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# HOME CANNING AND DRYING

OF

# VEGETABLES AND FRUITS

With directions for making Jellies and Fruit Butters  
and for Fermentation, Salting  
and Pickling.



1918

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If you are not interested in this book please hand it to some one  
who can make use of it.

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## HOME CANNING AND DRYING.

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All our European allies are looking to us to supply food, not only to win the war but to maintain their very existence. This is a tremendous responsibility, and one which must be shared by every American; therefore every family can do no more patriotic work than to save all the food products grown this season.

Each household should can, dry, salt, and pickle a sufficient supply of perishable food for use during the entire winter and spring. This supply should be greater than ever before; for by using two or more vegetables at a meal, less wheat and meat will be required. Every can of food added to your store means so much more for the people who can't can. Every can lessens the danger of "food shortage" and "food riots".

CAN, DRY, PICKLE, SALT the whole summer and fall. Let unnecessary work go and keep at this. Let your slogan be "Keep the home fires burning," and the canners on the stove.

It is not necessary now to convince Connecticut women that every fresh vegetable or meat product grown can be successfully canned by the one day cold pack method, for thousands of quarts were stored and eaten last year. We have heard of but few failures and no cases of poison and we need fear no discouraging rumors or stories.

All women who know how should begin at once.

All those who do not know how should find out at once and then begin.

### A WORD OF CAUTION

It must not be forgotten that success in canning demands careful attention to every detail. No step should be slighted. Follow one set of instructions closely and do not attempt to combine two, no matter how good both of them may be.

With a vast army of new home canners at work in 1917 some failures were inevitable. These should not discourage home canners for the season of 1918. On the other hand the mistakes of last year should prove useful in preventing similar mistakes this year.

The experience of the United States Department of Agriculture during the last five years indicates that 75 per cent of the spoilage was due to the use of poor rubbers, the use of old tops on screw-top jars, and improper sealing resulting from the use of defective joints, springs and caps. Another fruitful source of trouble is that people sometimes undertake to can stale or wilted vegetables. Careless handling is also sure to cause loss. Absolute cleanliness in every step is essential.



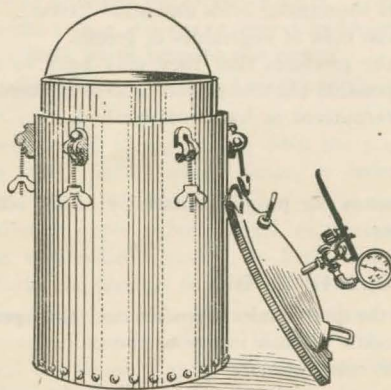
In sterilizing care must be exercised to see that the temperature is high enough and maintained for the proper length of time.

**In other words do not blame the method for failure—follow directions carefully and prevent failure.**

### A WORD AS TO BOTULISM

During the canning season of 1917 widespread attention was attracted by the statement that vegetables canned by the Single Period Cold-pack Method had caused cases of poisoning technically known as botulism. It was declared that the *bacillus botulinus*, which produces botulism, was a menace to all users of vegetables canned by this method. Such statements were obviously circulated by those seeking to discourage American food thrift. Expert research workers of the National War Garden Commission and the United States Department of Agriculture agree that there is no danger of botulism from eating vegetables which have been canned by carefully following the directions issued by the Commission or the Department. **CARE MUST BE TAKEN, HOWEVER, TO FOLLOW DIRECTIONS EXPLICITLY.** Cooking canned vegetables for 10 minutes at the boiling point, after opening the jar for use, will remove any possible danger. This applies also to Apricots and Pears.

Don't let the Kaiser's agents discourage you. Every can of product saved will make it more *your* peace when peace comes.



Steam pressure sterilizer for use in canning

## TERMS USED IN CANNING.

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### GRADING.

Grading means sorting products according to size, shape, color and degree of ripeness in order that the pack may be uniform when the process is completed.

### SCALDING.

Scalding in canning means putting the product in boiling water or live steam for a brief period. The reasons for scalding are:

1. To loosen skin.
2. To eliminate objectional acids and acrid flavors.
3. To start the flow of coloring matter.

### BLANCHING.

Blanching is the process known to housewives as par-boiling. The product is left in the boiling water or the live steam for a longer period than in the process of scalding, the time varying with the product.

### REASONS FOR BLANCHING.

1. To eliminate objectional acids and acrid flavors.
2. To reduce the bulk of vegetables or greens.
3. To soften the products that they may pack to better advantage.
4. To render possible the one period process of sterilization instead of the intermittent or fractional method.

### COLD DIPPING.

Cold dipping means the prompt immersion of the scalded or blanched product in cold water.

### REASONS FOR COLD DIPPING.

1. To harden the pulp under the skin and thus permit the removal of the skin without injury to the pulp.
2. To "set" the coloring matter.
3. To make it easier to handle the products in packing.

### "PROCESSING."

"Processing" or sterilizing means to cook the product at the boiling point or a higher temperature, to destroy all micro-organisms.

The containers should be placed in the processing vessel as soon as they are filled.

## GENERAL SUGGESTIONS.

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When using glass jars always utilize the jars on hand, but when it is necessary to buy new jars, buy the best. They are the cheapest in the long run. No glass jar with metal or rubber in direct contact with the food product is desirable unless the cap is enameled or lacquered. Glass jars should be thoroughly cleansed and should be taken directly from hot water to be filled.

1. Do not combine two recipes or two sets of instructions in canning. To do so means to fail. Remember that adequate heat, plenty of clean water, and complete sterilization are absolutely necessary.
2. In using steam pressure outfits, remember that too much pressure injures the quality of all food products.
3. Begin the canning work with a small quantity of one product the first day. Take time to do the work well, then test the products before canning a large quantity.
4. Avoid using too much salt in the canning of vegetables, greens, tomatoes, and sweet corn.
5. Avoid destroying the vegetable or volatile oils in products such as greens, cabbage, Brussels sprouts, and cauliflower when canning, but be sure to eliminate the excessive acids. This is done by blanching the product in a steamer or large dishpan (over a false bottom), with just a little water beneath the greens.
6. In preparing beets, leave 2 inches of stem and the tails on to prevent "bleeding."
7. In coring, peeling, and slicing apples, drop the product into a vessel containing cold, slightly salted water, in order to keep it from discoloring before packing.
8. In canning windfall apples whole, sliced, or quartered remember that they must be sterilized enough, to keep, but avoid overcooking, which reduces the product to apple sauce or discolors the pulp.
9. The use of preservatives or canning compounds of any kind is neither safe, economical nor practical. Most of them are harmful and the Federal Government and many states have pure food laws to forbid or restrict their use.
10. Standardize products and if they are to be marketed, protect the standard and the trade mark faithfully from year to year, through a uniform and reliable product. All canned goods offered for sale should be carefully labelled in accordance with the requirements of the State and Federal food laws.

11. If tin cans bulge at both ends after they have been completely cooled it indicates that the product has spoiled.
12. Do not use old rubbers and do not use rubbers a second time. Put rubbers in boiling water 2 or 3 minutes before using them. Avoid using rubbers which have the odor of tar or other adulterant as they may spoil the taste of the product. If a rubber springs out or a cover breaks during the process, put on a new one, partially seal as before and put the jar back to cook for 5 minutes if fruit, 10 minutes if vegetables. This must be done at once.

**CAUTION.** All products must be canned soon after being picked. Canned corn, peas, beans and asparagus may develop a sour taste known as "flat sour." This may be avoided by having the product freshly gathered and by carrying the process through without delay. These points are very important. Corn, peas, and beans should not be over ripe. Corn should be used between the milk and dough stage.

Do not prepare at one time more of a product than will fill two or three jars and as soon as a jar is ready put it in the cooker.

In using a pressure cooker, put the jars in as filled, but do not tighten the cover of the cooker until all are in place.

#### CANS OF JARS PER BUSHEL

Product (1 bushel).	No. 2 cans (pint jars).	No. 3 cans (quart jars).	Product (1 bushel).	No. 2 cans (pint jars).	No. 3 cans (quart jars).
Windfall apples . . . . .	30	20	Tomatoes . . . . .	22	15
Standard peaches . . . . .	25	18	Shelled lima beans . . . . .	50	30
Pears . . . . .	45	30	String beans . . . . .	30	20
Plums . . . . .	45	30	Sweet corn . . . . .	45	25
Blackberries . . . . .	50	30	Shelled peas . . . . .	16	10

#### BRINES

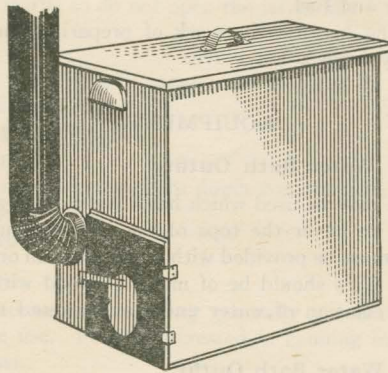
Brines of various strengths are used in canning some vegetables. The table following shows the proportions of salt and water required to make brines of given percentage strengths.

TABLE FOR MAKING BRINES.

Strength of brine.	Salt necessary.		Water necessary.			Strength of brine.	Salt necessary.		Water necessary.		
	<i>Per cent.</i>	<i>Lbs.</i>	<i>Gals.</i>	<i>Quarts.</i>	<i>Pints.</i>		<i>Per cent.</i>	<i>Lbs.</i>	<i>Gals.</i>	<i>Quarts.</i>	<i>Pints.</i>
1	1	12	1	1	1	10	10	11	1	.....	
2	2	12	1	.....	.....	12	12	11	.....	.....	
3	3	12	.....	1	.....	15	15	10	2	1	
6	6	11	3	.....	.....	18	18	10	1	.....	
8	8	11	2	.....	.....	24	24	9	2	.....	

SALE OF CANNED PRODUCTS

If home-canned products are to be sold, certain legal restrictions which are placed upon the sale of canned goods must be observed. If they are to be sold wholly within the State, information concerning the State food laws should be obtained by writing to the State food commissioners or the State board of health. If the products are to be shipped in interstate commerce, information should also be obtained concerning Federal laws and regulations by writing to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.



Hot Water Bath for use in canning. This has a fire box underneath and is to be used outdoors.

# COLD PACK CANNING.

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Without previous experience, and with no other equipment than that to be found in almost every home, anyone, adult or child, should be able to can food satisfactorily by the method described in this bulletin.

In all home canning it should be borne in mind that when hermetically sealed containers are difficult to obtain, food products which can not be preserved easily in other ways should be given preference.

## PRINCIPLES.

1. Thoroughly sterilize the product and container.
2. Seal the container air-tight.

By the COLD PACK METHOD the product is sterilized after it is placed in the cans, and this is the method most successfully used in canning fruits, vegetables and meats.

## ADVANTAGES OF COLD PACK METHOD.

1. Fruits, vegetables and meats may be successfully canned.
2. Products retain their natural color, flavor and texture.
3. Saves time and fuel.
4. Labor-saving because the work of preparing and packing may be done away from a hot stove.

## EQUIPMENT.

### Home Made Hot Water Bath Outfit.

Any receptacle may be used which has a tight cover and is deep enough to allow the water to cover the tops of the jars without boiling over. A home made canner must be provided with a false bottom or platform on which to place the cans. This should be of metal or wood with holes sufficiently large to allow a circulation of water under and around the jars.

### Commercial Hot Water Bath Outfit.

Commercial outfits are of two types. Those for use on a cook stove and also those for use out of doors. The latter has a fire box and smoke pipe. Most commercial outfits are equipped with a lifting tray. The advantages of these over the home made ones are: they have the necessary equipment for operation; they are built to hold several cans without loss of space and they are convenient to use.



### **Water Seal Outfit.**

This is so constructed that there is a double walled bath, and a cover which projects into the water between the outer and inner walls thus making three metal walls and two water jackets. This makes it possible to maintain a higher and more uniform temperature than that of boiling and so reduces the time and fuel.

### **Steam Pressure Outfits.**

Steam under pressure has a temperature higher than of boiling water. Canners of this type are made to carry from 5 to 30 pounds of pressure. The advantage of this type of canner is that the sterilization is done in a shorter period of time.

### **Operations of a Home Made Outfit.**

1. Have a perforated platform to allow the free circulation of water under and around the jar. Towels, paper, hay, etc., are unsatisfactory.
2. The water must cover the jars by at least an inch in order that the product may be uniformly cooked.
3. The water must be boiling when jars are placed in the container.
4. Begin to count time when the water begins to boil vigorously after the jars are in.
5. Tighten the covers of the jars immediately upon removing them from the water. Do not set to cool in a draft. The loss of liquid in a jar may result because:—First, the water does not cover the top of the jar; second, the product is imperfectly packed; third, the water does not circulate freely around and under the jars; fourth, if the covers of the jars are adjusted too loosely. After cooking there may be a loss of liquid and a space in the top of the jar. This space is perfectly sterile so do not open the jar to fill.

### **Glass Jars.**

There are many kinds of fruit jars on the market. In choosing jars the following points are important:

- a.* Simplicity of construction.
- b.* Perfect sealing.
- c.* No metal (unless lacquered) in direct contact with the product.
- d.* Wide mouthed.
- e.* Easily cleaned.

### **Canning in Tin.**

Those who do commercial canning generally use tin cans and many prefer them for home use. People interested in canning in tin should send for special instructions.

### **Rubbers.**

New rubbers must be used each year. They should be soft, elastic, fairly thick and free from odor of tar or other adulterants.

### **Tests for Screw Top Jars.**

1. Place top on the jar without the rubber. Seal tight. If the thumb nail can be inserted between the top and the glass, the top is probably defective.

2. Put on rubber and top, screw down tightly. Pull rubber from its position. Release it. If the rubber springs back between the top and the jar, the seal is defective.

#### Tests for Glass Top Jars.

1. Place the glass top on the jar without rubber. Tap the outer edge of the top with the finger. If the top rocks it is defective.
2. The wire bail over the top should go in with a snap even if the clamp spring is down. If it does not, remove the bail and bend to make tight. File off any sharp edges.

#### Tests for Rubbers.

1. Fold a rubber in half and if it does not crack it is safe to use it.
2. Stretch the rubber, if it springs back into shape, it has elasticity and vitality.

#### CAUTION.

The Cold Pack Method of canning has conclusively demonstrated the fact that many do not know when water really boils.

When bubbles begin to form on the bottom of the utensil the temperature of the water is only about 165° F., a long way from the boiling point.

When the bubbles begin to leave the bottom and rise to the top the temperature is only about 185° F., still many degrees from the boiling point. When the water is dancing vigorously, the water is boiling and registers 212°F.

The water should be boiling when the products are put in to blanch, when the cans are put in to "process" and when time is counted for the cooking—the water must be kept boiling during the entire process of sterilization.

#### SYRUPS FOR CANNING

It is our patriotic duty to use just as little sugar as possible. This year we should use the formula 1 qt. sugar to 4 qts. water. This syrup should be used for canning the fruits which are to be served as a sauce and not recooked. Fruits to be used for beverages, to make jelly, for pies, for salads, etc., may be canned without sugar. Cook such fruit 30 minutes instead of the amount of time given for canning with syrup.

Corn syrup may be used in combination with sugar or without. The following is satisfactory for acid fruits:

- 1 part sugar
- 1 part corn syrup
- 3 parts water

For sweeter fruits, use  $\frac{1}{2}$  as much sugar in above formula. If corn syrup is used, fill jars with hot syrup. For juicy fruits, condense the syrup by boiling a little before filling the jar.  $1\frac{1}{4}$  to  $1\frac{1}{2}$  cups of syrup are required for each quart jar if closely packed.

Fill to within  $\frac{1}{2}$  to  $\frac{3}{4}$ " of the top to prevent loss.  $1\frac{3}{4}$  cups corn syrup equals one cup sugar.

The following recipes for canning are compiled from bulletins of the United States Department of Agriculture.

# PREPARATIONS FOR CANNING.

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The first steps in the canning method described in this bulletin, as in all canning, consist in the preparation and cleaning of containers and in the preparation of the products to be canned by washing, paring, trimming, and cutting into pieces where division is necessary.

Those engaged in the work should start with clean hands, clean utensils, clean, sound, fresh products, and pure, clean, soft water. No vegetables or fruits which are withered or unsound should be canned. If possible, only fruits and vegetables picked the day of canning should be used. Peas, and corn, which lose their flavor rapidly, should be canned, within a few hours.

Before the preparation of the product is begun the containers should be washed. If glass jars are used they should be placed in a vessel of cold water over a fire to heat. They will then be hot and ready for use when the products have been prepared for packing.

All grit and dirt should be washed carefully from the materials to be used. All products should be graded especially for ripeness. Large fruits and vegetables should be pared if necessary, and small fruits, berries, and greens picked over carefully. (See Steps in Canning.)

## GREENS

Prepare and can the day picked. Sort and clean. Blanch in a vessel with a little water under false bottom or in a regular steamer, 15 to 20 minutes. Do not pack too tight.

## CAULIFLOWER

Use the flowered portion. Blanch 3 minutes. Plunge it into cold brine (one-half pound salt to 12 quarts of water). Allow the cauliflower to remain in this brine for 12 hours.

## ASPARAGUS.

Wash, scrape off scales and tough skin. With a string bind together enough for one jar. Blanch tough ends from 5 to 10 minutes in steam, then turn so that the entire bundle is blanched 5 minutes longer.

## CORN.

Can the same day as picked. Remove husks and silks. Blanch on the cob in boiling hot water 5 to 10 minutes. Plunge quickly in cold water. Cut the corn from the cob with a thin sharp-bladed knife. Pack corn in jar but not too tight.

## TOMATOES.

Grade for size, ripeness, and color. Scald in hot water enough to loosen skins. Plunge quickly in cold water. Remove core and skin. Pack whole. Do not add water to tomatoes. Space may be filled with crushed tomatoes.



Drying by means of an electric fan.

## ROOT AND TUBER VEGETABLES, SUCH AS CARROTS, PARSNIPS, BEETS, TURNIPS, ETC.

Grade for size, color, and degree of ripeness. Wash thoroughly. Scald in boiling hot water sufficiently to loosen skin.

Persons having a few vegetables find it convenient and economical to cut them and combine for soup mixture. Follow directions for the vegetable if canning them separate.

### STEPS IN CANNING.

1. Grade product according to size, shape and degree of ripeness.
2. Wash thoroughly, trim or pare.
3. Scald or blanch according to recipe.
4. Cold dip. This should be done quickly but thoroughly in very cold water. The product should never be allowed to stand in cold water.
5. Pack carefully into hot jar.
6. Add boiling liquid.
7. Wipe top of jar carefully.
8. Place scalded rubber and cover on jar.
9. Partially seal.
10. Cook the length of time given in recipe.
11. Remove jar.
12. Tighten cover.
13. Cool.
14. Test seal when cool.
15. Label.

See time table on page 32 for blanching and cooking fruits and vegetables.

### TOMATO PULP FOR CREAM OF TOMATO SOUP.

Place tomatoes in a wire basket or piece of cheesecloth and plunge into boiling water from 1 to 3 minutes. Plunge into cold water. Remove the skin and core. Place tomatoes in a kettle and boil 30 minutes. Pass the tomato pulp through a sieve. Pack in hot glass jars or tin cans while hot, and add a level teaspoonful of salt per quart. Partially seal glass jars. Sterilize 30 minutes in hot water bath or 10 minutes 15 pounds pressure.

### CANNED PORK

After the animal has been butchered, cool quickly, and keep the pork for at least 24 hours; can only lean portions, using the fat to make lard; place meat in a wire basket or cheesecloth and boil for 30 minutes, or roast in the oven for 30 minutes; cut into small sections, and pack closely into glass jars; put rubber and cap in position. Sterilize 4 hours in hot water bath or  $1\frac{1}{2}$  hours under 15 pounds pressure.

### POULTRY AND GAME.

*Recipe No. 1.*—Kill fowl and draw at once; wash carefully and cool; cut into convenient sections. Place in wire basket or cheesecloth and boil until meat can be removed from bones; remove from boiling liquid and remove meat from bones; pack closely into glass jars; fill jars with pot liquid, after it has been concentrated one-half; add level teaspoonful of salt per quart of meat, for seasoning; put rubber and cap in position. Sterilize  $3\frac{1}{2}$  hours in hot water bath or 1 hour under 15 lbs. pressure.

*Recipe No. 2.*—Kill fowl and draw at once; wash carefully and cool; cut into convenient sections and pack at once into glass jars; fill with boiling water; add level teaspoonful of salt per quart; put rubber and cap in position. Follow time table in above recipe.

### FRESH BEEF

Obtain fresh beef, cut into convenient pieces for handling (about  $\frac{3}{4}$  pound in weight), and roast or boil slowly for one-half hour. Cut into small pieces, remove gristle, bone, and excessive fat, and pack directly into hot glass jars; fill with gravy from the roasting pan or pot liquid concentrated to one-half its volume; put rubber and cap into position, not tight. Sterilize  $3\frac{1}{2}$  hours in hot water bath or 1 hour under 15 pounds pressure.

### FISH, OYSTERS OR CLAMS

Use only fresh products, not more than 24 hours out of water; rinse carefully in fresh water, to which a little salt has been added; place in a wire basket or cheesecloth; plunge into boiling water long enough to make the oysters curl a little; cut fish into convenient lengths for packing, blanch 5 minutes; pack into glass jars, put 1 teaspoon salt to one quart, partially seal and sterilize in hot water bath  $3\frac{1}{2}$  hours; or 1 hour under 15 pounds pressure.

## FRUIT JUICES.

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It is important this year, with glassware so expensive, that all possible use be made of bottles and jars which ordinarily are thrown away. Glass candy jars with screw tops or glass stoppers can be used nicely for marmalades, pickles and fruit butters. Narrow necked bottles can be used for fruit juices, such as grape juice or cider, or for strained tomatoes and other things sufficiently liquid to pour readily. Wide mouthed jars can be used for jams and preserves. Old tumblers make first class jelly glasses, while crockery or glass mustard bottles can be used for chili sauce.

First wash the bottle. If oily or sticky use very hot water and soap suds. Remove sediment in the bottom of bottle by shaking violently after putting in soapy water and shot or small pebbles. Rinse well, invert and drain. Before filling with food, the bottle should be sterilized.

See that the cork fits. Where a sealed bottle is desired, as in the case of fruit juices or strained tomato pulp, boil the corks in paraffin for a few minutes to fill the crevices. Then fill with food, and force the cork in at least  $\frac{3}{4}$  inch. Make a hole in the middle of the cork. Put the bottle into hot water and cook twenty or twenty-five minutes. Remove from the boiling water and fill the hole in the cork with melted paraffin or sealing wax. Jellies and preserves in heavy syrup do not need to have the corks "filled" by boiling in the paraffin. Dip the bottle when finished into melted paraffin. Bottles should not be used for canning peas, beans, corn or asparagus or for any fruits or vegetables cooked by the cold pack process. Fruit jars with perfect seals should be used for these.

The one-period, cold-pack method of canning will be found especially helpful in eliminating the necessity of using paraffin or other wax tops for jellies, jams, and preserves. The use of containers with screw tops is recommended for these products. This will make unnecessary the expense and trouble of using paraffin, and will make the melting, molding, and deterioration of the top parts of the packs less likely.

### FRUIT JUICES FOR JELLY

Fruit juices for use later in jelly making can be sterilized and bottled without sugar and made into jellies at the housewife's convenience. This enables her to do with fewer jelly glasses and to distribute her purchases of sugar for jelly making through the year. Moreover, with the bottled juice she can make a greater variety of jellies, as juices which will not jell can be put up when the fruit is ripe and combined later with fruits that will jell, or fruits ripening at different seasons can be combined. For example, the

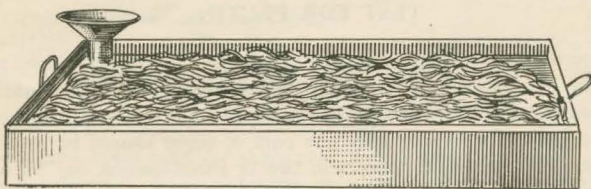
juice of strawberries, cherries, or pineapple can be kept without sugar and later when apples are plentiful can be made into combination jelly.

If sugar is used a good proportion is 1 gill of sugar to 1 quart of grape juice. With currants 1 pint of sugar to a quart of juice and with all other fruits  $\frac{1}{2}$  pint sugar to 1 qt. juice.

To put up unsugared fruit juices for jelly making proceed exactly as if jelly were to be made at the time. Cook the fruits until they are soft and strain out the juice through a flannel bag. Heat and pour while hot into bottles previously scalded. Fill the bottles full, leaving no air space between juice and cork or seal. Place the filled sealed bottles on their sides in water near the boiling point, and keep them in the bath for about 30 minutes. Make sure that the corked or sealed end is under the hot water. As soon as the bottles are cool cover the cork with a paraffin seal. Thorough sterilization and sealing are absolutely essential to success.

To make jelly from the sterilized juice, test its jelling quality, add the proper amount of sugar, and proceed as in making jelly from freshly expressed juice.

Still an easier way is to fill sterilized jars with hot fruit juice, partially seal and follow directions for sterilizing fruits, but cook 30 min. in hot water bath.



A commercial drier to be filled with water and placed on the stove.

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## JELLIES.

Limit the amount of jellies and marmalades to the use of invalids and children.

Jelly is a gelatinous product composed of pectin, acid, sugar, mineral salts and fruit flavors. Not all fruits will make jelly; some lack acid while others have acid but no pectin. Cherries and pineapple illustrate this class. Other fruit, such as apples, crabapples, gooseberries, quinces, currants, and oranges, contain both acids and pectin in sufficient amounts to form a jelly with the addition of sufficient sugar and proper boiling.

## SELECTION AND PREPARATION

In selecting fruit for making jelly, sound, ripe fruit should be chosen and the jelly made as soon after picking the fruit as possible. Fruits lose their flavor upon standing and there is a gradual breaking down of the pectin, thereby lowering their jelling power.

Wash or rinse the fruit to remove dirt. Allow  $\frac{1}{2}$  cup of water for each pound of fruit. In the case of apples and crabapples, cut or slice into small pieces, add 3 cups of water for each pound or part of fruit taken.

Heat to boiling, allow to simmer one-half to three-fourths an hour. This will depend upon the fruit used. Some varieties will require longer time to cook. The jelly will not be clear if the fruit is cooked until it has become thoroughly soft.

After cooking, the fruit should be strained through a cheesecloth or flannel bag.

Do not discard the fruit pulp after the juice is extracted or squeeze it for a second quality of jelly; but instead make another juice extraction. Place the pulp in the kettle, add enough water to cover, stir until well mixed, then cover, bring slowly to boil as before and drain again. Test to see how much pectin is obtained. If there is much, the process may be repeated and each extraction may be made up into jelly or the first used alone and the second and third combined to save time.

## TEST FOR PECTIN

To determine if the juice contains pectin, boil 1 tablespoonful and cool. To this add 1 tablespoonful of grain alcohol and mix, gently rotating the glass. Allow the mixture to cool. If a solid mass—which is pectin—collects, this indicates that in making jelly one part of sugar should be used to one part of juice. If the pectin collects in two or three masses, use  $\frac{2}{3}$  to  $\frac{3}{4}$  as much sugar as juice. If it collects in several small particles use  $\frac{1}{2}$  as much sugar as juice. If the presence of pectin is not shown as described it should be supplied by the addition of the juice of slightly under-ripe fruits, such as apples, currants, crab-apples, green grapes, green gooseberries or wild cherries.  $\frac{1}{8}$  to  $\frac{1}{2}$  corn syrup may be used with sugar.

## WHEN TO ADD SUGAR

When the juice begins to boil, add the sugar immediately. Stir until the sugar is dissolved. By adding the sugar when the juice begins to boil there is less danger from crystallization.

## COOKING

After the addition of sugar the cooking should be as rapid as possible to avoid destruction of pectin, which would cause the finished product to be less firm. Long cooking will tend to darken the product. If the sugar is heated before being added to the boiling juice, the temperature of the juice is not lowered so much but there is not a great difference in the time of cooking. Cane sugar, beet sugar, granulated, powdered or lump all give the same finished product.



To determine when product is finished test it with a spoon. Dip a spoon in the boiling mass. When the jellying point is reached, it will drop from the side of the spoon at three different points. When this stage of the jelly is reached, remove from the fire immediately and skim.

#### FILLING GLASSES

After skimming the jelly, pour at once into hot sterilized glasses and cover with a  $\frac{1}{8}$  inch layer of paraffin. By running a pointed stick around the edge of the glass while the paraffin is still hot, a better seal can be obtained. Cool as rapidly as possible.

Jelly should be stored in a cool, dark, dry place. If jelly is stored for a long time it will deteriorate in texture, color and flavor.

Jelly keeps much better if in sealed glasses.

#### MISTAKES TO AVOID

**SOFT JELLY.** Jellies sometimes are syrupy because more sugar has been used than the fruit juices require, or because after the sugar was added the boiling was not continued long enough to drive off excessive water.

**TOUGH JELLY.** Jellies are tough because too small an amount of sugar has been used for the quantity of juice, or because boiling was continued after the jellying point had been reached.

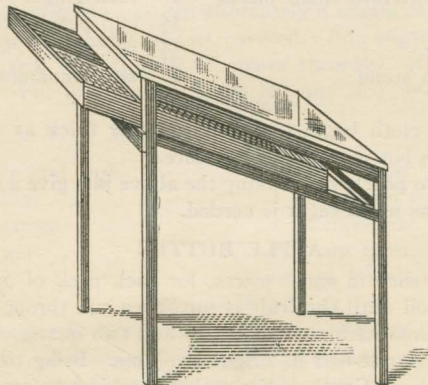
**CRYSTALS IN JELLY.** Crystals appear throughout the jelly because of the excess of sugar; also because the juice has been boiled to too great a concentration before the addition of sugar.

**CLOUDY JELLY.** This may be due to cooking the fruit too long before straining off the juice, or to not having used sufficient care in straining.

#### APPLE PECTIN

One pound apple pulp (or skins and cores); juice 1 lemon; 2 qts. water.

Boil for  $\frac{1}{2}$  to  $\frac{3}{4}$  hour, press the juice through cheesecloth, then strain through flannel jelly bag. This juice when cold should be tested with alcohol to determine the proportion of sugar to add to juice. Pectin can be bottled, sterilized for 15 minutes in a water-bath and kept until needed for jelly making.



Sun Drier with tray under glass

## ORANGE PECTIN

Cut or scrape the yellow rind from the peel of the orange; pass the white portion through the food chopper, weigh, and for each pound of this prepared peel add one quart water and four tablespoons lemon juice; mix thoroughly and allow to stand 15 minutes. Then add 1 quart water, boil ten minutes, let stand over night. Next morning boil ten minutes, allow to cool, press to remove juice, and then drain juice through a flannel bag. If not desired for immediate use, bottle and sterilize as for apple pectin.

## JAMS AND MARMALADES.

Jams may be made of small fruits which are not whole or firm enough to use for preserves. No attempt is made to retain the original shape of the fruit; the finished product having a uniform consistency.

Marmalades have a more jellylike texture and thin slices of the fruit appear suspended throughout the mixture.

Fruit Butter and Pastes usually have less sugar and the product is more concentrated. These should be made this year in preference to jelly and marmalade.

Conserves are made of large or small fruits, cooked in the same manner as jams.

Stoneware jars, large necked bottles or glasses, may be used for packing jam.

In selecting berries for jam, the ripe broken ones will give fine color and flavor, but about one-half the quantity should be underripe. This is necessary to give a jelly-like consistency to the product. Cooking in small quantities also helps to retain color and flavor.

Weigh the berries and allow  $\frac{1}{2}$  to  $\frac{3}{4}$  of a pound of sugar to each pound of fruit. Rapid cooking is essential and the jam should be thick enough to remain in place when a teaspoon of it is placed on a plate to cool.

$\frac{1}{2}$  cup sugar and  $\frac{3}{4}$  cup corn syrup may be used with 1 lb. of fruit.

$\frac{3}{4}$  cup sugar and  $\frac{1}{2}$  tablespoon salt may be used to 1 lb. of fruit.

### PEACH JAM

2 $\frac{1}{4}$ lbs. peaches cut into small pieces	1	inch ginger root
$\frac{3}{4}$ lb. sugar	$\frac{1}{2}$	cup peach juice
6 whole allspice	$\frac{1}{2}$	tsp. whole cloves
1 cracked peach stone	1	tsp. cinnamon bark
		1 sprig mace

Tie spices in cloth bag. Cook all together thick as marmalade and clear. Pack hot in hot jars and seal at once.

Dates added to peaches in making the above jam give a delightful flavor and but  $\frac{1}{3}$  to  $\frac{1}{2}$  as much sugar is needed.

### APPLE BUTTER

Wash apples, slice in small pieces, for each peck of apples allow one gallon of water; boil until the fruit is soft, then rub through a sieve.

To the pulp from each peck of apples add two quarts of cider that has been boiled down to one-half its original volume. Bring to a boil and add three pounds of sugar. Continue the cooking and just before the consistency

desired for finished product, add spices cinnamon and cloves according to taste. When the butter is as thick as desired place in sterilized containers and seal.

Jams may be made of different combinations of fruits according to the general rule. Conserves are jams to which nuts, raisins, dates, ginger, orange, etc. have been added in proportions to suit the taste. Nuts if used should not be cooked with the fruit but chopped and added 5 or 10 minutes before the conserve is finished.

## PICKLING.

Pickling is a method of preserving which is not difficult and the results are successful.

Preservatives used are salt, sugar, vinegar and usually spices.

Vegetables used for pickling are usually soaked overnight in a brine made of 1 cup of salt to 1 qt. of water. This brine removes the surplus water from the vegetables and so prevents weakening the vinegar.

Confine the spices in a cloth bag to prevent giving a dark product.

To be firm, do not cook too long, nor at too high a temperature.

If pickles are kept in a stone crock have them completely covered with vinegar to prevent molding.

Alum should not be used to make vegetables crisp as it is injurious to health.

### SMALL CUCUMBER PICKLES

300 cucumbers	cider vinegar
1 cup salt	2 cups brown sugar
2 sticks cinnamon	1 tablespoon cloves, whole
water	1 tablespoon allspice, whole
	3 bayleaves

Choose very small, fresh, green cucumbers. Wash them carefully and put into a deep dish. Cover with cold water and salt. Let them stand over night and in the morning drain and dry them carefully with a towel. Put in a deep preserving kettle and add alternately a cupful of cider vinegar and cup of water until cucumbers are just covered. Add sugar, spices, and bayleaves and let cook long enough to steam through. Keep turning them until taken off. Put in glass jars while hot and seal air tight.

### MUSTARD PICKLES

3 qts. cucumbers (cut up)	1 gal. vinegar
2 qts. small onions	1 tablespoon celery seed
1 qt. green tomatoes	1 oz. turmeric
2 small cauliflower	1½ cup mustard
2 large peppers	6 cups brown sugar
	2 cups flour

Place vegetables in brine over night. In morning scald (not boil) in vinegar and water. Drain, mix dry ingredients to paste with vinegar, bring all to boiling point; add vegetables, and scald. Let cool, and put in jars.

### TOMATO CATSUP

2 quarts ripe tomatoes, boil and strain. 2 cups vinegar  
Add 2 tablespoonfuls salt.  $\frac{2}{3}$  cup brown sugar.  
1 teaspoonful of cayenne pepper.

Boil until thick. Pour into hot sterilized bottles. Put the corks in tightly and apply hot paraffin to the tops with a brush to make an airtight seal.

### CHILI SAUCE

2 dozen ripe tomatoes 1 quart of vinegar.  
6 peppers (3 to be hot) 2 tablespoonfuls salt.  
3 onions. 1 teaspoonful each cloves, nutmeg and allspice.  
 $\frac{1}{4}$  cup brown sugar

Simmer 1 hour. Pour into sterilized jars or bottles and seal while hot.

### CHOW CHOW

2 pints cucumbers. (1 pint to be small ones)  
1 cauliflower soaked in salted water for one hour.  
2 green peppers.  
1 quart onions.

Chop the above in small pieces. Sprinkle 1 cup of salt over them and let stand all night. Drain well in the morning.

The sauce for Chow Chow is made as follows:

2 quarts vinegar 1 tablespoonful turmeric.  
 $\frac{1}{4}$  pound mustard.  $\frac{2}{3}$  cup brown sugar.  
 $\frac{1}{2}$  cup flour.

Make a paste of the mustard, turmeric, sugar, flour and a little vinegar. Stir this into the warm vinegar and boil until thick. Then add the vegetables and simmer for  $\frac{1}{2}$  hour. Stir to prevent burning. Put in cans while hot.

### COLD CUCUMBER PICKLE

1 gal. vinegar. 1 cup salt  
1 cup brown sugar 1 cup dry mustard

Dissolve dry ingredients in vinegar and use to cover cucumbers in crocks. 1 cup horse radish may be added, if desired.

### CHOPPED PICKLE

Chop  
1 gal. green tomatoes  $\frac{1}{2}$  gal. onions  
1 gal. cabbage 24 large green peppers  
12 large red peppers

Put all together in a vessel, cover with water, add about 1 pint of salt, and let stand over night. In the morning put all in a bag and drain 24 hours. After draining add 1 pint of white mustard seed. In a separate vessel boil 1 gallon of vinegar with  $1\frac{3}{4}$  pounds of brown sugar. When boiling hot, pour over the chopped vegetables. Put all on the stove together and cook about 15 minutes. Put in jars and seal while hot.

### DILL PICKLES

Put cucumbers in a brine made of 4 qts. water and 1 qt. salt. (Let stand 24 hours, weight to keep in brine.) Remove from brine; put in crock one layer

of dill (mixed spices if desired) on bottom another layer when half filled, and a layer on top. Cover with a brine made of 4 qts. water, 1 qt. vinegar and 1 qt. salt. Boil together for 5 minutes. Let stand until cold.

Over all put some covering material, grape leaves, beet tops or sour cherry leaves. Should any spoilage occur on the surface this layer will protect the cucumbers.

### PICKLED ONIONS

Select small onions, wash them, and cook them until tender in boiling salted water. Place them in scalded jars, cover them with hot vinegar and seal the jars. A small amount of green and red pepper may be added with the vinegar.

## DRYING.

Fruits and vegetables may be dried in the home by simple processes and stored for future use. Especially when canning is not feasible, or cans and jars are too expensive, drying offers a means of saving large quantities of surplus products which go to waste each year in gardens and fruit plots. Drying also affords a way of conserving portions of food which are too small for canning.

A good homemade drier should have the following features:

- (1) It should be light, easy to operate, of simple construction, inexpensive, and, as nearly as possible, noninflammable.
- (2) It should permit a free circulation of air, to allow the rapid removal of the air after it has passed over the vegetables and absorbed moisture.
- (3) It should provide for protection of the food product against dust, insects, etc.
- (4) It should protect the materials from being moistened by steam, smoke, rain, or dew while drying.

Three main ways of drying are applicable in the home manufacture of dried fruits and vegetables; namely, sun drying, drying by artificial heat, and drying by air blast. These, of course, may be combined. In general, most fruits or vegetables, to be dried quickly, must first be shredded or cut into slices, because many are too large to dry quickly or are covered with a skin, which will prevent proper drying.

### TEMPERATURE

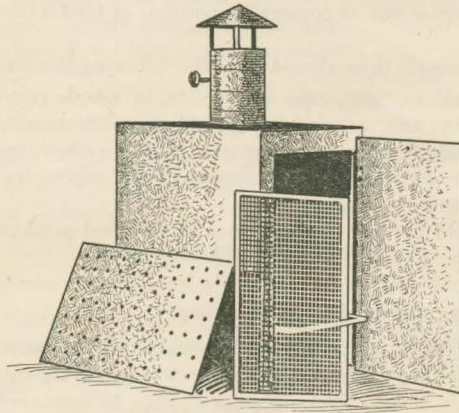
When freshly cut fruits or vegetables are to be dried by means of artificial heat, they should be exposed first to gentle heat and later to the higher temperatures. If the air applied at the outset is of too high a temperature, the cut surfaces of the sliced fruits or vegetables become hard, or scorched, which will prevent the juicy interior from drying properly. Generally it is not desirable that the air temperature in drying should go above 140 to 150 F., and it is better to keep it well below this point. Insects and insect eggs are killed by exposure to heat of this temperature.

It is important to know the degree of heat in the drier, and this cannot be determined very accurately except by using a thermometer. Inexpensive

oven thermometers can be found on the market, or an ordinary chemical thermometer can be suspended in the drier. If a thermometer is not used, the greatest care should be given to the regulation of the heat. The temperature in the drier rises rather quickly and the product may scorch unless close attention is given.

### TIME

In some driers the products can be completely dried within two or three hours. However, the time required for drying vegetables varies. With a little experience on the part of the person doing the drying the time needed can soon be determined. The ability to judge accurately as to when the fruit has reached the proper condition for removal from the drier can be gained only by experience. When sufficiently dried it should be impossible to press water out of the freshly cut ends of the pieces, and not show any of the natural grain of the fruit on being broken, and yet not so dry that it will snap or crackle. It should be leathery and pliable. The material must be dried sufficiently or it will not keep, but will mold. Too great stress cannot be laid upon this point. This does not mean that the product must be baked or scorched, but simply that it must be dried uniformly through and through.



A commercial drier to be placed on the stove.

### “CONDITION”

It will be found advisable also to “condition” practically all dried vegetables and fruits. This is best done in a small way by placing the material in boxes and pouring it from one box into another once a day for three or four days after drying so as to mix it thoroughly and give to the whole mass an even degree of moisture. If the material is found to be too moist, it should be returned to the drying trays for a short drying.

### SLICING

In large factories the vegetables are put through special shredders and slicers not adapted for home use, but convenient and inexpensive machines which can be used to great advantage are on the market. The meat grinder with its special disks can be used in certain cases; the common kraut slicer

will cut large vegetables such as potatoes and cabbage into thin slices; and the rotary hand slicer is adapted for use on a very wide range of material. A large sharp kitchen knife may be used when handier cutting devices are not available. Care should be taken that the material is sliced thin enough but not too thin. From an eighth to a quarter of an inch is a fair thickness for most of the common vegetables to be sliced and dried. Very small slices or strips dry more quickly because they expose a greater surface to the air than do larger cut pieces. But if cut too fine they are more difficult to handle in drying, appear to lose somewhat in flavor, and cannot be used so advantageously to make dishes like those prepared from the fresh foods.

### CLEANLINESS

Cleanliness is very necessary in the preparation of vegetables and fruits for drying. Vegetables should be absolutely fresh, young tender and clean. If steel knives are used in paring and cutting have them bright and clean so as not to discolor the vegetable. The earthy smell and flavor will cling to root crops if they are not washed thoroughly before slicing, and one decayed root may flavor several kettles of food if the slices from it are scattered through a whole batch of dried material. High-grade dried "root" vegetables can only be made from peeled roots.

### BLANCHING

Blanching of vegetables is considered desirable by some housekeepers, although it is not strictly essential to successful drying. It is claimed that the blanch gives a more thorough cleaning, removes the strong odor and flavor from certain kinds of vegetables and softens and loosens the fiber. This allows the moisture to evaporate more quickly and uniformly. Blanching consists of plunging the vegetable into boiling water for a short time. Use a wire basket or cheese cloth bag for this. After blanching the required number of minutes, drain well and remove surface moisture from vegetables by placing between two towels or by exposing to the sun and air for a short time.

### SUN DRYING

The drying of fruits and vegetables in the sun is the simplest form. Bright, hot sunny days are chosen for this work and a close watch is kept to see that no rain or dew wets the product. Once or twice a day the slices are stirred or turned over with the hand and the thin ones which dry first are taken out. Mosquito netting may be thrown over the rack as a protection against insects and dust. Unless the trays are protected carefully, flies and especially certain insects which habitually attack dried fruits will lay their eggs upon the product. These eggs later will hatch out, and the worms, or larvae, will riddle the dried fruits or vegetables, rendering them unfit for the table.

Fruits and vegetables, when dried in the sun, generally are spread on large trays of uniform size so constructed that they can be stacked one on top of the other and protected from rain by means of a cover made of oilcloth, canvas or roofing paper.

A very cheap tray can be made of strips of lumber three-fourths of an inch thick and 2 inches wide, which form the sides and ends, and lath which is nailed on to form the bottom. Spaces one-eighth of an inch wide should be left between the laths for ventilation, and the trays can be raised off the

ground by placing them on poles or an improvised trestle. As laths are 4 feet long, these lath trays are most economical of material when made 4 feet in length.

Better but more expensive trays can be made by substituting galvanized wire screen,  $\frac{1}{8}$  or  $\frac{1}{4}$  inch mesh, for the laths, in which case the most economical size would depend upon the width of the wire screen obtainable.

### STOVE DRIERS

A cheap and very satisfactory drier for use over the kitchen stove can be made from a small amount of small-mesh galvanized-wire netting and a number of laths or strips of wood about  $\frac{1}{2}$  inch thick and 2 inches wide. The screen may be tacked directly on the framework to make the drying shelves, or the framework can be made to support separate trays. By using two laths nailed together the frame work can be stiffened and larger trays made if desirable. This form or any of the lighter makes of driers can be suspended from the ceiling over the kitchen range or over the oil, gasoline, or gas stove, and it will utilize the hot air which rises during the cooking hour.

This principle of construction is followed so that currents of heated air will pass over the product as well as up through it, gathering the moisture and passing away. The movement of the current of air induces a more rapid and uniform drying. The upper trays can be shifted to the lower part of the drier, and the lower trays to the upper part as drying proceeds, so as to dry all the products uniformly throughout.

Still another home drier is the cookstove oven. Bits of food, leftovers, especially sweet corn, can be dried on plates in a very slow oven or on the back of the cookstove and saved for winter use. If the oven is very warm the door should be left ajar and the temperature of the oven often noted. Trays for use in the oven can be made from a convenient sized galvanized wire screen by bending up the edges 1 or 2 inches.

Cookstove driers on the market are of two types: One type consists of a series of trays upon which the material to be dried is spread. These trays are placed in a framework one above the other, forming a compartment through which the heated air rises, carrying off the moisture. The second type consists of a shallow flat metal box filled with water and designed so that one end can rest on the back of the stove and the other on a leg reaching to the floor.

### FAN DRIERS

An electric fan is also used to facilitate drying. This is a feature for those who already own a fan. It has been found that many sliced vegetables and fruits placed in long trays 3 by 1 foot and stacked in two tiers, end to end, before an electric fan can be dried to the requisite dryness within 24 hours. Some require much less time. The fan should be placed close to the stack of trays and they should not be filled so full that the air cannot pass freely through them. The fan method has a marked advantage in that the product keeps cool owing to evaporation while it is being dried, thus tending to retain the color and eliminate spoilage.



A hole may be cut in the top of an oil or gas stove oven and this makes a very satisfactory drier.

### **BLACKBERRIES, RASPBERRIES AND HUCKLEBERRIES**

(a) Sort out imperfect berries, spread the selected berries on trays and dry. Do not dry so long that they become hard enough to rattle. The drying should be stopped as soon as the berries fail to stain the hand when pressed.

(b) Pick leaves and stems from fruits and spread on trays. Handle carefully and do not bruise. Spread a thin layer on tray and dry slowly. Raise temperature gradually from 110° to 125° F. in about 2 hours. Do not raise temperature higher than 130° F. until a considerable portion of the moisture has evaporated, as otherwise expansion will occur and juice will be lost by dripping. This is accompanied by loss of flavor and color. Finish drying berries at 140° F. for two to three hours. It is necessary to dry berries from 4 to 5 hours.

### **CHERRIES**

(a) Remove stems of cherries, and if the fruit is large, the pits also. Spread out on trays to dry. Small, black cherries can be dried when containing the stones.

(b) Wash, remove surface moisture and spread cherries, unseeded, in thin layers on trays. If cherries are seeded there will be a loss of juice. Dry from 2 to 4 hours at 110° to 150° F. Raise temperature gradually.

### **APPLES, PEARS AND QUINCES**

Early varieties and sweet apples are not well adapted to drying. Winter apples should be used for this purpose.

(a) Peel, core, trim and slice  $\frac{1}{4}$  inch thick. Dip in weak salt solution containing 8 teaspoons of salt to 1 gallon of water. Spread on trays and dry. It is only necessary to dry apples long enough for them to become tough and somewhat leathery.

(b) Pare, core, and cut into eighths, or core and slice in rings, using fruit or vegetable slicer. As apples discolor quickly, do not let them stand long before drying. To prevent discoloration, as the fruit is prepared it may be dipped for one minute in a cold salt bath. Remove surplus moisture and dry at 110° to 150° F., raising temperature gradually. Dry from 4 to 6 hours, and longer if necessary.

Pears and quinces may be steamed 10 minutes before drying.

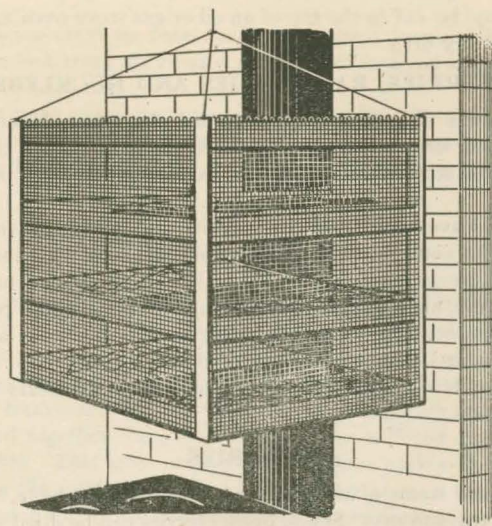
### **PEACHES AND PLUMS**

Peaches are usually dried unpeeled, but they will be better if peeled before drying. Plums are not peeled, but the pits are removed.

Cut in halves or smaller pieces, pit, lay on tray pit side up, and dry in the same temperature and for the same length of time as apples.

### **RHUBARB**

Choose young and succulent growth. Prepare by skinning the leaf stalks and cutting into pieces about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in length. *Do not use the blade of the leaf.*



Home-made drier to be hung over the stove.

### SPINACH, SWISS CHARD, BEET TOPS, ETC.

All greens should be fresh and in prime condition. Remove leaves from root, wash, cut leaf stalk and blade into sections  $\frac{1}{4}$  inch long, spread thinly on tray and dry thoroughly.

### SWEET CORN

Only very young and tender corn should be used for drying, and it should be prepared at once after gathering.

(a) Cook in boiling water 2 to 5 minutes, long enough to set the milk. Cut the kernels from the cob with a sharp knife, taking care not to cut off pieces of the cob. Spread thinly on trays, and place in position to dry. Stir occasionally until dry.

(b) Boil or steam on the cob 8 or 10 minutes to set the milk. To improve flavor a teaspoon of salt to a gallon water may be used. Drain well and cut corn from cob, using a very sharp and flexible knife. Cut grains fine, only half way down to the cob, and scrape out the remainder of the grain, being careful not to scrape off any of the chaff next to the cob. Dry from 3 to 4 hours at  $110^{\circ}$  to  $145^{\circ}$  F. When field corn is used, good, plump roasting-ear stage is the proper degree of ripeness. A pound of dried corn per dozen ears is an average yield.

### STRING OR SNAP BEANS

All varieties of string beans can be dried, but only beans in ideal condition for table use should be selected for this purpose.

Wash and string beans carefully. The very young and tender beans can be dried whole. Those that are full grown should be cut in  $\frac{1}{4}$  to 1 inch lengths with vegetable slicer or a sharp knife. It is better to cut beans than to snap them. They are then put in a bag of cheesecloth or in a wire basket and blanched in boiling water from 6 to 10 minutes, depending on the maturity

of the bean. One-half teaspoon of soda may be added to each gallon of boiling water to help set the green color in the beans. Remove surface moisture by placing between two towels or by exposing to the sun and air for a short time. Dry young string beans two hours, more matured beans three hours. Begin drying at a temperature of 110° F. and raise temperature gradually to 145° F.

### DRY SHELLED BEANS

Beans of different kinds, after maturing and drying on the vines, can be treated as follows: Shell, wash, spread in thin layers on the trays of the drier and heat 10 minutes, beginning at 160° F. and gradually raising the temperature to 180° F. This high temperature is for the purpose of destroying all the insect eggs that may be on the beans. Cool and store carefully. It might be added that the heating of the bean or pea destroys its vitality. When so treated it cannot be used for seed.

### PEAS

- (a) Shell and spread on trays and dry.
- (b) Shell full-grown peas with non-edible pod, blanch the peas from 3 to 5 minutes, remove surplus moisture, spread in single layer on trays and dry from 3 to 3½ hours. Begin drying at 110° F., raising temperature very slowly in about 1½ hours to 145° F. Continue drying 1½ or 2 hours at 145° F.

### BEETS, ONIONS, CARROTS, TURNIPS, PARSNIPS

Wash, peel, slice into ⅛ inch slices, blanch 6 minutes; remove surplus moisture, and dry 2½ to 3 hours. Begin drying at 110° F. and raise temperature gradually to 150° F. Beets should be blanched before slicing.

### CABBAGE

- (a) Select well-developed heads of cabbage and remove all loose outside leaves. Split the cabbage, remove the hard, woody core, slice the remainder of the head with a kraut cutter or slicer, and dry.
- (b) Shred or cut into strips a few inches long. Blanch 10 minutes, drain, remove surface moisture, and dry 3 hours at 110° to 145° F.

### CAULIFLOWER

Clean, divide into small bunches, blanch 6 minutes, and dry 2 to 3 hours at 110° to 145° F. Cauliflower will turn very dark when drying, but will regain part of the color in soaking and cooking. Dried cauliflower is especially good in soups and omelets.

Brussels sprouts may be handled in a similar way, but add a pinch of soda to the blanching water.

### PEPPERS

- (a) Peppers may be dried by splitting on one side, removing seed, drying in the air, and finishing the drying in the drier at 140° F. A more satisfactory method is to place peppers in biscuit pan in oven and heat until skin blisters, or to steam peppers until skin softens, peel, split in half, take

out seed, and dry at 110° to 140° F. In drying thick-fleshed peppers like the pimento, do not increase heat too quickly; but dry slowly and evenly.

#### **PUMPKINS AND SQUASH**

(a) Select sound, well-grown specimens. Cut into strips; peel these; remove all seeds and the soft part surrounding them. Cut strips into smaller bits not over  $\frac{1}{4}$  inch thick and 2 inches long, and dry.

(b) Pare and cut into about  $\frac{1}{2}$  inch strips and blanch 3 minutes. Remove surface moisture and dry slowly from 3 to 4 hours, raising temperature from 110° to 140° F.

#### **SOUP MIXTURES**

Each vegetable used in the soup mixture is prepared and dried separately. They are put together in proportions desired, the preferred flavoring vegetable predominating. A combination of several vegetables makes the most desirable soup mixture. Those most often used are carrots, cabbage, onions, celery, potatoes and okra.

#### **PRECAUTIONS AGAINST INSECTS**

The insects which attack dried fruits and vegetables are two kinds of moths, which get into the product during the drying process. Both of these moths deposit their eggs on the product when it is on the drying racks, generally at dusk or after dark. Therefore the racks should be screened early in the evening and at night, the cheesecloth or fly screen fastened down.

In drying by artificial heat, the process itself will ordinarily sterilize the product. But after drying it should be stored promptly, to prevent infestation.

#### **PACKING AND STORING**

If fruits or vegetables are packed in tight containers immediately upon being dried thoroughly, they will remain just as brittle as they were when taken from the drier. If, however, they are not dried thoroughly, they will "sweat" and soon mold. To prevent this the material should be examined within 24 hours after packing, and if it appears moist it must be dried further.

#### **PREPARATION OF DRIED PRODUCTS FOR TABLE USE**

It must be remembered that the water which has been dried out of vegetables or fruits must be restored to them before cooking and that this process requires time. In general, the longer it takes to dry the longer should the dried product soak. Because the kind of vegetable (old and tough or young and tender) the size of the pieces (large or small) and the amount of moisture which the dried product contains affect the length of time the vegetable should soak, the housekeeper must use her best judgment in selecting the method of preparation best suited to her own products.

Once soaked, dried vegetables and fruits can be cooked in almost any of the ways in which fresh ones can be cooked.

## **SALTING AND FERMENTATION.**

There are three ways of preserving by fermentation and the use of salt.

- (1) Fermentation with dry salting.
- (2) Fermentation in brine.
- (3) Salting without fermentation.

For containers use wooden kegs that have been thoroughly washed or steamed, stone crocks, or any wide-mouthed bottles or glass jars.

Ordinary fine sa't purchased in bulk is most satisfactory for general use; two or three thicknesses of cheese cloth or one thickness of heavier cloth to spread over the top of vegetables; round pieces of board about 1 inch or so in thickness to put on top of the cloth. These boards should be a little smaller in diameter than the inside of the crock or the head of the keg or tub, so that they will slip in and out easily. For small containers heavy plates of suitable size can be used instead of boards. One or more clean bricks or some clean stones may be used as weights to hold down the mass in the keg or crock.

Paraffin is needed to pour over the liquid in the containers (after fermentation has ceased), to prevent mold.

### **FERMENTATION WITH DRY SALTING**

Wash vegetables, blanch 5 min., cold dip, drain off surplus water, and weigh. For each 100 pounds of vegetables use three pounds of salt. Put in a layer of vegetables in the container and sprinkle with salt. Continue adding layers of vegetables and salt until the container is about three-fourths full. Sprinkle the last of the salt on the top layer and spread over it the cloth, tucking it down at the sides. The weight added should be sufficient to extract the juices to form a brine which will cover the top in about 24 hours. Sometimes if a brine does not form, it may be necessary to add more stones after the material has stood a while. After it is packed allow the container to stand in a moderately warm room to ferment.

As fermentation goes on, bubbles arise to the surface of the liquid. The rate of fermentation depends principally upon the temperature. In warm weather it requires only eight to ten days; in cool weather 2 to 4 weeks may be necessary. When bubbling stops, fermentation is complete. A good way to determine this is to tap the receptacle gently, if no bubbles arise, fermentation is finished.

The containers should then be placed in a cellar or other cool storeroom, and the surface of the liquid treated to prevent the development of a scum of mold. If this is not done a thin film will appear on the surface of the brine soon after fermentation ceases, which will spread rapidly and develop into a heavy folded membrane. This scum is a growth of micro-organism which feed upon the acid formed by fermentation. If allowed to grow undisturbed, all the acid will be destroyed and the fermented material will spoil.

To prevent this, cover the surface with very hot melted paraffin. If it is sufficiently hot to make the brine boil when poured upon it, a smooth, even layer will be formed before hardening, making a perfectly air-tight seal. Before adding paraffin, the containers should be set where they will not be disturbed until ready for use, as any attempt to move them afterwards may break the seal and necessitate re-sealing.

### **SAUERKRAUT**

In many parts of the country it is a general belief that only very late or fall cabbage is suitable for making sauerkraut. Such, however, is not the case. If properly handled and stored, sauerkraut of excellent quality can be produced from cabbage maturing at any season of the year. The essential points are the use of mature sound cabbage only, scrupulous cleanliness

throughout the process, and proper care of the surface of the brine after fermentation is completed.

Select mature, sound cabbage. Remove the outer leaves, quarter and core. Shred or cut into thin slices.

Pack the shredded cabbage immediately in a clean water-tight receptacle such as a cider or wine barrel, keg, or tub. Except in the case of large families, 4 or 5 gallon earthenware crocks are preferable. This quantity after opening can be used up before spoilage begins. As the cabbage is packed, salt at the rate of one pound of salt to 40 pounds of cabbage, should be added and distributed evenly. When the barrel or crock is nearly full the cabbage should be pressed down as firmly as possible and covered with a clean board. It is desirable, but not essential, that a cloth be placed over the cabbage before the cover is put into place. The salt soon extracts a considerable amount of the cabbage juice, and a sufficient weight of clean brick or stone should be added to cause the brine to rise above the wooden cover. Do not use limestone or sandstone for weights as the action on these stones of the acid produced by fermentation destroys the keeping quality of the brine. Tubs and covers made of yellow or pitch pine should not be employed as such woods cause disagreeable flavors.

The container then is set aside and fermentation allowed to proceed undisturbed. If the weather is cool or a cold cellar is used, 3 to 5 weeks may be necessary for the fermentation to be completed: if in a warm room, 10 to 14 days. Scum should not be allowed to grow on the surface of the brine. As soon as gas bubbles cease to rise the scum should be removed and a layer of hot melted paraffin about one-fourth to one-half inch thick poured upon the brine while very hot. If the sauerkraut is made during the fall and stored in a cool place, the layer of paraffin is not absolutely necessary. If desired one quart of vinegar may be added to every twenty-five pounds of cabbage. While not absolutely necessary for the making of good kraut the vinegar insures freedom from decomposition which sometimes causes the formation of a soft and slippery product.

### STRING BEANS

String beans should be young and tender and not overgrown. Remove the tip ends and strings, cut or break the beans into pieces about 2 inches long, pack, and dry salt, or, if desired, the beans may be shredded by cutting lengthwise several times and the fermented product prepared like sauerkraut.

### FERMENTATION IN BRINE

Some vegetables which do not contain sufficient water are better fermented by covering them with a weak brine.

Wash the vegetables, drain off the surplus water and pack them in a keg, crock, or other utensil until it is nearly full (within 3 inches of the top of the vessel). Prepare the brine as follows: To each gallon of water use one-half pint of vinegar and  $\frac{3}{4}$  c. salt and stir until the salt is entirely dissolved. The amount of brine necessary to cover the vegetables will be equal to one-half the volume of the material to be fermented.

Pour the brine over the vegetables and cover as for dry salting. Set away to ferment. When fermentation has ceased, remove to a cool place and seal with paraffin.

Cucumbers, string beans, green tomatoes, beets, beet tops, turnip tops, corn and green peas may be preserved satisfactorily by fermenting in brine.

1. Green tomatoes should be packed whole; dill and spice may be added if desired.
2. Beets must be scrubbed thoroughly and packed whole. If peeled or sliced before being fermented the beets lost considerable color and flavor.
3. Beet tops and turnip tops should be washed thoroughly and packed into the container without being cut up.
4. Green peas should be shelled and packed in the same way as string beans. It is advisable to use fairly small containers for peas so that the quantity opened up will be used before it has a chance to spoil.

#### SALTING WITHOUT FERMENTATION

In this method the vegetables are packed with enough salt to prevent fermentation or the growth of yeasts or molds. The following directions should be followed in salting vegetables:

Wash the vegetables, drain off the water, and weigh. For each 100 pounds of vegetables weigh out 25 pounds of salt. For smaller quantities use the same proportion of salt (one-fourth of the weight of the vegetables). Spread a layer of the vegetables about one inch deep on the bottom of a clean keg, tub or crock, and sprinkle heavily with some of the salt. Try to distribute the salt evenly among the different layers packed so that the quantity weighed out will be just enough to pack the vegetables. Continue adding layers of vegetables and salt until the container is nearly full and then cover with the clean cloth, board and weight, as in the case of fermentation by dry salting. The keg or other container should then be set aside in a cool place. If the salt and pressure of the weight have not extracted sufficient brine to cover the vegetables, after 24 hours prepare a strong brine by dissolving one pound of salt in two quarts of water and pour enough of this over the vegetables to come up to the round wooden cover. There will be a small amount of bubbling at the start as in the case of the fermented vegetables, but this will not continue for long. Just as soon as the bubbling has stopped, pour on hot paraffin.

Dandelions, beet tops, turnip tops, spinach, chard, kale, cabbage, string beans and green peas may be satisfactorily preserved by this method. The string beans should be cut in 2-inch pieces, as in the preparation for fermentation. The peas should be shelled and packed according to the directions given. Cabbage should be shredded and packed in the same way as in the manufacture of sauerkraut.

Some fermented and salted vegetables, like cucumbers, are eaten raw; others, like cabbage (sauerkraut), are usually cooked. In general the fermented and salted products may be prepared for the table in much the same manner as the fresh vegetables, except that before being cooked they should be soaked in fresh water for several hours, longer, if necessary, to remove the salt, the water being changed several times. In some cases it may be necessary also to change the water once or twice during the boiling of the salted vegetables. In this, one should be guided by taste.

Fermented vegetables, after being removed from the container, should be rinsed thoroughly in fresh water and then cooked without soaking if a product having a decidedly acid flavor is desired. If one does not desire the acid flavor, it may be modified to any extent or removed almost entirely by soaking the fermented vegetable as directed above for the salted product.

## Time Table for Cold Pack Method of Canning.

Product	Scald or Blanch	Hot Water Bath Outfit (Wash Boiler) 212° F	Steam Pressure 15 lbs.
	Minutes	Minutes	Minutes
<b>Soft Fruits</b>			
Berries, Sweet	—	16	—
Cherries, Peaches			
<b>Sour Berry Fruits</b>			
Currants, Goose- berries, Cranberries, Sour Cherries	1	16	—
<b>Hard Fruits</b>	1½	20	—
<b>Asparagus</b>	5-10 (In steam)	120	40
<b>Greens</b>	15-20 (In steam)	120	40
<b>Root Crops</b>			
Beets, Carrots, etc.	5-10	90	40
<b>Tomatoes</b>	1	22	10
<b>Corn</b>	5-10	180	40
<b>Beans, String</b>	5	120	40
<b>Peas and Shell Beans</b>	2-5	180	40
<b>Pumpkin, Squash</b>	3	120	40
<b>Cauliflower</b>	3	60	20
<b>Peppers, Cabbage</b>	5-10	120	40

