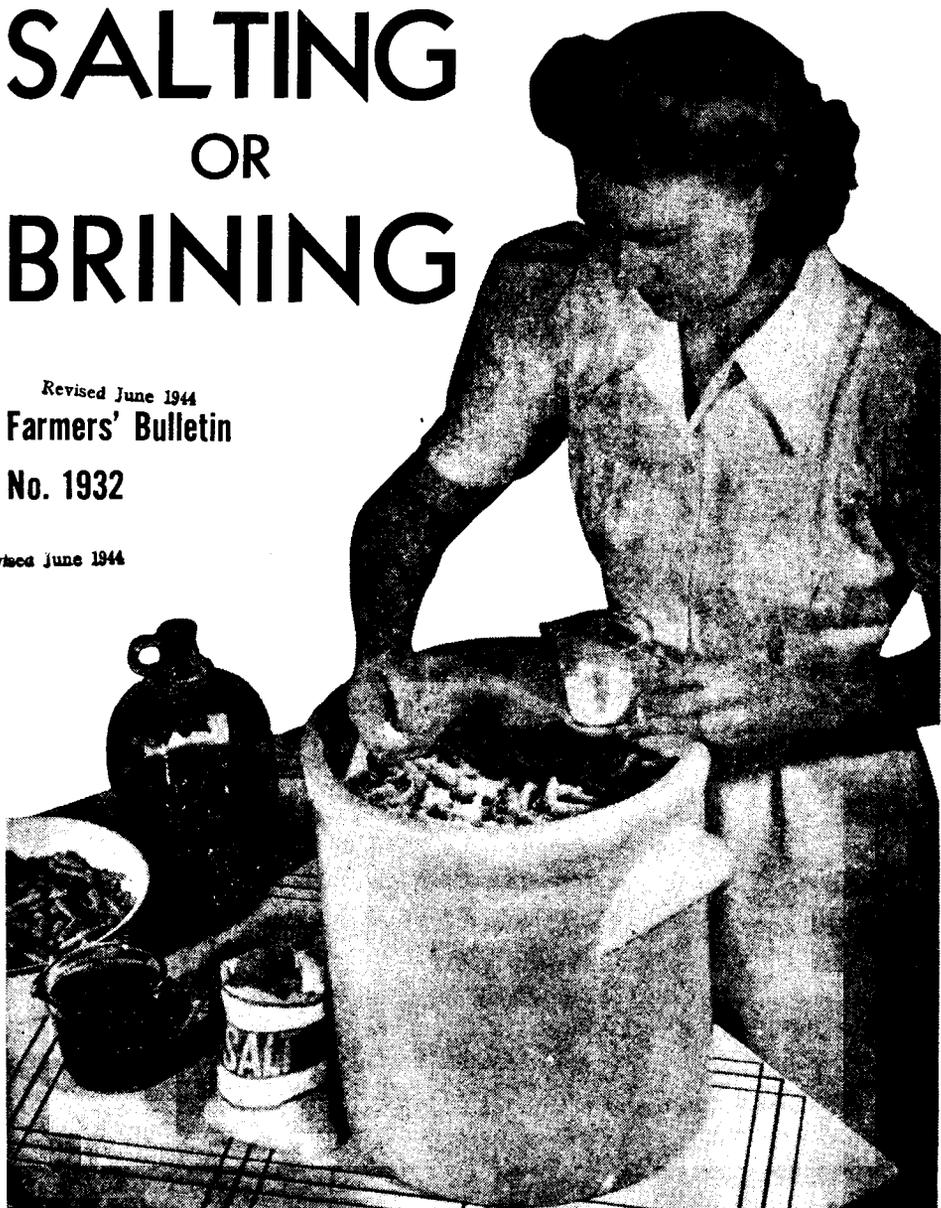


# Preservation of Vegetables by SALTING OR BRINING

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# PRESERVATION OF VEGETABLES BY SALTING OR BRINING

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**SALTING** or brining is a good way to preserve vegetables, especially when you cannot can or freeze them. With present wartime restrictions on freezing, millions of pounds of vegetables are being successfully salted or brined commercially. The method is inexpensive and not difficult for home use. Salted or brined vegetables retain a fair amount of their vitamins and most of their other food values. They have a salty or an acid taste, both of which many people like.

Sauerkraut, made by salting cabbage, is well known and widely used. This bulletin tells how to put up a number of other vegetables besides cabbage. It describes four different ways to salt or brine vegetables: (1) With a small amount of salt, (2) with a large amount of salt, (3) with a weak brine plus vinegar, (4) with a strong brine plus vinegar.

## METHODS FOR DIFFERENT VEGETABLES

The methods recommended for the different vegetables are as follows:

| Vegetable:                | Method No. | Vegetable:                     | Method No. |
|---------------------------|------------|--------------------------------|------------|
| Beets.....                | 3          | Lima beans (in pods).....      | 4          |
| Cabbage.....              | 1          | Okra.....                      | 2 or 4     |
| Carrots.....              | 3          | Onions (silver-skin type)..... | 4          |
| Cauliflower.....          | 3 or 4     | Peas (shelled).....            | 2          |
| Celery.....               | 2          | Peas (in pods).....            | 4          |
| Corn.....                 | 2          | Peppers.....                   | 4          |
| Greens.....               | 3          | Rutabagas.....                 | 1 or 3     |
| Lettuce.....              | 1          | Snap beans.....                | 1 or 3     |
| Lima beans (shelled)..... | 2          | Turnips.....                   | 1 or 3     |

## HOW TO USE YOUR BRINED VEGETABLES

**Method 1** (small amount of salt) is used for making sauerkraut from cabbage and makes a krautlike product when used with lettuce, turnips, and rutabagas. **Method 1** as used for snap beans and **Method 3** (weak brine plus vinegar) give vegetables an acid flavor. They do not need to be soaked to remove the salt, but if the flavor is too tart they can be rinsed well with water or soaked for a short time before being cooked.

**Method 2** (large amount of salt) and **Method 4** (strong brine plus vinegar) make products with a strong salty taste. Most people would want to soak them 8 to 12 hours or overnight, using 1 gallon of water to a pound of vegetable, before they are cooked and served. This

long soaking naturally reduces some of their food value. However, heavily salted or brined vegetables can be used without soaking if they are mixed with enough unsalted foods, such as meat, potatoes, carrots, turnips, onions, or canned tomatoes, to make soup or stew. About one-fourth pound of the salted vegetables should be used for each 2 quarts of soup or stew. Don't use any additional salt; the salted vegetables contain enough to flavor the whole dish.

Method 4 (strong brine plus vinegar) is particularly suitable for bulky vegetables. For example, peas or lima beans in the pods can be preserved in strong brine when a large volume of the vegetable must be handled promptly to prevent deterioration or loss.

Unless they are first blanched (scalded), some vegetables, such as mature snap beans, peas, and lima beans, become firmer when salted or brined and will need to be cooked somewhat longer than fresh vegetables.

### FIVE POINTS TO KEEP IN MIND

1. Follow directions exactly if you want a good product.
2. Weigh the vegetables carefully, and weigh or measure the salt as recommended in the directions.
3. Keep the vegetables covered with brine at all times to prevent the top layer from spoiling.
4. Keep the brine surface free from scum and insects.
5. **Boil salted or brined vegetables vigorously for at least 15 minutes before eating or even tasting them, and throw away material that is soft or has a bad odor.** This will prevent any possibility of botulinus poisoning.

### KIND OF SALT TO USE

Vegetables should not be salted or brined with ordinary table salt, which usually contains material to prevent caking, as will be shown on the label. Coarse salt is also unsuitable, because it dissolves slowly and cannot be distributed as evenly as finer salt.

Any one of three grades of salt can be used: Granulated, flake (dairy), or medium. If your grocery store does not carry any of these, you are likely to find them at a store selling feeds and garden supplies.

The flake and medium grades of salt are more bulky than the granulated. For example, it takes about 1½ cups of flake or medium salt to weigh as much as 1 cup of granulated. Salt should be weighed rather than measured when possible. Table 2, on page 15, gives equivalent amounts of the different grades of salt by weight and volume.

### EQUIPMENT AND SUPPLIES NEEDED

Necessary supplies and equipment include: Containers, covers, and weights; kitchen scales; measuring cup, spoons, and jars (pint, quart, and gallon); clean white cheesecloth; sharp knives; cabbage cutter; pure salt; and household vinegar. Glass jars are convenient to use in mixing and measuring brine as well as for containers. (See figs. 1 and 2.)

For containers, use sound clean jars, crocks, wooden pails, or kegs. Wooden containers should be paraffined inside, if possible, and should not be made of yellow or pitch pine because such woods give an unpleasant flavor to the vegetables.

For blanching, a two-part steamer or a kettle and a wire basket will be needed. For processing, a large kettle that will hold several jars at a time is necessary.



FIGURE 1.—A latticed wooden cover (left), weighted with a paraffined brick or a clean stone, makes a good cover for vegetable material in straight-sided containers such as the crock shown. Separate wooden crosspieces like those at the right fit beneath the necks of glass jars of different sizes.



FIGURE 2.—Other items required for salting and brining include scales, knives, measuring cup and spoons, and cheesecloth.

### With Large Containers

To hold vegetable material packed in large containers beneath the brine surface, a weighted cover is necessary. For a straight-sided container such as a crock, this may be a loose-fitting, latticed wooden cover (fig. 1), a plate, a small crock cover, or a circular piece of board slightly smaller in diameter than the crock. Paraffined bricks or heavy stones make suitable weights to hold the cover below the brine level. Do not use a limestone or metal weight. Limestone is dissolved by vinegar or the acid formed by fermentation and metals may corrode in contact with salt or acid and contaminate the vegetables.

### With Glass Jars

Jars having small mouths and screw caps, such as 1- and 2-quart canning jars or 1-gallon mayonnaise or pickle jars, are convenient containers for salting vegetables. These jars are very well adapted for putting up small quantities of salted vegetables such as cabbage for kraut (p. 10), and also are satisfactory for salting shelled peas and lima beans and cut corn. For these vegetables larger containers would not ordinarily be practical. Not enough surplus vegetables are ordinarily available, and too much time and labor would be required to prepare enough fresh material to fill them.

In glass jars, loose covers and weights cannot be used to hold vegetables beneath the brine. Instead, after the material has been packed into the jar, two or three wooden strips, slightly longer than the width of the jar mouth, are slipped endwise into the jar and caught under the shoulder so the vegetables are held down under slight pressure. (See fig. 3.)

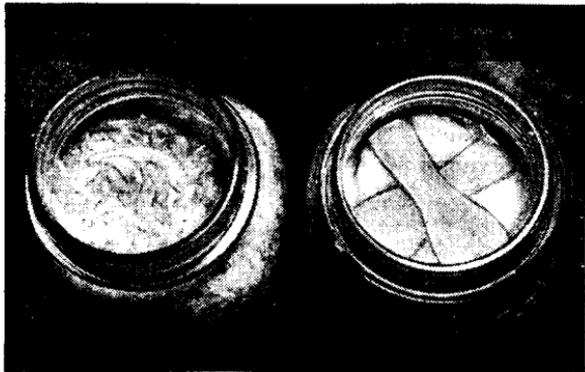


FIGURE 3.—Vegetables salted in jars are covered with cheesecloth and held under the brine by two wooden crosspieces slipped under the shoulder of the jar.

The small wooden paddles often supplied with cups of ice cream are suitable for this use in ordinary fruit jars. Wooden tongue depressors, which can be bought at a drug store, or unpainted wooden garden labels, cut to the proper length, can also be used, particularly for jars having wider mouths.

### Size of Container to Use

It will be helpful to have some idea of the size and number of containers needed for salting or brining the amount of vegetable material on hand. This information can be obtained from table 1, which gives

the estimated weights of different kinds of vegetables that can be packed in 1-quart, 1-gallon, and 10-gallon containers. For other sizes the quantities will be proportionate to those given in the table.

TABLE 1.—Estimated weights of salted or brined vegetables that can be packed in containers of different sizes

| Vegetable                             | Condition         | Container size |          |           |
|---------------------------------------|-------------------|----------------|----------|-----------|
|                                       |                   | 1-quart        | 1-gallon | 10-gallon |
| <b>Dry-salted by methods 1 and 2:</b> |                   |                |          |           |
| Cabbage                               | Shredded          | 2              | 8        | 80        |
| Celery                                | Cut in pieces     | 1              | 4        | 40        |
| Corn                                  | Cut from cob      | 2½             | 10       | 100       |
| Lettuce                               | Shredded          | 2              | 8        | 80        |
| Lima beans                            | Shelled; blanched | 2½             | 10       | 100       |
| Okra                                  | Cut in pieces     | 1              | 4        | 40        |
| Peas                                  | Shelled; blanched | 2½             | 10       | 100       |
| Rutabagas                             | Shredded          | 2              | 8        | 80        |
| Snap beans                            | Cut; blanched     | 1½             | 6        | 60        |
| Turnips                               | Shredded          | 2              | 8        | 80        |
| <b>Brined by methods 3 and 4:</b>     |                   |                |          |           |
| Beets                                 | Whole             | 1½             | 6        | 60        |
| Carrots                               | Whole             | 1½             | 6        | 60        |
| Cauliflower                           | Cut in pieces     | 1              | 4        | 40        |
| Cauliflower                           | Whole             |                |          | 30        |
| Greens                                | Not blanched      | ½              | 2        | 20        |
| Lima beans                            | In the pods       |                | 3        | 30        |
| Okra                                  | Whole             | ¾              | 3        | 30        |
| Onions                                | Whole             | 1              | 4        | 40        |
| Peas                                  | In the pods       |                | 3        | 30        |
| Peppers                               | Halved            | 1              | 4        | 40        |
| Rutabagas                             | Sliced or diced   | 1½             | 6        | 60        |
| Snap beans                            | Whole; blanched   | ¾              | 3        | 30        |
| Turnips                               | Sliced or diced   | 1½             | 6        | 60        |

## DRY SALTING

### Method 1. Small Amount of Salt ( $2\frac{1}{2}$ to 5 Percent by Weight)

#### VEGETABLES

Cabbage  
Lettuce  
Snap beans (extra tender)

Turnips  
Rutabagas

#### PREPARING THE VEGETABLES

Select fresh, sound, high-quality material.

Trim off outside leaves of cabbage and lettuce heads. Wash and halve or quarter. Remove cores of cabbage.

Wash and trim root vegetables.

Wash snap beans thoroughly. Then blanch (scald) them for about 5 minutes in boiling water or, preferably, in live steam (fig. 4), and cool promptly. Cut off the ends and cut the beans into short lengths.

## SALTING PROCEDURE

1. **Cabbage, lettuce, turnips, and rutabagas:** Shred with a sharp knife or cutter and pack in containers such as crocks, kegs, or wooden pails. Distribute the salt evenly over the vegetable while filling the container (fig. 5), allowing  $\frac{1}{4}$  pound (4 ounces) of salt for each 10 pounds of vegetable. For volumes of the different grades of salt required for 10 pounds and other quantities of vegetables when using 2½ percent and larger proportions of salt, see table 3, page 15. Pack firmly so that brine forms.



FIGURE 4.—Beans should be blanched for about 5 minutes in steam or in boiling water before being salted. This may be done in a steamer, such as the one shown, having holes in the bottom of the upper part, or in a wire basket held in a kettle over boiling water. Or small quantities of vegetables may be placed loosely in a cheesecloth bag and blanched in boiling water.

**Snap beans (blanched):** Use  $\frac{1}{2}$  pound (8 ounces) of salt to each 10 pounds of material and distribute evenly while packing firmly. Add 8 fluid ounces of household vinegar for each 10 pounds of vegetable, or about  $1\frac{1}{2}$  tablespoons of vinegar for each pound, and distribute it evenly with the salt.

Small quantities of vegetables may be packed in glass jars of 1-gallon or smaller size, fitted with screw-type lids other than zinc. (**Zinc may be affected by the salt and acid and make the product poisonous.**) Mix the vegetables and salt in a large bowl or pan and pack in the small containers. For holding the vegetable under the brine in jars having small mouths, use wooden strips inserted under the jar neck (fig. 3).

2. After the salt-vegetable mixture has been packed in large containers, put several layers of clean, white cheesecloth on top of the

material and tuck it in around the edge. On the cloth place a suitable cover and weight it down (fig. 6). Water drawn from the vegetable by the salt will form a brine that will rise above the cover. If the brine level is low in any container after it is packed, add 2½-percent brine for cabbage, lettuce, turnips, and rutabagas and 5-percent brine for snap beans. The brine should cover the vegetable material. The



FIGURE 5.—In dry salting, distribute the salt evenly while filling the container.

amounts of salt and water to use in making these brines are given in table 4, page 16.

3. Keep the packed containers at a temperature of about 70° F. An acid fermentation will start shortly after the material is salted and continue for about 2 weeks.

4. A shallow pan or folded newspapers should be put under glass jars of salted vegetables to catch the brine that usually runs over when gas is formed during fermentation. Near the end of the fermentation (in about 10 days) the brine level in the jars will drop noticeably (1 to 2 inches) and may go below the top of the packed material. If this occurs, add new 2½-percent brine—5-percent brine for beans—promptly; otherwise, the exposed material may spoil. When the brine level drops and bubbling stops, it is likely that the fermentation is about over.



FIGURE 6.—A dinner plate serves well to cover the vegetables in a large crock, and a clean stone makes a good weight. Never use a metal weight.

a few days. *Remove this scum repeatedly.* If allowed to remain and grow, it will not only use up the acid produced by the fermentation but will give off a bad odor and may spoil the food.

To remove scum, take the weight and cover off the large containers, being careful to avoid mixing the scum with the brine. Lift the cloth carefully so that the scum is held on it and the brine surface is left clean. Wash cloth, cover, and weight, and replace them. If scum develops very rapidly, it should be removed every other day.

If scum forms on the brine surface in small containers, such as glass jars, skim it off with a spoon. If the brine level is low and the scum cannot be reached readily, add brine of the correct strength (2½- or 5-percent); the scum will float on the surface and can be easily removed.

#### REMOVING SCUM

A white scum will appear on the brine surface within

#### REPACKING AND HEAT TREATING

It is desirable, after a fermentation period of about 10 days, to repack material salted in large open containers into smaller containers that can be sealed and will not require further frequent attention. Pack clean glass jars tightly with the vegetables, and fill to within one-half inch of the top with brine from the original container (fig. 7). If there is not enough of this brine, make more by adding 1 ounce of salt to a quart of water.

The jars should then be heat-processed in a boiling-water bath. Tightly seal jars having two-piece all-metal tops before placing them in the water bath; the metal bands should not be disturbed after-

wards. First tighten tops having screw caps and rubber rings, then turn back a quarter turn. Put the jars in a kettle of hot water. The water should be deep enough to cover the tops. Heat the water to boiling and keep it boiling. Leave pint jars in the bath for 25



FIGURE 7.—Pack glass jars firmly with the vegetables salted and fermented in larger containers, and fill the jars with brine from the large containers.

minutes and quart jars for 30 minutes after boiling begins; then remove the jars and tighten the caps of those having rubber rings.

For vegetables packed originally in small jars, remove the cheesecloth and wooden crosspieces at the end of a 10-day period. Press the food down firmly with a spoon to release trapped gas bubbles. Then add brine, made as described, to within one-half inch of the top and put on the lids. Process the jars in a boiling-water bath without repacking.

This processing is not intended to take the place of cooking. Its purpose is to prevent undesirable changes in the food during storage at ordinary room temperatures.

## MAKING KRAUT IN GLASS JARS

As a help in showing how to use Method 1 for salting vegetables in small glass jars, the following series of pictures (figs. 8-17) was prepared to illustrate some of the steps in making kraut by this method.



FIGURE 8.—Remove the outer leaves from firm, mature heads of cabbage, wash and drain, cut into halves or quarters, and remove the cores.

FIGURE 9.—Shred the cabbage with a shredder, as shown, or with a sharp knife. The pieces should be about as thick as a dime.



FIGURE 10.—Two pounds of shredded cabbage is just enough for a quart jar.

FIGURE 11.—Sprinkle 4 level teaspoons of pure granulated salt (or 2 tablespoons of flake (dairy) or medium salt) over the shredded cabbage.





FIGURE 12.—Mix the shredded cabbage and salt thoroughly by hand.

FIGURE 13.—Pack the cabbage-salt mixture into the jar, pressing it down firmly with a wooden spoon or tamper. Brine will form and cover the cabbage.



FIGURE 14.—Cover the packed cabbage with a pad of clean white cheesecloth and insert two wooden strips endwise so they catch under the neck of the jar.

FIGURE 15.—Set the packed jars in a shallow pan or on folded newspapers, as brine may overflow during fermentation. Leave the lids slightly loose.



If the directions have been carried out carefully, no scum should form on the brine in the jars. The progress of fermentation should be watched, however. After about 10 days, if the jars have been kept at a fairly constant temperature of about 70° F., the brine level will drop rather suddenly. This means that fermentation is about over. Remove the cheesecloth and wooden strips and fill the jars to within 1 inch of the top with 2½-percent brine (1 ounce of salt to a quart of water). If the kraut is to be used soon, seal the jars and keep them in a cool place. If the kraut is to be stored longer than a few weeks, press the cabbage down firmly with a spoon to release gas bubbles, fill jars with brine, and heat in a boiling-water bath before tightening the caps.



FIGURE 16.—In the boiling-water bath, the water in the kettle should cover the tops of the jars. Boil 30 minutes.

FIGURE 17.—After processing (heating in the boiling water) seal the jars tightly and put them away until you are ready to use the kraut.



## Method 2. Large Amount of Salt (Up to 20 Percent by Weight)

### VEGETABLES

|                |                      |
|----------------|----------------------|
| Corn           | Lima beans (shelled) |
| Peas (shelled) | Celery               |
|                | Okra (cut)           |

### PREPARING THE VEGETABLES

Select fresh, tender material carefully graded for high quality. Boil corn 10 minutes to set the milk; then cut from the cob, but not too close.

Shell lima beans and peas.

Wash celery and okra thoroughly, and cut crosswise into short lengths.

For best results, peas, lima beans, and celery should be blanched (scalded) in boiling water or preferably in steam for about 5 minutes before being salted (fig. 4).

**SALTING PROCEDURE**

1. Pack vegetables firmly into the containers, mixing evenly 1 pound of salt for each 5 pounds of vegetable.

2. Put several layers of clean white cheesecloth and a weighted cover on top of the mixture. If the brine formed from salt and vegetable juice is not enough to rise an inch or more above the vegetables after weighting, add strong brine (2¼ pounds per gallon of water) until it covers them.

When packing directly into small jars place several layers of cheesecloth on top of the salted material, and hold it under the brine with wooden crosspieces (fig. 3). Add brine if necessary. Screw the caps on loosely so that the gas which will form can escape.

3. For a better product, salted vegetables may be repacked in smaller containers that can be sealed for prolonged storage. This transfer cannot be made until fermentation, indicated by bubbling, has stopped. The bubbling may continue for a month. Look at the containers from time to time, and when bubbling has stopped, repack the material in small jars, fill with strong brine, and seal.

Material that was packed originally in small jars does not need repacking. When bubbling has stopped, remove cheesecloth and crosspieces, fill jars to the top with strong brine, and seal.

Processing in a boiling-water bath is not necessary in this method.

**BRINING****Method 3. Weak Brine (5-Percent) Plus Vinegar****VEGETABLES**

|                             |                           |
|-----------------------------|---------------------------|
| Beets                       | Turnips (sliced or diced) |
| Carrots                     | Beet tops                 |
| Cauliflower (cut)           | Kale                      |
| Snap beans                  | Mustard greens            |
| Rutabagas (sliced or diced) | Turnip greens             |

**PREPARING THE VEGETABLES**

Select fresh, tender, high-quality materials.

In general, prepare the vegetables as for table use by trimming and cleaning.

Wash greens several times to remove all traces of grit.

The snap beans should be washed thoroughly and may be left whole or cut in pieces. They should be blanched 5 minutes in boiling water, or preferably in steam, and cooled promptly. The best beans for brining are the tender varieties used for canning.

Wash carrots and beets, but do not slice them. Cut cauliflower into pieces.

**BRINING PROCEDURE**

1. Pack the vegetable material firmly in clean containers until they are nearly full. Place on top of the vegetables several layers of clean white cheesecloth and tuck it in around the edge. On the cloth place a weighted cover.

2. Prepare enough 5-percent brine to cover the vegetable material. The amount needed will be about half the volume of the vegetables packed. In each gallon of water dissolve one-half pound of salt (about ¾ cup of granulated, or a full cup of flake or medium) and 1 cup of household vinegar (strength 4 to 5 percent acetic acid).

3. Pour the brine over the vegetables until it comes up over the weighted cover. Keep containers in a cool place.

### REMOVING SCUM

Remove repeatedly the scum that appears on the brine surface, following the directions given on page 8.

### REPACKING AND HEAT TREATING

After a fermentation period of about 10 days, repack the fermented material in smaller containers for processing in a boiling-water bath (fig. 8). Pack clean screw-topped glass jars tightly with the vegetables and fill to within one-half inch of the top with brine from the original container; if necessary, make more 5-percent brine, as described. Follow directions for processing given on pages 8 and 9.

### Method 4. Strong Brine (15-Percent) Plus Vinegar

#### VEGETABLES

|                                      |                     |
|--------------------------------------|---------------------|
| Peas (in pods)                       | Cauliflower (whole) |
| Lima beans (in pods)                 | Peppers             |
| Onions (preferably silver-skin type) | Okra (whole)        |

#### PREPARING THE VEGETABLES

Select fresh, tender material of high quality and wash carefully.

Overmature peas, lima beans, and okra will not make satisfactory brined products.

Remove any dry skin from onions.

Cut off and discard stalk and outer leaves of cauliflower. When brining cauliflower in glass jars, cut it into small pieces.

Cut peppers in half and remove core and seeds.

Use okra whole.

#### BRINING PROCEDURE

1. Pack the vegetables firmly in containers. *Keep a record of the weight of the material packed.* Put on top of the vegetables several layers of clean white cheesecloth and a weighted, solid cover (do not use slats or a latticed cover in this method).

2. Prepare a strong brine as follows: Dissolve 1½ pounds of granulated salt (2½ cups of granulated or 3¾ cups of flake or medium) in 1 gallon of water to which has been added 1 cup of household vinegar. The amount of brine needed will be about half the volume of the vegetables packed.

3. Pour the brine over the vegetables until it comes up over the weighted cover about 2 or 3 inches. Be sure that enough weight has been put on to keep the vegetables under the brine.

4. In order to maintain the brine strength, extra salt must be placed on the cover; otherwise the brine will become diluted as juice is extracted from the vegetables. For every 10 pounds of vegetable packed and brined, weigh out 2 pounds of salt (or measure out 3 cups of granulated or 4½ cups of flake or medium salt). Place the salt carefully on the cover, under the surface of the brine, where it will dissolve gradually. Don't let salt slip off the edge, because this would make the brine too strong at the bottom.

5. Store the brined vegetables in a cool place, and keep the brine level above the cover with weights, or by adding more 15-percent brine when necessary.

6. Keep the brine free from insects and scum.

REPACKING

Fermentation may cause bubbling for several weeks. After this has stopped, repack the brined vegetables in small glass containers with tight-fitting tops (other than zinc). Before repacking lima beans or peas, remove the pods. Pack the material firmly in the jars and fill them to the top with brine from the original container. If there is not enough of this brine, make up some new 15-percent brine, as described. After filling the jars, put on and tighten the tops. Rubber rings or rubberized types of seals are not necessary. Caps lined with cardboard that has a waxed or oiled-paper surface will do. It is not necessary to heat the jars in a water bath.

SALT TABLES

The relation between weight of salt (pound or ounce) and volume of salt in common household measures (cup, tablespoon, or teaspoon) is shown in table 2. In this table, as elsewhere in this bulletin, the volume measurements are in *level* teaspoons, tablespoons, and cups.

Tables 3 and 4 summarize the information given about the amounts of salt needed for preserving vegetables by the four methods described. Additional information on brine strengths, quantities of salt, and salometer measurements is given as reference material for those interested in preservation by the use of salt who may have difficulty in finding this information elsewhere.

TABLE 2.—Equivalent weights and volumes of different grades of salt used in dry salting and brining

| Amount of salt recommended | Equivalent in granulated salt   | Equivalent in flake (dairy) or medium salt |
|----------------------------|---------------------------------|--|
| Weight:                    |                                 |  |
| 1 ounce.....               | 1 tablespoon and 1/2 teaspoon.. | 2 tablespoons and 1 1/2 tea-<br>spoons.    |
| 1/2 pound.....             | 3/4 cup.....                    | 1 cup and 2 tablespoons.                   |
| 1 pound.....               | 1 1/2 cups.....                 | 2 1/4 cups.                                |
| Measure:                   |                                 |  |
| 1/2 cup.....               | 5 ounces.....                   | 3 1/2 ounces.                              |
| 1 cup.....                 | 10 ounces.....                  | 7 ounces.                                  |

TABLE 3.—Amounts of salt to add to 1 pound and 10 pounds of fresh vegetables in dry salting

| Percent salt weight | Volume of salt <sup>1</sup> required for 1 pound of fresh material |                              | Salt required for 10 pounds of fresh material |                                |                              |
|---------------------|--|------------------------------|---|--------------------------------|------------------------------|
|                     | Granulated salt  | Medium or flake (dairy) salt | On a weight basis                             | On a volume basis <sup>1</sup> |                              |
|                     |  |                              |   | Granulated salt                | Medium or flake (dairy) salt |
| 2 1/2               | 2 teaspoons.....   | 1 tablespoon.....            | 4 ounces.....                                 | Scant 1/2 cup.....             | 3/4 cup.                     |
| 5                   | 4 teaspoons.....   | 2 tablespoons.....           | 8 ounces.....                                 | Slightly over 1/4 cup.         | Slightly over 1 cup.         |
| 10                  | 2 tablespoons and 2 tea-<br>spoons.                                | 4 tablespoons.....           | 1 pound.....                                  | 1 1/2 cups.....                | 2 1/4 cups.                  |
| 15                  | 4 tablespoons.....   | 6 tablespoons.....           | 1 1/2 pounds.                                 | 2 1/4 cups.....                | 3 3/4 cups.                  |
| 20                  | 5 tablespoons and 1 tea-<br>spoon.                                 | 1/2 cup.....                 | 2 pounds.....                                 | 3 cups.....                    | 4 1/4 cups.                  |

<sup>1</sup> Figured on the basis of *level* teaspoons, tablespoons, and cups.

TABLE 4.—Amounts of salt and water required to prepare brines of different strengths

| Strength of brine |                                | Amount of salt—                        |                            |                            |                          |                      |  |
|-------------------|--------------------------------|--|----------------------------|----------------------------|--------------------------|----------------------|--|
| Percent           | Salometer degrees <sup>1</sup> | Ounces per quart of water <sup>2</sup> | Ounces per gallon of water | Pounds per gallon of water | Cups per gallon of water |                      |  |
|                   |                                |  |                            |                            | Granulated salt          | Flake or medium salt |  |
| 1                 | 5                              | $\frac{1}{2}$                          | $1\frac{1}{4}$             | $\frac{1}{10}$             | $\frac{1}{8}$            | $\frac{1}{4}$        |  |
| 2½                | 10                             | 1                                      | $3\frac{1}{2}$             | $\frac{1}{4}$              | $\frac{1}{8}$            | $\frac{1}{2}$        |  |
| 5                 | 20                             | $1\frac{1}{4}$                         | $7\frac{1}{2}$             | $\frac{1}{2}$              | $\frac{3}{4}$            | 1                    |  |
| 10                | 40                             | 4                                      | 16                         | 1                          | $1\frac{1}{2}$           | $2\frac{1}{4}$       |  |
| 15                | 60                             | $6\frac{1}{4}$                         | 25                         | $1\frac{1}{2}$             | $2\frac{1}{2}$           | $3\frac{3}{4}$       |  |
| 20                | 80                             | 9                                      | 36                         | $2\frac{1}{4}$             | $3\frac{1}{2}$           | $5\frac{1}{4}$       |  |
| 26                | 100                            | 12                                     | 48                         | 3                          | $4\frac{3}{4}$           | 7                    |  |

<sup>1</sup> Indicating degree of salt saturation in percent. The salometer is used mainly by commercial packers of brined foods.

<sup>2</sup> See table 2 for number of teaspoons of salt required for 1 ounce.

NOTE.—In brining vegetables, the amount of brine needed will be equal to about half the volume of the material after packing. For example, if a 10-gallon crock is to be filled with brined vegetables, about 5 gallons of brine will be required.

## REFERENCES TO OTHER PUBLICATIONS ON SALTING AND BRINING

The directions for salting and brining vegetable material contained herein are based on the joint United States Department of Agriculture-North Carolina Agricultural Experiment Station investigational work on food preservation and the following sources of information. Acknowledgment is hereby made for valuable suggestions used.

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