter and sugar into a shallow baking dish and place in the oven just long enough to melt the butter. Take from the oven and add the apples sliced thin, add nuts and raisins.

Mix the following cake batter and pour it over the apples:

¼ cup butter
1 cup sugar
2 eggs
½ cup milk
2 teaspoons baking powder
½ teaspoon salt
1½ cups flour

Bake in hot oven (375° F.) for 25 to 30 minutes or until the cake is done. Turn out with the apples on top. Serve with whipped cream or a hard sauce.

Apple Dumplings

Pare and core six small apples. Place each apple on a 7″ square of rich pastry (pie crust). Sprinkle each apple lightly with sugar and add a small dot of butter. Center of apple may be filled with raisins and nuts. Moisten edges of pastry and pull corners together over top of apple, envelope fashion, sealing well.

Place dumplings 1½″ apart in a shallow baking pan, and pour boiling syrup over and around them (syrup directions below). Bake immediately in hot oven (500° F.) for 5 minutes; lower heat to 350° F. and bake 40 minutes longer. Serve hot.

Syrup: 1 cup brown or white sugar, 2 cups water, 4 tablespoons butter, ½ teaspoon cinnamon. Boil 5 minutes, or until well blended.

APPLE JELLY

Apple Jelly Stock

Wash apples, cut in small pieces and cover with water. After boiling point is reached, cook from 35 to 45 minutes. Strain and pour juice at once into hot sterilized jars and process 20 minutes. Store in a cool place until ready to use. (Apple juice will retain flavor longer than apple jelly. It is therefore better to make jelly from the stock as it is needed.)

Apple Jelly

1 pint apple jelly stock Usually 1½ cup sugar

Test with jelmeter to determine amount of sugar to be added. Cook to 222 degrees F., or 105½ degrees C. Skim and pour immediately into sterilized jelly jars.

CANNING APPLES (212° F.)

Apples

Pare and core apples. Cut in slices.
HOT-PACK—Drop prepared apples in water containing 2 tablespoons each of salt and vinegar to prevent apples from darkening. Drain, then boil 5 minutes in thin syrup or water. Pack hot fruit to ½ inch of top. Cover with hot syrup or water, leaving ½ inch head-space. Process. (212° F.)
RAW-PACK—Pack prepared apples raw. Cover slices with hot medium syrup. Process. (212° F.) Glass jars. Pints—20 minutes. Quarts—20 minutes.
Note: A bushel yields 18-20 quarts.

Apple Sauce

Wash apples. Cut unpeeled apples into halves or quarters. Remove stem, blossom end and bruised spots. Place apples in saucepan with small amount of water, steam until tender. Press through a sieve. Add sugar, if desired, ½ cup to a quart. Heat to simmering point (185-210° F.) stirring to keep it from sticking. Pack into hot jars. Process. (212° F.) Glass jars. Pints—10 minutes. Quarts—10 minutes.

Note: A bushel yields about 15 quarts.

TO FREEZE APPLES

Apple Juice

Pour freshly made cold apple juice (from good quality apples) into any good rigid frozen food container. Leave a little less than 1/10 of the space in the container for the juice to expand.

When juice thaws, pour gently from the freezer container into a pitcher, leaving the sediment in the container. Stir the juice quickly. Pour into glasses and drink.

Raw Apples

Fill containers about ⅓ full of 50% syrup (in which you have just dissolved the amount of citric-ascorbic acid mixture called for on the acid container). Slice washed, peeled apples into syrup. Be sure all slices are well covered. You may want to adjust the amount of syrup.

Baked Apples

Stuff cored, raw apples with a mixture of cooked dried fruits (dates, apricots, and prunes, for example) and nuts or other good mixture. Bake and chill. Pack in frozen food containers and freeze. Serve hot or cold.

Use your favorite recipe for quartered apples baked with butter and sugar. Cook them slightly underdone. Chill. Pack in frozen food containers, preferably ones in which you can reheat the apples. Freeze. Heat and serve.

Apple Pies

Prepare your favorite apple pie for baking but use citric-ascorbic acid mixture as for raw apples for any other use. Use cornered pan for easy wrapping and good use of freezer space. For best pie, freeze uncooked and pop in the oven directly from the freezer. (If you cook and cool your pie before you freeze it, you need not protect the fruit from browning—but the precooked pie won't be as good!)

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August 1963 **(Revised) Folder 189**

Peaches!

Perk Up Your Appetite and Your Menu—Eat Peaches!

An average size peach—3 or 4 ounces—contains only 50 calories. What's more, it carries its share of minerals and vitamins. A peach will contribute toward your day's needs small amounts of calcium, iron and the B-vitamins—niacin, thiamine and riboflavin. You will also get 10% of your day's quota of Vitamin C. If the peach is yellow in color, it will supply about 20% of your day's need of Vitamin A.

Luscious tree ripened peaches—what could be better for breakfast, lunch, dinner or a between meal snack! It is a truly delicious low calorie food.

Choose peaches that are firm and free from bruises and blemishes. Store ripe peaches in the refrigerator. Peaches not quite ripe are best kept at room temperature until ripened.

Peach Fritters

2 eggs
1 teaspoon salad oil or melted fat
2/3 cup milk
1 cup flour
½ teaspoon salt
1 tablespoon sugar
Peaches peeled and quartered

Beat eggs until light and lemon colored. Blend in oil and milk. Add dry ingredients which have been sifted together and beat until smooth. Dip peeled and quartered peaches into batter and drain off excess. Fry in deep fat heated to 370°F until a golden brown. Drain on absorbent paper. Serve with meat or as a dessert with a lemon sauce.

Gold Salad

1 package lemon flavored gelatin
1½ cups boiling water
¼ teaspoon salt
1 teaspoon onion juice
1 cup cottage cheese
1 cup sliced or cubed peaches

Dissolve the gelatin in the boiling water. Add the salt and onion juice. Chill until mixture begins to thicken. Fold in the cottage cheese and peaches. Mold in individual molds or one large mold.

Fresh Peach Pie

9 inch unbaked pastry shell
6 medium sized peaches
2 eggs, beaten lightly
1 cup sugar
2 tablespoons melted butter or margarine

Place in pastry shell peeled peach halves with the cut sides up. Mix together eggs, sugar and melted butter or margarine and pour over peaches. Bake at 425°F for 10 minutes. Lower heat to 350°F and continue to bake for 20 minutes, or until egg mixture is set.

Peach Upside Down Cake

1/3 cup shortening
2/3 cup sugar
2 eggs
1-2/3 cup flour
2 teaspoons baking powder
¼ teaspoon salt
2/3 cup milk
¼ teaspoon almond flavoring
8 peeled peach halves
1 cup light brown sugar
¼ cup butter or margarine

Cream together shortening and sugar. Add eggs one at a time and beat thoroughly after each is added. Sift together dry ingredients and add alternately with milk. Add flavoring. Spread brown sugar evenly over bottom of a 11x7x1½ inch pan, then dot with butter. Arrange peaches, cut side up, on sugar. Pour cake batter above over peaches and bake in 350°F oven for 25-30 minutes. Cut in 8 pieces to serve.

Peach Mousse

1 cup peach pulp
1 cup sugar
2 tablespoons lemon juice
1½ teaspoons gelatin
¼ cup cold water
2 cups heavy cream

Put soft, ripe peaches through a sieve to make peach pulp. Blend together peach pulp, sugar and lemon juice. Melt over boiling water gelatin which has been soaked in cold water for 5 or more minutes. Add to peach pulp mixture. Fold in stiffly beaten cream. Pour in mold or tray and freeze.

NOTE: For a low calorie, low fat dessert, substitute whipped evaporated milk or non-fat dry milk solids for heavy cream. Use 1 tall can of chilled evaporated milk or ½ cup non-fat dry milk and ½ cup ice water.

Peach Nectar

Peel and pit 12 very ripe peaches. Press through sieve to make a pulp. Add ½ cup orange or ¼ cup lemon juice and 3 cups ice water. Sweeten to taste and serve with crushed ice. Ginger ale may be used for part or all of the ice water.

Canned Peaches

Raw-Pack

Pack raw prepared fruit to within ½ inch of top of jar. Pour boiling syrup or juice over fruit leaving ½ inch head space.

Process at 212°F 25 minutes for pints; 30 minutes for quarts.

Hot-Pack

Heat prepared peaches in hot syrup or juice until fruit is hot throughout (water may need to be added unless peaches are very juicy). Pack hot fruit to within ½ inch of top. Pour boiling syrup or juice over fruit leaving ½ inch head space. Process at 212°F 20 minutes for pints; 25 minutes for quarts.

Syrup	Cups Sugar to 1 Qt. Water	Cups Syrup
Thin	2	5
Medium	3	5½
Heavy	4¾	6½

Peaches may be canned without sugar—in juice or water. Sugar helps them retain shape, color and flavor, but is not necessary to prevent spoilage.

Peach Pickles

8 pounds small or medium sized peaches
2 tablespoons whole cloves
2 pounds sugar
1 quart vinegar
8 two-inch pieces stick cinnamon

Wash and pare peaches. Put cloves and cinnamon loosely in clean, thin, white cloth and tie top tightly. Cook together spices, sugar and vinegar for 10 minutes. Add peaches; cook slowly until tender, but not broken. Let stand overnight.

In the morning remove spices. Drain syrup from peaches; boil syrup rapidly until thickened. Pack peaches in clean, sterilized jars. Pour hot syrup over peaches, leaving ½ inch headspace. Seal tightly. Process 10 minutes at simmering temperature (about 180°F).

Peach Preserves

Peel peaches, cut in halves if small, in quarters if large. Use 1 pound of fruit to ¾ pound of sugar. Put enough water with sugar to make a thin syrup. Add fruit and boil rapidly, being sure the fruit does not stick.

When fruit is clear and translucent remove and place in shallow dish while syrup boils thicker (if necessary). Pour this syrup over fruit and let stand until the next day.

Return fruit and syrup to pan and allow it to reach boiling point. Do not re-cook. Pack hot fruit immediately in hot sterilized jars; pour syrup in little by little as packing progresses until the jar is filled. Remove air bubbles.

Process at simmering point 10 minutes.

Freezing Peaches

Varieties with good freezing qualities include Dixiegem, Red Haven, Hale Haven, Elberta, Georgia Belle, Goldeneast and Jubilee.

Freeze only ripe peaches. Peaches picked green never ripen completely. For best freezing results, keep peaches on tree for 3 to 5 days past shipping stage and for 1 to 3 days past canning stage. If peaches are picked firm-ripe (as they must be if they are handled much or if they are shipped far), they should be spread in a cool place to ripen more.

Ripeness is the most important single factor to consider if you expect to have really good frozen peaches.

Halves

Pack in containers and cover with 40 percent (light) syrup. You may use 50 percent (medium) syrup if you prefer sweeter peaches. Dissolve 1 teaspoon pure powdered ascorbic acid in 2 tablespoons cool water. Add to 1 quart of chilled syrup just before you put it on the peaches.

Slices and Bite-Size Chunks

Mix 1 part by weight of sugar to 4 to 5 parts fruit (or 2/3 cup sugar to 1 quart prepared peaches.) Mix until all sugar is dissolved. Add 1 teaspoon pure powdered ascorbic acid to ½ cup water. Then add 1 tablespoon of this solution to each pint of peaches.

Package and freeze. Leave enough space at top of container for expansion. How much space to leave depends on amount of liquid in the peaches and on the shape and size of container. If you freeze peaches at home, be sure the containers are well-closed and follow the instructions in your freezer book.

For more detailed information, see Extension Leaflet,

The Peach Freeze.

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April 1962 **Folder 199**

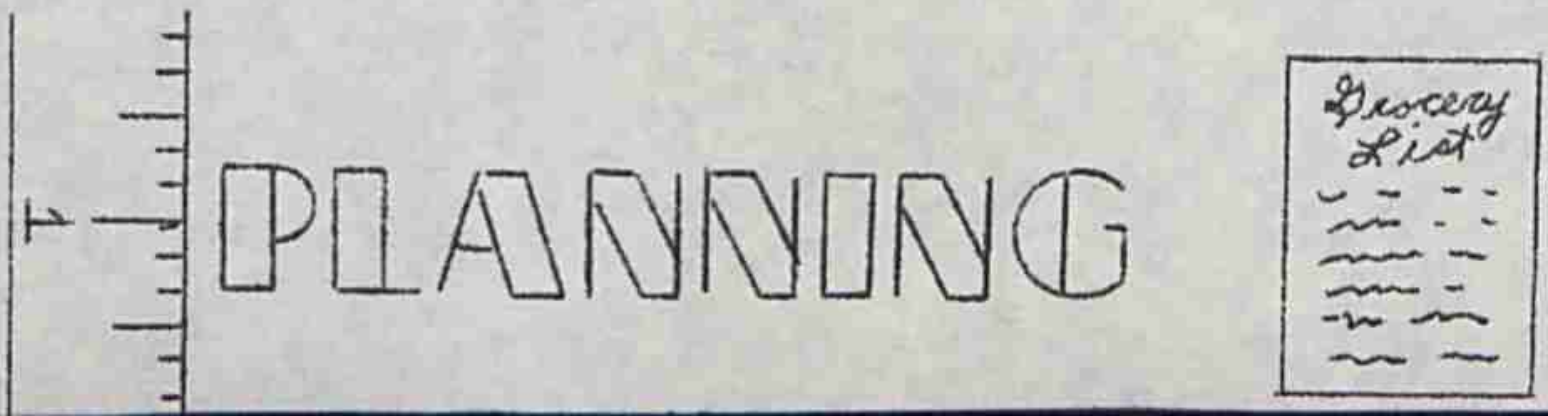
HOW DO YOU MEASURE UP WHEN BUYING CANNED FOODS?

Rough Copy - at printers now.

PLANNING - Did you realize that the average person eats approximately 200 quarts of fruits and vegetables and about 150 pounds of meats per year. This includes both fresh and processed forms. In addition about 25 quarts of preserves, jellies, pickles and relishes are consumed.

In planning menus and making grocery lists, a variety of canned foods are usually included. Some points that should be considered are:

(1) Use - Generally, the variety and type of pack should be selected based on the way the food will be served (i.e. will canned peaches be used as a salad or made into a pie?).



(2) Budget - How much money is available for food? Product for product, less expensive packs have approximately the same food value as the more expensive ones. The Commissioner of the Food and Drug Administration said, "By using the most modern procedures and growing special varieties of crops that are harvested at just the right time, the modern canner packs a product that is of high nutritional quality".

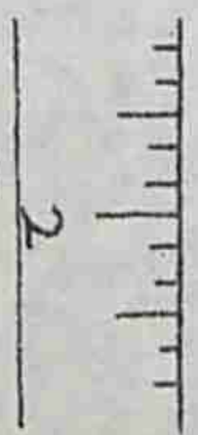
It is a good idea to compare costs per serving of food in the can. Sometimes buying larger size cans (when practical) is less expensive on a cost per serving basis.

(3) Family Needs - Are canned foods purchased in addition to some home canning - or must all of it be purchased? Canned foods, like any other, should be bought with nutritive value, variety in the diet, and family "wants and wishes" in mind.

LABELS - The labels on most canned foods are attractive, but they serve a much more important function - that of informing the customer of the quantity and quality of the product inside. The modern self-service food stores have made the shopper more dependent on labels for guidance. They should be read carefully.

According to the Federal Food, Drug, & Cosmetic Act the label must include the following:

(1) Usual or common name of the product in clear type. This is your first guide as to what the can contains.
(2) Net contents of the container by weight or volume.
(3) List of ingredients unless a standard of identity has been set by the government.
(4) The variety, style, and packing medium of the product when this is important.
(5) Name and address of manufacturer, packer, or distributor.



LABELS

(6) Dietary properties (if important).
(7) The presence of any artificial color, flavor, or preservative.
(8) All information on the label must be in English even if it is an imported or foreign style product.
(9) If quality or filling is below standard, this must be stated on the label.

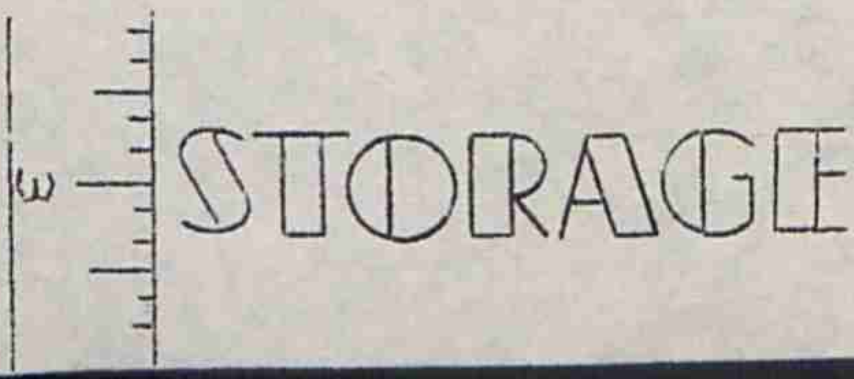
In addition to these requirements, some manufacturers include on the label such things as a picture of the food, recipes, number of servings, etc. These are optional.

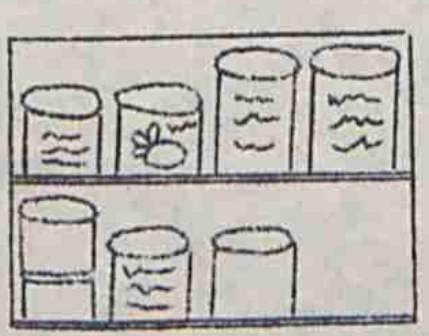
Most canners prefer descriptive labels to grade labels (such as Grade A, B, or C) since they are of more value to the average consumer in selecting the product to buy. A brief meaningful description of the product (as very tender or mature) will help the purchaser decide which to buy, based on the use, food budget, and family needs. Some shoppers buy canned foods by brand names they have used and can rely on for the same quality product every time. Time and money may be saved if the customer reads labels and buys according to her needs and purchasing power.

STORAGE - Proper storage is an important point to consider for any conserved food. This influences the amount and the form that will be bought. Canned foods should be stored in a dry, cool place - and dark if glass containers are used. Extreme moisture may (1) cause cans to rust, thus shortening the shelf life of the product, and (2) mar the label, making important information unreadable. High storage temperatures should be avoided. They do not affect the wholesomeness of the product, but they tend to impair color and flavor of some foods. Freezing may cause the cans to burst or break the seal. Too much light (especially on glass jars) will cause fading and discoloration of the canned product. This may not cause spoilage, but will make it less attractive and may affect the texture of the food.

If adequate storage is available the shopper may save (1) Money by quantity buying and specials. These specials may be products when they are in abundant supply or they may be an "attraction feature". (2) Time - convenience in having easy-to-prepare canned foods available is important to many homemakers. It may mean the difference in a well-balanced meal and "just food" for her family.

Storage of food also has an indirect influence on the health of the family. Studies show that families with a food supply readily available actually eat better, well planned meals.





HISTORY - Preservation of food by canning, unknown to our early settlers, has contributed greatly to the well-being of the American people. The principle of canning foods in hermetically sealed cans dates back to 1819 and has developed rapidly. Because of their many advantages canned foods continue to be one of the main sources of our food supply.

ADVANTAGES OF CANNED FOODS

(1) Convenient - easy to prepare. Save time in preparation.

(2) Reasonably stable at room temperature. Handling has little effect on quality.

(3) Variety of uses. Most fruits and vegetables are canned in several forms. This enables the shopper to buy the form she wants for specific preparation.

(4) Safe - there has been no incident of food poisoning from commercially canned foods since early 1920's.

(5) May be inexpensive if purchased when the supply is large and the price is low.

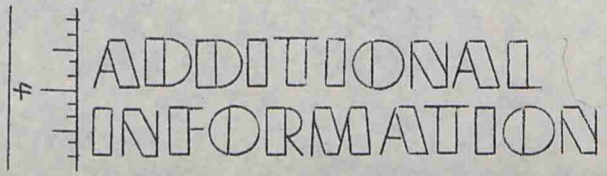
(6) There is a saving on transportation as only edible portion is retained.

(7) There is no waste as with perishables.

(8) Special diets - dietetic foods are prepared to meet the needs of special diets. Read the label for information.

(9) Available all seasons of the year.

(10) Almost as nutritious as fresh.



NUTRIENTS IN CANNED FOODS	
Vitamins	If the original raw product had significant amounts, canned foods can be relied on as a good source of these vitamins.
Minerals	Minerals are retained well in canned foods. Liquid, however, should be used as water soluble ones are present in this.
Proteins & Carbohydrates	There is no loss of these in canning. The plant and animal tissues are actually easier to digest after cooking.

COMMON CONTAINER SIZES - The size on some containers may be expressed as Number 2 or Number 303. These have very little meaning to many shoppers - especially the less experienced ones. A more helpful container description is the one commonly used and expressed in net weight or volume as 12 oz. or 1 pint.

Industry Term	Consumer Description	
	Approx. Net Weight (check label)	Approx. Cups
8 ounce	8 oz.	1
Picnic	10½ oz.	1¼
12 oz. (vacuum)	12 oz.	1½
No. 300	1 pound or 14-16 oz.	1¾
No. 303	16-17 oz.	2
No. 2	1 lb. 4 oz., or 1 pint 2 fl. oz.	2½
No. 2½	1 lb. 13 oz., or 29 ounces	3½
No. 3 Cyl.	3 lb. 3 oz., or 1 qt. 14 fl. oz.	5¾
No. 10	6½ lbs. to 6¾ lbs.	12-13

There is a canned food for every meal of the day. Select and collect menus using these.

Prepared by
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August 1962
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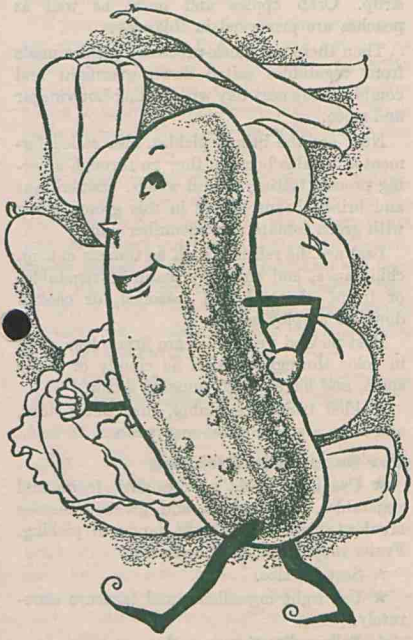
Pickle and Relish Recipes



U.S. DEPARTMENT OF AGRICULTURE

Leaflet 269, formerly AWI-103, slightly revised.

Kinds of Pickles

Pickled peaches, tart and sweet . . . dills with a tang . . . old-fashioned cucumber slices . . . piquant piccalilli—these typify the four kinds of pickles made in the home.

Easiest to make are the fruit pickles which are left whole and simmered in a sweet-sour sirup. Crab apples and pears as well as peaches are preserved in this way.

Then there are quick-processed pickles made from vegetables salted down overnight and combined the next day with boiling-hot vinegar and spice.

Next are the brined pickles, also called fermented pickles because they go through a curing process lasting several weeks. Sauerkraut and brined beans belong in this group, along with green tomato and cucumber dills.

Last are the relishes, such as tomato catsup, chili sauce, and chutneys made of vegetables or fruits, chopped and seasoned, or cooked down to a spicy sauce.

Best pickled vegetables are firm, clear, even in color throughout with no cloudy or white spots, and have a tart, pungent flavor.

Pickled fruits are plump, firm but tender, and have a spicy, sweet-sour taste.

For Success in Pickling

★ Use only fresh, good-quality fruits and vegetables. Cucumbers and green tomatoes are best pickled within 24 hours of picking. Fruits may be slightly underripe.

★ Sort for size.

★ Use right ingredients and measure accurately.

★ Follow directions exactly.

★ Store pickles—sealed airtight—in a cool, dry, dark place.

Right Ingredients

...A good, clear, standard vinegar—free om sediment—one with 4 to 6 percent of acetic acid. This is stronger than the standard vinegar of 15 to 20 years ago which had about 3 percent acetic acid. For that reason, pickles made by old recipes may be more sour.

...Recipes in this pamphlet are based on the use of pure granulated salt. Medium granulated salt and flake salt—the kinds used in making butter or curing meat—are also satisfactory for brining, but you'll need to use 1½ times the amounts called for in these recipes.

If you can't get any of these pure salts, you can use table salt. But you may not get as good results because of the carbonates or bicarbonates of sodium, calcium, or magnesium added to table salt to prevent lumping. With table salt use the amounts called for in the recipes.

...Whole spices for most cooked pickles. They keep flavor longer. And they can be tied in a cloth to cook with other ingredients and then lifted out before pickles are packed. Spices packed in the jars with pickles will turn them dark. When using a spice bag, be sure to have a clean, thin, white cloth large enough so juices can circulate through the spices and draw out the flavor.

...Limewater gives crispness to unfermented pickles such as pickled watermelon rind.

About Equipment

For cooked pickles use kettles of enamelware, aluminum, or stainless steel to heat acid pickling liquids.

Don't use a copper kettle to make pickles bright green. An undesirable color may result. And don't use a galvanized pail. The reaction of acid or salt with the zinc coating of galvanized utensils forms a harmful substance.

A scale is needed when making sauerkraut and watermelon pickle to be sure of right results.

For brining, you'll need a crock or stone jar; clean, thin, white cloth; a heavy plate or round board cut to fit inside of crock and coated with paraffin; clean stones or paraffined bricks to hold cover down. Don't use limestone as a weight.

For sauerkraut, brined beans, corn relish, cucumber slices, a water-bath canner, home-made or ready-made, is necessary. Any big, clean vessel will do if it's deep enough to let water boil well over tops of the jars . . . has a good lid . . . and a rack to keep jars from touching bottom.

Rack may be of wire or wood. If possible, have partitions to keep jars from touching one another or falling against the side of the canner.

Jars for pickles must seal airtight. Left in a crock or capped with paraffin, pickles are likely to mold and turn soft.

Use a jar with a glass lid, such as the wire-bail type jar or mason jar with three-piece lid. See page 5. Sharp, acid foods like pickles will eat into the metal if they are in direct contact with it.

Use only perfect jars. Discard chipped, cracked, warped ones; dented, bent lids. Use clean, new rubber rings of the right size for your jars. Don't test by stretching.

Scrub in hot, sudsy water all necessary equipment including jars, glass lids, metal screw caps, rubber rings.

Scrub new rubber rings with a brush; boil 10 minutes in 1 quart water and 1 tablespoon baking soda for each dozen rings. Rinse well. Use fresh soda water for each lot. This may help to keep rings from flavoring food.

Place clean jars, lids, and caps in warm water and bring to boil. Dip rubber rings into boiling water just before fitting on hot jars or lids.

To sterilize jars, lids. If jars of food are not to be processed, i. e., heated in a boiling-water bath, boil jars and lids 15 to 20 minutes just before packing with pickles.

Fill Jars and Seal

Wire-bail type jar is sealed with glass lid and rubber ring held in place by wire bail.

First step, fit hot, wet rubber ring on ledge at top of empty, hot jar.

For kraut and others processed in water bath, fill jar to within one-half inch of top. Wipe off any spilled food with a clean, hot, damp cloth. Put on hot glass lid. Push wire on top of lid so it fits into groove. Leave short wire up. After processing jars of food in boiling-water bath, push short wire quickly down to complete seal.

For other pickles, not processed, fill jar to top, wipe off any spilled food, seal tightly.

Glass lid and top-seal rubber ring, held in place by metal screw band, to fit standard mason jars.

For kraut and others processed in water bath, fill jar to within one-half inch of top. Wipe off any spilled food with a clean, hot, damp cloth. Fit hot rubber ring on hot glass lid. Put lid on jar with rubber side down. Screw metal band on tight; then, using thumb as guide, turn back almost a quarter turn, or so that band and jar just mesh together. (**Caution:** If band is screwed too tight, jar may break.) After processing jars of food in boiling-water bath, screw band down tight at once.

For other pickles, not processed, fill jar to top, wipe off any spilled food. Fit rubber ring on hot glass lid. Put lid on jar with rubber side down; screw metal band on tight.

Dilled Cucumbers or Green Tomatoes

40 to 50 medium-sized or large cucumbers, or green tomatoes.
¾ cup (2 oz.) whole mixed pickle spices.
Fresh or dried dill.
1 pint (2 cups) vinegar.
1 pound (1½ cups) salt.
2 gallons water.

Wash and drain the cucumbers or green tomatoes. Place half of the pickle spices and a layer of dill in a 5-gallon crock or stone jar. Fill the crock with cucumbers or tomatoes to within 4 or 5 inches of the top. Mix well the vinegar, salt, and water and pour over the vegetable. Place a layer of dill and remaining pickle spices over the top.

Cover with a heavy plate and weight it to hold the vegetable under the brine. Use only enough brine to cover the plate, for as the liquid is drawn from the vegetable the crock may overflow.

Keep pickles at room temperature, about 70° F., and each day remove scum that forms over the top. Let pickles ferment until well-flavored with dill and clear throughout, with no white spots when cut. In about 2 to 3 weeks the pickles are ready to use.

To store. Pack the cured pickles in hot, sterile, quart glass jars (p. 4). Strain the pickle brine, bring to boil, and pour over pickles to top of jar. If desired, add ¼ cup vinegar to each quart. Seal tightly.

With garlic. Add one-half pound garlic to above recipe. To prepare garlic break the clusters open and separate the cloves. Remove the thin, brown skin from each garlic clove. Add a few cloves with the first layer of dill and pickle spices. Fill the crock with alternate layers of cucumbers or tomatoes and garlic cloves to within 4 or 5 inches of the top. Continue as in above recipe.

Pickle pointers. When making dills, keep these points in mind:

★ Use right amount of salt. In a brine too weak, pickles spoil; in a brine too strong, they shrivel.

★ Have enough brine to cover well and keep pickles pushed under, or they're likely to mold and get slippery.

★ Take scum off top of brine every day or pickles may spoil.

Cucumber Slices

1 peck (10½ lb.) medium-sized cucumbers.
1 cup salt.
2¼ quarts vinegar.
3 cups sugar.
¼ cup mixed pickle spices.

Wash and cut cucumbers into slices about one-fourth inch thick. Mix slices and salt. Let stand overnight.

In the morning drain and press out all the juice possible. Rinse once in cold water. Combine vinegar, sugar, and spices. Boil 1 minute. Add cucumbers and simmer 5 minutes.

Pack cucumbers into clean, hot, sterile jars (p. 4) to within 1 inch of top. Fill jars with hot liquid to top; seal tightly. Makes about 12 pints.

Cucumber slices and onion rings. Mix 2 quarts peeled and sliced small white onions with cucumbers and salt. Continue as in above recipe.

RELISHES

Pepper-Onion Relish

1 quart finely chopped onion.
2 cups finely chopped sweet red pepper.
2 cups finely chopped green pepper.
1 cup sugar.
1 quart vinegar.
4 teaspoons salt.

Combine all ingredients and bring slowly to boil. Cook until slightly thickened. Pour into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly.

Corn Relish

2 quarts corn (12 to 15 ears).
1 pint diced sweet red pepper.
1 pint diced green pepper.
1 quart chopped celery.
1 cup sliced onion.
1 cup sugar.
1 quart vinegar.
2 tablespoons salt.
2 teaspoons celery seed.
2 tablespoons dry mustard.
¼ cup flour.
½ cup water.

To prepare corn, remove husks and silks; place in boiling water. Simmer for 10 minutes. Remove and plunge into cold water. Drain; cut corn from the cob. Do not scrape the cobs. Measure out 2 quarts.

Combine sweet red pepper, green pepper, celery, onion, sugar, vinegar, salt, and celery seed. Boil for 15 minutes. Mix mustard and flour; blend with the water. Add with the corn to pepper mixture. Stir and boil 5 minutes. Pack into clean, hot pint jars, filling to one-half inch of top. Adjust lids (p. 5) and boil jars 10 minutes in boiling-water bath (be sure water covers jars). Remove jars; complete the seals.

For added yellow color mix 1 teaspoon of turmeric with the mustard and flour.

Makes about 5 pints.

Piccalilli

1 quart chopped green tomatoes.
2 medium-sized sweet red peppers, chopped.
2 medium-sized green peppers, chopped.
2 large mild onions, chopped.
1 small head cabbage, chopped.
½ cup salt.
3 cups vinegar.
1 pound (2 cups firmly packed) brown sugar.
2 tablespoons mixed pickle spices.

Combine the vegetables; mix with salt. Let stand overnight. Drain and press in a clean, thin, white cloth to remove all the liquid possible. Combine the vinegar and sugar. Place spices loosely in a thin, white cloth; tie top tightly. Add to vinegar mixture; bring to boil. Add vegetables, and simmer about 30 minutes. Remove spice bag. Pack into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 4 pints.

Green Tomato-Cabbage Relish (Bordeaux Sauce)

- 4 quarts (about 24 to 28 medium-sized) chopped green tomatoes.
- 4 quarts sliced cabbage.
- 3 cups chopped onion.
- 1 cup chopped sweet red pepper.
- ¼ cup salt.
- 1 teaspoon ground allspice.
- 2 teaspoons celery seed.
- 2 teaspoons mustard seed.
- 1 pound (2 cups firmly packed) brown sugar.
- 1 quart vinegar.

Sprinkle layers of tomatoes, cabbage, onion, and sweet pepper with salt. Let stand overnight; drain. Add allspice, celery seed, mustard seed, sugar, and vinegar. Boil 25 minutes or until there is just enough liquid left to moisten ingredients well. Pack into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 4 quarts.

Horseradish Relish

Grate sound horseradish roots. Measure about one-half as much vinegar as horseradish, add one-fourth to one-half teaspoon salt for each cup of vinegar, and pour over grated horseradish. Pack at once into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly.

Tomato-Pear Relish

- 2½ cups fresh or canned (No. 2 can) tomatoes.
- 2½ cups fresh or canned (No. 2 can) diced pears.
- ½ cup chopped green pepper.
- ½ cup chopped onion.
- 1 cup sugar.
- ½ cup vinegar.
- 1 teaspoon salt.
- ½ teaspoon ground ginger.
- ½ teaspoon dry mustard.
- ⅛ teaspoon cayenne pepper.
- ¼ cup chopped canned pimiento.

Combine tomatoes, pears (if canned use pears and sirup), green pepper, onion, sugar, vinegar, salt, ginger, mustard, and cayenne pepper. Boil slowly 1 hour, stirring occasionally, until somewhat thickened. Add pimiento; boil 3 minutes longer. Pack into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 2 pints.

Chili Sauce

4 quarts (24 to 28 medium-sized) peeled and chopped tomatoes.
2 cups chopped sweet red pepper.
2 cups chopped onion.
1 hot pepper, chopped.
2 tablespoons celery seed.
1 tablespoon mustard seed.
1 bay leaf.
1 teaspoon whole cloves.
1 teaspoon ground ginger.
1 teaspoon ground nutmeg.
2 three-inch pieces stick cinnamon.
1 cup firmly packed brown sugar.
3 cups vinegar.
2 tablespoons salt.

Combine the tomatoes, sweet pepper, onion, and hot pepper. Put the celery seed, mustard seed, bay leaf, cloves, ginger, nutmeg, and cinnamon loosely in a thin, white cloth; tie top tightly; add to tomato mixture and boil until one-half original volume. Stir frequently to prevent sticking. Add the sugar, vinegar, and salt. Boil rapidly, stirring constantly, about 5 minutes. Pack into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 3 quarts.

Catsup

2½ quarts (15 to 17 medium-sized) sliced tomatoes.
¾ cup chopped onion.
3-inch piece stick cinnamon.
1 large garlic clove, chopped.
1 teaspoon whole cloves.
1 cup vinegar.
½ cup sugar.
1¼ teaspoons salt.
1 teaspoon paprika.
Dash cayenne pepper.

Simmer together tomatoes and onion for about 20 to 30 minutes; press through a sieve. Put the cinnamon, garlic, and cloves loosely in a clean, thin, white cloth; tie top tightly; add to vinegar and simmer 30 minutes. Remove spices. Boil sieved tomatoes rapidly until one-half original volume. Stir frequently to prevent sticking. Add spiced vinegar, sugar, salt, paprika, and cayenne pepper to tomato mixture. Boil rapidly, stirring constantly, about 10 minutes or until slightly thickened. Pour into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 2 pints.

Tomato-Apple Chutney

3 quarts (18 to 20 medium-sized) chopped tomatoes.
2 quarts (12 to 15 medium-sized) chopped apples.
1 cup chopped green pepper.
3 cups chopped onion.
2 cups seedless raisins.
4 teaspoons salt.
4 cups firmly packed brown sugar.
4 cups vinegar.
⅓ cup whole mixed pickle spices.

Combine tomatoes, apples, green pepper, onion, raisins, salt, sugar, and vinegar. Put spices loosely in a clean, thin, white cloth; tie top tightly; add to tomato mixture. Bring to a boil; simmer 1½ hours; stir frequently. Remove spices. Pack chutney into clean, hot, sterile jars (p. 4). Fill jars to top; seal tightly. Makes about 3 quarts.

SAUERKRAUT

Crock or Stone-Jar Method (5 gal.)

40 to 50 pounds cabbage. 1 pound salt.

Remove the outer leaves and wash cabbage; drain. Cut in halves or quarters; remove the core. Shred about 5 pounds of cabbage at a time and, using the hands, mix thoroughly with 3½ tablespoons salt. Measure carefully... oversalting prevents proper fermentation.

Pack the salted cabbage firmly and evenly with a wooden spoon or tamper into a 5-gallon stone jar. Repeat shredding, salting, and packing of cabbage until jar is filled to within 4 to 5 inches of top. Press firmly enough without pounding to draw out enough juice to cover cabbage by the time jar is filled.

Cover cabbage with 2 or 3 layers of thin, white cloth and tuck the edges down against inside of jar. Cover with a plate or paraffined board that fits loosely inside jar. Weight with paraffined brick or stone heavy enough so liquid comes over plate.

Remove scum every few days. Wash cloth, plate, and weight when removing scum. In cool weather let kraut ferment about 4 weeks; in warm weather, only about 2 weeks to prevent spoilage.

To store. Heat kraut to simmering. Do not boil. Pack hot kraut in clean, hot jars to ½ inch of top. Cover with hot juice, leaving ½ inch space at top of jars. If more juice is needed, add boiling-hot brine (1½ tablespoons salt to 1 quart water). Wipe off jar rims and adjust lids (p. 5). Boil jars in boiling-water bath, 25 minutes for pints, 30 minutes for quarts, making sure that water covers jars. Remove jars; complete seals. Makes 15 to 18 quarts.

Kitchenette or Glass-Jar Method

20 to 25 pounds cabbage. ½ pound salt.

Remove the outer leaves and wash cabbage; drain. Cut in halves or quarters; remove the core. Shred about 5 pounds of cabbage at a time and, using the hands, mix thoroughly with 3½ tablespoons salt. Measure accurately...oversalting prevents proper fermentation.

Pack into clean glass jars, pressing down firmly and evenly. Fill with cabbage to shoulder of jar (1½ to 2 inches from top) and be sure juice completely covers cabbage. A quart jar takes about 2 pounds of cabbage.

Wipe off top of jar. Cover cabbage with two or three layers of thin, clean, white cloth and tuck edges down against inside of jar. Crisscross two dry, clean wood strips (ice-cream spoons or wooden garden labels cut to right size are suitable) over cloth to keep cabbage pressed under brine. Put lid on jar; don't seal tightly.

Set jars on a tray or pan to catch juice that leaks out. Keep at room temperature, about 70° F. is best. Every few days, remove scum if it forms. Add a little weak brine to keep cabbage covered (1½ tablespoons salt to 1 quart water). Let ferment about 10 days, or until liquid settles and bubbles no longer rise to surface.

If you are planning to use the kraut in a few weeks, it isn't necessary to process in a boiling-water bath. Seal the jars tightly and keep in a cool place.

To store. Remove lids and set jars in a kettle, with cold water to shoulders of jars. Cover kettle. Bring water to boiling and boil 10 minutes. Remove jars. Add boiling-hot brine if needed to fill jars to ½ inch of top (1½ tablespoons salt to 1 quart water). Wipe off jar rims and adjust lids (p. 5). Boil jars in boiling-water bath, 25 minutes for pints, 30 minutes for quarts, making sure that water covers jars. Remove jars; complete seals. Makes 8 to 10 quarts.

VINEGAR-BRINED SNAP BEANS

½ bushel (14 to 15 pounds) snap beans.
1½ gallons water.
1½ cups vinegar.
1 cup salt.

Wash beans; remove tips and strings. Leave whole or cut in 1-inch pieces. Place in boiling water and let stand 5 minutes. Cool promptly by dipping in cold water.

Pack beans in a 3-gallon crock or stone jar to within 4 or 5 inches of the top. Cover beans with two or three layers of thin, white cloth and tuck the edges down against the inside of the jar. Cover with a plate or paraffined board that fits loosely inside the jar. Weight with a paraffined brick or stone.

Mix water, vinegar, and salt; stir until salt is dissolved. Pour brine over beans until it just covers plate or board. Keep at room temperature, about 70° F. Remove scum every few days, and wash plate, cloth, and weight. Let beans ferment for about 2 weeks.

To store. Pack beans well in clean jars to within 1 inch of top. Fill jars with brine to within one-half inch of top. If there is not enough brine, make additional by recipe above.

Set jars in a pan of cold water; water should come to shoulder of jar. Bring water slowly to boiling, then remove jars. Wipe off jar rims and adjust lids (p. 5). Boil jars—25 minutes for pints, 30 for quarts—in a boiling-water bath (be sure water covers jars). Remove jars; complete the seals. Makes about 10 quarts.

When serving vinegar-brined snap beans . . . remember they have an acid and salty flavor of their own.

Drain beans and cook with unsalted vegetables or, if used separately, rinse well, cover with fresh water, and boil 15 minutes or until tender. For a less acid flavor, soak beans a short time in cold water, changing water once or twice before cooking.

FRUIT PICKLES

Pickled Peaches

8 pounds small or medium-sized peaches.
2 tablespoons whole cloves.
8 two-inch pieces stick cinnamon.
2 pounds sugar.
1 quart vinegar.

Wash and pare peaches; stick two cloves in each peach. Or put cloves and cinnamon loosely in a clean, thin, white cloth and tie top tightly. Cook together spices, sugar, and vinegar for 10 minutes. Add peaches; cook slowly until tender, but not broken. Let stand overnight.

In the morning remove spices if they have been cooked in a bag. Drain sirup from peaches; boil sirup rapidly until thickened. Pack peaches in clean, hot, sterile jars (p. 4). Pour hot sirup over peaches, filling jars to top. Seal tightly.

Keep in a cool place several weeks before serving to blend flavor. Makes about 6 pints.

Pickled Pears

8 pounds pears.
10 two-inch pieces stick cinnamon.
2 tablespoons whole cloves.
2 tablespoons whole allspice.
4 pounds sugar.
1 quart vinegar.
1 pint water.

Seckel pears. Wash the pears; remove the blossom ends only. Boil the pears for 10 minutes in water to cover. Drain. Prick the skins. Put spices loosely in a clean, thin, white cloth; tie top tightly. Boil together for 5 minutes the spices, sugar, vinegar, and 1 pint water. Add the pears and boil for 10 minutes or until pears are tender. Let stand overnight.

In the morning remove the spice bag. Drain sirup from the pears and bring sirup to boiling. Pack pears in clean, hot, sterile jars (p. 4). Pour hot sirup over the pears, filling jars to top. Seal tightly. Makes about 10 pints.

Kieffer pears. Use 12 pounds Kieffer pears and reduce vinegar to 3 cups in recipe above. Wash the pears, peel, cut in halves or quarters, remove hard centers and cores. Boil pears for 10 minutes in water to cover. Use 1 pint of this liquid in place of the pint of water in recipe above. Finish in the same way as Seckel pears. Makes about 8 pints.

Pickled Crab Apples

Follow directions for Seckel pears, but omit cooking in water and pricking skin of fruit.

Watermelon Pickle

4 pounds prepared thick watermelon rind.
Limewater made with 2 quarts cold water and 1 tablespoon of lime (calcium oxide, purchased from drug store).
2 tablespoons whole allspice.
2 tablespoons whole cloves.
10 two-inch pieces stick cinnamon.
1 quart vinegar.
1 quart water.
4 pounds sugar.

Select thick rind from a firm, not overripe melon. To prepare, trim off the green skin and pink flesh. Weigh 4 pounds of the remaining portion and cut in inch pieces. Soak for 1 hour in limewater. Drain, cover with fresh water, and cook for 1½ hours or until tender. Add more water as needed. Drain.

Put spices loosely in a clean, thin, white cloth; tie top tightly. Bring to boiling the spices, vinegar, 1 quart water, and sugar. Add watermelon rind and boil gently for 2 hours. Remove spice bag. Pack rind in clean, hot, sterile jars (p. 4). Fill jars to top with hot sirup. Seal tightly. Makes about 6 pints.

Or if you prefer, let the watermelon stand overnight covered with the sirup. In the morning, remove spice bag. Boil 1 minute. Then pack into jars as above.

REFERENCES

Other publications on food preservation available from the United States Department of Agriculture, Washington 25, D. C., are—

Home Canning of Fruits and Vegetables. G 8.

Home Canning of Meat. G 6.

Freezing Meat and Poultry Products for Home Use. G 15.

Home Freezing of Fruits and Vegetables. G 10.

Home-made Jellies, Jams, and Preserves. Farmers' Bul. 1800.

Preservation of Vegetables by Salting and Brining. Farmers' Bul. 1932. (Recipes for sauerkraut and vinegar-brined snap beans in this pamphlet are adapted from directions given in Farmers' Bul. 1932.)

U. S. DEPARTMENT OF AGRICULTURE
Washington, D. C.
Issued July 1944
Slightly revised March 1950

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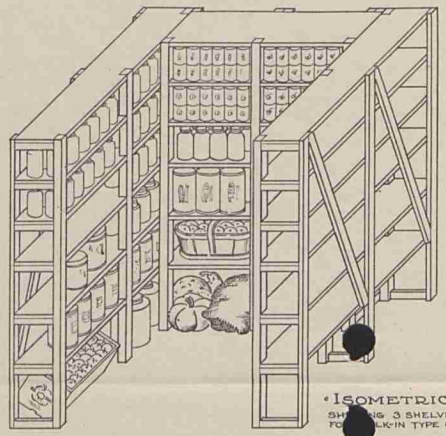
APRIL, 1943 (REPRINT) EXTENSION FOLDER NO. 47

Storage for Canned Foods

NORTH CAROLINA
STATE COLLEGE OF AGRICULTURE AND ENGINEERING
OF THE
UNIVERSITY OF NORTH CAROLINA
AND
U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING
N. C. AGRICULTURAL EXTENSION SERVICE
I. O. SCHAUB, DIRECTOR
STATE COLLEGE STATION
RALEIGH

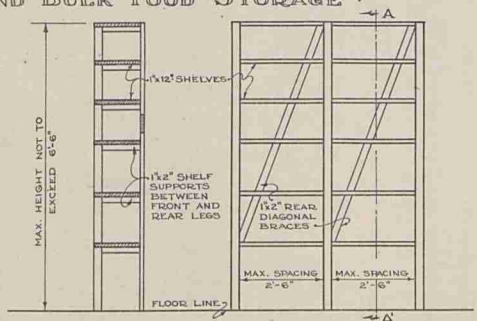
DISTRIBUTED IN FURTHERANCE OF THE ACTS OF CONGRESS OF MAY 8 AND JUNE 30, 1914

SHELVES FOR CANNED AND BULK FOOD STORAGE

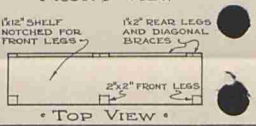


ISOMETRIC VIEW

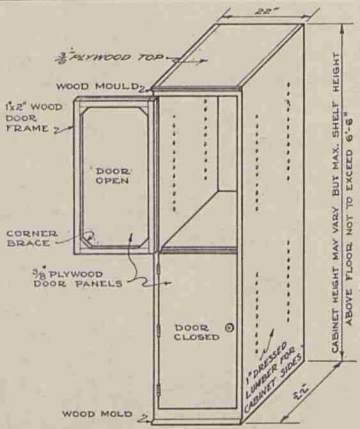
SHOWING 3 SHELVES ARRANGED FOR WALK-IN TYPE OF STORAGE SPACE.



SECTION A-A FRONT VIEW

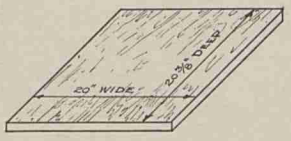


TOP VIEW



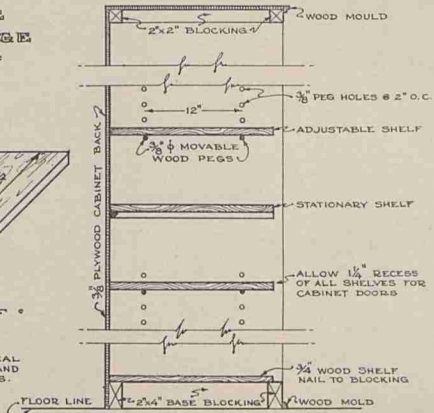
ISOMETRIC VIEW

PORTABLE TYPE STORAGE CABINET



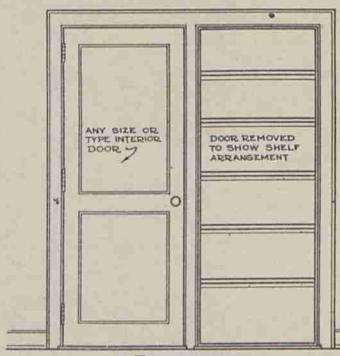
DETAIL OF SHELF

NOTE: CONSTRUCTION IDENTICAL FOR BOTH ADJUSTABLE AND STATIONARY TYPE SHELVES.

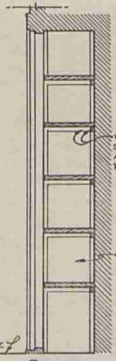


SECTION

SHALLOW TYPE CLOSET STORAGE



ELEVATION



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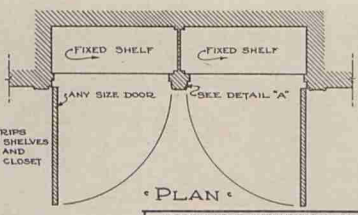
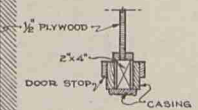


PLAN



DETAIL "A"

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA
NORTH CAROLINA STATE COLLEGE
AND
U.S. DEPT. OF AGRICULTURE COOPERATING
EXT. AGR. ENGINEER - RALEIGH, N. C.

FOOD STORAGE

N.C. | No. 4-00 | SHEET 1 OF 1

NOVEMBER - 1939

STORAGE FOR CANNED FOODS

Prepared by Home Demonstration Specialists of the N. C. Agricultural Extension Service

A well planned storage space for canned food is needed in every farm home. It is a wise investment of time and money.

Home production for the year-round food supply demands that an adequate place be provided for the storage of canned, dried, and cured foods as well as a place for fruits and vegetables. Such a storage space can be provided by careful planning, work, and a small amount of money.

The storage space should be:

1. Conveniently located near the kitchen, regardless of whether it is a closet, a cellar, or an outside building.

2. Cool in summer and frost proof in winter. Tight floors and walls, reinforced with an insulating material, aid in preventing extremes in temperatures. The outside door of the storage room should also be insulated. If commercial insulation is not available, the addition of one or more layers of cardboard tacked to the inside walls of the storage room will give some protection.

3. Dry at all times.

4. Well ventilated if fruits and vegetables are kept there. If only sealed containers are stored, ventilation is not important.

5. Adequately lighted. Shades should be provided for windows to prevent fading of foods in glass containers.

6. Ample. The exact size of the storage space will depend on the amount of food kept on hand and upon other storage facilities available on the farm.

SHELVES

The convenient storage space provides strong, well-braced shelves of desirable depth and height for the storage of all types of containers.

Width of shelves.

1. Twelve-inch boards of one inch thickness for small containers. This will accommodate 2 rows of glass jars or tin cans or 3 rows of bottles or jelly glasses.

2. Eighteen-inch boards of one inch thickness for stone jars or crocks.

Height of shelves.

1. The bottom shelf should be 18 inches from the floor.

2. The top shelf should not be more than 6 feet from the floor.

Distance between shelves.

To estimate the distance between shelves, add 2 inches to the height of small containers and 8 inches to those too heavy to move easily. The lower shelves should be used for the heavier and larger containers.

Amount of shelf space.

Pint and quart jars—19 feet per hundred jars, stored 2 rows to the shelf.

Half gallon jars—20 feet per hundred jars, stored 2 rows to the shelf.

Tin cans, No. 2½—9 feet per hundred cans, stacked 2 deep, and stored 2 rows to the shelf.

Pint glass bottles—9 feet per hundred bottles, stored 3 rows to the shelf.

Braces for shelves.

Supports should be placed every 30 inches—front legs 2 inches by 2 inches, rear legs and diagonal braces 1 inch by 2 inches, and shelf supports 1 inch by 2 inches. See diagrams on reverse side of leaflet.

Arrangement of foods on shelves.

No two homes will have the same conditions, hence each homemaker should study her own situation and plan for a convenient arrangement that will suit her needs. Labels on shelves rather than on jars make a more attractive appearance and call for much less effort on the part of the housewife.

The following plan is suggested for the grouping of food:

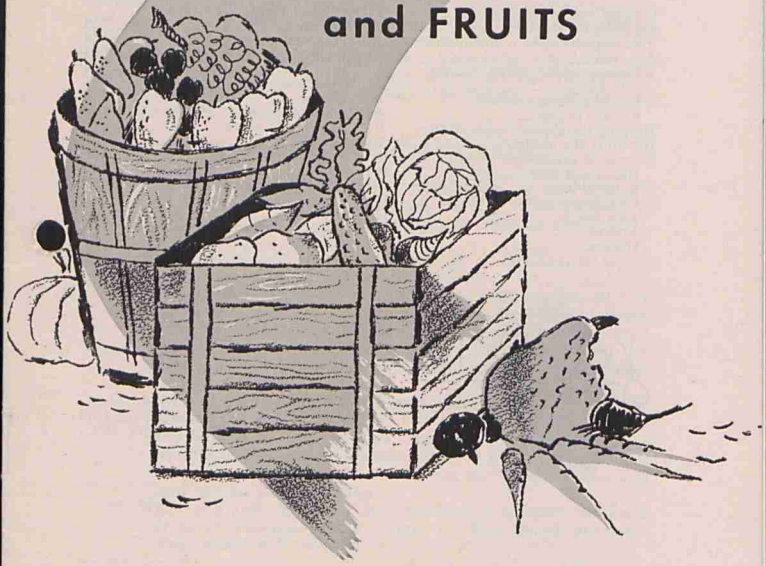
Juices	Jellies, Pickles	Relishes	Other
Fruits	Preserves	Leafy vegetables	vegetables
Fruits	Meats	Starchy vegetables	Miscellaneous

Heavy articles such as large stone jars, kegs, tins and crates should be placed on slatted platforms set on casters, or elevated on legs to permit ventilation. Cured meats should be hung on hooks in ceiling.

An emergency shelf, containing some of the choicest canned products, will aid greatly when unexpected company arrives. If there is a baby in the family, a section of the shelves should be set aside for small containers of tomato juice, vegetable purees, and other foods. In homes where lunches are packed daily, foods grouped together which are suitable for the preparation of lunches will be a convenience.

Dispose of unnecessary articles in the storage room. Have a place for everything and keep everything in its place.

HOME STORAGE of VEGETABLES and FRUITS



Farmers' Bulletin No. 1939
U. S. DEPARTMENT OF AGRICULTURE

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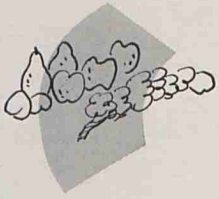

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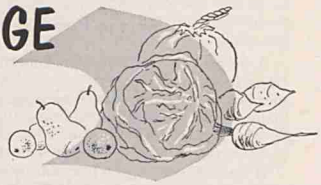
HOME STORAGE of VEGETABLES and FRUITS



By the *Crops Research Division, Agricultural Research Service* [1]

Advantages of home storage of vegetables and fruits vary with families and types of produce. Among the advantages often realized are lowering of food costs and improvement in the family diet. Farmers and home gardeners who grow their own fruits and vegetables are in position to profit most from home storage; but homemakers have found at times that it is practical to buy produce on local markets and place it in storage. This may provide some insurance against unfavorable changes in market supplies and prices. As used in this bulletin, the term "home storage" means preserving vegetables and fruits in their natural condition, using home facilities rather than commercial installations. Such methods as freezing, canning, and pickling are not considered.

GENERAL POINTS ON STORAGE

Successful storage, particularly of vegetables, is not difficult, providing a few general points are kept in mind. These points are:

1. Different vegetables and fruits require different storage conditions.
2. All products that show signs of decay or mechanical injury should be discarded before storing them.
3. Vegetables and fruits dry out and wilt or wither rather quickly unless the atmosphere of the storage place is kept damp and the temperature maintained as low as possible without actual freezing. Certain vegetables are exceptions to this point, as will be noted under the discussion for individual products.
4. Ventilation is needed in the storage space—not only to change the air to carry off odors, but also to help maintain a desirable temperature and humidity. The windows or ventilators should be opened at night and at other times when the outside temperature is near but not below freezing and the air is not too dry.
5. Walls and ceiling should be insulated to prevent moisture from condensing and dropping on the stored products. Free water will cause decay.

---

[1] Previous editions by James H. Beattie, formerly senior horticulturist (retired), and Dean H. Rose, formerly senior physiologist (retired). Present revision by R. C. Wright, senior physiologist (retired), Biological Sciences Branch, Agricultural Marketing Service.

FACILITIES FOR STORAGE

Storage Room in a Home Basement

A cool, well-ventilated basement under a house offers good conditions for the storage of vegetables and some fruits, but many basements are not well suited because of poor insulation or lack of ventilation. Basements containing a furnace usually are too warm and too dry for extended storage of root crops, but with suitable precautions they can be stored there for 3 or 4 weeks.

It is often possible to partition off a corner or one end of the basement to form a storage room. If the basement is L-shaped, a room can be made by partitioning off the offset.

At least 1 window is necessary in the storage space for cooling and ventilating, and 2 or more are desirable. The windows should be darkened in order to protect the produce from light. They should also be boxed or shaded in such a way as to prevent the entrance of light when they are open.

The size of the storage room is determined by the space available and the amount of material to be stored. Natural earth makes a more suitable floor than concrete or brick, as a certain amount of moisture in the air is desirable—earth floors will insure this if kept damp by occasional sprinkling.

Care exercised in making the frame plumb and square will enable the builder to get the structure tight with a minimum of labor. Scantlings, 2- by 4-inch, should be laid flat to a light concrete footing. The concrete footing will provide protection against damage by termites. From the sill to the ceiling 2- by 4-inch studs should be spaced 16 inches apart from center to center. The door should be located at the most convenient point, but it should be large enough to admit barrels, boxes, or other containers.

A well-constructed wall is made by using plywood sheathing on the outside and inside of the studs with mineral blanket or fill insulation between the studs. A less expensive wall can be built by omitting the insulation between the studs. The ceiling of the storage room should be insulated from heat from the living space above by putting insulating material between the joists and covering with plywood.

Bins may be used as produce containers, but crates and boxes are preferred, as it is possible to remove them for cleaning. It is advisable to construct shelves or a slatted floor to keep the containers off the ground. Placing the containers on shelves or a slatted floor will provide free circulation of air and also protection against rodents.

Storage Cellar Under an Outbuilding

A storage cellar may sometimes be built as the lower story and foundation for an outbuilding, such as a barn or shop. When this is done, the lower story, or cellar, should be almost entirely underground. The outside walls, which may be of concrete, brick, stone, or tile, should be insulated by banking them with earth. The underside of the ceiling joists should be insulated by sheathing with plywood or tongue-and-groove siding and filling the space between the joists with dry sawdust or shavings. Peanut, rice, or cottonseed hulls, if kept dry, are also effective insulating materials.

The entrance to the storage cellar may be from the room above or through an outside door reached by steps or a grade entrance.

Ventilation can be provided by running a flue from the ceiling of the cellar up through the roof of the building or by placing ventilators in the side walls of the cellar near the ceiling. Air-inlet ducts should be near the floor, and their outer ends covered with wire screen.

Outdoor Storage Cellars

Outdoor storage cellars are excellent for the storage of many vegetables and some fruits. They possess all the advantages of a storage room in the basement and are superior in some respects: (1) The outdoor storage cellar can be maintained at a uniform temperature over a long period; and (2) it is possible to keep the cellar cool and to reduce the temperature of the stored produce to the desired point for safe storage. Reduction in temperature is obtained by opening the door during the night if the outside temperature is above freezing but cooler than that inside and closing it in the morning before the air becomes warm. Ventilators should be kept tightly closed except when the outside air is cooler than that within the cellar, when they should be opened, unless the outside temperature is so low that damage from freezing may occur.

The cellar should be convenient to the kitchen.

If apples or other fruits are to be stored, it is desirable to have a two-compartment cellar, one for vegetables and one for fruits, with separate intake and ventilating flues for each compartment.

Since the outdoor cellar or storeroom must be kept free from frost and excess moisture, its type and construction will vary with the geographical location. In the southern part of the country, the structure is usually entirely aboveground and protected by only a few inches of sod and by straw, hay, or leaves. In northern sections outdoor cellars are built almost entirely belowground and covered with 1 to 2 feet or more of earth.

Pole-and-Plank Storeroom

A cheap aboveground storage room suited to conditions in the southern sections of the United States may be built on a well-drained site by using poles and planks as the main structural parts (fig. 1). To make this type of storage, a row of posts is set 5 to 6 feet apart, with the posts extending 7 or 8 feet above the ground. A ridge pole is then placed on top of the posts. A row of planks or puncheons is leaned against each side of the ridge pole, with the opposite ends of the planks resting in a shallow trench 4 or 5 feet from the center line of posts. The gable-shaped structure is closed by boarding up the ends, except a space for a door in one end. The roof is covered with sod to a depth of 5 or 6 inches and may have an additional covering of straw, hay, or leaves.

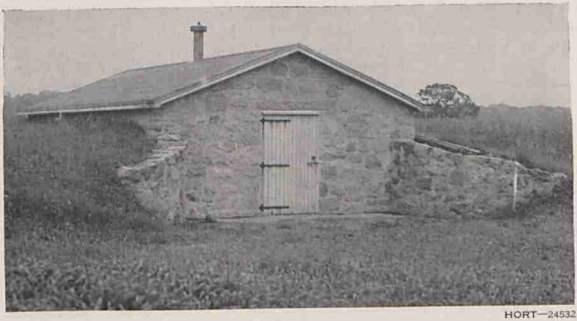
Partly Underground Cellars

In sections where low temperatures prevail, it is necessary to have storage space well insulated. One type of cellar common in northern sections of the country has walls of masonry that extend just above the surface of the ground (fig. 2). The frame roof is erected on plates, which are set on the walls. The underside of the rafters is ceiled, and

HORT—10851

Figure 1.—An inexpensive outdoor storage that can be used in mild climates for storing sweetpotatoes and other crops. It consists of a pole-and-plank frame covered with sod and straw.

an insulating material, such as mineral wool, dry sawdust, or shavings, is packed in the spaces between the rafters. Sheathing, paper, and roofing material are used to complete the roof. A ventilating flue in the roof provides ventilation. Temperature control is easier in this type of cellar than in structures that are entirely aboveground, and less insulation is needed. A sidehill location for partly underground cellars makes it possible to use a grade entrance to store and remove produce without climbing steps.



HORT—24532

Figure 2.—A partly underground storage cellar with stone walls and insulated frame roof. This type of cellar will keep produce from freezing in cold climates.

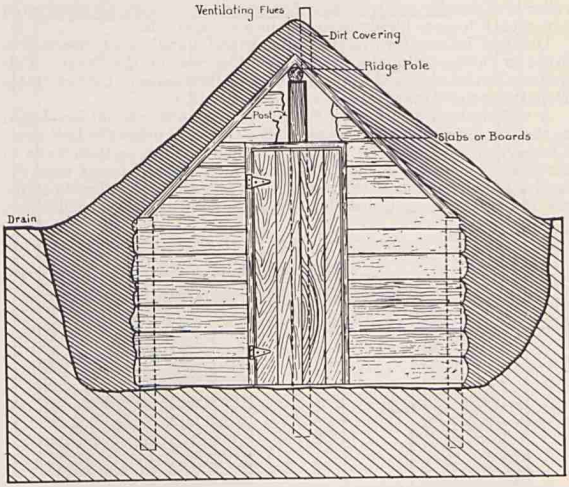


Figure 3.—End view of post-and-plank outdoor storage cellar, showing the frame covered with soil. Manure, straw, or corn fodder may be placed on top of the dirt to provide additional insulation.

Posts and planks can also be used to build a cheap storage cellar partly or completely underground (fig. 3). The excavation for this type of cellar should be approximately the size of the proposed structure. The excavated soil should be piled nearby and used for covering the roof and banking the sides. The first step in constructing the frame is to set 2 rows of posts of uniform height in the bottom of the pit near the side walls and a middle row of posts about 5 feet higher than the outside posts. The center row supports a ridge pole, and plates are laid on the two outside rows. A roof of planks or puncheons can then be put in place. After the ends are closed the whole structure except the door is covered with soil, the thickness of the covering depending on the climate.

This type of storage cellar is low in cost, but it is short-lived, as conditions in the cellar are favorable for wood decay.

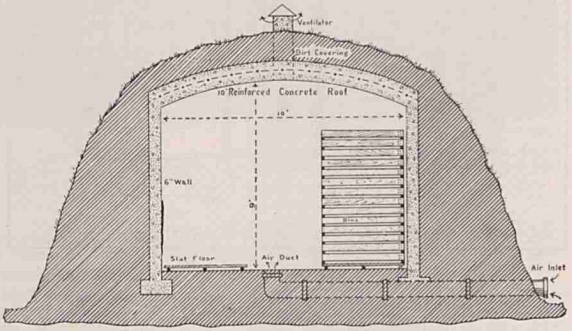
Concrete Cellars

Concrete storage cellars cost more than those built of wood, but are permanent structures (fig. 4). Concrete has several advantages over brick, stone, or other decay-resisting materials. Unskilled labor can be used to build a small concrete cellar. The arched roof and walls can be poured as one solid unit and thus make the concrete

cellar structurally superior to other types. It is easy to waterproof concrete, a feature highly desirable in a storage cellar.

Detailed information on the mixing and handling of concrete is given in Farmers' Bulletin 1772, Use of Concrete on the Farm. This bulletin can be obtained from the Office of Information, United States Department of Agriculture, Washington 25, D. C.

A well-drained location convenient to the house should be chosen as the site for a concrete storage cellar. Sidehills make the best sites. The excavation should be just large enough for the earthen walls to serve as the outside form for the concrete. Board forms must be used for that portion of the wall that is aboveground. Inside forms are usually made of boards held in place by 2 by 4's spaced about



HORT—20680

Figure 4.—Cross section of a concrete storage cellar, showing the arrangement of ventilators, slat floors, and bins. Air from the floor inlet circulates under and around stored produce.

18 inches apart. Supports for the roof form must be placed along the top of the inside forms for the side walls. The form for the arched roof is started by setting a line of posts midway between the side walls and placing a plate on top of the posts. The plate must be a few inches higher than the side walls. Form boards are laid across the plate and the ends sprung down and secured to the inside forms for the side walls. Concrete for the roof and walls should be poured at the same time to eliminate joints. An arch makes a strong roof and helps in ventilating the cellar. Another advantage of the arch is that moisture which condenses on the ceiling will drain to the side walls instead of dripping on the stored produce.

The whole structure, with the exception of the door, is covered with earth to prevent freezing. The thickness of the covering should vary with geographical location. In northern sections of the country, 2 to 3 feet may be necessary. Straw, fodder, or manure may be used for additional insulation. It may be necessary to close the air inlet and ventilating flue in severely cold weather. Wire screen over the outside ends of the duct and flue will keep out birds and small animals.

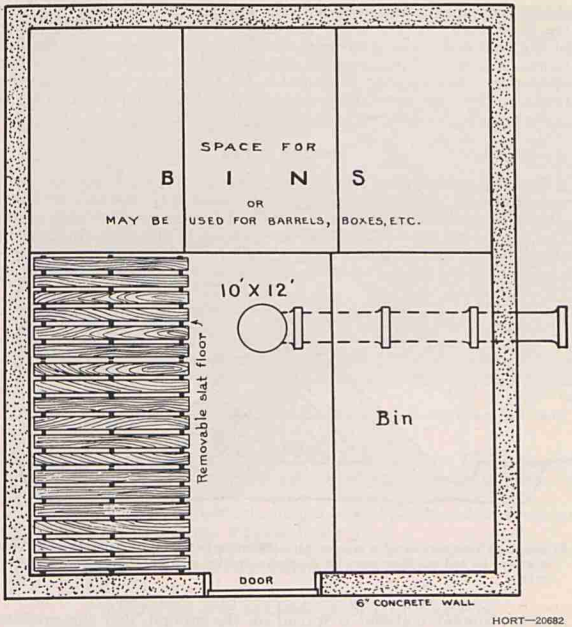


Figure 5.—Floor plan of a simple concrete storage cellar with an earthen floor. Removable slat flooring keeps the containers out of contact with the moist soil.

Dimensions of concrete cellars will vary according to family needs. Figures 4 and 5 illustrate a cellar 10 feet wide, 12 feet long, and 8 feet high. A cellar this size will hold the produce of an acre garden. Middle piers for supporting the roof should be installed in cellars wider than the one illustrated. The 6-inch concrete walls in this cellar are reinforced with ⅝-inch iron rods. Ventilation is provided by a ventilating flue in the roof and an air inlet in the floor. Glazed terra cotta pipe may be used for the floor inlet, and these ducts should be not less than 12 inches in diameter for a cellar this size.

Wood-Frame House

An aboveground type of storage house used in many sections of the North is a small frame building with walls 10 to 12 inches thick. The walls are filled with an insulating material, such as dry sawdust or shavings. Tight walls can be made by sheathing both the inside and outside of the frame with matched lumber. Rafters are ceiled on

the underside with the same material and spaces between the rafters are filled with dry insulating material. The use of building paper in the roof and walls is of great assistance in making the structure tight. Vaporproof paper on the inner side of the insulation keeps the insulation material dry. Ventilation for the frame building can be provided by the same type of roof flue and floor inlet that is recommended for concrete cellars (figs. 4 and 5).

Storage in Pits

Cone-shaped outdoor pits (fig. 6) are often used for keeping such vegetables as potatoes, carrots, beets, turnips, salsify, parsnips, and cabbage; and are sometimes used for winter apples and pears. The conical pit may be built on the surface of the ground, or in an excavation 6 to 8 inches deep in a well-drained location. The construction of the pit preferably is as follows: A layer of straw, leaves,

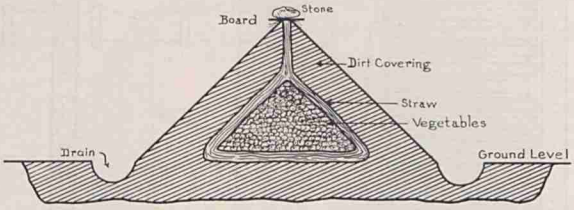


Figure 6.—Cross section of a storage pit containing potatoes. During severely cold weather the soil covering may be supplemented by manure, straw, or similar material.

or other similar material is spread on the ground, and the produce is stacked on the litter in a conical pile. More litter is used to cover the produce, and the entire pile is covered with 2 or 3 inches of soil, which is firmed with the back of a shovel to make it waterproof. More soil may be needed as winter approaches. A shallow drainage ditch should be dug around the pit to carry away water.

The amount of ventilation necessary will depend on the size of the pit. Small pits containing only a few bushels of vegetables will receive sufficient ventilation if the straw between the vegetables and soil is allowed to extend through the soil at the apex of the pile. This should be covered with a board or piece of sheet metal held in place by a stone to protect the produce from rain. In larger pits ventilation may be obtained by placing two or three pieces of rough boards or stakes up through the center of the pile of vegetables so that a flue is formed. This flue is capped by a trough formed of two pieces of board nailed together at right angles.

It is difficult to get produce out of conical pits in cold weather, and when a pit is opened it is desirable to remove its entire contents at once. For these reasons it is advisable to construct several small pits rather than one large one, and to place a small quantity of several kinds of vegetables in the same pit. This makes it necessary to open

HORT—46276

Figure 7.—Home storage pit made by covering a barrel with straw and earth.

only one pit to get a supply of all kinds of produce. When several crops are stored in the same pit it is a good plan to separate them with straw or leaves.

Another type of pit consists simply of an open barrel covered with successive layers of straw and earth (fig. 7).

Pits should be made in a different place every year to avoid decay from contaminated material remaining in an old pit.

KEEPING THE STORAGE SPACE CLEAN

Basement storage rooms and outdoor storage cellars should be kept clean. Decaying material should be removed as soon as it is discovered. At least once a year all movable containers should be removed from the storage space for cleaning. Scraping and scrubbing, followed by whitewashing, is recommended.

Permanent bins are more difficult to clean than movable containers, and for this reason are less desirable.

HANDLING THE PRODUCE

Produce intended for storage should be handled carefully at all times to avoid bruises and skin breaks. All mashed, cut, or decaying specimens should be removed. If unsound produce is placed in storage, serious losses from decay are likely to result, especially if the temperature in the storage space cannot be kept below 50° F.

Waxing vegetables for home storage is not recommended, although wax has been used for several years with certain perishable produce to improve its appearance for sales purposes and to minimize shrinkage.

If apples or other fruit are to be stored in a basement or outdoor storage cellar, it is desirable to have separate compartments for fruits

and vegetables. Each compartment should have its intake and ventilating flues. If pits are used for storage, fruits should be stored in pits separate from those used for vegetables.

STORAGE OF VEGETABLES

Since most families want to store more vegetables than fruit, storage areas are usually designed primarily for vegetable storage. Different vegetables require different storage conditions, and the secret of keeping quality of produce high and storage costs low is to provide the variety of conditions demanded by the variety of vegetables stored. Conditions under which individual vegetables keep best are given in the following pages.

Beans and Peas

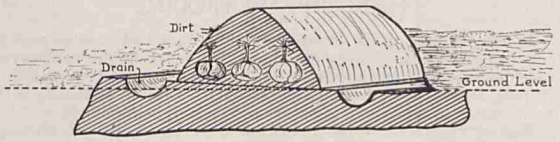
All kinds of dry beans may be kept for winter use by picking the pods as soon as they are mature and spreading them in a warm, dry place until they are thoroughly dry. The beans are then shelled and stored in bags hung in a cool, dry, well-ventilated place until needed. Cellars are likely to be too damp for storing beans.

Navy beans and other dry beans can be allowed to mature on the vines until a maximum number of pods are ripe. Then the whole plants are pulled and cured like hay. After thorough drying the beans are shelled and stored as suggested above, or they can be placed in fruit jars or cans. A few drops of carbon bisulfide in each container will make control of weevils more certain. This substance is flammable and must be kept away from fire, but it will not affect the flavor of the beans or their germination.

Dry lima beans, soybeans, and peas may be treated like dry beans and stored in the same manner.

Late Cabbage

Heads of late cabbage may be stored in ventilated containers in outdoor storage cellars, or they may be placed in conical pits. Another satisfactory method is to store the cabbage in a long pit (fig. 8). When cabbage is stored in this manner, it is pulled out by the roots and the entire plant is placed head down and covered with soil. The advantage of long pits over conical pits is that only a few heads may be removed without disturbing the rest of the pit.



HORT—50368

Figure 8.—Cabbages stored in a long pit. This type of pit must be well drained. The soil covering for cabbage does not have to be so thick as the covering for vegetables that are more easily injured by frost.

Another good method is to store the cabbage in a pit made of stakes and poles covered with straw (fig. 9). The plants are pulled by the roots and set side by side, with the roots in shallow trenches. Enough 8- to 10-foot trenches are dug to hold the number of cabbages to be stored. A frame is erected around the bed after the trenches have been filled with cabbages and soil packed around the roots. The frame is made of rails, boards, or poles or of stakes driven into the ground and should be about 2 feet high. Soil is banked around the frame, and poles are placed across the top to hold the covering of straw, hay, or corn fodder. Heads are removed by cutting them off with a knife, leaving the roots in position. The roots will sprout in the spring and

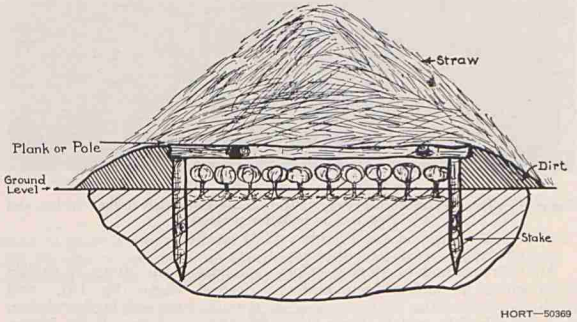


Figure 9.—Cross section of a cabbage storage pit made of stakes and poles covered with straw.

supply the family with an abundance of greens. This type of storage is inexpensive and gives good results.

Heads of cabbage may be laid in rows on shelves in an outdoor storage cellar but not in a storage room in the basement of a dwelling, as the odor is likely to penetrate through the house.

Cauliflower and Broccoli

Cauliflower and broccoli cannot be preserved in ordinary home storage facilities. However, they can be held satisfactorily at 32° F. for a period of 2 to 3 weeks.

Late Celery

Celery plants may be stored for a month or more in the garden right where they grew, by banking enough earth around the standing plants to prevent freezing. To store by this method a few inches of soil is banked around the base of the plant at the end of the season, and the banking is built up to the top of the plants before severe freezing is likely to occur. As the weather becomes colder the ridge is covered with coarse manure, straw, or corn fodder held in place with boards. The objection to this type of storage is that it is hard to get celery out when the ground is frozen.

HORT—1365

Figure 10.—Trenches for storing celery. Plants are packed closely in the trenches, and a sloping roof is built for protection.

Another method of storing celery is to dig a pit 10 to 12 inches wide, about 24 inches deep, and any desired length (fig. 10). Soil in the bottom of the pit is loosened or enough loose soil is shoveled in to form a bed in which to set the roots of the celery. Fully grown plants with considerable soil adhering to the roots are closely packed in the trench. Celery is watered as it is placed in the trench, and the trench is left open long enough for the tops to dry off. Unless the soil is very dry at the time of storing or extended warm weather follows, it will not be necessary to water again. A covering for the trench is started by setting a 12-inch board on edge beside the trench and banking the board with earth. A sloping roof of boards, poles, or cornstalks from which the tops have been removed is then placed across the pit with one end resting on the upright board and the other end on the ground. A light covering of straw or other material that will pack closely is spread over the roof, and the covering is increased as the weather becomes colder. Celery stored in this manner will keep until late winter.

The unused pit of a permanent hotbed may be utilized as a storage place for celery by removing surplus earth and substituting a covering of boards for the sash. Celery is packed in the hotbed in the same manner that is described above for storing in a trench (fig. 11). The bed may be covered with any material that will keep out frost.

Celery may be stored on the floor of a storage room in the basement of a dwelling or in an outdoor storage cellar. For this type of storage the plants are taken up just before freezing occurs, with considerable soil adhering to the roots. They are set on the floor with the roots down and packed together as closely as possible. If moderately moist, the celery will keep well for 1 to 2 months under the conditions

HORT—50241

Figure 11.—Celery stored in a hotbed pit.

found in most storage cellars. Celery should not be stored in a cellar with turnips or cabbage, as the celery will absorb the odor of these vegetables and its flavor will be ruined.

Endive

Endive placed in the storage cellar under the conditions described for cellar storage of celery will keep for 2 to 3 months. The leaves are tied over the crown or center to assist blanching.

Onions

To keep well, onions must be mature and thoroughly dry. Onions with thick necks and those that have been injured will not keep and should be used immediately. Sound onions should be stored in baskets, crates, or loosely woven bags. Good ventilation is essential. A dry, well-ventilated place such as an attic or unheated room furnishes good storage space for onions; cellar conditions are not recommended. Slight freezing does no harm, provided onions are not handled while frozen. The home gardener will usually find that onions grown from sets are difficult to keep. A procedure recommended for onions grown from sets is to place them in a single layer, necks down, on poultry netting that is suspended in an airy shed.

Parsnips

Parsnips may be left in the ground to be dug as needed, since freezing does not injure them. They actually improve in flavor after being kept near freezing for a few weeks. It is advisable to store a small quantity in the storage room in the basement or in an outdoor

storage cellar for use during periods when the ground is frozen. Parsnips may also be stored in small piles or in well-ventilated containers in cellars or in conical pits.

Potatoes

Potatoes that are to be stored for only a month to 6 weeks before being used may be stored under different conditions than potatoes that are to be stored for the winter. Storage for a short period may be at a temperature between 50° and 60° F. Potatoes held within these temperatures cook better and do not acquire the undesirable sweetness of potatoes held in long storage at temperatures below 40°. However, at the higher range they will sprout sooner than at 40°.

Long time storage may be in basement cellars, in outdoor cellars where the temperature remains at about 40°, or in conical pits. Barrels, boxes, baskets, crates, or bins on the floor may be used for holding potatoes stored in cellars. They must be protected from light. It is a good plan to place the major part of the crop in pits and a small quantity for immediate use in a basement or outdoor cellar.

In case potatoes become undesirably sweet because of a low storage temperature, they usually can be desugared by holding at ordinary living-room temperature for a week or two.

Potatoes that are exposed to late blight in the field at harvesttime should not be stored, as the infection would likely spread and cause severe loss.

For more detailed information on the storage of potatoes, see United States Department of Agriculture Farmers' Bulletin 1986, Potato Storage. This bulletin can be obtained from the Office of Information, United States Department of Agriculture, Washington 25, D. C.

Pumpkins and Squashes

Well-matured pumpkins and squashes may be kept in dry, well-ventilated cellars, but a better place is in the basement of the house near the furnace. Pumpkins and squashes keep best when placed in rows on shelves. Late-maturing varieties of these vegetables will keep until late winter if the temperature is maintained at 50° to 60° F. A preliminary curing at 80° to 85° for about 2 weeks helps to ripen immature specimens and to heal mechanical injuries produced during harvesting.

Root Crops (Miscellaneous)

Root crops such as beets, carrots, celeriac, kohlrabi, salsify, turnips, winter radishes, and horseradish are not stored until late fall. The roots should be pulled and topped when the soil is dry. If roots are to be held in a storage cellar in the basement or in an outdoor storage cellar, they should be placed in crates or in ventilated boxes or barrels. If sufficient space is available in the storage cellar, it is a good plan to place them in small piles along the wall. Storage in large piles should be avoided, as it is liable to cause heating and decay. Roots dry out and wilt very rapidly if kept too dry. The humidity of the storage room should be very high.

Conical pits (see p. 8) make excellent storage space for root crops. Roots to be stored in conical pits are prepared the same as roots for cellar storage—they are pulled and topped in the fall when the soil is dry.

Turnips may be left in the garden later than most other crops. They withstand hard frost, but are injured by alternate freezing and thawing. Turnips must not be stored in the basement of the dwelling, as they give off odors noticeable in the house.

Sweetpotatoes

Sweetpotatoes should be mature when dug and should be handled carefully at all times, as they are easily bruised. A warm moderately dry place is preferable for storing. This crop may be kept in pits or outdoor storage cellars, but a relatively heavy loss from decay may be expected. Sweetpotatoes stored in pits are handled in much the same way as other root crops.

When kept in a specially constructed storage house, either in bulk or in crates, sweetpotatoes will keep much better if they are first cured for about 10 days or 2 weeks at a temperature of 80° to 85° F. The relative humidity should be kept high during the curing process, but not so high that free water accumulates on the surface of the stored produce or on the walls of the storage room. If the above curing conditions are not available, newly harvested sweetpotatoes will be benefited by stacking in covered containers near a furnace or stove for 2 or 3 weeks. Sweetpotatoes should not be handled after the curing period. The temperature should be reduced to about 55° to 60° and maintained as near this range as practicable for the rest of the storage period.

Well-matured, well-cured, and carefully handled sweetpotatoes held at a uniform temperature of about 55° to 60° F. may be kept throughout the winter and spring. When only a few bushels are to be stored, they may be placed in a warm, dry basement. A small supply may also be placed near the chimney on the second floor or near any other place where the temperature will be about 55° to 60°.

For more detailed information on the storage of sweetpotatoes, see Farmers' Bulletin 1442, Storage of Sweetpotatoes. This bulletin may be obtained by writing to the Office of Information, United States Department of Agriculture, Washington 25, D. C.

Tomatoes

The fresh-tomato season can be extended for about 4 to 6 weeks in the fall by properly storing the fruits. One method of storage consists simply of pulling the vines with tomatoes attached when the first frost threatens, but before frost occurs, and hanging the entire plant in a basement or other location where the temperature will not get below 50° to 55° F.

A better way to store tomatoes is to store sound, well-matured (but not ripe) fruits in shallow trays in a moderately dry, well-ventilated cellar or outbuilding where the temperature will be maintained close to 55° F. Ripening will proceed slowly at temperatures between 55° and 60°, and the ripened fruits will remain sound up to 6 weeks if kept within this temperature range. A moderate amount of light may cause better ripening color, but otherwise it is immaterial

whether the storage place is light or dark. If the tomatoes are separated into different stages of maturity, the riper fruits can be removed as needed without disturbing the others. An occasional sorting is desirable to remove decayed fruits.

Tomatoes taken from nearly spent vines are inclined to be of poorer quality and more likely to decay than fruit from vines in the prime of production. Therefore, if it is desired to extend the season as late as possible with good-quality fruit, a late-planted crop should be grown for this purpose.

STORAGE OF FRUITS

It will probably pay to provide special storage facilities for fruit if a large quantity is to be stored. Usually, the kind and amount of fruit desired can be stored in the same way as vegetables. The following information on fruit storage will help the home owner to plan a storage system for his particular needs.

Apples and Pears

Late-maturing varieties of apples and pears may be kept in a storage room in the basement of a dwelling, in outdoor cellars, or in pits. These fruits should not be placed in the same storage space with vegetables if it is possible to have separate storage, because the fruit may absorb unpleasant odors. The length of the storage period for apples and pears differs, depending on varieties, the temperature of the storage space, and the maturity of the fruits when stored. Ripe fruits will not keep so well as fruits that are mature but firm when picked. Unripened Kieffer pears, for example, will keep for 8 to 10 weeks at a temperature close to 32° F. If ripe when stored, they cannot be expected to remain in good condition more than 2 or 3 weeks, regardless of the temperature. Unripe pears can be ripened at 60° to 70°.

Apple and pear varieties that keep well may be stored in pits as described for root vegetables, but the extra labor required is hardly justified for storing short-keeping varieties or fruit that is already ripe. Apples and pears that keep a relatively long time under average home storage conditions are varieties that are customarily harvested close to the onset of cold weather. These include such apples as Baldwin, Rhode Island Greening, Winesap, and York Imperial and such pears as Kieffer, Duchess, Bosc, Comice, and Winter Nelis. The last-named variety should remain in good condition most of the winter. When pears are removed from storage while still hard and immature, they will ripen to good quality if held at 60° to 70° F.

Apples and pears often spoil if placed in pits or cellars before freezing weather arrives. The fruit can be held temporarily in an open shed or under cover in the shelter of a tree, where they will remain colder than in permanent storage where they must be placed when the weather becomes cold. Apples and pears do not freeze until exposed to a temperature below 28.5° F.

Grapes

In northern sections it is possible to keep grapes for a month or two, provided they are clean and fully ripe and are stored in a cool, moderately moist place. A temperature slightly below 32° F. will do no

harm, since grapes do not freeze until the temperature falls to 28° or lower. The fruit should be held in closed but not airtight containers in a place where it cannot absorb undesirable odors. Among the varieties produced in the East, Catawbas have the best keeping quality, but other varieties can be kept satisfactorily under the conditions just described.

Peaches

Peaches cannot be satisfactorily stored for more than a few days unless refrigerated. The most satisfactory storage temperature is 31° to 32° F. At this temperature well-matured—but not overripe—peaches can be held for 2 to 4 weeks. Deterioration is indicated by loss of bright, live color; loss of flavor; and browning of the flesh, especially around the stones.

Plums

In the North plums such as Damson, Italian Prune, Pond (Hungarian Prune), and Golden Drop can be held satisfactorily in a moderately moist, cool basement or storage cellar for a month to 6 weeks. Plums are not adapted to pit storage.

PRODUCE THAT CANNOT BE STORED

It is not possible even in cold storage to hold peppers, eggplants, and the more common types of watermelons and muskmelons in edible condition for more than about a month. The maximum storage period in a home basement or outdoor cellar for some of these would be only a few days and for others possibly 2 weeks.

STORAGE COMBINATIONS TO BE AVOIDED

Unless storage space is extremely limited, apples should not be stored with cabbage, potatoes, or most root crops; and celery should not be stored with turnips or cabbage. Apples and celery will absorb odors from the other produce and acquire unpleasant flavors. Turnips and cabbage should not be placed in the basement of a dwelling, as they give off odors that are unpleasant throughout the house. Dairy products and eggs readily absorb odors and should not be stored in the same space as vegetables and fruits.

SUMMARY OF STORAGE RECOMMENDATIONS

The general storage recommendations for the various commodities are summarized in table 1.

TABLE 1.—*Places recommended for home storage of vegetables and fruits, length of storage period, and recommended temperature and humidity*

Commodity	Place to store [1]	Length of storage period	Temperature [2]	Humidity
Vegetables:				
Dry beans and peas	Any cool, dry place	As long as desired	Cool	Dry.
Late cabbage	Pit, trench, or outdoor cellar	Through late fall and winter.	do	Moderately moist.
Cauliflower and broccoli		2 to 3 weeks	32° F	Do.
Late celery	Pit or trench; roots in soil in storage cellar.	Through late fall and winter.	Cool	Moist.
Endive	Roots in soil in storage cellar	2 to 3 months	do	Do.
Onions	Any cool, dry place	Through fall and winter	do	Dry.
Parsnips	Where they grew, or in storage cellar.	do	Cold; freezing in soil does not injure.	Moist.
Various root crops	Pit or in storage cellar	do	Cool	Do.
Potatoes	do	do	See text	Do.
Pumpkins and squashes	Moderately dry cellar or basement.	do	50° to 60° F	Moderately dry.
Sweetpotatoes	do	do	55° to 60° F	Do.
Tomatoes (mature green)	do	4 to 6 weeks	do	Do.
Fruits:				
Apples	Storage cellar, pit, or basement.	Through fall and winter	Cool	Moderately moist.
Pears	Storage cellar	See text	do	Do.
Grapes	Basement or storage cellar	1 to 2 months	do	Do.
Peaches	do		do	Do.
Plums	do	4 to 6 weeks	do	Do.

[1] Always avoid contact with free water that may condense and drip from ceilings.
[2] Cool indicates a temperature of 32° to 40° F.; avoid freezing.

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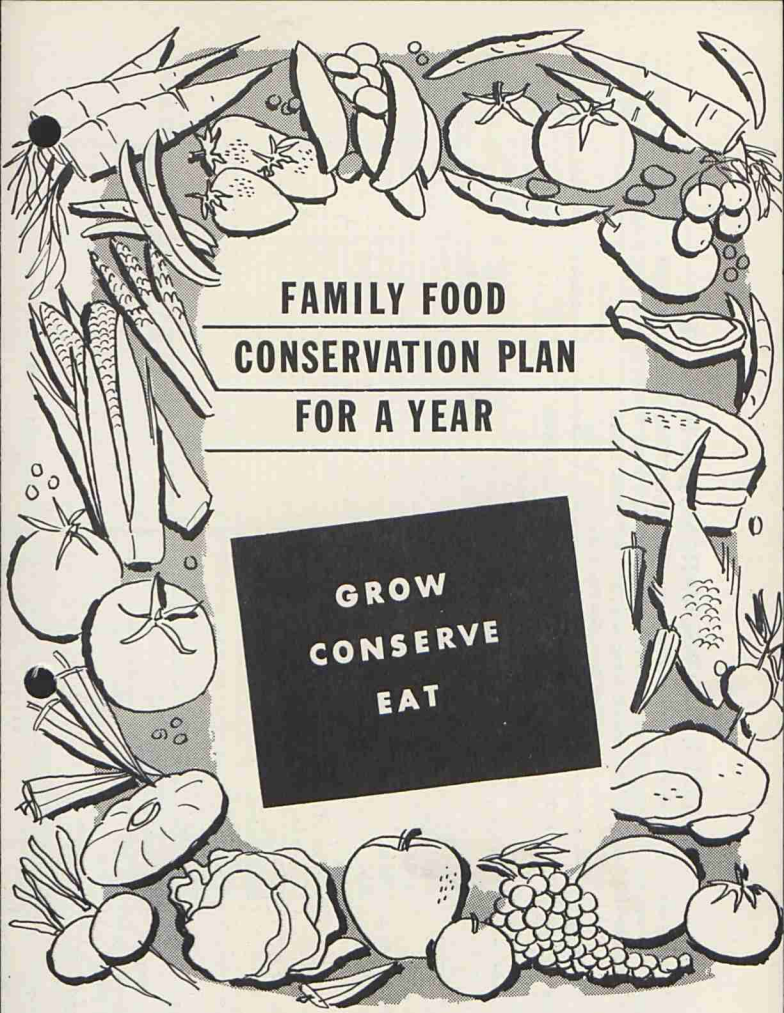

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FAMILY FOOD CONSERVATION PLAN FOR A YEAR

This plan is for six months production period. Increase the amount if the production season is less. This is just an estimate. Vary it to suit family taste and variety of food produced. Save more to take care of gifts, guests, hired help, and busy days during growing season when canned foods are used for quick meals.

½ Cup Fruits and Vegetables is one Serving

..... *Number in your family. Multiply the number of Qts. required per person by this number to estimate the amount to be conserved in each group below.*	FOOD *Select only the ones your family will eat.*	FOODS CONSERVED Methods used					Amount Unused End of Year	Food Purchased that could be Produced & Conserved
		Frozen No. Qts.	Canned No. Qts.	Brined No. Qts.	Dried No. Lbs.	Stored No. Lbs.		
GREEN, YELLOW, FRUITS AND VEGETABLES	Asparagus							
23-25 Qts. per person	Beans, green snap							
..... Qts. needed for one or more servings daily.	Broccoli							
	Carrots							
	Corn, yellow							
	Okra							
	Peaches, yellow							
	Peas, garden							
	Pumpkin							
	Squash, yellow							
	Sweet Potatoes							
	Others							
	TOTAL							
VITAMIN C RICH	Tomatoes or Juice							
23-25 Qts. per person	Strawberries (frozen)							
.....Qts. needed for one or more servings daily. and 4 servings cabbage per week	Cabbage, raw (stored)	●						●
100 lbs. per person.	Potatoes							
..... lbs. needed for one or more servings daily.								
OTHER VEGETABLES	Beets	●						●
23-25 Qts. per person.	Beans, white							
.....Qts. needed for one or more servings daily.	Corn, white							
	Onions							
	Peas, black eyed							
	Soup Mixture							
	Soy Beans							
	Others							
	TOTAL							
FRUITS, FRUIT JUICES	Apples							
23-25 Qts. per person	Berries							
.....Qts. needed for one or more servings daily.	Cherries							
	Figs							
	Grapes							
	Peaches, white							
	Pears							
	Plums							
	Others							
	TOTAL							
MEATS	Beef, veal							
15-20 Qts. or 75 lbs. per person.	Fish							
.....Qts. needed for 4-7 servings per week, amount will vary depending on fresh meat available.	Lamb							
	Pork							
	Poultry							
	Game							
	Others							
	TOTAL							
8-10 pts. per person	Jellies, Jams, Preserves							
3 Qts. per person	Pickles, relish							
4 Qts. per person	Brined, Kraut, Cucumbers							

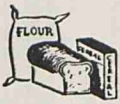
A DAILY FOOD PLAN

This conservation plan is based on the basic food groups you need daily for the best of Health:

(1) **Vegetable-Fruit Group**—4 or more servings including: One dark green or deep yellow in color, important for Vitamin A (or at least every other day).
One rich in Vitamin C, as tomatoes, raw cabbage, oranges and other citrus fruits.
Other fruits and vegetables as potatoes, apples, snap beans, onion, butterbeans and pears.

(2) **Meat Group**—2 or more servings of these: Beef, veal, pork, lamb, poultry, eggs, fish with dried beans and peas or nuts used occasionally as alternates.

(3) **Milk Group**—Milk, cheese, ice cream. Some milk each day. (Cheese and ice cream can replace part of the milk):
3 to 4 cups for children
4 or more cups for teen-agers
2 or more cups for adults
4 or more cups for pregnant women
6 or more cups for nursing mothers



(4) **Breads-Cereal Group**—4 or more servings of whole grain enriched or restored breads, cereals, rice, grits, spaghetti or macaroni. Cakes and other baked goods are also included if made with enriched or whole grain flour. One serving is one piece of bread, ½ to ¾ cup cooked cereal or 1 cup ready-to-eat cereal. If you cut down on foods from this group, eat an extra serving of meat and vegetables.

In addition to these basic food groups eat any other good foods you want to furnish the energy you need for work and play.

Prepared by **Iola Pritchard** and **Virginia Wilson**, Extension food conservation and marketing specialist and Extension nutrition specialist, respectively.

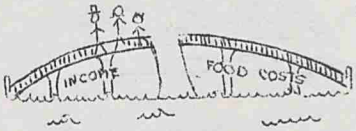
By Dola Pritchard

COUNTY AGRICULTURAL WORKERS COUNCIL

MEETING

Food remains the largest single item in the family budget. The average American spends 19% of his disposable income for food alone; however, as income decreases the percentage of the budget going for food increases.

Purpose of Meeting - To discuss ways of working with all families in the county (directly or indirectly) on how to bridge the gap between income and cost of food. The final decision on how this can be done lies with the family. There are, however, alternatives we may suggest to them.

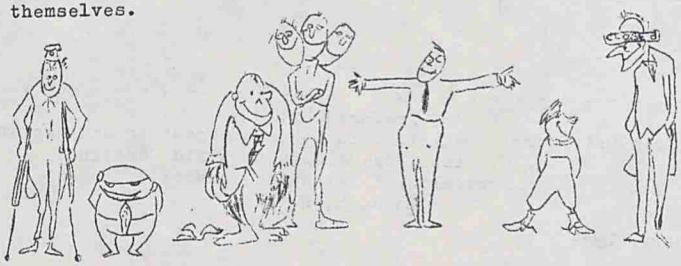


Increased income ☐ ???

Home produced and conserved food supply ☐ ???

Buy Food Wisely ☐ ???

Who Attends? - This group represent us - agricultural workers dedicated to the job of helping people help themselves.



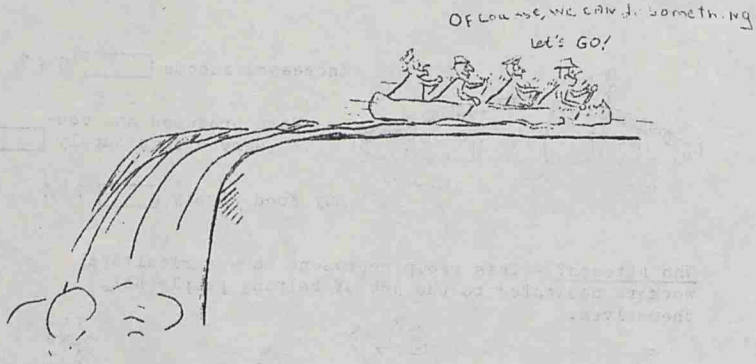
Lets analyze this group. Some of us will use crutches trying to convince ourselves that the job is too big - or someone else will do that - or maybe what good would my efforts be? There is the frog type, who changes his direction of effort with the immediate stimulus or jumps from job to job getting little accomplished.

The gentleman who usually "lives in the tree" has just come down with an idea --------you name the others - and which one do you represent?

(see back)

Where Do We Go From Here?

Raising income is only part of the solution. We need to help families see the importance of wise management of time, energy, and resources including money and decision making. A home food supply, when practical, should be encouraged - and how to buy food wisely is needed by every family. Lets get in the boat and row in the same direction.



Prepared by:
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Raleigh, N. C.

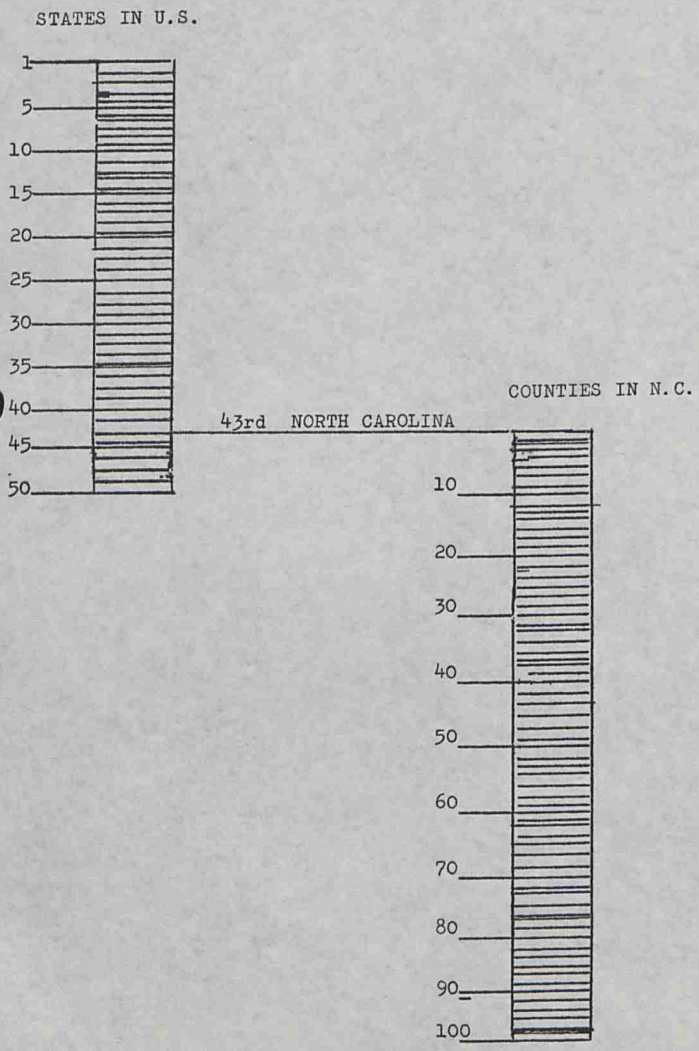
January, 1964

ESTIMATED ANNUAL COST OF FOOD (PER CAPITA)

BASED ON U.S.A. AVERAGE - OCT., 1963

	LOW COST	MODERATE	LIBERAL
FAMILY OF 2 (20 - 34 yrs.)	$374.00	$499.20	$608.80
FAMILY OF 4 (Children 7 - 12 yrs.)	314.60	425.10	484.90
TEENAGE GIRL (16 - 19 yrs.)	343.20	457.60	520.00
TEENAGE BOY (16 - 19 yrs.)	431.60	592.80	670.80

HOW WE RANK IN INCOME



RELATIONSHIP BETWEEN FOOD BUDGET and FOOD COST

Total expendable family income X 20% = FOOD BUDGET

Number in family X $398 = FOOD COST

IS THE DIFFERENCE RED OR BLACK?

HEAT PENETRATION

Purpose: To study factors which affect heat penetration in foods during processing.

I. NATURE OF FOOD - Pack whole kernel and cream style corn (room temperature) into pint jars. Insert thermometer. Record temperature. Place in boiling-water bath and record temperature every 2 minutes for 10 minutes, then 5 minutes, 10 minutes. Record time it takes for both jars to reach same temperature.

II. FIRMNESS OF PACK - Wash and stem 1 lb. greens. Blanch in boiling water 1 minute. Drain and cool to room temperature. Weigh. Pack 1/3 of weight into a pint jar and remaining 2/3 into another pint jar. Insert thermometer, record temperature. Place in boiling-water bath and record temperature every 5 minutes for 30 minutes.

III. SIZE OF CONTAINER - Pack cooked mashed potatoes at room temperature into 1/2-pint and 1-pint jars. Insert thermometer. Record temperature. Place in boiling-water bath and record temperature every 5 minutes for 30 minutes.

IV. INITIAL TEMPERATURE - Pack apple sauce in pint jars - one at room temperature; the other 75° C. Place in boiling water bath and check temperature every 5 minutes for 30 minutes.

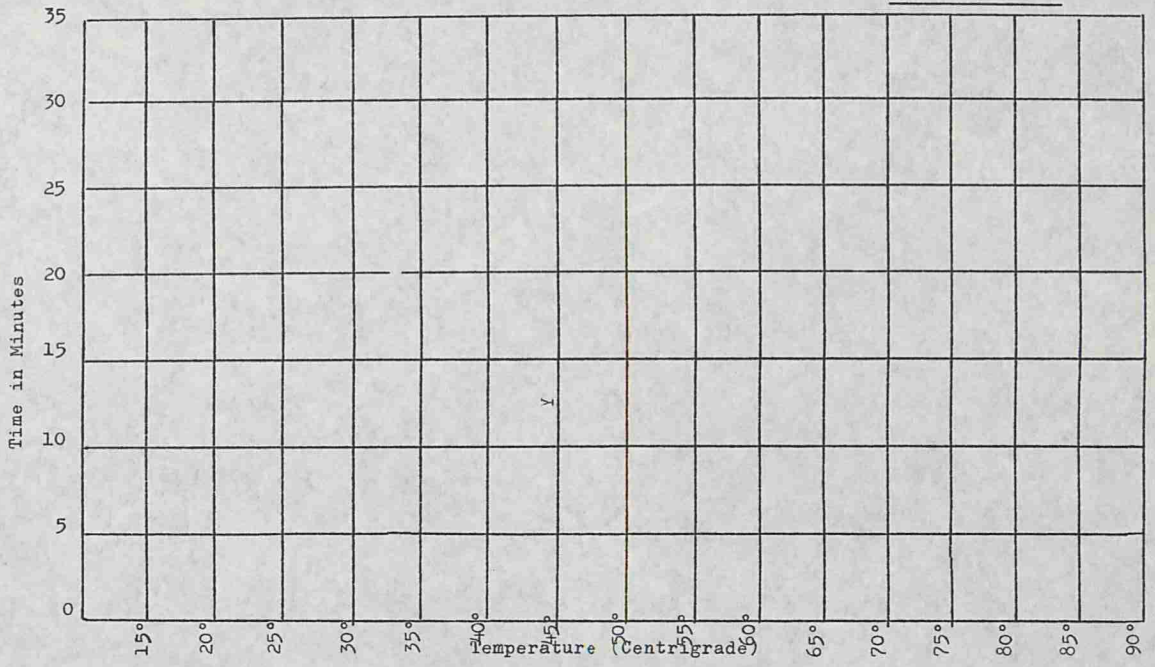
FACTOR	FOOD	VARIABLE	Temperature								
			Initial Tem	Min	Min	Min	Min	Min	Min	Min	Min
Nature of Food											
Firmness of Pack											
Size of Container											
Initial Temperature											

Results:

Conclusions:

Plot on the graph below time-temperature information recorded on experiment in heat penetration (use 2 different colored pencils and indicate use of each).

Experiment No. _____; Food _____; Variables _____



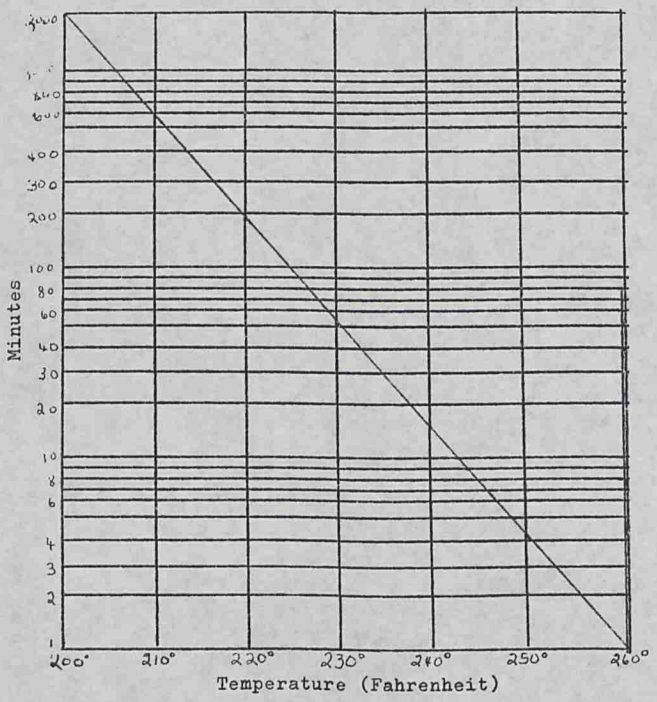
Temperature Conversion Formulae: F° = C° X 9/5 + 32

C° = F° - 32 X 5/9

TEMPERATURE AND TIME RELATIONSHIP

in death of

CLOSTRIDIUM BOTULINUM *1



*1 This is a type bacterium that causes botulism.

Characteristics: It is odorless, colorless, tasteless yet it carries about 85% mortality rate.

Symptoms: Fatigue, muscular weakness, double vision, drooping of upper eyelids, dilated pupils, dryness of the mouth, swelling of the tongue, persistant constipation, difficulty in swallowing and speaking. There is usually no gastrointestinal disturbances and death results from paralysis of respiratory muscles. Consequently, in fatal cases, the victim suffocates because of his inability to breathe.

This organism lives in a low acid medium and in the absence of air.

IT CAN BE DESTROYED AT 240° F.

Diagram from Canned Foods, Baumgartner and Hersom.

FACTORS AFFECTING THE GROWTH OF MICROORGANISMS

Factor	Yeasts	Molds	Bacteria
1. Temperature			
a) Optimum	65-85° F.	65-85° F.	Grow at med. temp; however some grow best at 130-140° F. (Thermophilic).
b) Freezing	generally inhibits	generally inhibits	Inhibits; no growth in frozen foods.
c) Heat	destroyed at 180-212° F.	destroyed at 180-212° F.	Vegetative cells destroyed at 212° F. but endospores can withstand boiling for 6 to 8 hours (i.e. cl. botulinum)
2. Air	Most require some	All require some	Anaerobes cannot grow in the presence of air; aerobes require some air.
3. Moisture	Needed by all	Less required than for yeasts or bacteria	Needed by All
4. Sugar	Stimulates at low concentration; Very high conc. (as in jelly) inhibits	Grow well	Are inhibited only with very high concentrations.
5. Salt	Not as plentiful in salt solution. Very high concentration inhibits.	Will grow up to 80% concentration	Some inhibited at 3%, others in 10% concentration; can withstand less than yeasts and molds.
6. Acid	Grow well in all acid foods. Some can withstand high acidity.	Grow well in all acid foods	Do not grow in foods more acid than tomatoes. Aciduric bacteria can grow in tomatoes.

Note: In order to cause spoilage, microorganisms must be able to grow.

Types of spoilage in canned food and microorganism causing it:

Fermentation of fruit products: due to growth of yeasts.

Moldiness of any food: caused by growth of mold.

Fermentation of vegetable products: due to growth of bacteria.

Flat sour of tomatoes: due to growth of bacteria which are heat resistant, aciduric and thermophilic.

Flat sour of peas, beans, etc.: due to growth of bacteria which are heat resistant and thermophilic.

Putrefaction: due to growth of heat resistant bacteria that grow in the absence of air (anaerobes).

Botulism poisoning: due to growth of Clostridium botulinum, a type of heat resistant bacterium that grows in the absence of air. The toxin (poison) produced is a chemical substance destroyed by heat. Boiling (at 212° F.) destroys the toxin, but the organism can live 5-6 hrs. at this temp.

The time required for effective sterilization of canned foods depends upon:

1. The numbers of microorganisms present.
2. The size, shape, and material from which the container is made.
3. The ease of heat conduction and convection, that is, the nature of the food.
4. Actual acidity.
5. Temperature at which processed.

ESTIMATED ANNUAL COST OF FOOD (PER CAPITA)

BASED ON U.S.A. AVERAGE - OCT., 1963

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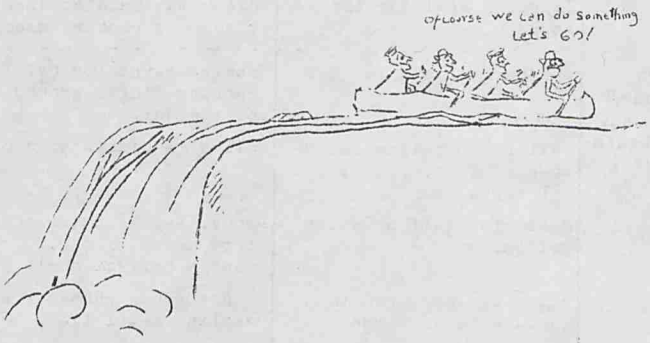
REFERENCE MATERIAL

FOOD CONSERVATION LEADERS

File for Reference



Revised February 1964

Extension Nutrition Department
North Carolina State of the University of North Carolina at Raleigh
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, North Carolina

I. Canning (Fruits and Vegetables)

Condition	Causes	Prevention
Loss of liquid from glass jars during processing (not a sign of spoilage)	Lowering temperature too suddenly after processing under pressure	Do not force temperature down by placing canner in a draft, opening the petcock too soon, etc.
	Fluctuating pressure during processing.	Maintain a constant temperature through processing time.
	Failure to work out air bubbles from jars before processing	These may be worked out with a knife or a spatula.
	Improper seal for the type closure used	Follow the manufacturer's directions for closure used.
Imperfect seal (discard food unless the trouble was detected within a few hours)	Chips or cracks in jars	Examine carefully before using by rubbing finger around the mouth of the jar.
	Failure to follow recommended directions for closures used	Follow manufacturer's directions.
	Particles left on mouth of jar	Remove any seeds, seasonings, etc. from mouth of jar. These may prevent a perfect seal.
	Using old closures that should be discarded	Do not reuse rubber rings and self-sealing metal lids.
	Lifting jars by tops or inverting while hot	Use tongs for removing jars from canner. Leave in upright position
Product dark at top of jar (not necessarily a sign of spoilage)	Air left in the jars permits oxidation	Remove air bubbles before sealing jars.
	Insufficient amount of liquid or syrup	Cover product with water or syrup.
Cloudy sediments in bottom of jars	Some mature products, as beans and peas, are very starchy. This starch often settles to the bottom of the jar.	Select products at desirable stage of maturity.
	Canned products kept too long	Canned products are more palatable when used within a year after canning.

(More)

Condition	Causes	Prevention
Color changes that are undesirable	Contact with minerals, as iron, zinc or copper, in water	Avoid this condition by using as nearly mineral free water as possible - also carefully selected cooking utensils.
	Over processing	Follow directions for processing time. Be sure gauge on pressure canner is accurate.
	Immature or over-mature product	Select fruits and vegetables at optimum stage of maturity.
	Stored in too much light.	Best to store canned foods in a dark place.
	Foods Containing sulfur and packed in plain tin cans.	Foods containing sulfur (such as corn, peas, lima beans) are best canned in glass jars or C enamel tin cans.
	May be a distinct spoilage	If any "off" odor or spoilage is detected discard food and sterilize or destroy jar.
Floating (especially some fruits as berries)	Too much liquid for the amount of fruit	Maintain good proportions of liquid to fruit.
	Air still inside fruit.	Hot packed foods are less likely to float than raw packed foods.
	Over-processing fruits and tomatoes destroys pectin	Follow directions for time. These should be processed in boiling water bath.
	Too much sugar	Avoid syrup too heavy for fruit.
Spoilage	Incorrect pressure	Gauge on pressure canner should be checked every year for accuracy.
	Overpacking	Jars should be well filled, but not packed. (Use recommended headspace.)
	Incorrect timing	Follow directions for time.
	Incorrect method used.	Low-acid vegetables and meats must be canned at 10 lbs. pressure for safety.
	Selection of inferior fruits and vegetables	Select product of suitable variety and at proper stage of maturity. Can immediately after gathering.
	Unsanitary conditions	Cleanliness is a must in canning.

For further information on canning refer to Extension Circular "ABC'S of Canning".

(More)

11. Juices (Tomato and fruit) Fruit juice canned according to recommended directions is good to have on the shelf to use for jelly making or beverage.

Condition	Causes	Prevention
Fermentation or spoilage	Failure to process adequately	Juices should be processed at simmering temperature (about 180° F. for recommended time.
	Failure to sterilize jars and equipment	These should be well sterilized, as jars are not boiled during processing.
	Air left in jars.	Proper processing will exclude air from jars; thus insuring an airtight seal.
	Imperfect seal	Check jars and closures; then follow recommended directions.
Cloudy sediment in bottom of jar	Solids in juice settles	Juice may be restrained if made into jelly or juice may be siphoned off. Shake juices if used as a beverage.
Separation of juice (especially tomato)	Enzymatic change during handling (after cutting)	Heat tomatoes quickly to simmering temperature.
	Does not indicate spoilage unless there is other evidence	Commercial tomato juice is homogenized. Just shake homemade juic prior to serving.
	Overcooking	Prolonged cooking may destroy pectin; thus contributing to separation.
Poor flavor	Immature, over-ripe or inferior fruit used	Use only good firm, ripe fruit or tomatoes for making juice.
	Use of too much water for extracting fruit juice	Use only amount of water called for in directions. No water is added to tomatoes.
	Improper storage	Cool, dark, dry storage.

For further information on juices refer to Extension Circular "ABC'S of Canning" and/or Home Economics Series #2, "Preserves, Jellies and Jams").

(More)

III. Jellies (Made from extracted juice of certain fruits plus sugar)

Condition	Causes	Prevention
Formation of crystals	Excess sugar	Test fruit juice with jelmeter for proper proportions of sugar (denatured alcohol may be used as a guide, but is not accurate).
	Tartaric acid crystals in grape juice	Make grape jelly stock, pasteurize and let tartaric acid crystals settle out before making jelly.
Syneresis or "Weeping"	Juice too high in acid makes pectin unstable	Maintain proper acidity of juice.
	Storage place too warm	A cool, dark and dry room is best for storing jellies.
Too soft	Overcooking fruit to extract juice	Avoid overcooking as pectin in fruit will be converted to pectic acids which will not gel.
	Too little sugar Too little pectin	Test fruit juice to determine correct amount; however 3/4 cup sugar to 1 cup juice generally gives good results.
	Insufficient acid	Lemon juice is sometimes added if the fruit is acid deficient.
Tough or stiff	Overcooking	Cook only to the jelly stage - usually 218° - 221° F. If a thermometer is not available this can be determined when jelly drops from a spoon in a sheet.
	High acidity	Does not usually occur unless acid has been added (i.e. lemon juice)
Cloudiness	Underripe fruit (starch)	Use fruit of proper maturity.
	Imperfect straining	Strain juice twice through jelly bags. Do not press or squeeze bag.
Darker than normal in color	Overcooking sugar and juice	Avoid long boiling. Best to make small quantity of jelly and cook rapidly.
	Air left in jar	Cover with thin coat of paraffin, then seal.
Mold or fermentation	Improper sealing	Exclude air by covering with thin coat of paraffin, then seal jar.
	Too low filling temperature	Pour in sterilized jars immediately after simmering.
	Improper storage	Store in cool, dry, dark place.
	Lack of proper sanitation	Sterilize jelly glasses and all equipment used.

(More)

IV. Preserves - (Made from whole small fruit or uniform piecss of larger fruits. The finished product should be tender, whole, plump, and have characteristic color and taste)

Condition	Causes	Prevention
Shriveled product	Syrup at outset is too heavy for the fruit used, or dry sugar added to fruit	Begin fruit in a syrup thin enough so this will gradually replace the liquid drawn from the fruit - thus they retain original size and shape.
Tough product	Starting fruit in a syrup too heavy or using raw sugar - not plumping them properly	Cook fruit according to directions; then by evaporation gradually increase the concentration of the syrup as it diffuses into the fruit. Fruit should plump at least 24 hrs. covered in syrup before canned.
	Overcooking	Cook according to directions.
Sticky, gummy product	Overcooking	Follow recommended directions for each product. (Cook only until syrup is quite thick and fruit is fairly translucent.)
Not a characteristic fruit flavor	Overcooked or scorched	Should be stirred occasionally to prevent sticking and cooked only until done.
	Inferior fruit used	Select only sound good flavored fruit at proper maturity.
Darker than normal in color	Cooking too large quantities at a time	It is usually best to cook not more than 2 - 4 pounds of prepared fruit at a time.
	Cooked too slowly	A better color is usually produced if the product is cooked rapidly.
	Overcooked	Cook only until syrup is quite thick and the fruit is fairly translucent.
Loss of color	Improper storage	Store in a dark, dry and cool place.
	Air left in jar	Hot canned preserves should be processed at simmering point.
Mold or fermentation	Improper sealing	Jars should be sealed airtight.
	Filling at too low temperature	Product should be at least 190° F. put into jars.
	Failure to process finished product	Processing hot preserves is an added protection against mold or fermentation (about 180° - 190° F.).
	Improper storage	Store in dark, dry and cool place.

For further information on jellies and preserves refer to Home Economics Series #2, "Preserves, Jellies and Jams".

V. Cucumber Pickle (brined)

Condition	Causes	Prevention
Spotted, dull or faded color	Cucumbers not well cured (brined)	Use brine of proper concentration (10 - 12% salt). Complete fermentation process. (Until bubbles disappear.)
	Excessive exposure to light	
	Inferior product	Begin with a good quality product.
Scum on cucumber brine while curing	Wild yeast, molds & bacteria that feed on the acid thus reducing the concentration of this constituent in the brine	Remove scum as often as needed
Soft or slippery pickles	A brine too weak	Maintain 10 - 12% salt concentration
	Cucumbers stored at a temperature too high during curing (brining)	About 70° - 80° F. appears to be the best since this is the optimum temperature for growth of the organisms necessary for fermentation.
	Insufficient amount of brine	Keep cucumbers immersed in the brine.
	Failure to remove scum	Remove scum so acidity not destroyed.
Hollow pickles	Large sizes may bloat at 10 - 12%	Use smaller cucumbers to brine.
	May occur during curing	Keep brine proper strength until process is complete. Cure until fermentation ceases (bubbles disappear - usually in about 6 weeks)
	Long lapse of time between gathering and brining	Brine within 24 hours after gathering if possible.
	Faulty development of the cucumber	These are best used in relishes or other chopped pickles.
Shriveled pickles	Placing cucumbers in brine that is too strong, heavy syrup or vinegar too strong	Use 10 - 12% brine for curing, amount of sugar called for in recipe, and vinegar that is 4 - 6% acetic acid when making pickles.
	Long lapse of time between gathering and brining	Brine within 24 hours after gathering.

(More)

Pickles (continued)

Condition	Causes	Prevention
Discolored or uneven colored pickles	Too many spices - or spices packed in jars with pickle	Whole spices are preferable to ground. Place them loosely in a bag so they can be removed before canning. Flavor only is what you want.
Strong, bitter taste	Spices cooked too long in vinegar - or too many spices used	Follow directions for amount of spices to use and the boiling time.
	Vinegar too strong	Vinegar should be regular strength (4 - 6% acetic acid). Either cider or distilled (white) vinegar may be used.

Processing temperature for various products:

Processing is subjecting a jar of food to a heat treatment.

Simmering - (180 - 190° F.) Preserves, pickles, juices are processed at simmering temperature to exclude air from jar.

Boiling - (212° F.) Fruits and tomatoes are safely processed at this temperature.

Pressure - (240° F.) Meats and vegetables (except tomatoes) should be processed under pressure to be sure all harmful organisms are destroyed.

For further information on pickling refer to Extension Pamphlet #182, "Pickles and Relishes".

Prepared by

Iola Pritchard, Specialist in Food Conservation and Marketing

AGRICULTURAL EXTENSION SERVICE

SCHOOL OF AGRICULTURE AND LIFE SCIENCES
NORTH CAROLINA STATE UNIVERSITY
AT RALEIGH

HOME ECONOMICS
FOODS AND NUTRITION
RICKS HALL

August 12, 1965

P. O. Box 5097
RALEIGH, N. C. 27607

Put in book

TO: ALL HOME ECONOMICS EXTENSION AGENTS

Dear Co-workers,

I am enclosing a mimeographed copy of each of the following: 1) "When You Buy - Foods", 2) "When You Buy - Convenience Foods", and 3) "When You Buy - Canned Foods". Some of you indicated on your plan of work that you were emphasizing one or more of these subjects during the fall. If you are, please order only the number of copies you need. If you did not include this as a monthly lesson, may I suggest that:

1. You not order additional copies.
2. You incorporate whatever information is pertinent and timely into your other foods and management programs.
3. Portions of these be adapted to news articles radio, newsletters, and television.
4. You file these for reference.

I will be interested in knowing ways you have used this information and with what results.

Sincerely yours,

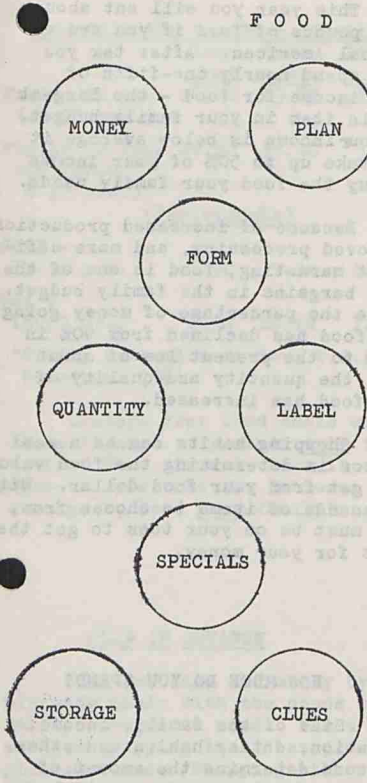
Iola Pritchard

Iola Pritchard, Specialist in
Food Conservation & Marketing

IP/bj

Copies: Dr. Eloise Cofer
Miss Virginia Wilson
District Agents

WHEN YOU BUY --


FOOD
MONEY
PLAN
FORM
QUANTITY
LABEL
SPECIALS
STORAGE
CLUES

This year you will eat about 1400 pounds of food if you are a typical American. After tax you will spend nearly one-fifth of your income for food - the largest single item in your family budget. If your income is below average it may take up to 50% of your income to buy the food your family needs.

Because of increased production, improved processing, and more efficient marketing, food is one of the best bargains in the family budget. While the percentage of money going for food has declined from 40% in 1912 to the present low of about 19%, the quantity and quality of the food has increased.

Shopping habits can be a real factor in determining the food value you get from your food dollar. With thousands of items to choose from, you must be on your toes to get the most for your money.

HOW MUCH DO YOU SPEND?

Size of the family, income, location, eating habits and other factors determine the amount of money a family spends per week on food. The figures below compiled by USDA are about typical for the American family.

Food Bill For One Week (Family)

	Low Cost	Mod-erate	Liberal
Family of two (20-35 yrs.)	14.70	19.80	23.00
Family of four (Children 4-12 yrs.)	24.80	33.30	38.80
(Individuals)			
Girl - 15-20 yrs.	6.90	9.10	10.30
Boy - 15-20 yrs.	8.30	11.10	12.70

*Family Economics Review, U.S.D.A. December, 1964.

Compare your food costs with these figures. (Include only the cost of food items.) Does it cost more or less than the National average to feed your family?

PLAN IN ADVANCE

You save time and money by planning meals with the needs of family members in mind. Use a written shopping list, based on planned menus. Shopping without a list (especially for the new homemaker) can be disastrous for your memus and your pocketbook as well.

Keep a pad and pencil in the kitchen. When you run low on items, jot these down and include on your next grocery list. To save time when in the store, organize your list in categories - meats, breads, canned products, and according to the lay-out in the grocery store.

FORM TO BUY

Any one food may be purchased in a variety of forms. Consider the product fresh, canned, frozen --- before you buy. Since prices are governed by supply and demand, prices should be compared occasionally. Consider the several styles of pack for processed foods such as sliced, diced, whole, ground. The season of the year, the supply of the product in processed form, and consumer demand all have an effect on the price of food items.

For the busy homemaker, time saved in buying processed or prepared foods may be more important than extra cost. Precooked or partially cooked foods may cost more --- but not always. Again, make a cost comparison before you buy.

Buy foods with a specific use in mind. You will save money without sacrificing food value. For instance, canned sliced peaches, (usually cheaper) are good for a

pie, but peach halves (usually more expensive) may be better for a salad. The less expensive cuts of beef ground for meat loaf or hamburgers will help trim the budget.

Consider the food budget, time, and intended use of the food items as you decide the form and/or style of pack to buy.

READ LABEL

Whether the label is on U.S. Choice Beef, Grade A Large Eggs, Vitamin D enriched milk, 10-ounce package frozen beans, or whole canned tomatoes, the label is your guarantee of the product you are buying.

The Federal Food and Drug Act requires the label on foods shipped beyond state boundries to include the common name of the product, the weight or volume, name and address of manufacturer or packer, ingredients listed in decreasing amounts unless a standard of identity has been set. (This refers to such items as mayonnaise that have standard ingredients established.) If the product has a standard of identity (about 250 do) only optional ingredients are listed. Additional information is given on certain labels such as type of pack (whole, sliced) and suggestions for preparation.

NEW PRODUCTS

Many new products find their way to the grocery store every year. Read the label on your product carefully, noting the weight, ingredients, and directions for preparation. Buy only in small quantity until the family decides the product meets their needs.

HOW MUCH TO BUY

Quantity buying usually reduces per unit cost. But before you buy a large quantity consider storage.

Is there ample storage to take care of the unused portion? Does the product store well? If some of the food is lost, the cost per unit increases.

Convenience in having the food "on hand" may be a time-saver. It can also mean the difference in a well planned meal and just something to eat.

The frequency of use also affects the quantity it is practical to buy. Some items, such as potatoes, that can be prepared in a variety of ways, may be bought in larger quantity than those seldom used.

ARE "SPECIALS" GOOD BUYS?

In order to answer this question, it is important to know the original price of the product, and its present condition. The product may actually be priced 2¢ more but listed as a special - or the quality may be damaged. If the "special" is a good buy and you have proper storage, money can be saved by stocking up on these items.

According to the recent USDA study, shoppers may plan their menus around "specials" and cut family food bills by as much as six per cent. The idea of buying food on sale is not a new idea, but the variety of specials and the amount of money that can be saved is a recent phenomenon.

DO YOU CHECK YOUR GROCERY BILL?

Make it a rule to check your grocery order tape against your groceries. It is wise to do this at the checkout counter preferably as sales are being "rung-up". The management will be glad to correct any errors they have made.

CLUES TO USE

Compare prices - Use a pencil and paper to figure cost per serving or cost per ounce. Don't let high pressure advertising fool you.

Look for specials. If you have adequate storage facilities, money can be saved by buying specials (if they are).

Use of the food in meal preparation will determine the best form to buy.

Enjoy shopping - It can be fun, but research says eat before you shop. A hungry shopper has less resistance to buying "extras".

See what foods are on hand and what is needed. It is important to keep a watchful eye on how much is spent. Are your food budget figures in the red or black?

- - - - - - -

You may also want a copy of:

"When You Buy -- Convenience Foods" Mimeographed Circular, June 1965

"When You Buy -- Canned Foods" Mimeographed Circular, June 1965

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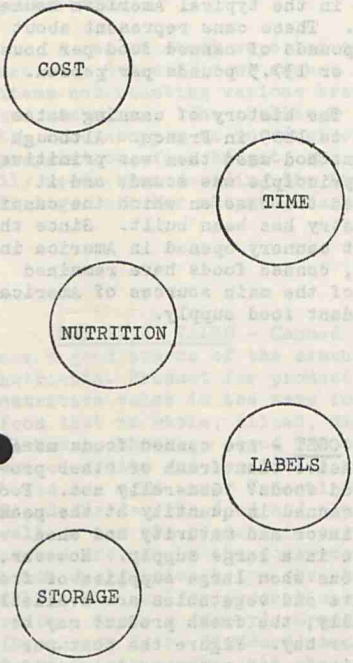
THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

North Carolina State University at Raleigh and the U.S. Department of Agriculture, Cooperating. State College Station, Raleigh, N. C., George Hyatt, Jr., Director. Distributed in furtherance of the Acts of Congress of May 8 and June 30,1914.

June 1965

WHEN YOU BUY --

C A N N E D F O O D S



A can opener (invented in 1858) is no longer a gadget but a necessity in most homes. According to a national report 680 cans and jars of food are opened each year in the typical American household. These cans represent about 600 pounds of canned food per household or 137.5 pounds per person.

The history of canning dates back to 1809 in France. Although the method used then was primitive, the principle was sound, and it formed the base on which the canning industry has been built. Since the first cannery opened in America in 1817, canned foods have remained one of the main sources of America's abundant food supply.

COST - Are canned foods more expensive than fresh or other processed foods? Generally not. Foods are canned in quantity at the peak of flavor and maturity and when there is a large supply. However, seasons when large supplies of fresh fruits and vegetables are available locally, the fresh product may be a better buy. Figure the cost per serving - and remember to consider the time and fuel used in preparation of fresh foods.

TIME - Canned foods, the first "convenience" foods on the market are also versatile. Many products may be used as they come from the can - others need little additional preparation.

A recent study reported there are over 500 different canned food items not counting various brands and can sizes. The challenge for the food shopper is to consider preparation, food budget, and family needs when deciding the items that go into her shopping basket.

NUTRITIVE VALUE - Canned foods are a good source of the essential nutrients. Product for product, the nutritive value is the same for food that is whole, sliced, diced, flakes or chunks. About 23% of canned fruits and vegetables marketed are sold under Federal Grades. Standards for the food and plant as well as how the product is processed are set by the Government. Grade designation helps the shopper select the quality product she wants. Grade A (fancy), Grade B (Choice or Extra Standard) and Grade C (standard). All grades are equally wholesome and may have the same food value. Decide which form and/or grade best suits your budget as well as the method or preparation.

Foods lose some nutritive value during the canning process and the storage period. Newer techniques, however, using the short-time high-temperature canning process, reduce this loss and improve the quality of the product. Some canned foods are actually better sources of certain nutrients than fresh ones that have been stored under adverse conditions.

Usually the drained solids in canned vegetables make up about two-thirds of the total content of the can. Soon after canning, minerals and vitamins soluble in water distribute themselves throughout the solids and liquids. The solids thus keep about two-thirds of the soluble nutrients, and the other third may be in the liquid. So don't throw away the liquid! Use it in preparing soups, salads, beverages and other dishes.

LABELS are important because they give you important information about the product inside. They are your guide to the quantity and quality of the product you are buying. READ LABELS CAREFULLY.

According to the Federal Food, Drug and Cosmetic Act, labels must include:

- Usual or common name of the product printed clearly.
- New contents of the container by weight or volume.
- List of ingredients unless a standard of identity has been set by the government.
- Name and address of manufacturer, packer, or distributor.
- Variety, style, and packing medium of the product when this is important.
- Dietary properties (if important)
- Presence of any artificial color, flavor, or preservative.
- Quality or filling if this is below standard.

Picture of the foods, recipes and number of servings per can are included on some labels.

Most canners prefer descriptive labels over grade labels (as Grade A, B, or C). A brief description of the product (as very tender or mature) will help you decide which to buy, based on intended use, food budget, and

family needs. If you find a brand that you consistently like, you may prefer to always buy that brand. But check all brands to find which ones satisfy your needs and purchasing power.

STORAGE - You can store canned food almost anywhere if these factors exist:

; Dry - A lot of moisture may cause cans to rust, thus shortening the shelf life of the product. Moisture may also mar the label, making important information unreadable.

. Cool - Some nutrients such as thiamine and ascorbic acid are decreased about 25% when stored at 80° F. The loss is only slight when stored at room temperature or about 65°F. If canned foods are stored at freezing temperature, texture may be impaired or cans may burst or break the seal, resulting in spoilage.

. Dark - Too much light will affect color and flavor of canned foods - especially if the food is in a glass container.

Adequate storage will save you:

. Money because you can buy in quantity and take advantage of specials.

. Time because many canned foods need little additional preparation.

. Health - because studies show that families with a food supply readily available actually eat better, well-planned meals, resulting in better health.

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You may also want a copy of:

"When You Buy -- Convenience Foods"
Mimeographed Circular, June 1965

"When You Buy -- Foods"
Mimeographed Circular, June 1965

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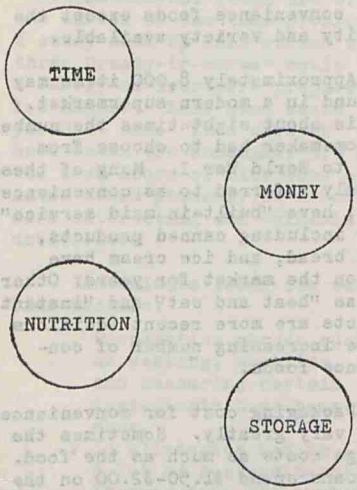
THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

North Carolina State University at Raleigh and the U.S. Department of Agriculture, Cooperating. State College station, Raleigh, N. C., George Hyatt, Jr., Director, Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

June 1965

WHEN YOU BUY --

CONVENIENCE FOODS



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North Carolina State University at Raleigh and the U.S. Department of Agriculture, Cooperating. State College Station, Raleigh, N.C., George Hyatt, Jr., Director. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

June, 1965

Convenience foods refer to "foods which have services added to the basic ingredients to reduce the amount of preparation required in the home". There is nothing new about convenience foods except the quantity and variety available.

Approximately 8,000 items may be found in a modern supermarket. This is about eight times the number the homemaker had to choose from prior to World War I. Many of these, commonly referred to as convenience foods, have "built-in maid service". Items including canned products, baked bread, and ice cream have been on the market for years. Others such as "heat and eat" and "instant" products are more recent additions to the increasing number of convenience foods.

Packaging cost for convenience foods vary greatly. Sometimes the package costs as much as the food. Americans spend $1.50-$2.00 on the package or container for every $20.00 spent on foods.

Convenience foods have almost become a necessity in meal preparation. Employment outside the home, opportunity for recreational activities, difficulty in securing household help, and community responsibilities have contributed toward a reduction in the time the homemaker has for meal preparation. Most homemakers, however, use both convenience foods and home prepared dishes in planning meals for their family.

WHAT GUIDES YOUR CHOICE?

TIME?

Convenience foods are often the answer to the time problem. A study made by USDA showed that three "ready-to-serve" meals for a family of four were prepared in 1.6 hours. These same meals prepared at home "from scratch" would have taken the homemaker 5.5 hours. The four hours of time (and energy) saved could probably be used for more interesting and valuable activities.

Convenience foods can save time because:

- Preparation chores such as peeling, shelling, and measuring certain ingredients have been done.
- It eliminates having a lot of recipes handy.
- It cuts down the number of utensils to be washed.
- It takes less time to cook many of these foods.
- It cuts down on trips to the grocery store as many of these items store well.

When time is an important factor it is a good idea to check new items as they find their way to the supermarket. These stay on the grocery shelf only as they find consumer acceptance. Only you can decide if the product fills your needs.

COST?

Many people feel convenience foods are more expensive than similar home prepared ones. This is true for some items but is not true for all.

A study was made by USDA on 158 convenience foods. It was found that 42 of these cost the same or were less than the home prepared product. The 116 items which were found to be more expensive usually were those used less often by the average homemaker.

Among the big money savers included in this study was instant coffee. This product accounts for about $1.00 per $100.00 spent on food. If regular roasted ground coffee is used this would almost double the cost or $1.96 per $100.00 spent.

Other less expensive convenience foods include frozen orange juice, some canned and frozen vegetables, and some cake mixes.

To determine the real cost of a product, cost of fuel and preparation time must be included. Another study made by USDA showed it cost $6.70 to prepare three "ready-to-serve" meals for a family of four while the meals prepared at home cost $4.90 --- but four hours more preparation time was required. This means the homemaker saves $1.80 or an average hourly wage of 45 cents.

To help you compare the cost of homemade and prepared foods:

- Write down your home recipe
- Then write cost of the portion of each ingredient to be used. Total.
- Divide total cost by the number of servings.
- Figure cost per serving of prepared food (include any ingredients added).
- Compare the per serving costs.

If cost is an important factor, determine which convenience foods you can actually save on. Does the product actually have "built-in maid service"? Use time and energy to prepare those foods that can be done at home at a saving.

NUTRITIVE VALUE?

The homemaker cannot actually compare the nutritive value of processed and home prepared foods. They may or may not be the same. Research has been done on some but not all processed foods.

Frozen orange juice, one of the less expensive and popular convenience foods, compares favorably with fresh orange juice in Vitamin C content. The greatest difference in Vitamin C content of orange juice comes in the variety of oranges and the harvesting time. Since much of the processed juice is prepared from oranges picked at the peak

flavor time, the processed juice may be higher in nutritive value than fresh juice.

Canning and freezing do not affect proteins and carbohydrates in food. There may be some effect on certain vitamins, especially Vitamin C. Water in which vegetables are canned or prepared soaks up some of the water soluable vitamins and minerals - especially calcium, iron and the B. Vitamins. Use this liquid in preparing meals.

Protein content in some processed foods is not comparable to many home prepared recipes that include more meat. Sometimes there is more gravy and less meat in the canned and frozen products than in those made at home. To combat this problem USDA has established a minimum meat requirement for some processed products. Other minimum standards will probably follow.

Remember, nutritive value of foods should be considered with the total daily needs in mind. The daily food guide will help you decide if these needs have been met. Improper storage and poor preparation practices often waste much of the food value and therefore increase the actual cost.

STORAGE?

Consider storage before convenience foods are purchased. The form in which the food is bought may necessitate a different type of storage rather than increased storage. For example, sweet potatoes, once bought and stored in the raw bulk stage may now be purchased as potato flakes and stored on the shelf --- or they may be made into pies that would require freezer space.

Meal preparation patterns for many families make it practical to have storage facilities that will take care of food items purchased raw, canned, or frozen. This enables the food shopper to take advantage of "good buys".

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You may also want a copy of:

"When You Buy -- Food"
Mimeographed Circular June,1965

"When You Buy -- Canned Foods"
Mimeographed Circular June,1965

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FACTS RELATING TO A HOME FOOD SUPPLY - 1962

I. Purpose - To help families see a home produced and conserved food supply as a realistic answer to some of their problems.

A. Nutrition -

1. Today two-thirds of the more than 2 billion people in the world are actually hungry.

2. In North Carolina 1 out of 5 people is nutritionally hungry. Why?

B. Economics -

1. What is the median family income in your county? Per Capita?

2. What about the even lower income group? How can we help them?

3. What percent of their income is going for food? Can they afford it?

II. Some probable contributing factors to the nutritional and economic status of many families in North Carolina.

A. About 21% of our income goes for food. (See sheet.) This is by far the larges percent going for any one item in the family budget.

B. At 1954 prices, it cost $366.25 to feed one person one year on a low cost adequate diet. This price would be somewhat higher now.

C. North Carolina farm families spend $275 million annually for food.

D. North Carolina farms have been decreasing by 15,000 per year since 1954.

E. In 1947 a farmer produced food for himself and 13 others - in 1960 for himself and 24 others.

F. What equipment and facilities do families have for conserving food? Condition?

G. Are families aware of the benefits of a home conserved food supply?

1. Each person eats approximately 200 quarts of fruits and vegetables annually - fresh, canned, or frozen.

2. A limited study at State College in 1959 showed approximately 26¢ per quart could be saved on home canned fruits and vegetables versus buying.

3. There is no food tax on a home food supply.

4. Packaging and transportation charges are eliminated. (If a farmer gave the corn for a 17¢ can, we would still pay 15¢ for it.)

III. Our Challenge

A. We have the largest farm population of any other state. A home food supply is one of the dividends of farm living.

B. We have enough idle land to produce fruits and vegetables for a population twice the size of ours.

C. We have the largest Agricultural Extension staff of any other state.

D. We were 43rd in per capita income in 1960.

E. Nearly a million people not properly fed.

F. Provide people with information they need -

1. Do people know how to conserve food properly or do we assume they do?

2. Are we consuming less canned food today than 15 years ago? No, 50% more per capita. The average homemaker opens 788 tin cans per year.

3. Do families keep records on food expenses? The Home Demonstration Study in 1957 showed only one-fourth kept records on food expenses.

4. What about the families who buy part or all of their food supply?

G. Where from her??

From time to time people say it is cheaper to buy food - is it? Maybe yes or no. Who decides?

The only way to solve a problem is to see and recognize the need based on existing situation. Our job is to educate, not just inform. Inform implies how; educate includes the why.

How can we contribute more effectively to "good living" for the future?

"We should all be interested in the future, because that is where each of us will spend the rest of our lives".

DIVISION OF THE FAMILY DOLLAR

Food, tobacco, beverages (21% - N. C.)	26.6
Transportation	12.4
Housing	12.8
	25.2
Clothing, accessories, jewelry	10.3
Medical care and death expense	6.5
Religious and welfare activities	1.4
Personal care	1.6
Recreation	5.9
	25.7
Housing	12.8
Household operation, furnishings and equipment	13.9
	26.7

SOURCE: U. S. Department of Commerce - 1960

Chart No. 1

WHAT ARE OUR RESOURCES?

1. Labor

   Time
   Energy:
     Physical
     Mental

2. Capital

   Money
   Other Material Things:
     Land
     Buildings
     Equipment
     Community facilities
       and services

3. Personal or Human Qualities

   Ability
   Attitude
   Initiative
   Adjustibility
   Knowledge
   Skill

Chart No. 2

PRINCIPLES RELATED TO IDENTIFYING COSTS

1. Cash Cost of Canning at Home

   A. Production = 7½¢ per quart
   B. Containers = 2½¢ per quart
   C. Fuel = 2¢ per quart
   Total = 12¢

2. Other Costs

   A. Time = 26 minutes per quart
   B. Energy
   C. Equipment

Sources of Information on Chart No. 2

1. Amount Needed:

Quarts of fruits, juices and vegetables needed for family of 5 for 6 months = 500 (average). From: N. C. Agri. Ext. Pub. "Family Food Conservation Plan for a Year."

(con't)

2. Cash Cost of Canning at Home:

A. Production (Exclusive of land and labor)

Tomatoes (Vitamin C Group) = 3¢ per quart - 125 qts. needed
Apples (Fruits & Juices) = 4¢ per quart - 125 qts. needed
String beans (green veg.) = 8¢ per quart - 125 qts. needed
*Corn (yellow veg.) =15¢ per quart - 125 qts. needed
Total =30¢
Average per quart for all 4 groups = 30¢ ÷ 4 = 7½¢

B. Containers - jars and tops

2½¢ per quart
This cost is based on 8 years as average life of jars and new closures each time.

C. Fuel - Electric only (from 3 appliance dealers in Raleigh, N. C.)
Approximately 2¢ per hour (one KW per hr. at 2¢ per KW)
Note: This is a quick, rough estimate that probably is high.

Grand Total
Production = 7½¢
Containers = 2½¢
Fuel = 2¢
12¢ per quart

D. Labor Costs

These costs will vary considerably with each family situation. Some explanation on labor costs will be found on Chart No. 3.

E. Time

Average time required to can one quart of above foods after harvested - 26 minutes - (based on average preparation and processing time when seven quarts are canned at a time.)

References:

"Cost of Producing Farm Products in North Carolina"
A.E. Information Series No. 52 - December, 1956
Dept. of Agri. Economics, N. C. State College, Raleigh, N. C.

"ABC's of Canning Fruits and Vegetables"
N. C. Agri. Ext. Cir. (Rev.) No. 271

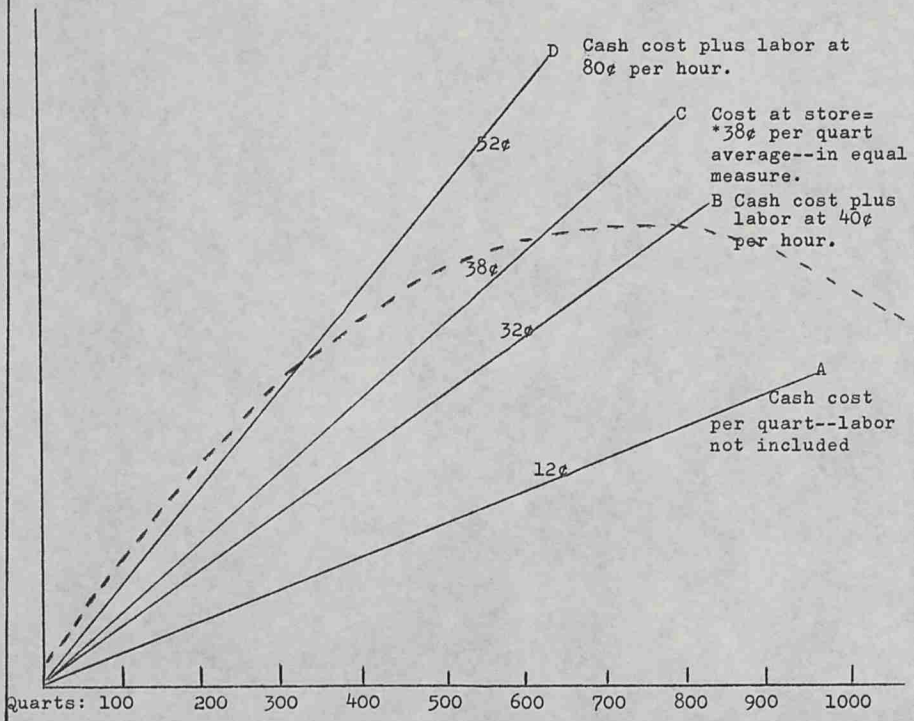
"Estimate of the Cost of Equipment for Conserving a 6-Month's Food Supply for a Family of Five" - mimeographed leaflet from N. C. Agri. Ext. Ser., Food Conservation and Home Marketing Dept.

*Since cost of corn produced for home use was not available, this figure was computed jointly by the following home economics specialists:

Iola Pritchard, Extension Economist in Food Conservation & Mktg, In-Charge
Mamie Whisnant, Extension Specialist in Home Management, In-Charge
Mrs. Edith B. McGlamery, Home Development Specialist

Chart No. 3

VALUE OF TIME AFFECTS DECISION



*This figure is based on Sept. 1959 prices from two Raleigh, N.C. food markets:
One chain super market
One independent, locally owned market

REFERENCE MATERIAL

FOR USE BY COUNTY HOME ECONOMICS AGENTS

and

NOT FOR DISTRIBUTION

I. Canning Problems (Fruits & Vegetables)

Difficulty	Causes	Prevention
Loss of liquid from glass jars during processing (not a sign of spoilage)	Lowering pressure too suddenly after processing period	Do not force pressure down by placing canner in a draft, opening the petcock too soon, etc.
	Fluctuating pressure during processing	Maintain a constant temperature throughout processing time.
	Failure to work out air bubbles from jars before processing	These may be worked out with a knife or a spatula.
	Improper seal for the type closure used	Follow the manufacturer's directions for closure used.
Imperfect seal (discard food unless the trouble was detected within a few hours)	Chips or cracks in jars	Examine carefully before using by rubbing finger around the mouth of the jar.
	Failure to follow recommended directions for closures used	Follow manufacturer's directions.
	Particles left on mouth of jar	A cloth should be used to remove any seeds, seasonings, etc., that prevents a perfect seal.
	Using old closures that should be discarded	Do not reuse rubber rings and self-sealing metal lids.
	Lifting jars by tops or inverting while hot	Use tongs for removing jars from canner. Leave in upright position.
Product dark at top of jar (not necessarily a sign of spoilage)	Air left in the jars permits oxidation	Remove air bubbles before sealing jars.
	Insufficient amount of liquid or syrup	Cover product with water or syrup
Cloudy sediments in bottom of jars	Some mature products, as beans and peas, are very starchy. This starch often settles to the bottom of the jar	Select products at desirable stage of maturity.
	Canned products kept too long	Canned products are more palatable when used within a year after canning.

(over)

Difficulty	Causes	Prevention
Color changes that are undesirable	Contact with minerals, as iron, zinc or copper, in cooking utensils or water	Avoid these conditions by using carefully selected cooking utensils and as nearly mineral free water as possible.
	Foods containing sulfur and packed in plain tin cans	Foods containing sulfur (such as corn, peas, lima beans) are best canned in glass jars or C enamel tin cans.
	Over processing	Follow directions for processing time.
	Immature or over-mature product	Select fruits and vegetables at optimum stage of maturity.
	Exposure to light	Best to store canned foods in a dark place.
	May be a distinct spoilage	If any "off" odor or spoilage is suspected discard food and sterilize or destroy jar.
Floating (especially some fruits as berries)	Too much liquid for the amount of fruit	Maintain good proportions of liquid to fruit.
	Air still inside fruit	Hot packed foods are less liable to float than raw packed foods.
	Over-processing fruits and tomatoes destroys pectin	Follow directions for time.
	Too much sugar	Avoid syrup too heavy for fruit.
Spoilage	Incorrect pressure	Gauge should be checked every year for accuracy.
	Overpacking	Jars should be well filled, but not packed.
	Incorrect timing	Follow directions for timing.
	Incorrect method used	Low-acid vegetables and meats must be pressure canned for safety.
	Poor selection of fruits and vegetables	Select product of suitable variety and at proper stage of maturity. Can immediately after gathering.
	Unsanitary conditions	Cleanliness is a must in canning.

For further information on canning refer to Extension Circular #271 - "ABC's of Canning".

(more)

II. Juices (Problems)

Difficulty	Causes	Prevention
Fermentation or spoilage	Failure to process adequately	Juices should be processed at simmering temperature (about 180° F.).
	Failure to sterilize jars and equipment	These should be well sterilized, as jars are not boiled during processing.
	Air left in jars	Proper processing will exclude air from jars.
Cloudy sediment in bottom of jar	Solids in juice settles	Juice may be restrained if made into jelly. Shake juices if used as a beverage.
Separation of juice (especially tomato)	Enzymatic change during handling (after cutting)	Heat tomatoes quickly to simmering temperature.
Poor flavor	Immature, over-ripe or inferior fruit used	Use only good firm, ripe fruit or tomatoes for making juice.
	Use of too much water for extracting fruit juice	Use only amount of water called for in directions. No water is added to tomatoes.
	Improper storage	Cool, dark, dry storage.

For further information on juices refer to Extension Circular #271 ("ABC's of Canning") and/or Extension Circular #360 ("Preserves, Jellies and Jams").

(over)

III. Jellies (Problems)

Difficulty	Causes	Prevention
Formation of crystals	Excess sugar	Test fruit juice with jelmeter for proper proportions of sugar (denatured alcohol may be used as a guide, but is not accurate).
	Tartaric acid crystals in grape juice	Make grape jelly stock, pasteurize and let tartaric acid crystals settle out before making jelly.
Syneresis or "Weeping"	Juice too high in acid makes pectin unstable	Maintain proper acidity of juice.
	Storage room too warm	A cool dark room is best for storing jellies.
Too soft	Overcooking fruit to extract juice	Avoid overcooking as pectin in fruit will be converted to pectic acids which will not gel.
	Too little sugar Too little pectin	Test fruit juice to determine correct amount; however ¾ cup sugar to 1 cup juice generally gives good results.
	Insufficient acid	Lemon juice is sometimes added if the fruit is acid deficient.
Too stiff	Overcooking	Cook only to the jelly stage - usually 218° - 221° F. If a thermometer is not available this can be determined when jelly drops from a spoon in a sheet.
	High acidity	
Cloudiness	Underripe fruit (starch)	Use fruit of proper maturity.
	Imperfect straining	Strain juice twice through jelly bags.
Darker than normal in color	Overcooking sugar and juice	Avoid long boiling. Best to make small quantity of jelly and cook rapidly.
Mold or fermentation	Improper sealing	Exclude air by covering with thin coat of paraffin.
	Too low filling temperature	Fill at 190° F. Product should be 175° after filling.
	Improper storage	Store in cool, dry, dark place.
	Lack of proper sanitation	Sterilize jelly glasses and all equipment used.

(more)

IV. Preserves (They are made from whole small fruit or uniform pieces of fruits. The finished product should be tender, whole, plump, and have color and taste characteristic of the fruit used.)

Difficulty	Causes	Prevention
Shriveled product	Syrup at outset is too heavy for the fruit used	Begin fruit in a syrup thin enough so this will gradually replace the liquid drawn from the fruit - thus they retain original size and shape.
Tough product	Starting fruit in a syrup too heavy or using raw sugar - not plumping them properly	Cook each fruit at first according to directions; then by evaporation gradually increase the concentration of the syrup as it diffuses into the fruit. Fruit should plump at least 24 hours covered in syrup before canned.
	Overcooking	Cook according to directions.
Sticky, gummy product	Overcooking	Follow accepted directions for each product. (Cook only until syrup is quite thick and fruit is fairly translucent.)
Not a characteristic fruit flavor	Overcooked or scorched	Should be stirred occasionally to prevent sticking and cooked only until done.
	Inferior fruit used	Select only sound good flavored fruit.
Darker than normal in color	Cooking too large quantities at a time	It is usually best to cook not more than 2 - 4 pounds of prepared fruit at a time.
	Cooked too slowly	A better color is usually produced if the product is cooked rapidly.
	Overcooked	Cook only until syrup is quite thick and the fruit is fairly translucent.
Loss of color	Improper storage	Store in a dark, dry and cool place.
Mold or fermentation	Improper sealing	Jars should be sealed airtight.
	Filling at too low temperature	Product should be about 190° F. at filling.
	Failure to process finished product	Processing preserved product is an added protection against mold or fermentation.
	Improper storage	Store in dark, dry and cool place.

For further information on jellies and preserves refer to Extension Circular #360, "Preserves, Jellies and Jams".

(over)

V. Problems of Cucumber Pickle (brined)

Difficulty	Causes	Prevention
Spotted, dull or faded color	Cucumbers not well cured (brined)	Use brine of proper concentration (10 - 12% salt). Complete fermentation process. (Until bubbles disappear.)
	Excessive exposure to light	
	Product of poor quality	Good quality product to work with.
Scum on cucumber brines while curing	Wild yeast, molds & bacteria that feed on the acid thus reducing the concentration of this constituent in the brine	Remove scum as often as needed or stir brine frequently.
Soft or slippery pickles	A brine too weak	Maintain 10 - 12% salt concentration.
	Cucumbers stored at a temperature too high during curing (brining)	About 70° - 80° F. appears to be the best since this is the optimum temperature for growth of the organisms necessary for fermentation.
	Insufficient amount of brine	Keep cucumbers immersed in the brine.
Hollow pickles	Large sizes will bloat at 10 - 12%	Use smaller cucumbers to brine.
	May occur during curing	Keep brine proper strength and the product well covered. Do not stir. Cure until fermentation is complete (bubbles disappear, usually about 6 weeks).
	Long lapse of time between gathering and brining	Brine within 24 hours after gathering.
	Faulty development of the cucumber	
Shriveled pickles	Placing cucumbers in too strong brine, heavy syrup or too strong vinegar	Use 10 - 12% brine, amount of sugar called for in recipe, and vinegar that is 4 - 6% acetic acid.
	Long lapse of time between gathering and brining	Brine within 24 hours after gathering.

(more)

Pickles (continued)

Difficulty	Causes	Prevention
Discolored or uneven colored pickles	Too many spices - or spices packed in jars with pickle	Whole spices are preferable to ground. Place them loosely in a bag so they can be removed before canning.
Strong, bitter taste	Spices cooked too long in vinegar - or too many spices used	Follow directions for amount of spices to use and the boiling time.
	Vinegar too strong	Strong vinegars should be diluted to proper strength (4 - 6% acetic acid).

For further information on pickling refer to Misc. Pamphlet #182, "Pickles and Relishes".

Revised February 1959

Food Conservation and Marketing Department
North Carolina State College of Agriculture and Engineering
U.S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N.C.

FOR YOUR FILES AND NOT FOR DISTRIBUTION

FACTORS AFFECTING THE GROWTH OF MICROORGANISMS

Factor	Yeasts	Molds	Bacteria
1. Temperature a) Optimum	65-85° F	65-85° F	Grow at med. temp; however some grow best at 130-140° F (Thermophilic).
b) Lower temp.	inhibits	inhibits	Inhibits; no growth in frozen foods.
c) Heat	destroyed at 180-212° F	destroyed at 180-212° F	Vegetative cells destroyed at 212° F but endospores can withstand boiling for 6 to 8 hours.
2. Air	Most require some	All require some	Anaerobes cannot grow in the presence of air; aerobes require some air.
3. Moisture	Needed by all	Less required than for yeasts or bacteria	Needed by all
4. Sugar	Stimulates at low concentration; Inhibits in very high conc. as in jelly.	Grow well	Are inhibited only with very high concentrations.
5. Salt	Not as plentiful in salt solution. Inhibits in 10% concentration.	Inhibits in 10% concentration	Some inhibited at 3%, others in 10% concentration; can withstand less than yeasts and molds.
6. Acid	Grow well in all acid foods. Some can withstand high acidity	Grow well in all acid foods	Do not grow in foods more acid than tomatoes. Aciduric bacteria can grow in tomatoes.

Note: In order to cause spoilage, microorganisms must be able to grow.

Types of spoilage in canned food and microorganism causing it:

Fermentation of fruit products: due to growth of yeasts.

Moldiness of any food: caused by mold growth.

Fermentation of vegetable products: due to growth of bacteria.

Flat sour of tomatoes: due to growth of bacteria which are heat resistant, aciduric and thermophilic.

Flat sour of peas, beans, etc.: due to growth of bacteria which are heat resistant and thermophilic.

Putrefaction: due to growth of heat resistant bacteria that grow in the absence of air (anaerobes).

Botulism poisoning: due to growth of Clostridium botulinum, a type of heat resistant bacteria that grows in the absence of air. The toxin (poison) produced is a chemical substance destroyed by heat. Boiling destroys the toxin, but not the organism.

The time required for effective sterilization of canned foods depends upon:

1. The numbers of microorganisms present.
2. The size, shape, and material from which the container is made.
3. The ease of heat conduction and convection, that is, the nature of the food.
4. Actual acidity.
5. Temperature at which processed.

CHECKING PRESSURE CANNERS

Iola Pritchard, Extension Economist in Food Conservation and Marketing
H. M. Ellis, In Charge, Extension Agricultural Engineering

Pressure canners should be tested periodically for accuracy and safety. This is important in order that food may be processed at the recommended temperature.

SUGGESTED PROCEDURE:

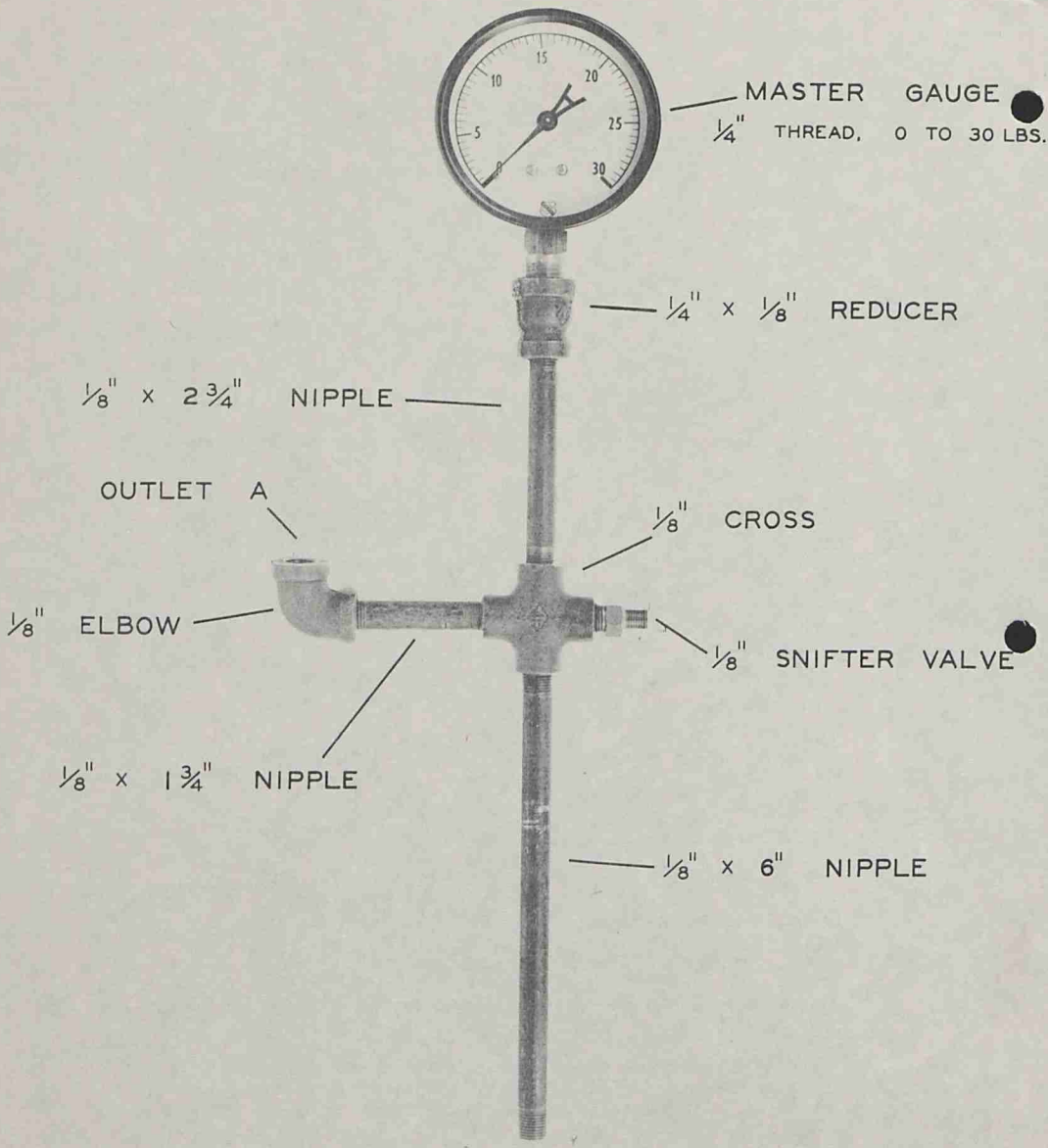
Owner:

1. Clean canner thoroughly.
2. Take canner with all parts in place to person to do the testing.

Person Testing Canner:

Note: Equipment needed:
Testing connection as shown on reverse of this sheet.
Compressed air.
Thin end wrenches - 1/2, 9/16, 5/8, 11/16
Screw driver.
Pliers.
Replacement parts if possible.

1. Remove safety valve from canner.
2. Screw this safety valve into outlet "A" on testing connection.
3. Inspect bottom of canner for holes or deep pits.
4. Inspect canner gasket for cuts, etc.
5. Wet gasket or points of contact to prevent air leakage.
6. Attach canner lid to canner and seal as if to use.
7. Connect air supply to snifter valve.
8. As pressure is applied to canner, compare canner gauge and master gauge at 5, 10, and 15 lbs. pressure, and record.
9. Record information and recommendations concerning canner. When kettle pressure is 5, 10, and 15 lbs., give readings of gauge on card and fasten card to canner. If canner gauge does not register within 2 lbs. of master gauge, it should be adjusted or replaced.



TESTING CONNECTION

LET'S EXPLORE VEGETABLES OR FRUITS

Note: This is a suggested outline for home agents to help stimulate interest in the 4-H Club member's participation in the use phase of the National Junior Vegetable Growers Association Program.

Prepared by:

Jo Earp, Extension Nutritionist and Marjorie Shearin, Extension Economist in Food Conservation & Marketing

Purpose:

1. To get people to eat 5 servings of fruits and vegetables daily, (including 1 green or yellow and 1 vitamin C rich).
2. To encourage 4-H Club members to reach people with information gained through participation in the N. J. V. G. A. Demonstration program.

Discussion Points:

1. State evidence of need for eating more fruits and vegetables for all ages. (local, state and other survey figures).
2. Place of vegetables and fruit in the diet. (kinds and amounts needed daily).
3. To what food group does the vegetable or fruit used in the demonstration belong? (Vitamin A rich, vitamin C rich, or potatoes and other fruit and vegetables group).
4. Food values furnished by the particular vegetable or fruit being used in the demonstration.
5. Discuss in detail why the body needs the specific food value furnished by the vegetable or fruit used in the demonstration. (why we need vitamin A or vitamin C in terms of personal satisfaction such as clear skin, good eyesight and sparkling eyes, etc.)
6. Place of vegetable or fruit in menu. (appetizer accompanying meat, salads, etc.).
7. Principles to use for cooking vegetables and fruits to save food value, preserve color and flavor.
8. As you demonstrate the preparation of one unusual vegetable or a commonly used one in a new or unusual way tell the necessary steps in its preparation.

Suggested Demonstration Ideas for 4-H Meeting (A basket filled with fruits and vegetables is useful to stimulate interest)

1. Harvard beets
2. Buttered carrots
3. Apple jelly
4. Uncooked fruit jams
5. Canning tomato juice
6. Vegetable relishes - Show how to make simple relishes; such as carrot curls, raw sweet potato sticks, turnip cubes, raw squash sticks, radish roses, etc.).

Note:

Keep demonstration short (15 minutes). It could be a sample or model demonstration for the vegetable and fruit use program.

Final Display:

Remember that most foods that look good are good. Clear demonstration area of all materials except finished product. Make this glamorous and "pretty as a picture", so that 4-H'ers will want to try it at home right away.

(OVER)

Summary:

Give a brief summary of the main points they should remember; such as the points already discussed in the introduction of demonstration. A summary chart would be good.

A vegetable and fruit quiz might be given to see results. Example below:

1. The brighter the green and deeper the yellow in vegetables is a sign of good quality vitamin A. Yes ___ No ___.
2. Vitamin A is lost in water. Yes ___ No ___.

- -

Source Material:

A. N. C. Extension Service:

1. Cooking The 4-H Way (sections on vegetables & fruits)
2. Vegetables Add Variety to Meals - pamphlet No. 159
3. A.B.C.'s of Canning - bulletin No. 271
4. 4-H Garden Project - 1957 - prepared by H. M. Covington, Extension Horticultural Specialist and sent to all agents 1/57.
5. County Extension Office Files - should contain: copies of State Winning demonstration by 4-H girls. If not available upon request.
6. Dietary survey figures on National, State or local basis to show need for eating more fruit and vegetables. (refer to copy sent you from this office).

B. Others - (write directly to source for copies)

1. Fruits and Vegetable Facts and Pointers
   United Fresh Fruit & Vegetable Association
   Wyatt Bldg.
   Washington 5, D. C.
2. Green Vegetables in Everyday Meals
   United States Dept. of Agriculture
   Pamphlet No. 43
   Washington 25, D. C.
3. Tomatoes on Your Table - pamphlet No. 278, U.S.D.A.
4. Potatoes in Popular Ways - pamphlet No. 295, U.S.D.A.
5. Sweet Potato Recipes - pamphlet No. 293, U.S.D.A.
6. Vegetable Cookery
   Standard Brands, Inc.
   595 Madison Ave.
   New York, N. Y.

Note: Copies of U.S.D.A. bulletins enclosed, but cannot be furnished for distribution to 4-H Club members. It is necessary to mimeograph the part of each bulletin you wish to use as lesson sheets for members.

C A N N I N G S N A P B E A N S

Television Program - About 10-12 Minutes

VIDEO	AUDIO
Baskets or pans of fresh snap beans. Few jars previously canned	INTRODUCTION Snap beans are one of our popular vegetables in N. C. because of (1) their nutritive value, (2) their ease of preparation, (3) their long growing season, and (4) they provide color. They may be frozen or canned for use during the months when they cannot be grown. This morning I want to show you the correct method of canning snap beans. Since they are a low-acid vegetable, they must be canned under pressure.
Lift up pan or basket of beans and show some for size, crispness, etc.	These beans were gathered while young, tender, firm and crisp. They are _____ variety, a snap bean which is recommended for canning. After the beans are selected, the next step is to wash carefully, then trim the ends and cut the beans in about 1 inch pieces. These steps were done in advance so we will proceed from there.
Stove. Kettle of boiling water. Pot with 1½ - 2 lbs. of prepared beans.	The beans are next covered with boiling water and boiled for 5 minutes. This timing begins after a rapid boil is reached.
Pan of hot water large enough for jars.	While the beans are reaching boiling point I will place the jars in hot water. Since I am using this method of canning, it is unnecessary to sterilize the jars. They must be clean, however. In the beginning I mentioned that snap beans must be canned under pressure. This is true of all low-acid foods because some of our spoilage organisms require a higher temperature than 212° F to destroy.
Clock timer	The beans are boiling so I will set our timer for 5 minutes. (Discuss open kettle and pressure canner methods of canning while beans are boiling. Pressure saucepan may be used but 20 minutes must be added to processing time given for pressure canners.)
All types closures	(Discuss each type closure - differences, which types are sealed prior to processing, ---.)
Timer (cut off) Spatula	The boiling time is complete, so I will now fill the jar to ½ inch of top with beans and cover with hot liquid. Next I add salt - ½ tsp for pints (we would add 1 tsp per quart). With a spatula I will remove air bubbles. If air is left in a jar of canned food, oxidation may take place and spoilage result.

VIDEO	AUDIO
Cloth	It is necessary to wipe the jar rim to remove any particles of food or seasoning which might prevent a perfect seal.
Closure	Put closure on and adjust properly. (Follow the manufacturer's directions for use as they differ slightly.)
Canner with 2-3 inches water	Place in canner, adjust lid and begin processing.
	(Discuss gauge, venting, safety valve, and letting pressure reach 10 pounds for the proper length of time and then return to 0 before the top of the canner is removed.)
Canner with beans already processed and pressure returned to 0.	Since the processing time for pint jars of snap beans is 20 minutes, this step had to be done in advance, too. The beans in this canner have processed 20 minutes at 10 pounds pressure -- and I see the gauge has returned to 0. The petcock is opened (or weighted gauge removed), and the lid unfastened. We should always be careful in removing the lid and tilt it away from us to prevent steam burning. I will now remove beans from canner. Adjust lids unless they were self-sealing. Allow to cool (not in a draft) in upright position, and store for those cold winter days ahead.
	Let's have as our motto this year "Grow, Conserve, and Eat for Nutrition, Economy, and Convenience."

CANNING PEACHES

Television Program - 7 - 8 Minutes

VIDEO	AUDIO
On display 1 bu. peaches	INTRODUCTION Peaches are a favorite fruit to be eaten fresh now. Plan to take advantage of the plentiful supply to conserve them at home, so you can enjoy eating them -- both in and out of season. Peaches may be frozen, canned, dried, or made into preserves or sweet pickles. Today I am going to show you how easy it is to can peaches and have them ready and available on your pantry shelf next winter.
Pick up peaches and show	Choose peaches that are sound, firm, and table ripe for canning -- and can immediately. Look beyond the pink blush -- if the peach has one -- to see that the ground color is yellow or white, not an unripe greenish tint. One bushel of peaches will yield 18 to 24 quarts or 36 to 48 pints -- so have jars and equipment ready. In selecting jars, consider the size of your family. Plan the contents of your jar so that the contents can be eaten at one meal.
Sort peaches Flat pan to sort them in	Sort the peaches as to color, ripeness and size so you will have uniform packs that will make your canned peaches of the best quality.
Put few peaches in pan -- wash and lift out Dish pan with water	Wash peaches and peel them.
Dip peaches in boiling water -- plunge in cold -- slip skin off one peach Wire basket (peaches in it) Boiling water Cold Water Paring Knife	They may be peeled by hand or for easy peeling, put them in a wire basket or cheese cloth and dip them into boiling water for 1 or 2 minutes. Then quickly in cold water. This loosens the skins so they peel easily.
Cut peach in half Paring knife (same one)	Cut peaches in halves and take out the pit.
Drop halves into Containers with vinegar salt and water	To keep peaches from darkening, drop them into cold water to which salt and vinegar have been added -- using 2 T salt and 2 T vinegar to each gallon of water. It is best to peel just one canner load at a time. While these are processing, the others may be prepared.
Pack a few pieces in jar Jars upside down on the cloth	Pack the raw fruit in the jar, placing the pit side down. Fit the peaches one on the other until the jar is filled to ½ inch of the top. This is not a fancy pack, but will enable you to pack more peaches into the jar.

VIDEO	AUDIO
Pick up filled jar to show Filled jar of peaches	
Pour syrup over peaches Pan with syrup in it	Now cover the peaches with a thin syrup made by boiling 1 C. sugar with 3 C. water. Again allow ½ inch head space.
Remove air bubbles Case knife	With case knife remove air bubbles.
Wipe off rim of jar Bowl, small cloth to wipe jar rim	Wipe off rim of the jar to remove any particles that might be on the rim to prevent the seal.
Place closure on jar Closure in boiling water	Place the CLOSURE on the jar -- in this case the wafer top goes on 1st with the rubber side down, then the rim is screwed on tight. Boiling water has been poured on the closure as the directions on the package advised. Now the jar is ready to process in the boiling water bath.
Show boiling water bath and false bottom Boiling water bath False bottom Water to cover jars Jar lifter	A boiling water bath is any container with a close fitting top large enough to hold the jars. We are using an ordinary lard can with a hole punched in the top. There should be a false bottom in the canner that will keep the jars from touching the hot metal. They should not touch each other.
Lift one jar into canner 7 jars of canned peaches	Enough water should be in the canner to come one or two inches over the top of the jar. The water will boil faster if it is warm but not hot enough to break the jars.
Put one jar in canner. See that water covers jars and put the lid on the canner. Check watch when water boils	Put the canner over the fire; fill with the jars of peaches. Check to be sure that the water comes one or two inches above the top. Bring to a boil and process the jars 35 minutes for quarts and 25 minutes for pints. Do not start counting time until the water boils. (Explain Hot Pack Method while peaches are processing.)
Lift 7 jars out and place in row on front for display, about 1 inch apart. Canned peaches	Now the processing time is up. Remove the canner lid, lift each jar out and place so the air will circulate around it but not in a draft. The jars should cool as quickly as possible. Do not put the jars in the pantry shelf until they are cold. How would you like to have these on your pantry shelf? - You can -- it's easy!

Purdue University
Agricultural Extension
Nutrition Project

Mimeo HE - 166
July 1953 (5M)

SUGARLESS JELLIES

Of interest to persons on reducing diets or who may have diabetes is the news that recipes for six sugarless jellies have been developed in the experimental laboratory at Purdue University. The pectin is precipitated by glycerine rather than sugar, and Sucaryl is used for sweetening.

These jellies contain slightly less than half the calories in ordinary jellies and when compared with commercial brands of sugarless jellies, they scored much higher in flavor and consistency.

The directions for making these jellies are easy to follow: Simmer fruit juice or puree with water and/or lemon juice for 5 minutes. Add powdered pectin and glycerine, stirring constantly. Bring to a full rolling boil and boil 1 minute. Remove from heat, add Sucaryl. Pour into small jelly glasses. Cool, seal with paraffin, and store in the refrigerator.

The following table lists the proportions for the six jellies which have been developed:

Ingredients	Grape Jelly	Wealthy Apple Jelly	Cran-Berry Jelly	Cran-Berry Orange Jelly	Cran-Berry Apple Jelly	Grape-Apple Jelly
Frozen grape concentrate (cups)	¾	-	-	-	-	½
Apple puree* (cups)	-	2	-	-	1	1
Cranberry puree ≠ (cups)	-	-	2	1	1	-
Orange juice (cups)	-	-	-	1	-	-
Lemon juice (Tbsp)	-	1	-	-	-	1
Water (cups)	¾	-	-	-	-	½
Powdered pectin (box)	½	½	½	½	½	½
Glycerine (cups)	¾	1	1	1¼	1	1
Sucaryl (tsp ≠)	1¼	3	6	3	4	2

* To prepare apple puree, cook apples with small amount of water until mushy, and then put through food mill.

≠ For 2c. cranberry puree, cook ½ lb. cranberries with 1c. water until mushy, and then put through food mill.

≠ Liquid. Table equivalent may be used if desired; one tablet equals 1/8 tsp. liquid.

**Marilyn Sands, Student in Special Problems Course, Purdue University, Lafayette, Indiana

Taken from Journal of American Dietetic Association - July 1953.

September 1956

North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service

Marketing

NORTH CAROLINA DEPARTMENT OF AGRICULTURE
Division of Weights and Measures
Raleigh, North Carolina

Consolidated Statutes: Article 1: Section 8060:
Standard weights and measures, exception; penalty. The Standard Weight of the following seeds and other articles shall be as stated in this section, viz.:

Commodity	Lbs. Per bu.
Alfalfa	60
Apples, dried	24
Apple seed	40
Barley	48
Beans, Castor	46
Beans, dry	60
Beans, green in pod	30
Beans, soy	60
Beef, net (per bbl)	200
Beets	50
Blackberries	48
Blackberries, dried	28
Bran	20
Broom-corn	44
Buckwheat	50
Cabbage	50
Canary seed	60
Carrots	50
Cherries, with stems	56
Cherries, without stems	64
Clover seed, red and white	60
Clover, Burr	8
Clover, German	60
Clover, Japan, Lespedeza	25
Corn, shelled	56
Corn, Kaffir	50
Corn, pop	70
Cotton seed	30
Cotton seed, Sea Island	44
Cucumbers	48
Fish (per ½ bbl.)	100
Flax seed	56
Grapes, with stems	48
Grapes, without stems	60
Gooseberries	48
Grass seed, Bermuda	14
Grass seed, blue	14
Grass seed, Hungarian	48
Grass seed, johnson	25
Grass seed, Italian Rye	20
Grass seed, orchard	14
Grass seed, tall meadow & Fescue	24
Grass seed, all meadow & Fescue except tall	14
Grass seed, perrenial rye	14
Grass seed, Timothy	45
Grass, redtop	14
Grass seed, velvet	7
Hemp seed	44
Hominy	62
Horseradish	50
Parsnips	50

Commodity	Lbs. per bu.
Meal, corn, whether bolted or unbolted	48
Melon, cantaloupe	50
Millet	50
Mustard	58
Nuts, chestnuts	50
Nuts, hickory, without hulls	50
Nuts, walnut, without hulls	50
Oats, seed	32
Onions, button sets	32
Onions, top buttons	28
Onions, matured	57
Osage orange seed	33
Peaches, matured	50
Peaches, dried	25
Peach seed	50
Peanuts, Spanish	30
Peanuts	22
Pears, matured	56
Pears, dried	26
Peas, dry	60
Peas, green in hull	30
Pieplant	50
Plums	64
Pork net (per bbl.)	200
Potatoes, Irish	56
Potatoes, sweet, green	56
Potatoes, sweet, kiln dried	47
Quinces, matured	48
Raspberries	48
Rice, rough	44
Rye seed	56
Sage	4
Salads, mustard, spinach, turnips, kale	10
Sale	50
Sorghum seed	50
Sorghum Mollasses (per gallon)	12
Strawberries	48
Sunflower seed	24
Teosinte	59
Tomatoes	56
Turnips	50
Wheat	60
Cement	80
Charcoal	22
Coke	40
Coal, stone	80
Hair, plaster	8
Land plaster	100
Lime, unslaked	80
Lime, slaked	40
Liquids (gals. per bbl.)	42

It shall be unlawful to purchase or sell, or barter or exchange, any article named in this section on any other basis than as stated herein: Provided, however, that any and/or all such articles may be sold by weight, avoirdupois standard. If any person shall take any greater weight than is specified for any of the items named herein, he shall forfeit and pay the sum of twenty dollars for each separate case to any person who may sue for same.
Whenever any commodity now named in Sec. 8060, Consolidated Statutes, shall be quoted or sold by the bushel, the bushel shall consist of the number of pounds stated in said section; and whenever quoted or sold in subdivisions of the bushel, the number of pounds shall consist of the fractional part of the number of pounds as set forth therein for the bushel; and when sold by the barrel shall consist of the number of pounds constituting 3.281 bushels.

Home Economics
Food Conservation
and Home Marketing
RICKS HALL

AGRICULTURAL EXTENSION SERVICE
COOPERATIVE EXTENSION WORK IN AGRICULTURE & HOME ECONOMICS
NORTH CAROLINA STATE COLLEGE · RALEIGH, NORTH CAROLINA

June 10, 1963

TO: WHITE AND NEGRO HOME ECONOMICS EXTENSION AGENTS WORKING WITH 4-H

RE: 4-H Canning Literature

Dear Agents:

The enclosed 4-H Canning Literature

1) Leader's Guide - 4-H Canning
2) 4-H Canning - Pre-Teens
3) 4-H Canning - Early Teens
4) 4-H Canning - Senior Teens

is ready for distribution. I am sorry this was not available sooner, but perhaps you can still use it where needed for this year.

I would like for all county winners participating in district contests (Pre-Teens, Early Teens and Senior Teens) to please use the printed records to submit to the State 4-H Office on September 25, 1963. Thank you.

Sincerely,

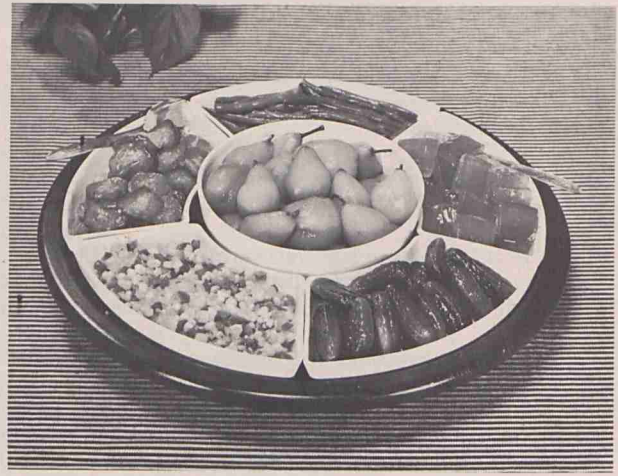
Marjorie Shearin

Marjorie Shearin
Extension Food Conservation
and Marketing Specialist

MS/ee
Enclosures

c.c.: All District 4-H Agents

Making **PICKLES** and **RELISHES** At Home



Home and Garden Bulletin No. 92

U.S. DEPARTMENT OF AGRICULTURE

Contents

Prepared by
Human Nutrition Research Division
Agricultural Research Service

Making PICKLES and RELISHES At Home

Pickle products truly add spice to meals or snacks. The skillful blending of spices, sugar, and vinegar with fruits and vegetables gives crisp, firm texture and pungent, sweet-sour flavor.

Pickles and relishes contribute some nutritive value, contain little or no fat, and, except for the sweet type, are low in calories.

Although food markets today offer a wide variety of pickles and relishes, many homemakers like to make their own pickle products when garden vegetables and fresh fruits are in abundant supply.

This bulletin gives specific directions for selecting and preparing pickling ingredients and for processing pickles and relishes. Included are basic recipes for the old-time favorites, such as pickled peaches, piccalilli, and sauerkraut; and for the newer fresh-pack or quick-process dills, sweet gherkins, crosscut pickle slices, and dilled green beans. Spices in these basic recipes can be increased or decreased to please family tastes.

Common causes of poor-quality pickles and spoilage in sauerkraut are pointed out.

Classes and Characteristics

Pickle products are classified on the basis of ingredients used and the method of preparation. There are four general classes.

Brined Pickles

Brined pickles, also called fermented pickles, go through a curing process of about 3 weeks. Dilled cucumbers and sauerkraut belong in this group. Other vegetables, such as green tomatoes, may also be cured in the same way as cucumbers. Curing changes cucumber color from a bright green to an olive or yellow green. The white interior of the fresh cucumber becomes uniformly translucent. A desirable flavor is developed during curing without being excessively sour, salty, or spicy. Cucumber dills may be flavored with garlic, if desired. The skin of the pickle is tender and firm, but not hard, rubbery, or shriveled. The inside is tender and firm, not soft or mushy.

Good sauerkraut (brined cabbage) has a pleasant tart and tangy flavor, and is free from any off-flavors or off-odors. It is crisp and firm in texture and has a bright, creamy-white color. The shreds are uniformly cut (about the thinness of a dime) and are free from large, coarse pieces of leaves or core.

Fresh-pack Pickles

Fresh-pack or quick-process pickles, such as crosscut cucumber slices and whole cucumber dills, sweet gherkins, and dilled green beans, are brined for several hours or overnight, then drained and combined with boiling-hot vinegar, spices, and other seasonings. These are quick and easy to prepare. They have a tart, pungent flavor. Seasonings can be selected to suit individual family preferences. Fresh-pack whole cucumbers are olive green, crisp, tender, and firm.

Fruit Pickles

Fruit pickles are usually prepared from whole fruits and simmered in a spicy, sweet-sour sirup. They should be bright in color, of uniform size, and tender and firm without being watery. Pears, peaches, and watermelon rind are prepared this way.

Relishes

Relishes are prepared from fruits and vegetables which are chopped, seasoned, and then cooked to desired consistency. Clear, bright color and uniformity in size of pieces make an attractive product. Relishes accent the flavor of other foods. They may be quite hot and spicy. Relishes include piccalilli, pepper-onion, tomato-apple chutney, tomato-pear chutney, horseradish, and corn relish.

BN–20906

A choice of pickles and relishes.

Ingredients for Successful Pickling

Satisfactory pickle products can be obtained only when good-quality ingredients are used and proper procedures are followed. Correct proportions of fruit or vegetable, sugar, salt, vinegar, and spices are essential. Alum and lime are not needed to make pickles crisp and firm if good-quality ingredients and up-to-date procedures are used.

Use tested recipes. Read the complete recipe before starting preparation. Make sure necessary ingredients are on hand. Measure or weigh all ingredients carefully.

Fruits and Vegetables

Selection.—Select tender vegetables and firm fruit. Pears and peaches may be slightly underripe for pickling. Use unwaxed cucumbers for pickling whole. The brine cannot penetrate waxed cucumbers. Sort for uniform size and select the size best suited for the recipe being followed.

Use fruits and vegetables as soon as possible after gathering from the orchard or garden, or after purchasing from the market. If the fruits and vegetables cannot be used immediately, refrigerate them, or spread them where they will be well ventilated and cool. This is particularly important for cucumbers because they deteriorate rapidly, especially at room temperatures.

Do not use fruits or vegetables that show even slight evidence of mold. Proper processing kills potential spoilage organisms, but does not destroy the off-flavor that may be produced by mold growth in the tissue.

Preparation.—Wash fruits and vegetables thoroughly in cold water, whether they are to be pared or left unpared. Use a brush and wash only a few at a time. Wash under running water or through several changes of water. Clinging soil may contain bacteria that are hard to destroy. Lift the fruits or vegetables out of the water each time, so soil that has been washed off will not be drained back over them. Rinse pan thoroughly between washings. Handle gently to avoid bruising.

Be sure to remove all blossoms from cucumbers. They may be a source of the enzymes responsible for softening of the cucumbers during fermentation.

Salt

Use pure granulated salt if available. Uniodized table salt can be used, but the materials added to the salt to prevent caking may make the brine cloudy. Do not use iodized table salt; it may darken pickles.

Vinegar

Use a high-grade cider or white distilled vinegar of 4- to 6-percent acidity (40 to 60 grain). Vinegars of unknown acidity should not be used. Cider vinegar, with its mellow acid taste, gives a nice blending of flavors, but may darken white or light-colored fruits and vegetables. White distilled vinegar has a sharp, pungent, acetic acid taste and is desirable when light color is impor-

tant, as with pickled pears, onions, and cauliflower.

Do not dilute the vinegar unless the recipe so specifies. If a less sour product is preferred, add sugar rather than decrease vinegar.

Sugar

Either white granulated or brown sugar may be used. White sugar gives a product with a lighter color, but brown sugar may be preferred for color.

Spices

The general term "spices" includes the sweet herbs and the pungent spices. Herbs are the leaves of aromatic plants grown in the Temperate Zone, and spices are the stems, leaves, roots, seeds, flowers, buds, and bark of aromatic plants grown in the tropics.

Use fresh spices for best flavor in pickles. Spices deteriorate and quickly lose their pungency in heat and humidity. If they cannot be used immediately, they should be stored in an airtight container in a cool place.

Equipment for Successful Pickling

Equipment of the right kind, size, and amount saves time and energy. Read the complete recipe before you start preparation and make sure you have the utensils and tools you need ready for use.

Utensils

For heating pickling liquids, use utensils of unchipped enamelware, stainless steel, aluminum, or glass. Do not use copper, brass, galvanized, or iron utensils; these metals may react with acids or salts and cause undesirable color changes in the pickles or form undesirable compounds.

For fermenting or brining, use a crock or stone jar, unchipped enamel-lined pan, or large glass jar, bowl, or casserole. Use a heavy plate or large glass lid, which fits inside the container, to cover vegetables in the brine. Use a weight to hold the cover down and keep vegetables below the surface of the brine. A glass jar filled with water makes a good weight.

Small utensils that add ease and convenience to home pickling include: Measuring spoons, large wood or stainless-steel spoons for stirring, measuring cups, sharp knives, large trays, tongs, vegetable peelers, ladle with lip for pouring, slotted spoon, footed colander or wire basket, large-mouthed funnel, food chopper or grinder, and wooden cutting board.

Water-Bath Canner

Any large metal container may be used for a water-bath canner if it—

- Is deep enough to allow for 1 or 2 inches of water above the tops of the jars, plus a little extra space for boiling.
- Has a close-fitting cover.
- Is equipped with a wire or wood rack with partitions to keep jars from touching each other and falling against the sides of the canner.

A steam-pressure canner can serve as a water bath. To use it for this purpose, set the cover in place without fastening it. Be sure the petcock is wide open so that steam escapes and pressure is not built up.

Glass Jars and Lids

Select jars and lids that are free of cracks, chips, or dents or any defect that may prevent airtight seals and cause needless spoilage. Be sure to use the right kind of jar closure for the type of jar. If metal lids are to be used, select those with enamel linings.

Do not use jars and lids from commercially canned foods. They are designed for use on special packing machines and are not suitable for home canning.

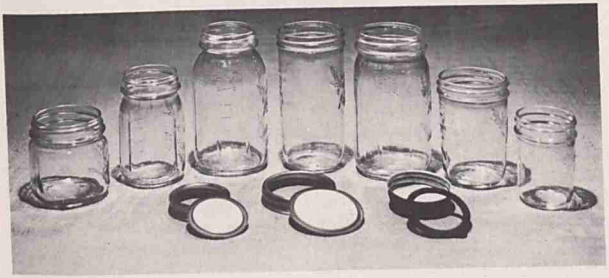
Wash glass jars in hot, soapy water. Rinse thoroughly. Heat jars in hot water before filling them with hot food. Leave jars in the hot water until ready for filling.

Wash and rinse all lids except those with sealing compounds. Some metal lids with sealing compounds need boiling; others need only a dip in hot water. Follow the manufacturer's directions.

Use clean, new rubber rings of the right size for the jars. Do not test by stretching. Dip rubber rings in boiling water before putting them on the jars.

Scales

Household scales will be needed if the recipes specify ingredients by weight. They are necessary in making sauerkraut to insure correct proportions of salt and shredded cabbage.



BN–20543

A selection of jars and lids suitable for pickles and relishes is shown here. Jar types, from left to right, wide-mouth pint, regular pint, regular quart, 1½ pint with flared sides, wide-mouth quart, pint with flared sides, and ½ pint with flared sides. The closures, from left to right, flat metal lid with sealing compound, and metal screw band to fit regular jar; flat metal lid with sealing compound, and metal screw band to fit wide-mouth jar; and porcelain-lined zinc cap with shoulder rubber ring to fit regular jar.

Procedures for Successful Pickling

To insure acceptable quality and bacteriological safety of the finished pickle product, you must follow recommended procedures. Ingredients, time, and money may be wasted if you use outdated or careless canning procedures.

Filling Jars

Fill the jars firmly and uniformly with the pickle product. Avoid packing so tightly that the brine or sirup is prevented from filling around and over the product. Remove air bubbles by working the blade of a table knife down the side of the jar. Removal of air bubbles helps prevent liquid from falling below the level of the solid food during processing. If needed, add more liquid to cover product before processing, but be sure to leave head space at the top of the jar, as recommended in recipe.

Wipe the rim and threads of the jar with a clean, hot cloth to remove any particles of food, seeds, or spices. Even a small particle may prevent an airtight seal.

When a porcelain-lined zinc cap with shoulder rubber ring is used, put the wet rubber ring on the jar shoulder before filling the jar. Do not stretch the rubber ring more than necessary. After filling the jar, wipe the rubber ring and jar rim and threads clean.

Closing Jars

The two-piece metal cap (flat metal lid and metal screw band) is the most commonly used closure. To use this type of closure, place the lid on the jar with the sealing compound next to the glass. Screw the band firmly to hold the sealing compound against the glass, but do not screw so tight that steam cannot escape during processing. Do not tighten screw band further after processing.

When using a porcelain-lined zinc cap with shoulder rubber ring, screw the cap down firmly against the wet rubber ring, then turn it back one-fourth inch. Immediately after processing and removal of the jar from the canner, screw the cap down tight to complete the seal.

If liquid has boiled out of a jar during processing, do not open it to add more liquid, because spoilage organisms may enter. Seal the jar just as it is.

Heat Treatment

Pickle products require heat treatment to destroy organisms that cause spoilage, and to inactivate enzymes that may affect flavor, color, and texture. Adequate heating is best achieved by processing the filled jars in a boiling-water bath.

Heat processing is recommended for all pickle products. There is always danger of spoilage organisms entering the food when it is transferred from kettle to jar. This is true even when the utmost caution is observed and is the reason open-kettle canning is not recommended.

Pack pickle products into glass jars according to directions given in the recipe. Adjust lids. Immerse the jars into actively boiling

water in canner or deep kettle. Be sure the water comes an inch or two above the jars tops; add boiling water if necessary, but do not pour it directly on the jars. Cover the container with a close-fitting lid and bring the water back to boiling as quickly as possible. Start to count processing time when water returns to boiling, and continue to boil gently and steadily for the time recommended for the food being canned. Remove jars immediately and complete the seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Processing procedures for fermented cucumbers and fresh-pack dills are slightly different from the usual water-bath procedures. For these products, start to count the processing time as soon as the filled jars are placed in the actively boiling water. This prevents development of a cooked flavor and a loss of crispness.

Processing times as given in the recipes are for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, you need to increase recommended processing times as follows:

Altitude (Feet)	*Increase in processing time (minutes)*
1,000	1
2,000	2
3,000	3
4,000	4
5,000	5
6,000	6
7,000	7
8,000	8
9,000	9
10,000	10

Cooling the Canned Pickles

Cool the jars top side up, on a wire rack, several inches apart to allow for free circulation of air. Keep the jars out of a draft. Do not cover.

Cool for 12 to 24 hours; remove metal screw bands carefully; then check jars for an airtight seal. If the center of the lid of the two-piece metal cap has a slight dip or stays down when pressed, the jar is sealed. Another test is to tap the center of the lid with a spoon. A clear, ringing sound means a good seal. A dull note, however, does not always mean a poor seal. Check for airtight seal by turning jar partly over. If there is no leakage, the jar may be stored.

If the porcelain-lined zinc cap with rubber ring has been used, check for airtight seal by turning the jar partly over. If there is no leakage, the seal is tight.

If a jar shows signs of leakage or a poor seal, use the unspoiled product right away, or recan it. To recan, empty the jar, repack in another clean jar, and reprocess the product as before.

The metal screw bands from the two-piece metal cap may be used again. Remove them from the jar carefully to avoid breaking the seal. Sticking bands may be loosened by covering with a hot, damp cloth for a short time. It is better to leave the bands on the jars than to take the chance of breaking the seal.

The metal lids from the two-piece metal cap closures should be used only one time.

Storing the Canned Pickles

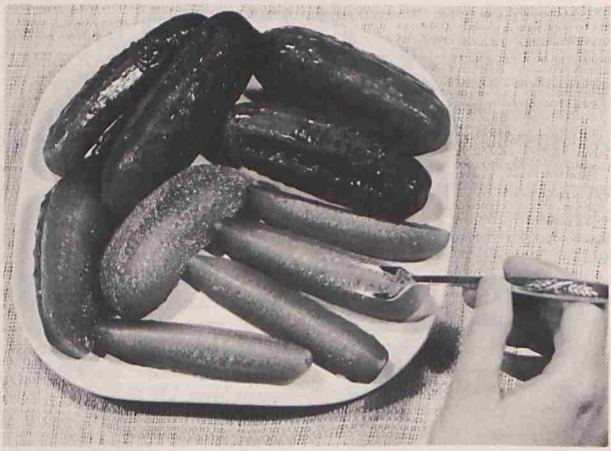
Wipe the jars with a clean, damp cloth, and label with name of product and date.

Store the canned pickles in a dark, dry, cool place where there is no danger of freezing. Freezing may crack the jars or break the seals, and let in bacteria that cause spoilage. Protect from light to prevent bleaching and possible deterioration of flavor.

Always be on the alert for signs of spoilage. Before opening a jar, examine it closely. A bulging lid or leakage may mean that the contents are spoiled.

When a jar is opened, look for other signs of spoilage, such as spurting liquid, mold, disagreeable odor, change in color, or an unusual softness, mushiness, or slipperiness of the pickle product. *If there is even the slightest indication of spoilage, do not eat or even taste the contents.* Dispose of the contents so that they cannot be eaten by humans or animals.

After emptying the jar of spoiled food, wash the jar in hot, soapy water and rinse. Boil in clean water for 15 minutes.



BN–20539

Heat-processed, brined dill pickles, ready for serving. Processing the pickles in a boiling-water bath destroys yeasts and molds in the jar and helps to preserve good texture and flavor in the pickles during storage for several months.

Recipes

VOLUME EQUIVALENTS

1 gallon = 4 quarts
1 quart = 4 cups
1 pint = 2 cups
1 cup = 16 tablespoons
1 tablespoon = 3 teaspoons

Brined dill pickles

Yield: 9 to 10 quarts

Cucumbers, 3 to 6 inches in length	**20 pounds (about ½ bushel)**
Whole mixed pickling spice	**¾ cup**
Dill plant, fresh or dried	**2 to 3 bunches**
Vinegar	**2½ cups**
Salt, pure granulated	**1¾ cups**
Water	**2½ gallons**

Cover cucumbers with cold water. Wash thoroughly, using a vegetable brush; handle gently to avoid bruising. Take care to remove any blossoms. Drain on rack or wipe dry.

Place half the pickle spices and a layer of dill in a 5-gallon crock or jar. Fill the crock with cucumbers to within 3 or 4 inches of the top. Place a layer of dill and remaining spices over the top of cucumbers. (Garlic may be added, if desired.) Thoroughly mix the vinegar, salt, and water and pour over the cucumbers.

Cover with a heavy china or glass plate or lid that fits inside the crock.

Use a weight to hold the plate down and keep the cucumbers under the brine. A glass jar filled with water makes a good weight. Cover loosely with clean cloth. Keep pickles at room temperature and remove scum daily when formed. Scum may start forming in 3 to 5 days. Do not stir pickles, but be sure they are completely covered with brine. If necessary, make additional brine, using original proportions specified in recipe.

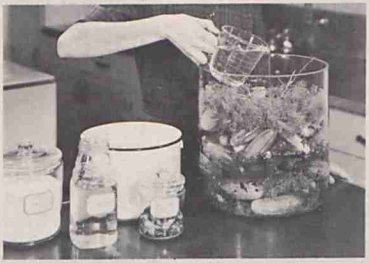
In about 3 weeks the cucumbers will have become an olive-green color and should have a desirable flavor. Any white spots inside the fermented cucumbers will disappear in processing.

The original brine is usually cloudy as a result of yeast development during the fermentation period. If this cloudiness is objectionable, fresh brine may be used to cover the pickles when packing

(Continued on p. 14.)

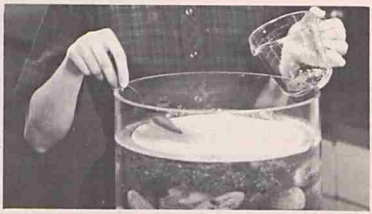
How to make
Brined Dill Pickles

DN-2049
Wash cucumbers thoroughly with a brush. Use several changes of cold water. Take care to remove all blossoms. Drain on rack.



DN-2048
Place half of the spices and a layer of dill on the bottom of a 5-gallon jar or crock. Fill the cucumbers to 3 or 4 inches from top. Cover with remaining dill and add rest of spices. Mix salt, vinegar, and water and pour over cucumbers.

DN-2047
Use a heavy plate or glass lid which fits inside the container to cover cucumbers. Use a weight to hold the cover down and keep the cucumbers under the brine. A glass jar filled with water makes a good weight.



DN-2044

Bubbles and the formation of scum indicate active fermentation. Scum should be removed daily.

DN-2046

After 3 weeks of fermentation the dills are ready for processing. Cloudiness of the brine results from yeast development during fermentation. Strain the brine before using.

DN-2045

Pack pickles firmly into clean, hot quart jars. Do not wedge tightly. Add several pieces of the dill to each jar. Cover with boiling brine to ½ inch of top of jar; adjust lids. Place jars in boiling water and process for 15 minutes. Start to count processing time as soon as hot jars are placed into the actively boiling water.

DN-2043

Remove jars from the canner and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool. Cloudiness of brine is typical when the original fermentation brine is used as the covering liquid.

them into jars; in making fresh brine use ½ cup salt and 4 cups vinegar to 1 gallon of water. The fermentation brine is generally preferred for its added flavor and should be strained before heating to boiling.

Pack the pickles, along with some of the dill, into clean, hot quart jars; add garlic, if desired. Avoid too tight a pack. Cover with boiling brine to ½ inch of the top of the jar. Adjust jar lids.

Process in boiling water for 15 minutes[1] (start to count the processing time as soon as hot jars are placed into the actively boiling water).

Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Fresh-pack dill pickles

Yield: 7 quarts

Cucumbers, 3 to 5 inches in length, packed 7 to 10 per quart jar.	**17 to 18 pounds**
5-percent brine (¾ cup pure granulated salt per gallon of water).	**About 2 gallons**
Vinegar	**6 cups (1½ quarts)**
Salt, pure granulated	**¾ cup**
Sugar	**¼ cup**
Water	**9 cups (2¼ quarts)**
Whole mixed pickling spice	**2 tablespoons**
Whole mustard seed	**2 teaspoons per quart jar**
Garlic, if desired	**1 or 2 cloves per quart jar**
Dill plant, fresh or dried	**3 heads per quart jar**
OR	
Dill seed	**1 tablespoon per quart jar**

Wash cucumbers thoroughly; scrub with vegetable brush; drain. Cover with the 5-percent brine (¾ cup salt per gallon of water). Let set overnight; drain.

Combine vinegar, salt, sugar, water, and mixed pickling spices that are tied in a clean, thin, white cloth; heat to boiling. Pack cucumbers into clean, hot quart jars. Add mustard seed, dill plant or seed, and garlic to each jar; cover with boiling liquid to within ½ inch of top of jar. Adjust jar lids.

Process in boiling water for 20 minutes[1] (start to count the processing time as soon as hot jars are placed into the actively boiling water).

Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

Sweet gherkins

Yield: 7 to 8 pints

Cucumbers, 1½ to 3 inches in length	7 quarts (about 5 pounds)
Salt, pure granulated	½ cup
Sugar	8 cups (2 quarts)
Vinegar	6 cups (1½ quarts)
Turmeric	¾ teaspoon
Celery seed	2 teaspoons
Whole mixed pickling spice	2 teaspoons
Stick cinnamon	8 1-inch pieces
Fennel (if desired)	½ teaspoon
Vanilla (if desired)	2 teaspoons

First day

Morning.—Wash cucumbers thoroughly; scrub with vegetable brush; stem ends may be left on if desired. Drain cucumbers; place in large container and cover with boiling water.

Afternoon (6 to 8 hours later).—Drain; cover with fresh, boiling water.

Second day

Morning.—Drain; cover with fresh, boiling water.

Afternoon.—Drain; add salt; cover with fresh, boiling water.

Third day

Morning.—Drain; prick cucumbers in several places with table fork. Make sirup of 3 cups of the sugar and 3 cups of the vinegar; add turmeric and spices. Heat to boiling and pour over cucumbers. (Cucumbers will be partially covered at this point.)

Afternoon.—Drain sirup into pan; add 2 cups of the sugar and 2 cups of the vinegar to sirup. Heat to boiling and pour over pickles.

Fourth day

Morning.—Drain sirup into pan; add 2 cups of the sugar and 1 cup of the vinegar to sirup. Heat to boiling and pour over pickles.

Afternoon.—Drain sirup into pan; add remaining 1 cup sugar and the vanilla to sirup; heat to boiling. Pack pickles into clean, hot pint jars and cover with boiling sirup to ½ inch of top of jar. Adjust jar lids.

Process for 5 minutes [1] in boiling water (start to count processing time as soon as water returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

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[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

How to make
Crosscut Pickle Slices

DN-2054
Wash cucumbers thoroughly. Slice unpeeled cucumbers into 1/8- to 1/4-inch crosswise slices. Wash and remove skins from onions; slice into 1/8-inch slices.

DN-2053
Combine cucumber and onion slices with peeled garlic cloves. Add salt and mix thoroughly. Cover with crushed ice or ice cubes. Allow to stand 3 hours. Drain thoroughly; remove garlic cloves.

DN-2052
Combine sugar, spices, and vinegar; heat to boiling. Add drained cucumber and onion slices and heat 5 minutes.

DN–2050

Pack loosely into clean, hot pint jars to ½ inch of top of jar; adjust lids. Process in boiling water for 5 minutes. Start to count processing time as soon as water in canner returns to boiling.

DN–2051

Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack or folded towel to cool.

Crosscut pickle slices

Yield: 7 pints

Cucumbers, medium size (about 6 pounds), sliced	4 quarts
Onions (12 to 15 small white, about 1 pound), sliced	1½ cups
Garlic cloves	2 large
Salt	⅓ cup
Ice, crushed or cubes	2 quarts (2 trays)
Sugar	4½ cups
Turmeric	1½ teaspoons
Celery seed	1½ teaspoons
Mustard seed	2 tablespoons
Vinegar, white	3 cups

Wash cucumbers thoroughly, using a vegetable brush; drain on rack. Slice unpeeled cucumbers into ⅛-inch to ¼-inch slices; discard ends. Add onions and garlic.

Add salt and mix thoroughly; cover with crushed ice or ice cubes; let stand 3 hours. Drain thoroughly; remove garlic cloves.

Combine sugar, spices, and vinegar; heat just to boiling. Add drained cucumber and onion slices and heat 5 minutes.

Pack hot pickles loosely into clean, hot pint jars to ½ inch of top. Adjust jar lids.

Process in boiling water for 5 minutes[1] (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright to cool.

Note: Sugar may be reduced to 4 cups, if a less sweet pickle is desired.

Tomato-apple chutney

Yield: 7 pints

Tomatoes (about 6 pounds), pared, chopped	3 quarts
Apples (about 5 pounds), pared, chopped	3 quarts
Raisins, seedless, white	2 cups
Onions (4 to 5 medium), chopped	2 cups
Green peppers (2 medium), chopped	1 cup
Brown sugar	2 pounds
Vinegar, white	1 quart
Salt	4 teaspoons
Ground ginger	1 teaspoon
Whole mixed pickling spice	¼ cup

Combine all ingredients except the whole spices. Place spices loosely in a clean, white cloth; tie with a string, and add to tomato-

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

apple mixture. Bring to a boil; cook slowly, stirring frequently, until mixture is thickened (about 1 hour). Remove spice bag.

Pack the boiling-hot chutney into clean, hot pint jars to ½ inch of the top of the jar. Adjust jar lids. Process in boiling water for 5 minutes[1] (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Tomato-pear chutney

Yield: 3 to 4 jars (½ pint each)

Tomatoes, quartered, fresh or canned	**2½ cups**
Pears, diced, fresh or canned	**2½ cups**
Raisins, seedless, white	**½ cup**
Green pepper (1 medium), chopped	**½ cup**
Onions (1 or 2 medium), chopped	**½ cup**
Sugar	**1 cup**
Vinegar, white	**½ cup**
Salt	**1 teaspoon**
Ground ginger	**½ teaspoon**
Mustard, powdered, dry	**½ teaspoon**
Cayenne pepper	**⅛ teaspoon**
Pimiento, canned, chopped	**¼ cup**

When fresh tomatoes and pears are used, remove skins; include sirup when using canned pears.

Combine all ingredients except pimiento. Bring to a boil; cook slowly until thickened (about 45 minutes), stirring occasionally. Add pimiento and boil 3 minutes longer.

Pack the boiling-hot chutney into clean, hot jars, filling to the top. Seal tightly. *Store in refrigerator.*

If extended storage without refrigeration is desired, this product should be processed in boiling water. Pack the boiling-hot chutney into clean, hot jars to ½ inch of top of jar. Adjust jar lids. Process in boiling water for 5 minutes[1] (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Note: If a less spicy chutney is preferred, the amount of cayenne pepper may be reduced or omitted.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

Dilled green beans

Yield: 7 pints

Green beans, whole	4 pounds (about 4 quarts)
Hot red pepper, crushed	¼ teaspoon per pint jar
Whole mustard seed	½ teaspoon per pint jar
Dill seed	½ teaspoon per pint jar
Garlic	1 clove per pint jar
Vinegar	5 cups (1¼ quarts)
Water	5 cups (1¼ quarts)
Salt	½ cup

Wash beans thoroughly; drain and cut into lengths to fill pint jars. Pack beans into clean, hot jars; add pepper, mustard seed, dill seed, and garlic.

Combine vinegar, water and salt; heat to boiling. Pour boiling liquid over beans, filling to ½ inch of top of jar. Adjust jar lids.

Process in boiling water for 5 minutes [1] (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Pickled peaches

Yield: 7 quarts

Sugar	3 quarts
Vinegar	2 quarts
Stick cinnamon	7 2-inch pieces
Cloves, whole	2 tablespoons
Peaches, small or medium size	16 pounds (about 11 quarts)

Combine sugar, vinegar, stick cinnamon, and cloves. (Cloves may be put in a clean cloth, tied with a string, and removed after cooking, if not desired in packed product.) Bring to a boil and let simmer covered, about 30 minutes.

Wash peaches and remove skins; dipping the fruit in boiling water for 1 minute, then quickly in cold water makes peeling easier. To prevent pared peaches from darkening during preparation, immediately put them into cold water containing 2 tablespoons each of salt and vinegar per gallon. Drain just before using.

Add peaches to the boiling sirup, enough for 2 or 3 quarts at a time, and heat for about 5 minutes. Pack hot peaches into clean, hot jars. Continue heating in sirup and packing peaches into jars. Add 1 piece of stick cinnamon and 2 to 3 whole cloves (if desired) to each jar. Cover peaches with boiling sirup to

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

½ inch of top of jar. Adjust jar lids.

Process in boiling water for 20 minutes [1] (start to count processing time after water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Pickled pears

Yield: 7 to 8 pints

Sugar	**2 quarts**
Vinegar, white	**1 quart**
Water	**1 pint**
Stick cinnamon	**8 2-inch pieces**
Cloves, whole	**2 tablespoons**
Allspice, whole	**2 tablespoons**
Seckel pears	**8 pounds (4 or 5 quarts)**

Combine sugar, vinegar, water, and stick cinnamon; add cloves and allspice that are tied in a clean, thin white cloth. Bring to a boil and simmer, covered, about 30 minutes.

Wash pears, remove skins, and all of blossom end; the stems may be left on if desired. To prevent peeled pears from darkening during preparation, immediately put them into cold water containing 2 tablespoons each of salt and vinegar per gallon. Drain just before using.

Add pears to the boiling sirup and continue simmering for 20 to 25 minutes. Pack hot pears into clean, hot pint jars; add one 2-inch piece cinnamon per jar and cover with boiling sirup to ½ inch of top of jar. Adjust jar lids.

Process in boiling water for 20 minutes [1] (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Kieffer pears are also frequently used for making fruit pickles.

To pickle Kieffer pears: Use 12 pounds Kieffer pears and reduce vinegar to 3 cups in recipe above. Wash the pears, peel, cut in halves or quarters, remove hard centers and cores. Boil pears for 10 minutes in water to cover. Use 1 pint of this liquid in place of the pint of water in recipe above. Finish in the same way as Seckel pears. Makes about 8 pints.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

Watermelon pickles

Yield: 4 to 5 pints

Watermelon rind (about 6 pounds, unpared, or ½ large melon)	3 quarts
Salt	¾ cup
Water	3 quarts
Ice cubes	2 quarts (2 trays)
Sugar	9 cups (2¼ quarts)
Vinegar, white	3 cups
Water	3 cups
Whole cloves	1 tablespoon (about 48)
Stick cinnamon	6 1-inch pieces
Lemon, thinly sliced, with seeds removed	1

Pare rind and all pink edges from the watermelon. Cut into 1-inch squares or fancy shapes as desired. Cover with brine made by mixing the salt with 3 quarts cold water. Add ice cubes. Let stand 5 or 6 hours.

Drain; rinse in cold water. Cover with cold water and cook until fork tender, about 10 minutes (do not overcook). Drain.

Combine sugar, vinegar, water, and spices (tied in a clean, thin white cloth). Boil 5 minutes and pour over the watermelon with spices; add lemon slices. Let stand overnight.

Heat watermelon in sirup to boiling and cook until watermelon is translucent (about 10 minutes). Pack hot pickles loosely into clean, hot pint jars. To each jar add 1 piece of stick cinnamon from spice bag; cover with boiling sirup to ½ inch of top of jar. Adjust jar lids.

Process in boiling water for 5 minutes [1] (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

The sugar may be reduced to 8 cups, if a less sweet pickle is desired.

Note: Red or green coloring may be added to the sirup, if desired. Keep watermelon rind in plastic bags in refrigerator until enough for one recipe is collected.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

Sauerkraut

Yield: 16 to 18 quarts

Cabbage	**About 50 pounds**
Salt, pure granulated	**1 pound (1½ cups)**

Remove the outer leaves and any undesirable portions from firm, mature, heads of cabbage; wash and drain. Cut into halves or quarters; remove the core. Use a shredder or sharp knife to cut the cabbage into thin shreds about the thickness of a dime.

In a large container, thoroughly mix 3 tablespoons salt with 5 pounds shredded cabbage. Let the salted cabbage stand for several minutes to wilt slightly; this allows packing without excessive breaking or bruising of the shreds.

Pack the salted cabbage firmly and evenly into a large clean crock or jar. Using a wooden spoon or tamper or the hands, press down firmly until the juice comes to the surface. Repeat the shredding, salting, and packing of cabbage until the crock is filled to within 3 or 4 inches of the top.

Cover cabbage with a clean, thin, white cloth (such as muslin) and tuck the edges down against the inside of the container. Cover with a plate or round paraffined board that just fits inside the container so that the cabbage is not exposed to the air. Put a weight on top of the cover so the brine comes to the cover but not over it. A glass jar filled with water makes a good weight.

A newer method of covering cabbage during fermentation consists of placing a plastic bag filled with water on top of the fermenting cabbage. The water-filled bag seals the surface from exposure to air, and prevents the growth of film yeast or molds. It also serves as a weight. For extra protection, the bag with the water in it can be placed inside another plastic bag.

Any bag used should be of heavyweight, watertight plastic and intended for use with foods.

The amount of water in the plastic bag can be adjusted to give just enough pressure to keep the fermenting cabbage covered with brine. See illustration on page 25.

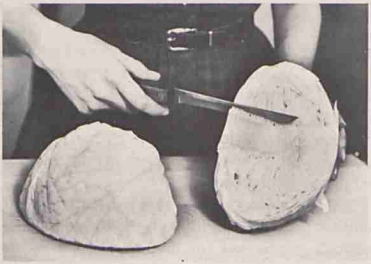
Formation of gas bubbles indicates fermentation is taking place. A room temperature of 68° to 72° F. is best for fermenting cabbage. Fermentation is usually completed in 5 to 6 weeks.

To store: Heat sauerkraut to simmering (185° to 210° F.). Do not boil. Pack hot sauerkraut into clean, hot jars and cover with hot juice to ½ inch of top of jar. Adjust jar lids. Process in boiling-water bath, 15 minutes for pints, and 20 minutes for quarts.[1] Start to count processing time as soon as hot jars are placed into the actively boiling water.

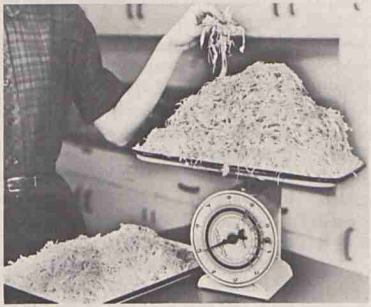
Remove jars and complete seals if necessary. Set jars upright, several inches apart, to cool.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

How to make Sauerkraut



DN-2042
Remove the outer leaves from firm, mature heads of cabbage; wash and drain. Remove core or cut it into thin shreds.

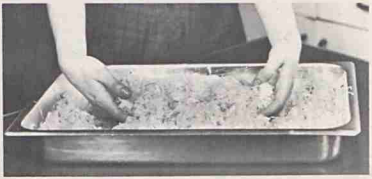


DN-2041
Shred cabbage and weigh 5 pounds. Accuracy in weighing is important to insure correct proportion of cabbage to salt.

DN-2040
Measure 3 tablespoons pure granulated salt and sprinkle over 5 pounds shredded cabbage.

DN–2061

Allow the salted cabbage to stand a few minutes to wilt slightly. Mix well, with clean hands or a spoon, to distribute salt uniformly.



DN–2039

Pack the salted cabbage into container. Press firmly with wooden spoon, tamper, or with hands until the juices drawn out will just cover the shredded cabbage.

DN–2060

Place a water-filled plastic bag on top of the cabbage. A water-filled plastic bag fits snugly against the cabbage and against the sides of the container and prevents exposure to air.

DN–2062

When fermentation is complete, remove from container and heat in kettle to simmering temperature. Pack hot sauerkraut into clean, hot jars; cover with hot juice, filling to ½ inch of top of jar. Adjust lids. Place jars in boiling-water bath and process 15 minutes for pints and 20 minutes for quarts. Start to count the processing time as soon as hot jars are placed into the actively boiling water.

Remove jars from the canner and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

DN–2063

Relishes for which ingredients are available throughout the year can be made up in small quantities for use within a period of 3 or 4 weeks. For such products, the boiling water-bath process may be omitted *but they must be stored in the refrigerator.* Recipes for two relishes that can be made in this way appear on this page.

Horseradish relish

Grated horseradish	**1 cup**
Vinegar, white	**½ cup**
Salt	**¼ teaspoon**

Wash horseradish roots thoroughly and remove the brown, outer skin. (A vegetable peeler is useful in removal of outer skin.) The roots may be grated, or cut into small cubes and put through a food chopper or a blender.

Combine ingredients. Pack into clean jars. Seal tightly. *Store in refrigerator.*

Pepper-onion relish

Yield: 5 jars (½ pint each)

Onions (6 to 8 large), finely chopped	**1 quart**
Sweet red peppers (4 or 5 medium), finely chopped	**1 pint**
Green peppers (4 or 5 medium), finely chopped	**1 pint**
Sugar	**1 cup**
Vinegar	**1 quart**
Salt	**4 teaspoons**

Combine all ingredients and bring to a boil. Cook until slightly thickened (about 45 minutes), stirring occasionally. Pack the boiling-hot relish into clean, hot jars; fill to top of jar. Seal tightly. *Store in refrigerator.*

If extended storage without refrigeration is desired, this product should be processed in a boiling-water bath. Pack the boiling-hot relish into clean, hot jars to ½ inch of top of jar. Adjust jar lids. Process in boiling water for 5 minutes [1] (start to count processing time when water in canner returns to boiling).

Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

Piccalilli

Yield: 4 pints

Green tomatoes (about 16 medium), chopped	1 quart
Sweet red peppers (2 to 3 medium), chopped	1 cup
Green peppers (2 to 3 medium), chopped	1 cup
Onions (2 to 3 large), chopped	1½ cups
Cabbage (about 2 pounds), chopped	5 cups (1¼ quarts)
Salt	⅓ cup
Vinegar	3 cups
Brown sugar	2 cups, firmly packed
Whole mixed pickling spice	2 tablespoons

Combine vegetables, mix with salt, let stand overnight. Drain and press in a clean, thin, white cloth to remove all liquid possible.

Combine vinegar and sugar. Place spices loosely in a clean cloth; tie with a string. Add to vinegar mixture. Bring to a boil.

Add vegetables, bring to a boil, and simmer about 30 minutes, or until there is just enough liquid to moisten vegetables. Remove spice bag. Pack hot relish into clean, hot pint jars. Fill jars to ½ inch of top. Adjust lids.

Process in boiling water for 5 minutes[1] (start to count processing time as soon as water in canner returns to boiling).

Remove jars and complete seals if necessary. Set jars upright on a wire rack to cool.

Corn relish

Yield: 7 pints

Corn, whole kernel (Use fresh (16 to 20 medium-size ears) or frozen (whole kernel, six 10-ounce packages)	2 quarts
Sweet red peppers (4 to 5 medium) diced	1 pint
Green peppers (4 to 5 medium), diced	1 pint
Celery (1 large bunch), chopped	1 quart
Onions (8 to 10 small, ¾ pound) chopped or sliced	1 cup
Sugar	1½ cups
Vinegar	1 quart
Salt	2 tablespoons
Celery seed	2 teaspoons
Mustard, powdered dry	2 tablespoons
Turmeric	1 teaspoon

Fresh corn.—Remove husks and silks. Cook ears of corn in boiling water for 5 minutes; remove and

[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

plunge into cold water. Drain; cut corn from cob. Do not scrape cob.

Frozen corn.—Defrost overnight in refrigerator or for 2 to 3 hours at room temperature. Place containers in front of a fan to hasten defrosting.

Combine peppers, celery, onions, sugar, vinegar, salt, and celery seed. Cover pan until mixture starts to boil, then boil uncovered for 5 minutes, stirring occasionally. Mix dry mustard and turmeric and blend with liquid from boiling mixture; add, with corn, to boiling mixture. Return to boiling and cook for 5 minutes, stirring occasionally.

This relish may be thickened by adding ¼ cup flour blended with ½ cup water at the time the corn is added for cooking. Frequent stirring will be necessary to prevent sticking and scorching.

Pack loosely while boiling hot into clean, hot pint jars, filling to ½ inch of top. Adjust jar lids.

Process in boiling water for 15 minutes [1] (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool.

Common Causes of Poor-Quality Pickles

Shriveled Pickles

Shriveling may result from using too strong a vinegar, sugar, or salt solution at the start of the pickling process. In making the very sweet or very sour pickles, it is best to start with a dilute solution and increase gradually to the desired strength.

Overcooking or overprocessing may also cause shriveling.

Hollow Pickles

Hollowness in pickles usually results from—

- Poorly developed cucumbers.
- Holding cucumbers too long before pickling.
- Too rapid fermentation.
- Too strong or too weak a brine during fermentation.

Soft or Slippery Pickles

These generally result from microbial action which causes spoilage. Once a pickle becomes soft it cannot be made firm. Microbial activity may be caused by—

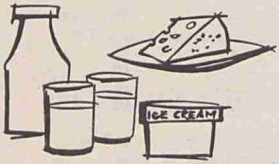
- Too little salt or acid.
- Cucumbers not covered with brine during fermentation.
- Scum scattered throughout the brine during fermentation period.
- Insufficient heat treatment.
- A seal that is not airtight.
- Moldy garlic or spices.

Blossoms, if not entirely removed from the cucumbers before fermentation, may contain fungi or yeasts

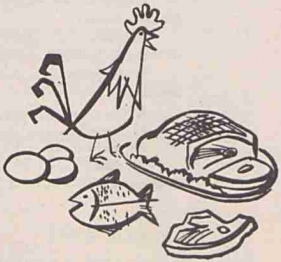
[1] Processing time is given for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, see table on p. 9.

PLAN YOUR MEALS AROUND THESE

DAILY FOOD NEEDS

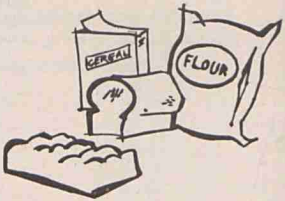


2 or more cups of MILK; more for children



2 or more servings of MEAT or alternate

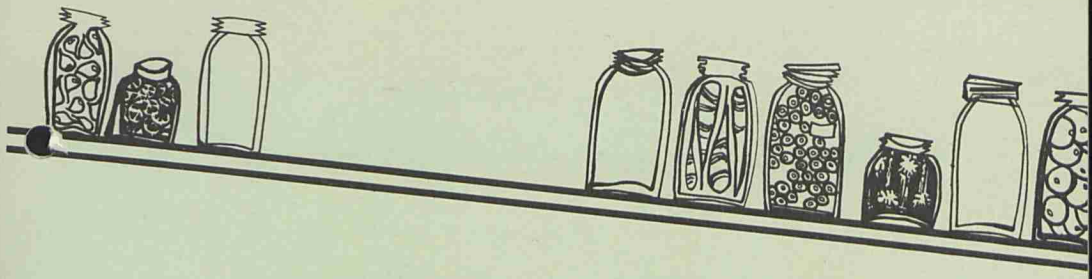
4 or more servings of VEGETABLES and FRUITS



4 or more servings of BREAD and CEREALS

and other foods for complete and satisfying meals

For further information write for Leaflet No. 424, Food for Fitness, A Daily Food Guide, available from the U.S. Department of Agriculture, Washington 25, D.C.



Leader's Guide 4-H Canning

NAME

4-H CLUB

COUNTY

Leader's Guide 4-H Canning

You, as a 4-H canning leader, will be interested in boys and girls and in their development.

As a leader for 4-H members conducting a 4-H canning project, you will want to

*Become familiar with the 4-H Club objectives and activities which are conducted in your county. Your community 4-H Club leaders will be glad to explain how the canning project fits into the overall 4-H program.

*You will work with and through the community 4-H Club leaders in your community 4-H Club.

*Study the requirements of the 4-H canning projects, canning manuals, and records that go with each year's project.

*Get acquainted with the 4-H members enrolled in the 4-H canning project. Find out how much canning the families of these club members do. The more you know the girls and their families, the more you can help them in their project work.

*Enlist the cooperation of the parents.

*You will want to find out which girls in your community club MIGHT become interesting in conducting a canning project.

PURPOSE OF THE CANNING LEADER'S GUIDE

The canning guide offers suggestions that you may use as you supervise the club members conducting a canning project. Included are suggestions in planning the activities for the year, teaching methods, demonstration outlines, and leadership activities.

This guide is not complete without the information contained in the Pre-Teens, Early-Teens, and Senior-Teens canning manuals and records. You will need to use all these to have enough information to successfully supervise this project.

IDENTIFICATION OF AGE GROUPINGS

The problem confronting leaders of boys and girls is to create situations in which the young people find satisfaction for their basic human needs and wants. Every boy and girl needs to have experiences that will give them a sense of belonging, achieving, becoming independent, having new experiences and giving affection. To accomplish this club members are placed in three age groupings, namely: PRE-TEENS (ages 9 to 12); EARLY-TEENS (ages 12 to 14); and SENIOR-TEENS (ages 14 and above).

CANNING IS A FAMILY AFFAIR

The food canned by club members will be eaten by the family, so canning is a family affair. You (the canning leader), the parents, the club members, and the Extension agents working together will determine the success of your canning program. Family understanding and cooperation are needed for the success of 4-H Club work. This is one objective of the 4-H canning program.

It is wise to acquaint parents with the canning program before or as you present it to the 4-H members. Their interest and cooperation may be enlisted by

* Holding 4-H canning meetings in parents' homes.

* Visiting with parents at least once a year.

* Conducting tours to members' homes to observe canning projects.

* Appealing personally to parents for their help.

* Inviting parents to community or county 4-H events.

* Giving your appreciation and thanks to parents.

As one leader said, "The biggest help parents can give their boys and girls in 4-H Club work is a sympathetic attitute toward the work and a willingness to furnish needed equipment and materials."

LET'S PLAN

If you want to lead and direct a successful 4-H canning program, you will need to do some planning. It is easier to follow a plan in conducting the canning program than to be wondering, "What shall I do next?"

Good ideas come from group planning, so you might call on some older 4-H girls and parents to help with the planning.

WHAT TO PLAN

You will want to plan HOW you will teach your 4-H girls to can fruits and vegetables. Now don't let the words "to teach" scare you, but as a leader you should teach the 4-H members enrolled in canning the recommended way to can fruits and vegetables. This manual will help you. There are many ways to teach. See pages 5, 6 and 7.

One way to teach your club members to can is described here. You

may get other suggestions from your planning group. You could meet with all the canning girls two or three times a year. You could include members from more than one 4-H Club. You will then need to plan when to hold the meetings and a place in which to meet (club members' homes or your home). Here are some suggested ideas on what to include in the three group meetings.

FIRST MEETING (To be held before the canning season begins.)

1) Go over the requirements for the canning projects. (Let each year's project fit the number of years the girl has been a 4-H member. For example, a 10 year-old member takes the first year project in the Pre-Teens 4-H Canning Manual and Record. Explain that each Pre-Teen Manual is for a 2 year period and that records for both years are in the back of the manual. The Early-Teens Manual is also for a 2 year period and records for both years are in the back of the manual. The fifth year (or more) girl is a Senior-Teens 4-H member and will use the Senior-Teens 4-H records and suggested manuals. See the Senior-Teens Record for the manuals recommended.

   NOTE: If an older girl wants to begin a canning project and has never conducted one, where will she begin? The Pre-Teens canning project as written is for the younger club member. Your older girl may not want to start here. It is suggested she begin with the first year in the Early-Teens project. The work done in both years of Early-Teens is a continuation of Pre-Teens work with the addition of jelly and vegetables. HOWEVER, encourage the girl to study Pre-Teens as there are suggestions, ideas, and methods she will want to use in the home canning of fruits and vegetables. In fact, she will lack knowledge needed to carry a canning project if she does not study this beginning material.

2) Explain the canning manuals and record forms. Emphasize the importance of keeping the record up to date. To be eligible to enter the canning contests, a 4-H girl must turn in her record book to you at the end of the year.

3) Giving a canning demonstration is a good way to teach girls how to can. It is also a good way for you to create interest in the canning project. You may even want to invite to your meeting girls not yet enrolled in the canning project. (See pages 8 through 17.) This first demonstration might be a simple demonstration on canning fruits or tomatoes. After you have worked with your girls for some time, you might train Senior-Teens members to give this canning demonstration. BE SURE TO USE THE DIRECTIONS IN 4-H MEMBER'S CANNING MANUALS, SO THAT YOU WILL TEACH THE SAME METHODS

AS THE CLUB MEMBER WILL USE WHEN SHE CANS AT HOME.

SECOND MEETING (To be held during canning season.)

1) Ask each girl what she has been doing in her canning project. Encourage girls to keep up good work.

2) Check on each girl's record to see if she is keeping it up to date.

3) Show how to can a jar of food (a different food than you canned in the first meeting).

4) Then let each girl can one jar of the same food. If the girls actually can some food, the experience will help them do a better job of canning at home.

THIRD MEETING (To be held before the end of the club year and shortly before records are due.)

1) Check to see if each girl has completed her canning project and filled out her record. Completed records could be collected. If projects and records are not completed, encourage the girls to finish the project soon and turn her record over to you by a certain date. Be sure to return the records after you check them. Encourage the club members to keep the yearly records for their Longtime 4-H Record Book.

2) Have each girl bring several of the best jars of food she has canned. Display or exhibit these jars of food, and let each girl tell the group anything she wants to about her canned food or exhibit.

3) Could these jars be judged? Ribbons could be awarded, but it is not necessary.

4) If deserved, leader should praise work of each club member and encourage them to continue the canning project next year.

WAYS TO TEACH

You will want to use several ways to teach your girls how to can. Variety in teaching methods will add interest to your 4-H canning program. Demonstrations and workshops are excellent ways to teach canning as you "show" and "tell" and "do". A suggested demonstration on canning tomatoes can be found on page 8. Outlines for other canning demonstrations are on pages 12 - 17. If you need further help, see your county home economics agent.

Here are some other ways you might want to try:

* Workshop - A canning workshop differs from a demonstration in that it offers girls a chance to learn by first seeing and listening and then actually canning some food. You, the leader, or an older 4-H girl could begin the workshop by showing how to can a certain food. You would then let each girl can a jar of food by herself but under your supervision.

* Home Visits - You can add interest and create enthusiasm by visiting each club member in her home. In home visits you will meet and know the parents and secure their cooperation. You would discuss the project requirements with the club member and parents. This way everyone will have an understanding of what is expected of the club member to complete the canning project. If the member has already done some canning, you will see it on the home visit. You might ask if there's anything on which the club member needs help. A home visit need not be long to be a good one.

* Exhibits - Club members can "look" and learn. Good canning exhibits create interest and may encourage the club member to do a better job. Your group will want to exhibit the best jars of food at a community 4-H Club meeting as has already been mentioned. They may also want to exhibit canned food at a county or state fairs. Exhibits are a good way to interest other club members in the canning project.

  You might want to have a canning exhibit (by the group) at the 4-H Council Meeting, 4-H Achievement Program, National 4-H Club Week, county fair, etc. This would be an educational exhibit and it would be good to carry out one idea such as: equipment needed for the boiling water bath method of canning, canning tomatoes, making crabapple jelly, recommended jars and lids, etc. Your 4-H members will have many good ideas, too. Regardless of the subject of your exhibit, here are some suggestions you will want to consider:

  * Present only one educational idea.

  * Keep it simple and practical. Do not use too many props.

  * A neat, uncluttered exhibit is best.

  * Color makes an exhibit more interesting.

  * The theme should be shown prominently and in such a way that you can see it at a glance.

* Use an effective title.

* Use correct spelling.

* Remove exhibit when effectiveness is ended.

* Tours - Club members learn and have fun at the same time when going on a tour. You can get your 4-H members (and their friends) in a group and visit each club member's canning project. You would want to take this tour after canning projects are completed. You might also tour and see the canned food on exhibit at fairs. Tours to commercial canning companies are excellent if there is one in your area. You would need to contact the manager for such a tour.

* Judging - When a person says, "I like", they are judging by comparing and making a choice. If you can "judge" the club member's canning exhibits and tell why it is a good product, you will be teaching what makes for good quality canned foods. Use tact as you judge the canned foods, and tell the girls how they can improve. Be careful not to discourage the girls, yet be firm and don't say a product is good if it isn't. See page 20 for help in judging canned foods.

* Project Reports - Occasionally your club members will want to make project reports at regular club meetings. In project reports, the girls will want to tell what they are doing in their projects and what the canning group is going "as a group."

SUGGESTED DEMONSTRATION ON CANNING TOMATOES

(You will want to refer to the "definitions of canning terms" on page 6 in the Early Teens Manual to review the meanings of canning terms found in all suggested demonstrations and outlines.)

A. Introduction

The purpose of the demonstration today is to learn how to use the boiling water bath method to can tomatoes and fruits.

Tomatoes and fruits are foods high in acid and can be safely canned using the boiling water bath method. What do we mean by the boiling water bath method of canning? (Give the club members a chance to answer this question, but after their discussion, be sure you summarize by giving exact definition.) A method of canning fruits and tomatoes by which water boils around and over jars of food for a definite length of time.

You should use a container (pot or canner) tall enough to use a rack (a false bottom) under the jars and at least 4 inches over the top of the jars. There are canners made especially for a boiling water bath canner. Often times a new lard stand makes a good canner. (However, if the stand has ever been used for lard, it should not be used for canning.) A false bottom should always be used to keep jars off the bottom of the canner. This will reduce the possibility of breaking jars during processing time. A false bottom can easily be cut from chicken wire to fit the bottom of the canner.

B. Procedure

Put false bottom in canner. Place standard jars (that have been washed) on false bottom and add water to cover jars at least 1 to 2 inches. Cover and bring to a boil. Boil for 10 minutes to sterilize jars. (In a demonstration, always sterilize at least 2 jars. One may break and if it does, you would still have one with which to work.)

While the jars are sterilizing, you can proceed with the demonstration. Tell how to select tomatoes for canning.

If you want beautiful jars of tomatoes, select and use only perfect, ripe tomatoes right off the vine.

Fill a large saucepan (4 quart size) 3/4 full with water and place on stove to heat. Put lid on saucepan.

Wash tomatoes carefully. Handle carefully so as not to bruise them.

Put tomatoes in a wire basket or rack if you have one. Remove lid from saucepan when water is at a rolling boil. Dip basket of tomatoes into boiling water about a half minute. Boiling water should cover tomatoes. This is called SCALDING. Quickly remove basket of tomatoes and put into a bowl of cold water for about a half minute. Remove from cold water.

If you do not have a wire rack or basket, a thin cloth can be used to scald tomatoes.

Cut out stem end from tomato. Peel or skin tomatoes and cut into four pieces. Do not leave whole. Cut out core or any hard white spots.

Put cut tomatoes in a saucepan and put on hot stove. Stir the tomatoes to keep them from sticking. DO NOT ADD WATER TO THE TOMATOES. Bring to a rolling boil.

Pour hot water on lids or follow directions on lid box.

Take a sterilized jar from the canner and pack tomatoes.

Leave 1/2 inch space in top of jar. Be sure to add enough hot juice to cover the tomatoes in the jar. A jar filler may be used to keep the mouth of the jar clean, but it is not necessary.

Work out air bubbles by running the blade of a table knife around the inside of the jar.

Add 1 teaspoon of salt to each quart jar or 1/2 teaspoon of salt to each pint jar.

Wipe top of jar with a clean, damp cloth. This removes any tomatoes or seeds that might keep the jar from sealing.

Take lid from hot water. Put lid on jar with rubber seal next to jar. Screw metal band on tight.

Put sealed jars on rack in the canner so they do not touch each other. Water should cover jar at least 1 to 2 inches. Put lid on canner.

Bring the water to the boiling point (212°F.). Do not start timing until water is at a good rolling boil. Start counting time. Keep water boiling all during the processing time. Process quart or pint jars of tomatoes for 10 minutes.

"Processing" in a boiling water bath canner is cooking or boiling the food in the jars for a certain length of time. This step also gives the

jar of tomatoes an air tight seal. An air tight seal is one in which no air is in the jar or can get in the jar.

When processing time is up, use tongs to take jar from canner. Put tongs on shoulder of jar to lift out.

Put jars on a wire rack or folded dry towel to cool overnight. DO NOT TIGHTEN SCREW BANDS as it may break the seal.

Next day, take off metal bands and wash and store to use again later.

Make a label. Write your name, name of food, date canned, and method of processing. It is best to use most canned food within a year. The label will enable you to use older canned foods first. If the label is on the bottom of the jar, it will not detract from the looks of the food.

Store jars of food in a DARK, DRY and COOL place. Food keeps better and keeps its color better if stored in a dark, dry and cool place.

C. Summary

You might want to summarize the demonstration by having an informal question and answer period. It is an excellent way to review what you have taught and to find out how much the girls have learned. Here are some questions you might ask, and you will think of others:

1) What foods can be safely canned in the boiling water bath method of canning?

2) What is a false bottom?

3) Why do you use a false bottom in a canner?

4) How do you sterilize jars for canning?

5) How do you peel tomatoes for canning?

6) Tell how you precook tomatoes to can.

7) Tell how you fill the jar with tomatoes and put on lid.

8) How do you work out air bubbles?

9) How do you process tomatoes and for how long?

10) What is processing?

11) What information goes on the label?

12) How do you store canned foods?

D. Suggested Equipment and Supplies

You may furnish these or you may let older club members get them If a club member does it, be sure to check to see if everything needed is available.

boiling water bath canner	table knife or spatula
false bottom	sharp knife
2 jars and lids	canning tongs
saucepans and wire basket or rack	tomatoes
jar funnel if desired	salt
measuring spoons	potholders
long handled spoon	dish cloth

E. References

1) 4-H Club Member Canning Manuals.

2) "The ABC's of Canning" (Extension Circular #271)

F. Notes: This is the same procedure the girls will use in canning fruits. You will want to stress this as the girls return to their homes to can fruits and tomatoes.

The hot pack method of canning fruits and vegetables is preferred to the raw-pack. However, you may use raw pack. Refer to the "ABC's of Canning Fruits and Vegetables" for specific directions.

The use of artificial color is not recommended in canning.

SUGGESTED OUTLINE FOR DEMONSTRATION ON CANNING JUICES

I. Introduction

A. Purpose - To teach the correct and recommended practices in canning juices. You may use tomatoes or fruits.

B. Processing juices in a boiling water bath.

II. Procedure

A. Before demonstration

1. Wash tomatoes or fruit to be used in demonstration.

2. All equipment in order.

3. Canner with false bottom and jars in canner covered with 1 to 2 inches of hot water. Sterilize jars by boiling for 10 minutes. Leave jars in canner until ready to use.

B. Demonstration

1. Prepare tomatoes or fruit.

2. Heat or precook according to directions for the particular food you are using.

3. Strain through a fine sieve or a cloth bag.

4. Put juice in pan and reheat to boiling point. Add sugar to fruit juice if desired. Add salt to tomato juice.

5. Pour hot juice into hot sterilized jars. Leave 1/4" head space.

6. Wipe mouth of jar.

7. Put on lid.

8. Process in boiling water bath canner for the required time.

9. Remove from canner,

10. Cool, label and store.

III. Summary

Briefly review the main points covered in the demonstration. This

could be done by you or an older club member. This could also be done by having a question and answer period.

IV. Suggested Equipment

boiling water bath canner	measuring cup	canning tongs
false bottom	sugar	potholders
2 jars and lids	salt	dish cloth
saucepans	food to be used	fine sieve or
jar funnel if desired	table knife	cloth bag
measuring spoons	sharp knife	

V. References

A. 4-H Club Member's Canning Manuals

B. "The ABC's of Canning" (Extension Circular #271)

SUGGESTED CANNING DEMONSTRATION FOR MAKING JELLY

A. Introduction - Discussion Points

1. Jelly is made by cooking fruit juice with sugar until it gels.

2. Jelly should be clear, tender, but firm enough to hold its shape when cut.

3. Suggested fruits: apples, crabapples, grapes and blackberries.

4. Selecting the fruit.

5. Ingredients needed to make jelly.

   a. Pectin
   b. Sugar
   c. Acid

6. Tell why it is recommended that jelly stock be canned and jelly made from the stock at a later time.

7. Tell briefly how jelly stock is made - refer club members to section in manual relating to jelly stock.

B. Procedure

1. Before demonstration, organize equipment and supplies needed. Prepare jelly stock to use in demonstration.

2. Begin demonstration by sterilizing jelly glasses or jars.

3. Strain jelly stock through a jelly bag.

4. Test strained jelly stock for pectin content.

5. Measure juice and sugar. The amount of sugar for each cup of juice will be determined by the pectin test.

6. Put sugar and juice in pan and boil rapidly until gel stage is reached.

7. When jelly is done, remove from heat and skim off foam.

8. Pour jelly immediately into hot sterilized glasses or jars.

9. Cover jelly with a thin coat of melted paraffin. Put on lid.

10. Cool, label, and store.

C. Summary

Briefly review the main points covered in jelly demonstration. This could be done by you or an older club member. This could also be done by having a question and answer period.

D. Suggested Equipment

glasses or jars and lids
container in which to sterilize jars
false bottom
paraffin
1 qt. jelly stock
jelly bag
measuring spoons
bowls
grain alcohol
2 small glasses
measuring cup
sugar
pan in which to cook jelly
large spoons
dish cloth
potholders
tongs if needed

E. References

1. 4-H Club Member's Canning Manuals

2. "Preserves, Jellies and Jams" (Extension Misc. Pamphlet #200)

NOTE: The use of commercial pectin is not recommended in making jelly. This produces jelly that is less stable. Also, the flavor may not be as characteristic of the fresh fruit. If the directions are followed closely, a good jelly can be made without additional pectin.

SUGGETED OUTLINE FOR DEMONSTRATION ON CANNING LOW-ACID FOODS

I. Introduction

A. Purpose - To teach the correct and recommended practices in canning low-acid foods by the steam pressure canner method.

B. Low-acid foods - steam pressure canner method - why?

C. Acid foods - boiling water bath method - why?

II. Procedure (Hot Pack Method)

A. Before demonstration

1. Prepare vegetables for canning.

2. Two to three inches of water boiling in pressure canner with jars mouth down on rack for sterilization.

3. Boil water for precooking vegetables.

4. All equipment in order.

B. Demonstration

1. Cover vegetable with boiling water and bring to a boil.

2. Discuss selection of food to be canned while vegetable is coming to boil.

3. Pack hot vegetable in hot jar.

4. Adjust lid and place jars of food into canner.

5. Fasten canner lid leaving petcock open so steam may escape for 10 minutes. Close petcock.

6. Allow steam to rise to desired number of pounds and maintain steady pressure.

7. During processing time the following points may be discussed:

a. Construction of pressure canner.
b. Care of pressure canner.
c. Jars
d. Closures

e. Varieties of food that lend themselves to canning
f. Raw pack method
g. Proper storage for canned food

8. Remove canner from heat when processing time is complete. Let canner cool until gauge registers zero.

9. Open petcock slowly - remove lid from canner.

10. Remove jars from canner.

11. Let jars cool in upright position.

12. Label and store properly.

III. Summary - Briefly review the main points covered in demonstration. This could be done by you or an older club member. This could also be done by having a question and answer period.

IV. Suggested Equipment

pressure canner	long handle spoon	dish cloth
jars and closures	wooden spoon	vegetable in bowl
saucepan	sharp knife	hot plate (if needed)
jar funnel	case knife or spatula	
measuring spoons	potholders	canning tongs

V. References

A. 4-H Club Member's Canning Manuals

B. "The ABC's of Canning" (Extension Circular #271)

CARE OF CANNING EQUIPMENT

Suggested equipment for canning demonstrations are given for each demonstration and outline in this guide. You will want to encourage the 4-H members to use all equipment with caution and to care for it properly. See all "SAFETY FIRST" items in 4-H members' canning manuals and stress these as they fit into your canning lessons.

The pressure canner needs to be checked for safety each year and at other times that the needle on the pressure gauge does not return to zero when not in use. There should be a checking station in your county. Ask your county home economics agent where and how this can be done. If a guage is 3 or more pounds off, a new one is recommended.

Wash the pressure canner and boiling water bath canner carefully after each use. DO NOT PUT LID to pressure canner in water. The water may damage the guage and may cause vents to become clogged. Wipe cover with a soapy cloth and then with a clean damp one.

Clean the openings (petcock and safety valve) in the lid by drawing a string or pipe cleaner through. Be sure that any grease is washed from the gasket.

Take off removable petcocks and safety valves, wash and dry thoroughly; occasionally soak these parts in vinegar, wash, and dry. Clean a ball and the socket into which it fits with silver polish. Put all parts back together carefully and correctly.

Watch for steam leaks. Escape of a little steam around a weight-type gauge is normal, but none should escape elsewhere. If steam escapes around the cover, examine the sealing edges of utensil and cover; if they are not smooth, clean them with fine cleansing powder. If the gasket is reversible, turning it over may improve the seal. A gasket that is worn, stretched, or hardened should be replaced with a new one - obtained from the dealer or manufacturer. Leakage makes it difficult to obtain the right pressure and may cause the canner to boil dry.

LEADERSHIP ACTIVITIES FOR SENIOR-TEEN 4-H MEMBERS

You can keep high the interest of senior-teen 4-H members if you designate jobs or activities for them to do. Encourage the club member to work according to your recommendations. Here are some suggestions, but you can think of others.

*Present or assist with demonstrations at club meetings.

*Arrange exhibits.

* Help younger club members. A Senior-teen member could select one younger girl and supervise her canning project for the year. She would want to discuss the requirements with the younger girl, visit with her in her home, see her canned food, help her in filling out the canning record, etc. She would also need to report the progress of the younger member directly to you as canning leader.

* Arrange for a tour to visit canning projects.

* Arrange for meeting places.

* Help get equipment and supplies to use in canning demonstration and workshops.

* Be in charge of planning, preparing and serving refreshments at club meetings (if desired).

CANNING QUALITY FOODS

A good jar of tomatoes takes no more effort or time to can than a poor jar. Any methods that you can use to encourage club members to "work for the best" will certainly pay off in the canning project.

Where does good canned food "begin"? Planting varieties of fruits and vegetables (recommended for canning) in the family garden is the first step. Ask your county home economics agent for these recommendations. Listed below are other "steps" or suggestions for good canned foods:

* Gather fruits and vegetables at the right stage of maturity - not too ripe or too green. Get your fruits and vegetables "from the garden into the jar" as quickly as possible. Pick vegetables this morning (no earlier than last night) to can today.

* Can foods in small amounts. Food for one canner load is enough to handle at one time. While the "first" canner load is processing, start preparing the "second" canner load.

* Follow recommended directions. Much research has been done on these directions, and they are dependable.

* Practice good, clean work methods and management at all times while canning.

* Use standard canning jars. Others may break during processing in the boiling water bath or in the pressure canner.

JUDGING CANNED PRODUCTS

Judging the canned foods that club members bring to exhibit at club meetings is an excellent way to teach quality in canned food. You will not have to be an expert in order to judge the canned foods and offer suggestions for improved quality. For example: if a club member brings canned peaches that are floating, what could you tell her that would improve the product and keep it from floating?

You might tell her "that the peaches are nice in color and appearance (if this is true); but if she would use the hot pack method, the peaches would absorb more sugar syrup and would probably not float." This would be a tactful way and one that the club member would accept.

Use these score cards as you work with your club members and parents in judging or scoring their canned products.

SUGGESTED SCORE CARDS FOR JUDGING

Canned Fruits and Vegetables (Pint or Quart Jars)	
Appearance (color, clearness)	25
Texture	10
Flavor	20
Uniformity (ripeness, size)	15
Pack arrangement	15
Container (appropriate, neatness, label)	15
	100 points

Juices	
Color	20
Clearness	20
Flavor	50
Container	10
	100 points

Jelly	
General appearance (color, clearness, crystals--lack of)	30
Flavor	25
Consistency (see note below)	35
Container (jelly glasses or jelly jars)	10
	100 points

NOTE: Jelly should be tender, hold its shape; and should not be syrupy, sticky, or tough. Jelly should be covered with a thin layer of paraffin.

Pickles	(Half-pint, pint or quart jars)
Size and shape	10
Flavor	30
Texture (firm-not tough or soft)	30
Color	15
Proportion of pickle to liquid	10
Container	5
	100 points

Preserves	(Half-pint or Pint Jars)
Fruit (Shape, Clearness and color, Flavor, Texture, Pack)	55
Syrup (Clearness and color, Flavor, Consistency, Proportion of juices)	45
	100 points

NOTE: Preserved fruit should retain its original shape (whole or sliced) as nearly as possible.

EXPLANATION OF SCORE CARDS

In order to judge wisely, open and taste jelly, preserves and pickles. Do not open canned fruits and vegetables in judging as they spoil so easily after opening.

* Color - Canned foods should be that of the natural fruit or vegetable.

* Clearness - Syrup or liquid should be clear, free from seeds and spices, etc.

* Texture - Tender, yet not overcooked. Only young and tender vegetables should be canned. Preserves should be tender but firm and plump.

* Flavor - The natural flavor of canned food should be preserved as much as possible.

* Uniformity - Foods to can should be well-ripened but not defective or over-ripe. Grade and sort according to size and shape.

* Pack - Arrange for best use of space in the jar. Attractive but not a time-wasting fancy pack should be used.

* Container - Jars should be uniform and practical in size and shape. Only clear standard glass quart, pint, or half-pint jars should be used. Labels should be neat and placed on bottom of jar.

STORAGE FOR CANNED FOODS

A well planned storage space for canned food is needed in every home where canning is done. Such a storage space can be provided by careful planning and a small amount of money. The storage space should be:

* Conveniently located near the kitchen.

* Cool in summer and frost-proof in winter.

* Dry at all times.

* Adequately lighted; however, shades should be kept drawn at windows to prevent fading of foods in glass jars.

* Ample. The exact size of the storage space will depend on the amount of canned food the family will use during the year.

* The convenient storage space provides strong, well-braced shelves for quarts, pints, and half-pint jars.

RECORDS

Encourage the girls to keep their yearly canning records up to date. After a day of canning, she should record the number of quarts of each food she canned. If she does this each time she cans food, record keeping will be easier. A club member should be able to answer the questions on the record if she studies the manual.

The record is not complete until the club member has written a story of any interesting experiences and activities about her canning project.

At the end of the club year, club members will cut their canning record from the manual and submit it to you. Encorage all club members to do this. You will want to read and check these records. You may want to offer suggestions that will improve their next year's canning project. If so, write them on a separate sheet and return it with the record to the club member.

Longtime record books are required of Senior-teens club members entering the District and State Canning Contest. Ask your county home economics agent for information on longtime record books. Encourage your club members to keep all records from year to year so they can include them in their longtime record.

AWARDS

Awards are an incentive to encourage greater effort by club members. In every project certificates are awarded to the individual for the completion of a project and to county, district and state winners on the basis of the best project summary record. Ask your county home economics agent for detailed information on the contests pertaining to the canning projects.

A job well done should be the aim and reward of all 4-H Club members. As a leader you will want to encourage your 4-H members to do the best they can at all times.

****

No doubt you now realize that to be a local canning leader is no easy task. But you will be rewarded for your work as you see club members grow and develop under your leadership. Not only will club members gain self confidence in themselves and their abilities, but you yourself will grow in self confidence. You will gain a deep and lasting satisfaction in your association with the 4-H boys and girls. Your rewards will not be tangible ones; but you will know in your hear that anytime you work and help young people, you are living up to high standards in citizenship.

FOR MORE INFORMATION

References

* See the community 4-H Club leaders of your community 4-H Club.

* See your county home economics agent.

* Ask your county home economics agent for this literature from the State Agricultural Extension Service:

1) 4-H Subject Matter Leader's Guide
2) Pre-Teens Canning Manual and Record
3) Early-Teens Canning Manual and Record
4) Senior-Teens Canning Record
5) ABC's of Canning Fruits and Vegetables, Extension Circular 271
6) Preserves, Jellies and Jams, Misc. Pamphlet 200
7) Pickles and Relishes, Misc. Pamphlet 182
8) 4-H Food Preparation Manuals
9) Recommended Vegetable Varieties for Canning
10) You - A 4-H Parent

INDEX

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April, 1963

4-H CANNING

NAME _____

4-H CLUB _____

COUNTY _____

CANNING–PRE-TEENS

Learn Your First Year

- What is canning?
- What is the "Boiling Water Bath" method of canning?
- What do we mean by "the boiling point"?
- What kind of jars and lids do we use?
- How to wash and sterilize jars.
- How to prepare fruits and tomatoes for canning.
- How to pack fruits and tomatoes in the jar.
- How to process jars of fruits and tomatoes in a boiling water bath canner.
- What is processing?
- How to cool, store and label jars of food.

To Finish Your Project, You Will Need To:

- Help someone can, label, and store 15 jars of fruits and tomatoes.
- Keep a record of this on page 11, and give it to your canning leader.
- Keep this record (after your leader returns it to you) for your Longtime 4-H Record Book.

You May Also Want To:

- Exhibit at a 4-H Club meeting the two best jars of fruits or tomatoes you helped can.
- Visit other 4-H members who also had a canning project.
- Invite other 4-H members to see your canned fruits and tomatoes.
- Can more food.
- Save your canning record, news article, letters, etc. for a Longtime 4-H Record Book.

References (Ask your Canning Leader for these.)

1) 4-H Food Preparation Manuals
2) "Tomatoes on Your Table," USDA Leaflet No. 278

Learn Your Second Year

- How to select fruits and tomatoes.
- How to select, prepare and can fruits and tomatoes in a boiling water bath canner (by yourself).
- How to help can fruits, tomatoes and juices.
- What is meant by an air tight seal?
- How to work safely.
- How to clean up used dishes and pans and the importance of cleanliness.

To Finish Your Project, You Will Need To:

- Help someone can, label, and store 15 jars of fruit, tomatoes or juices.
- Can alone at least 10 jars of fruits or tomatoes.
- Fill out record on page 13 and give to your canning leader.

You May Also Want To:

- Help other family members grow the foods you help can.
- Exhibit at a 4-H Club meeting the two best jars of food you canned.
- Exhibit at a county event or a county fair the two best jars of fruits or tomatoes that you canned alone.
- Visit other 4-H members' canning projects.
- Invite other 4-H members to see your canning project.
- Take pictures of your canned food or other phases of your canning project.
- Choose at least one thing you learned and show this to others. You could show someone:

  How to wash and sterilize jars.

  How to pack fruits or tomatoes in a jar.

  How to label a jar of food.

  You may think of something else to show.

- Save your canning record, pictures, news articles, etc. for a Longtime 4-H Record Book.

References (Ask your Canning Leader for these.)

1) 4-H Food Preparation Manuals
2) "Tomatoes on Your Table", USDA Leaflet No. 278

LEARN TO CAN

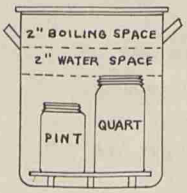
Canning is a way of using heat and jars to keep food safe.

WHY? We need to destroy the bacteria, yeast and mold that may cause food to spoil. Canning food is one way to destroy these and make the food safe.

Fruits and tomatoes are canned in the boiling water bath canner. This is what you will learn to do in your Pre-Teen 4-H Canning Project.

You will need a sharp paring knife, tongs to lift jars in and out of the canner, tablespoon, table knife, bowls, measuring spoons, measuring cup, clean dish towels and dish cloth, potholders, sugar, salt and vinegar.

The canner may be any large pot or container with a lid.



You can use a canner made especially for canning, but any pot or container that is deep enough to allow 4 inches above the tops of the jars can be used.

We use glass jars to pack fruits and tomatoes for canning. The standard canning jar is made for canning food and is the one to use in this project. Look at each jar carefully, and do not use any jars with cracks, chips or sharp edges.

Wash the jars in hot, soapy water and rinse in hot, plain water.

If you use the two piece lid, the metal top should be new. The screw band can be used many times.

Be sure to use a rack in the bottom of the canner.

WHY? A rack will keep the jars off the bottom of the canner. This will help to keep the jars from breaking while the food is being canned.

If your canner does not have a rack, you can cut one from small mesh wire like chicken wire. Cut the wire to fit the bottom of the canner.

Put rack in the canner. Put clean empty jars in the canner and put canner on stove. Add hot water in the canner until the water covers the jars at least one to two inches.

SAFETY FIRST—Remember the hot and boiling water can burn. Be careful and do not spill it on you or anyone else.

Let the water come to the boiling point (212° F.). Boil the jars for 10 minutes. Do not start timing until the water comes to a good rolling boil. This is called "sterilizing" the jars. All jars must be sterilized before used in canning. Leave jars in canner until ready to use.

WHY STERILIZE? There may be germs on the jars you have just washed. By sterilizing your canning jars, you kill the germs that might cause the food to spoil.

Prepare fruits or tomatoes for canning. See page 7 or 9 on how to prepare the food you are canning.

Get your lids ready for canning. Follow the directions printed on the box of lids. Just wash the screw bands. Do not sterilize lids as too high a heat may damage sealing compound.

Remove sterilized jars from canner one at a time as needed.

Pack fruit or tomatoes in jars. Follow directions for the food you are canning. See pages 7 through 9.

Work out air bubbles by running the blade of a table knife around the inside of the jar.

Wipe top of jar with a clean, damp cloth. This removes any pieces of fruit or syrup that might keep the jar from sealing.

Take lid from hot water. Put lid on jar with rubber seal next to jar. Now screw metal band on tight.

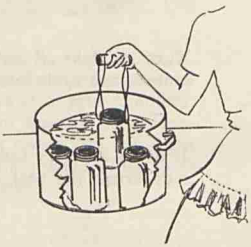
Put canner, half filled with hot water, back on the stove. Put sealed jars on rack so they do not touch each other.

WHY? If jars touch, they may break during processing.

Pour hot water in canner until water covers top of jars at least 1 to 2 inches. Put lid on canner.

Bring the water to the boiling point (212° F.). Do not start timing until water is at a good rolling boil. Start counting time for the fruit or tomatoes you are canning. Keep water boiling all during the processing time.

"Processing" in a boiling water bath canner is cooking the food in the jars for a certain length of time. This step also gives the jar of food an air tight seal. An air tight seal is one in which no air is in the jar or can get in the jar.



When processing time is up, use the tongs to take jars from canner. Put tongs on shoulder of jar to lift out.

SAFETY FIRST—Ask your mother or older sister to stand by when you remove the jars of food from the boiling water.

Put jars on a wire rack or folded dry towel to cool overnight. DO NOT TIGHTEN SCREW BANDS.

WHY? You might break the air tight seal if you tighten the screw band after you remove the jar from the canner.

Wash dishes and clean up kitchen. Cleanliness while you are canning makes for safer food to eat. So practice cleanliness while you are canning and after you have finished by cleaning up the kitchen.

Next day, take off metal bands and wash and store to use again later.

If bands are very tight, do not remove as it may break the seal.

Make a label. Write your name, name of food, date and method of processing on the label.

Glue label on bottom of jar. It is best to use most canned foods within the year. The label will enable you to use older canned foods first. If the label is on the bottom of the jar, it will not detract from the looks of the food.

YOUR NAME _____

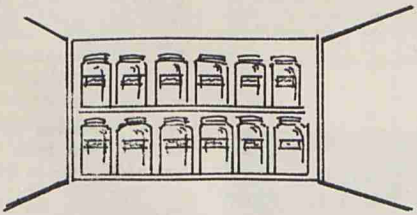
FOOD—Tomatoes

DATE—July 5, 19—

METHOD OF PROCESSING—Boiling Water Bath

Store jars of food in a DARK, DRY and COOL place.

WHY? Food keeps better and keeps its color better if stored in a dark, dry and cool place.



NOTE: Do not store any jars that do not seal. If the food has not spoiled, it may be eaten.

HOW TO CAN TOMATOES

(Study pages 4, 5 & 6 before you begin.)

If you want beautiful jars of tomatoes, select and use only perfect, ripe tomatoes right off the vine.

Place on the table all the things you will

need such as: sharp paring knife, saucepan, large bowls, wire rack if you have one, salt and clean dish towels and potholders.

Fill a large saucepan (4 quart size) ¾ full with water and place on stove to heat. Put lid on saucepan.

Get canner ready to can and sterilize standard canning jars. Be sure to follow directions on page 4.

Wash tomatoes carefully. Handle carefully so as not to bruise them.

Put tomatoes in a wire basket or rack if you have one. Remove lid from saucepan when water is at a rolling boil. Dip basket of

tomatoes into boiling water about a half minute. Boiling water should cover tomatoes. This is called SCALDING. Quickly remove basket of tomatoes and put into a bowl of cold water for about a half minute. Remove from cold water.

WHY SCALD? Scalding tomatoes lets the skins slip off, and you do not have to use a knife to cut off the peeling.

If you do not have a wire rack or basket, a thin cloth can be used to scald your tomatoes. Cut out stem end from tomato. Peel tomatoes and cut into four pieces. Do not leave whole. Cut out core or any hard white spots that might cause spoilage.

SAFETY FIRST—Watch out for that sharp knife! Use care so you don't get cut.

Put cut tomatoes in a saucepan and put on hot stove. Stir the tomatoes to keep them from sticking. Bring to a rolling boil. DO NOT ADD WATER TO THE TOMATOES.

WHY? Tomatoes fresh from the garden have enough juice, and it is not necessary to add water.

Take one sterilized jar at a time from the canner and pack tomatoes into it. Use a tablespoon to pack them in the jar. Leave ½ inch space in top of jar. Be sure to add enough hot juice to cover the tomatoes in the jar. A jar filler may be used to keep the jar clean, but it is not necessary.

Work out air bubbles by running the blade of a table knife around the inside of the jar.

Add 1 teaspoon of salt to each quart jar or ½ teaspoon of salt to each pint jar. Wipe off top of jar.

Put lid on jar. Put jars in boiling water bath canner, and process quart or pint jars of tomatoes for 10 minutes. Follow directions for processing on pages 5 and 6.

Cool, label and store in a dark, dry and cool place.

★ ★ ★ ★ ★

NUTRITION—Tomatoes are high in Vitamin C. You need to eat some Vitamin C food each day. WHY? Because the body does not store Vitamin C, we need to eat a food as tomatoes or oranges that is high in Vitamin C. Vitamin C is needed for healthy gums, blood vessels, and body tissues. (Refer to "Tomatoes on Your Table", USDA Leaflet No. 278.)

NOTE: Tomatoes may be canned by the raw-pack method. Ask your 4-H Canning Leader for directions.

HOW TO CAN FRUITS

(Study pages 4, 5, & 6 before you begin.)

Apples — Peaches — Pears

Place on a table all the things you will need to work with. Wash and sterilize standard canning jars. Get lids ready to use. Use firm, ripe fruit that is just ready to eat.

Peel fruit with a sharp knife. To peel, cut out stem end and peel round and round.

Cut fruit in half and take out seed or core. Leave in halves or slice as you like. To keep fruit from turning dark, drop fruit into a gallon of cold water to which you have added 2 tablespoons of salt and 2 tablespoons of vinegar.

WHY? Fruit turns dark (or oxidizes) when air touches it. Vinegar and salt will prevent or stop this.

Apples, peaches and pears need to be precooked before canning. Put 2 cups sugar into 4 cups water in a large saucepan. Put on stove and stir until sugar dissolves.

Bring to a boil and boil for 5 minutes. This is enough sugar syrup for 4 or 5 quarts of fruit. Keep syrup hot until ready to use.

Put fruit into the boiling syrup. After the syrup and fruit come to a boil, turn down the heat and cook for 5 minutes.

Rinse fruit with cold water to remove salt and vinegar taste.

Pack hot fruit into hot sterilized jar to ½ inch of top of jar. Cover fruit with boiling syrup still leaving ½ inch space in top of jar.

Work out air bubbles by using a table knife all around the inside of jar. Wipe mouth of jar with a clean damp cloth. Put lid on jar. Screw band on tight.

Place jars in canner using tongs and process as follows:

Apples

Quart jar or pint jar—10 min. each

Peaches and Pears

Pint jars—20 min.
Quart jars—25 min.
Cool, label and store jars in a dark, dry, cool place.

SAFETY FIRST — Remember that boiling water and sharp knives can be dangerous—use caution!

★ ★ ★ ★ ★

NOTE: The hot-pack method of canning fruits is preferred to the rawpack. The hot-packed fruit absorbs more syrup and, therefore, retains its color, improves in flavor, and does not float.

HOW TO CAN JUICES

Place on the table all the things you will need to work with. Wash and sterilize standard canning jars. Get lids ready to use.

Tomato Juice

1. Use ripe, juicy tomatoes. Wash and remove stem ends.
2. Cut tomato in at least four pieces.
3. Put tomatoes in pan and bring to the boiling point.
4. Reduce heat and simmer until softened. Stir often.
5. Strain through fine sieve or cloth bag.
6. Put tomato juice in pan and reheat to the boiling point.
7. Pour into hot sterilized jars to ¼ inch of top of jar.

8. Add one teaspoon salt to each quart of juice or ½ teaspoon salt to each pint of juice.
9. Process in boiling water bath canner for 10 minutes (quarts and pints are both processed for 10 minutes.) See pages 5 and 6 on processing in the boiling water bath canner.

Fruit Juices

1. Wash fruit and remove pits or seeds.
2. Crush fruit and heat to simmering point (about 185°-210° F.—just below boiling). (about 185°-210° F.—just below boiling
3. Remove the fruit from the stove when simmering point is reached.
4. Strain through a cloth bag.
5. Add sugar if you want to, about 1 cup to each gallon of juice.
6. Put fruit juice in a pan and reheat to simmering point.
7. Pour hot juice into hot sterilized jars to ¼ inch of top of jar.
8. Process in boiling water bath canner. Process pint and quart jars for 5 minutes each. See pages 5 and 6 on processing in the boiling water bath canner.

★ ★ ★ ★ ★ ★

NUTRITION—Remember that drinking tomato juice is a good way to include Vitamin C in your meals.

Pre-Teens 4-H Canning Record

FIRST YEAR REPORT

Date project completed _____
(month) (day) (year)

_____ _____ _____
(name of club member) (age) (community 4-H club)

_____ _____
(address) (county)

_____ _____
(name of parents) (years in club work)

Number in my family living at home _____.

A. SUMMARY OF MY CANNING PROJECT

Answer as Many Questions as You Can:

1. What is canning? _____
2. What is the boiling water bath method of canning? _____
3. How do you sterilize jars for canning? _____
4. What is processing? _____
5. Why do we need Vitamin C in our diet each day? _____
6. Did you exhibit any jars of fruits and tomatoes at a club meeting _____ How many jars? _____
7. Did you visit another 4-H member's canning project? _____
8. Did other 4-H members visit your canning project? _____ How many? _____
9. Did you help can fruits and tomatoes like this 4-H project told you to? _____

B. List the number of jars in this form each time you help can fruits or tomatoes.

Name	No. of Jars
Apples	
Peaches	
Pears	
Tomatoes	
Other Fruits	

TOTAL _____

(When project is completed, cut out this page and give to your Canning Leader)

C. Write a story telling about some of the things you did and learned in your canning project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

Pre-Teens 4-H Canning Record

SECOND YEAR REPORT

Date Project completed _____
(month) (day) (year)

_____ _____ _____
(name of club member) (age) (community 4-H club)

_____
(address) (county)

_____ _____
(name of parents) (years in club work)

Number in family living at home _____

I have carried a canning project _____ years.

(When project is completed, cut on this line and give to your Canning Leader)

A. SUMMARY OF MY CANNING PROJECT

Answer as Many Questions as You Can:	**Check One**	
1. Did you:	Yes	No
Learn how to select fruits and tomatoes for canning?	_____	_____
Learn how to can juices?	_____	_____
Learn how to work safely?	_____	_____
Practice cleanliness?	_____	_____
Help grow the foods you canned?	_____	_____

2. What is an air tight seal? _____

_____

3. When do you begin counting time in canning in the boiling water bath canner? _____

_____

4. How do you sterilize jars? _____

_____

5. What is processing? _____

_____

6. What goes on the label for canned food and where is the label placed? _____

_____

7. Did you show something you learned to someone else? _____ If so, what and to whom? _____

8. Did you exhibit any canned food? _____ How many jars and where?

_____

9. Did you visit other 4-H canning projects? _____ How many? _____

10. Did you can fruits, tomatoes, and juices like your 4-H project told you to? _____

B. List the number of jars in this form each time you can fruits, tomatoes, and juices.

Name	No. of Jars I helped Can	No. of Jars I Canned Alone
Apples		
Peaches		
Pears		
Tomatoes		
Tomato Juice		
Fruit Juices		
Other Foods		
TOTALS		

C. Write a story telling about some of the things you did and learned in your canning project. (Use an extra sheet if needed.)

D. I have checked this record an found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

CANNING

Year by Year Summary

(Fill out this summary page when you complete your canning project. Do this BEFORE you cut out the record page to give to your Canning Leader. You may copy this information from your cut-out record page.)

First Year _____
(date project completed)

1. Did I answer the questions on my record sheet? _____
2. Total number of jars of fruits I helped can this year. _____
3. Did I write a story about my canning project? _____
4. Did I cut out my canning record page and give it to my Canning Leader? _____

Signed _____
(name of club member)

Second Year _____

1. Did I answer the questions on my record sheet? _____
2. Total number jars of food I **helped** can. _____
3. Total number jars of food I canned **alone.** _____
4. Grand total (add Nos. 2 & 3). _____
5. Did I write a story about my canning project? _____
6. Did I cut out my canning record page and give it to my Canning Leader? _____

Signed _____
(name of club member)

I Pledge:

My Head to Clearer Thinking:

My Heart to Greater Loyalty:

My Hands to Larger Service: and

My Health to Better Living for

My Club, My Community, and My Country

The Club Motto:

"To Make the Best Better"

The 4-H Club Colors

Green and White

Club Series 128 **March 1963**

North Carolina State College of Agriculture and Engineering of the University of North Carolina and the U. S. Department of Agriculture, Cooperating. N. C. Agricultural Extension Service, R. W. Shoffner, Director, State College Station, Raleigh. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

4-H CANNING

NAME _____

4-H CLUB _____

COUNTY _____

CANNING–EARLY TEENS

Third Year Activities

- Learn to do more canning alone.
- A garden project would make your canning project a stronger one.
- Learn what fruits are good for making jelly.
- Learn to prepare fruits to make jelly stock.
- Learn to make and can jelly stock.
- Learn the requirements for making jelly.
- What is pectin?
- Learn how to make a home test for pectin.
- Learn how to make jelly.

Requirements to Complete Canning Project

- Can alone at least 20 jars. Include fruits, tomatoes, juices and jelly.
- Help with home canning.
- Exhibit at a 4-H Club meeting or county event or county fair at least 2 jars of food you canned alone.
- Fill out record on page 11 and give to your Canning Leader.
- Keep all records (after your leader returns them to you) for your Longtime 4-H Record Book.

You May Also Want To:

- Prepare meals using foods canned in your canning project.
- Choose at least one thing you learned and show to other 4-H members.
  This could be shown at home or at a club meeting.
  Examples:
  - How to can tomatoes.
  - How to test for pectin in fruit juices.
  - How to cook jelly.
  - You may think of something else.
- Take more pictures.
- Save all records and materials for Longtime 4-H Record Book.

Fourth Year Activities

- Learn to operate a pressure canner.
- Select and prepare vegetables for canning.
- Learn terms associated with using a pressure canner.
- Learn how to care for a pressure canner.

Requirements to Complete Canning Project

- Help with home canning using a pressure canner.
- Can alone at least 30 jars. Include fruits, juices, vegetables, and jelly.
- Help with home canning.
- Exhibit your best jars of food at a club meeting, at a county event, or the county fair.
- Fill out record on page 13 and give to your Canning Leader.

Additional Activities

- Conduct a garden project.
- Prepare meals using foods you have canned.
- Give a demonstration or show a group something you learned in your canning project.
- Help a first-year club member with her canning project.
- Save all records and materials for Longtime 4-H Record Book.

References:

(Ask your canning leader for these.)

(1) Pre-Teen Canning Manual
(2) 4-H Food Preparation Manuals

Note: The Early-Teen Canning Project is a continuation of the Pre-Teen Canning Projects. Refer to the Pre-Teen Manual for information not included here.

JELLY

Jelly is made by cooking fruit juice with sugar until it gels.

Jelly should be clear and tender but firm enough so it will keep its shape when cut.

Fruits Used—Apples, crabapples, grapes, and blackberries are some of the fruits that will make good jelly. These are the fruits with which you will be working in your 4-H Canning Project.

Selecting The Fruit—Pick and use only those fruits that are firm and ripe. Do not use underripe or overripe fruits.

WHY? It is necessary to have pectin to make the fruit juice gel. Juice extracted from underripe and overripe fruit does not contain pectin. Underripe fruit contains protopectin, and overripe fruit contains pectic acid. Neither of these will gel.

Ingredients Needed to Make Jelly

PECTIN—Pectin is a carbohydrate usually found just under the skin and around the core of certain fruits. You cannot make jelly without pectin.

SUGAR—Granulated sugar (sucrose) is used to make jelly. The amount of sugar you use depends on how much pectin is in the fruit juice.

ACID—Use firm ripe fruit that is suggested for making jelly. They usually have enough acid for making jelly, but there is no way at home that we can tell. Acid is needed to change the sugar (sucrose) to a form that does not crystalize.

Test Juice for Pectin—There is a way to test your fruit juice at home to see how much pectin it has. Be sure you do this before making jelly.

DIRECTIONS FOR TEST

1. Mix one teaspoon of cooked jelly stock (or fruit juice) with one teaspoon of alcohol in a small glass. BE SURE THE FRUIT JUICE IS COOLED TO ROOM TEMPERATURE.

WHY? The temperature affects the viscosity (rate of flow) of the juice; therefore do not use extremely hot or cold juice for making the test. The viscosity indicates the pectin content of the fruit juice.

2. Let stand one minute.
3. Pour mixture gently into another glass.
4. a) If a SOLID mass forms, add 1 cup of sugar to 1 cup of jelly stock (or fruit juice).

   b) If the mass is SLIGHTLY BROKEN, add ¾ cup sugar to 1 cup of jelly stock (or fruit juice).

   c) If a mass does not form, there is not enough pectin in the jelly stock (or fruit juice) to make jelly. Just drink the juice and enjoy it.

SAFETY FIRST—Throw away juice and alcohol mixture.

5. Your mother may have a jelmeter which can be used in testing the amount of pectin in fruit juice. You may obtain more information on the jelmeter. See your Canning Leader.

NOTE: The addition of commercial pectin is not recommended in making jelly. This produces jelly that is less stable. Also the flavor may not be as characteristic of the fresh fruits. If the above directions are followed closely, a good jelly can be made without additional pectin.

MAKING JELLY STOCK

It is recommended that you make and can jelly stock and make your jelly as needed. Jelly can then be made in small amounts and at your convenience.

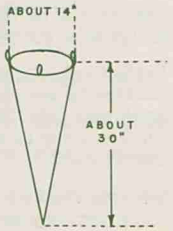
Jelly made from jelly stock is clearer and prettier as the tiny particles left in the juice settle to the bottom of the jar. Another reason we recommend canning the juice is that it keeps its flavor much better and for a longer time than jelly. This way the family has better jelly to put on the table.

It is necessary for jelly stock made from grapes to settle for a few days before making jelly.

WHY? Grapes contain tartaric acid. This will cause crystals to form in the jelly if it is not removed. Part of the acid may be removed by letting the juice stand in the refrigerator at least overnight (or for a few days). Strain the juice to remove the crystals that have settled to the bottom.

General Directions for Making Jelly Stock

1. **Extracting Juice**—Cook fruit in as little water as possible (see recipes for each fruit). Follow carefully the recipe for time to cook as overcooking can destroy the pectin.
2. **Straining the Juice**—After the fruit is cooked, strain it through a jelly bag. DO NOT PRESS BAG to get more juice. Pressing the bag can make cloudy jelly.
3. **Jelly Bag**—A jelly bag can be made from white flannel. Add loops to the top so you can hang the bag.



Processing Jelly Stock—Jelly stock is processed in a HOT WATER BATH. This is different from the boiling water bath. The temperature in a hot water bath should be at simmering point (180°-210° F.)—just under boiling. We process jelly stock to get an air tight seal, not to actually cook the stock. Therefore, simmering temperature is all that is needed in the hot water bath to process jelly stock. Be sure to have at least 1 to 2 inches of water over the top of jars when processing.

RECIPES FOR FRUIT STOCK

Apple Jelly Stock

Wash apples, cut in small pieces. Put cut apples in a pan large enough to just cover apples with water. Bring to a boil. Cook 40 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes.

Strain cooked fruit in jelly bag. Put juice on stove and heat to the simmering point (180° -210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label, and store in a cool, dark, dry place until ready to make jelly.

Grape Jelly Stock

8 pounds of grapes
1 quart of water

Wash and crush grapes and boil with water for 20 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes.
Strain cooked grapes in a jelly bag. Put juice on stove and heat to the simmering point (180°-210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label and store in a cool, dark, dry place until ready to make jelly.
If you do not can the grape stock, let it stand in the refrigerator as explained above.

Blackberry Jelly Stock

6 quarts of blackberries
1 pint water

Wash berries and crush them. Add water to crushed berries and boil for 15 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes. Strain cooked blackberries in a jelly bag. Put juice on stove and heat to the simmering point (180°-210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label, and store in a cool, dark, dry place until ready to make jelly.

GENERAL DIRECTIONS FOR MAKING JELLY

Sterilize jelly glasses or jars by covering with hot water and boiling for 10 minutes.

Strain jelly stock (or fruit juice) through a jelly bag. DO NOT press bag.

Test jelly stock (cooled to room temperature) for pectin. See directions on page 3.

Better jelly will be made if you cook it in small quantities (about 3 or 4 cups).

WHY? A small quantity will cook faster and will result in a natural color. The flavor will also be better.

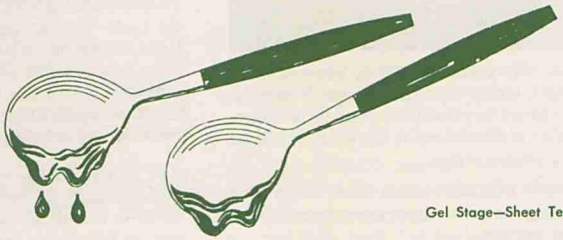
Measure juice and sugar. Put in a pan large enough so you can cook it quickly. Do not use a lid as it will retard evaporation.

You may use the sheet test to tell when gel stage is reached. It is done when the jelly sheets off the spoon and looks like the illustration below.

A thermometer may also be used to test jelly. When the thermometer reaches 222° to 223° F., the jelly is done. Always use the sheet test, too, when using the thermometer. In this way you can be sure the jelly is done. Remove jelly from heat. Skim off foam and pour jelly immediately into hot, sterilized jelly glasses or jars.

Cover jelly with a thin coat of melted paraffin before you put the lid on the glass or jar. Cool, label and store.

Near Gel Stage



Gel Stage—Sheet Test

RECIPES FOR JELLY

Apple Jelly

Use 3 to 4 cups strained apple stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Follow general directions for making jelly.

Blackberry Jelly

Use 3 to 4 cups strained blackberry stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Gel stage is about 220° F. Follow general directions for making jelly.

Grape Jelly

Use about 3 to 4 cups of well strained grape stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Gel stage is about 223° F. Follow general directions for making jelly.

NUTRITION—Jelly is included in the group of accessory foods—it does not add any large amount of food nutrients in the diet. You get mostly calories (from sugar) when eating jelly. Calories furnish energy. Active young people need a source of quick energy. Jelly and other sweets will supply it.

CANNING QUALITY VEGETABLES

Most vegetables are low in acid. Use the steam pressure canner in canning all vegetables except tomatoes and pickled vegetables.

Vegetables that are low in acid require a processing temperature higher than can be reached in a boiling water bath. Regardless of how long you process jars of food in a boiling water bath canner (at sea level) the temperature remains at 212° F.

SAFETY FIRST — Low acid vegetables should always be processed at 240° F. Low acid foods that have been canned at a temperature of 212° F. may contain a dangerous type of bacterium. These foods do not show any visible signs of spoilage; therefore, it is most important to process at 240° F.

You can only reach 240° F. in home canning by using a steam pressure canner. When the canner gauge registers 10 pounds pressure, the inside temperature of the canner will be 240° F. (at sea level).

CANNING TERMS—Learn these terms used in canning as you start your fourth year canning project.

ACID FOODS—Fruits, tomatoes, pickled vegetables, and rhubarb. These foods can be safely processed in a boiling water bath (212° F.).

LOW ACID FOODS—All vegetables except tomatoes and rhubarb. These foods must be processed in a steam pressure canner at 10 pounds pressure (240° F.).

BACTERIA — Microorganisms that live everywhere. If the bacteria are not destroyed in processing home canned food, they can cause food spoilage.

BLANCHING—The process of dipping a raw food in boiling water for a definite length of time, then dipping the food into cold water.

BOILING POINT—Water heated to 212° F. and bubbles roll from bottom to top.

ROLLING BOIL—Water has rolling bubbles from bottom to top as it boils (212° F.)

BOILING WATER BATH—A method of canning fruits and tomatoes by which water boils around and over jars of food for a definite length of time.

HOT WATER BATH—A method of processing jelly stock, preserves, pickles and jams when you want to obtain an air tight seal. Jars are covered with 1 to 2 inches of hot water with a temperature of about 180°-210° F.

PRESSURE CANNING—A method of canning by which steam under pressure gives temperatures higher than the boiling point of water.

PRESSURE CANNER—A heavily built kettle (pot) with a rack or wire basket and a tight fitting lid. When the lid is fastened in place it is possible to hold steam under pressure and obtain the high temperature needed. The canner lid has a pressure gauge, a petcock, and a safety valve.

AIR TIGHT SEAL—An air tight seal can be obtained in home canning only by processing foods in a boiling water bath, pressure canner, or hot water bath. An air tight seal is one in which no air is inside the jar, and one in which no air or bacteria can get into the jar.

HEAD SPACE—Space left in top of jar when filling the jar with food to be canned.

PRECOOK—The heating of fruits or vegetables for a given length of time before packing into jars for processing.

PROCESSING—Placing filled jars of food into the canner at a certain temperature for a certain length of time.

PRESSURE GAUGE—A gauge that registers the pressure inside the canner.

PETCOCK—The petcock is used to exhaust or vent the hot air from the canner at the beginning of the processing time.

VENTING—Exhausting air from the steam pressure canner.

CANNING LOW ACID VEGETABLES IN THE PRESSURE CANNER

SAFETY FIRST—A pressure canner is safe to operate if you use it correctly and if it is in good condition.
Follow the directions recommended in this 4-H Manual in canning vegetables in the pressure canner.
Have your pressure canner checked for safety each year. Ask your 4-H Canning Leader where you can have it done. If checked as recommended, the gauge, petcock and safety valve will all be inspected. If the gauge is 3 or more pounds off, it is recommended you have it replaced.
Wash the canner carefully after each use and store it properly.

Follow the manufacturer's directions for operating your own pressure canner. These are general recommendations.

Parts to a pressure canner—

Gauge—Registers pounds of pressure inside the canner. A pointer moves as pressure rises inside the canner.

Petcock—The petcock is used to exhaust the hot air from the canner preceding the processing time.

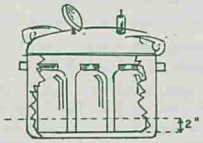
Safety Valve—The safety valve lets excess pressure inside the canner blow off. The safety valve and the petcock are combined in certain types of canners.

Select, wash and sterilize standard canning jars. Select lids and get ready to use.

Select only fresh, young, tender vegetables.

Wash vegetables in several changes of cold water. A good rule to follow in your canning project is to can vegetables as soon after they are harvested as possible.

1. Prepare vegetables for canning as in the directions on pages 8 and 9.
2. Put 2 to 3 inches of water in bottom of canner.
3. Place filled jars of vegetables on rack in canner so they do not touch.
4. Put lid on canner and fasten securely.



5. Leave the petcock open. Watch until steam pours in a steady stream from the petcock. Start counting time.
6. Let steam escape for 10 minutes to drive all air from the canner.
7. Close petcock. Let pressure rise to 10 pounds (240° F.).
8. When 10 pounds pressure is reached, start counting processing time. PROCESS FOR THE REQUIRED TIME FOR EACH PARTICULAR VEGETABLE.
9. Keep pressure constant at 10 pounds by adjusting the heat under the canner.
10. When processing time is up, remove canner from heat. Let pressure return to 0° F. Do not lower pressure by opening petcock or pouring water over the canner.

WHY? There is a danger in the jars breaking.

11. When pressure is at 0° F., open petcock so any remaining steam can escape. Remove lid from canner.

SAFETY FIRST—To remove lid, tilt far side up first so hot steam will not burn your face.

12. Use tongs or handles on wire rack to remove jars from canner. DO NOT TIGHTEN METAL SCREW BANDS.
13. The next day remove bands. Label and store in cool, dark, dry place.

IF YOU LIVE ABOVE SEA LEVEL—At altitudes above sea level, it takes more than 10 pounds pressure to reach a temperature of 240° F. You will need to increase pressure by 1 pound for each 2,000 feet altitude.

Care of Pressure Canner

Wash pressure canner thoroughly in hot

soapy water after each use. DO NOT PUT LID IN WATER because it might damage the pressure gauge and might cause vent to become clogged. Wipe lid with a soapy cloth and then with a clean damp one.

Put crushed newspapers in the canner. Wrap lid with newspaper and turn upside down on canner. Never close lid tightly during storage. It may cause strong odors in the canner. Newspapers help absorb odors.

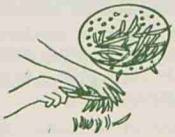
HOW TO CAN SNAP BEANS

Assemble utensils needed for canning.

Select beans fresh from the garden that are young and tender yet are firm and crisp.

Wash and sterilize jars by covering with hot water and boiling for 10 minutes. To get lids ready, follow directions on box.

Wash beans in several changes of cold water.



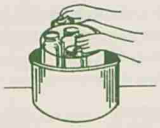
Cut ends off beans and cut beans into 1 inch pieces. Prepare only enough for one canner load at a time.

Cover beans with water and bring to a rolling boil. Remove one jar at a time from the sterilizing bath.

Pack hot beans loosely to ½ inch of top of jar. Add 1 teaspoon salt to quart jars and ½ teaspoon to pint jars. Cover with boiling liquid in which the beans were precooked. Leave ½ inch head space. Work air bubbles from jar by using a knife.

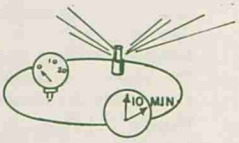
Wipe mouth of jar with a clean, damp cloth. Put lid on jar so that sealing compound is next to jar. Screw metal band on tightly.

Have 2 to 3 inches of water boiling in the pressure canner.



Place filled jars on the rack in canner. Fasten lid securely.

Let steam escape through open petcock for 10 minutes. Close petcock. Let pressure rise to 10 pounds. Adjust heat so pressure will remain constant.



Process pint jars of beans 20 minutes and quart jars of beans 25 minutes.

When processing time is up, remove canner from heat and let pressure fall to 0° F.

Open petcock slowly. To remove lid, tilt far side up first.

Remove jars and cool. Do not tighten screw bands. The next day remove screw bands. Label jar and store in a dark, dry cool place.

HOW TO CAN OTHER VEGETABLES

(Study with pages 6 and 7)

BUTTER BEANS—Select only young, tender beans from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids.
Wash bean pods in cold water. Shell and wash again.

Cover beans with boiling water and bring to a rolling boil.

Pack hot beans loosely to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water (in which beans were brought to a boil) leaving 1 inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid.

Process at 10 pounds pressure (240° F.) Pint jars—40 minutes; quart jars—50 minutes.

Cool. Next day label, remove bands and store in cool, dark, dry place.

PEAS—Select only young, tender peas from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids.

Wash peas in pods. Shell and wash again.

Cover peas with boiling water and bring to a rolling boil. Pack hot peas to 1 inch of top of jar. Add ½ teaspoon salt to pint jars; 1 teaspoon to quart jars. Cover with boiling water (in which peas were brought to a boil) leaving 1 inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid. Process at 10 pounds pressure (240° F.).

Peas, fresh blackeye—

pint-35 min., quart-40 min.

Peas, fresh green—

pint-40 min., quart-40 min.

SQUASH (SUMMER)—Select only young tender squash from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids.

Wash but do not peel squash. Trim ends. Cut squash into slices, halves or quarters. You may leave small squash whole.

Add just enough water to cover squash. Bring to a boil. Pack hot squash loosely to ½ inch of top. Add ½ teaspoon salt to pint jars and 1 teaspoon to quart jars. Cover with boiling water (in which squash were brought to a boil) leaving ½ inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid. Process at 10 pounds pressure (240° F.) pint jars—30 minutes and quart jars—40 minutes.

NOTE: Ask your 4-H Canning Leader for directions on the raw pack method of canning vegetables.

NUTRITION

Learn to serve your canned foods in tempting and attractive meals. Eat fruits and vegetables because they are good and because they give you vitamins and minerals your body needs.

Eat five servings of fruits and vegetables each day. You need one serving of a food that is a good source of Vitamin C or two servings of a fair source of Vitamin C. You need Vitamin C for healthy gums and body tissues. Vitamin C also helps in keeping blood vessels strong and healthy.

You need one serving of food high in Vitamin A each day. Green and yellow vegetables are a good source of Vitamin A.

You need this vitamin for growth, normal vision, and healthy condition of skin and other body surfaces.

The three other servings you need each day may be of any vegetable or fruit. They may be additional servings of fruits and vegetables high in Vitamin A or Vitamin C, or they may be apples, bananas, beets, or potatoes.

Early Teens 4-H Canning Record

Third Year Report

Date Project Completed _____
(month) (day) (year)

_____
(name of club member) (age) (community 4-H club)

_____
(address) (county)

_____ _____
(name of parents) (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. What fruits are used in making jelly? _____
2. Why is it necessary to select fruit at the right stage of maturity? _____
3. What ingredients are needed to make jelly? _____
4. What is pectin? _____
5. Give the home test for finding out how much pectin is in jelly stock (or fruit juice). _____
6. Why is it necessary for jelly stock to be at room temperature to make the pectin test? _____
7. Why is it recommended that you make and can jelly stock? _____
8. How do you process jelly stock? _____
9. How do you tell when jelly is done? _____
10. How many jars of food canned alone did you exhibit? _____
    Where? _____
11. Did you prepare any meals using food canned in your canning project? _____
12. Did you show any other 4-H member how to do something you learned in your canning project? _____ What did you show _____

(When project is completed, cut out this page and give to your Canning Leader)

B. List all foods you canned or helped can in this form.

	NUMBER OF QUARTS	
Food	Canned Alone	Helped Can
Totals		

C. Write a story of what you did and learned in your canning project.

D. I have checked this 4-H record and found it to be satisfactory.

Date _____ Signed _____

4-H Canning Leader

Early Teens 4-H Canning Record

Fourth Year Report

Date Project Completed _____ (month) _____ (day) _____ (year)

_____ (name of club member) _____ (age) _____ (community 4-H club)

_____ (address) _____ (county)

_____ (name of parents) _____ (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. What is a steam pressure canner? _____. Does your family have a steam pressure canner? _____
2. Why are all vegetables (except tomatoes and rhubarb) canned in a pressure canner? _____
3. At what temperature are you processing foods in a pressure canner when your pressure gauge is at 10 pounds pressure? _____
4. What does blanching mean? _____
5. What is an air tight seal? _____
6. What is processing? _____
7. Name three important parts to a pressure canner and give their function.
   1) _____
   2) _____
   3) _____
8. Does altitude affect temperatures in home canning? _____ If so, How? _____
9. How long should a canner vent? _____ Why? _____
10. Did you conduct a 4-H garden project? _____
11. How many jars of food did you exhibit? _____ local _____ county
12. Did you help a first year club girl with her canning project? _____ If so, how? _____
13. Did you give a demonstration on something you learned in your canning project? _____ _____ Subject _____
14. Did you prepare meals using foods you had canned? _____ How many meals? _____

B. List all foods you canned or helped can in this form.

Food	Canned Alone	Helped Can
Totals		

(When project is completed, cut out this page and give to your Canning Leader)

C. Write a story of what you did and learned in your canning project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____

Local 4-H Canning Leader

CANNING

Year by Year Summary

(Fill out this summary when you complete your canning project. Do this BEFORE you submit your record page to your canning leader. Copy this information from your record page.)

Third Year _____
(Date project completed)

1) Did you answer all questions? _____

2) Total number of quarts canned alone. _____

3) Total number of quarts you helped can. _____

4) Grand total (add No. 2 and No. 3). _____

5) Did you complete your project and submit it to your Canning Leader? _____

6) Did you write a story of your canning project? _____

Signed _____

Fourth Year _____
(Date project completed)

1) Did you answer all questions? _____

2) Total number of quarts canned alone. _____

3) Total number of quarts you helped can. _____

4) Grand total (add No. 2 and No. 3). _____

5) Did you complete your project and submit it to your Canning Leader?

6) Did you write a story of your canning project? _____

Signed _____

I PLEDGE:

My Head to Clearer Thinking:
My Heart to Greater Loyalty:
My Hands to Larger Service: and
My Health to Better Living for
My Club, My Community, and My Country.

The Club Motto:

"To Make the Best Better"

The 4-H Club Colors

Green and White

Club Series 127 **March 1963**

North Carolina State College of Agriculture and Engineering of the University of North Carolina and the U. S. Department of Agriculture, Cooperating, N. C. Agricultural Extension Service, R. W. Shoffner, Director, State College Station, Raleigh. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

4-H CANNING

NAME _____

4-H CLUB _____

COUNTY _____

SENIOR TEENS CANNING PROJECT

This project is planned to help the Senior Teen 4-H girl to:

- Acquire the knowledge and skills essential in canning fruits, vegetables, jelly, preserves, etc.
- Help in planning a home food supply for the family and work toward completion of the plan.
- Promote a well-balanced diet and reduce cash expenditures for food by having a home food supply.
- Recognize the importance of fruits and vegetables in the diet.
- Use products raised on the farm.
- Develop leadership talents and to work toward achieving the broad objectives of character and effective citizenship.

Requirements

- Work with mother to make a food conservation plan for your family.
- Can alone 25 quarts of vegetables using the pressure canner.
- Can alone 25 quarts of fruits, tomatoes. juices, jelly, preserves, jams and pickles.
- Help with home canning.
- Storage—location and organization.
- Exhibit your six best jars of food at a 4-H Club meeting, county event, or county or state fair.
- Plan and give a demonstration at a general club meeting, subject matter meeting, or any other group.
- Complete and turn in canning record.
- Keep all records for Longtime 4-H Record Book.

Additional Activities

- Conduct a garden project.
- Conduct a food preparation project using some canned foods in preparing meals.
- Have your pressure canner checked each year for accuracy and safety.
- Help younger club members in canning projects.
- Write talks for radio and television programs, and write articles for newspapers.

Manuals and Reference Books

Ask for these N. C. Agricultural Extension bulletins from your local 4-H canning leader:

- *ABC's of Canning Fruits and Vegetables,* Ext. Circular 271
- *Preserves, Jellies and Jams,* Misc. Pamphlet 200
- *Pickles and Relishes,* Misc. Pamphlet 182
- *4-H Food Preparation Manuals*
- *Pre-teens 4-H Canning Manual*
- *Early-teens 4-H Canning Manual*

NOTE: Use this record book four years. Use one Senior Teens Canning record sheet each year. Summarize each year's project on page 11, before submitting the canning record sheet to your canning leader.

Senior Teens 4-H Canning Record

Canned food reported in this record is to supplement garden fresh fruits and vegetables. Can more food than recommended if fresh fruits and vegetables are not available 6 months during the year.

FOOD CONSERVATION PLAN	RECORD OF FOOD CANNED			
Multiply qts. required per person by number in my family to estimate amount to be conserved in each group below.	FOOD Select only the ones your family will eat.	QUARTS CANNED Alone	QUARTS CANNED Helped With	GROUP TOTALS (Include qts. canned alone & helped with.)
GROUP I	ASPARAGUS			
GREEN AND YELLOW FRUITS AND VEGETABLES	BEANS, GREEN SNAP			
	BROCCOLI			
25 qts. per person	CARROTS			
__ qts. needed for one or more servings daily.	CORN, YELLOW			
	OKRA			
	PEACHES, YELLOW			
EXAMPLE:	PEAS, GARDEN			
	PUMPKIN			
5 in family—Multiply 5 by 25 to make 125 qts. needed in Group I for one or more servings daily.	SQUASH, YELLOW			
	SWEET POTATOES			
	OTHERS			
	GROUP I TOTAL			
GROUP II	TOMATOES			
VITAMIN C RICH	TOMATO JUICE			
25 qts. per person				
__ qts. needed for one or more servings daily.				
	GROUP II TOTAL			
GROUP III	BEETS			
OTHER VEGETABLES	BEANS, WHITE			
	CORN, WHITE			
25 qts. per person	ONIONS			
__ qts. needed for one or more servings daily.	PEAS, BLACK-EYED			
	OTHERS			
	GROUP III TOTAL			
GROUP IV	APPLES			
FRUITS, FRUIT JUICES	BERRIES			
	CHERRIES			
25 qts. per person	FIGS			
__ qts. needed for one or more servings daily.	GRAPES			
	PEACHES, WHITE			
	PEARS			
	PLUMS			
	OTHERS			
	GROUP IV TOTAL			
GROUP V	JELLIES, JAMS, PRESERVES			
ACCESSORY FOODS	PICKLES, RELISH			
8-10 pts. per person	BRINED KRAUT, CUCUMBERS			
3 qts. per person				
4 qts. per person	GROUP V TOTAL			

1. Total quarts canned alone _____
2. Total quarts helped can _____
3. Grand total of all quarts canned _____
4. Estimated value of total project (at 50¢/qt.) $_____

(When completed, cut out and submit to your Canning Leader)

Senior Teens 4-H Canning Record

Date Project completed _____
month day year

_____ _____ _____
(name) (age) (community 4-H club)

_____ _____
(address) (county)

_____
(name of parents) (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years _____.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. Did you make a food conservation plan for your family? _____
2. Does your family have a garden? _____ Did you conduct a garden project? _____
3. Did you use food canned in your canning project in preparing meals for your family? _____
4. Did you conduct a food preparation project? _____
5. Does your family have a pressure canner? _____
6. List number of canned foods exhibited at local _____, county _____, district _____, state _____ events.
7. List ribbons won: Blue _____ Red _____ White _____.
8. Did you write news articles on canning? _____ How many? _____
9. Did you make talks, present radio and TV programs on canning? _____ How many? _____
10. Did you present demonstrations on canning? _____ How many? _____

B. Fill out food conservation plan and record of foods canned (Page 3).

C. Write a story of what you did and learned in your canning project and attach to this record. Tell of any interesting experiences or activities in your project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

Senior Teens 4-H Canning Record

Canned food reported in this record is to supplement garden fresh fruits and vegetables. Can more food than recommended if fresh fruits and vegetables are not available 6 months during the year.

FOOD CONSERVATION PLAN **RECORD OF FOOD CANNED**

Multiply qts. required per person by number in my family to estimate amount to be conserved in each group below.	FOOD Select only the ones your family will eat.	QUARTS CANNED		GROUP TOTALS (Include qts. canned alone & helped with.)
		Alone	Helped With	
GROUP I	ASPARAGUS			
GREEN AND YELLOW FRUITS AND VEGETABLES	BEANS, GREEN SNAP			
	BROCCOLI			
	CARROTS			
25 qts. per person	CORN, YELLOW			
___ qts. needed for one or more servings daily.	OKRA			
	PEACHES, YELLOW			
	PEAS, GARDEN			
EXAMPLE:	PUMPKIN			
	SQUASH, YELLOW			
5 in family—Multiply 5 by 25 to make 125 qts. needed in Group I for one or more servings daily.	SWEET POTATOES			
	OTHERS			
	GROUP I TOTAL			
GROUP II	TOMATOES			
VITAMIN C RICH	TOMATO JUICE			
25 qts. per person				
___ qts. needed for one or more servings daily.				
	GROUP II TOTAL			
GROUP III	BEETS			
OTHER VEGETABLES	BEANS, WHITE			
	CORN, WHITE			
25 qts. per person	ONIONS			
___ qts. needed for one or more servings daily.	PEAS, BLACK-EYED			
	OTHERS			
	GROUP III TOTAL			
GROUP IV	APPLES			
FRUITS, FRUIT JUICES	BERRIES			
	CHERRIES			
25 qts. per person	FIGS			
___ qts. needed for one or more servings daily.	GRAPES			
	PEACHES, WHITE			
	PEARS			
	PLUMS			
	OTHERS			
	GROUP IV TOTAL			
GROUP V	JELLIES, JAMS, PRESERVES			
ACCESSORY FOODS	PICKLES, RELISH			
8-10 pts. per person	BRINED KRAUT, CUCUMBERS			
3 qts. per person				
4 qts. per person	GROUP V TOTAL			

1. Total quarts canned alone _____
2. Total quarts helped can _____
3. Grand total of all quarts canned _____
4. Estimated value of total project (at 50¢/qt.) $_____

(When completed, cut out and submit to your Canning Leader)

Senior Teens 4-H Canning Record

Date Project completed _____
month day year

_____ _____ _____
(name) (age) (community 4-H club)

_____ _____
(address) (county)

_____
(name of parents) (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years _____.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. Did you make a food conservation plan for your family? _____
2. Does your family have a garden? _____ Did you conduct a garden project? _____
3. Did you use food canned in your canning project in preparing meals for your family? _____
4. Did you conduct a food preparation project? _____
5. Does your family have a pressure canner? _____
6. List number of canned foods exhibited at local _____, county _____, district _____, state _____ events.
7. List ribbons won: Blue _____ Red _____ White _____.
8. Did you write news articles on canning? _____ How many? _____
9. Did you make talks, present radio and TV programs on canning? _____ How many? _____
10. Did you present demonstrations on canning? _____ How many? _____

B. Fill out food conservation plan and record of foods canned (Page 3).

C. Write a story of what you did and learned in your canning project and attach to this record. Tell of any interesting experiences or activities in your project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

Senior Teens 4-H Canning Record

Canned food reported in this record is to supplement garden fresh fruits and vegetables. Can more food than recommended if fresh fruits and vegetables are not available 6 months during the year.

FOOD CONSERVATION PLAN **RECORD OF FOOD CANNED**

Multiply qts. required per person by number in my family to estimate amount to be conserved in each group below.	FOOD Select only the ones your family will eat.	QUARTS CANNED		GROUP TOTALS (Include qts. canned alone & helped with.)
		Alone	Helped With	
GROUP I	ASPARAGUS			
GREEN AND YELLOW FRUITS AND VEGETABLES	BEANS, GREEN SNAP			
	BROCCOLI			
	CARROTS			
25 qts. per person	CORN, YELLOW			
___ qts. needed for one or more servings daily.	OKRA			
	PEACHES, YELLOW			
	PEAS, GARDEN			
EXAMPLE:	PUMPKIN			
	SQUASH, YELLOW			
5 in family—Multiply 5 by 25 to make 125 qts. needed in Group I for one or more servings daily.	SWEET POTATOES			
	OTHERS			
	GROUP I TOTAL			
GROUP II	TOMATOES			
VITAMIN C RICH	TOMATO JUICE			
25 qts. per person				
___ qts. needed for one or more servings daily.				
	GROUP II TOTAL			
GROUP III	BEETS			
OTHER VEGETABLES	BEANS, WHITE			
	CORN, WHITE			
25 qts. per person	ONIONS			
___ qts. needed for one or more servings daily.	PEAS, BLACK-EYED			
	OTHERS			
	GROUP III TOTAL			
GROUP IV	APPLES			
FRUITS, FRUIT JUICES	BERRIES			
	CHERRIES			
25 qts. per person	FIGS			
___ qts. needed for one or more servings daily.	GRAPES			
	PEACHES, WHITE			
	PEARS			
	PLUMS			
	OTHERS			
	GROUP IV TOTAL			
GROUP V	JELLIES, JAMS, PRESERVES			
ACCESSORY FOODS	PICKLES, RELISH			
8-10 pts. per person	BRINED KRAUT, CUCUMBERS			
3 qts. per person				
4 qts. per person	GROUP V TOTAL			

1. Total quarts canned alone _____
2. Total quarts helped can _____
3. Grand total of all quarts canned _____
4. Estimated value of total project (at 50¢/qt.) $_____

(When completed, cut out and submit to your Canning Leader)

Senior Teens 4-H Canning Record

Date Project completed _____ _____ _____
month day year

_____ _____ _____
(name) (age) (community 4-H club)

_____ _____
(address) (county)

_____
(name of parents) (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years _____.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. Did you make a food conservation plan for your family? _____
2. Does your family have a garden? _____ Did you conduct a garden project? _____
3. Did you use food canned in your canning project in preparing meals for your family? _____
4. Did you conduct a food preparation project? _____
5. Does your family have a pressure canner? _____
6. List number of canned foods exhibited at local _____, county _____, district _____, state _____ events.
7. List ribbons won: Blue _____ Red _____ White _____.
8. Did you write news articles on canning? _____ How many? _____
9. Did you make talks, present radio and TV programs on canning? _____ How many? _____
10. Did you present demonstrations on canning? _____ How many? _____

B. Fill out food conservation plan and record of foods canned (Page 3).

C. Write a story of what you did and learned in your canning project and attach to this record. Tell of any interesting experiences or activities in your project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

Senior Teens 4-H Canning Record

Canned food reported in this record is to supplement garden fresh fruits and vegetables. Can more food than recommended if fresh fruits and vegetables are not available 6 months during the year.

FOOD CONSERVATION PLAN **RECORD OF FOOD CANNED**

Multiply qts. required per person by number in my family to estimate amount to be conserved in each group below.	FOOD Select only the ones your family will eat.	QUARTS CANNED		GROUP TOTALS (Include qts. canned alone & helped with.)
		Alone	Helped With	
GROUP I	ASPARAGUS			
GREEN AND YELLOW FRUITS AND VEGETABLES	BEANS, GREEN SNAP			
	BROCCOLI			
25 qts. per person	CARROTS			
__ qts. needed for one or more servings daily.	CORN, YELLOW			
	OKRA			
	PEACHES, YELLOW			
EXAMPLE:	PEAS, GARDEN			
	PUMPKIN			
5 in family—Multiply 5 by 25 to make 125 qts. needed in Group I for one or more servings daily.	SQUASH, YELLOW			
	SWEET POTATOES			
	OTHERS			
	GROUP I TOTAL			
GROUP II	TOMATOES			
VITAMIN C RICH	TOMATO JUICE			
25 qts. per person				
__ qts. needed for one or more servings daily.				
	GROUP II TOTAL			
GROUP III	BEETS			
OTHER VEGETABLES	BEANS, WHITE			
	CORN, WHITE			
25 qts. per person	ONIONS			
__ qts. needed for one or more servings daily.	PEAS, BLACK-EYED			
	OTHERS			
	GROUP III TOTAL			
GROUP IV	APPLES			
FRUITS, FRUIT JUICES	BERRIES			
	CHERRIES			
25 qts. per person	FIGS			
__ qts. needed for one or more servings daily.	GRAPES			
	PEACHES, WHITE			
	PEARS			
	PLUMS			
	OTHERS			
	GROUP IV TOTAL			
GROUP V	JELLIES, JAMS, PRESERVES			
ACCESSORY FOODS	PICKLES, RELISH			
8-10 pts. per person	BRINED KRAUT, CUCUMBERS			
3 qts. per person				
4 qts. per person	GROUP V TOTAL			

1. Total quarts canned alone _____
2. Total quarts helped can _____
3. Grand total of all quarts canned _____
4. Estimated value of total project (at 50¢/qt.) $_____

(When completed, cut out and submit to your Canning Leader)

Senior Teens 4-H Canning Record

Date Project completed _____
month day year

_____ _____ _____
(name) (age) (community 4-H club)

_____ _____
(address) (county)

_____
(name of parents) (years in club work)

Number in family living at home _____.

I have carried a canning project _____ years _____.

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. Did you make a food conservation plan for your family? _____
2. Does your family have a garden? _____ Did you conduct a garden project? _____
3. Did you use food canned in your canning project in preparing meals for your family? _____
4. Did you conduct a food preparation project? _____
5. Does your family have a pressure canner? _____
6. List number of canned foods exhibited at local _____, county _____, district _____, state _____ events.
7. List ribbons won: Blue _____ Red _____ White _____.
8. Did you write news articles on canning? _____ How many? _____
9. Did you make talks, present radio and TV programs on canning? _____ How many? _____
10. Did you present demonstrations on canning? _____ How many? _____

B. Fill out food conservation plan and record of foods canned (Page 3).

C. Write a story of what you did and learned in your canning project and attach to this record. Tell of any interesting experiences or activities in your project.

D. I have checked this record and found it to be satisfactory.

Date _____ Signed _____
4-H Canning Leader

Canning–Year By Year Summary

(Fill out this summary when your canning project is completed. Do this BEFORE you submit record to your canning leader. Be sure to copy this information from your record.)

	Alone	Helped Can	Yearly total	Value
Date project completed ________				
(1) Total number quarts canned alone				
(2) Total number quarts helped can				
(3) Yearly total (add Nos. 1 and 2)				
(4) Estimated value (50¢/qt.)				
Date project completed ________				
(1) Total number quarts canned alone				
(2) Total number quarts helped can				
(3) Yearly total (add Nos. 1 and 2)				
(4) Estimated value (50¢/qt.)				
Date project completed ________				
(1) Total number quarts canned alone				
(2) Total number quarts helped can				
(3) Yearly total (add Nos. 1 and 2)				
(4) Estimated value (50¢/qt.)				
Date project completed ________				
(1) Total number quarts canned alone				
(2) Total number quarts helped can				
(3) Yearly total (add Nos. 1 and 2)				
(4) Estimated value (50¢/qt.)				
GRAND TOTAL - - - - - - -				

I PLEDGE:

My Head to Clearer Thinking:

My Heart to Greater Loyalty:

My Hands to Larger Service: and

My Health to Better Living for

My Club, My Community, and My Country

The Club Motto:

"To Make the Best Better"

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Green and White

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Frozen Foods

This is the first writing of the trout bulletin. Duane Raver will edit it, do art work and publish it. We will publicise it through "Wildlife" magazine as well as game agents & writers.

MOUNTAIN TROUT

For a long time we thought mountain trout was for the lucky fellow who caught wild ones in mountain streams and cooked them in a campfire skillet in the fragrant woods. It was. It is different now.

Some of the bewitchment and outdoor happiness that go with trout sizzling in a skillet over a campfire has moved into the kitchen and into the backyard.

Only the clear cold streams far back in the mountains yield wild trout today, while the more easily accessible streams furnish mainly hatchery trout. It takes special skill and knowledge to manage a trout hatchery and produce good, healthy fish, for they need certain food and the proper amount of oxygen. Given too much food, the fish use too much oxygen; given too little, they turn cannibalistic. Supplied the right diet in the right amounts, hatchery trout develop into firm-fleshed, full-colored beauties - an honor to any campfire skillet, backyard grill, or kitchen broiler pan.

The brook (sometimes called speckled) is our native trout, but the brown and the rainbow (both introduced species) are now a part of our mountain trout family. All are primarily clean, clear, cold-running-water fish, but they adapt to ponds where the temperature and oxygen are right. A trout is a clean fish with clean food habits. It is hard to tell much difference in the food quality of the different species. The cooked rainbow flakes better than the brook, so some prefer it for salads or baking, but generally speaking, you can use them interchangably in recipes and be pleased.

HOW TO "CATCH" YOUR TROUT...from the water... Our regular North Carolina trout fising season begins the first week in April and ends the first week in September. If you fish for your trout in Public Mountain Trout Waters learn the North Carolina fishing rules and abide by them. This is easier, and cheaper in the long run, and it adds to your citizenship stature. Game Protectors are on the fish's side, and you can depend on them to enforce the law. So if you fish for your own trout (or for other fresh water fish), write to State of North Carolina Wildlife Resources Commission, Raleigh, North Carolina and ask for a copy of the current Official Inland Fishing Regulations and Information. Then fish to your heart's content - within the law - for fishing brings fun and food together.

If rugged fishing in a trout stream is not for you, check for vacation trout-fishing private ponds where you can catch your own and pay according to the weight of the fish you land.

HOW TO "CATCH" YOUR TROUT...from the frozen food cabinet. You can buy mountain trout from most retail frozen food cabinets now. Some of it is imported from other states and other countries. By law each fish must wear a small numbered metal tag attached to the caudal peduncle within one inch of, but not on, the tail fin.

This tag means that the trout is legal, and it is against the law for anyone to remove it until the fish is cooked and served. This small piece of safe-to-cook metal shows the North Carolina Wildlife Resources Commission at work to protect our Natural Resources. They furnish these tags to every source of commercially packed trout to be sold in North Carolina. For example, they send tags to Denmark for the Danish trout you buy from your retail frozen food case in your local market. Likewise trout sold from our own Private Mountain Trout Waters in North Carolina must wear the tag, as must those from Virginia, Idaho and other sources.

HOW TO HANDLE TROUT

WHILE YOU FISH FOR MORE: it is better to keep your catch alive if it's practical under your fishing conditions. It seldom is when you fish for mountain trout. The usual practice of the trout fisherman is to, immediately after catching, hit the fish between the eyes with the butt of his knife or some other object. Then he takes out the gills, slits the fish and removes the entrails. Next he wipes out the cavity and stuffs it with fern or grass. He may take a piece of clean cheesecloth, brought from home for the purpose, dip it in the cold-running-water of the stream, squeeze it until it doesn't drip and wrap it around the fish. Then he places it gently into his fern or grass-lined creel and tries for another one. The damp cheesecloth will help keep the fish from drying out as the air circulates through the creel. (The creel is a wicker basket especially designed to hold fish and usually worn on the back by fishermen.)

He has to use his gumption about the length of time he can keep the fish in the basket before he gets them to a cooler place. It depends on the temperature and humidity of the day. Fish held in this way need to be cooked right away rather than frozen, though that, of course, depends on how hot the day is and how long the trout enthusiast fishes.

FROM THE WATER until you get home: If you kept your fish alive, when you pull the last one in, kill your catch and remove the gills, which are extremely subject to decomposition, and take out the entrails. Wipe the cavity dry unless you have access to clean water. If so, wash the fish and dry it. KEEP THE FISH COLD ALL THE WAY HOME. (Some people wash and dry the fish then roll it in cornmeal which tends to help keep it dry - and later cook it with the cornmeal on it.) Warm moisture is the enemy to freshness. Very much extra, cold-moisture is undesirable.

Different methods keep the fish cold. Industry has used chipped ice for this purpose since early times, and it is excellent as long as it does not melt or if the fish is protected from the water. Fish which lies in slush or water takes the moisture into its tissues. This dilutes flavor; it changes the texture. Of course, scaled fish or that which has been skinned or filleted will take up more water than mountain trout which has natural protection left on a large part of it. Even so, it is best to protect it from melted ice.

You can put the fish in plastic bags, preferably one layer of fish in each bag. Use light weight bags (not those best for freezing) and place between layers of ice. Be sure that each fish touches the ice all across so that there is solid contact between the product and the ice with ice packed around the ends of the bags. If you go a long distance you may need to replenish the ice along the way. You can keep fish fresher longer if you keep them dry and cold. This means with their natural moisture - not "dried-out".

If you keep your fish in the refrigerator for some time before you cook them, remember they keep better on ice inside the refrigerator than without the ice. If you use ice without protecting the fish, drain the water off as the ice melts. It will not melt fast if your refrigerator is at its desired temperature of 38° F.

Fish is delicately flavored, highly perishable, and a good source of easily digested protein. Trout is no exception. It pays well to handle it gently and speedily.

FROM THE RETAIL FROZEN FOOD CASE to your freezer: frozen trout (and other fish and fish products) in the markets come from many sources. All of them may be good, but it is well to know one from another else you may not buy the best. Some are sea trout; some are mountain trout from different places. Quality deteriorates along the way from the packer through many transportation routes, warehouses, and the retail cases unless the fish is properly packaged and protected from temperatures that rise above 0°F. The amount of damage the fish suffers depends on how high the temperature goes, how long it stays up and how many times this happens. Damage is cumulative. If you find temperatures in retail frozen food cases warmer than 0°F., call it to the attention of the store manager - <u>not to the hired help</u>.

It is up to you to get the package home from the store in good condition. Naturally you can't take a freezer around with you to transport your frozen foods, but you can do some things to protect them.

Take an insulated container - a picnic box will do - (or an insulated zippered bag) to the market. You can get cans of brine to freeze and put in your box when you leave the house so it will be cold inside. (You can refreeze these and use them for years.) Buy your frozen foods the last thing before you leave the store. Ask the checker to check your container of frozen foods first, then reclose the container. Place it in the car where it will be taken out first when you get home. Go home. Put the frozen trout (and other frozen food you bought) into your freezer. Now sit and rest with a clear conscience for a few minutes if you want to.

HOW TO FREEZE TROUT

Although it is traditional to cook a mountain trout with its eyes, head, and fins intact, yours is your fish so follow your own desires about how you dress it to freeze. Unlike most finfish, trout have no spines in their fins to puncture the packaging material. The scales of the small ones are deeply imbedded in the skin and are so fine they may be entirely unnoticed and eaten without thought of removal. If your trout weighs as much as two pounds you will want to remove the scales. They come off easier if you scrape the trout from head to tail rather than from tail to head as you do most other fish.

When it is cleaned to suit you, package it in meal-size amounts to each package unless your family is large - then maybe two packages for one meal so the fish will freeze quicker.

If you can get some crinkled vegetable parchment paper (try at a dairy or a poultry plant or write Paterson Vegetable Parchment Paper Co., Bristol, Pennsylvania - they make it), wrap the fish loosely in a piece of it. Dip the wrapped fish into a bowl of icy cold water for a minute; lift it out. Then freezer-wrap the whole thing in heavy aluminum foil or some other good frozen food packaging material. Or, if you can get heavy polyethylene bags (at least 1.5 mils thick), put water-dipped-vegetable-parchment-wrapped fish in it. Force air out, give the top a goose-neck twist and secure it with a plastic covered wire or rubber band (the bands are a nuisance to get off.)

Put packaged trout in freezer immediately. If you need to get the freezer colder than 0°F., adjust the freezer control a few hours before you put unfrozen trout (or anything else) in to freeze. Place the packages so that they do not touch each other nor touch foods already frozen.

Remember: Freeze fresh trout (or other fish)
Add a little moisture
Get air out of package
Close package well
Freeze as quickly as possible
Do not scuff or tear package in storage

Trout is traditionally an informal food fried with eyes, head, and fins intact in the campfire skillet along the banks of a stream. This informality flows over into some of our up-to-date cooked-in-the-kitchen fresh and frozen trout. One writer wrote, "...bones in fish break down any formality in eating, for it isn't good manners to swallow a fish bone..." But it is good manners to appreciate good food. If you follow a few rules you can have good trout - served formally or informally.

"Do not overcook fish." This is a fundamental rule of fish cookery. Cook it just long enough so you can flake the flesh easily with a fork. This leaves the fish moist and tender and brings out its delicate flavor. Fish is too often overcooked.

You can cook almost any fish any way if you use one precaution with lean fish. Keep it from becoming dry. For example, if you broil a lean fish baste it frequently with melted fat.

Cook your trout by any of the basic (broiling, pan frying, deep fat frying, oven frying) recipes and eat it plain or you can cook it by an endless number of special recipes and eat your trout fancy.

The USDI home economists of the Fish and Wildlife Service, under the supervision of Mrs. Rose Kerr, tested these special trout recipes and found them good. They were developed for cold-water trout, but you can use them with any small fish or portions of larger fish.

DIXIELAND RAINBOW TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
¼ cup French dressing
12 thin lemon slices
Paprika

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Brush inside and out with dressing. Cut 6 lemon slices in half. Place 2 halves in each body cavity. Place fish in a well-greased baking dish, 14 x 9 x 2 inches. Place a lemon slice on each fish. Brush top of fish with remaining dressing. Sprinkle with paprika. Bake in a moderate oven, 350° F., for 30 to 35 minutes or until fish flakes easily when tested with a fork. Serves 6.

ZIPPY BROILED TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
2 tablespoons lemon juice
1 teaspoon salt
Dash pepper
1/2 cup flour
2/3 cup Italian salad dressing
Lemon wedges
Parsley

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Brush inside of fish with lemon juice; sprinkle with salt and pepper. Roll fish in flour. Shake off excess flour. Place fish on a well-greased broiler pan. Brush with salad dressing. Broil about 4 inches from source of heat for 4 to 6 minutes, basting occasionally. Turn carefully and brush with salad dressing. Broil 4 to 6 minutes longer or until fish flakes easily when tested with a fork. Garnish with lemon wedges and parsley. Serves 6.

VEGETABLE STUFFED RAINBOW TROUT

6 pan-dressed rainbow trout fresh or frozen
2 teaspoons salt
Vegetable Stuffing
6 slices bacon, cut in thirds
Paprika

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Sprinkle inside and out with salt. Stuff fish and place in a well-greased baking pan, approximately 14 x 11 x 1 inch. Place 3 pieces of bacon on each fish. Sprinkle with paprika. Bake in a moderate oven, 350° F., for 25 to 30 minutes or until fish flakes easily when tested with a fork. Turn oven control to broil. Place fish about 3 inches from source of heat and broil for 2 to 3 minutes or until bacon is crisp. Serves 6.

VEGETABLE STUFFING

1 cup grated carrot
¾ cup chopped celery
½ cup chopped onion
1/3 cup melted fat or oil
2 cups soft bread crumbs
1 tablespoon lemon juice
½ teaspoon salt
¼ teaspoon white pepper
¼ teaspoon thyme

Cook vegetables in fat until tender, stiring occasionally. Add remaining ingredients and mix lightly.

SMOKY BROILED RAINBOW TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
1/3 cup soy sauce
3 tablespoons melted fat or oil
1 tablespoon liquid smoke
1 clove garlic, finely chopped
½ teaspoon ginger
½ teaspoon salt
Lemon wedges

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Combine remaining ingredients except lemon wedges and mix thoroughly. Brush inside of fish with sauce. Place fish on a well-greased broiler pan; brush with sauce. Broil about 3 inches from source of heat for 4 to 6 minutes. Turn carefully and brush other side with sauce. Broil 4 to 6 minutes longer, basting occasionally, until fish flakes easily when tested with a fork. Serve with lemon wedges. Serves 6.

ORANGE-RICE STUFFED RAINBOW TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
2 teaspoons salt
Orange-Rice Stuffing
3 tablespoons melted fat or oil
2 tablespoons orange juice

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Sprinkle inside and out with salt. Stuff fish. Close opening with small skewers or toothpicks. Place fish in a well-greased baking pan, 14 x 11 x 1 inch. Combine fat and orange juice. Brush fish with fat mixture. Bake in a moderate oven, 350° F., for 25 to 35 minutes or until fish flakes easily when tested with a fork. Baste occasionally with fat mixture. Remove skewers. Serves 6.

ORANGE-RICE STUFFING

1 cup chopped celery with leaves
¼ cup chopped onion
¼ cup melted fat or oil
¾ cup water
¼ cup orange juice
2 tablespoons lemon juice
1 tablespoon grated orange rind
¾ teaspoon salt
1 cup precooked rice
½ cup toasted, blanched, slivered almonds

Cook celery and onion in fat until tender. Add water, juices, orange rind, and salt; bring to a boil. Add rice and stir to moisten. Cover and remove from heat. Let stand 5 minutes. Add almonds and mix thoroughly.

ROCKY MOUNTAIN RAINBOW TROUT

- 6 pan-dressed rainbow trout or other small fish, fresh or frozen
- 1 cup melted fat or oil
- ¼ cup chopped parsley
- 2 tablespoons catsup
- 2 tablespoons wine vinegar
- 2 cloves garlic, finely chopped
- 2 teaspoons basil
- 1 teaspoon salt
- ¼ teaspoon pepper

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Place in a single layer in a shallow baking dish. Combine remaining ingredients. Pour sauce over fish and let stand for 30 minutes, turning once. Remove fish, reserving sauce for basting. Place fish on a well-greased broiler pan. Brush with sauce. Broil about 3 inches from source of heat, 5 to 7 minutes or until lightly browned, basting twice. Turn carefully and brush other side with sauce. Broil 5 to 7 minutes longer, basting occasionally, until fish is brown and flakes easily when tested with a fork. Serves 6.

TROUT ITALIANO

- 6 pan-dressed rainbow trout, fresh or frozen
- ½ cup tomato sauce
- 2 packages (¾ ounce each) garlic-cheese salad dressing mix
- 2 tablespoons melted fat or oil
- 2 tablespoons chopped parsley
- 2 tablespoons grated Parmesan cheese

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Combine remaining ingredients except cheese. Brush fish inside and out with sauce. Place in a well-greased baking dish, 14 x 9 x 2 inches. Brush with remaining sauce and sprinkle with cheese. Let stand for 30 minutes. Bake in a moderate oven, 350° F., for 25 to 30 minutes or until fish flakes easily when tested with a fork. Turn oven control to broil. Place fish about 3 inches from source of heat and broil for 1 to 2 minutes or until crisp and lightly browned. Serves 6.

SCANDINAVIAN RAINBOW TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
1 teaspoon salt
Dash pepper
1 cup chopped parsley
¼ cup butter or margarine, softened
1 egg, beaten
¼ cup milk
1 teaspoon salt
¾ cup toasted dry bread crumbs
½ cup grated Swiss cheese
3 tablespoons melted fat or oil

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Sprinkle inside with salt and pepper. Add parsley to butter and mix thoroughly. Spread inside of each fish with approximately 1 tablespoon parsley butter. Combine egg, milk, and salt. Combine crumbs and cheese. Dip fish in egg mixture and roll in crumb mixture. Place on a well-greased cooky sheet, 12 x 15 inches. Sprinkle remaining crumb mixture over top of fish. Drizzle fat over fish. Bake in an extremely hot oven, 500° F., for 10 to 15 minutes or until fish flakes easily when tested with a fork. Serves 6.

For outdoor trout cookery, try this:

SESAME RAINBOW TROUT

6 pan-dressed rainbow trout or other small fish, fresh or frozen
¼ cup melted fat or oil
¼ cup sesame seeds
2 tablespoons lemon juice
½ teaspoon salt
Dash pepper

Thaw frozen fish. (Clean, wash, and dry fresh fish.) Combine remaining ingredients. Place fish in well-greased, hinged wire grills. Baste fish with sauce. Cook about 4 inches from moderately hot coals for 5 to 8 minutes. Baste with sauce. Turn and cook for 5 to 8 minutes longer or until fish flakes easily when tested with a fork. Serves 6.

If other outdoor fish and shellfish cookery interests you, ask your county home economics agent for a USDI folder on OUTDOOR FISH COOKERY.

For GOODness Sake!

KNOW YOUR FREEZER

(Inside and Outside)

A N.C. STATE COLLEGE PUBLICATION

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June, 1958 Miscellaneous Pamphlet No. 183

If you care how long your freezer lasts, and how good your food is, this booklet is for you.

If you care about good food handling and freezer care, this booklet is for you.

If you want to live with your freezer closely, understand its strengths and weaknesses, and get the best performance it is capable of giving, this booklet is for you.

The information here sums up experiences of many freezer service men. Dr. Earl McCracken, Physicist, Clothing and Housing Research Division, U. S. Department of Agriculture; John Weaver, Research Professor, Department of Agricultural Engineering, N. C. State College; and Dr. Ivan Jones, Professor, Department of Horticulture, N. C. State College, read, approved, and contributed to this publication.

If you want more detailed technical information on freezers, write to Office of Information, U. S. Department of Agriculture, Washington 25, D. C. Ask for Home and Garden Bulletin No. 48, Home Freezers, Their Selection and Use.

Know Your Freezer - Inside and Outside

Plan Before You Buy The Freezer

Where To Put It

A lot of folks buy freezers without planning in advance such things as where to put the freezer, and how it will be used. There are some things you should take into account on where to locate the freezer.

If you're building a new house, plan a place for the freezer. Put the freezer, running water, cabinets for containers, and an electrical outlet (for blancher) in a well-ventilated utility room.

Your freezer may not last as long nor give as good service if you do not put it in an ideal place. But chances are you will be better off using a poorly placed freezer than not using one at all. Sometimes a makeshift place for a freezer is better than no freezer. When we wait for ideal conditions for everything we get, many of us end up with nothing —or next to nothing.

Watch dampness. Most basements are too damp, particularly in summer. If you have no other place, put your freezer in the basement. Leave it on the bottom wooden frame it came in (or put on wood blocks). Put the wooden frame on casters, if you want the freezer to be easy to move. That makes wiping off the back of the freezer and cleaning behind it easier. Be sure it is level.

Sweating may occur in high humidity (dampness). If your freezer sweats, but only when the humidity is high, think nothing of it. If it sweats all the time something is wrong. It may sweat in a new house because new houses are damp.

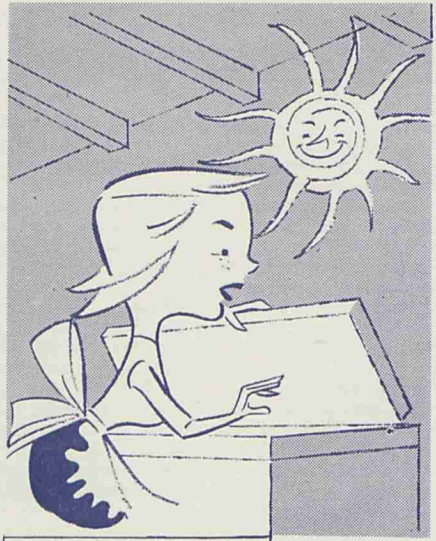
The kitchen is an ideal place for the freezer, for convenience sake. But there are two drawbacks to putting the freezer in the kitchen: (1) Most kitchens are too hot; (2) You will open it more often. That runs up expense.

The back porch is a poor place for a freezer. If it is the only place you have, protect the freezer from the sun. Protect it from extreme cold in winter.

Protect the freezer from rats. A rat killed in the fan motor can lodge in the motor shaft and finally burn the motor up.

Place the freezer three inches away from the wall. If your freezer book says otherwise, do what it says. Three inches from the wall is a good general rule.

Give the freezer free space for air movement all around unless the manufacturer says it can be built



Protect the freezer from the sun and extreme cold. Back porch is a poor place for a freezer.

in. Then follow his directions. Put your freezer in the most nearly cool, well-ventilated place you have —or can arrange for.

How to Put It

When you install your freezer, you need to get it level. You may need to brace the floor under the freezer. Make the electrical connections right and consider grounding the freezer.

Leveling. Wherever the freezer is, have it level. The sides and middle must be a solid fit to the floor or frame for good freezer service. If the freezer sags in the center or drops on one or both ends, it may make too much noise, the door may not seal right, and it may distort the cabinet. It pays to be on the level.

Bracing. Be cautious about the weight load of a food-filled freezer—especially an upright one. There can easily be a thousand pound load on a small floor space. Many floors are strong enough to support a heavy freezer filled with food. For those that are not, prevent a floor break or sag by:

(1) Placement in the room. Some parts of the room are stronger than others. Place the freezer where it is most convenient to use and brace the floor rather than hunt the strongest floor space for it, unless that space is also the most convenient use-wise. Or:

(2) Use a stack of concrete blocks under the joists nearest the freezer. Level the ground first. Use a

wooden wedge to fit the stack of blocks snugly under the joists. Or:

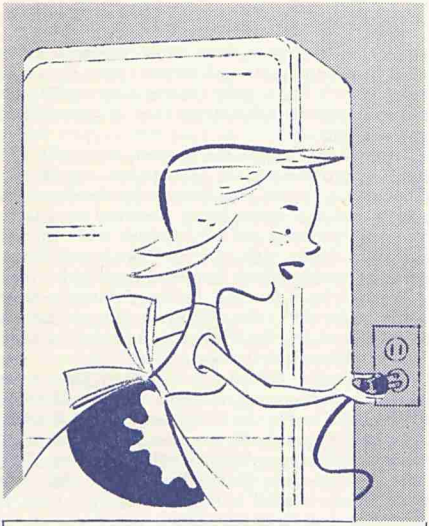
(3) Set a screw jack on a poured concrete base about 16 inches square under the joist that is nearest the freezer. One costs only a few dollars and will support several tons of weight. Screw the jack up to fit between the leveled-off ground space under it and the joist nearest the freezer. Or:

(4) This is not best, but if you want to use wood as a support from the ground to the joist, use *pressure treated wood.* Untreated wood is a perfect passageway for termites. You invite them for a visit when you put a piece of untreated wood from the ground to the house. And sometimes their visit turns out like "The man who came to dinner!" They aren't in any hurry to leave.

Electrical Connections. Put the freezer on a separate circuit if you can. Any motor one-half horsepower or above *must* be on a separate circuit. Lack of enough power to the freezer causes unit failure.

A freezer on an extension cord sometimes gives trouble. If it is necessary to have your freezer on an extension cord, be sure the cord is heavy enough for the job. Use a No. 14 wire or better—not a drop cord. *Then get the room rewired to take care of the freezer without an extension cord as soon as you can.*

Freezers with one-third horsepower motors and those with smaller than one-third horsepower motors



Put freezer on a separate circuit. Lack of enough power to freezer causes unit failure.

run on a 15-ampere fuse. More powerful freezers need heavier circuits and larger fuses. If you have trouble with fuses, your freezer may need to be on a heavier circuit with a larger fuse. A good electrician can tell you.

Grounding. Ground the freezer, especially if you put it where there is—or likely to be—any dampness. You need to ground your freezer for the same reason you would any other large electrical appliance. If you don't you may get a mild shock when conditions are right for it. And if that "once-in-a-blue-moon" thing of serious shock happens, it could be you!

We can look forward in the future to freezers being protected by the new grounding system which is promoted by the National Association of Fire Underwriters. But for now:

Fasten a No. 6 copper wire to any freezer screw that is heavy enough to make contact. If there is any enamel under the screw head, sand it off first.

In case there is no exposed screw, use a large sheet metal screw that is self threading. Drill a hole in some place that will not harm the freezer. Sand off the enamel around it. Place the wire, then a washer, and then the screw.

Fasten the other end of the wire to an exposed water pipe if the freezer is near one. If not, drive a one-half inch or larger pipe or rod eight feet down into the ground at the most convenient place. Run the wire from the freezer to this pipe.

When You Buy the Freezer

Look for the Service Man

A freezer is a piece of machinery. *If* it will break down is not a question. *When* it will break down is the thing to consider.

Keep a service man "on tap." It is best for the dealer to accept the servicing responsibility. If he does not, locate a service man *when* or *before* you buy (or *now* if you did not do it when you bought the freezer).

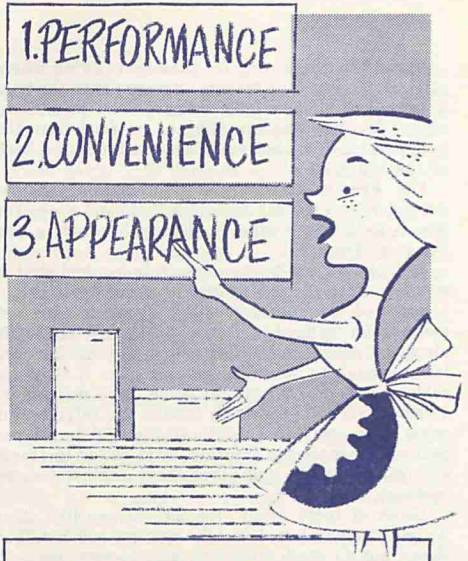
Be sure he knows what kind and what model freezer you have. Be sure he knows where you live, how to get there, and where the freezer is located. This is good insurance. You may never call him. But the chances are that you will.

What the Freezer Can Do

You want performance *first* (what will it do?) . . . Convenience second (is it easy to use?) . . . Appearance third (how does it look?). With freezers as with little girls "pretty is as pretty does." A freezer does not have to be fancy to give a good performance.

Some freezers are equipped with many gadgets. Gadgets are things that usually give trouble. Watch that. Is the gadget a real help?

You are buying *cold* space. Be sure the freezer is built to keep that space cold enough for the job to



In a freezer, look for (1) performance, (2) convenience, (3) appearance, in that order.

be done. Will it hold zero degrees F. for storage? Will it get colder than that for freezing? Is it made to do well in our southern climate?

If you plan to use the freezer for freezing and not just storage for food already frozen, be sure it has enough reserve refrigerating power for the job. Unfrozen food put in a freezer with too little reserve power stays unfrozen for a long time. The food will not go down to zero degrees promptly as it should.

Do not depend entirely on brand name. A favorite company may make a good refrigerator, but that company may or may not make a good freezer.

Ask the salesman to sit down with you and explain the specification sheet and other printed information that tells you what you need to know. Some freezers will not operate when the freezer is placed where it is colder than 32° to 40° F. Ask about that before buying.

The greater the amount of refrigerated surface in a freezer, the better. The better insulated the freezer is, the better. Be sure of sturdy construction of the door on an upright type.

If you buy a thermometer to keep in your freezer get a good one. Some "give-away" ones are not dependable. Make sure the graduations are on the glass itself. It is wise to buy from a refrigeration supply house unless you are sure of what you need. Get a *low-temperature* one. Read it while it is still in the

freezer. Or, if you take it out, read it quickly. Air temperature can change the thermometer reading immediately.

To test the thermometer: Fill a pan with ice cubes; run it full of water; let stand five or 10 minutes. If the thermometer checks 32° F., or very near, when put in the water, it is reading correctly —or nearly so.

Look for the Size to Fit the Family

Ask yourself: Will I use it for freezing or just for storage of food already frozen? Will I rent some space at a freezer-locker plant or will I keep all the food at home?

Figure on from 3 to 5 cubic feet of zero degrees storage space for each member of the family. If you fill much of that space with corn cobs, bones and extra packaging material, you will need more space for the actual food. If you are thrifty and plan and manage well, you can live well with less zero storage space than if you do not bother to be thrifty. One way takes thinking and some extra time. The other way takes more space and more money. Take your choice.

Look for the Design to Suit You

Chest. Do you need the top for work space? Are you tall enough to bend over and get food from the bottom easily? Do you have enough floor space where you want to put your freezer?

Upright. Is there room for the door to swing where you want to put your freezer? Are you sure the floor is strong enough to hold a heavy load in a small space? Do you mind squatting to get food from the back corner of the bottom? Can you reach the back of the top shelf?

The Freezer-Refrigerator Combination. If you want (or have) space for fresh food and space for frozen food in the same appliance, here are a few things to know.

It is better to have a separate control and a separate door for the frozen door compartment.

Some of these spaces called "freezers" are not made to freeze food in. Some will keep food that is already frozen. Some will not. Very few of them are large enough to do much freezing even if they are cold enough. If they do go below zero degrees F. (without freezing the fresh food in the refrigerator part) then you can safely use from 10 to 15 per cent of the space for freezing. It is better to freeze flat thin packages and place them against freezer surfaces.

Think of these small "freezer" spaces like this: An old-fashioned curling iron can get red hot. But it can not do much with that heat because there is so little of it. A small "freezer" space may get colder than zero degrees F. That is *very cold.* But there is not enough of that cold to do much with. It will not freeze much food right.

Defrost the freezer space in the refrigerator often. If ice builds up around side walls it affects the coldness in the refrigerator part. Some automatic defrosting devices on refrigerators are hard on the frozen food. They keep the amount of coldness going up and down. That depends on the speed of the defroster.

Even a small "freezer" space as a part of the refrigerator is a handy thing to own. Be sure you know what yours can and can not do. If it holds zero °F. (or colder) without freezing the fresh foods in the refrigerator, store frozen foods as long as you like. Otherwise store them only for a few days. Think of this space as a change purse; the freezer as your billfold; the locker plant as your bank.

Saving With A Freezer

If you use a freezer right you can save time, food, food quality, disposition, and money. Chances are you will not save much money, but you will eat better. Do not expect to be able to buy a fur coat with immediate savings.

Money-saving with a freezer is a long-time thing. You have to work at it. You invest in good health when you buy a freezer. And that is one form of money saving.

You save time when you use a freezer. If you use the time saved wisely it can save, or make, you

A freezer saves time, and you're likely to do a better job of meal planning with one.

money. You are likely to do better meal *planning* with a freezer, especially if you buy frozen foods. Some people have been able to save by planned buying instead of impulse and haphazard buying.

Use your food in the freezer. Keep food going in and out. Think of your food as a checking account —not a savings account. Frozen food turn-over pays in terms of money and food quality.

Safeguard The Food

Too many folks lose food in their freezers from carelessness. Do not do that. If you lose food, let it be from a cause that leaves you blameless. You will feel better that way. Things that you cannot control may happen. You can control the union of the plug and the outlet. Make it a strong connection that no mop can jar loose and no cat can pull out.

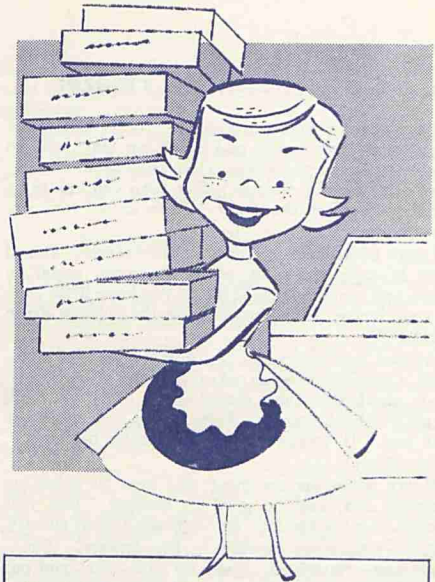
You can buy a gadget at most dime stores (for a dime) that will screw into the receptacle and clamp over the appliance plug. It holds the plug and cord in place. (Some freezer companies use these when installing freezers. There is now available a new screw-type connection you can use.)

Check every day to see that your freezer is running. The only sure-fire check is to reach inside, check the food, and look at the freezer walls. Bells and lights are not dependable checks. Neither is the sound of a motor. The freezer can run and still not freeze. The fan motor may run after the freezer motor has failed in some freezers. The freezer motor can run without refrigerating.

Place unfrozen food in your freezer *the way* and *at the place* the manufacturer tells you in his book. Follow his instructions about adjusting the cold control before and after freezing food. You will be tempted to put too much unfrozen food in the freezer at one time. That is the number one sin of freezer owners in North Carolina, according to many freezer service men.

If you overload a mule it balks. But then a freezer is not a mule. Sometimes it balks, but it is more likely to find other ways to "get even" with you. Food should get *cold quickly*. Even if you chill it before you put it in the freezer, it has to get much, much colder before it goes down to zero degrees F. or colder. If you put in too much unfrozen food at one time it will not get cold enough quick enough to be as good as it should be. It will cause the frozen food already in the freezer to warm up some. That is not good.

Leave space for air to circulate around each package as it freezes. Some foods freeze faster than others, but unless you know about each one, leave the food for 24 hours just the way you put it in. Then stack it with your other frozen food. After it is frozen, air does not need to circulate around each package. You cannot tell by feeling of the packages



Number 1 sin of freezer owners is putting too much unfrozen food in freezer at one time.

whether the food is cold enough to keep at its best. When you keep frozen food warmer than zero °F. it loses some of its goodness. *How much it loses depends on how high above zero °F. it gets and how long it stays there.*

If you pack a suit case too full and sit on it to close it you shorten the life of the suit case.

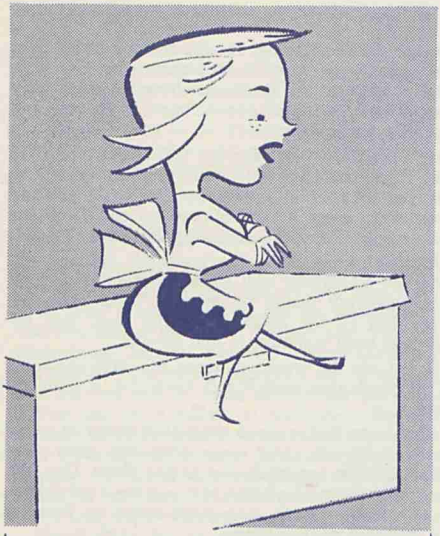
If you fill a chest type freezer too full and use pressure to close it, the hinges spring. Then the freezer will never seal properly. Not Guilty? Good!

Although good packaging materials put on right and good containers well closed do help keep frost from collecting inside the freezer, their main job is to keep all the goodness in the food. Use the ones that keep moisture in and air out.

If you use the drugstore wrap you save one-third of the packaging material it takes for a butchers wrap.

Aluminum foil, a good laminated material, some coated materials, and some films are good. Use material made *especially for frozen foods.* Use just enough wrapping material to cover the food and to make a tight closure. Any more slows up freezing and takes up storage space.

Containers of tin, aluminum, heavy aluminum foil, and bags of frozen food film are good if they are closed right. Be sure the lids fit. Put them on tight.



The freezer is not a suitcase. Never use pressure to close a freezer. You'll spring the hinges and freezer won't seal properly.

How to Stretch The Freezer

You cannot exactly stretch the freezer. But you can stretch your mind and think up ways not to waste the space you have. Corn cobs do use space. If you like corn on the cob better than you like to be thrifty, freeze it that way. Then enjoy your extravagance.

Large bones have no place in the freezer. Boned meat is easier to wrap, easier to carve, easier to serve, and easier to eat. (But if you have little boys at your house, leave the bones in the chicken drum sticks!)

A good freezing bag in a study carton uses space well. Cornered pans for cakes, pies and other cooked foods are better than round ones. (Use your *old* Angel Food cake recipe. Bake it in a *new* square or loaf pan. It wraps easier . . . stacks better . . . saves space.)

Extra wrapping on meat and poultry slows up freezing and does no good in storage. Use just enough to cover the food and to make a tight closure.

Keep your food moving in the freezer. Use—don't lose—your food. Keep up with what you put in and what you take out. If you manage your freezer space right you can put more food through it. Don't brag about those three-year-old peaches in your freezer. You don't brag about the old

clothes in your closet. Yet it makes more sense to have old clothes in the closet than old food in the freezer or locker.

When you stretch your mind to its limit and need space for more food remember: Nearby dealers sell freezers. The nearest locker plant may have zero degree F. storage space to rent.

Defrosting the Freezer

The less defrosting you need to do the better. Do these things to cut down on the number of times you have to defrost your freezer.

(1) Open the freezer seldom. That takes good planning. You bought the freezer to use. Use it, but *plan* so you can use it without opening it often. Air is more moist in the summer. The more you open your freezer, the more frost collects in it—especially in summer.

(2) Put the food in good frozen-food containers, well closed, or in good frozen-food packaging material put on right. Then moisture will not leave the food, seep through package, and settle as frost on the freezer (unless the food is mishandled and the packaging gets torn or the top comes off a container. Watch that.)

(3) Close the freezer door on a piece of paper. If there is no tension and the paper pulls out or moves, the gasket does not fit. Do something about that. The freezer may not be level. The door hinges or the latch may need adjusting. You may need a new gasket. Sometimes black mold forms on and around the door gasket where there is leakage. Apply 50 per cent solution of household bleach with a toothbrush. Thoroughly rinse with clear water. Wipe dry.

(4) Scrape frost off occasionally with a scraper made for the purpose, or with a blunt tool. (Never use anything with a sharp edge.)

Even with all of your thoughtful care the time may come to defrost. Defrost before there is more than one-half inch of frost over a large area of the refrigerated surfaces. Follow the manufacturer's directions for your specific freezer.

In general, you can get the job done quicker if somebody helps you. *The quicker this job is done, the better.* Remove the food from the freezer. It helps to put it in a "grocery" carton that you have put in a bigger carton. (The space between the two cartons acts as insulation.) Crumple newspapers and pack around the food in the smaller inside carton. If you did not think to get the cartons, wrap the food in newspapers and blankets and put it in the coolest place you have. If the telephone rings ignore it. If you cannot do that, pick it up and say, "I am defrosting my freezer. Will you call back in an hour?" Hang up.

Unplug the freezer. Try for a fast, dry job. Place papers or shallow pans in bottom of chest freezer to catch the frost. An electric fan placed so that the current of air hits the frosted surfaces helps speed defrosting. Tempted though you may be, do *not* put pans of *hot* water in the freezer. That is asking for trouble (you may build up pressure in the refrigerant). Pans of slightly warm or tap water will help some, for the water will be much warmer than the freezer. Be sure it is in pans—you do not want any water loose in the freezer. As the frost and ice loosen, lift it out. Use no sharp-edged tools—use a wooden paddle or other blunt tool. Be careful not to hurt the walls of the freezer.

(Save the frost for water to use in your steam iron [if you have had no chance for odors in the freezer. Odor particles could be trapped in the frost and cause "consternation" when steamed into clothes!] Chances are your iron will last longer without giving trouble—even if tap water is permitted by the maker.)

Wipe out the freezer with a cloth or sponge wrung out of soda water (2 tablespoons soda to a quart of water). Then use clear water. Wipe the freezer dry and close the lid. Plug in the freezer. Let it run for at least 15 minutes. As you put the food back in, wipe each package if it has any frost or dampness on it. Let speed be the keynote of this whole operation.

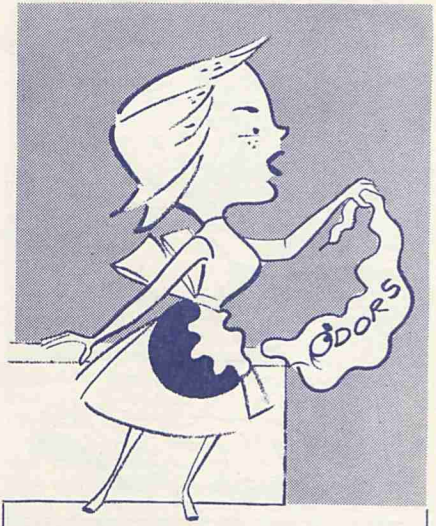
Keep Odors Out

Your freezer should have no odor—it should smell clean and cold.

You can keep odors out easier than you can get them out. Put your food in containers and packages that let no moisture out and no air in. Close them tight. Keep the freezer as cold as zero degrees or colder. Do not put any package in the freezer that has odor on its outside. If you smoke, do so away from the freezer when it is open. (Don't smoke in the processing, chilling, freezing or storage rooms of a locker plant, either.)

If food spoils in a freezer you are in for bad odor trouble. That is one reason why it is so important to keep the plug securely fastened in the socket . . . to check the freezer often to see that it is running . . . to have a neighbor check when you are away from home . . . never pull the master switch when you leave home . . . and keep your electricity bill paid!

It takes patience to get rid of odor. Remove the food, disconnect the freezer, and then defrost. Wash the freezer with baking soda and water. Rinse with plain water. (Use cloth or sponge wrung out of water—do not put water loose in the freezer.) If odor persists (it will if its much of an odor) put a 2 per cent ammonia solution in a bowl. Use about



It's a lot easier to keep odor out of your freezer than to get it out after it gets in.

one cup full of household ammonia to a gallon of water. Put the bowl in the freezer. Close freezer lid. Let stand overnight (or several hours). Remove the bowl of ammonia. Wash the freezer with strong soda water and rinse. Be sure all trace of ammonia odor is out and the freezer is cold before you replace the food.

If you have a new type freezer that *does not have a belt and if there is no plastic inside* you can use the dry heat method to remove odor. You can do this several ways. One is to put an old-fashioned toaster (not the pop-up kind) inside the freezer. Let it stay until the inside walls of the freezer feel warm to your hand. Remove toaster. Put in the fan and let it blow the walls cool to the touch. Put the toaster back . . . then the fan. Keep this up for several hours. Stop and sniff. If odor is still there, do it all over again . . . and maybe again . . . and again.

If the odor is in the insulation and nothing you try gets rid of it, you can get a new insulation job. This costs money, but not as much money as a new freezer does.

Time takes care of most odors. If you want to do without your freezer for a few months most odors will go away . . . especially if you alternate a heat and cold treatment during the time. You may be able to rent space for your food in a nearby locker plant while waiting for the odor to disappear in your

freezer. Anyway you take it, prevention is easier than cure.

Keep Freezer Clean

If your freezer book mentions a factory recommended wax use that one on the outside of your freezer. If not, use any good furniture wax that does not discolor the freezer. The paint on a freezer has no warranty. Take care of it. Wax the outside of your freezer as you do your refrigerator. Except for looks, waxing is more important if the freezer is on the back porch or other place where the air may be damp.

Protect the top of your chest type freezer. Unless you do, when you use it for working surface or to lay things on, you may face a re-enameling job after awhile.

If you feel that the upright freezer is a place to decorate with a red geranium, do so. But put a mat or other protection under the flower pot.

If your freezer is running too much or all the time, you may need the service man or you may not. One possibility for the trouble is a stopped up radiator (condenser). Lint and dust can stop up the condenser. Dirty radiators cause the fans to burn out or the fan motors to stick. This results in high electric bills and slower food freezing.

Clean the radiator twice a year. Disconnect the

Check around carefully before you call the service man. The only trouble may be something that has fallen down behind the freezer.

freezer and use a vacuum cleaner or brush. A dirty radiator can place an impossible load on the freezer. Some service men say that failure to keep the radiator clean on fan type freezers is the number one neglect of freezer owners. It makes up 75 per cent of the summer service calls.

Cleaning the radiator is the owner's business—not the service man's. A fabric rug (not a slick surface one) put on the floor in front of a fan type freezer catches some the lint and dust. It helps keep the radiator clean.

Some Trouble Signs

Before you call the service man, make sure you need him. His time is valuable. Check a few things yourself: Source of electricity supply—is it a blown fuse? Is the current off? Is the plug pulled from the socket?

Keep the space behind the freezer free. Service men have been called for "funny" noise when all they had to do was remove coat hangers that had fallen behind the freezer. These other trouble-causers have fallen off the tops of freezers: feed sacks, paper bags, newspapers, pot holders, work gloves, plastic dishes, cracker boxes, instruction booklets, paper, and rolls of paper towels.

If you want to keep things on top of your freezer (particularly an upright) buy one of those plastic trays that fits on top of the freezer. They are made to protect the finish and prevent the vibration from causing things to fall. (Good for refrigerator top, too.)

When something falls back of an upright freezer that has a condenser fastened to the back, it often blocks the flow of air around the freezer. That causes excessive running. In hot weather it can overload the motor and cause it to cut off.

If there is a cardboard chimney on the back, do not remove it. That chimney is necessary for the air to circulate right.

Your freezer will make more noise than your refrigerator. It has more work to do. As long as the noise is smooth it is all right. As soon as you hear any clanking or knocking there is trouble.

If for *any* reason (overloaded circuit, hurricane, defective freezer, pulled plug, dirty condenser, pulled master switch, a tree across the line, or something else we have not thought of) your freezer goes off, sit down for a few minutes and *think* what would be best to do.

If the power goes off, try to find out from your power supplier how long it will be off. If it is likely to be no more than four or five hours, *do not open the freezer.*

Evelyn Spindler's folder, *What to do When Your Home Freezer Stops,* should be in your freezing

library. It is USDA Leaflet 321 (Federal Extension Service) Washington 25, D. C.

If you do refreeze food that is completely or partly thawed, turn the temperature control to the coldest position. After four or five hours change places with the center packages and those on the outside.

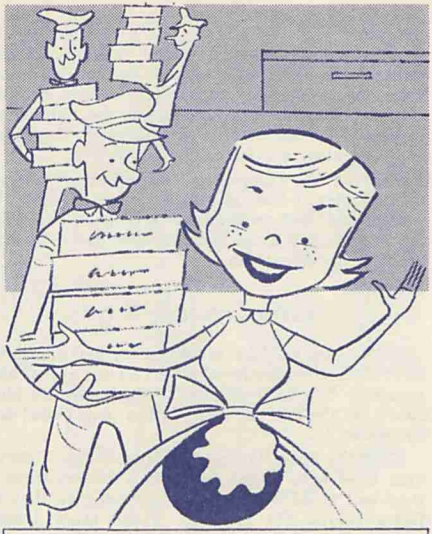
When You Move

Before you move, find out exactly the wiring situation in your new home. If you should have to put the freezer on the circuit with some other appliance temporarily—maybe a light—remember not to turn the light or other appliance off at the wall switch.

Long Distance

Get in touch with the transportation company that is to move you. Tell them you have a freezer. Ask their policy on moving freezers. The dependable movers are extremely careful to protect your food, your freezer, and your family's health in the way they move your freezer.

Some types of freezers require the gas pumped down in the receiver before moving and then back again after the freezers are placed in the new home. Units in some freezers need bolting down before moving and the bolts removed afterward. These



Talk the situation over with the mover before you move. Dependable movers do a good job.

things are the responsibility of the owner. Before you move, check with your service man. He will know the type of moving service (if any) that your freezer needs before and after moving.

Home freezers are not built to be used as shipping containers. You can damage a cabinet by moving it filled with food. Tilting very likely will warp or twist containers and damage doors and latches.

It is *not* safe to plug in and run the freezer stowed on a loaded moving van.

Just because somebody did move a freezer full of food and got by with it is no reason for you to risk it.

Many locker plants provide a packaging and storage service for food to be moved. Some even handle shipping arrangements. They hold the food until you are ready for it in your new place.

You may be able to send your frozen food to a locker plant near your new home, and pick it up after you get settled and the freezer is ready for it.

Actually, it may be cheaper for you in the long run to sell your frozen food to friends, relatives or neighbors before you move. But if you have grown and prepared your own food, you may not want to do that.

Short Distance

If your freezer filled with food is not too heavy for the movers to lift, they may move it very short distances with the food in it. It depends on the situation. In that case the freezer should be the last thing put in and the first thing taken out of the van.

If you remove the food, pack it in an insulated container made for the purpose or in a "grocery" carton packed with crumpled newspapers and the whole thing in a larger carton. Or you may pack it in dry ice.

Your Vacation

When you leave for vacation remember your freezer. Do not forget the freezer and pull the master switch! If you do (some folks have) you will find a freezer of spoiled food when you get back home. Give your key to a neighbor. Ask him to check the food in your freezer every couple of days. (You can do the same for him.) Gently remind him to close the freezer door firmly. Give him the name and telephone number of the service man.

Before you go on vacation prepare and freeze food for your first meal after you get back. That will make your vacation seem to last longer. It will give you a chance to unpack and get ready for work again.

Remember!

A freezer is a wonderful thing, but it will not do everything. Know what your freezer will, and what it will not do. If you live near a locker plant, use its services with your freezer. If not, do not try to do with the freezer what a locker plant can do. In other words, do not try to make a horse out of a pony.

Get specific information about your specific freezer from the manufacturer who made it. This booklet gives general facts that apply to all freezers.

I am rewriting this... It will be reprinted. I lack several days work on it.

This is to be printed.

The mat pub. is ready to be printed.

12/20/62

354 THUR., DECEMBER 20, 1962 11

FOOTNOTES

*This depends on the store. If the store can furnish someone at the cabinet to check, then pack there and close the container. Put cost on outside initialed by store employee. Or pack at cabinet - price ends up - and repack as much as is necessary at the check-out counter. Or ask checker to put all frozen foods together in one bag and take to a cooled insulated bag left in the car. This is the least desirable way, because you should NEVER let frozen food stand at ordinary temperatures anywhere unless you are thawing it to eat, and there are better ways to thaw most foods.

**You are the loser if you do not protect your frozen food en-route.

***Or you may make a box and lid out of successive layers of corrugated cardboard. Make it about two inches thick. Strengthen it with a wooden strip frame or bands of burlap or denim or other strong material.

Nita Orr
10/25/62

N. C. State College of Agriculture and Engineering of the University of North Carolina and U. S. Department of Agriculture, Cooperating, N. C. Agricultural Extension Service, R. W. Shoffner, Director, State College Station, Raleigh, N. C. Distributed in furtherance of the Act of Congress of May 8 and June 30, 1914.

PROTECT

FROZEN FOODS

en route

PROTECT FROZEN FOODS

en route

From Store to Freezer

Enjoy the BEST food you ever thaw! How?

Safeguard all frozen food you take home from the store. Protect it as much as you can from temperature change. Buy frozen food last; unpack it first.

Buy Frozen Food Last

When you enter the grocery store, turn the opposite direction from the frozen food cabinets and buy your OTHER things FIRST. Spot all the frozen foods you want to buy while they are still in the cabinet. Then pick up each package quickly and stack all together in one place in your cart.

Check Out

Make a Beeline to the check-out Counter. Get your frozen foods checked out FIRST. Then pack them in your insulated bag or box. (Don't add the butter and other perishables. Your frozen food needs all the cold it has!) Stack packages close together so there is little or no air space between them. This gives the food less chance to thaw. If space is left in the box, or bag, fill it with crumpled newspapers.

Place the box, or bag, of frozen food in the car where it will be easy to unload FIRST when you get home.

Go DIRECTLY Home

If you plan ahead, you can usually go straight home.

Unpack FROZEN Food FIRST

Unload the frozen food box, or bag, and make another beeline - this time to your freezer storage. Take the packages from the tote container and place them in the freezer or in the low temperature compartment of the refrigerator. You can lose, or lower, all the results of good care if you handle and store frozen foods carelessly after you buy them.

Why Control the Cold?

Why do you need to control the cold of your frozen foods en route?

Because . . .

. . . rise in temperature damages frozen food.

. . . temperature damage is permanent.

. . . the damage is cumulative.

Once damage is done to frozen foods by a rise in temperature, you cannot undo it. When you get the temperature down again to 0° F., it avoids further damage at that time.

The damage is cumulative. Every time the food gets warmer than 0° F., more damage adds to that already done. The amount of damage depends on how high the temperature goes above 0° F. and how long it stays there each time.

You can squeeze the package or shake the can and easily tell when food is defrosted (but not how many times it has been defrosted). It's not easy to tell whether a hard package is at 0°, 10°, or 20° F. The package that feels hard (and you think is frozen) may be losing quality rapidly. Do not consider foods "frozen" unless their internal temperature is 0°F.

All members of the family who shop should understand the why behind cold-control.

How Do We Know?

The USDA Western Regional Laboratory made a 12-year study (The Time Temperature Tolerance Project) and found that frozen foods not kept as cold as 0° F. lose quality. Here are some of the changes:

Peach slices brown.
Snapbeans, peas, spinach lose green color.
Orange juice concentrate tends to separate into two layers when mixed with water.
Poultry darkens.
Cherries turn dark brown and skins toughen.
Sugar concentration in berries is the same as in the syrup.
Off-flavors develop.
Vitamin C escapes.
Unnatural textures develop.
Some cooked foods develop stale flavor.
Raspberry color bleeds into its syrup.

You cannot taste and see damage in its earliest stages. As damage accumulates you can see and taste it.

Along the Way

"En route protection" means, of course, protection during transportation of frozen foods from any one place to another. This may be from:

. . . the grocery store home.
. . . the locker plant home. (or keep unfrozen food cool from home to plant.)
. . . Mama's freezer to yours.
. . . home to the beach.
. . . fish and shellfish from the beach home.
. . . any freezer to any other freezer.

There are people who get barely enough food for survival. Some do not. We can eat enough of the finest health-maintaining food in the world. Let's RESPECT our frozen food and take proper care of it.

Buy

You can buy insulated tote bags and insulated tote boxes of various materials, styles, colors and sizes.

Make

To make a bag: Take two strong, heavy paper bags, one a few inches larger than the other. Put the smaller bag into the large one. Fill the space between the bags - underneath and sides - with shredded newspaper. Pull the bags together at the top. Fold the outside bag in four places to make it fit the wide open smaller bag. Bring the edges of the bags together and fasten with masking tape at the folds and other spots. Then fold masking tape around the entire top to seal the bags to each other.

After you pack the bag with frozen foods, hold the edges at the top together and fold down. Fasten with tape or a clamp. (Clothes pins do very well.)

To make a box: Take two ordinary grocery boxes - one wider, longer and deeper than the other. (Pack crumpled newspapers in any space not filled with food). Close. Turn this box upside down in larger box. Close. The air between the boxes is an insulator.

If you want to make a more permanent type box, use any two containers - one smaller than the other, preferably with 3 to 4 inches space for insulation. Fill the space between (underneath and sides) the containers with shredded newspaper. Seal the top of the two containers with gummed paper. Make a frame of wooden strips to strengthen and hold the box off the floor.

For the lid, use gummed strips of paper to hold together several layers of corrugated paper.

An Aid

Read on . . . there's more. You can keep a can of special chemical solution in the freezer between trips. When you leave for the store, put it in the tote box to help cool the box. (Or you can use a well-closed polyethylene bag of ice cubes which has been stored in the freezer.) The heat in the box goes into the chemical or the ice cubes instead of into your frozen food.

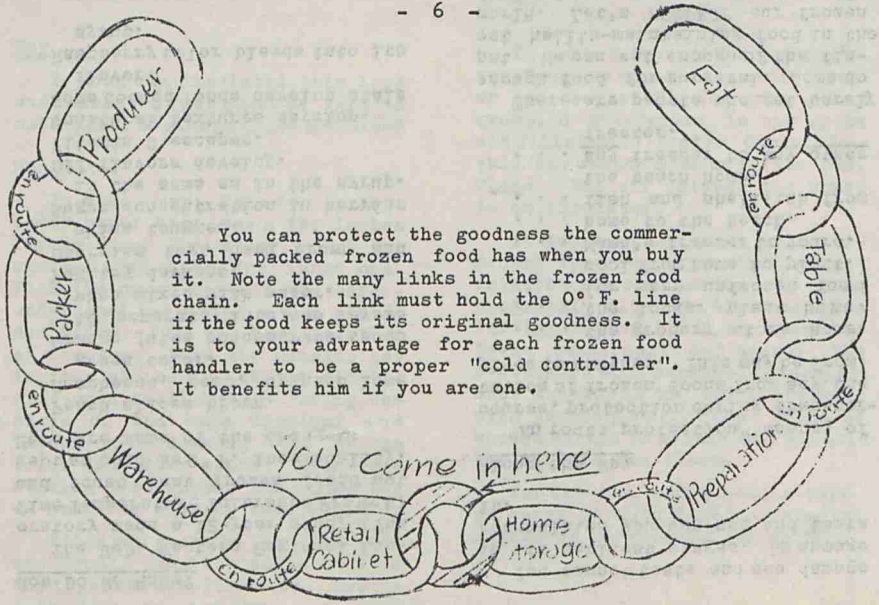
These cans of chemical come in different sizes and are easily available. Try your food market, drug store or any place that sells general merchandise. Read and follow the directions printed on the cans. After they thaw, most of them should be wiped off and shaken well before you refreeze them. You can reuse them for a long, long time.

Another Aid

DRY ICE is extremely cold - 109° F. You need it for frozen food on long trips (or in extremely hot weather on short trips in some cases). It is hard to come by in most of our towns, but most dairies carry it for their use with ice cream and will, when they can, sell it to individuals. It is available in towns that have DRY ICE storage houses.

Use it with care. DO NOT taste or touch with bare hands (use gloves); DO NOT confine in stoppered bottles or closed steel containers. Work with it in a well-ventilated place.

The amount you use depends on the outside temperature, the product, the temperature of the product, the type of container you use, and the length of time your trip takes.

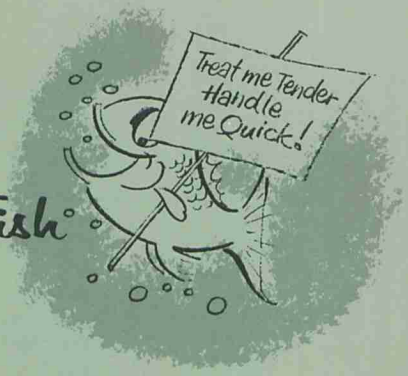


You can protect the goodness the commercially packed frozen food has when you buy it. Note the many links in the frozen food chain. Each link must hold the 0° F. line if the food keeps its original goodness. It is to your advantage for each frozen food handler to be a proper "cold controller". It benefits him if you are one.

I used to have a frozen food bulletin. Because of expense, I was directed to write leaflets on different subjects readers have put them all under one cover.

12/23/62

How to FREEZE Fish



Make two catches if you want good frozen fish!

1st CATCH — Use a pole, a rod and reel, a net, money, or a smile at your fishing neighbor.

2nd CATCH — Get the fish into a freezer in time to "catch" all its good freshness.

Unless you make the second catch there is not much use making the first.

TO KEEP THAT CAPTURED FRESHNESS

Here are things to do:

1. Wrap fresh fish loosely in a type of vegetable parchment that will absorb water and yet retain its strength when wet. (The crinkled kind the poultry industry uses for giblets is good.)
2. Dip the paper-wrapped fish in cold water long enough for water to flow inside the wrapper.
3. Remove from water and wrap in heavy aluminum foil or other good moisture-vapor resistant frozen food packaging material.
4. Put date and kind and amount of fish on package.
5. Place the packages in the freezer according to the way your freezer book says. (Spread on or against a freezing surface in the freezer with air space around each package. Leave for 24 hours. Stack in storage part of freezer.) Or, take immediately to a locker plant. Protect packages from heat in transit.

Here are things to know:

If you do not know how to dress fish (and how to tell fresh fish if you buy), learn before you try to use this freezing information.

CARE

Keep the fish cold from the time they come out of the water until they go into the freezer. If you let them flop around in the bottom of a boat they bruise themselves. That's bad. It is best to kill them immediately after you catch them. Let the blood drain from the flesh. Remove viscera and gills immediately and pack in ice. Once you start working with the fish keep at it until you finish the job.

WHOLE OR CUT?

Decide how you want to serve the fish. Then leave them whole (for baking or boiling) or cut in chunks, steaks, fillets - depending on the way you want to cook and serve them.

PACKAGE

All other care is wasted if packaging is poor. The function of the package is to help the right temperature keep the fresh qualities in the fish from the time it is frozen until it is opened.

1. Use good frozen food packaging material (heavy aluminum foil, a good laminated frozen meat wrapping material, or anything else that can be trusted to make a good tight closure and to keep all the moisture in the fish. A vacuum packed tin can is almost perfect - but not practical to use in the home).

2. Add some moisture this way: wrap fish loosely in vegetable parchment paper. Dip into cold water. Then put fish, paper and clinging water in your final wrap. Use "drugstore" or now-called "freezer" wrap. Use just enough materials to cover the fish and have a good closure. Any more is a waste. It slows freezing and uses space that may better be used for food.

3. Do not tear, puncture or scuff the package after it is wrapped. That means handling each package with respect before and after freezing.

If air gets to the fish the oxygen in that air quickly causes loss of fresh flavor. Rancidity develops, the natural fish color bleaches or fades and colors foreign to fish develop. A very small volume of air is enough to cause trouble. When there are air spaces inside the package or air can seep through the packaging material or at the closure, the fish loses moisture. That makes the fish tough, fibrous and tasteless.

FREEZE

Frozen fish more closely resembles the original unfrozen fish if it is frozen very quickly. If you put too much unfrozen fish in the freezer at one time, the rate of freezing is too slow (or if you stack it up in the freezer in large stacks so there is no air around the packages as they freeze). It is better to give away some fresh fish or take large lots to a locker plant for freezing than to do a poor freezing job in the home freezer.

STORAGE

Store frozen fish at zero degrees F. or colder. How long it will keep its good fresh qualities depends on:

1. The kind of fish it is. The lean type keep longer frozen than the oily fish do. Lean fish are: Black Bass, Sunfish, Trout, White Bass, Flounder and Perch. Oily fish are: Catfish, Bullheads, Mullet, Weakfish, Bluefish, King Mackeral, Striped Bass and Shad.

2. The way it is handled before freezing.

3. The way it is packaged.

4. The temperature at which it is frozen and stored.

It may be a few weeks or a year. In general you may expect six months storage for most properly handled frozen fish.

REFREEZE

Fish is such a perishable food most people prefer not to risk refreezing it. If fish still has ice in it and has been handled and packaged right in the first place, it can be refrozen without danger. It will not be as good quality fish as it would have been without refreezing. Refreezing any fish and shellfish is not a good practice.

QUESTIONS WE GET:

Q. Should you thaw frozen fish before you cook it?

A. Not necessarily, but add extra cooking time to take care of the thawing. In large pieces or whole fish it is more satisfactory to thaw fish before cooking. Thaw in the package (in refrigerator is best) and cook immediately.

Q. Will fish in the freezer give an odor to the freezer and to other foods?

A. Not if the job is done right and the right temperatures are kept.

Q. Should you dip fish in salt water before you freeze it?

A. That is an old commercial practice which is now being discouraged. It does tend to prevent excessive drip when the fish thaws. However, you can have good frozen fish by following directions given in this leaflet. AND the salt water dip adds to the sodium content of the fish. Some heart specialists feel the addition of the salt to fish before freezing adds enough sodium to the fish to justify taking salt-water-dipped fish off the heart patient's diet.

Q. Is it all right to freeze fish just like you take them out of the water?

A. Yes. Under certain circumstances it is better to do so. But keep the fish cold from the water to the freezer. You can freeze fish (1) completely dressed and ready to cook (or already cooked), (2) partially dressed OR (3) just like they came from the water - except rinse them well.

Remember you must freeze the freshness of the fish. You lock that freshness in to stay there while the frozen fish is stored by quick, cold handling, good packaging, freezing below zero degrees F. (the lower the better) and storing them at zero degrees F. or colder.

If you bring your fish home from where you caught (or bought) them - scales, fins, insides and all - AND if you have other time-taking things you must do before you have time to dress them - you may find your fish will be better if you quickly rinse, package, label and put them into the freezer "as is".

They take more space, may need to be eaten sooner, and should be dressed before they completely thaw. BUT air has had no chance at the fat. Woe be unto you if fish frozen "as is" have stood around too long before freezing or thawed too long. You will get flavors you do not want.

Q. What about freezing cooked fish?

A. You will like yours better freshly cooked. Here, again, "circumstances alter cases". For example, you want to bake shad a long, long time to soften the bones. Bake enough while the oven is going for two or three meals. Chill immediately the part you want to freeze. You must capture and keep its delicate freshness so you will enjoy it a few days or weeks later.

Q. Can you freeze fish roe?

A. Yes. Thoroughly wash the roe. Pack it in frozen food containers or wrap in freezing foil or other good packaging material.

Prepared by Nita Orr, Extension Economist in Food Conservation and Marketing

PUBLISHED BY THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

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MAY, 1960

Brief Instructions for

FREEZING VEGETABLES

A N.C. STATE COLLEGE PUBLICATION

SCALDING (BLANCHING) VEGETABLES

WHAT To Do:

Heat your vegetables through to the center quickly. (The time it takes depends on the kind of vegetable and the size of the pieces.) Then get that heat out quickly. Do these things by plunging a pound of vegetable into a gallon of vigorously boiling water for a certain period of time. Then chill the vegetable in iced or cold water.

Here is **HOW:**

Put a pound (usually about a pint) of clean, nice, fresh vegetable into a wire basket or blancher lowered into at least a **gallon** (two gallons for a pound of green, leafy vegetable) of vigorously boiling water. (Have the basket or blancher already in the kettle of water, so it will be hot and will not cool the water.) Put the cover on and start counting time. **Keep the heat high under the kettle.** When the recommended time for that vegetable is up, lift the wire basket (or blancher) of vegetable out of the boiling water. Plunge it into cold (icy is best) water. To know when to take vegetables from cold water break a piece open and touch the inside to the tip of your tongue. You can tell if it's chilled. Remove from cold water and package.

Here is **WHY:**

The scientific reason is that scalding (blanching) arrests the action of enzymes. Enzymes help vegetables grow and mature. If you do not stop their action before you freeze the vegetables they stay active. The vegetables keep changing. They lose color, flavor, food value and tenderness.

Some vegetables lend themselves to complete cooking before freezing. Pumpkin, all kinds of winter squash, sweet potatoes, irish potatoes and beets are some that are satisfactory cooked.

Steam-heating can be done for some vegetables. Boiling water heating is more satisfactory when vegetables are processed at home.

Prepared by Nita Orr, **Extension Economist,** Food Conservation & Marketing

Information in tables based on research by Members of the Department of Horticulture, N. C. State College.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING OF THE UNIVERSITY OF NORTH CAROLINA AND THE U. S. DEPARTMENT OF AGRICULTURE, COOPERATING. N. C. AGRICULTURAL EXTENSION SERVICE, D. S. WEAVER, DIRECTOR. STATE COLLEGE STATION, RALEIGH. DISTRIBUTED IN FURTHERANCE OF THE ACTS OF CONGRESS OF MAY 8 AND JUNE 30, 1914.

November, 1960 Misc. Pamphlet 203

Here are brief instructions for freezing vegetables:

Vegetable	Varieties Recommended	Preparation	Scalding Instructions
Asparagus	Mary Washington	Select tender stalks, avoid woodiness, scald, chill, pack stalks parallel, heads in alternate directions.	3-4 min.
Beans, Lima Bush Bush Bush Pole Pole	 Fordhook 242 Henderson Bush Thorogreen Sieva (small) Challenger (large)	Wash in pod, shell, chill and freeze only green tender beans without delay.	2½-3 min.
Beans, Shelled	Same as for snap beans and Taylor Horticultural	Wash in pod, shell, scald, chill, freeze.	2½-3 min.
Beans, Snap Bush Bush Bush Pole	 Wade Tendergreen Kinghorn Wax Blue Lake White Seeded Kentucky Wonder 191	Wash, snip, scald and chill only tender beans. Cut to desired length after chilling.	2 min.
Beans, Soy	Any good garden variety	Wash. Boil in pod 5 min. Chill, shell and pack.	Boil in pod 5 min.
Beets	Detroit Dark Red Early Wonder	Top and clean. Boil until cooked. Chill, peel, slice or dice or pack whole.	Cook in skins until done.
Broccoli	De Cicco Early Green Sprouting	Wash, inspect thoroughly for insects. Discard woody stem portions. Divide heads into ½-inch sections. Scald, chill, pack heads in alternate directions.	3 min.
Brussels Sprouts	Half Dwarf Improved	Wash thoroughly, scald, chill, and pack.	4-5½ min.

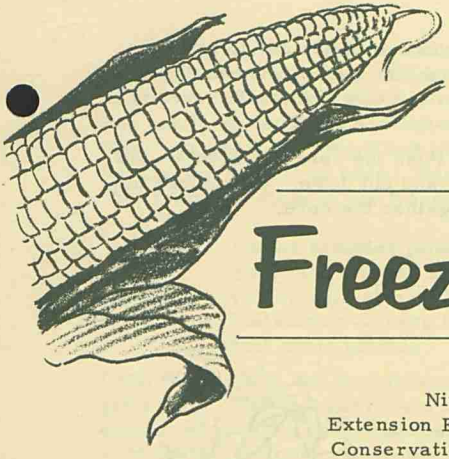
Vegetable	Varieties Recommended	Preparation	Scalding Instructions
Carrots	Imperator Danvers Half Long	Clean them, slice or dice ⅜ inch, scald, chill and pack.	3-4 min.
Cauliflower	Early Snowball "A" Super Snowball	Select only compact white heads. Wash thoroughly. Divide head ½-inch sections. Scald and chill.	3 min.
Corn	Seneca Chief	Whole kernel corn: Scald cleaned ears, chill thoroughly in cold water, cut and pack. Cream-style: Clean ears, cut off top kernels, scrape; heat to boiling, boil 4 min. Chill thoroughly by placing pan in running cold water, and stirring. Corn-on-cob: Clean, scald, chill 8-10 min.	6-8 min. depending on ear size.
Yellow	Golden Cross Bantam		
Yellow			
Yellow	Golden Security		
White	Stowell's Evergreen Hybrid		6-8 min. depending on ear size.
Egg Plant	Florida Highbush	Wash, peel, cut in ⅓-inch slices. Scald, dip in citric acid solution, rinse, chill and pack.	4 min.
Greens Collards	Vates Georgia Improved Heading	Select tender leaves and stalks. Wash thoroughly. Cut if necessary. Scald and chill.	2 min.
Kale	Early Siberian Dwarf Green Scotch		
Mustard	Tendergreen Southern Giant Curled		
Spinach	Dark Green Bloomsdale		
Turnip	Purple-Top White Globe Seven Top		
Mixed Vegetables	Any varieties good together fresh are good frozen.	Wash, scald, chill, then combine various vegetables.	Scald separately, according to directions for each vegetable.

Vegetable	Varieties Recommended	Preparation	Scalding Instructions
Okra	Clemson Spineless Emerald Green Velvet	Wash only tender pods without breaking, scald, chill.	4 min.
Peas, English	Wando Thomas Laxton Laxton's Progress	Wash in pod, shell, scald tender juicy peas, chill.	2 min.
Peas, Field	Dixielee Brown Sugar Crowder Monarch Blackeye Texas Cream 40	Shell, scald, chill and pack.	2 min.
Pepper, Sweet	California Wonder Pimiento	Wash, halve or slice, scald, chill and pack.	2 min.
Pumpkin Winter Squash	Connecticut Field Kentucky Field Boston Marrow	Cook until soft by steaming or baking. Chill, mash and pack.	Cook before mashing.
Rhubarb	MacDonald or Local Variety	Wash stalks and cut into one-inch pieces. Scald, and pack; or pack without scalding and cover with 60% syrup or cook as sauce. Chill and pack.	1½ min.
Squash, Summer	Early Yellow Summer Crookneck Early Prolific Straightneck Zuccini (Green)	Use while skin is tender, wash, slice in ½-inch pieces. Scald and chill.	3 min.

Check these points:

A variety that freezes well
Just right to eat fresh
Worked fast
Scalded (blanched) right
Chilled quickly and thoroughly
Used good container
Into freezer (at home or locker plant) soon after packaging
Frozen below 0°F
Stored at 0°F. or colder
Put to cook while frozen
Cooked 'til just tender

Result: The best vegetables in this whole, wide world!



3 Ways to Freeze Sweet Corn

Nita Orr
Extension Economist in Food
Conservation and Marketing

In Brief

Whole Kernel Corn:	Scald cleaned ears 6-8 minutes. Cool quickly in cold water. Cut kernels from the cob. Pack corn into containers. Close, label and freeze.
Corn on the Cob:	Scald cleaned ears 6-8 minutes. Cool quickly in cold water. Package, label and freeze.
Southern Style Cream Corn:	Cut off tips of cleaned ears. (Make another thin slice, if you like.) Scrape cob. Add enough water to keep corn from sticking. Bring to a boil and let boil 4 minutes. Chill quickly. Package and freeze.

In Detail

THE RIGHT KIND

Our research at North Carolina State College shows these varieties of corn are good for freezing: yellow - Seneca Chief, Ioana, Golden Cross Bantam; white - Stowell's Evergreen. There may be other varieties that freeze well.

If you freeze corn on the cob, try Seneca Chief. It has a small cob. Corn cobs take up storage space in your freezer and locker that you can use for food. If you like your corn on the cob, freeze it that way and enjoy your extravagance.

If you want good frozen corn, freezing it cannot wait for your convenience. Freeze corn when it is right to eat today. In our southern climate corn stays in its prime a short time. Watch it. Freeze it while it is tender and sweet.

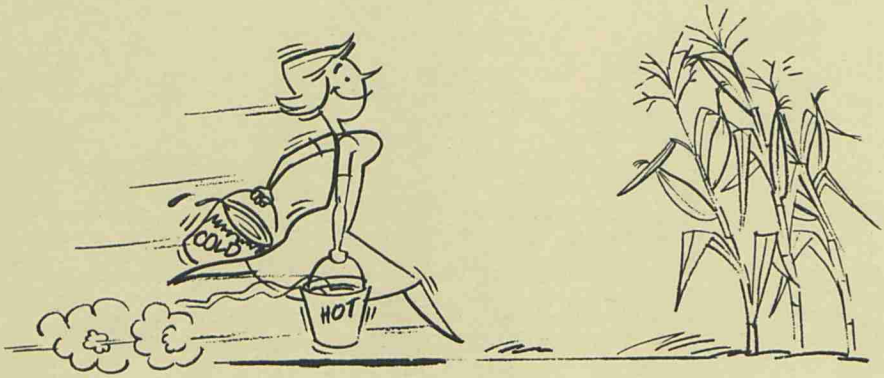
GET READY

Get your sharp knife, a brush (if you like to use one to silk the corn), all of the pans and dishes that you need. I like to use a large platter for cutting corn. You can take a three or four-inch square of wood (without odor) about an inch thick.

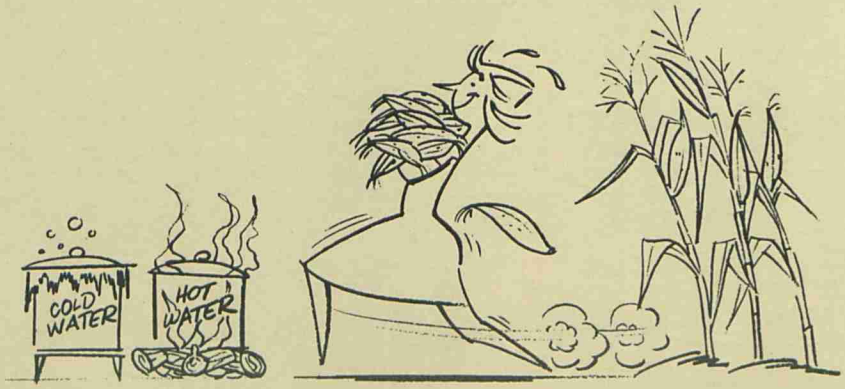
Drive a slender nail through the center of it. Push the corn cob down on the nail. Then you can easily hold the ear upright and cut down. Or you can buy a corn cutter. Have everything ready. Then gather the corn.

CATCH THE FRESHNESS

Since you cannot very well do this:



early in the morning, do this:



PREPARE

Husk, silk and wash it. Work with small amounts at a time; work quickly. Sweet young corn loses its delicate goodness fast. Get help. Neighbors are usually glad to trade time with you. One can husk, silk and wash the corn while one scalds and chills. Another can package. Work out job divisions according to the number working and the amount of corn. Have help even for a small amount to get the corn from the stalk to the freezer faster.

SCALD AND CHILL

Do the scalding (blanching) job right. Use a gallon of boiling water for a pound of corn (about 3 small ears - number of ears varies with size). Begin counting time as soon as the water boils again---keep high heat under the kettle so the water will boil again quickly.

Chill thoroughly, but do not leave the corn in the cold water long enough to get soggy. The more icy-cold water you use to the amount of corn, the quicker the chill. Corn can fool you easily. It may feel cool while there is still heat in the cob. Move the corn around in the water to cool it faster.

Don't get it into your head that unscalded (unblanched) corn is good. Do the job right and you will have delicious corn. Locker plant employees still say some folks bring in packages of corn warm to the touch. If your corn stays warm from the time you package it until it gets to the locker plant, chances are you won't like it. It may even spoil.

We still find frozen corn with "funny" flavors because it has not been scalded (blanched) right... or not at all (or not chilled quickly).

Cream corn is tricky to chill, as is corn on the cob. Put the pan (or change to cold pan - use scraper to save every bit of it) into icy water. Stir corn while cooling.

PACKAGE

For whole kernel and cream corn: put it in any good frozen food vegetable container. Leave some space at the top for the corn to swell when it freezes. Use your own gumption about how much space to leave. The more moisture the corn has in it the more it swells. So leave a little more space for cream corn than for whole kernel, which needs very little. Leave less space in a wide flat container than in a long slender one (like a #2 tin can).

For corn on the cob: (1) wrap separately in freezing foil or film or other pliable frozen food packaging material, or (2) put several ears together in a frozen food bag and press out as much air as you can. (3) If ears are the same size you can put them together and wrap them as if they were meat. Since you thaw corn on the cob before you heat it to eat, it is better not to package many ears together.

FREEZE

Put in home freezer with air space around each package. After 24 hours stack the packages in the storage place in the freezer. If you take your corn to the freezer locker plant for freezing, put the packages in the refrigerator until ready to go to the plant. Be ready to go as soon as you have finished packaging.

Pack the chilled corn in a carton with crumpled newspapers around it. Then put the whole thing in a larger carton. Ask the locker plant man to put the corn in the freezer as soon as you get it to the plant.

Remember

These things pay off in good frozen corn:

(1) Get corn from the stalk to the freezer early in the morning - when it is just right to eat today.

(2) Work with small amounts - work quickly.

(3) Put it in the home freezer at the place the manufacturer says. Or get it to the locker plant freezer as soon as you can.

For Goodness sake do the job right and eat good, fresh tasting corn the year round. Put it in a good container; close it tight. Freeze colder than zero degrees F. and store at zero degrees F. or colder.

If you cannot follow all these instructions, do the best you can under your circumstances. If corn must stand between pulling from the stalk and freezing, keep it cool. If you buy corn to freeze, make arrangements ahead so that you can get it as soon as possible after it is gathered.

A N.C. STATE COLLEGE PUBLICATION

May, 1959

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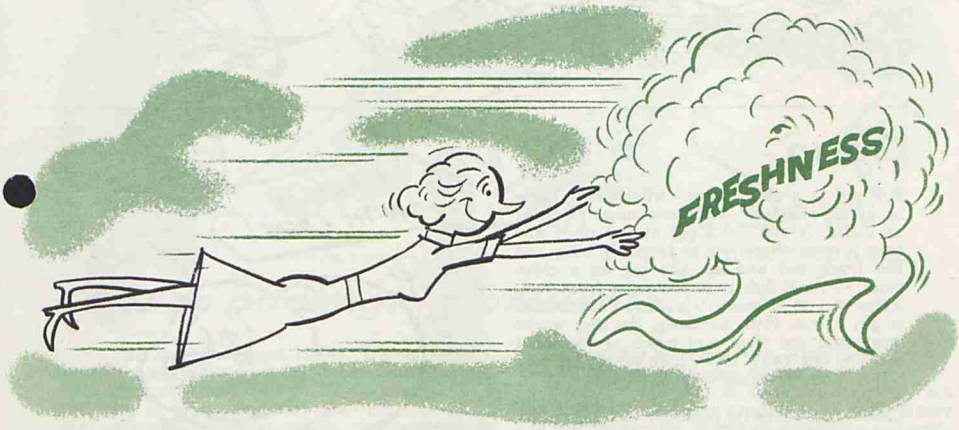
A N.C. STATE COLLEGE PUBLICATION

If you choose to eat

Good Frozen Pork...

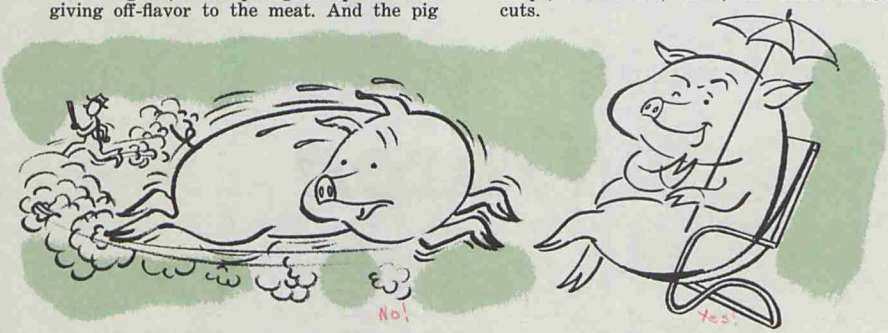


...catch the freshness and hold it!

You get good fresh flavor in a freshly killed pig. If you want to keep that fresh flavor in pork you eat from your freezer or locker months later, (1) keep your pig calm before you kill it; (2) kill it in a clean place; (3) keep meat well covered; and (4) keep it cold.

Calm

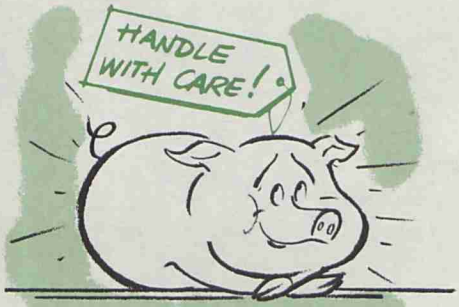
When a pig is startled, frightened, or excited, blood rushes out into the capillaries (blood vessels) and much of it is still there when the pig breathes its last. That means the pig does not bleed well, resulting in a fiery carcass which gives the fat a pinkish tinge. Since blood is a choice place in which bacteria grow, some spoilage is apt to occur giving off-flavor to the meat. And the pig uses up some body substance that is needed for good keeping qualities. So whether you slaughter at home or send your pig to a professional slaughterer (I vote for that), remember to keep it calm. And, too, if you hit the pig with sticks, poke it with poles, or kick it with your feet—you damage pork chops, tender loin, hams, and other choice cuts.



Clean

Kill pig in a clean place—whether at home or at an abattoir—and keep meat clean at all times. If you kill a pig at one place and take it somewhere else to freeze it, clean out the truck bed and lay the pig on a clean cloth. Cover it lightly to protect it from dust. After dirt is in meat it is almost impossible to get it out. With handling, the dirt works down into the meat and much of the meat must be cut away. Even then some dirt may be left and meat has been wasted.

Clean meat keeps its fresh flavor longer than dirty meat. And clean, well-handled meat holds up better through emergencies such as power or freezer failure.



Cold

Chill the pig carcass immediately. The temperature of the pig just after slaughter is 100°F. Under ideal conditions this temperature can be lowered 60 degrees in 12 hours. Actually, it is likely to take longer, but the chilling operation should start immediately and be completed as quickly as possible. Cut, package, and freeze the pork when the inside of the thickest part is chilled to 38°-40°F.

If the fat starts to break down before the pork is frozen, the flavor changes. It continues to change and soon becomes poor. You can't hold the fresh flavor of the pork unless you catch it first. After the pork has a stale taste, there is no way to bring the fresh, sweet flavor back. It

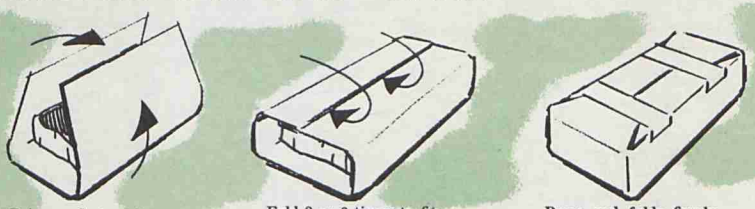
FROM KILLING (never more than 48 hours) to FREEZING

merely gets staler—sometimes to the point of being rancid.

Freeze pork below 0°F. and store it at 0°F. or colder. As soon as the pig is killed, chill it. As soon as it is chilled, freeze it. When meat is frozen keep it at 0°F. or colder.

Covered

A good "cover" or packaging material around your frozen pork helps the pork keep its good, fresh flavor. You must have the right kind of material, put it on right, and keep the frozen pork covered properly until ready to use.



Bring ends together

Fold 2 or 3 times to fit snugly around food

Press end folds firmly under package and seal

Proper packaging prevents...

. . . drying (sometimes called "freezer burn") which causes pork to be dry, tough, and stringy. This happens when moisture leaves the pork. In the form of vapor, moisture goes right through the packaging material unless the material is highly moisture-vapor resistant. This is one reason why ordinary fresh-meat paper and so-called "freezer papers" are not good to use for frozen pork.

. . . oxidation of fat. When the air gets to the pork the oxygen in the air causes the pork to have an old, stale flavor. So the material must be such that air will not go through. Put it on with tight closures. It must fit snugly around the pork.

. . . transfer of odors from other foods or conditions that may develop during emergencies.

Aluminum foil that is made for freezing (not the household foil) is excellent for pork. There are good laminated sheets of packaging materials for pork on the market.

In most cases, the "drugstore" or "freezer" wrap is the best to use. Use just enough material to make neat substantial closures. Close the closures. That is, leave no open ends of packaging material. Turn them under or tape over them. Handle with respect. Just because a piece of frozen pork is as hard as a rock is no reason to pitch it around. Avoid scuffing, tearing, or puncturing the package.

Keep moisture or moisture-vapor in and air out by proper packaging and materials.

Questions we get

Q. How long will frozen pork keep good?

A. That depends on all the factors involved in the four C's—Calm, Clean, Covered, Cold. It takes almost a miracle to have everything perfect. If so, pork will keep good probably a year. Under average conditions pork loses its fresh flavor from 4 to 6 months, with ground pork breaking down sooner. No salted pork will keep good as long as fresh pork will when frozen.

Q. Is frozen sausage ever good?

A. Yes. Use extreme cleanliness in handling sausage and extra care in keeping it cool. Also use the best packaging materials, put them on right, and keep temperatures constant. Often the fat in sausage meat has started to break down before the sausage is frozen. Then there is no way to keep it from getting a stale flavor.

Q. Is it all right to buy pork roasts and chops at a grocery store and freeze them?

A. The source of your supply of pork does not matter if the pork is **fresh** and has been handled right.

Q. Can sausage be cooked before it is frozen?

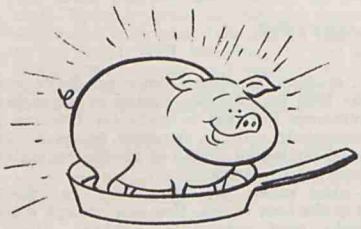
A. Yes. Here is one good way: Press into a cornered pan the amount of sausage you need for one meal. Cook in the oven slowly (pour fat off as it accumulates). Cook until sausage is done through but not as brown as you want to serve. Chill it quickly. One good way: Put a piece of foil on a layer of ice cubes in a tray. Put the uncut sausage on the foil. Cool on one side then turn. After sausage is chilled through, package, label and freeze it. When ready to serve, heat in oven until thawed and as brown as you like it. Cut into servings.

Q. Why aren't there directions for freezing backbone and spareribs?

A. Both of these are packaging and space problems. Some people do freeze them anyway. It is hard to wrap backbone snugly enough to get the air out of the package. It takes on a stale flavor soon. Bones puncture packaging material easily. It is a spacewise extravagence, too.

Solve the puzzle

. . . and you will have the secret to frozen pork as *fresh as life*

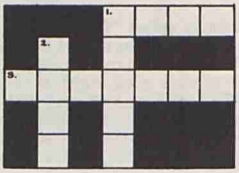


Across

1. Kill a ____pig.
3. This means packaged.

Down

1. Freeze only _____pork.
2. Get the carcass _____ quickly and keep the pork - - - - er until ready to eat.



Prepared by Nita Orr, *Extension Economist*, Food Conservation & Marketing

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April, 1961 Misc. Pamphlet No. 207


HOLIDAYS
PICNIC
DAYS
LOOK,
COOK,
FREEZE
AHEAD!

Prepared by

Nita Orr, Extension Economist in Food Conservation and Marketing

Published by

THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

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June, 1960 Miscellaneous Pamphlet No. 198

ADVANCED MEAL PLANNING AND PREPARATION may pay off for you as advanced sales planning and preparation does for the business man. He gets his returns in money and in smooth business operation. Yours may cost you money, but your pay-off will be in convenience and in smooth household operation.

When you LOOK, COOK, FREEZE AHEAD you are doing meal planning and preparation in advance.

LOOK AHEAD TO	Club Days	Busy Days
	Sundays	Holidays
	Vacation Days	Picnic Days
	Party Days	Hospital Days
	Lazy Days	Special Diet Days
	Going-away Days	Guest Days

If you do not know how to plan meals and cook, learn before you try to use this freezing information.

SOUP

Most soups freeze well. Prepare very thick soup (add other liquid when you heat it to eat). Dried bean soup and split-pea soup are especially good frozen. Vegetable-meat soups freeze well, as do all the broths. Pieces of potato are not as good as in fresh soup (though this may depend on how fast you cook and get the soup into the freezer and how fast you thaw it). Mashed potatoes are good to use for thickening if you want a soup with body. Garlic tends to become a bit stronger when frozen and

stored for any length of time. This famous soup is an **example** of a good freezing one:

U. S. Senate Soup

Wash 1 pound white beans. Soak overnight in cold water to cover. Put the beans in a soup kettle with a ham bone that still has some meat on it and 2½ quarts water. Include any water left from soaking. Bring the water to a boil and simmer for about 2 hours, or until the beans are half-cooked. Stir in 1 cup cooked mashed potatoes. Add 3 onions, 1 small bunch of celery (include the tops), 2 cloves garlic all finely chopped, and ¼ cup chopped parsley. Simmer the soup for 1 hour longer. Remove the ham bone. Dice the meat. Return the meat to the soup.

Cool soup as quickly as possible. If you use metal containers, put soup in them hot and put containers in cold water to cool. Cool soup first for other containers. Put in freezer immediately.

When ready to be used, put the container under cool running water until the block of frozen soup will slip out. (If you use a rigid plastic container let it stand a few minutes before you put it under the water or it may crack. If it should, use the soup anyway. The plastic does not shatter.) Add the amount of liquid desired to the soup and heat and eat.

BREAD

Though some frozen doughs are satisfactory for short storage, you will be surer of good quality if you freeze baked bread—either ready to serve or ready to brown and serve—both yeast breads and quick breads.

Package frozen bread in moisture-vapor-resistant material. (Waxed paper wrap of store-bought loaves is for bread for immediate use—not for freezing.)

Freeze any bread (loaves, rolls, biscuits) as rapidly as possible and just as soon as you can get it cooled after it leaves the oven. Freezing time affects crumb firmness. Freeze bought bread if you like, but if you freeze old bread you will eat old bread. Thawed bread will not "firm up" (age) faster than unfrozen bread if you freeze it right and thaw it right. For cold bread, thaw quickly in the package. For hot bread, put in oven while still frozen.

Semi-sweet bread is one of the most satisfactory baked products to freeze. There are many delicious kinds: banana bread, prune-nut, date-nut, apricot, cranberry, olive and others. The orange-honey-nut bread in the recipe below is especially good. Described as, "It bites right back at you," this bread, along with other semi-sweet ones, can be a part of your advanced planning for parties, picnics, teas, snacks, luncheons and unannounced

guests. It depends on how thin you slice this type of bread whether it's party or everyday family fare.

Orange-Honey-Nut Bread

Peel 3 medium oranges in narrow strips and simmer the peel slowly in 2 cups water for 25 to 30 minutes, or until tender. There should be just ¼ cup liquid left. Add 1 cup honey, bring to boil, and cook until the syrup is thick.

Sift together into a mixing bowl 2¾ cups whole-wheat flour, 4 teaspoons baking powder, and ¾ teaspoon salt. Add 1 cup cold milk and the warm orange strips and syrup gradually to the sifted dry ingredients and beat well. Stir in ½ cup chopped nuts, dredged in a little flour. Turn the batter into 1 large or 2 small buttered loaf pans. With a pan scraper or spatula make a "furrow" down the middle of the batter just before you put the pan in the oven. This causes the baked loaf to be flat—easy to wrap and stack in freezer. Bake in a moderate oven (325° F.) for about an hour, or until the bread tests done. Chill.

Use a good packaging material and the freezer wrap.

SANDWICHES

Make sandwich fillings of foods that freeze well. These include cheddar cheese, cream cheese, roast beef, peanut butter, prune mix, cooked egg yolk, pumpkin mix (orange juice, lemon juice), salmon, tuna, chicken, turkey, and any combination of foods that freeze well.

Avoid cooked egg whites, mayonnaise, tomatoes, anything you want crisp as celery, lettuce, carrots, onions, and cucumbers. (Cucumbers and onions may be minced and used in cream cheese for flavor.)

Spread bread with pasteurized butter or margerine. Use white, rye, whole-wheat or any other choice of bread.

Cut small party sandwiches in oblongs, triangles, diamonds or squares so they will pack tightly and have no air spaces between them. Pack them: (1) in shallow aluminum foil pans—not more than 2 layers deep—with 2 layers of waxed paper or 1 of silicone treated paper between the layers, cover the top of pan with foil and mold to the pan edge; or, (2) place cardboard under packaging material used for wrapping sandwiches, place in freezer, slip cardboard out. For use, let sandwiches thaw in the package before opening.

SWEET POTATOES

Sweet potatoes freeze well in a number of ways that are especially good for work-day meals: (1) Plain baked; (2) Mashed (use orange juice instead of milk): (3) Potato cakes

(or puffs or patties) made with the mashed potatoes, beaten egg and rolled in crisp bacon—or whatever you like; (4) Candied sweet potatoes; (5) Sweet potatoes in a ham-pineapple-potato casserole; (6) Grated sweet potato pudding; (7) Sliced sweet potato pie. Any of your favorite recipes of these dishes is likely to be satisfactory.

IRISH POTATOES

French fries have long been a frozen favorite. Most of them are not as good as freshly fried ones, but they are convenient.

Care of the potato (this is a story in itself) before it is fried makes a great deal of difference in its quality and its length of storage life.

Except for restaurant use, French fries are usually cooked done, cooled and frozen, and then heated to serve. You can par-fry as some restaurants do if you like. Par-fry ⅜ inch potato strips at 360° F. for 4 minutes or until the potatoes are an opaque white. USDA researchers found that if newly harvested potatoes are par-fried, they can be held in freezer storage at 0° F. up to 9 months and be as tasty and tender as freshly prepared French fries. The finishing off should be done in 375° F. oil until the potatoes are golden brown for the best results. But for a slight decrease in tenderness and less uniformity of browning, frozen par-fries heated in 500° F. for 10 minutes, or in a broiler at 500° F. for 5 minutes, compare favorably with those browned in deep fat.

Mashed Irish potatoes are satisfactory frozen if high quality potatoes are used. Freeze them as stuffed potatoes in their own jackets or in an aluminum foil pan in which they can be reheated.

TURKEY

Take turkey out of the holiday and "company" class and feed it to your family often. It lends itself to many different interesting and good ways of preparation. (We grow some of the Nation's nicest turkeys in North Carolina.) Turkey has low fat content in relation to total meat.

Boned turkey—you can store 3 boned turkeys in the place it takes for one unboned. With a **sharp** boning knife, 2 deft hands, **and** a "want to do it" attitude you can (with a little practice) bone a turkey in 30 minutes or less. You may need more detailed instructions, but this is one way it's done: Make incision down center back. Peel off the skin in one piece. Pull large tendons from legs. Split thighs and drumsticks on the thinnest side. Work knife around bones and take bone out of the meat. Strip meat off breastbone. Cut away any small pieces of meat from carcass. Spread skin out flat; arrange meat on skin any way you

like—white meat in center with dark around it, or mixed, or white and dark meat rolled separately. If you like, sprinkle monosodium glutemate (sold under the trade names of Accent, Zest and others) into meat as it is rolled. Tie the roll as you would a rolled beef roast. Insert roast meat thermometer into center of roll. Set oven on 300° F. Roast until thermometer in roll registers 190° F. Remove from oven. Cool as quickly as possible, package in heavy aluminum foil (or other good material), and freeze. (If the roll is larger than you wish to freeze in one package, cut with sharp knife into sizes desired. This will speed the cooling.) Thaw in the refrigerator in the package—the time, of course, depends on the size roll. Slice with sharp knife and serve cold or heat in the package (if it's foil) in oven, or heat slices in butter or turkey gravy. Handle carefully so as not to break the slices.

Serve thin cold slices of rolled breast of turkey on a party or tea plate and watch the reaction.

There is **no** waste when you bone turkey. Stew the wings and package in broth to use with rice. Stew the carcass with the heart, neck, gizzard (and wing tips if you prefer). You may want to package the liver raw for broiling. Freeze the broth, marrow and bits of meat for various uses. Don't waste anything.

Keep in mind when planning the use of these frozen turkey products that frozen cooked turkey fat does not keep very long without developing an old flavor. Except that frozen cooked chicken fat does not break down as quickly as the frozen cooked turkey fat does, this information applies to any large birds.

Plain roasted or stewed turkey has many uses. (An entire bulletin could be written on turkey freezing. Maybe we will do one someday.)

CHICKEN

You can use plain stewed chicken frozen in broth or roasted or stewed chicken, boned and packaged tightly in foil or other good material for such things as chicken salad, pie, creamed chicken, hash . . .

If all factors are favorable—good chicken to begin with, handled properly, packaged right, frozen below 0° and held at 0° F. or colder and used soon after it thaws—cooked chicken is good up to 6 months storage.

Tests show that halved fryers dredged in flour and fried in deep fat for 1 minute—just long enough for the dredge to fix—can be stored at 0° F. in good condition for longer periods than the completely fried or steamed chicken. Cooking speeds up a flavor change in the meat over several months storage, USDA says.

Get any cooked chicken into the freezer as soon as you can cool it. That helps prevent flavor changes during storage.

MEAT

Roast beef (preferably without bone) to desired doneness. Cut in meal size pieces. Chill as quickly as you can. Package so there are no air spaces. Thaw in the package. Serve either hot or cold. If the meat is packaged in foil you can heat it right in the foil.

If you want to freeze individual servings, slice and cover with gravy. This is the general principle of freezing any roast meat. When you exclude the air with gravy it prevents that "warmed over" or "steam table" flavor that often develops in frozen cooked foods.

Steaks—In general, it is more satisfactory to cook steaks from the raw state. If you like charcoal steaks and it is not convenient to charcoal broil every time you want them, put your steaks over charcoal and partly cook them. Give them time to get the charcoal flavor. Remove from broiler. Cool quickly, package and freeze. Thaw in the package or finish cooking from frozen state. These steaks do not "drip" when thawing. As with raw steaks, if you want to separate them while they are frozen, package them with two pieces of waxed paper or packaging material between each steak, or one piece of special silicone paper made for the purpose.

Stews, as Brunswick, that take a long time to cook lend themselves well to freezing. Chill as quickly as possible and put in containers or chill in the container if you use metal ones.

Patties—Make 3½- to 4-ounce ground beef patties 1 inch thick and charcoal broil the same way as steaks. (Mold them in squares or oblong "sticks" so you can package them properly.) Cool quickly.

Cook pork sausage done but not brown. Cool quickly. Try this: Take a pound (or more if your pan is big enough) of sausage and pat it out the thickness you want it in one big patty. Use a cornered pan if you have a suitable one. If not, square up the sides of the sausage. Cook it at a moderate temperature in the oven until it is done, but not brown. Cut it in squares. It is easy to package this way without having air spaces in the packaging. **Or**, you can package it in a slab the size for a meal and cut it when you reheat it. **Or** cook it as brown as you want to eat it and put it between brown-and-serve square biscuits.

Beef, pork, lamb, chicken, and turkey all make good meat balls and "burgers". But, handle any ground meat with utmost care to keep the bacterial count low.

These patties or meat balls covered with sauce (mushroom

for example) or gravy make a wholesome dish for a family meal. Use any good recipe you like but avoid the addition of foods that do not freeze well. Meat-stuffed peppers are good.

Ham baked to a turn the way you like it can be stretched out over several weeks rather than ham at meals one following the other. This is nicer if you bone the ham. You can do that either before or after baking. (If you do not know how, we can get you the information.) Cool it, cut into meal size portions and package. Any small bits may be packaged, covered with the juices baked out of the ham and used in various ways.

PUMPKIN

Wash that big yellow cornfield pumpkin; cut it in strips easy size to peel. Peel and cut in small pieces. Add one cup of sorghum to each gallon of raw pumpkin. Put in kettle with little or no water. (Start it to cook slowly and stir it so it won't burn.) Cook to the consistency you like. Chill. Put in frozen food containers. Place in your freezer the way your freezer book says, or take to the locker plant for freezing to be stored in your locker there or to take back home for storage.

Later thaw the pumpkin in its container in the refrigerator or on the kitchen table. Grease a skillet, dump the pumpkin in it, heat it thoroughly or cook it "down" more if you like. Eat it for breakfast with sausage or crisp bacon, for lunch or dinner as another vegetable.

Add some lemon and orange juice and nuts to the thawed pumpkin and make good sandwich filling for whole-wheat-bread or white bread. This kind of filling and spiced pies are "doctored" pumpkin—so flavored up that you don't know what you are eating. That's all right, but don't miss the plain sorghum-cooked-frozen pumpkin good for breakfast, dinner or supper.

BAKED BEANS

Frozen beans baked in tomato sauce (and other recipes) make good eating when reheated—if your family can eat that type food. For work days, baked beans, corn bread squares, slaw (or use crisp cabbage wedges with lemon juice and salt to save time), and milk make a wholesome lunch. The corn bread can be frozen and then heated in the oven with the beans (though frozen corn bread is not as good as freshly baked!). You can freeze the beans in a shallow aluminum foil pan in which you can heat them.

VEGETABLES

Other than the ones mentioned here, vegetables are better blanched (scalded) and frozen rather than cooked and frozen. When we get the right handling techniques and facilities to keep

their best flavor, color, texture and food value, vegetables will be approved.

GRAVIES AND SAUCES

For meat pies, stews, sliced roast and other uses gravies tend to separate unless you use a special waxy rice flour to thicken it. These sauces and gravies are important because they increase the flavor stability of many frozen cooked foods. Waxy rice flour is not easy to come by in most places. Sauces and gravies made with other thickening agents tend to separate. This is not serious. You may not object to it.

COOKIES

All kinds freeze well. Some doughs do not, so it's surest to freeze the baked cooky unless you know that your recipe freezes well in dough form. If you freeze cooky dough, form it into a square "roll" for ease in wrapping and stacking in the freezer. Most of the cooky doughs that freeze best will keep in the refrigerator for days. (So why use freezer space?) Dropped cookies are more of a packaging problem than those rolled out and cut in squares, bars, diamonds or triangles.

CAKES

Of the cakes, fruit cakes freeze best. As with all others, bake them in cornered pans for ease of wrapping, stacking, and good use of freezer space. Thaw in package. It takes about 2 hours at room temperature to thaw a 2-pound fruit cake.

Pound cakes (any kind of plain cake) and sponge cakes freeze well and lend themselves to the making of many kinds of tasty desserts. They may well be a staple in the freezer to be turned into hearty meal desserts or dainty party refreshments on short notice.

Fillings and icings for cakes freeze with varying success. "The richer they are, the better they freeze" is a slogan we generally accept for them. Seven-minute frosting changes texture and becomes spongy or frothy, but some people do not object to this change. The fudge type icings freeze well. If you want freshly iced cakes to serve, freeze the layers, separate them with 2 pieces of waxed paper or 1 piece of silicone paper. Thaw in the package and put together with your freshly made filling.

PIES

Fruit—on impulse, I would like to say "don't". We have a wonderful, easy way to keep the "bouquet" of fresh fruit on our

tables for 365 days in every year. So why destroy it by cooking? (Except perhaps for apple pie.)

If you insist on making the traditional fruit pies, treat the fruit as for freezing otherwise. For example, use ascorbic acid in peaches and freeze the pies before baking. Use "cornered" aluminum foil pans and cover with foil crimped around the edge of the pan, if it has an edge. If not, wrap the pan. Take pie from freezer, remove foil or wrap, pop pie into hot oven (425° F.), and cook until crust is brown and the inside is bubbling. We think they are good because we grew up on them, but my vote goes to the frozen fresh fruit.

Meat pies—chicken, beef, pork, lamb, turkey, chicken and tuna pies are popular. There is reason to believe it is better to freeze the cooked meat and make the pies fresh. That eliminates the desired goal of having them ready to heat and eat. If you want that, do this: Cook the meat and remove the stock. To 4 cups stock use ⅓ cupful of flour made into a smooth paste with cold water. Boil the mixture for about 2 minutes, stirring constantly. Pour the gravy over the meat in container in which it will be frozen (individual or family size).

Cool this as quickly as possible. (You may be able to do a better cooling job before combining meat and gravy.) Cover with pastry, package and freeze. Place frozen pie in 350° to 375° F. oven and bake until crust is brown and meat is hot.

You may want to season the gravy with celery salt, minced onion, and other seasoning. Be sure to put enough meat (3½ to 4 ounces) in each individual pie for a serving.

Other pies—pecan pies freeze satisfactorily. Bake before freezing then heat for serving. Mince meat pies are wonderful (freeze before baking). Sweet potato and pumpkin pies freeze well. (Omit cloves if storing more than a few days—some cloves become strong in storage.)

PASTRY

Pastry is one of the few things that improves with freezing, though flaky pastry crusts cannot be frozen in the baked form and still retain their delicate texture. The delicate nature and subtle flavor of pastry products need expert handling to get the best results. It is better to freeze pastry in the raw stage.

BABY FOODS

Just a mention here, but the littlest one can have a corner in the freezer, too. You can freeze pureed food for baby satisfactorily. Use a package in which you can cool, freeze, and reheat the food. Could be small aluminum foil pans or boil-in-to-bag pouches.

SPECIAL DIETS

If you are on a special diet, how are you going to get the special diet **habit** and make it stick?

This will help: Freeze 10 days' supply of food in meal-size packages. On each package add the name of any fresh foods to be eaten with that meal. For example, if slaw is a part of Monday's lunch, write "add slaw" on Monday's lunch package.

Label each meal, or part of meal if that's what it is, with the exact date it is to be eaten. When frozen, store all the special diet packages in one corner or basket in the freezer. (You know how easily things get lost in a freezer!)

Some foods you can cook and freeze, others prepare ready to cook. Some frozen foods may only need to be reassembled. Each individual diet may require different handling and management, *but* the idea is to have 10-days' supply ready. Then *think* and *talk* about something else other than your special diet. I know from experience that this is a big help, even though it takes a bit of doing to get the food for a special diet lined up for 10 days at a time. On the seventh day start getting ready for the next 10 days' supply.

Remember, it's never rude to refuse food your body should not have. If your "will is strong, but your won't is weak" when forbidden food is in your reach you have a job of discipline (self) to do. Some of the new cook-in-the-bag pouches are fine for the special dieter to use for individual servings.

It helps to have your special diet "handy." Try it.

SPOON MEALS

One commercial packer puts out what he calls a spoon meal (not distributed in this area) featuring several different menus. He packs the dessert in the bottom, then the main food, and on top of that the appetizer. Take the container out of the freezer, add a spoon and go on your way to wherever your work or play takes you. When time to eat, dig in and eat from top to bottom. The packer uses a layer of a tasteless, though edible, food product between each layer. You might use aluminum foil or other material and discard it as you come to it. If you want to have a little fun start with a serving of sweet potato pudding. On that put seasoned chicken (maybe with hard cooked egg yolks) and top with tomato juice aspic. Do this at your own risk. I have not tried it, but the basic idea is sound and useful.

BREAKFAST

Breakfast can be a "heat and eat" affair, too, if you wish. Heat frozen waffles in the toaster; frozen cooked sausage and apple-

sauce (or pumpkin) in the oven or on top of the stove; add frozen tomato juice. Brown frozen cheese biscuits while the cheese melts, serve frozen ham biscuits heated and browned to a crusty texture. You can think up your own menus, but here is one for me: orange juice, turkey hash, waffles and frozen uncooked red raspberry jam.

Frozen breakfasts are on the market packed in individual servings in heat-in-the-bag pouches. If the pouches are available to you, you can make your own combinations of foods that freeze well and have breakfast ready ahead of time. Here's one especially good for those occasions when one member is getting up early to leave: Put a breakfast pouch in a kettle of boiling water for 5 minutes (the time depends on the food) and eat a nourishing breakfast with no bother and no cooking odors in "dressed up" clothes. This is a good time for pancakes, sausage and syrup.

TO THE INTERNATIONAL MINDED

If you like, convert some of the United Nations talking into eating. Many dishes made by foreign recipes freeze well and you can do a few at a time until you freeze enough for a complete meal for all the family. If you are in dead earnest about wanting to know more about other parts of the world, select one night a month when all the family can arrange to eat together. Serve a foreign meal from the freezer. Advanced planning as to the country selected each time can bring a challenging and interesting dinner hour which may speed on into bedtime—with each member "boning up" ahead of time on the strange way of life in some far-off place, a few words of the language or dress customs. Maybe you can have a dinner guest native to the country you are studying. One may live in your community. War brides all over the state would be happy to help you with *authentic* dishes from their native lands.

Frozen Mexican, Chinese, Italian and other foreign foods packed in America have found favor with the public. Since frozen Jewish foods were introduced more have been sold to non-Jewish people than to Jewish. Food is a great leveler. There are good foreign recipe books available.

SEASONINGS

Seasonings in frozen cooked foods are a bit tricky. You cannot believe everything you read about them, because you read contradictory statements. It's a fact, though, that all spices should be sterilized ones and of good quality.

Garlic, which is supposed to grow stronger in zero storage, gave me no trouble in bean soup stored up to 4 months. I quit using it because I did not want apartment-house-neighbor trou-

ble. Smelling up the neighbor's living quarters with garlic (mild or strong) is no way to keep good neighbor relations.

COOLING TIPS

Use any sanitary food-value-saving way you can devise to remove heat quickly from food you cook to freeze. Use large trays spread with ice cubes (if they have been in the freezer, they melt slower) and put a piece of moisture resistant packaging material over them. Then place the turkey roll cut into pieces on the packaging material, turning it from time to time. The same thing applies for the barbecued halves of chicken and for other non-runny foods.

PACKAGING

Effects of poor packaging can be seen and tasted in frozen cooked food as well as in frozen raw foods. Proper materials, well applied and taken care of, are essential. There is no way to cheat in packaging and get by with it. You can use any good frozen vegetable and fruit containers and frozen meat wrapping materials that seem suitable for the product. Square or oblong ("cornered") foil pans with cover are efficient and can go from the freezer directly to the oven.

The heat-in-the bag pouches that are made of good frozen food packaging material are fine for individual servings of many frozen cooked foods.

HOW LONG?

This is a frequent question about storage. We give a routine answer of "about 2 months for frozen cooked foods," but many products can actually be kept much longer. So many things affect storage time that nobody is able to give you an exact answer. All of these things affect storage time:

1. Quality of the food when it goes into the freezer.
2. How well it is packaged.
3. How fast the food freezes.
4. Whether or not it is stored at no higher than 0° F.

Quick turnover is best from two angles: (1) use of zero storage space, (2) good quality food. Keep your mind always on *temperature* (never above 0° F. for storage and freeze as much below that as possible). Freeze only the load recommended for your freezer at one time. Place packages in the freezer according to the book that comes with your freezer.

TAKE SPECIAL NOTE

Remember, you are working with food that can easily cause illness if you do not handle it right. When food poisoning is caused by food eaten in restaurants, the poor restaurant owner is a victim of big, much-talked-about headlines. When the food poisoning has originated in the family kitchen it is shrugged off as "something I ate disagreed with me." If your frozen cooked foods are to be wholesome, stable, nutritious and flavorful you must control micro-organisms while you handle, freeze, store, thaw and cook the foods.

Keep human hands off (and out of!) the food as much as you can. Scrub your hands thoroughly the way a surgeon does before he does surgery. And use clean knives, forks, or tongs to handle the food as much as you can. Work with the food quickly, both before and after freezing. (This leaves out the idea of freezing left-overs—do something else with them.) Be as careful in working with your frozen cooked food as you are with preparing baby food. Do not work with food when you have a sore or cut on your hand.

Certain bacteria cause food poisoning symptoms by direct irritation of the digestive tract. Others produce toxins that are responsible for digestive upsets.

A FEW TIPS

Nearly all the cooked frozen foods you plan to eat hot are better if you freeze them slightly underdone and finish the cooking when the foods are heated to be eaten. For example, overcooked baked beans will be mushy.

Put only good raw materials into frozen cooked foods.

Keep frozen cooked foods moving. Except for a few staples like plain cake and bread, it is better to cook and freeze for specific occasions.

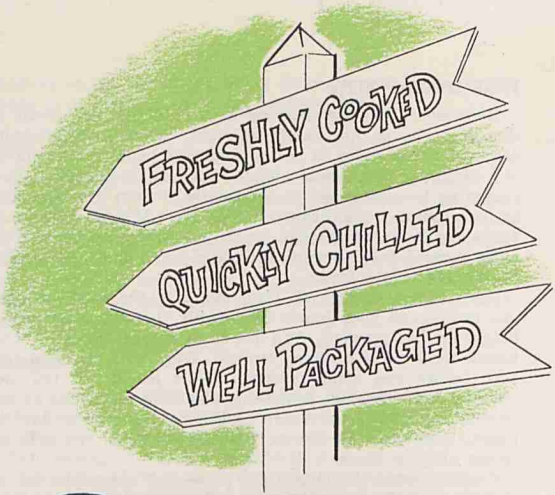
You can freeze the "makings" of a dish if that is convenient for you—such as bananas for banana bread, orange rind for seasoning, nuts for the cookies, fruit for the fruit cake.

For hot rolls and other hot breads, bake about three-fourths done. They have a more nearly "fresh from the oven" flavor if you finish baking them just before you serve them than if you fully bake them before freezing.

With raw and cooked foods, get air out of good containers and close them well.

The wholesomeness of cooked frozen foods depends on its bacterial count. Handle your food quickly and cleanly so the bacterial count will be low.

Remember, your freezer will not take heavy loads of unfrozen food. Read your book that came with your freezer. Place unfrozen food in the freezer where and how the book says.

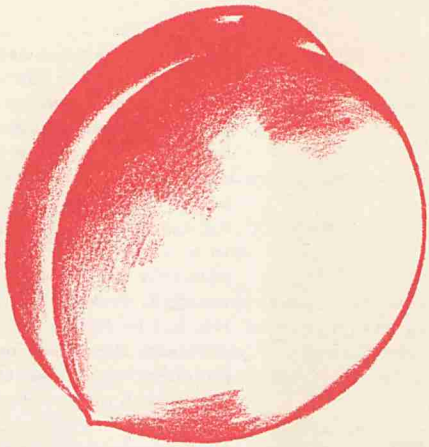


SIGN POSTS

. . . to good, safe frozen food:

Be sure your frozen cooked food is both safe and good—cook the food, chill it, package it right and freeze it. It's that simple. And remember to . . .

The Peach Freeze



Those full-of-flavor-and-full-of-freshness peaches that some folks take out of their freezers and lockers in the winter time don't "jis happen". They are the result of following certain rules. Poor frozen peaches may be better than no peaches, but I almost doubt it.

WHICH TO CHOOSE

Select those that are "born to be frozen". They include Dixie Gem, Red Haven, Hale Haven, Elberta, Georgia Belle, Goldeneast and Jubilee. You may have a favorite not mentioned here that you know freezes well.

WHERE TO GET THEM

Back yard peach trees are convenient, but these days it doesn't pay to have them. It seems best to go into peach growing as much as a five acre orchard or not at all. Most folks buy their peaches to freeze. It is best, of course, to buy direct from the orchard. Try to buy from folks who know how to handle peaches for freezing.

WHEN TO FREEZE THEM

Ripe is right. Do you know how to tell when a peach is ripe? That pretty blush on the cheeks of some of them has nothing to do with ripeness. A peach is ripe when its background color has lost all its greenish tinge. If you are not sure by looking and just have to touch, try this: take the whole peach into the palm of the hand and gently-- very gently mind you-- press the fingers around the fruit. Then you can tell. Or just eat one! Do not poke a peach with your thumb or one finger because that leaves bruised spots.

When peaches are left on the tree until they are fully grown they have the most and the best flavor. Those picked green never ripen. They shrivel and soften but are not fit for freezing. For the best freezing results, keep peaches on the tree 3 to 5 days past the shipping stage and 1 to 3 days past canning stage. Peaches that are picked firm-ripe (as they have to be if they are to be handled much or if they travel far) need to be spread out in a fairly cool place and let ripen more. If handled properly they are good frozen. They develop a mellow, or aged, flavor that is good (some folks actually prefer it), but is different from the freshness of the others. Although there are many factors in having good frozen peaches, ripeness is the most important single factor. For peach pulp, or puree, the fruit must be soft throughout.

HOW TO PREPARE THEM

How do you want to serve these peaches? Salads? Then freeze them in halves packed in syrup.

Slices and bite-size chunks have many uses. You can put more peaches into the container these ways than with halves.

Pulp, or puree, can be made from soft-ripe peaches and used in many ways. Have you eaten peach Velva Fruit?

PEELING

If peaches are ripe enough to freeze they are easy to peel, though peaches from healthy trees peel more readily than others. This ease of peeling does vary some in varieties. If peeling by hand is too slow for you, dip the peaches into boiling water for 30 seconds or so and dip immediately in cold water. Rub the skins off with your hands. If you let the peaches stay in boiling water too long, a cooked layer develops around the outside and you lose the fresh peach flavor.

DRY SUGAR OR SYRUP?

The same peaches packed in syrup will have more uniform shape than if they are packed in dry sugar. Dry sugar will give them more flavor since they will not be diluted with water. Unless peaches are juicy and slow to darken it's easier to have a good product with syrup rather than with dry sugar.

Sugar

Four parts by weight of fruit to 1 part by weight of sugar is generally used. You may prefer 5 to 1. (2/3 cup of sugar to a quart of prepared fruit).

Syrup

Here's an easy way to make a quart of syrup the concentration you want. Put the amounts of cool water and sugar given below in a quart glass jar. Mix until all sugar is dissolved (usually about 5 minutes).

For a 40% (light) syrup, use 2 cups sugar and 3 cups water.

For a 50% (medium) syrup, use 2 2/3 cups sugar and 2 2/3 cups water.

RETAIN NATURAL COLOR

Add a small amount of anti-browning agent to peaches when you add the sugar or syrup. It may be either pure powdered ascorbic or a commercial mixture of citric acid and ascorbic acid or a commercial mixture of ascorbic acid and sugar.

If you use pure powdered ascorbic acid, do this:
For syrup, dissolve 1 teaspoonful of ascorbic acid in 2 tablespoonsful of cool water; add to 1 quart of chilled syrup.

Stir in gently to keep air out. Use immediately.

For purees and juicy peaches packed without syrup:
Make a solution containing 1 teaspoonful of powdered ascorbic acid to 1/2 cup of water. Add 1 tablespoonful of solution to each pint of puree. Mix ascorbic acid and water as needed and use immediately.

If you use a commercial mixture follow the directions that are with it. You can buy either at most locker plants and some grocery stores.

PACKAGING

Pack peaches immediately after preparing. Label and freeze.

Ordinarily you need to leave 1/4 to 1/2 inch headspace for expansion when packaging peaches and peach purees. Too little headspace makes the container bulge, and too much causes discolored and dried out food at the top of the package. Experience will teach you about the amount of headspace to leave in different size and shape containers.

Be sure all containers are closed tightly. You can test bags by filling them with water before filling with peaches. Heat seal any leaky spots. And seal the tops well, or, if you use a gooseneck twist, fasten it tightly. Put the lid securely on rigid containers.

FREEZING If you freeze peaches in your home freezer remember "not too many at one time". Place them according to instructions from your freezer book. If you take them to the freezer locker plant, be ready to go as soon as you finish packaging. Keep peaches cool as possible until they are put in the plant's freezer.

THAWING Thaw in the unopened container in the refrigerator, on the kitchen table, or (if you forgot to take them out of the freezer until late) under running cool water or in a pan of cool water.

EATING Eat just as soon as thawed for peaches at their best. If they must wait, keep in the unopened container and keep cold. Bake pies if it takes pies to make your family happy-- but why not try real peach (the pastry-or-biscuit-kind) shortcake? After you have gone to the trouble to keep all the fresh goodness of these peaches it seems a shame to cook them.

REMEMBER:

There are frozen green peaches and there are frozen good peaches

BUT there are NO good frozen green peaches!

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● This is to be printed.

WHEN YOU FREEZE FRUIT

FOR THE HOME

CAPTURE AND KEEP ITS

BOUQUET

THIS IS HOW TO CAPTURE THE BOUQUET.

IF YOU RAISE FRUIT TO FREEZE: Let the fruit ripen on the vine (or tree or bush) then freeze freshly gathered fruit. In this way you capture the delicate bouquet (fragrance) of the fruit and enjoy its fresh flavor and near-full food value until vines, trees and bushes are laden with ripe fruit the next year. Raise good freezing varieties.

IF YOU BUY FRUIT TO FREEZE: If possible arrange for your fruit ahead of time and get it as fresh as you can. Peaches that are bought firm ripe can finish ripening and still be a good product, though different from those completely ripened on the tree. Spread them in a cool place to finish ripening. Try to determine the variety of fruit you buy. It is not easy to capture the bouquet of fruit unless you buy where the fruit is produced, though you can have an acceptable product with some well-handled shipped fruit.

IF YOU RAISE OR BUY: Handle fruit in a way that you will not bruise it. That means no thumb-pressing of peaches, no rough pouring of fruit from containers. It means that you pick berries in shallow containers and gently wash them quickly in icy cold water.

Get the fruit into good frozen food containers and into the freezer before its freshness is gone.

THIS IS HOW TO KEEP THE BOUQUET

THE KIND OF FRUIT TO FREEZE: All of our North Carolina fruits freeze well, but some varieties of some of them are better than others frozen. The fruits recommended on table (pages 5 and 6) freeze well. You may have a favorite that is not listed.

Freeze fruits when they are ripe - not under or over-ripe. There is no mingling of flavors in freezing as there is when fruit is cooked. A poorly flavored piece of fruit stays poorly flavored and a hard piece stays hard. Ripeness is one of the most important single factors in having good frozen fruit. Full ripe fruit is good flavored. Under-ripe fruit lacks flavor, color and volume. Over-ripe fruits such as blackberries, dewberries and peaches develop off flavor. They may taste bitter or earthy. Peaches may set up almond fermentation. Some soft fruit in good condition may be pulped, sweetened, treated for browning and frozen as a puree.

HOW TO PREPARE IT: Wash fruits. Be extra careful with those that have been sprayed. Think of the spray residue on the fruit as a friend turned enemy. Get rid of it when you wash the fruit. Wash strawberries before you cap them. This saves juice which saves flavor and fragrance. Wash all berries in cold water. With the exception of thick skinned berries as blueberries and cranberries, berries are extremely sensitive to handling - wash a few at a time under cold running water or a few at a time in a pan of water, lifting them gently from the water. Prepare according to way you want to use the fruit. For example - halve, slice or bite-size chunk peaches, slice strawberries. (Sliced strawberries with dry sugar retain more Vitamin C than whole ones in syrup). With the exception of blueberries and cranberries cover fruits with liquid. That may be the juice that dry sugar brings out of the fruit, sugar syrup, or extra squeezed juice sweetened and poured over the fruit.

Package and label. Put the name of the product and the date - also the fruit variety if you want to know it at eating time.

To Sweeten: Freezing brings out tartness of fruit. Sugar holds flavor and protects texture and vitamins. Dry sugar keeps more of the good fruit flavor than sugar syrup does. It is better to pack some fruits in syrup, even though syrup dilutes the flavor somewhat. For example, unless peaches are juicy, its easier to have a good product with syrup than dry sugar. And peach halves demand syrup.

The amount of sugar you use in fruit depends on variety of fruit, season, personal preference and other factors. The amounts given in this leaflet are generally used.

SUGAR: Fruit to sugar mixtures are termed 4 to 1. This means 4 parts by weight of fruit to 1 part by weight of granulated sugar. If this is too sweet for you, drop to 5 to 1. Less accurately, you can measure sugar according to instructions on back of this leaflet.

SUGAR SYRUP: To make syrup easily, put sugar and cool water in a fruit jar. Cap jar. Mix by inverting jar at intervals.

For a quart of 40% (light) syrup, use two cups sugar and three cups water.

For a quart of 50% (medium) syrup, use 2 2/3 cups sugar and 2 2/3 cups water.

TO HOLD NATURAL COLOR: Color is a part of the fruit freshness you want to catch and hold. Light colored fruits such as apples, peaches, light cherries and light figs need to be kept from turning brown. For this you use an anti-browning agent. You can buy pure powdered ascorbic acid (Vitamin C) and you can buy ascorbic and citric acid mixtures. For any mixtures, use directions on the package.

To use pure powdered ascorbic acid IN SYRUP: Dissolve 1 teaspoon of ascorbic acid in 2 tablespoons of cool water and add to one quart of chilled syrup. IN PUREES AND FRUIT WITH SUGAR: Make a solution of 1 teaspoon of ascorbic acid to 1/2 cup of water. Add 1 tablespoon of the solution to each pint of fruit. Mix well. Use ascorbic acid solution as soon as you mix it. Otherwise it loses strength.

HOW TO PACKAGE FRUIT: If you use plastic (polyethylene) bags, buy those no less than 1½ mil thickness. Be extremely careful to close them well. Press air out, twist top of bag, turn twist down and fasten with plastic covered wire or rubber band. It is a good practice to put bags in cardboard cartons before filling. They freeze in a more stackable shape (though not as quickly) and the cartons protect the bags from tearing. The freezing glass jar (well closed) protects food well, though it uses more space than some other containers do. A good grade of plastic carton is an acceptable container. One of the least expensive and good containers is the used tin can. There are polyethylene lids on the market that fit the different size cans.

Fill the container full enough so that when it expands it will not leave extra space at the top, nor too full so it will break the closure or the container. The amount of space you leave at the top (called headspace) depends upon the size and shape of the container and the amount of liquid in the fruit. You learn by experience how much space to allow. Remember that water expands ten per cent. Syrup does not expand that much, but where there is liquid there is some expansion.

HOW TO FREEZE FRUIT: When you close and label the packages place them in your freezer where and how your freezer book says. In general this will be: Put them in the coldest part of the freezer and leave space between each container. Let them stay for twenty-four hours.

Some freezers need to have the temperature turned lower a few hours before food is frozen. Freeze fruits at temperatures colder than 0° F. When you package good, ripe fruit with its "Bouquet", you can lock all that goodness in by the way you freeze it.

If you take your fruit to a freezer-locker plant to be frozen, plan so that you can get it there soon after you package it. Keep it cool until it is in their freezer.

HOW TO STORE FRUIT: When your fruit has been properly placed in the freezer for twenty-four hours, stack it in the storage part of the freezer. Be sure that your freezer holds a storage temperature of 0° F. or colder. USDA research shows that strawberries allowed to stay at +20° F. for one day lose as much quality as those that stay at 0° F. lose in 365 days. You can keep all the goodness locked in the fruit by the way you store it.

HOW TO THAW FRUIT: As with other foods, thaw fruit in its unopened package. It is best to thaw it in the refrigerator. It will thaw quicker on the kitchen table or under cool running water. There is a time when frozen fruits are at the "just right" stage to eat. If you eat them too cold you miss some flavor. If you hold them too long, some will be mushy. You have to learn by doing. Cherries hold up well after they thaw. The way most fruits hold up after thawing depends somewhat on the rate of freezing. The colder the freezing temperature the better, in general.

HOW TO USE FRUIT: You can freeze fruit for preserving and for pies and other cooked desserts. It seems wisest to use it fresh and enjoy the bouquet you have caught and kept. Enjoy it for breakfast, lunch, dinner and refreshments as fresh fruit.

You can freeze fruit puree for the baby or freeze it already pureed.

QUESTIONS WE GET:

1. Is it all right to freeze unwashed blueberries? It is better to have everything in the freezer clean and ready to eat. If the season is abundant with fruit and time is scarce, sometimes in the push of work things are done that are not the best practices. Certainly any fruit should be washed before you eat it. It is better to wash the fruit before it is frozen.

BRIEF INSTRUCTIONS FOR FREEZING FRUIT

FRUIT FRESH	FROZEN	VARIETIES RECOMMENDED	PREPARE FOR FRESH USE	PREPARE FOR COOKED USE
Apples 1 bu. (48 lb.) 1 box (44 lb.) 1¼ to 1½ lb.	 32 to 40 pt. 29 to 35 pt. 1 pt.	York Rome Beauty Red Winesap Limbertwig Stayman Blacktwig Grimes Golden Golden Delicious	Peel or not. Cover slices or bite-size chunks with 40% syrup. Use mixture of ascorbic-citric acid according to instructions on package.	Peel, slice, pack into containers. Cover with 50% syrup. Use anti-browning mixture in syrup according to directions on package.
Blackberries 1 crate (24 qt.) 1 1/3 to 1½ pt.	 32 to 36 pt. 1 pt.	Upright-Common Wild Eldorado Trailing-Carolina (Dew- Boysenberry berries) Young	Select only firm, ripe fruit, wash, package and cover with 40-50% syrup or crush the berries and mix with 3/4 cup of sugar to 1 quart of crushed berries.	Select only firm ripe fruit. Wash, drain, package without sugar or crush slightly and mix with sugar 4-1 by weight or 1 cup sugar to 1 quart berries.
Blueberries 1 flat (12 pts.)	 12	Eastern - Croatan Wolcott Murphy Scammell Angola Mountains-Berkley Blue Crop Coville Jersey Stanley Weymouth Common Wild	Wash. Package. Cover with 40-50% syrup. Or pack unsweetened.	Wash, drain, crush slightly and mix with sugar 4-1 or 5-1 by weight or 1 to 1 1/8 cups sugar per quart of berries.
Cherries 1 bu. (56 lb.) 1¼ to 1½ lb.	 36 to 44 pt. 1 pt.	Sour-Early Richmond Montmorency	Wash, pit or not as desired, package and cover with 40-50% syrup. Add ascorbic acid.	Wash, pit, mix with sugar 4-1 or 3/4 cup sugar to 1 quart of cherries.

FRUIT FRESH	FRUIT FROZEN	VARIETIES RECOMMENDED	PREPARE FOR FRESH USE	PREPARE FOR COOKED USE
Figs		Brown Turkey Celeste	Peel or not, slice or not as desired. Package, cover with 40% syrup or dry sugar 2/3 cup to 1 quart figs. Mix well.	
Peaches 1 bu. (48 lb.) 1 lug box (20 lb.) 1 to 1½ lb.	 32 to 48 pt. 13 to 20 pt. 1 pt.	Dixigem Coronet Red Haven Georgia Belle Triogem Sun High Elberta Red Skin Hale Shippers Late Red	Select uniformly ripe fruit. Peel. Cut into halves, slices or bite-size chunks. Package. Cover with 40-50% syrup or mix with 2/3 cup sugar with each quart of fruit. Add ascorbic acid or other anti-browning agents.	
Persimmons		Native (wild) Oriental	Sort, wash, mash through sieve with or without skins. Pack with sugar 5-1 by weight or unsweetened.	Same as for fresh. use.
Raspberries 1 crate (24 pt.) 1 pt.	 24 pt. 1 pt.	Black-Cumberland Bristol Logan Manteo Red - Mandarin Latham September	Select firm, ripe berries, wash, drain. Carefully mix with powdered or granulated sugar 4-1 by weight or 3/4 cup sugar to 1 quart berries or cover with 40% syrup.	
Strawberries 1 crate (24 qt.) 2/3 qt.	 38 pt. 1 pt.	Albritton Dixiland Tennessee Beauty	Select firm ripe fruit. Wash in ice water, cap, rinse, drain, cut or crush and mix with sugar 4-1 by weight or 3/4 cup sugar to 1 quart berries. For whole berries freeze in 40-50% syrup.	(Please don't!)

2. Do bananas freeze well? Not particularly well, but very conveniently! Use them in banana bread, gelatin desserts, sauce over (or in) ice cream or cake or otherwise. Bananas must be good and ripe (but not over-ripe) or they will develop a bitter flavor. Mash bananas (mix with orange and lemon juice if you like the flavors) add ascorbic acid. You can slice bananas and pack in light sugar syrup. Add ascorbic acid.

3. How do you freeze grapes? Bunch grapes: Wash, remove from stems, pack in container. Skins protect grapes somewhat, but you may have a better product to cover the grapes with light sugar syrup. Muscadines: Freeze the same way. Pack tightly and you need no syrup. Another way: Separate muscadine hull from pulp and juice. Cook hulls until tender. Cool. Add to juice and seeded pulp. Sweeten. Pack and freeze. Delicious.

4. Can you freeze fruit juices at home? Yes. It is best to let industry freeze most juices: They have ways to remove water and save space. If you have a plentiful supply of grapes, though, and can manage the freezer or locker space, freeze some juice. Its freshness will delight you.

Prepared by Nita Orr, Extension Economist in Food Conservation and Marketing.
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THREE WAYS TO FREEZE SWEET POTATOES

Here are three ways to keep these beautifully colored, full-of-good-taste tubers handy to heat and eat when you want them.

1. Baked Sweet Potatoes

Cook - Bake until slightly soft but not completely done; about 3/4 done is fine. Remove from oven.

Chill - Cool them quickly. Here are two suggestions:

1. Put ice cubes (preferably from the freezer) on a tray. Cover them with something that does not let the moisture come through - a piece of aluminum foil is especially good. Lay the sweet potatoes on the covered ice. Turn them occasionally, and they will soon chill through.

or

2. If you have cans of chemical for use in your frozen food tote box to protect frozen foods en route, take the cans from the freezer and use them to cool the potatoes instead of the ice.

Package - If you plan to use one potato at a time, wrap each one separately in freezer foil. If not, pack meal-size numbers in polyethylene (or other good film) bags. If you use polyethylene, be sure the bags are at least 1½ mils thick.

2. Slices or strips

Cook - Make a syrup of 1 pt. of water to 1 cup of sugar. Bring to a boil. Put potatoes in. Keep syrup boiling during cooking.

Cook 10 to 12 minutes for slices 1/2 to 3/4 inches thick - 5 to 8 minutes for strips.

Cooking time is important. If it is too long, the potatoes will break. Time varies with potato variety and size of cut. Cook until nearly done so they will be just right when you reheat them.

or

Scald (blanch) 1/2 inch slices for 3 minutes.

Chill - Cover ice cubes or cans of cold chemical with aluminum foil or other moisture resistant material. Place slices (or sticks) directly from the syrup (or blanch water) onto the cold surface until they chill.

Package - Potatoes cooked in syrup: pack in good frozen food container and cover with chilled syrup unless you want to use the potatoes dry. If so, wrap the potatoes in aluminum foil (or other good packaging material) with the freezer wrap.

Potatoes blanched in water: Put in good frozen food container. Cover the potatoes with a chilled syrup made with equal parts of sugar and water.

Note: If you have syrup left over from cooking sweet potato slices or strips, use it to sweeten other things.

3. Mashed Sweet Potatoes

Wash the potatoes and take out all dark spots. Boil them gently until they are tender. Mash or rice them. Add ¼ cup orange juice to each cup of potatoes. Cool the mashed potatoes quickly and pack.

or

shape the potato mixture into square or oblong patties, brush with melted butter; roll them in crushed corn flakes, chopped crisp bacon, shredded coconut, or chopped almonds. Pack in shallow aluminum foil pan with a strip of foil (or other material) separating the patties.

when ready to use, remove the "partitions" between the patties and place in a 350 - 400° F. oven until the patties are hot and the coating is slightly brown.

General sweet potato freezing information

Sweet potato quality is usually much higher in the late fall and winter. To freeze potatoes at the time of high quality for later eating makes very good sense. After the potato cures its flavor is more pronounced; its color is more uniform, and its texture softer.

Suggested sizes: baked - small to medium (about 3½" in diameter);

sliced - medium to large (about 3 to 4½" in diameter);

Mashed (pureed) - any size, particularly more than 4" in dimater.

* The instructions are based on research done at N. C. State College, Georgia Experiment Station, and Cornell University.

Prepared by Nita Orr, Extension Food Conservation Specialist (Frozen Foods)

North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

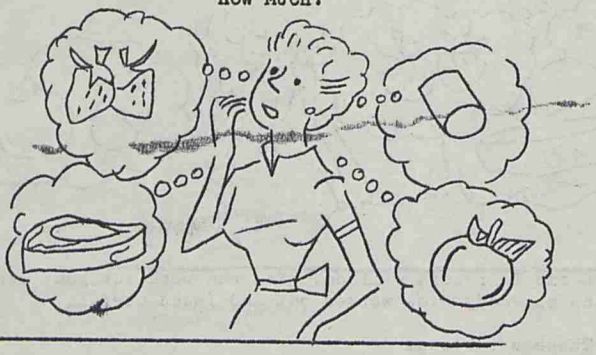
November, 1962

I am rearranging
this (wasn't right
in the first place)
and mimeographing
it.

FREEZER INVENTORY CONTROL

(KNOW WHAT IS IN YOUR FREEZER AND LOCKER. AND KNOW WHERE IT IS.)

HOW MUCH?

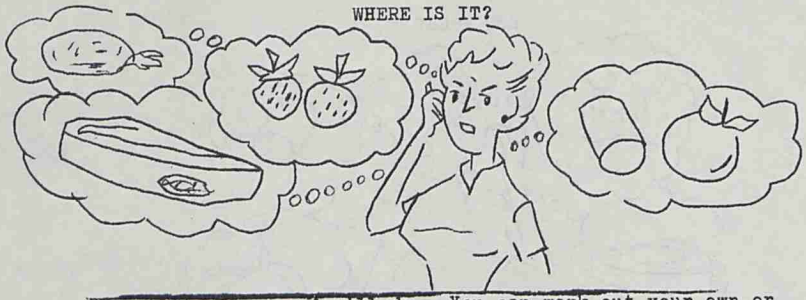


Hit or miss freezing is like hit or miss other things. Sometimes it hits and sometimes it misses! It is better to have a freezing plan than to freeze in a hit or miss fashion.

For example, if your family can enjoyably eat good, succulent yellow corn twice a week, plan to freeze enough corn to serve twice a week except when fresh corn is easily and economically available to you. In North Carolina it is usually possible to have easy access to good fresh corn for about sixteen weeks out of fifty-two. That leaves thirty-six weeks to depend on frozen corn. (It may be more or less time with you. You may prefer to eat frozen corn than to buy fresh corn when you do not have it in your own garden.) Figure how often you will serve frozen corn, then calculate the amount it takes to serve your family. Multiply the amount the family will eat at one time by the number of times you plan to serve it. Add some extra for visitors, and freeze that amount.

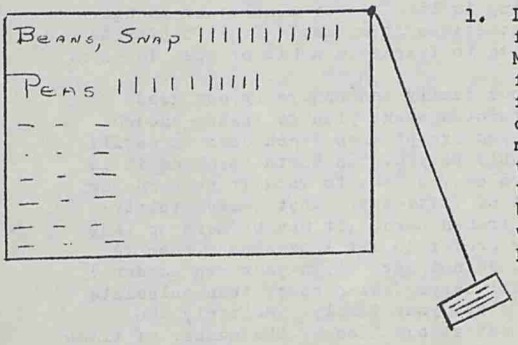
For example, if your family eats two pints of corn at a meal and you want to freeze corn to use twice a week for thirty-six weeks, freeze 144 pints plus as much as you think you need for visitors.

You may plan to serve some foods every two weeks or so. A little figuring gives you a guide to go by as to amounts of each food to freeze. You need to follow your guide in the use of the foods so that you will not end the year with large amounts of some left over foods. In order to make the use of the foods easy, know what is in your freezer (and locker) and where it is.



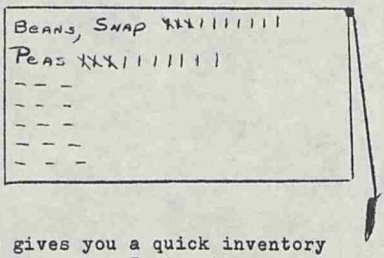
A simple record will do. You can work out your own or use one somebody else worked out and found useful.

These are ideas:



1. List the foods you will freeze on a chalk board. Make a mark on the board for each package you freeze. When you take out a package, erase a mark. Keep the eraser tied to a string attached to the board and put the board up near the freezer with chalk in a handy place.

2. List the foods on paper. Keep paper and attached-pencil in or near the freezer. Make a mark for each package you freeze and cross out a mark for each package you take out.



Either of these simple methods gives you a quick inventory at a glance. You may work out a better one. Train others who put food in and take food out of your freezer (and locker) to keep the record.

Then you need to know where the food is in the freezer so that you can locate a package of pork chops without dislocating the beans. Select certain parts of the freezer in which to store meats, vegetables, fruits so each food will have its own section. Anybody can see at a glance where each "department" is if you label the lid of a chest type or the door of an upright. Just write names of food on tape and stick to place on lid or door that shows the approximate location of the food.

IT IS. . .<u>convenient</u> to know what frozen foods you have on hand.

. . .<u>economical</u> to keep foods moving through your freezer and locker.

. . .<u>good nutrition</u> to eat frozen food while it still has its freshness.

<u>FIRST</u> IN

<u>FIRST</u> OUT

DON'T LOSE IT

USE IT!!

NITA ORR, EXTENSION ECONOMIST, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, U. S. DEPARTMENT OF AGRICULTURE, COOPERATING NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

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Nita Orr
Radio Tape
December 4, 1962

LEFT OVERS

Just about holiday time - any holiday and sometimes in between - questions come in like these, "Can I freeze left overs?" or "Is it all right to freeze left overs?" In these cases the "left over" is food not eaten at the meal for which it was planned and cooked. The left over food represents energy and money already spent. What do we do with these foods?

Professionally, I would like to answer these questions with a two-letter word beginning with n and ending with o. I have several reasons for this, and they all make sense to me - let's see if they do to you.

No. 1. A freezer costs real money, and it takes additional money to run it - not a great deal, but a respectful amount. Our best food should go into the freezer. We want to catch that elusive quality we call freshness in the foods we freeze. In fruits we call it bouquet - in poultry mostly but in some other foods, too, its

savoriness - the aroma and flavor and sometimes crispness make up the freshness. These qualities are as they should be when the food - raw or cooked - is fresh. Left overs lose these qualities - some to a greater extent than others, but they all lose some. Now reason No. 1 is justified. Left overs have lost freshness.

No. 2. Frozen cooked foods are better if they are cooked slightly under done. Freezing breaks down some texture and heating before serving breaks it down more. Left overs have been completely cooked. By the time they are frozen, then reheated most things aren't at their best.

No. 3. Bacterial count may be higher than desirable in left over food. And it's highly probably that this reason is the most important of all. Commercially prepared frozen cooked foods have a beautiful record as far as food poisoning is concerned. There just hasn't been much of it. We do not know about homes. We do know that some harmful bacteria

can produce toxin in many foods at room temperature without changing the flavor - and that's a sneaky thing to do!

From 50 to 120° F. is the incubation danger zone. Room temperature falls in this zone as does keeping food warm in the oven or on the range. Four hours is the time limit in this temperature zone, and the time is cumulative. It can be intermittent with refrigeration.

Harmful bacteria do not grow at 0° F. but most of them stay dormant ready to start growing as soon as they thaw. Adequate cooking will kill the bacteria but cannot be relied on to destroy the toxins if they are present in the food. It's important to avoid giving harmful bacteria a chance to grow.

So if you want good frozen cooked foods, freeze freshly cooked, quickly chilled, well packaged food - and in many products - cooked a bit under done. That leaves left overs out except for sheer convenience and sometimes for economy - for quality - never.

Nita Orr
Radio Tape
November 20, 1962

SWEET POTATOES

The cartooned sweet potato picture you see on truck decals these days has a delightful facial expression and a big smile. When I looked at that picture I thought, "That smile and happy expression should be on my face and yours because we have so many high quality sweet potatoes at a reasonable price this year. This means fine eating for all of us.

The quality and the price looked good to one man. He bought a couple of bushels; took them home and soon discovered he had no place the right temperature to keep them in good fresh condition. (This would be 55° to 60° F.) Fortunately, his wife thought of freezing some of them, so she called to ask if they freeze well - and if so, how . . . actually her first question was, "Can I freeze baked sweet-potatoes?" She knows sweet potatoes at

their best - baked in their own skins . . . Perhaps you want to know the same thing - "Can I freeze baked sweet potatoes?" You certainly can. It's as simple as the baking itself - bake the potatoes until they are slightly soft (that's about 3/4 done). Cool them quickly. You can work out your own cooling system, but here are two ways I have used. Put ice cubes (preferably from the freezer) on a tray. Cover them with something that won't let the moisture come through - a piece of aluminum foil is especially good. Lay the sweet potatoes on the covered ice. Turn them occassionally, and they will soon chill through.

Or if you have cans of chemical that you use to put in your frozen food tote box to protect frozen foods en route, take the cans from the freezer and use instead of using the ice.

If you plan to use one potato at a time, wrap each one separately in freezer foil. If not, pack meal-size numbers together in polyethylene (or other good film) bags. If you use polyethylene, be sure the bags are at least 1½ mils thick.

You do no harm if you bake the potatoes done before you freeze them, but the freezing and heating will make a potato even softer. That's why it's best to bake the sweet potato almost done rather than completely so.

There are other ways to freeze sweet potatoes and have them at arm's reach to heat and eat. You can cook slices or sticks in syrup and freeze for many later uses . . . completely cook the potatoes and make puree. You'll find many uses for the puree . . . one of the best is to make potato patties. Roll them in flour and brown in bacon or ham fat for breakfast. Then there are

pies, doughnuts, potato cake, cookies, candied and that old standby pleasing to many people - the ham, pineapple and sweet potato casserole.

If you want to keep sweet potatoes ready to heat and eat at arm's reach, freeze them. If you want detailed instructions, ask your county home economics extension agent for them.

Nita Orr
Radio Tape
June 1962

ENGLISH PEAS

Every year when June "busts out all over" we think of many things . . . brides - roses - and English peas to mention a few. Brides and roses are usually well taken care of, but I'm concerned about the English peas. Maybe you are, too.

Once an early garden vegetable (appearing in very few fall gardens), English peas brought new flavor and freshness to the table at a time when fresh flavor was rare. Now with our modern food processing methods we expect fresh flavor on the table every day whether it be the garden season or not - and we can have it.

That's what concerns me. Some people eat frozen peas during the year that have lost that fresh June flavor and they think, "Oh, well, they're frozen - they're not as good as fresh". That's all a mistake. The flavor, color and texture of the frozen English peas you eat should be comparable with the best fresh peas. This is true whether you buy commercially packed ones or whether you produce and freeze your own.

I discussed this with Pansie Deal, Home Economics Agent in Swain County. She commented that

her sister's frozen peas are always sweet and tender as if they were gathered from the garden just before they were cooked. She added, "But my sister is particular. She always follows the directions". Pansie hit the nail on the head with that statement. We have to be particular and stick to the rules which the scientists developed for successful freezing.

Whether you are a gardener or a commercial producer (and maybe you are neither but want the others to do a good job), the rules are the same.

Pick the peas when they reach the best eating stage - not just any peas, but a variety that freezes well. Wando, Thomas Laxton and Laxton's Progress are good ones. The variety you freeze is more important with peas than with most any other vegetable. Some varieties of peas that are good fresh never cook tender after you freeze them - they're more like bullets than they are like vegetables.

If you let the pea pods stay on the vines <u>after</u> the peas reach the best eating stage, you'll have a larger quantity of peas but their quality will not be what you want. (I'm afraid that happens sometimes.)

Here's something else that affects the quality - bruising peas in the pod. That starts an internal chemical change that soon gives peas an off-flavor although it does not affect their attractive appearance. The longer you hold bruised peas before you freeze them, the greater the change in the flavor. So if you want sweet, good flavored peas, be particular with them and don't bruise them.

If the peas lie around in a warm place between the time they leave the vines and get into the freezer they lose their delicate flavor and bouquet, and they become starchy. Then they are ordinary and not distinctive. So freeze them almost immediately from the vine, pausing only to wash them in the pods, then shell, blanch, cool, package and freeze. If you want a leaflet on how to freeze vegetables, including peas, ask your County Home Economics Agent for one.

Remember the importance of the right temperatures and proper packaging. Either one can make the difference in good and poor frozen peas.

You can eat the June freshness of new green peas despite the season, if you're particular and follow the rules.

Nita Orr
Radio Tape
November 6, 1962

PUMPKIN

When you hear me say, "1962 N. C. State Fair" you may think, "She's behind the times. The fair is over." . . and so it is, but the memory lingers on - of the music, the barkers' voices, and the hamburger, onion, and popcorn aromas - the apples, the honey, the nuts, the sweet potatoes and -ah! the pumpkins! All of these things created an aura to hover over us suggestive of bountiful harvest; of "we'll eat well this winter".

The prominent display of the pumpkins renewed my own interest in them. As always thoughts of pumpkins bring to mind the pilgrims, harvest, jack-o-lanterns and pies. If you think only that far, you're missing something. Pumpkin has additional uses of every day practical value.

Although a pumpkin will keep well in dry storage for months, it is convenient to have it in meal-size portions ready to heat and eat any time you want it - and that's easy to do.

Take your favorite variety of pumpkin, cut it in strips; peel it; cut in small pieces. Add one cup of sorghum molasses

to each gallon of pumpkin. Put in a kettle with little or no water - start it to cook slowly and stir it occasionally so it won't burn. Cook it to the consistency you like. Then you chill it; put it in any good frozen food container and freeze it. (This is just one of several ways to prepare the pumpkin to freeze. You may want to bake yours or cook it some other way.)

Once it's in the freezer you have it at arm's reach to heat and eat when you want it. You cheat yourself if you spice all of it up and use it for pies, for it's delicious with sausage, ham or crisp bacon for breakfast - just heat it in the skillet after you've poured up the fat - or nearly all of it. It's a treat to eat and its rich color is beautiful on the breakfast plate. It is equally good and beautiful served as a vegetable for lunch or dinner.

A pumpkin is not just a pumpkin. Some are better for table use than others - unless they are so doctored up with spices or other flavorings that the pumpkin acts as only a vehicle for the other flavors - then the variety doesn't make as much difference. In fact all pumpkins are squashes, but not all

squashes are pumpkins.

You may prefer the small deep-colored sugar pumpkin. It is fine grained and often used for family fare. You may want to add white sugar or brown sugar instead of the sorghum molasses. My grandmother used the sorghum molasses. I like it, so I use it. It's just another example of an old-fashioned dish that lends itself well to our best modern method of food conservation - freezing. If you have some of it in your freezer you'll "eat well part-time this winter anyway", conveniently and in the early American style.

Nita Orr
Radio Tape
April 26, 1962

STRAWBERRIES

Bob: Nita, I'm not sure that I've ever told you this but we have five children at my house and this year we're planning to do more freezing. I'm sure you can understand why. First we are going to freeze more strawberries this year than usual and I've got a question or two about them. The first question is should I freeze strawberries whole or cut?

Nita: That's a good question and I'm going to answer it for you, but I want to comment on those five children you're going to freeze more food for this year. I want to commend you. I know you love those five children and you want to give them the best food you possible can - so you're going to freeze it. And if you want to give them the best strawberries that you can freeze, you will slice them or chop them and use dry sugar with them. If you are going to weigh it you would weigh about one part of sugar to four parts of strawberries, but if you aren't going to weigh it you will get a pretty good ratio there by using about 3/4 cup of sugar to a quart of berries after they are prepared. Work with them quickly so

that you don't lose any of the food value and flavor. You'll have better strawberries if you do them that way. Of course you can freeze them whole. If you freeze them whole you cover them with the sugar syrup.

Bob: Now this may be a dumb question, Nita, but do I have to use this ascorbic acid in them?

Nita: I know you've heard me talk about ascorbic acid over and over! No, strawberries are very high in ascorbic acid. You know that ascorbic acid is nothing other than Vitamin C. One thing we're blessed with in North Carolina is a good supply of home grown strawberries we can use for our Vitamin C food. A very pleasant way to get our Vitamin C is to eat the strawberries. So you don't use extra ascorbic acid when you are freezing the berries, but you do with peaches. You don't want to forget that later in the summer when you are freezing peaches to feed those five children. You will want to add ascorbic acid so the peaches will keep their color and flavor and food value and you'll have a nice product.

Bob: Now speaking of Vitamin C, do strawberries retain their Vitamin C well in freezing or not?

Nita: Yes. I can say yes and no. It depends on how they're handled. If you work with them quickly and get them into the freezer soon after they're cut they will retain their Vitamin C providing other things are right. We'll talk about those, too. If you let them stand around cut very long they will lose much Vitamin C. Then if you put too many of them in the freezer at one time unfrozen to freeze they'll freeze so slowly that they will lose Vitamin C during that process. If you don't hold them at 0° F. during storage they will lose some. If you have everything right you'll retain almost all your Vitamin C.

Bob: Now one more question, Nita. Some people say you can freeze tomatoes and some say you can't. What about this?

Nita: Well, you can but they're not of good quality. One of these days we're going to have frozen tomatoes on the market that you can buy and slice. I'm almost sure of that, but it will be done by instant freezing with a different refrigerant from what we have now. We'll talk about that another day when we have more time.

Nita Orr
Radio Tape
April 26, 1962

ASPARAGUS

. . . Is an Old World perennial plant of the lily-of-the-valley family. We use its shoots for food. It has long been known as the aristocrat of vegetables and eaten at grand banquets and fancy luncheons.

Old though it is, and familiar to us all, it's only in less than the last quarter century that we have been able to enjoy all of its fresh goodness any day of the 365 in the year.

Sometimes it's jokingly called spargrass or asparagrass - or just plain grass by a few people who don't like its flavor.

It actually has good flavor and one that combines with many other flavors and textures which make for good eating - cheese and hard cooked eggs are two other foods most often used in combination with asparagus. It blends in flavor with many sauces both plain and fancy.

But if you are a true connoisseur of vegetables and specifically of asparagus, you'll like yours cooked just until tender and served all by itself without props and without decoration.

To eat to your heart's content of this fresh, succulent green vegetable in August, November, February and all the other non-spring and early summer months here are two things that you can do.

1. Buy frozen asparagus packed by a reputable packer and from a frozen food cabinet that keeps its food at 0° F. or colder.
2. You can freeze your own.

To freeze your own, State College recommends the Mary Washington variety. Cut asparagus daily, early in the morning when the shoots are crisp. (You may want to snap the asparagus - instead of cutting - just above the ground. Then you won't damage other spears that have not yet poked through the soil.)

The stalks lose flavor and sweetness and the texture becomes woody rapidly after you gather them. That's why you should get your asparagus into the freezer within an hour or two (20 minutes would be better!) and after you gather it, keep it cool until you wash it. If an emergency arises and the freezing must wait, chill the asparagus in icy cold water immediately, then hold it refrigerated just above the freezing point (about 30° F.). You

can keep it that way from 24 to 48 hours prior to freezing without too much quality loss. But get it into the freezer immediately from the garden if you can.

Let the spears stand in warm water a few minutes for the bracks at the tips to spread and loosen the grit so that it will fall out in the washing - (one gritty bite can turn one against this good vegetable).

Be sure to scald and chill the spears properly - (you can get written directions from your County Home Economics Agent).

The type of package has an effect upon the flavor of asparagus. Packed dry in hermetically sealed containers gives the best product. You can't do that at home. I suggest you alternate the directions of the spears, wrap in heavy aluminum foil excluding all the air. Do these things well and enjoy good asparagus any day.

Nita Orr
Radio Tape
April 26, 1962

PEACHES

Bob: Nita, I have your little leaflet which gives detailed information on freezing peaches but today I'd like to ask you a few specific questions. You always tell us to buy ripe peaches, and now this may be unfair, but how do I find ripe peaches?

Nita: Oh, it isn't unfair but I'm not sure I have the answer. I say freeze ripe peaches because if you don't there is just no point in freezing peaches because they won't be good if they are not ripe. There are several ways you can get ripe peaches here in this state, of course. One is to go to the orchard. I was down in the peach country not long ago and was told by a person who owns an orchard that her husband now sells a tree in the beginning of the season. You can buy yourself a tree, and you can harvest the peaches off that tree anytime you want them. I think that's an awfully good thing, but of course a lot of people can't get to an orchard. They have to buy the peaches that have been brought in from other places. I just hope

that all of our peach growers will let their peaches stay on the tree until they are truly what we call tree ripe. Then they are firm but they can be hauled or shipped, you know, without being damaged. You can let them further ripen by placing them - (maybe in the basement) or wherever you have a place that is not hotter than 70° F. and let them ripen. Spread them out with space in-between each peach. As they ripen you can freeze a few at a time.

Bob: Now assuming that I have found these ripe peaches, is there any particular way to peel them or any tricks to this?

Nita: Well, yes. We do say that if the peach is really ripe enough to freeze, and be a real good frozen product, that it is ripe enough to peel easily by hand if the peach came from a healthy tree. If you want to dip them in hot water you can do so, though you have to be real careful. Just dip them in boiling water in a cheesecloth bag or colander or something like that. Let them stay only a half minute and then immediately plunge them into icy cold water. That is to stop any cooking that might

occur, because if you cook a layer of the peach under the skin you know you destroy that freshness and bouquet of the fresh peach that you freeze to keep.

Bob: Now is there any special way to slice them or does it matter?

Nita: Oh, you mean the form in which you freeze them? Well you can freeze them in halves if you want to and they make nice salads and/or you can chunk them or slice them. I always make mine little bite-sized chunks because I think they're more attractive that way.

Bob: Now you always tell us, Nita, to use ascorbic acid. Is there any particular kind to buy or are they all the same?

Nita: No, they are not all the same. Our instructions in the little leaflet you referred to are for plain, pure ascorbic acid. You can buy mixtures of ascorbic acid and sugar or ascorbic sugar and citric acid on the market. If you buy those under different trade names you should use them according to the instructions on the package.

1 general and 14
specific subject matter
crossword puzzles.

Use: As a supplementary
.. .. text.
teacher's activity
in class.

Just another teaching
method.

WAYS TO USE FROZEN FOOD CROSSWORD PUZZLE #1

1. Put the puzzle up before the group (on the wall or on an easel or board).

2. Read the clues according to numbers. Let the group decide one answer at a time.

3. Write the answer decided upon in the white spaces of the puzzle. (Study the completed puzzle beforehand so you will know when the group gets the right word.)

4. You can skip about anyway you want to. (Answers must fit clues both up-and-down and across.)

5. The aim of this puzzle is to teach frozen food facts (or to be a reminder to those who know them), but have fun with it, too!

6. Group discussion and argument over the answers is more important than to finish filling in the words of the puzzle. Use the puzzle from time to time until it is finished. Keep the game peppy.

7. (a) Study ahead of time and have some illustrations or demonstrations ready to go along with the answers, or (b) show them at a later meeting and refer to the "fact" in the puzzle.

SOME SUGGESTIONS:

Bones - Show the bones of a big hen or turkey or pork or beef bones. Show how much space they take up in a freezer or locker that could be used for food. (Scrape the bones clean and boil them so they will "keep".)

Cobs - Show how much space 36 corn cobs use. (That would be enough for nine meals for four people if each one ate just one ear.)

Scald (Blanch) Vegetables - If the puzzle brings to light that some one or more do not know how to scald and chill vegetables right, give that demonstration or arrange for somebody else to, either at a club meeting or some other time, to the ones who do not know how.

You can find other "facts" to demonstrate. For example: does everybody in the group know what the "drugstore" wrap is? (Sometimes called the freezer wrap."

February 1958

Nita Orr
Extension Economist in Food
Conservation and Marketing

CLUES TO FROZEN FOOD CROSSWORD PUZZLE #1

- Nita Orr
Extension Economist in Food
Conservation and Marketing

HORIZONTAL

1. A good package, kept at steady temperature, keeps this in frozen foods.
7. ____ are sometimes less by the dozen packages.
10. A sad word.
14. Strange.
15. Prepackaged frozen ____ is a coming thing.
16. A lawyer _____ a witness.
17. Behold!
18. One.
19. Freeze the ___ that was bred and fed for leanness.
20. Put freezer control __ _____ (2 words) for freezing food.
22. Short for American Automobile Association.
23. When you _____ a chicken to freeze, remove the lungs.
25. Do not keep more frozen ____ than the law allows.
26. The freezer cuts down trips ___ the grocery store.
27. _____ and chill vegetables before freezing them.
29. Cooked foods wrap easier if cooked in _____ pans. (square cakes instead of round ones, e.g.)
31. Catch and hold the _____ of foods that you freeze.
34. Store frozen foods at _____ degrees F. or colder.
36. Something to ride in.
37. Go __ the garden in early morning to get vegetables to freeze.
39. Food will ____ out if container or wrapping material is not the right kind or if it is and is not put on right.
40. _____ headspace in fruit containers.
42. The beginning of the alphabet.
44. It is better to buy frozen _____ juice than to freeze it at home.
46. If air can get through the package ___ the pork, the pork will soon taste old.
47. Keep freezing supplies and equipment _____ in a certain place.
49. Let fruit _____ before freezing it or "you'll be sorry!"
51. Let it not be something you ____ that made you sick.
53. The ____ is the father of all frozen lambs.
54. That's you.
55. To scald (blanch) ___ not to scald. That is not the question. Scald!
56. It was a good day when the locker plant and the freezer ____.
58. A big _____ of unfrozen food can be too much for a freezer to pull. Watch it.
59. Consider the ____ and get busy.
60. What a boy friend may write to a girl who feeds him a good frozen food dinner.
62. One woman ____, "frozen chickens are not good" when it was only her frozen chickens that were poor quality. Look to your ways!
64. You will hear an _____ full of praise when you feed your family good frozen foods.
65. You can say "_____ to be frozen" about varieties of fruits and vegetables recommended for freezing.
68. ____ an orchid on yourself if you keep up with the food that goes in and out of your freezer and locker.
69. ____ your frozen food. That is better for your meals and for your purse.
71. ____ frozen food in its own package.
72. Undesirable _____ take place in unscalded frozen vegetables.
75. Keep ___ open mind to accept new things in case they are better than the old.
76. Short for aluminum.

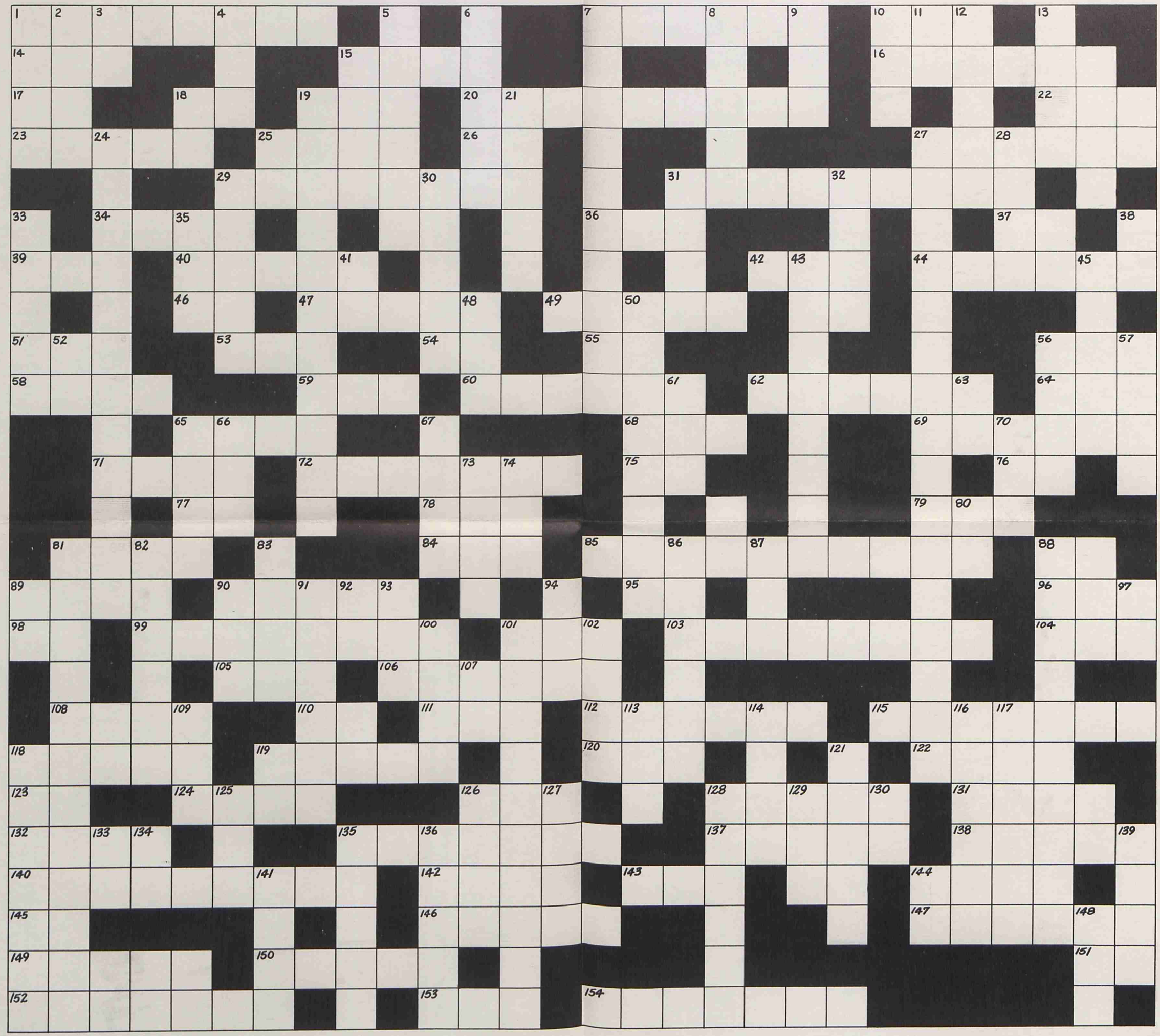
77. Direction (abbr.)
78. A corn ___ takes up costly space. If you want frozen corn on the cob, freeze corn with little cobs. Seneca Chief is one kind.
79. You have to do more than ____ vegetables in boiling water to scald them for freezing. (If you don't know, ask your home demonstration agent. If you do know, do it - for goodness sake).
81. Watch for ____ on berries in rainy weather.
84. Pass frozen food information on to those friends you ___ nob with.
85. Prepare _____ to freeze when they are fresh out of the garden or field.
88. ___ smart. Plan your meals ahead and freeze to make those plans come true.
89. A horse's ____ is one thing. Your main job is another. If you keep your family's minds and hearts fed you'll need to feed the bodies with little time and effort.
90. _____ on you if you are happy with "less than the best" frozen food.
95. Abbreviation of somebody you won't need if you stay well. The right food and the right eating habits help.
96. It takes less h____ to cook frozen vegetables.
98. ___ sure as a vine grows 'round a stump waxed milk cartons are not good frozen food containers.
99. When you do your job right, your frozen foods hold on to their _____.
101. This is dangerous with or without an "f" before it.
103. The druggist wrap saves _____ of the packaging material that the butcher wrap uses.
104. Abbr. for bad news when your feet hurt.
105. The mother of all frozen lambs.
106. A _____ of good frozen foods is a joy as long as the memory lasts.
108. Some girls are named ____.
110. ___ tell the truth, the freezer is no place for newspapers, plain wrapping paper and paper bags.
111. If you buy your frozen foods, it's cheaper to buy in a case ___.
112. Some locker plants _____ lard, seal it in tin cans and freeze it.
115. Follow instructions in your freezer book to _____ your freezer.
118. The more you open your freezer, the more this collects on its walls.
119. ____ frozen food containers and wrapping materials are good ones.
120. 'Tis ____ when frozen food goes bad.
122. Not prompt in moving.
123. Think of ascorbic acid ___ Vitamin C.
124. At all times.
126. A freezer or locker full of beautiful food is a work of ____.
128. You can freeze an ____. But do you want to?
131. Two prepositions.
132. Don't let a neighbor's opinion ____ you. Scald your vegetables before freezing.
135. Use _____ of boiling water to a pound of vegetable when you scald (blanch) vegetables.
137. _____ the body heat out of animals as quickly as possible after they are killed.
138. Moisture in food stored (at zero degrees F.) in the freezer or locker turns to _____ and seeps through the wrong kind of packaging material. When the moisture is gone the food looks dried out (some folks say, "It's freezer burned"). Changing temperatures can pull the moisture out of food, too, but not through the package if it is right.
140. Follow your _____ when scalding (blanching) vegetables.
142. Double your ____ recipe. Eat some hot. Chill the other quickly. Freeze it for another day. (Leave out potatoes.)
143. Any _____ freezes well. You use more when they are handy.
144. A detective on TV.
145. A latin word. It means and.
146. Like cold, hard _____?. Freeze it ahead.

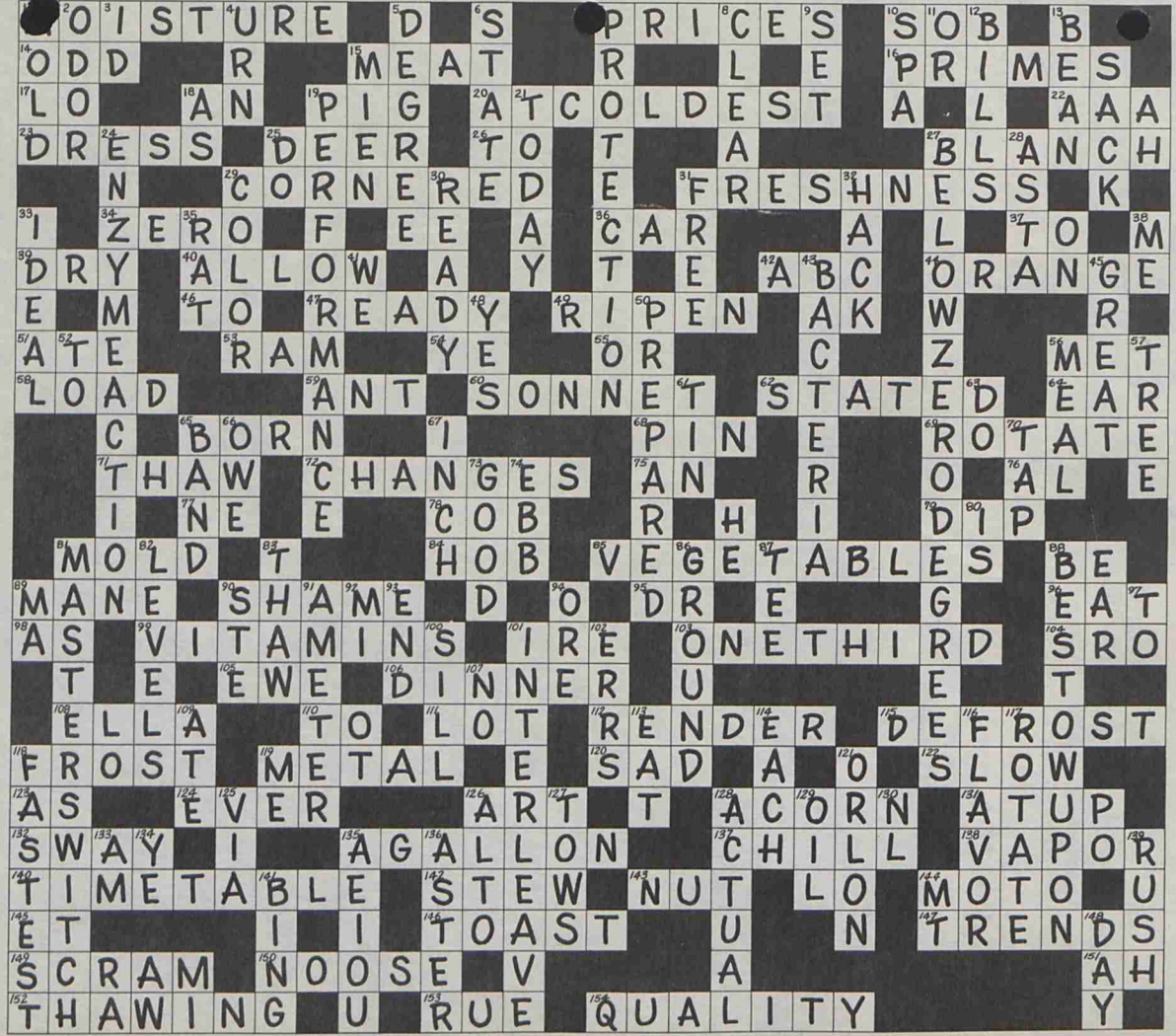
147. _____ are toward better quality frozen food.
149. ____ble those frozen eggs.
150. Keep your neck out of this.
151. ____! Thank you for staying with the puzzle.
152. _____ and refreezing hurts frozen foods.
153. You will ____ the day that you freeze green peaches.
154. This can be good or poor. Make yours good.

VERTICAL

1. Same as 81 across.
2. It is easier to prevent ____ in the freezer than it is to get it out.
3. Short for idioplasma.
4. Grandmother kept her persimmon pudding in the cool cellar in one. You keep yours in meal size packages in the freezer.
5. A college _____ is not necessary to have good frozen food. Just follow the rules.
6. About 50,000 freezers were sold in the _____ of N. C. in 1957.
7. Packaging is used for this.
8. Directions for freezing food should be _____.
9. It's hard to change a woman who is ___ in her ways.
10. A health resort.
11. Freeze fish while it is fresh ___ don't freeze it at all.
12. _____ decrease when wise plans increase.
13. The poor _____. Some folks don't like it frozen.
15. Demeanor.
18. ___ I often say, big bones do not belong in the freezer or locker.
19. This is what you buy a freezer for.
21. Eat some good frozen food _____.
24. Scalding (blanching) arrests _____ in vegetables (2 words) - (if you want to be technical about it).
25. So _____ it. Do it right.
27. Freeze food _____ _____ _____F. (3 words)
28. The Thin Man's dog (TV).
29. Scalding (blanching) vegetables sets their _____.
30. If you want your roast to be _____. Cook and freeze it ahead of time.
31. _____ time is a rare thing. Grab some for yourself.
32. It's better to have a skilled meat cutter cut your meat than to ____ it up yourself.
33. We seldom reach this. Keep working toward it.
35. Keep one from getting up under your freezer.
38. Let's don't talk about _____.
41. _____ can't feel of frozen food and tell if it's cold enough to keep well.
42. One.
43. Chill cooked food quickly and handle it little to keep _____ from growing. (Fussed and fingered foods have no place in the freezer or locker.)
45. The frozen food industry has made ____ strides in the last 10 years.
48. ___, the floor under the freezer may need to be braced.
50. Special diets are easier if _____ ahead of time and frozen.
52. One bushel of good fresh peaches makes from 32 __ 48 pints of frozen ones.
56. Fresh-frozen fruit is a perfect ending to most any ____.
57. Fruit-for-freezing is better ripened on the _____ or vine.
61. The ___ can is a good frozen food container (if the top fits).
63. ____ put unfrozen food in your freezer the way and at the place the freezer manufacturer says in his book.
65. A rubber ____ does a good job on a gooseneck twist of a plastic bag. But a plastic covered wire will save your temper.
66. We ____ food chemists and refrigeration engineers thanks.

67. Every ____ of freezer and locker space costs money. Why pay to store bones? Anyway, big ones.
70. ____ water will do to cool vegetables after scalding (blanching) but ice water is best.
73. Let's eat _____ frozen foods!
74. To fall back from a better to a worse state. (Frozen food will do it if it is in the wrong kind of package.)
80. Fresh fish for freezing __ a must.
81. Don't forget the freezer and pull this.
82. It's a wise man who _____ the freezer.
83. Hope yours is "the best food you ever ____"!
86. _____ your freezer to prevent shock.
87. Follow your frozen food instructions to a ____.
88. Means give.
89. To__ to juice is delicious frozen.
90. Female saint (abbr.).
91. __ _____ (2 words) records the amount of electricity the freezer uses.
92. __nd your business when you freeze food. Carelessness shows up in the t__.
93. Let's _____ this "no scalding" business.
94. Food in a freezer is like ___ in a mine.
97. Cook your frozen vegetables ___ the just-done stage.
100. The bride is "toted" over this.
101. If you ____ pork chops and steaks, they will not stick together.
102. She ____ who freezes cooked egg whites as such.
107. ___ fresh vegetables hold their crunchy crispness when frozen.
109. Past of eat.
113. To be sure you have broccoli to ____, grow your own.
114. ____ day brings opportunities. Use them.
116. _____ leaves frozen food when it is in a poor package.
117. Same as 69 across. Worth repeating.
118. Work with your food the _____ you can and still do a good job.
119. How you react to this crossword puzzle interests ___.
121. _____ is to clothing what freezing is to food.
125. Good food reaches the table _____ the freezer or locker.
126. There are those who sing it.
127. Pulls along by rope or chain.
128. Real.
129. Serving a good meal is like pouring ____ on troubled waters.
130. Abbr. for baseball group.
133. To exist.
134. Old way of printing "the".
135. The vowels.
136. A pretty flower - sometimes lavender.
139. Once food is packaged ____ it into the freezer at home or at the locker plant.
141. Wonderful kind of cherries for your freezer or locker (if you can get them).
144. Abbr. for a majestic piece of nature.
148. May you finish each one without weariness.



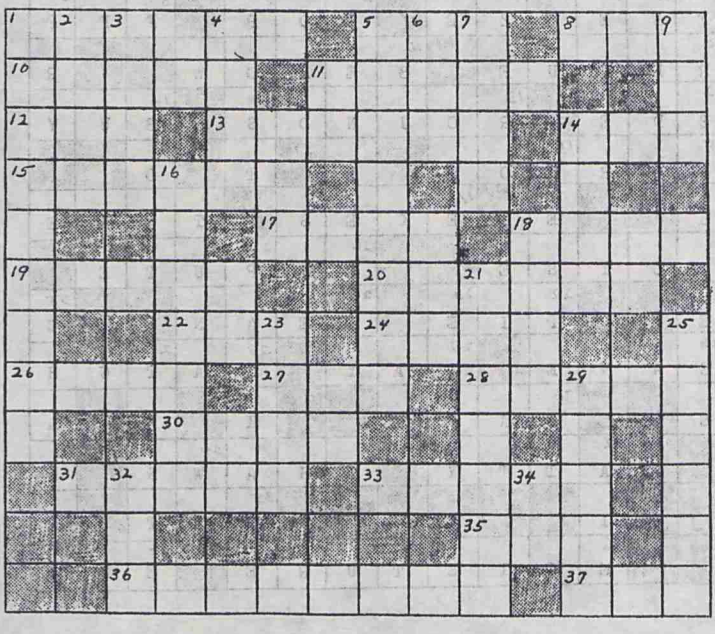


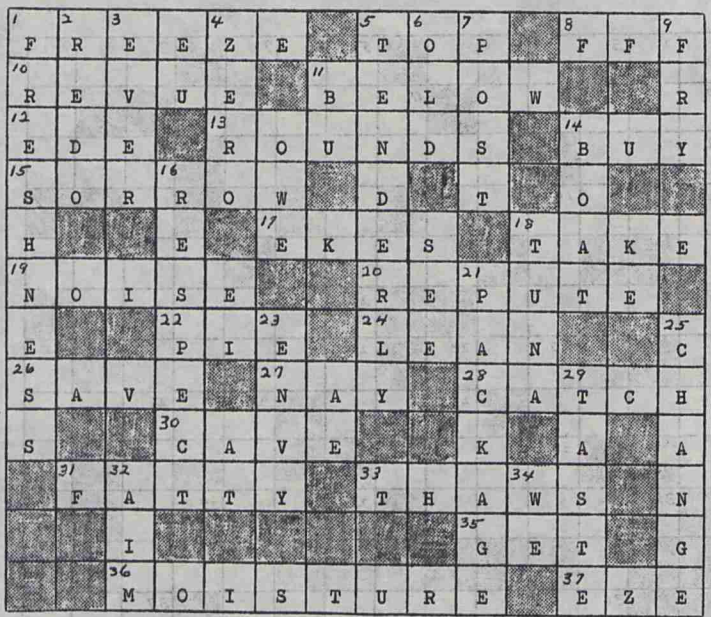
FISH

Crossword Puzzle #2

Nita Orr
Extension Economist in Food
Conservation and Marketing

August 1958

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FISH

Crossword Puzzle #2

Nita Orr August 1958
Extension Economist in Food
Conservation and Marketing

Across

1. _____ fish as far below zero° F. as you can.
5. You get ____ quality frozen fish by following all the rules.
8. The first letter of three words.
10. Could be a fashion show.
11. Freeze fish _____ zero° F.
12. Add an "N" and you have paradise.
13. Completes.
14. If you _____ fish to freeze, be sure it is fresh.
15. Poorly packaged fish in a freezer brings _____ to its owner.
17. Supplements.
18. _____ your choice. Do the fish freezing job right or be unhappy with your frozen fish.
19. There is a lot of _____ about frozen fish not being good. That tells more about the one making the noise than it tells about the fish.
20. In some places frozen fish is in bad _____. That is not necessary.
22. Did you ever eat an oyster _____?
24. ____ fish are more likely to keep better longer than are fatty fish.
26. A thrifty word.
27. A negative word.
28. The shorter the time (and the cooler you keep it) between the minute you _____ your fish and the minute you put it in the freezer, the better it will be.
30. Did the _____ man eat fish?
31. Even with the best of care _____ fish do not stay good frozen as long as lean fish do.
33. When fish _____ use it immediately.
35. _____ the habit of eating fish or shellfish at least once a week.
36. Frozen fish and shellfish must have _____. Wrap the fresh fish loosely with parchment paper. Dip the package into a bowl of icy-cold water. Lift out onto the packaging material then wrap fish and parchment paper with water clinging.
37. Spelled wrong but sounds right. It describes the way to freeze fish.

Up and Down

1. Capture and hold the _____ of the fish.
2. This make you think of furniture.
3. N____ freeze unfresh fish.

(over)

4. Store frozen fish at _____ degrees F. or colder.
5. Handle fish _____.
6. Old shoes are a delight. ____ fish are not.
7. _____age has increased.
9. You miss other treats if you ____ all your fish. Try baking, boiling, broiling.
14. You can catch fish from a _____.
16. Show _____ for delicate flavor when freezing fish.
18. You can buy frozen _____ fish pies. Or you can make them yourself.
21. The way you _____ your fish to freeze can make the difference in good and poor fish on the table.
23. To ____ is to sin.
25. If your frozen fish is not good, _____ your way of freezing it.
29. You can _____ the freshness in your frozen fish if you capture it and keep it there.

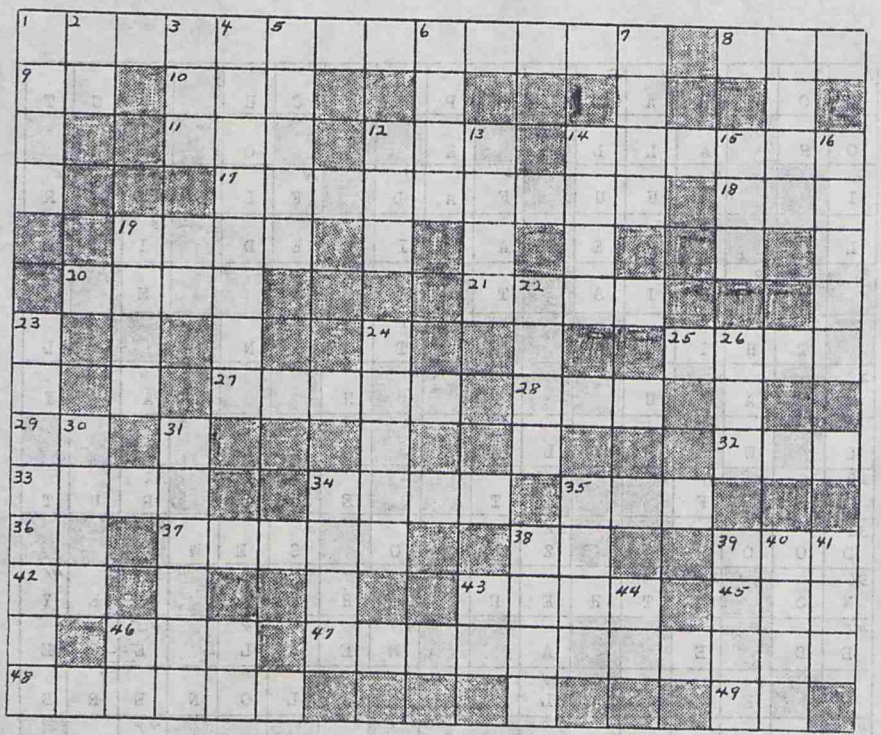
North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

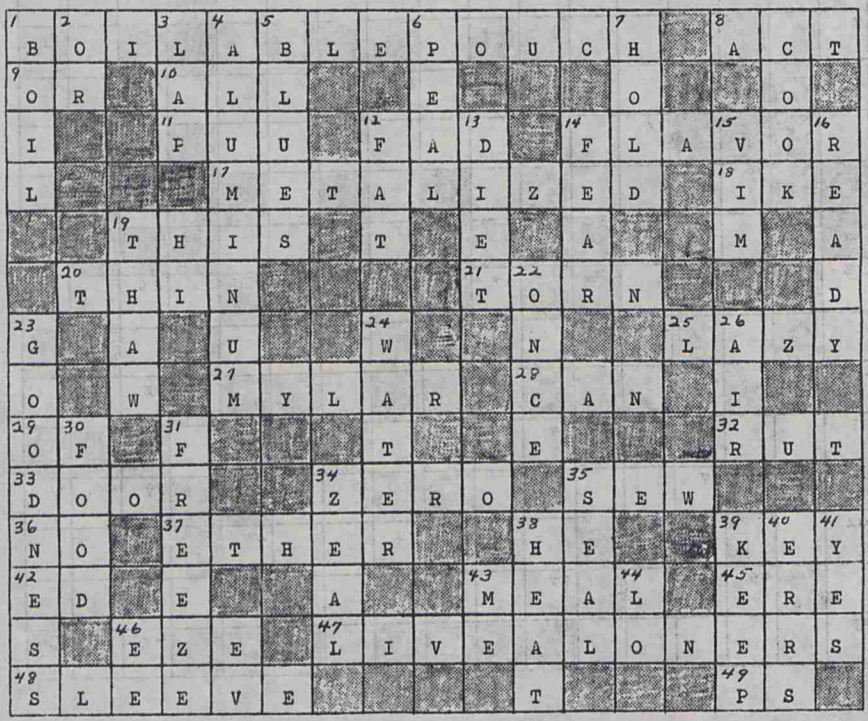
BOILABLE POUCHES

Crossword Puzzle #3

Nita Orr
Extension Economist in Food
Conservation and Marketing

August 1958

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BOILABLE POUCHES

Crossword Puzzle #3

Nita Orr
Extension Economist in Food
Conservation and Marketing

August 1958

Across

1. You can cook in this package.
8. Perform.
9. You can freeze raw ___ cooked foods in #1 across.
10. Nearly ___ families have a use for it.
11. A turning-up-the-nose sound.
12. #1 across is not a ____.
14. It insures full _____.
17. Some are made of _____ film.
18. A masculine nickname.
19. ____ is a handy way to freeze one serving of food.
20. This person can use #1 across.
21. They are not easily _____.
25. Freezing special diets in these can give you time to be _____.
27. Some boilable pouches are made of _____ (a wonderful film).
28. You _____ have days of menus handy for the special dieter in #1 across.
32. If you are in this. Get out of it.
33. The boilable pouch opens this to a whole new concept of food serving.
34. Regardless of your package, store your frozen food at ____° F. or colder.
35. Eat pouch-frozen food the days you _____.
36. _____ worry about special diet meals when they are in the pouch.
37. You do not need this to put you to sleep. Your diet worries are less with the boilable pouch.
38. Opposite she.
39. Pouch freezing is the ____ to establishing special diet habits.
42. Masculine nickname.
43. Ready for a hot ____ at odd hours if it's in the boilable pouch.
45. Before.
46. Spelled wrong - but sounds right when describing boilable bags.
47. Made to order for these folks who are often career women.
48. You can keep many food tricks "up your _____" in boilable pouches.
49. An added thought to a letter.

Up and Down

1. You can _____ the food in the pouch.
2. Freeze raw ____ cooked food in the pouch.
3. Fold over.
4. Some boilable pouches are made of _____ foil.
5. A special dieter has no cause for _____.
6. Ring.

(over)

7. Keep.
12. Food portion control is a help to the _____ ones.
13. Special attention to _____ is indicated for the fat, the thin and folks with aches and pains.
14. No _____ of eating the wrong thing when the special diet meals are ready to heat in pouches.
15. If you have any, hold on to it.
16. _____ for the late guest with his food in pouches. He gets hot foods hot and cold foods cold.
19. _____ just a few minutes before using.
22. Use them _____ you'll be sold.
23. Use boilable pouches "For _____ Sake".
24. Thaw pouch-packed foods (to be eaten hot) in boiling _____ . . . foods to be eaten cold in cold.
26. Get the _____ out of the pouch before you seal it.
30. Capture and hold the freshness of your frozen _____.
31. _____ food below zero° F. Hold at zero° F. or colder.
34. Enthusiasm.
35. Heat _____ boilable pouches.
38. Use moderate _____ with a paper between iron and film bag (not foil) unless you have a special sealer.
39. _____ your fingers crossed. If you cannot get any now, we think you can later.
40. She _____ who does not try to have the best frozen foods.
41. _____, they fill a need in many homes.

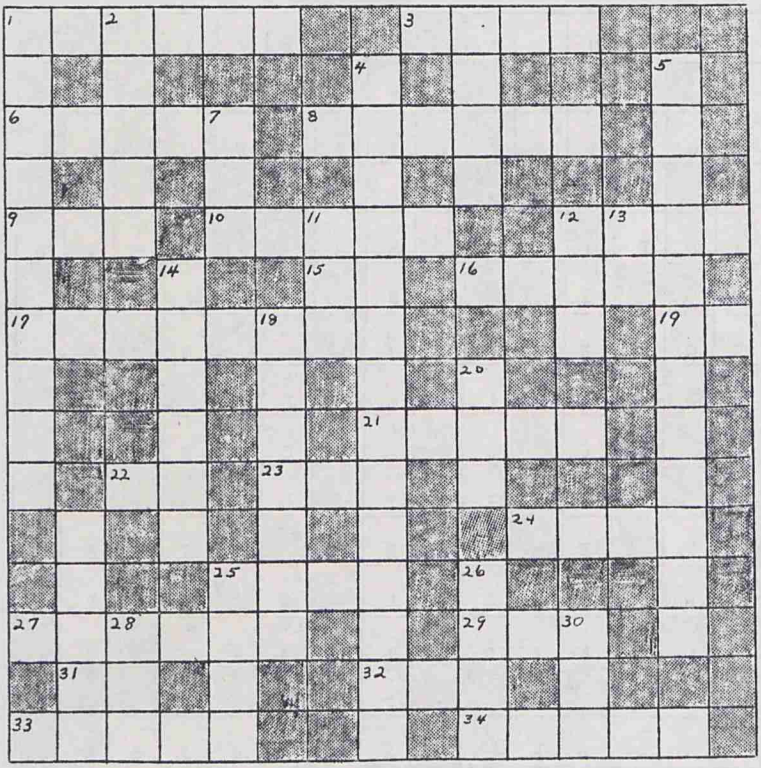
North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

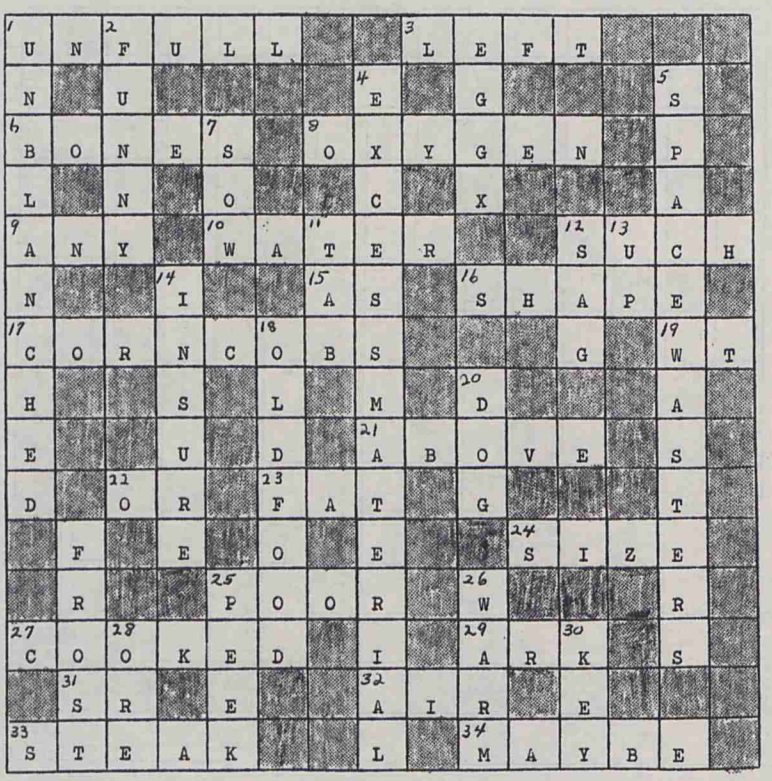
SPACE USE

Crossword Puzzle #4

Nita Orr
Extension Economist in Food
Conservation and Marketing

August 1958

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N 14 I 15 A S 16 S H A P E
17 C O R N C 18 O B S 19 W T
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R 25 P O O R 26 W R
27 C O 28 O K E D I 29 A R 30 K S
31 S R E 32 A I R E
33 S T E A K L 34 M A Y B E

SPACE USE

Crossword Puzzle #4

Nita Orr August 1958
Extension Economist in Food
Conservation and Marketing

Across

1. A container either not filled or some food taken out of it later.
3. _____ over food that has lost its freshness before it was frozen.
6. You find this spacetaker in poultry, beef, pork, lamb and game.
8. If ___ is inside a package of meat it reacts on the fat and gives it a bad flavor. If the packaging material is not good for freezing, it will go right through the packaging material from the outside and you will get the same rancid flavor. Sometimes it has already caused the fat to start tasting old before the meat is frozen.
9. ____ woman can keep a record of what she puts in and takes out of the freezer. Few do.
10. Unnecessary _____ in the freezer or locker, adds weight and dilutes food flavor.
12. Means "like unto".
15. _____ sure as a vine grows 'round a stump . . .
16. The _____ of a package helps determine the space it takes.
17. Many people prefer to eat corn from _____ rather than with a fork. An expensive preference space-wise.
19. Abbr. for number of pounds.
21. Means over.
22. You can buy _____ rent more frozen food space.
23. Excess ____ that you won't eat wastes zero° F. food storage space.
24. Means "measure".
25. Carelessness in space management is a _____ practice.
27. _____ food that takes longer to thaw and heat than to cook does not belong in the freezer.
29. With this we think of Noah.
31. Abbreviation for older. In general, eat the older food first.
32. It's the ozygen in the ____ that causes fat to have an old flavor.
33. After a _____ is a year old ____ it's considered a spacewaster.
34. ____ you are not interested in space management. That is all right, but don't fuss because you have no room for extra things you want to freeze.

Up and Down

1. _____ vegetables have no place in the freezer or locker.
2. There is nothing _____ about freezing food, but it is fun to do.
4. (2 words which mean "more than enough"). When applied to frozen food packaging it uses too much space and causes slower freezing of the food.
5. Most freezers and some lockers are full of these.

(over)

7. As you ____ so shall you reap. Sow efficiency - Reap efficiency even inside a freezer!
11. Sometimes the bill is referred to as the ____.
12. Plastic bags _____ and droop and freeze into odd shapes unless you put them in cartons.
13. Not down.
14. You ____ a sense of achievement when you get rid of spacewasters.
18. Give this away or use it.
20. Do not keep this kind of food in your freezer unless you know it is clean and wholesome.
25. Take a _____ in your freezer. See how many spacewasters you can count.
26. Nothing _____ belongs in the freezer.
30. Management is the _____ to good space use.

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PEACHES

Frozen Food Crossword Puzzle #5

Nita Orr November 1958
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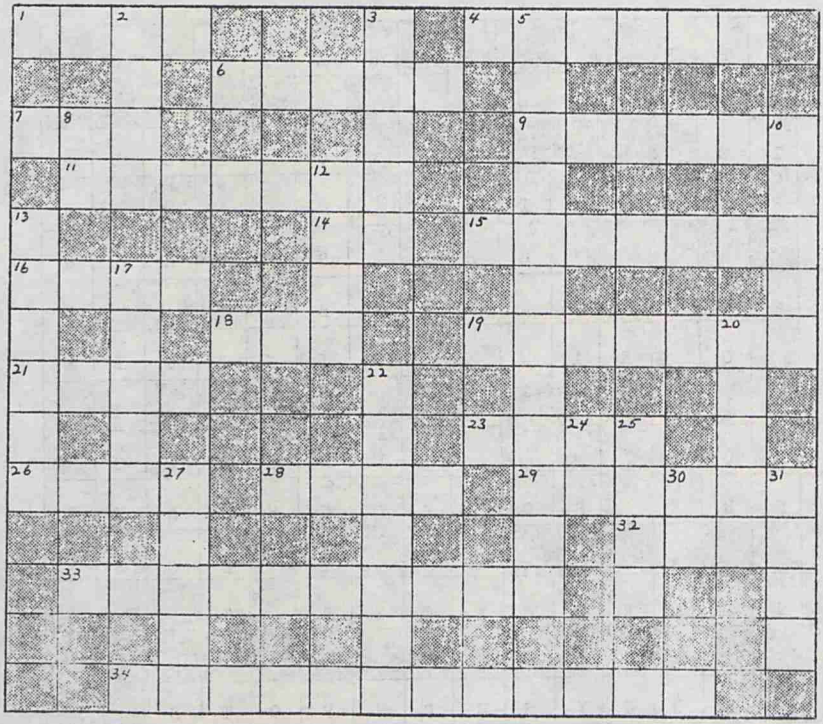
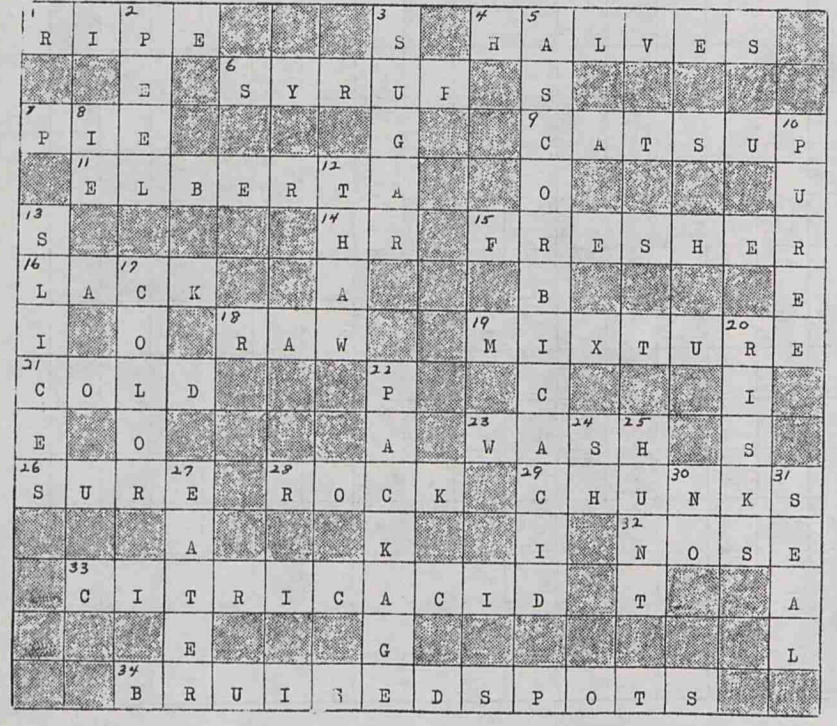
Conservation and Marketing

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7 P 8 I E G 9 C A T S U 10 P
11 E L B E R 12 T A O U
13 S 14 H R 15 F R E S H E R
16 L A 17 C K A B E
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21 C O L D 22 P C I
E O A 23 W A 24 S 25 H S
26 S U R 27 E 28 R O C K 29 C H U 30 N K 31 S
A K I 32 N O S E
33 C I T R I C A C I D T A
E G L
34 B R U I E D S P O T S

PEACHES

Frozen Food Crossword Puzzle #5

Nita Orr November 1958
Extension Economist in Food
Conservation and Marketing

Horizontal

1. Freeze only _____ peaches.
4. Cover peach _____ with sugar syrup for freezing.
6. Make your _____ cold or hot, but have it chilled when you put it over the peaches.
7. It's better to make the _____ and freeze it before baking.
9. A sauce that normally has nothing to do with frozen peaches.
11. There are other varieties of peaches better for freezing than this one.
14. Time abbreviation.
15. Peaches left on the tree to ripen have a _____ flavor than those not ripened on the tree.
16. Some varieties of peaches _____ flavor when frozen.
18. If you cannot eat ____ peaches, freeze yours in boilable pouches.
19. Pure ascorbic acid is sold as such. A trade name usually means a _____. It may have citric acid or sugar, or both, added. Use according to directions on the package.
21. The "feel" test of a package of peaches is not dependable. Be sure you store them at zero° F. or _____er.
23. _____ peaches carefully.
26. You can be _____ of good frozen peaches if you follow the rules.
28. Peaches hard as a _____ are no good.
29. Try freezing bite-size _____.
32. Your _____ detects the aroma of a good ripe peach.
33. Some anti-browning agents contain this. They are especially good to use with frozen apples. (2 words)
34. Freeze none of these (2 words)!

Vertical

2. A peach ripe enough to freeze will _____ easily.
3. Use dry _____ with ripe juicy peaches for best flavor.
5. This adds Vitamin C to frozen peaches and keeps them from darkening.
8. Two vowels.
10. Use soft-ripe peaches for this. Mix one cup of sugar with each quart. Make a solution of 1 teaspoon ascorbic acid to ½ cup of water. Add 2 tablespoons of this to each quart.
12. Let the peaches _____ in their container.
13. Freeze peaches in _____ if you like.

(more)

17. Ascorbic acid holds the _____ in frozen peaches.
20. Take no _____ with your frozen peaches. Freeze only ripe ones.
22. Be sure the _____ does not leak.
24. Silence!
25. _____ for ripe peaches.
27. You will be a big frozen peach _____ if your peaches are good ones.
30. You won't hear this, if your frozen peaches are good ones.
31. Be sure you get a good _____ or other closure on your containers.

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BEEF

Crossword Puzzle #6

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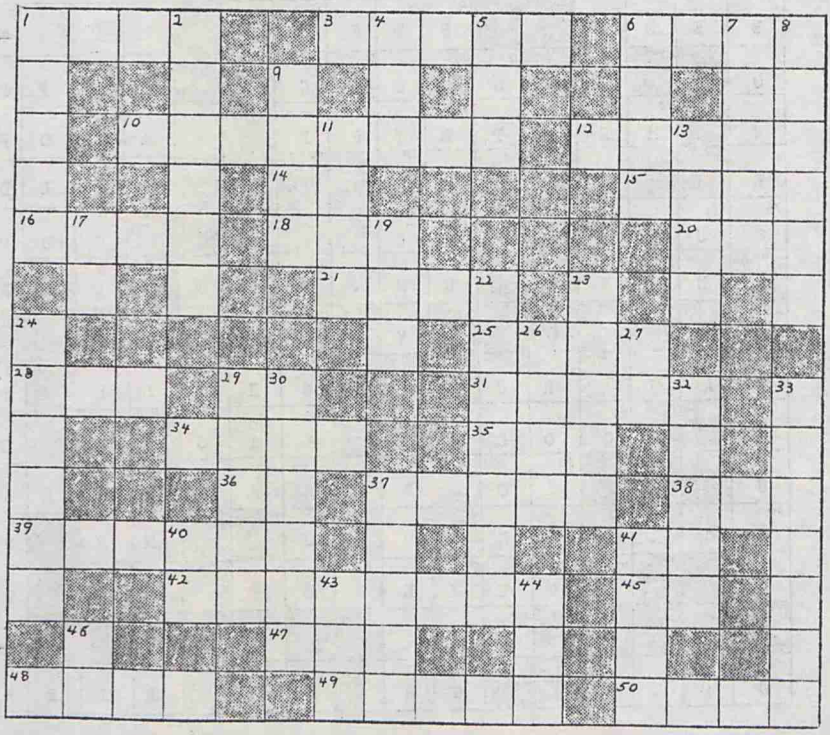
Conservation and Marketing



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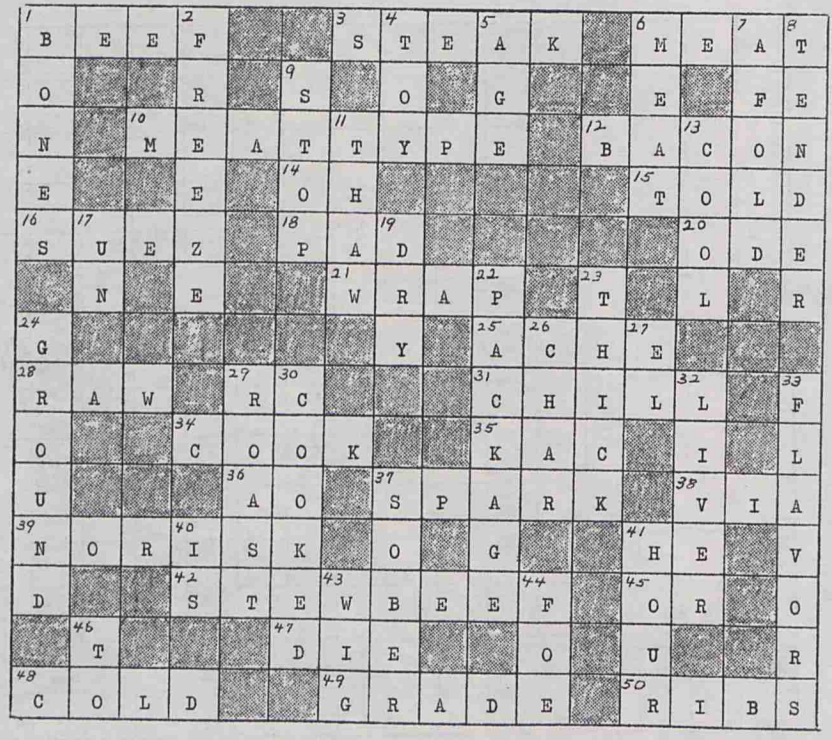
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(more)

BEEF

Crossword Puzzle #6

Nita Orr November 1958
Extension Economist in Food

Horizontal

1. _____ lends itself well to freezing.
3. Separate one _____ from another with two pieces of waxed paper or one piece of special silicone paper.
6. A good _____ cutter gets more servings from a carcass than an amateur does.
10. Almost without exception a _____ _____ (two words) beef animal makes for better eating than does a cow.
12. Some people like beef _____.
14. Exclamation.
15. The story of how to have good frozen beef still needs to be _____.
16. A controversial canal.
18. _____ (it's usually better to remove them) bones to keep them from sticking through packaging material and causing poor beef.
20. A poem.
21. _____ beef for freezing so there is no air between the meat and the packaging material.
25. Similar to a pain.
28. Freeze beef either _____ or cooked.
29. A cola type drink.
31. _____ beef immediately after killing.
34. If you _____ beef before freezing, chill it quickly and freeze while it still has its freshness.
35. Three unattached letters.
36. Two vowels.
37. Good beef on the table brings a _____ to the old man's eyes!
38. Much good frozen beef comes to the table _____ the locker plant and the freezer.
39. Take _____ _____ (two words). Keep your beef storage place (freezer or locker room) at zero ° F. or <u>colder</u>.
41. Opposite she.
42. This keeps well but not as long as large roasts.
45. Poor packaging materials, good ones put on wrong _____ high temperatures can either (or all) make poor frozen beef out of good fresh beef.
47. Opposite live.
48. You cannot tell by the "feel" test whether or not your frozen food is _____ enough to keep its top quality.
49. If you buy beef to freeze, select yours by _____.
50. _____ are hard to package well.

Vertical

1. These take space that can be used for more food.
2. Do not try to _____ a heavy load of fresh beef in a home freezer.
4. Something to play with.

(over)

5. Beef should _____ before freezing. The amount of time depends on its quality and the desire of the owner.
6. Beef is a favorite _____ with many families.
7. _____ _____ (two words) like druggists use in wrapping their packages can well be used on a package of beef for freezing.
8. If you want to eat _____ beef, freeze that kind. Freezing does not cause miracles.
9. Cease.
11. Let beef _____ in its original package.
13. Sometimes used as slang.
17. Short for United Nations.
19. Inadequate packaging can cause frozen beef to _____ out.
22. The _____ must keep moisture in and air out.
23. A good steak is a _____ one.
24. We call this hamburger. It freezes well raw or cooked but as with all other ground meat use it in a couple of months or so for best quality.
26. _____coal your steaks before or after freezing.
27. Means the in Spanish.
29. This should be thawed or partly so before cooking - else you may still have cold raw meat in the center and a cooked outside.
30. Beef _____ and then frozen will get a warmed-over flavor when reheated unless you protect it from air in storage.
32. Chill this and freeze immediately. A good source of iron for the family.
33. Off-_____ are those not so good that develop in frozen beef unless attention is given to proper handling.
37. Do this kind of thinking before you vote.
40. A verb.
41. 60 minutes.
43. Wear one, you'll be in style.
44. Temperature warmer than 0° F. is this to frozen beef.
46. It takes a good animal _____ make good frozen beef.

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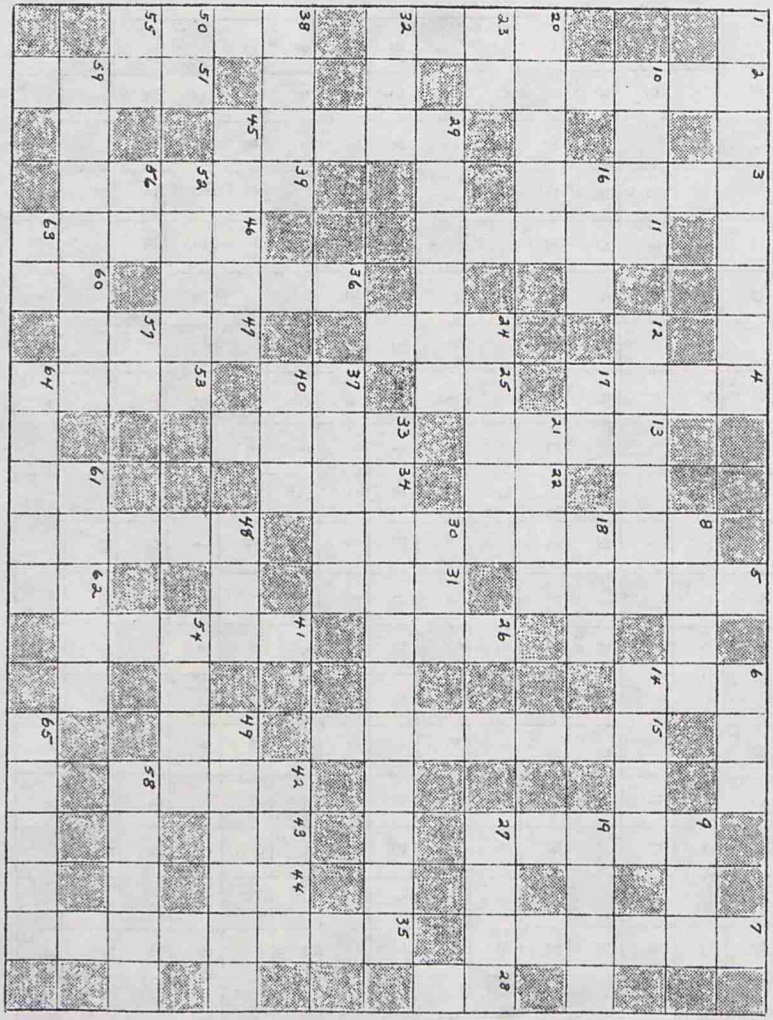
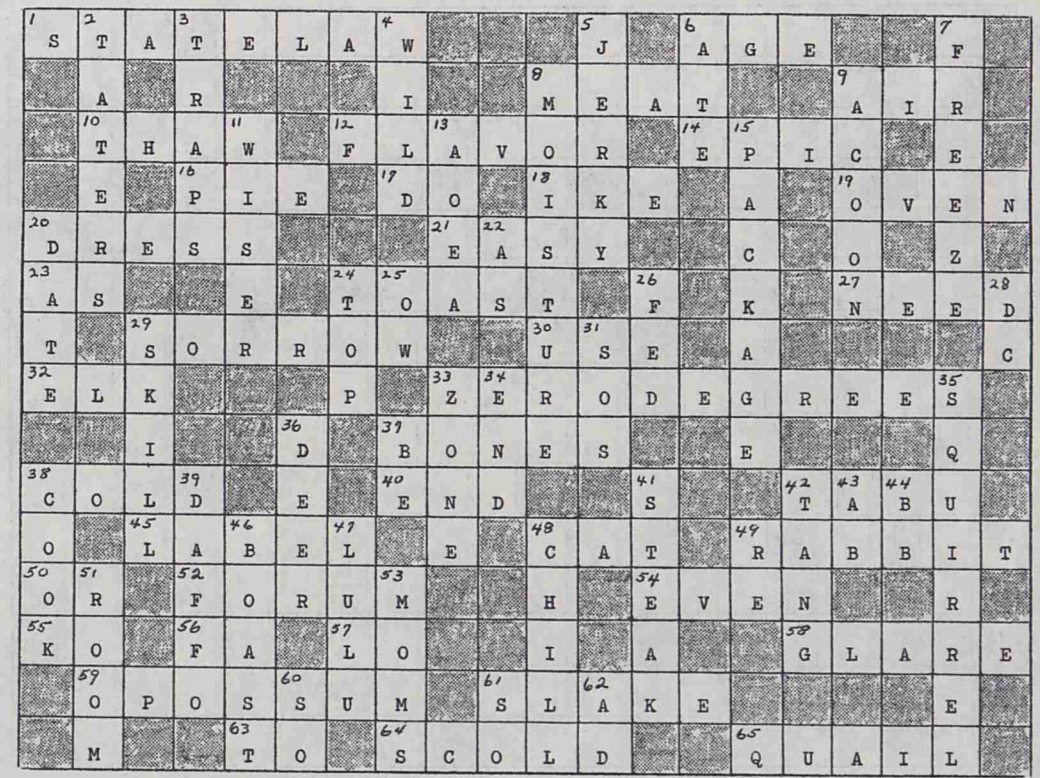
GAME

Crossword Puzzle #7

Nita Orr November 1958
Extension Economist in Food
Conservation and Marketing

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15 P I C E
16 P I E
17 D O
18 I K E A
19 O V E N
20 D R E S S
21 E
22 A S Y C O Z
23 A S E
24 T
25 O A S T
26 F K
27 N E E
28 D
29 S O R R O W
30 U
31 S E A
32 E L K P
33 Z
34 E R O D E G R E E
35 S
36 D
37 B O N E S E Q
38 C O L
39 D E
40 E N D
41 S
42 T
43 A
44 B
45 L A
46 B E
47 L E
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50 O
51 R
52 F O R U
53 M H
54 E V E N R
55 K O
56 F A
57 L O I A
58 G L A R E
59 O P O
60 S S U M
61 S L
62 A K E
63 T O
64 S C O L D
65 Q U A I L

(more)

CROSSWORD PUZZLE #7

Game

Nita Orr November 1958
Extension Economist in Food
Conservation and Marketing

Horizontal

1. A _____ controls the amount of game you can legally store.
6. Some people like to _____ game to enhance its flavor.
8. Game lends variety to the family _____ supply.
9. Wrap game so there is no _____ in the package. Use a material that will let none seep through.
10. _____ large pieces of game in their original package before cooking.
12. Wild _____ makes game different from other meats.
14. Chukar partridge is an ____urean.
16. Why not try freezing a rabbit _____ ready to brown and eat?
17. __ you ever barbecue venison either before or after you freeze it?
18. _____ is fair game for the opposing party.
19. _____ cooking is satisfactory for fresh or frozen game.
20. _____ game properly before freezing it.
21. It's _____ to break a saw blade on deer bones.
23. Prepare pheasant for freezing _____ you do chicken.
24. _____ is not good enough to serve with quail.
27. You do not _____ fancy spices to make frozen game taste good.
29. People learn to their _____ that poor handling of deer before freezing results in poor venison.
30. Package game in the amount you will _____ at one meal.
32. _____ were native to North Carolina but are now extinct here.
33. Store your game at _____ _____ F. or colder.
37. The fewer _____ you put in your freezer or locker, the more space you will have for other things.
38. You cannot tell by the "feel" test that a frozen package is _____ enough to keep its best qualities.
40. There is no _____ to the season in which you may legally keep frozen game (but do heed the limits of the hunting season).
42. Cooking an opossum with its head on is _____.
45. _____ each package with the name of game and date.
48. A ferral house _____ can be an enemy to small game.
49. Frozen _____ is one of our most popular game.
50. Add an "r" and you have Nita's last name.
52. Have a family _____ to decide when to serve your frozen game.
54. Keep _____ low temperature for frozen game storage.
55. __rean lespedeza is a good game food in cover.
56. You seldom see __t game.
57. __w tide is no time to shoot marsh hens.
58. Protect your freezer from the sun's _____.
59. Is good with 2 down.
61. A deer goes to water to _____ his thirst.
63. A good hunter wants _____ kill clean or miss clean.
64. A squirrel will _____ you if you disturb its nest.
65. His first name is Bob.

(over)

Vertical

2. Sweet ones are good with 59 across.
3. It is no longer legal to take quail in _____.
4. Domesticated game still has a _____ taste.
5. _____ is dry cured (not frozen) venison.
6. If the bear _____ much skunk cabbage, don't bother to freeze the meat.
7. _____ game below zero degrees F. if possible.
8. Keep _____ in frozen game with proper packaging and right temperatures.
9. (Two words) You may or may not want to freeze one of these.
11. It is _____ to freeze game within limits of the law.
13. These are vowels, not fowls.
15. The _____ing material should fit the game the way peper fits the wall.
20. _____ each package.
24. Obey all freezing rules if you want _____ quality frozen game.
25. What a wounded deer would say if he could talk.
26. Well _____ game has a better chance of winter survival.
28. No hunting seasons at this place.
29. It does not take special _____ to have good frozen game.
31. A message from the hunted.
33. The time _____ is important in water fowl hunting.
34. The _____ cuts of venison make delicious stew - cooked before or after freezing.
35. The _____ is a popular ingredient in Brunswick stew. The stew may be frozen for future eating.
36. The _____ is one of the ungulates and also a ruminant.
37. To exist.
38. If you want to do advanced meal planning and preparation _____ game before freezing. Then use it within a couple of months or so.
39. An animal that appears to be _____ may be rabid.
41. Bear or venison _____ is packaged the same as beef.
42. The wild flavor is sometimes called _____.
43. First two letters of the alphabet.
44. You don't shoot bear with these.
46. Many hunters are inclined to do this.
47. A comic character used as an advertising tool.
48. _____ game rapidly and thoroughly if you plan to freeze it.
49. __strain from storing game illegally.
51. There is _____ for improvement in the handling of game.
53. Dressing game should not be their job. (So says Rod Amundson.)
60. Therefore.

North Carolina State College of Agriculture and Engineering
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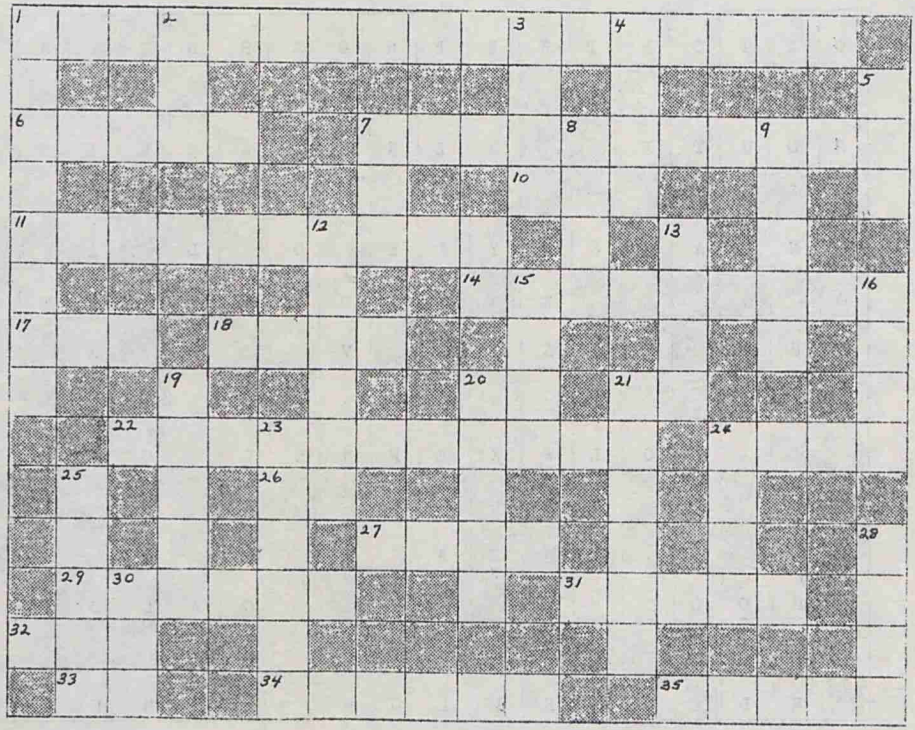
Raleigh, N. C.

CORN

Crossword Puzzle #8

Nita Orr December 1958
Extension Economist in Food
Conservation and Marketing



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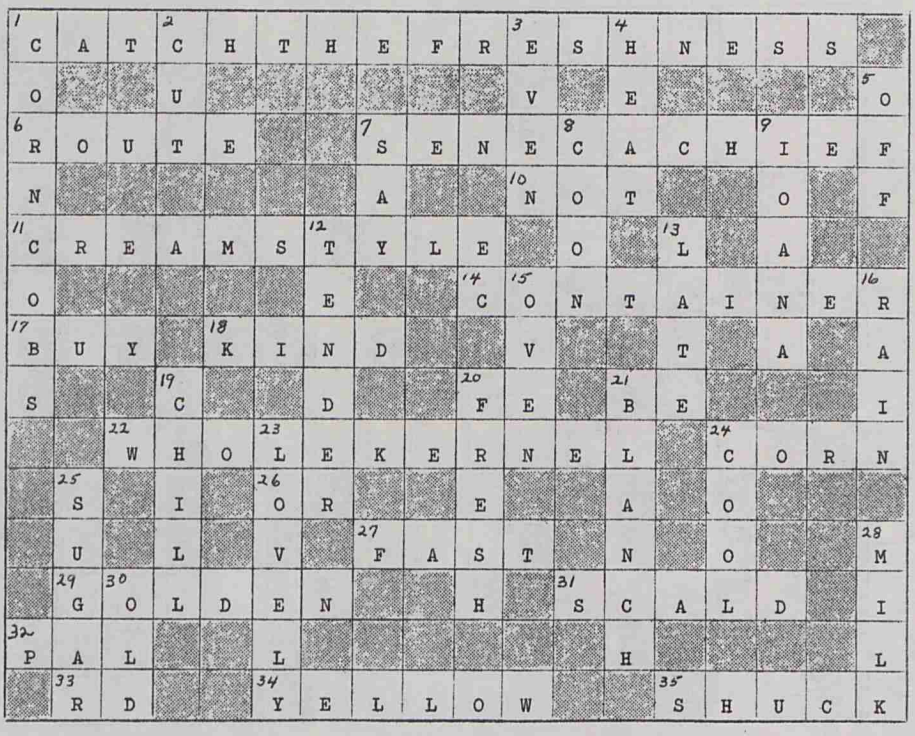
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6 R O U T E 7 S E N E 8 C A C H 9 I E F
N A 10 N O T O F
11 C R E A M S 12 T Y L E O 13 L A
O E 14 C 15 O N T A I N E 16 R
17 B U Y 18 K I N D V T A A
S 19 C D 20 F E 21 B E I
22 W H O 23 L E K E R N E L 24 C O R N
25 S I 26 O R E A O
U L V 27 F A S T N O 28 M
29 G 30 O L D E N H 31 S C A L D I
32 P A L L H L
33 R D 34 Y E L L O W S H U C K

CORN

Crossword Puzzle #8

Nita Orr December 1958
Extension Economist in Food
Conservation and Marketing

Horizontal

1. This is something you must do if you want good frozen corn.
6. Take a direct _____ from the cornfield to the freezer.
7. This is a good recommended variety of corn to freeze if you want to freeze corn on the cob because the cob is small.
10. When people tell you _____ to blanch your corn before freezing, pay them no attention.
11. This is an old way of preparing corn. It can be frozen as well as the newer way of cutting it off whole grain.
14. Corn must be put in a good one of these, and it must be well closed.
17. You can _____ frozen corn ready to store in your freezer if you don't have any of your own.
18. The _____ of corn you freeze makes a difference. Some varieties freeze better than others do.
20. The first two letters of the word "feed".
21. _____ smart. Work out your food budget for a year and plan the amount of frozen corn you will need, then supply that much whether you produce it and freeze it or whether you buy it.
22. This kind of frozen corn is very nice to mix with lima beans for succotash. (2 words)
24. Shell your pop_____ and put it in the freezer if you want to keep it free from insects.
26. You can make your own choice. Freeze freshly gathered, worked-with-quickly corn _____ have poor corn.
27. The flavor in corn changes _____. Don't let it lie around before you prepare it to freeze. Then put it in the freezer or take to the locker plant immediately.
29. This color corn looks mighty pretty in a blue bowl.
31. We use this term to mean the same as blanch when preparing corn for freezing.
32. If you have one of these let her help you with this corn freezing job.
33. Abbreviation for road.
34. You freeze Vitamin A when you freeze this color corn.
35. This is the corn's natural package. It protects from rain and wind and sun when the corn is on the stalk. It does not give good protection in the freezer.

Vertical

1. Unless these are unusually small they take up space in the freezer that you might more economically use for something else.
2. For whole kernel or split kernel corn blanch the ears and chill them before you _____ them.
3. Can mean level (and that is what your freezer should be).

(over)

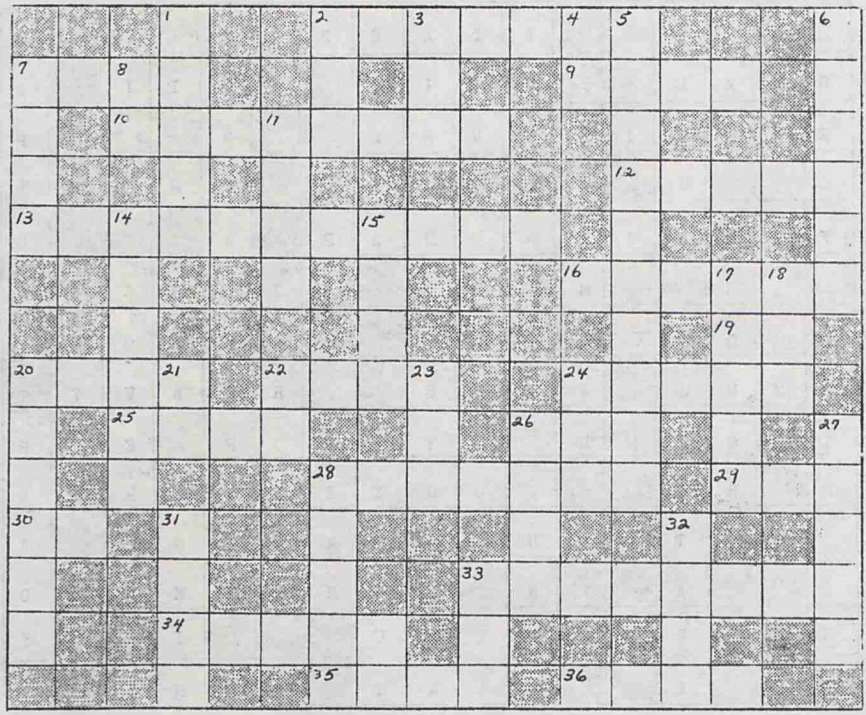
4. Get all of this out of your corn regardless of whether it is cut for whole kernel corn, cream style corn, or corn on the cob. Get it out quickly before you put the corn in the freezer.
5. When you say you have this kind of flavor in your frozen corn it means that your corn tastes the way corn should not taste.
7. Many, many North Carolina homemakers _____, "My frozen corn is the best frozen vegetable I have."
8. Keep this out of the corn patch.
9. This is another good variety of corn to freeze.
12. Freeze your corn when it is at this stage.
13. This is something not to be if you can help it.
15. If you do freeze corn on the cob you may like it better if you let it thaw and then cook it in this (unless you package it in the "boil-in-the-bag" bag).
16. This makes the corn grow.
19. Corn is a little tricky to _____.
20. If everything goes well your frozen corn should be just as good as it was when it was _____.
21. Not only is it important to do this, but it is important to do it exactly right. Time this procedure accurately according to your timetable.
23. This word is not usually used to describe corn - perhaps it describes you.
24. One reason you should _____ your corn before putting it in the freezer is to prevent a change of temperature inside the freezer that would affect the other food inside.
25. Some people add a little of this to their corn when they cook it. Some corn does not need it.
28. Gather your corn for freezing when it is at the so-called _____ stage.
30. You can make hominy out of corn that is too _____ to freeze.

North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

PACKAGING

Frozen Food Crossword Puzzle #9

Nita Orr January 1959
Extension Economist in Food
Conservation and Marketing



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PACKAGING

Frozen Food Crossword Puzzle #9

Nita Orr January 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

2. There are good _____ bags for freezing and there are poor ones. Some are too thin to protect the food.
7. Be sure each package and each container has a good _____ or closure.
9. Household _____ is too thin for frozen food wrapping. Use a heavier one.
10. If this does not stay in the food, the food loses quality. Good packaging keeps it in.
12. If you close a plastic bag with a _____, make it a gooseneck one.
13. We call the old "drugstore wrap" by this name now.
16. A well closed _____ _____ makes a good frozen food container. Food in metal freezes faster than in some other containers.
19. Put wrapping material _____ meats snugly.
20. The packaging material on meat and poultry should be a _____ fit.
22. _____ any food particles or syrup from the inside tops of bags or pouches before you try to heat seal them.
24. Using water to help protect food, such as putting fish or chicken into a container and filling the container with water makes a _____ load in the freezer. There are better ways of packaging.
25. When the good flavor of your frozen food is _____, check to see if the package (or container) is at fault.
26. Good packaging is used _____ protection of the food.
28. Avoid air_____ when you package food to freeze.
29. You will _____ the day that you do a poor packaging job.
30. Air will _____ right through some packaging materials. The oxygen in the air reacts with pork fat and it soon gets rancid or stale.
33. When freezing fish, wrap the fish loosely in _____ parchment paper (the kind used for chicken giblets) and dip in icy-cold water. Lift out of the water gently and wrap (paper, the bit of water that stays inside the paper, and the fish) in heavy aluminum foil or other good material. Use the freezer wrap (drugstore fold).
34. This may be called a packet. You freeze (and cook or reheat) one serving of food in it.
35. Most packaging materials should be kept away from this.
36. _____ people have learned the hard way that good packaging pays.

Vertical

1. Be sure you _____ the package or container air and moisture tight.
2. _____ information on outside of package so you will know what you are opening.
3. _____ has no place inside a frozen food package.
4. A little word that often gets in our way.
5. Good plastic bags inside cartons are likely the most economical _____.

(over)

6. This is not necessary to use to hold a plastic bag, but it protects the bag from tearing. It causes the food to freeze in a good shape for stacking.
7. Fix you a special (cool) place to keep your frozen food packaging materials even if you have to do it your_____.
8. Start with an "h" and it's something to eat. (Not as good frozen as otherwise.)
11. A packaging material may _____ all right just by looking at it and not be.
14. Use just _____ packaging material to cover the meat and poultry and to make a good closure. Any more is wasteful and slows down freezing.
15. Be sure food is clean before you _____ it.
17. You can't tell a book by its _____ but you can fairly well judge the quality of frozen foods by its "cover".
18. Some.
20. Not double.
21. Opposite of stay.
22. You and I.
23. And other things.
24. If packaging materials and some containers get too _____ it damages them.
26. _____ of having poor frozen food should result in good packaging.
27. Look ahead and keep packaging supplies _____ for use when you need them.
28. Sharp bones will _____ right through good or poor packaging material.
31. Some people close packages with _____. It can be used for labels also.
32. Packaging protects frozen food by acting as a sort of _____.
33. _____ materials to fit the food to be packaged.

North Carolina State College of Agriculture and Engineering
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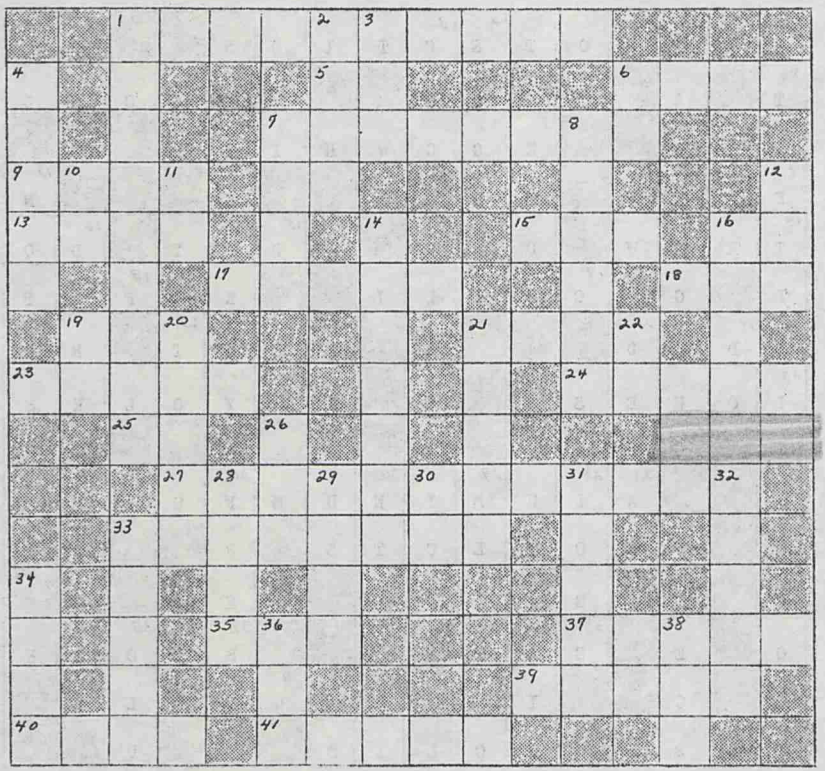
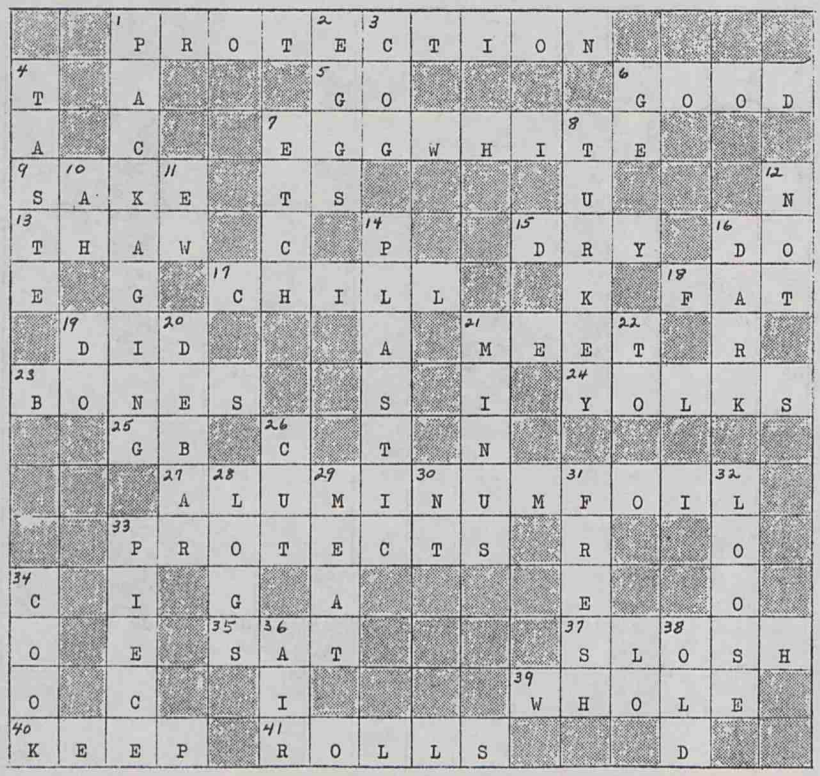
Raleigh, N. C.

POULTRY

Frozen Food Crossword Puzzle #10

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

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23 B O N E S S I 24 Y O L K S
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27 A 28 L U 29 M I 30 N U M 31 F O I 32 L
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34 C I G A E O
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O C I 39 W H O L E
40 K E E P 41 R O L L S D

POULTRY

Frozen Food Crossword Puzzle #10

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

1. Good packaging gives _____ to poultry in the home freezer, locker plant, or retail cabinet.
5. _____ easy on saying frozen chicken is not good.
6. Frozen chicken can be _____.
7. This will freeze well if put into the freezer raw. After it is cooked it will not freeze well. It turns leathery and tough - however it can be cooked in a mixture of things like cake and other things that call for it in the recipes.
9. For goodness _____ freeze healthy chickens.
13. Leave your poultry in its original package to _____.
15. Poultry will not _____ out in storage if it is packaged right and the right temperature stays steady, or very nearly so.
16. _____ serve your family frozen chicken pie once in a while (with real chicken in it).
17. ~~Fresh~~ slush ice or icy-cold water is excellent to _____ the poultry in. Keep it stirred to do the job faster.
18. Cooked chicken _____ holds up a little bit longer in the freezer than that of cooked turkey. However frozen cooked turkeys are excellent if not held too long.
19. If you _____ not like your frozen chicken check and see what was wrong. Something was.
21. Keep enough frozen poultry in your freezer to _____ the needs of your family.
23. If you take these out of your turkeys before you freeze the turkeys you can store 3 turkeys in the same place that you would store one without these things removed. (Works with any large bird.)
24. These do not freeze well raw without something else added to them. They get gummy.
25. This could stand for a good breakfast.
27. If you use this material for packaging your poultry be sure that you get the heavy weight. The light weight is no good for that purpose. Heavy is excellent.
33. A sauce or a gravy or a broth covering cooked frozen chicken or turkey _____ it from having a warmed-over flavor.
35. Some people cook and freeze enough chicken on _____urday for the next week.
37. If you have chicken in the freezer you do not have to _____ around out in the wet to catch one when you want it - or slosh around downtown trying to buy one.
39. Research shows that _____ chicken will keep a little better for a longer period of time than the cut-up one. They take more space.
40. _____ an account of the packages of poultry you put into your freezer. Keep them moving.
41. Keep some of these in the freezer ready to brown and serve.

(over)

Vertical

1. Any of the good _____ materials on the market are all right for poultry, however some of them can be moulded to the shape of the bird better than others. There should be no air spaces between the chicken and the packaging material.
2. Some people freeze these, although they are not a big frozen item with many families. They have been frozen for use in bakeries for many years and many are used.
3. Frozen poultry is an important _____ in the wheel of good eating.
4. It is important that frozen poultry _____ like fresh.
6. Put another letter on this and it means turn right when spoken to a mule.
7. Poor flavor in frozen poultry will _____ itself on your mind.
8. This is a year-round food now. Keep some of it either raw or cooked in your freezer at all times.
10. This is what you say when you eat good frozen chicken at your table.
11. If this had another "e" on the end of it it would mean the mother of a lamb. Keep lamb in the freezer alongside your poultry.
12. When you say frozen poultry is _____ good it just means you haven't had any good frozen poultry.
14. Bags made of this material are used for storing frozen poultry, but they must be heavy enough to give good protection and pulled up close around the bird so they fit.
16. If this word describes the bones in your young frozen poultry think nothing of it - it's the coloring matter in the marrow that seeped through immature bones.
19. _____ package several livers together and serve them broiled some morning for breakfast.
20. _____ poor quality fresh poultry from your freezer locker.
21. If your frozen poultry comes up _____ its good fresh flavor check on your temperatures and your packaging.
22. Stewed chicken or turkey is convenient _____ have in the freezer for chicken salad or a la king later.
26. If you have any trouble with your frozen chicken not being tender, age your poultry at least 12 hours before freezing. Age the birds before being _____ up.
28. These, made of turkeys or other large birds, are convenient to have in the freezer either frozen fresh or cooked.
29. Poultry should take its place with several other kinds of _____ in the freezer.
30. Abbr. for night.
31. Unless frozen turkey has _____ flavor it isn't as good as it should be.
32. Be sure the packaging material around the poultry is not _____.
33. Family habits are changing from serving an entire chicken at a meal. Now with frozen chicken everybody can be served the same kind of _____.
34. When you _____ chicken or turkey before freezing it wrap it very tight or cover it with broth or gravy.
36. This is something better to be outside the package than in.
38. Many _____ hens end up in the freezer.

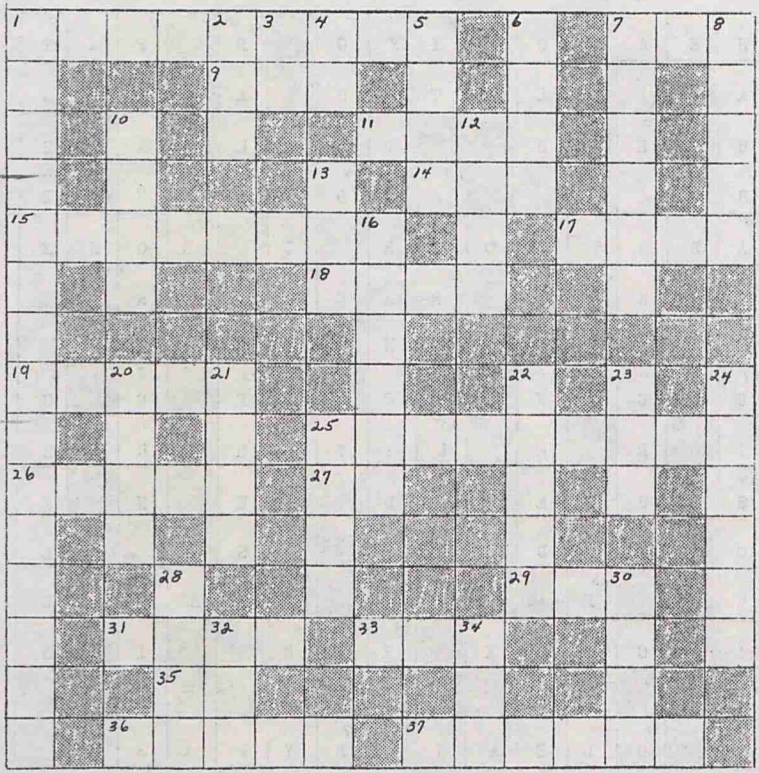
- -

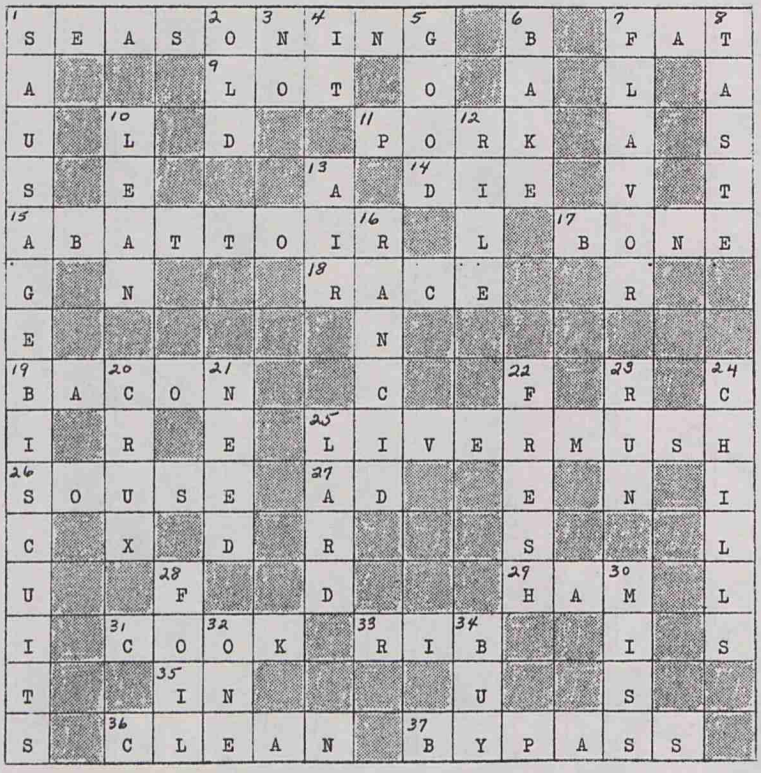
North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

PORK

Frozen Food Crossword Puzzle #11

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

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I 31 C O 32 O K 33 R I 34 B I S
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S 36 C L E A N 37 B Y P A S S

(more)

PORK

Frozen Food Crossword Puzzle #11

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

1. All of this that is put into sausage should be clean. It's better to use that which is sterilized.
7. Pork_____ is very sensitive to oxygen in the air.
9. No self-respecting pig wants to be chased around the _____ before it is killed. That causes trouble.
11. This is the most sensitive of the meats we freeze. It should be frozen just as soon as the body heat can be taken out of the carcass.
14. Little pigs are born to _____.
15. A good one of these nearby can be a tremendous help to the farmer.
17. It is not good to put old-fashioned back_____ into the freezer or locker. It is difficult to wrap and takes too much space.
18. It's always a _____ to get the fresh-killed pork chilled quickly.
19. This does not hold in the freezer very long, however it stays there better than it does in a refrigerator or out in the open after it is sliced.
25. This is an old-fashioned dish that lends itself well to freezing.
26. Cut this in meal servings before freezing it and then just take out the amount you will eat at one meal.
27. If you have some pork to sell one of these in a paper might help you.
29. Freezing certainly does not help this product. If you have nowhere else to keep it except the freezer or locker then cut it in meal size pieces and take out the amount you are going to use at one time. Some people like to bake it before freezing.
31. You can _____ pork chops before they thaw if you have them interleaved.
33. This is a delightful morsel but is not too easily wrapped for the freezer.
35. Pork belongs _____ the freezer and locker along with several other kinds of meat.
36. Freeze _____ pork. There are many good reasons.
37. Few people will _____ a good pork roast.

Vertical

1. These are very convenient to have in the freezer to heat and serve at will.
2. If pork fat has already started to get _____ tasting before it is frozen it will continue to get more so.
3. _____ excess fat belongs in the freezer.
4. If there is more fat on your pork than you will eat trim _____ off before you freeze it. (And save the space.)
5. If pork is handled right including the packaging and temperature it will stay _____ longer in the freezer or locker than otherwise.

(over)

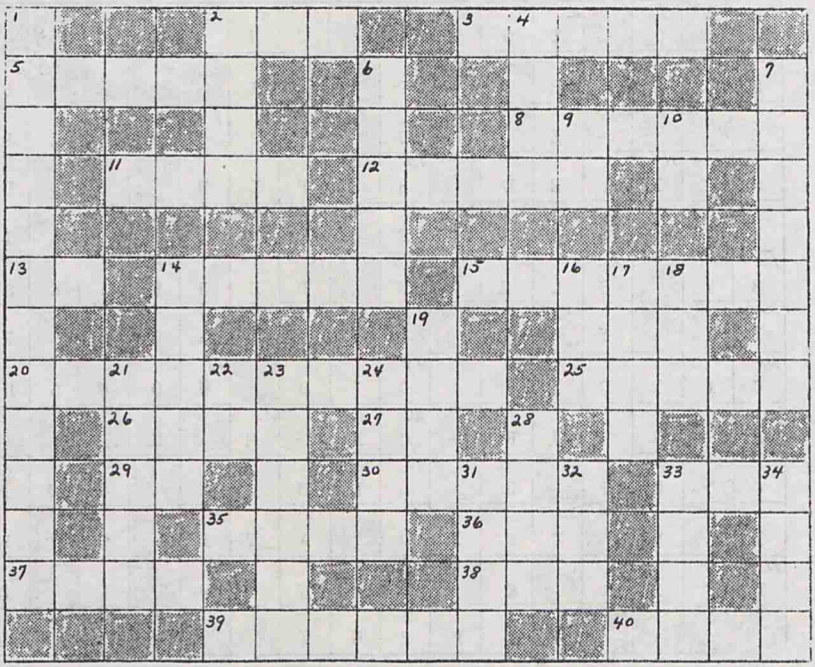
6. _____ a few sweet potatoes and freeze them to go along with your pork roast.
7. Your frozen pork should have the _____ of fresh.
8. If you want to _____ something good make a pork pot pie, flavor with bay leaves and top with sweet potato biscuits.
10. This type hog is the one desirable for freezing.
12. Never do this to a pig - especially just before you kill it.
13. The oxygen in this is one of the worst enemies of good frozen pork.
16. If pork is held too long before it is frozen, or if it doesn't have good packaging material put on right, the fat in the pork will turn _____.
20. A critical point.
21. A packaging material through which air will not seep is a great _____ for frozen pork.
22. You want your frozen pork to taste like _____ pork.
23. The pig should not do this just before he's killed.
24. He who wants good pork does this to it very quickly and thoroughly.
25. This keeps fresh and nice. Freeze in small quantities.
28. Good for pork packaging if you use the heavy freezing kind.
30. Never _____ a chance to tell people how to have good frozen pork.
32. Label the package of pork with the kind of cut and the date. That is ____ good way to know what's in the package.
34. If you _____ your pork to freeze be sure you know its history. If it's old when it's frozen it will taste that way when it comes out of your freezer or locker.

North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

FRUIT

Frozen Food Crossword Puzzle #12

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing



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37 D	A	T	E		K				38 N	O	W		L		E
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Frozen Food Crossword Puzzle #12

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

2. You can have _____ quality if you follow the rules for freezing fruit.
3. If you freeze _____ peaches you will regret it.
5. When you add this to fruit before freezing, mix them well so this dissolves before freezing.
8. This is a good thing to do occasionally.
11. _____stone varieties of peaches are the kinds to freeze.
12. It is best to let the fruit do this on the tree or vine before picking for freezing.
13. Never _____pass a chance to serve good frozen fruit to your family.
14. A _____ of cake compliments your frozen fruit. It can be frozen, too.
15. All of these freeze well if they are ripe and of good quality. However some varieties of some of them make a better product than others.
20. This mixed with ascorbic acid keeps apples from turning dark before, during and after freezing.
25. Your family _____ enjoy frozen persimmons or persimmon pudding. (Maybe they do!)
26. It isn't necessary to do this when you're freezing fruit but work with dispatch.
27. Do not place containers of unfrozen fruit _____ other foods that are already frozen in the freezer.
29. If the temperature goes _____ where your frozen fruit is stored the fruit will not taste as good.
30. You can buy the juice of this fruit frozen.
33. If you want to be absolutely accurate use scales instead of this, when preparing fruit for freezing.
35. A girl's name.
36. Your frozen fruit can be the best frozen fruit you ever _____.
37. It's a good thing to mark this on your packages too so that you will not keep any one kind of fruit in the freezer so long that it isn't at its best.
38. _____ is the time to check and see if you are feeding your family enough good frozen fruit.
39. This is a bird that has nothing to do with freezing.
40. You can get the worship given to one of these if you keep good frozen fruit before your family all of the time.

Vertical

1. This is another name for Vitamin C. It adds food value to peaches and other light fruit and keeps them from turning dark.
2. This is where some fruits should ripen.

(over)

4. Over_____ fruit can be made into puree and frozen.
6. Use frozen _____ to go in ice cream or over ice cream or as a sauce for plain cake, or in jello.
7. Never, never freeze fruit in this condition.
9. Serve special frozen food desserts _____ birthdays.
10. _____ wash delicately flavored ripe berries in icy-cold water in preparation for freezing.
14. If you use a _____ made of sugar and water on any of your fruit be sure it is cold when you put it on the fruit.
16. Seems best to serve your frozen fruit _____ though some people like to make pies and cook other desserts from the frozen fruit.
17. If there's not enough of this in your freezer or locker check and see if you have a lot of old fruit you haven't used.
18. Don't give any more of these than you can help.
19. If a fruit does not grow on a tree or a bush let it ripen on this.
21. Don't _____ to luck. Be sure that your frozen fruit is stored at 0° F. or colder.
22. A shortcake _____ delicious made with frozen ripe wild blackberries.
23. If you like your fruit cut in _____ cut it that way for freezing.
24. If you serve your fruit too _____ you will miss some of its flavor, but if you let it get too warm you will lose some of its good texture.
28. This is a TV character.
31. There are _____ reasons for freezing strawberries. One is the high Vitamin C content.
32. You can serve _____ desserts by mixing your fruits in different combinations.
33. Unless you keep your frozen fruits _____ enough they will lose food value. Zero degrees F. or colder is the right storage temperature.
34. If peaches are ripe enough to freeze they will _____ easily.

North Carolina State College of Agriculture and Engineering
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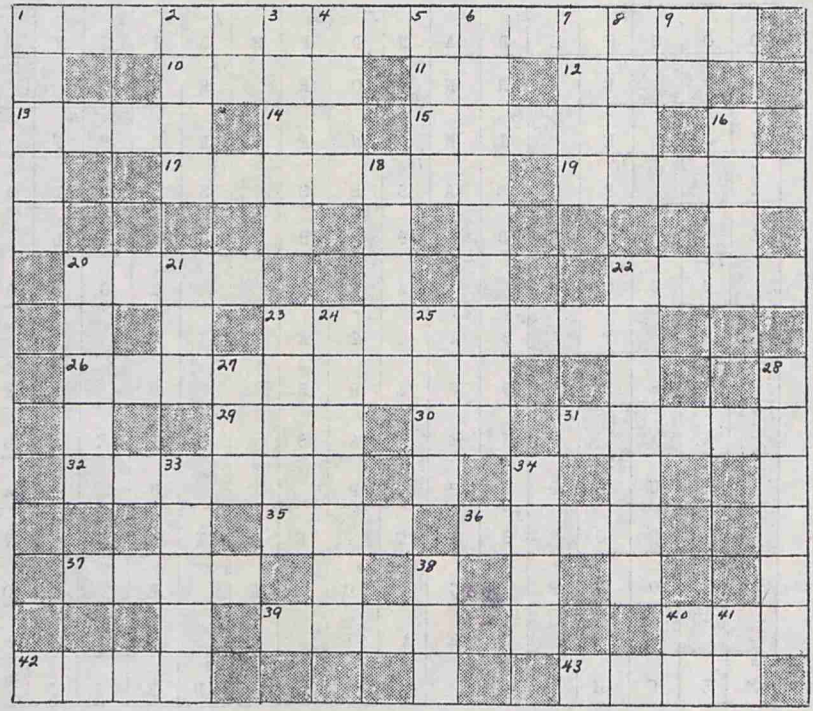
North Carolina Agricultural Extension Service
Raleigh, N. C.

COOKED FOODS

Frozen Food Crossword Puzzle #13

Nita Orr
Extension Economist in Food
Conservation and Marketing

February 1959



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42 M	U	C	H					D			43 B	E	S	T	

(more)

COOKED FOODS

Frozen Food Crossword Puzzle #13

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

1. This can be a convenience when it's food.
10. You _____ a good meal when you prepare the food yourself.
11. Many foods can be frozen either raw _____ cooked.
12. _____ tags or tape on food cooked and frozen for special diets help identify it quickly.
13. "Beautiful _____ of Somewhere."
14. Chill cooked food before you put it _____ your freezer.
15. _____ freeze cooked food that has stood around in a warm place beforehand.
17. Be sure your cooked frozen food _____ the family.
19. A package may feel _____ and still not be cold enough to keep its top quality. It needs to be stored at zero° F. or colder.
20. _____ cooked foods for freezing as quickly as you can.
22. It is important to keep frozen cooked foods _____ enough. (0° F. or colder).
23. These should not be allowed to multiply before the cooked food is frozen. (One reason against freezing left-overs.)
26. Why put these in your freezer? Freeze the freshness in your cooked foods.
29. For a special diet put _____ serving of cooked food in each pouch or packet to freeze.
30. While.
31. Package your cooked food right so the goodness won't _____ away.
32. Sometimes you can eat an entire _____ from frozen cooked food.
35. When you did this you did not stand.
36. You can have _____ quality frozen cooked food or excellent.
37. Many kinds of _____ are good frozen ready to heat.
39. Most frozen _____ should have something fresh added. Maybe a crisp salad.
40. When this is in or around frozen cooked food, the food will likely taste warmed-over when eaten.
42. Take _____ care with your frozen cooked foods.
43. Some foods are not _____ cooked before freezing. Some are not even convenient.

Vertical

1. _____ foods immediately after cooking. Then freeze.
2. Fruit cake will _____ well in the freezer. The cooked or uncooked kind.
3. Cook _____ prunes, apples and other fruits in convenient amounts and freeze that which you do not plan to eat immediately.
4. A nice sounding name.

(over)

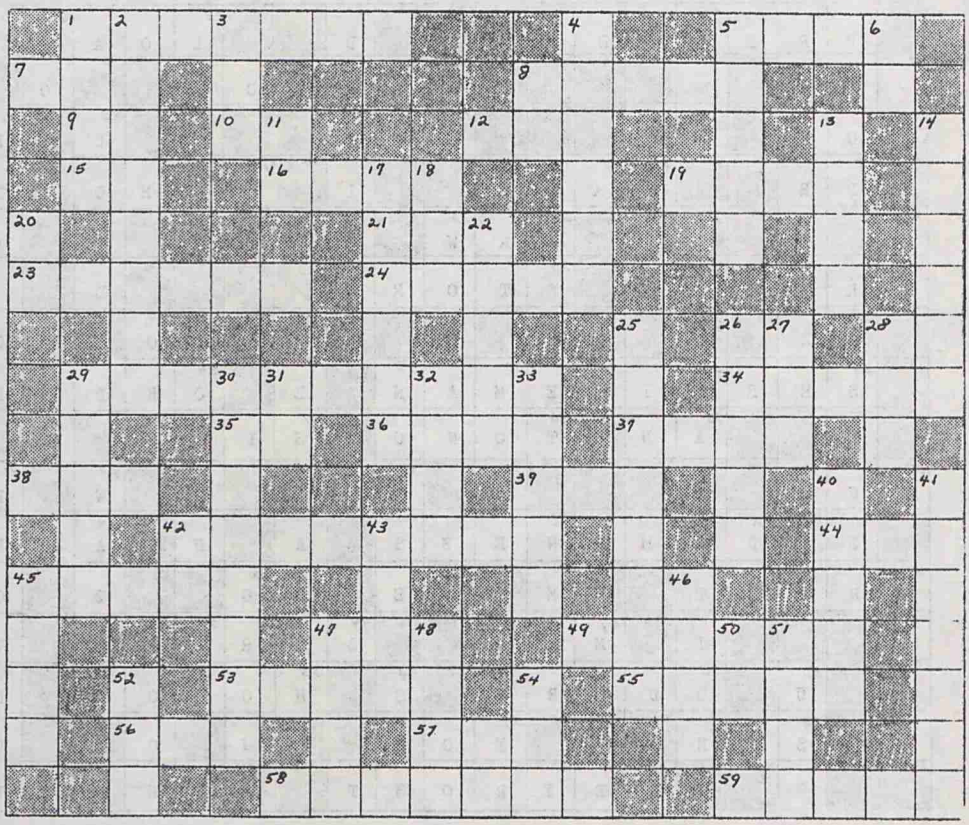
5. For most cooked foods that are to be reheated after freezing, cook them not quite _____.
6. Now, this is what you want to catch and keep in your frozen cooked foods.
7. Food in freezers is like _____ in mines.
8. Here is the magic word. It's even more magic when "below" is used with it.
9. Some little boys are called this.
16. Most people do not _____ their freezers with food already cooked. It is not a good idea to do so.
18. Most baked goods take up lots of expensive _____. It is well to cook and freeze for certain planned occasions rather than just cook and freeze.
20. When a guest unexpectedly _____, be ready.
21. Odd or _____-flavors do not develop in cooked frozen foods if everything is right.
22. To _____ and keep the cooked food's fresh goodness: cool quickly, package in good, well sealed containers or packaging material, and freeze at below 0° F. Store at 0° F. or colder.
23. If you take these out of your meat and poultry (before or after cooking) you can make more compact packages and use less storage space in your freezer.
24. Package cooked foods in amounts for an _____ serving multiplied by the number of people to be served.
25. Freezing can _____ the flavor of your cooked foods and hold it for your later enjoyment.
27. Aim for _____ quality in your cooked foods. Freezing will not improve it.
28. This disappears if food is poorly packaged.
33. You can reheat your frozen cooked food in this. (Assuming you packaged them in it in the first place - and it's the boilable kind.)
34. Pound cake and angel food cake are good staples to keep in the freezer. Chill and package them immediately after you _____ them. (See 6 down.)
38. How soon cooked frozen foods taste _____ depends on many things. Think of two months as being a fair storage time. Though under proper conditions some cooked foods are good much longer.
40. Have your frozen cooked foods taste good _____ fresh cooked foods should! (Follow the rules.)
41. Make persimmon pudding and freeze _____. (Or freeze persimmons and make the pudding later.)

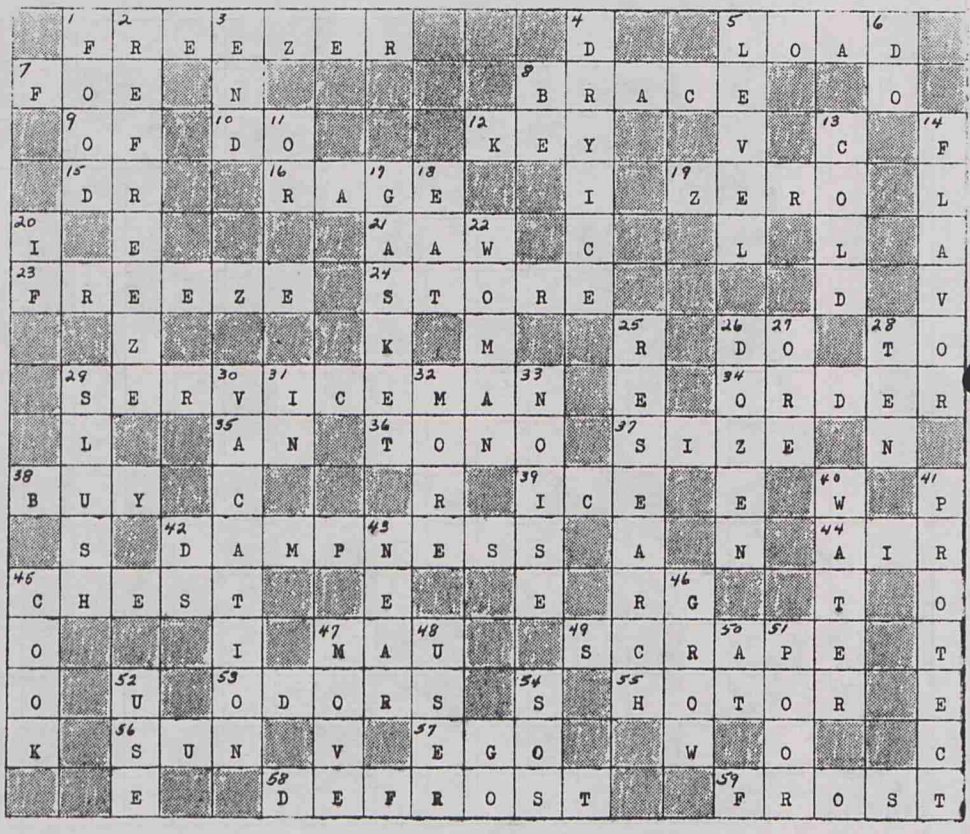
North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

FREEZER

Frozen Food Crossword Puzzle #14

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

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9 O F 10 D 11 O 12 K E Y V 13 C 14 F
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45 C H E S T E E R G T
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K 56 S U N V 57 E G O W O C
E 58 D E F R O S T F R O S T

(more)

FREEZER

Frozen Food Crossword Puzzle #14

Nita Orr February 1959
Extension Economist in Food
Conservation and Marketing

Horizontal

1. Your _____ is a wonderful thing but it won't do everything.
5. Some freezer service men say that many people over_____ their freezers with unfrozen food.
7. Poor care is a _____ to the life of your freezer.
8. Some floors need this before a heavily loaded freezer is allowed to stand on them.
9. Be sure _____ the temperature your freezer keeps. The colder the better.
10. _____ keep your food rotating in the freezer.
12. Many different things in the freezer are the _____ to good eating.
15. An abbreviation for a professional person who is likely to be needed more often where good eating habits are not well established.
16. A well stocked freezer is all the _____ these days.
19. This is a good temperature to store frozen foods. Store them this cold or colder.
21. Two vowels and a consonent.
23. Leave space between packages of unfrozen food when you put them in the freezer to _____. Never put them on top of nor against food that is already frozen.
24. Some people _____ some of their food in rented lockers.
26. If your time is limited _____ advance planning and cook some foods ahead and freeze them.
28. Remember _____ follow the manufacturer's instructions about where to place your freezer. Some of them need air circulating all around them.
29. Be sure this person knows that you have a freezer, its model number and where it is located in your home. And where your home is.
34. If you use package or pouches for individual servings of food to freeze, the special dieter can have each meal made to _____ for him.
35. _____ argument can be started on this question of chest or upright freezer.
36. Two short, important words.
37. Nobody can tell any family just what _____ freezer to buy. Each family has to work it out according to their needs, their habits, their likes and dislikes.
38. If you _____ your frozen food be sure to protect them from the place of purchase to the freezer in your own home or the locker you have rented. A little thawing here and there hurts frozen food.
39. If you put this in your freezer be sure it is in a container just as foods are.
42. Keep this away from your freezer if you can.
44. This is good to have all the way round most freezers, but not good to have inside the food package.

(over)

45. If you use this type freezer for a work surface protect it from scratches and nicks or you may find yourself with a refinishing job on your hands.
47. One consonant and two vowels.
49. It's a good idea to _____ the frost from the inside of the freezer occasionally.
53. Keep these out of your freezer. Once they get a toe-hold they are bad to do anything with.
55. Two words sometimes used before cold.
56. Though this is a mighty nice friend for some purposes it is not a friend to the freezer.
57. A freezer with a variety of good food in it inflates the owner's _____ and sense of well being.
58. Do this no more often than is absolutely necessary. There are ways that you can keep it from being necessary often. (Pamphlet #183 gives some of them.
59. If too much of this builds up inside the freezer it uses space that could otherwise be used for food.

Vertical

1. When you put this in your freezer be sure it has all of its good flavor.
2. It is possible to do this safely but it is not desirable.
3. There is no _____ to food seasons any more. You can eat in January as if it were June and in July as if it were November.
4. This is useful in transporting frozen food or in emergencies when for some reason the freezer is not working.
5. Be wise. Have your freezer _____.
6. _____ check around carefully before you call the service man. The only trouble may be something that has fallen down behind the freezer.
8. _____ smart. Stretch your freezer by keeping space wasters out of it.
11. Poor frozen foods can often be traced to poor packaging _____ high temperatures.
13. A package of food can feel frozen and not have any evidence of thawing and still not be _____ enough to keep top quality.
14. Frozen food should have the _____ of good fresh food.
17. A freezer you buy now may have a softer _____ (and a different latch) than one bought several years ago. This is a safety measure in case a child should get caught inside the freezer. (As they do sometimes in junked refrigerators.)
18. If you do a good job of your planning and your preparation of food for the freezer you will _____ well.
20. _____ you manage your freezer space right you can put more food through the freezer than if you do not pay attention to management.
22. You seldom see one of these who will do without a freezer once she has used one.
25. Our knowledge of how to have good frozen food is a result of this.
26. Sometimes commercially packaged frozen foods are cheaper by the _____. It may pay to buy some foods rather than try to freeze them yourself.
27. Food in a freezer is like _____ in a mine.
28. _____ guests for dinner do not scare the woman with food in the freezer.
29. Do not let water or _____ stand in the freezer. Either one may do harm.
30. When you leave for _____ remember your freezer. Do not forget the freezer and pull the master switch.

(more)

31. When something falls back of an upright freezer that has the condenser fastened to the back, it often blocks the flow of air around the freezer. That causes excessive running. _____ hot weather it can overload the motor and cause it to cut off.
32. Your freezer is _____ valuable to you if you use food from it daily than if you do not.
33. Your freezer will make more _____ than your refrigerator. It has more work to do. As long as the sound is smooth it is all right. As soon as you hear any clanking there is trouble.
40. If you use any of this to help defrost the freezer be sure it is in pans and that it does not spill over into the freezer. Remove the frost and ice from the freezer walls and bottom before it turns to liquid.
41. _____ your freezer from the sun and from dampness.
42. _____amaging _____un.
43. If your freezer is _____ a food preparation center it will be more convenient, but you will probably open it more often.
45. If you _____ food before you put it in the freezer be sure to cool it quickly and get it in to freeze while it still has its freshness.
46. Perhaps some things do not _____ well in your garden, or perhaps you do not have a garden. You may want to buy some frozen vegetables to put in your freezer.
47. Before you do this find out exactly the wiring situation in your new home.
48. A freezer is not a great _____ of electricity.
50. Chances are you will be better off using a poorly placed freezer than not using one _____ all.
51. The back porch is a _____ place for a freezer.
52. If your freezer book mentions a factory recommended wax _____ that one on the outside of your freezer.
53. If you put anything _____ top of your freezer protect the surface with some kind of mat. There are plastic ones made for the purpose.
54. This is the kind of message you send when something goes wrong.

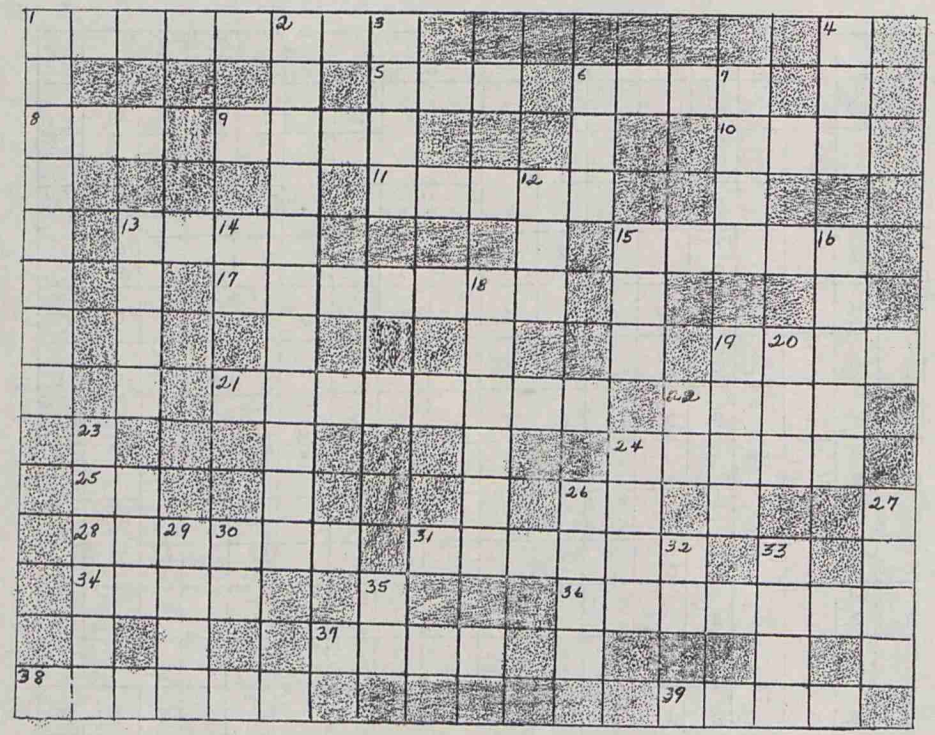
North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

FROZEN FOOD RECORD

Frozen Food Crossword Puzzle # 15

Nita Orr
Extension Economist in Food
Conservation and Marketing

July, 1960



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FROZEN FOOD RECORD

Frozen Food Crossword Puzzle #15

Nita Orr
Extension Economist in Food
Conservation and Marketing

July, 1960

Horizontal

1. You cannot _____ everything that is in your freezer.
5. It does not take an _ _ _ist to arrange a freezer conveniently.
6. It is _____ to keep food moving in a freezer.
8. You _____ loose food if you do not keep a record.
9. The _____ is more when you do not rotate your food in the freezer.
10. Know what you take _____ of the freezer.
11. _____ package is important.
13. You waste time when you have to _____ for food in the freezer.
15. Frozen foods should have _____ flavor.
17. The freezer is no place to keep a _____.
19. _____ people do not have time to search the freezer for a package of food.
21. The contents of your freezer should be _____.
22. It is not a big _____ to keep a record.
24. It is sometimes better to have food than to have _____.
25. A freezer _____ an invitation to better living.
26. Keep the food rotating _____ that fresh foods can be put in as the older ones are eaten.
28. It takes thought to _____ a freezer.
31. A simple _____ is adequate.
34. Make a freezing _____.
36. When your supply is low, its time to "_____".
37. It will _____ some effort to keep a record.
38. You might make coupons for each package of food and _____ them as you use the food.
39. It is easy to serve a _____ from the freezer.

Vertical

1. A look at your record is a _____ to fill vacant places.
2. Make your freezer _____ easy.
3. The _____ of freezing affects the quality of the food.
4. _____ food into the freezer where you can find it.
6. There is more than one _____ to keep a record.
7. Don't _____ your food, use it.
12. A _____ is a carriage with its horse or horses.

13. You will _____ the results of keeping a record.
14. Keep your record _____ a chalkboard or paper.
15. Keep a record _____ a year and you will see its value.
16. It doesn't take a _____ person to keep a record of what is in the freezer.
18. If you have a record you can tell at a _____ what is in the freezer.
19. Use your freezer as you would a checking account in a _____.
20. Food is to _____, not lose.
22. It is easy _____ forget what you have frozen.
23. A _____ record is easy to keep.
24. There is _____ to freezing food than meets the eye.
26. Put all food of one _____ together.
27. Make a _____ on record for each package of food put into the freezer.
29. Be sure the _____ of each product is on each package.
30. Keeping a record is _____ old idea that needs to be revived.
32. Foods _____ get topsy-turvey sometimes in spite of trying to follow a system.
33. If you have a good _____ about keeping a record pass it on to a neighbor.
35. If you start a record you will be _____ much pleased you will keep it up.

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North Carolina State College of Agriculture and Engineering
U. S. Department of Agriculture, Cooperating
North Carolina Agricultural Extension Service
Raleigh, N. C.

Nita Orr
Radio Tape
January 5, 1962

HEAT AND EAT FROZEN FOODS

How to get dinner without letting dinner "get" you is not the problem it used to be for the woman who works outside the home. . .neither is it for the woman who makes homemaking her complete career.

A part of the reason for this is the "heat and eat" frozen foods available to her on the food markets and those that she can prepare ahead (when she does have a little time) and freeze for busier-time use.

If you are that out-side-the-home working mother or the inside-the-home working mother your family feeding aim is the same, I believe. That aim is to feed your family wholesome, pretty, enjoyable food that builds young bodies, maintains older ones and gives a sense of well being to those who eat it. You want to do this without making a slave of yourself, because a family needs a wholesome, pretty and enjoyable mother as well as food.

There are many ways you can have quick meals. . .children can fall (or be pushed) into the habit of eating snack foods for meals until that is what they will unwisely choose. I am not talking about <u>that</u> kind of family feeding. . .once in a while we have to jerk ourselves away from that kind of quick and easy eating.

I am talking about meals you can serve your family with clear conscience. . . good, nutritious food that meets your family feeding aim.

These cooked and frozen ahead foods are wonderful IF ("if" is a pesky little word and pops up inconveniently. . .but in this case we'd better listen to it) IF. . .they have been chosen wisely and handled properly. (That includes storage temperatures of 0° F. or colder - and good packaging.)

We need to remember that deliciously seasoned gravies and sauces with a fraction of a serving of meat do not do the work in the body that a full serving of meat does. So whether you buy or cook and freeze it yourself, be sure that your main dish has full-size servings of your protein food. If you depend upon a piece of pie for a serving of fruit, make sure the fruit is there and not crowded out with too large a proportion of crust - good as frozen pie crust is! And so it goes. . . with all of our easy and convenient foods these days, the mother still must make decisions, use her judgment and keep a keen eye open to meet her family-feeding aim - regardless of whether she works at home or elsewhere.

Remember, too, that frozen foods cook more quickly than fresh and, by present methods, some frozen foods are better and

are ready to eat as quickly if they are not pre-cooked. That's true of most vegetables - though not of a few such as turnips and pumpkin.

The truly big advantage in frozen cooked foods lies with those long-preparation dishes (such as certain stews, baked beans, roasts) and with those that take special tools that are not used every day such as cake making where you can make two nearly as easy as one - or if you buy the frozen cake (there are good ones on the market) you have no clutter in the kitchen and you avoid that last step in food preparation - the cleaning up.

So the problem of "how to get dinner without letting dinner 'get' you" can partly be solved by the use of frozen cooked foods - ready to heat and eat whether you buy them or do them yourself.

Nita Orr
Radio Tape
January 4, 1962

AH, NUTS

Ah, nuts! That's what a famous general said on a historic occasion. I am going to say it, too. I'll say it another way - like so: Ahhh nŭ-uts

Do you ever feed nuts to a squirrel? It's lots of fun if you have the patience and the nuts. They eat their fill then take nuts and bury them for future treats. The squirrels show wisdom in what they do. It pays us to do the same thing - eat what we want and store others to eat later - months later or a year.

Maybe the squirrels don't care if the fat in their nuts turns rancid (I've often wondered). We do care and so we use different storage methods and places from what the squirrels use.

Some nuts keep fairly fresh-tasting for a long time if held in their original shells in a cool place, but that takes a considerable amount of cool space if you have many nuts - and time-taking shell cracking has to be done before you use the nuts. Well, they just aren't handy to use. They are handy if they are clean, shelled, packaged and in the freezer.

Let's talk about the clean part. If nuts go into the freezer dirty, they come out dirty. Freezing neither kills all bacteria nor removes dirt.

Rinse the nuts in the shell a few at a time, and drain dry. Use clean, dry hands and clean nut picks and pans. Go light on the use of the nut picks - reburst the shells instead. This gives better results. You likely have your own favorite way to burst the different kinds of nuts so the meats will come out in large pieces. That is desirable but not usually too important, for you (most of the time) break the nut meats in smaller pieces to use them.

This is important: Look the nut meats over carefully and remove all bits of shell - it's plain irritating to bite into bits of nut shell in a cooky, a salad, sweet potatoes or whatever you put the nuts in. You can remove these shell bits either before or after you freeze the nuts. It depends upon at which end of the job you have the most time. It is desirable to get them ready to use before you put them in the freezer.

Pecans, black walnuts, hickory nuts, and English walnuts are simple to freeze.

Just fill a good frozen food container with the fresh, clean nut meats - label as to kind, amount and date. Freeze below 0° F. and store at 0° F. or colder. Then enjoy fresh tasting nut meats month after month.

Chinese chestnuts, coconuts, and some ways of freezing peanuts take a bit more doing. A Mississippi researcher came up with a satisfactory way to freeze Chinese chestnuts (you scald, or blanch them the same as you do vegetables). Our information on coconut freezing comes from Hawaii (where we think they know their coconuts) and our peanut freezing research was done at N. C. State College. Peanuts? Yes, I know they are not nuts. They are legumes. They belong to the pea-and-bean family. You can freeze them several ways.

If you want a copy of instructions for freezing all these nuts, let your County Home Economics Agent know.

Remember, to keep nuts fresh and handy, freeze them. All through the year you'll hear from your family and guests: Ahhh, nu-uts!

Nita Orr
July 3, 1961

Radio Tape

BROWNING OF FRUIT

Did you ever take a bite or two out of an apple, put it down - then come back to it later and find it all brown around the edges? If you stayed away long enough all of the exposed apple flesh was brown. If you ate the brown part you found it shriveled and of poor flavor. You didn't like it. The same thing happens with a peach or other light colored fruit as white or yellow cherries and light figs.

We call this change in the fruit oxidation. It occurs rather rapidly where we expose the fruit flesh to the air. It even occurs after the fruit has been tucked down into the freezer, stacked away in neat containers. While the fruit is hard frozen the change is very, very slow. You may not even notice it, but while you prepare the fruit to freeze and while and after it thaws the change is noticeable - both in color and flavor.

How do we prevent that unwanted changed color and poor flavor? The food chemists say to add ascorbic acid to these light colored fruits before we freeze them. What's that?

It's Vitamin C by another name -- a name that is a tongue twister to some people. It's a-s-c-o-r-b-i-c as kor'bic acid. You can buy the pure ascorbic acid or mixtures of ascorbic acid and sugar or mixtures of ascorbic and citric acid. These mixtures are sold under trade names and you use them according to directions on their containers. We give directions on how to use pure ascorbic acid in our leaflet which is titled "If You Choose to Eat Good Frozen Fruit, Capture & Keep Its Bouquet." You get the leaflet from your County Home Economics Agent's office.

The research done at N. C. State College on fruit freezing found the ascorbic-citric acid mixture more effective than pure ascorbic acid for apples.

I mentioned that ascorbic acid is Vitamin C under another name, so when you add this to your peaches, or other light-colored fruit, you add food value. It is hard for most of us to get enough Vitamin C in our diets. That is one thing we need to work hard on. So when you add ascorbic acid to your light-colored fruits as you prepare them to freeze, think of

it as adding food value -- not just a food preservative. And please don't confuse it with old-fashioned canning acid. It is not the same thing.

Where do you get it? As a rule, the pure powdered ascorbic acid is sold in drug-stores. (Drugstores sell Vitamin C in tablet form, too, but for freezing it's best to get the powdered.) You'll find the mixtures under different trade names at some locker plants, some grocery stores and at other places that sell freezing supplies.

Vitamin C is a fugitive vitamin -- it's hard to keep -- it disappears in the presence of air, so keep the container closed until you are ready to use it. When you mix your ascorbic acid with water, syrup, fruit juice or fruit package it immediately and freeze, so you will get the full strength of the Vitamin C.

Oxidation? Not your frozen fruits!

Nita Orr
July 3, 1961

Radio Tape

BLANCH?

Every summer we have an outbreak of telephone calls saying, "My neighbor said you don't need to blanch (or scald) vegetables to freeze. Is it true?" Let's settle that once and for all.

To blanch or not to blanch - that is not the question when you refer to vegetables to freeze. Food chemists settled that long ago. We need to heat all vegetables before we freeze them. This is called blanching (or scalding if you prefer) and we completely cook some vegetables such as pumpkin, winter squash and beets.

This is one of the elementary facts of frozen food knowledge - an easy and quick process - under our present freezing methods I repeat we need to heat all vegetables before we freeze them. Heating stops the natural chemical actions that cause ripening. (Scientists call these natural chemicals enzymes.) Unfortunately, enzymes produce off-flavors and spoil the fresh color of frozen vegetables if we do not stop them by

heat. This is usually done by blanching (scalding) a pound of vegetables in a gallon of boiling water for a certain number of minutes. The exact time depends on which vegetable it is. If these enzymes are not treated with heat the vegetable loses its tenderness and some of its vitamin content as well as color and flavor. In fact, the fresh flavor changes to one that is similar to the way hay or dry corn shucks smell.

It is possible to go through the blanching (scalding) process and have vegetables turn out poorly. You have to do the job right. Your County Home Economics Agent has a printed leaflet that gives specific instructions for blanching 21 of our most commonly frozen vegetables. She will give you one if you ask for it.

The idea in blanching is to get heat to the inside of the vegetable to stop the ripening the enzymes cause -- then get that heat out as quickly as possible. So we chill the vegetables as soon as the blanching time is up.

If these things aren't done right the end result may be as poor as no blanching, but when they are done right (and attention is paid to packaging and temperature) the vegetables are superb.

People's tastes vary, and some don't detect slight off-flavors. Some cooks use so much fat and high seasonings in their vegetables they lose all of the original vegetable flavor and goodness anyway. And some cook them too long. Surely you're not one of those . . .

It's a funny thing -- some members of the frozen food industry had to learn the blanching lesson the hard way. Back in the early days of food freezing, one company decided blanching was too much trouble. That was the year they lost $6000 on asparagus alone. That made a believer of them!

One of our N. C. homemakers became a believer the expensive way. She listened to people who said "No use to blanch." She had 9 people to feed. The vegetables she froze were a complete loss. As a result she had to buy her vegetables. She figures it cost her family a tremendous amount of cash in additional food bills plus all the time and energy she and her daughters spent preparing the food for the freezer.

So -- do you need to blanch vegetables to freeze? YES!

Nita Orr
Radio Tape
July 3, 1961

DO YOU WASTE MONEY IN SPACE?

Here is an everyday-down-to-home space question for you. Do you waste your own money in SPACE? What space? Freezer space. Some families get more money's worth from the space in their freezers than others do. What about you? Let's check. What about that big awkward package there in the corner? . . . a turkey! If the bones were out of that bird it would take up only 1/3 of the space . . . then 2 other boned turkeys could join it in the same space.

Any large bones in any meat will cheat you out of space you could use for food. Just close your eyes and imagine the size of the pile of bones you would have if you saved all of them from your freezer or locker for a year. Anyway, boned meat is easier to wrap, carve, serve and eat.

And that corn on the cob . . . do you really like corn on the cob well enough to put that many cobs in your freezer? If so, go ahead, but zero° storage space is an expensive storage place for corn cobs. If you insist on storing cobs, store small ones. (Seneca Chief is a good variety.)

Look at the dates on some of those packages! It costs real money to keep the same food in your freezer month after month - it's cheaper if you rotate the food. Keep it moving. If you do that you eat better food more economically than if you let the same food stay month after month - and sometimes year after year - oh, not you, of course, but some people do!

Some containers waste space in the freezer or locker. Some odd shaped packages do. Now I'm not trying to get you to change the shape of your pies. But I do say cooked foods frozen in cornered pans are less likely to waste space than those in round ones. Cakes baked in cornered pans are easier to wrap, stack, cut in equal size pieces . . . well, if you've been baking your cakes in round pans, try cornered ones - even for angel food. You'll like them.

And then there are people who think, "If one layer of packaging material is good, two will be better." The trick is to use just enough good packaging material to go around the food properly and make a good tight closure with none left over. Any more is a waste of material and space and causes the food to freeze more slowly.

Trim unwanted fat off meat before it goes into the freezer or locker instead of when it comes out.

If you are real space conscious, freeze only thick soups - add water when you reheat the soup. And leave the fruit juices to industry to freeze. They can take the water out and freeze only the concentrate. It saves space, but that's where I would cheat a little. If I had home grown tomatoes and home grown grapes and could manage space in the freezer or locker I'd freeze both tomato juice and grape. They have a delightful freshness that's worth wasting space for!

If you are space management minded, these ideas (except the tomato and the grape juice) are for you and will prevent the waste of your money in SPACE!

Nita Orr
July 14, 1961

Radio Tape

SMART OR LAZY?

"Women are getting lazier and lazier." That's what the man said. I heard him. I looked him straight in the eye and commented, "You mean smarter and smarter I'm sure." He grinned a yes.

He was an advertising manager of one of our supermarket chains telling us about the American homemaker's acceptance of convenience foods.

The homemaker who puts reading or grooming or family recreation ahead of sifting flour, peeling potatoes and plucking feathers out of chickens just may be the smart one. Who dares call her lazy?

Frozen cooked food is a part of this convenience living. Labels on frozen cooked food in frozen food cabinets are large in number and vary from the familiar French fried potato to fancy hors d'oeuvres. They know no nationality. You find French, Mexican, Italian, Chinese food as well as our own American favorites - blueberry pie, candied yams, ham in raisin sauce, macaroni and cheese, shrimp cocktail and

hundreds of other prepared dishes ready to heat and eat or thaw and eat. Some stay on the market a short time. Others find favor with the public, make a profit for the frozen food handler, and continue to move from the retail cabinet to the dinner table. The next time you go food shopping you may see a frozen cooked product new to you. It may be portion packed in a container you heat it in. It may be a component part of a meal or an entire one . . it may be enough for one person or for six. It may be ordinary food or that cooked by some famous chef. You can take your choice. It even may be good or not good. The container it is in and the temperature at which it has been held may cause it to be poor or cause it to stay good. So the smart homemaker who buys her frozen food already cooked has many choices on most markets . . . and the packer has the problem of guessing what she will buy that gives him a profit.

If you cook and freeze your own food it's your problem to decide what is worthwhile and what isn't. Your profit is partly counted in oh's and ah's from your family and guests. Of course you avoid the things that don't freeze

well cooked. For example, egg whites. If you know that, you will not be tempted to chop hard cooked eggs in your casseroles nor slice them in sandwich fillings nor stuff the halves. A cooked egg white toughens and isn't good frozen. You can get around some of its undesirability if you put it through a fine sieve and mix it with other food. Then the tough particles are so small, you hardly know they're tough! (But they are). Egg whites cooked in mixtures such as cakes behave beautifully. It's just when an egg white is cooked as an egg white that it isn't good frozen.

Before you freeze cooked food, ask yourself, "Is it worth the freezer space, packaging material and my time?" Generally speaking, the foods that take the longest to prepare are good ones to freeze cooked. Brunswick stew is an example. If you make a pie, it's almost as easy to make two - bake one and freeze one to bake later. The same thing may be true of cakes - bake two or bake a big one and freeze half of it as soon as it cools.

You can manage your own way, but when you do, know that you are smart - not lazy!

Nita Orr
July 14, 1961

Radio Tape

REFREEZE?

You see "do not refreeze" on packages of frozen food, yet you know that much frozen food thaws and is refrozen - confusing; isn't it?

Let's talk about it.

Is it all right to refreeze food?

It depends on what you mean by "all right" and it depends, also, on "what" food you ask about.

Under certain circumstances and conditions you can refreeze some food and it will be "all right" to eat. You can repeat the process, and it will still be all right to eat - if by "all right" you mean safe - or that it will not make you sick. Remember I said, "Under certain circumstances and conditions."

Food you refreeze is never the superb quality of food you freeze and hold at 0° F. Even food that rises to temperatures between 0° F. and the thawing temperature do not hold their original quality. Sometimes we have to forget the ideal, though, and "make do" with what we have in certain circumstances. You

know that . . . we still honor the old saw, "Circumstances alter cases" because we know that circumstances still alter cases. And in your case, it may be you find your frozen food thawed. You immediately ask, "Should I refreeze it?"

Here is where some "if's" come in.

If your food has ice crystals in it, it is safe to refreeze. It may be even if there are no ice crystals, but that is a "maybe." If you can determine whether the food is 40° F. or colder - has not been any warmer than 40° F. - and has not been that too long (not too long would mean approximately the length of time you would keep the food safely in a household refrigerator) then it can probably be safely refrozen.

"Probably" is a weasel word. I know that, but I can't be any more definite. Here another if comes in. If the food was clean and then cleanly handled before it was frozen, it will stand more abuse temperature-wise than dirty or carelessly handled food will. Take chicken, for instance, or beef or pork - carelessly

handled (as undesirable as that is), if the freezing is done quickly and the temperature never rises above 0° F. - it is thawed promptly and put to cook immediately, it will likely give no trouble. But if it thaws it may not be safe to refreeze it, though had it been clean and carefully handled in the first place, it would be safe to refreeze it.

So unless you are sure of the circumstances and conditions, and unless the food still has ice in it, there is no fool-proof way to tell whether or not it is safe to refreeze the food. Cordelia Kelly's admonition of, "When in doubt throw it out" is wise. Most people agree that as perishable as fish and shellfish are, it is better not to refreeze them.

The simple fact is that if food stays thawed long enough to spoil, you shouldn't refreeze it. If it is clean to begin with and handled right it does not spoil as quickly as otherwise and can stand more temperature abuse.

Is it all right to refreeze food? Yes, it's safe under certain circumstances and conditions, but almost always it lowers the quality.

Radio Tape 1961
Nita Ann

ABOUT ZERO - NOTHING OR SOMETHING?

Is zero z-e-r-o "nothing"? Johnny said, "Nothing is a balloon with its skin off." Most folks do think that nothing and zero are the same thing. I can show you that, instead of being "nothing", zero is something - something important to you.

The zero has an interesting history. Mathematics was not very precise until the invention of the zero. Its one of our most useful inventions. The ancient Babylonian astronomers were the first to record it. Then it was lost for a time and later picked up by the Hindus. It came to Europe from India by way of Moslem countries. That was long, long ago (probably about 800 - 1200 A.D.), and now we take the zero for granted.

If we take this zero, put a tiny zero at its upper right and a capital F and a period along side it, we have something that we must not take for granted. I'll tell you why.

The tiny zero and the capital F added turn the big zero into a symbol for temperature. And what does temperature mean? To the mother, it may mean that Johnny's brow is very hot and she wants a doctor. To others, temperature may mean how warm it is outside or the coolness of a brisk spring breeze.

But when we bring temperature down to zero degrees F. then it means, "This is the amount of coldness frozen foods need for storage." And I'll tell you why. It is insurance against quality loss. Yes, this is why - it is insurance against quality loss. When we process our own food and put it in the freezer at home or the rented locker, we want - months later - to eat food of approximately the same quality that we put in. If we buy frozen food we want the quality we have the right to expect for our money.

Frozen food is sensitive - very sensitive to those temperature changes above 0°F.. Take strawberries, for example. They are one of our best sources of Vitamin C. When we eat strawberries we expect to get all this high vitamin content. But if the frozen berries have been held at too high a temperature much of the vitamin may have disappeared. Here is a startling fact: If you hold frozen strawberries for one month at zero degrees they lose very, very little Vitamin C. But, if you hold them at +20°F. for one month about 50% (and thats half) of the Vitamin C is gone.

Quality loss in food doesn't necessarily occur all at once. It accumulates. Several short exposures to

high temperatures cause a little damage each time. You can't undo this damage once its done - so several short exposures to high temperatures add up to serious damage. That's why its important for everybody who handles frozen food to know the value of this little round (or oval) symbol we call the zero. It isn't nothing; is it?

June 26, 1961

Nita Orr
Radio Tape

READ & HEED

Is it true what men say about women? If so, perhaps we should change the oft-used expression of "Johnny can't read" to "Mama can't read" - to be more nearly exact "Mama won't read". That's what some men say about some women. They mean it. They believe it. They have proof.

A company makes a frozen pie that's ready to eat as soon as it thaws. This information, with instructions on how to thaw it, is on the package. BUT some women pop that pie into the oven. The pie falls apart . . . everybody concerned is unhappy . . . and maybe Mama won't read but nobody thinks she won't talk. And what can she say? "The pie was no good" - The pie was a good pie which her family would have enjoyed had she read and followed the instructions on the package.

Then there is the matter of packing frozen foods in tin cans. We know the well-closed tin can (and the well-closed aluminum can) are good containers for frozen food. Foods in metal containers freeze faster than in many of the other materials. And though there are some

commercially packed foods on the market in metal cans, some of the men who make the packaging decisions are still dubious.

Long after the frozen concentrated fruit juices came on the market, some women were stacking them up in the shelves with their canned foods, although KEEP FROZEN stared up in print from the can. One company I know about payed to have many kitchens painted because cans of their frozen fruit juice exploded and spattered the kitchen walls. It wasn't the company's fault, but they paid and yelled, "Women won't read!" The juice situation is better now, but many other instructions go unread or at least unheeded according to the comments of many food and packaging men.

Take frozen vegetables, for instance. With the exception of corn on the cob, it is better to put them to cook while they are still frozen, but some cooks take them from the freezer hours beforehand and cook them after they thaw. Yet, I doubt you will find those instructions on any frozen food packer's package.

All frozen food packers want us to like their food. They want us to like it so well that we will buy more -- and more. So they try to tell us the best way to handle them. If there is an error in their instructions (that can happen, though it isn't likely), the kind thing is to call their attention to it.

Freezer service and repair men join the packers and packagers in their wail, "Women won't read". Here, too, they may mean, "Women won't heed what they read". They say many freezer owners continue to put too much un- frozen food into their freezers at one time. This is a poor practice and known as "the freezer owner's number one sin". Most freezer booklets tell how and where to place unfrozen food in a freezer so the load will be right. Read and heed. You'll have no trouble.

I ask you again, is it true what men say about women? Is it true about you? Is it?

Radio Tape

Nita Orr May 9, 1961

STRAWBERRIES

For a month or more we've seen pictures of lavishly beautiful strawberries in many magazines, in grocery stores and other places. They are teamed up with whipped cream, whipped topping, cake, ice cream and imaginative combinations from the minds of advertising people. The purpose, of course, is to whet our appetites for these luscious, red, Vitamin-C packed berries.

I don't know about you, but I don't need to see a picture of luscious berries. I can close my eyes and remember how the big, red fresh strawberries looked last year and the year before that and how they looked when I was a child -- especially how they looked in the garden early in the morning with the dew still on the vines -- I can remember how they tasted -- and I can almost smell them!

Two things worry me about strawberries these days. One is the scarcity of strawberry shortcake (and the scarcity of the knowledge of it). Try to get a serving of shortcake in a restaurant or in a

hotel dining room. What do you get? Cake! And usually it's sponge cake. My Home Economics teacher taught me that shortcake is sweetened pastry with shortening in it -- that sponge cake is cake with no shortening in it. Now cake is all right (some of it is delicious), but it isn't shortcake and should not be so called. If you want to eat your strawberries over cake, do so but call it strawberry cake.

I am not an expert on family living, but do take this suggestion from me. Give your children the privilege of eating real strawberry shortcake... all of their lives it will be a tender and sentimental memory of home. I noticed in a grocery store that one of the biscuit mix companies is featuring strawberry pictures all over their box of mix to remind you that it's easy to make real shortcake. Make it with a mix or mix your own, but don't cheat your family and yourself with substitutes just because they're less trouble!

My strawberry worry #2 is this:

A lot of people take these nice, fresh strawberries and freeze them so they can enjoy them

year round but come January and they open the berries, they're not what they ought to be.

Well, come January or next June the frozen berries should still be red, flavorful berries with their bouquet still there.

How is it done?

It begins with the variety of strawberry -- State College recommends Albritton, Dixiland and Tennessee Beauty (and there are others) for freezing. Freeze ripe, undamaged fruit. Of course you need to wash them -- and here's a little trick: wash in cold water a few at a time -- very, very gently else you will destroy texture, lose flavor and have a mediocre product. Wash before you cap them lest you lose juice and flavor.

Do you freeze them whole or sliced? The best way is to slice (or chop) and mix with dry sugar about 3/4 cup to quart. Let the sugar dissolve. Package in a good frozen food container and freeze. . .not too many in your freezer at one time, remember.

Storage temperature determines quality, too.

At 0° F. your berries keep approximately their original quality for one year. At 5° F. - 5 months, 10° F. - 2 months, 15° F. - 1 month, 20° F. - 2 weeks, 25° F. - 1 week, 30° F. - 3 days.

If you do these things you can have good strawberry shortcake whenever you like.

1961

Radio Tape

Nita Orr

CATCH THE FRESHNESS AND HOLD IT!

Do you wonder why some frozen food is superior to other frozen food? There is always one reason or more. It can be true of food that you freeze at home or buy already frozen or pay to have frozen.

You and I have both heard the remark, "So-and-so is not good frozen". Informed people do not say that except about a very few foods which actually do not lend themselves to freezing well under our present freezing methods and techniques. They include high water content foods such as, lettuce, tomatoes, radishes - foods like these - (and satisfactory methods for this type food may be worked out any day). Hard cooked egg whites don't freeze well either. They get tough, but actually there are very few foods that do not freeze well if they are good to begin with and handled properly.

So the statement, "So-and-so is not good frozen" sometimes tells more about the person saying it than it does about the food. To be factual she should say, "The frozen so-and-so that I ate was not good" or "The so-and-so that I froze was not good" whichever the case is.

Let's take fish for an example. Chances are, if you have eaten very much frozen fish, you have eaten some that was not good. But fish can be good frozen whether the job is done at home, at a local freezing plant or by a commercial packer. The rules to catch and hold its freshness are the same regardless of who freezes the fish.

The entire aim in freezing fish - as with most other foods - is to capture its freshness and hold the freshness as-is until you eat it. It is possible to do this in the fish you freeze at home or in that you pay to have frozen or in that you buy.

You can count on this: If frozen fish has lost its flavor and texture - and maybe picked up an odor it is because the right things have not been done to protect these things.

This freshness is an elusive thing in any food. Take the wonderful aroma of fruits which we call bouquet. We have to follow rules to keep the bouquet in the frozen fruits - that fresh-baked quality in breads, cakes and freshness in pies and other foods - but let's go back to the fish -

If you want your fish to be good, you have to freeze it while it is <u>fresh</u> and that means almost freeze the wiggle. If you don't do that, don't

bother to freeze the fish. You won't like it and you'll be tempted to make the untrue statement, "Frozen fish is not good". There are other things to watch and do carefully if you want the fish you freeze to be good. Ask your home economics agent to give you detailed instructions for freezing fish. These instructions include information on packaging and on temperatures. So if you don't want your friends, after eating frozen fish at your home to say, "Frozen fish isn't good", follow the rules.

Nita Orr
Radio Tape

LET'S FACE IT

LET'S FACE IT - We need to do something to keep frozen food as cold as it should be from the retail cabinet to the zero storage at home. It's a problem - Your problem if you buy frozen foods from a grocery store.

One woman told me she bought frozen rolls to bake three days later, but when she got them home they had already risen. The rolls warmed up enough to rise because the temperature was not held the same on its trip home that it was in the retail cabinet. They were pitched into a paper bag with other groceries. That just won't work whether its rolls, orange juice, green beans, strawberries or any other frozen food.

When you freeze your own food you keep it in your freezer until you are ready to use it, and you have no transportation problem.

If you buy your frozen food through a Food Plan (where you buy several months' supply at a time) the Food Plan Company takes the responsibility to deliver your frozen food in good condition.

Many of the freezer-locker plants furnish corrugated cartons for customers to take their frozen food home in. They have, for years,

stressed the importance of temperature control.

Grocery stores sell much frozen food every day. If you want to enjoy yours, get it home in good condition.

Buy everything else first then go to the frozen food cabinet. I usually take a special box to pack my frozen food in. Sometimes it's one plain grocery carton put into another one that's a little larger. The air space between the cartons acts as insulation. I pack the food in the smaller box and fill in the empty space with crushed newspapers - turn this smaller box up-side-down into the larger one - seal the outside with tape. (You know you can use the same tape over and over.) That's a cheap way to do it.

You may prefer to buy an insulated tote box to take with you when you food shop. That's a smart thing to do.

Pack (or ask the check-out helper to) your frozen food separately from other things. Don't put the butter and other perishables in the frozen food box to keep them cold. Your frozen food needs all of the "cold" it has - and sometimes more.

Your food can still be as hard as a brick and not be cold enough to keep its goodness, so protect

it. It's easier to do if you buy in quantity - and sometimes cheaper, too.

Go directly home from the store and put your frozen food where it belongs. One woman, who tires easily, got in the habit of kicking off her shoes and collapsing in the nearest chair to rest. Her frozen food sat at room temperature until she got good and ready to put it away. By that time, the orange juice would slosh in the can. Now that's no way to treat orange juice you buy for your family to drink.

The amount of harm that partial thawing does to frozen food depends on how high the temperature goes and how long it stays there - and how many times this happens from the time it is first frozen.

When you get the food back to 0° F. you don't restore its original quality. It reminds me of the old story (you've heard it) of the boy whose grandmother cut his pants off at the bottom - then the mother - then the older sister - and so the pants were too short. Each one cut only a small amount but the cumulative cutting was too much. Well, everytime frozen food gets warmer than 0° F. some damage is done. The next time damages it more - the effect is cumulative and the first thing you know, the food is not good. The reputable frozen food packer does his best to give you good frozen food - so keep it cold enough. Will you?

1961

Radio Tape

Nita Orr

REMEMBER GRANDMA

The National Association of Frozen Food Packers has a film they call "Design for Dining". Its only 18½ minutes long - yet it gives an impressive, interesting picture of the old and the new in food conservation. Shows Grandma's kitchen with it's warmth and inconveniences. Grandma had good food and she had it all year long (though in some cases not as nutritious as we have now) - that's shown in the film and its true that she had good food all year. She worked long and hard in the summer at the task of conserving (she called it putting up) food for cold winter months. And none of it was eaten until the last vegetable was gone from the garden and the fresh fruit was gone from the trees.

We live differently today - and the film shows another kitchen. This one is as bright and fresh and modern as the 1960's. The homemaker in this kitchen feeds her family good food all the year long, too, and though she does the job with no more pride than Grandma did, she does it with more ease - a great deal more ease - and much more quickly. She uses frozen foods.

That's no reason to forsake the good things Grandma fed her family - let's keep some of her favorites to enjoy frozen. We will discard the hard work and long hours of Grandma's food conservation methods. We can keep some of her good recipes. We may change the shape of some of the food.

Pumpkin was a favorite food on Grandma's table. She peeled and diced it, then measured a cup of sorghum molasses to a gallon of the pumpkin, cooked it until it was the consistency she wanted it. It was good that way. It still is. I cook it like that, chill it, package and freeze it - then use it for breakfast in July if I want to. Its good with bacon, Canadian bacon or sausage. Of course there are many other ways and times to use it.

Grandma made persimmon pudding and stored it in an earthen crock in a cool place - cellar, usually, and kept it for awhile though it had to be too sweet for our taste today in order not to spoil quickly. Now we don't have to worry about spoilage. We take these good persimmons (North Carolina is blessed with wild ones) and freeze them from a choice of

different ways - whole, pureed or in pudding to use anytime of the year we want them. Their unique flavor and their Vitamin A and C content (which Grandma didn't worry about, but we do) earn them freezer space.

How long has it been since you ate poke greens? (Grandma called them poke sallet). When those leaves are young and tender in the spring - pick, wash, blanch (for two minutes), chill and package! Put up in small packages, they are ready to mix with other greens all through the year. How good they are!

The commercial frozen food packer reaches back into Grandma's kitchen and brings out favorites through his plant already prepared and frozen ready to take home and heat and eat, or to store in the freezer and heat and eat later for the homemaker who does not choose to freeze her own. Such things as apple cobblers, pigs in blankets, chicken pot pie, apple turnovers, sliced roast turkey with gravy and many other nostalgic sounding good things are in frozen food cabinets for the buying. Along with them are foods as modern recipe-wise as the kitchen of the 1960's.

So whether you freeze your own or buy, you can eat well without hard work.