

Canning Fruits and Vegetables



issued by
The Extension Service
Agricultural and Mechanical College of Texas and
The United States Department of Agriculture
H. H. Williamson, Director, College Station, Texas

Canning Fruits and Vegetables

By Grace I. Neely, Specialist in Food Preservation

Canning is the application of heat to food in air-tight containers to preserve it as nearly as possible in a condition similar to that of the freshly cooked product. Successful canning depends upon applying a sufficiently high temperature for a period of time long enough to destroy the enzymes, yeasts, molds and bacteria, which cause the food to spoil or be unsafe for consumption.

The temperature necessarily varies for different products.

The acidity of fruits, tomatoes and rhubarb greatly lowers the needed temperature due to the type of bacteria that develops in acid foods. Such products may be canned by heating for a definite period of time in boiling water. This method is known as the water bath.

Those products which are low in acid, high in protein content and contain spore-bearing bacteria require a higher temperature and longer processing. Among these are such products as asparagus, string beans, snap peas, shelled peas and beans, corn, greens of all kinds, okra, pumpkin, beets (not pickled), squash, carrots and sweet potatoes. In order to increase the temperature above boiling for these products the pressure cooker or steam pressure method is recommended.

Definite time and temperature are necessary for each product in order to secure the correct temperature at the center of the container or the largest piece of food in the container. Heat penetration is slower in solid packed foods. Liquid in the container serves two important purposes. It helps to drive out air from the can and also to conduct heat into the solid material during processing.

Types of Cannery

The water bath method consists of boiling the filled cans or jars for a definite period of time in a water boiler. This boiler may be a commercial canner made for such purposes or it may be a wash boiler, tub, bucket or other larger utensil with a well fitted lid and a wooden or wire rack in the bottom to permit the water to circulate under the jars. The rack is needed for even processing and to prevent jars from breaking. The temperature reached is never higher than the boiling point of water.

The steam pressure canner or steam pressure cooker is a large vessel made of aluminum or iron, fitted with a steam

gauge, a pet cock for the escape of steam, and a safety valve. This type of utensil reduces the time for processing because it insures a higher degree of temperature.

Containers

For both water bath and steam pressure canning either tin cans or glass jars may be used.

Each recipe given in this bulletin suggests the type and size of can or jar to use for the various products.

Sanitary or R enamel lined cans preserve the color of such highly colored foods as berries, prunes, and beets, and prevent corrosion in pumpkin and squash.

C enamel lined cans will help to prevent discoloration of products such as corn, peas, hominy, crab, shrimp, chicken and clams. This can should not be used for acid products or fat meats.

Plain tin cans can be used for all foods not listed above under sanitary or R enamel and C enamel cans.

Lids are of three types—paper gasket, composition and rubber. The sealer should be adjusted carefully when changing from one type lid to another.

Successful use of glass jars depends upon the quality of the rubber rings or composition tops and upon the rims being free from nicks and chips. The tops should fit and the bails be tight. New lids each year are desirable.

General Directions

Use clean, fresh, sound fruits and vegetables. "One hour from the garden to the can" is a good slogan.

Use clean containers for gathering the materials. This will prevent unnecessary infection of vegetables and fruits.

Grade products for size and uniform degree of ripeness. A container with both large and small peas will have a cloudy appearance because the smaller peas will cook to pieces before the larger ones are done.

All products should be gathered at the proper stage of maturity. Can fruits when ripe but still firm. Heat penetration is slower in green fruits, and if the fruits are too green they may become hard and shriveled on canning. Canned over-ripe fruits are not attractive to serve. Vegetables should be young, tender, crisp, and freshly gathered.

Wash thoroughly until every trace of soil is gone. Botulism bacteria are found in the soil. Birds, and winds blowing dust may carry bacteria from one area to another; it cannot be assumed that any particular locality is free from botulism bacteria. When the spores of the bacteria are not destroyed in processing, they may start growing and produce a deadly toxin in the food.

It is important at all times to prevent food from standing at a temperature between 105 degrees F. and 150 degrees F., as this is the best breeding temperature for objectionable bacteria in food preservation.

Precooking or exhausting is a necessary part of the processing period when using this bulletin. Precooking is heating the foods in a kettle to wilt or shrink them and to drive air out of the food before filling and sealing containers. Exhausting is heating the food in the container long enough to drive the air out of the food and the container before sealing. Follow special directions given under each recipe.

All products should be sufficiently hot at time of sealing to drive air out of food and container. This may necessitate exhausting or heating in container before sealing.

Fill the container to within one-fourth inch of the top. If precooked sufficiently for swelling of starchy foods and shrinking of bulky foods a full and more attractive pack will result. Fill cans to obtain a reasonably tight pack of solid food without cramming and add hot liquid to cover.

When the container is filled, remove all air bubbles by shaking the container gently or paddling the contents with a spatula or flexible paddle. Wipe the top of the container to remove any seeds, fat, or particles of food or sirup.

When a screw top jar is used, place new clean rubber on jar and screw lid on firmly.

When a glass top jar with a wire clamp is used, place the rubber and lid on evenly and raise both clamps. Then pull down the lower clamp.

When an automatic seal jar is used, fasten the lid with the clamp—it is self sealing as it cools.

For the glass jars with two piece caps which consist of screw band and lid with sealing composition attached, place lid on jar, turn screw band down firmly. Do not tighten after processing.

When rubber bands are used, check seal after processing when removed from water bath or pressure cooker.

Tin cans heat through quickly and may be plunged into cold water immediately after processing. Rapid cooling checks the cooking, therefore lessens the possibility of overcooking and aids in preventing foods standing so long at a temperature between 105 degrees and 150 degrees F.

Placing Containers in Water Bath Canner

Be sure that the jars or cans are far enough apart and that the rack on which they rest is high enough from the bottom of the utensil to allow the water to circulate freely under and around them. The water in the canner should be boiling when jars are placed in it. The glass jars should be hot enough to prevent breakage when placed in the boiling water. The water in the canner when all jars or cans are in should cover the tops. Count time when water boils vigorously around the jars. When time is up remove jars, check seal if not already sealed and put jars in a place free from drafts where they can cool quickly to room temperature. Plunge the tin cans immediately in cold water.

The times given for processing in boiling water apply only to places with altitudes of 1,000 feet or less. For all altitudes above 1,000 feet the time should be increased 20 per cent for each additional 1,000 feet.

Recipes for Canning by Water Bath Method

In canning fruits use these proportions of sugar and water for light, medium, and heavy sirups:

Light sirup — $\frac{1}{3}$ cup sugar to 1 cup water.

Moderately light sirup — $\frac{1}{2}$ cup sugar to 1 cup water.

Medium sirup — $\frac{3}{4}$ cup sugar to 1 cup water.

Moderately heavy sirup — $1\frac{1}{4}$ cups sugar to 1 cup water.

Heavy sirup — $1\frac{1}{2}$ cups sugar to 1 cup water.

Apples: Use sound smooth cooking apples. Pare and cut in sizes desired. If pieces must stand, place immediately in a brine solution ($\frac{1}{4}$ cup salt to one gallon water) to prevent turning dark. Boil for 5 minutes in light sirup. Pack hot in jars and cover with boiling sirup. Process quart and pint glass jars for 15 minutes and No. 2 and No. 3 plain tin cans for 10 minutes in boiling water.

Windfall apples may be made into sauce. Sweeten to taste. Pack boiling hot and process immediately all containers for 5 minutes in boiling water.

Apricots: Same as peaches.

Berries: Dewberries, blackberries, huckleberries, strawberries, and raspberries. Sort berries, saving bruised and imperfect ones for use in making sirup. Wash carefully before removing caps. Pack in containers pressing gently into place. Cover with boiling, moderately light sirup. Exhaust 5 minutes before sealing.

Process quart and pint glass jars for 15 minutes, and No. 2 and No. 3 sanitary or R enamel tin cans for 15 minutes in boiling water.

If berries shrink and rise to the top of the jar, precook before packing. To each pound of berries add $\frac{1}{4}$ to $\frac{1}{2}$ pound of sugar according to sweetness of fruit. Boil 5 minutes, stirring slightly. Pack boiling hot and process immediately all containers for 5 minutes in boiling water.

Cherries: Pitted cherries may be precooked by boiling for 5 minutes with sugar to taste. Fill containers boiling hot and process immediately containers of all sizes for 5 minutes in boiling water.

Unpitted.—Prick to prevent shrinkage. Pack in hot containers. Cover sour cherries with boiling moderately heavy sirup and sweet cherries with boiling moderately light sirup. Left over juice from pitted cherries used instead of water for sirup gives a better flavor. Exhaust 5 minutes before sealing. Process quart and pint glass jars for 20 minutes, and No. 2 and No. 3 sanitary or R enamel tin cans for 20 minutes in boiling water. Cherries canned without pitting develop a bitter almond flavor pleasing to some, disagreeable to others.

Figs: Sprinkle one cup soda over 6 quarts of sound, firm figs, and add 1 gallon of boiling water. Let stand for 5 minutes. Drain and rinse thoroughly. Bring 2 quarts of moderately light sirup to boiling point and add well drained figs. Boil for one hour. Remove fruit carefully, pack in hot containers, fill with boiling sirup and process immediately all containers for 5 minutes in boiling water. Use plain tin cans.

Fruit Juice: Select sound ripe fruit such as blackberries, dewberries, plums, or cherries. Crush and heat to simmering, about 185 degrees. Strain through double thickness of cheese cloth. Add 1 to 2 cups of sugar to each gallon of juice. Heat juice quickly to boiling point, fill jars or bottles and seal. Process 10 minutes at simmering point. Omit sugar if to be used later for making jelly.

Orange or Grapefruit Juice: Extract juice by reaming, being careful not to ream too close to white peel. Strain. Fill into sterilized pint or quart jars or plain tin cans $\frac{1}{4}$ -inch from top. Exhaust to 160 degrees F. Seal and process at 165 degrees F. for 25 minutes or at boiling temperature for 7 minutes.

Spiced Fruit Juice: To one quart of berry juice or plum juice add 2 cups of sugar and 1 tablespoon each of cloves, allspice, cinnamon and nutmeg. Pour while hot into pint or quart jars or bottles and process at simmering point for 10 minutes at 185 degrees F.

Gooseberries: Use same method as for other berries. Pack raw using heavy sirup. Exhaust 5 minutes before sealing. Process quart and pint jars for 15 minutes, and No. 2 and No. 3 sanitary or R enamel tin cans for 15 minutes, in boiling water.

Grape Fruit: Remove outer peel as well as all white peel and inner membrane covering sections, and seed. Pack solidly in pint or quart glass jars or plain tin cans. Cover with boiling medium sirup, or with own juice which may be sweetened or not, according to taste, using 1 teaspoon sugar to 1 pint jar. Exhaust to 160 degrees F. before sealing. Process at 165 degrees F. for 25 minutes or at boiling temperature for 7 minutes.

Peaches: Immerse the peaches in boiling water until skins will slip easily; plunge into cold water. Remove skins, cut peaches in halves, discard pits. Peaches may be packed raw, but a better pack is obtained if the fruit is first simmered in the sirup 4 to 8 minutes. Do not cook until too soft. Pack at once, placing the halves in over-lapping layers, the concave surface of each half being downward. Fill container with boiling sirup. Process quart and pint glass jars and No. 2 and No. 3 plain tin cans 15 minutes in boiling water.

When packed raw, exhaust 5 minutes before sealing. When fruit is firm process 25 minutes, if it is soft, 20 minutes.

Pears: Peel, cut in halves, core and cook in boiling moderately light sirup for 4 to eight minutes, according to size and hardness of fruit. Pack into hot containers and fill with boiling sirup. Process containers of all sizes for 20 minutes in boiling water. Use plain tin cans.

Plums: Wash and prick each plum to prevent skin from bursting. Fill into jars and cover with boiling moderately light sirup. Exhaust 5 minutes before sealing. Process quart and pint glass jars and No. 2 and No. 3 cans, 15 minutes in boiling water. Use sanitary or R enamel tin cans for red plums and plain tin cans for yellow plums.

Rhubarb: Select young, tender stalks. Cut into $\frac{1}{2}$ -inch lengths, pack into containers and cover with boiling hot medium sirup. Exhaust 5 minutes before sealing. Process quart and pint glass jars 10 minutes in boiling water. Another method is to add one-fourth as much sugar as rhubarb by measure, and bake until tender in a covered container. Pack boiling hot, process immediately containers of all sizes for 5 minutes in boiling water. Since rhubarb corrodes tin cans it is better to use glass.

Pineapple: Peel, core and remove the "eyes." Cut as desired, pack into the container and fill with boiling light sirup. Exhaust 5 minutes before sealing. Process containers of all sizes 30 minutes in boiling water. Use plain tin cans.

Pickled Beets: The beets should be young, tender, practically free from cracks, peeled, and with defects trimmed, of uniform size ($1\frac{1}{4}$ to $1\frac{1}{2}$ inches in diameter) and of good color. Sort beets, putting those of uniform size together. Cut the tops, leaving about two inches of the stem, and roots on, until after cooking. Steam under 15 pounds pressure 15 to 20 minutes, or cook until tender. Peel, trim, and drop while hot in hot spiced vinegar which has previously been prepared. For this spiced vinegar use 1 gallon 4% vinegar, 5 cups sugar and 5 teaspoons of mixed spices. Tie spices in a bag. Mix sugar, vinegar and spices. Let simmer about half an hour for the spices to infuse. Drop beets into spiced vinegar and boil three minutes. Remove spice bag, pack jars with beets and cover with hot spiced strained vinegar. Seal immediately and place where they will cool quickly. Use only glass.

Ripe Pimientos: These peppers have a thick flesh and a tough smooth skin. Remove the skin by dipping in hot cooking oil (290 degrees F.) for two or three minutes or place in hot oven (450 degrees F.) for six or eight minutes. Cool by dipping in cold water. Skin. Remove seed cores and stems. Pack without liquid as processing brings out a thick liquor which covers the peppers. Add $\frac{1}{2}$ teaspoon of salt to each pint. Exhaust 5 minutes before sealing. Process pint glass jars for 40 minutes and No. 1 and No. 0 sanitary or enamel tin cans for 30 minutes in boiling water.

Sauerkraut: Cabbage or turnip; should be well fermented before it is canned. Heat to 180 degrees F. (simmering temperature). Fill hot into the containers and pack closely. Cover with hot sauerkraut juice. Process pints and quarts 30 minutes and No. 2 and No. 3 plain tin cans 20 minutes in boiling water or process at 230 degrees F. for 10 minutes.

Tomatoes: Select firm, ripe tomatoes of uniform size. Put in cheese cloth bag or wire basket and dip in boiling water for about 1 minute. Remove and plunge immediately into cold water. Drain, core and peel promptly. Pack into jars or cans as closely as possible. Fill with a thick tomato sauce or puree or with juice of the tomatoes. Season with 1 teaspoon of salt per quart. Exhaust 5 minutes, before sealing. Process quart and pint glass jars for 40 minutes in boiling water. Seal and process No. 2 and No. 3 tin cans, plain preferred, or sanitary or R enamel cans, for 35 minutes. However, tomatoes of excellent quality, free from cracks and bad places, which have ripened evenly on the vine will give a better canned product if processed only 25 minutes instead of the 35 and 40 minutes given above.

Tomato Juice: Select firm, freshly gathered, ripe tomatoes, wash well and drain. Trim away all decayed, bruised, green or bitter portions.

The juice may be extracted by preheating before pressing, or by extracting the juice from cold tomatoes. The last method gives an excellent product which has a good color, flavor, and consistency.

Juice extracted by a commercial piece of equipment made for the purpose contains finely divided particles of tomato pulp but no seeds. A fair product can be obtained by using a sieve or colander to extract the juice. Heat to 180 degrees F. (simmering point) and fill container immediately. Process No. 1 and No. 2 tin cans or pint glass jars in boiling water for 5 minutes. Use tin cans, plain preferred, or sanitary R enamel. Cool tin cans quickly.

Tomato Soup: Cook until tender 14 quarts sliced tomatoes, 14 bay leaves, 21 whole cloves, 14 sprays parsley, 7 medium sized onions, sliced, and 1 teaspoon celery seed. Add 6 tablespoons salt, 1/2 tablespoon red pepper, 6 teaspoons paprika and 1 cupful sugar. Cook slowly for 1/2 hour. Pack and seal while boiling hot. Process quart and pint glass jars for 45 minutes and No. 2 and No. 3 plain tin cans for 35 minutes in boiling water. Soup made by this recipe may be diluted one-half on opening.

Processing in the Steam Pressure Canner

Pour boiling water into the canner 1 1/2 to 2 inches. Place into the canner the rack that holds the jar.

When the canner has been filled, adjust the cover and fasten securely. In case the cover is fastened by several

clamps, fasten moderately tight those opposite each other, one pair at a time. Then go back over the whole set and tighten each pair.

Allow the pet cock to remain open until steam escapes from it in a steady stream for **seven minutes** indicating that no air remains inside.

Then close the pet cock, until no steam escapes, so that the canner will not boil dry and be damaged.

Allow the pressure to rise until the gauge registers the pressure that indicates the temperature given in the recipe.

Count time from the moment the desired temperature and pressure are reached.

Maintain a uniform pressure during the processing period by regulating carefully the source of heat. Fluctuations in pressure, as from 10 pounds to 15 pounds and down again, are to be avoided in any case, and when canning in glass may result in loss of liquid.

A sudden drop in pressure through cooling or release of steam may also cause this. It is especially important to avoid having the pressure go so high that the safety valve releases the steam suddenly, nor should the steam be allowed to escape suddenly by opening the pet cock.

At the end of the processing period remove the canner from the fire and proceed according to the following directions adapted to jars or cans.

When using glass jars or No. 3 cans, allow the canner to cool until the steam gauge registers zero, open gradually, or let stand a few minutes. This is to prevent too sudden a drop in pressure which would cause the liquid to be drawn out of the jars. Leaving the jars in the canner for 3 to 4 minutes after the canner has been opened will reduce the danger of breakage.

After removing jars from canner check the seal. Allow jars to cool quickly, away from drafts. Plunge tin cans immediately into cold water to cool.

If tin cans smaller than No. 3 are used, open the pet cock wide at once and allow the steam to escape rapidly. Remove the cans from the canner and plunge them into cold running water if possible, or if this is not available change the water as soon as it becomes warm. The more rapidly the cans are cooled the less danger there is of overcooking the product. Watch carefully for air bubbles that indicate imperfect seal-

ing. Leakers should be opened, the contents heated and repacked in other cans, and processed again as at first.

Recipes for Non-Acid Vegetables

Process all non-acid vegetables in the pressure canner. If no pressure canner is available, it is recommended that methods of preservation other than canning be used.

To adjust these time tables to the various altitudes in Texas, add one extra pound pressure for each additional 2,000 feet above the first 2,000.

Asparagus: Sort according to size, wash and tie in uniform bundles, place in a sauce pan with boiling water over the tough portion only, cover tightly and boil for 2 or 3 minutes. Pack boiling hot into containers, cover with the water in which it was boiled and add 1 teaspoon of salt to each quart. Process immediately at 10 pounds pressure, or 240 degrees F., quart glass jars for 35 minutes, pint glass jars, and No. 2 and No. 3 plain tin cans for 30 minutes. Asparagus may be packed raw in No. 2 cans; cover with boiling water and exhaust for 5 minutes before sealing. Process as above.

String Beans: See snap peas and beans.

Lima Beans: See peas and lima beans.

Baby Beets: Only dark red, young, tender beets should be canned, and the turnip-shaped varieties make a more attractive product. Wash thoroughly and scald in boiling water or steam for about 15 minutes until the skins slip easily. Leave on at least 1 inch of the stems and all of the roots during this cooking to prevent bleeding. Slip off the skins, fill the containers, add 1 teaspoon of salt to each quart, and fill with hot water. Exhaust 5 minutes before sealing. Process immediately at 10 pounds pressure, or 240 degrees F., quart glass jars for 35 minutes, pint glass jars and No. 2 and No. 3 sanitary or R enamel tin cans for 30 minutes.

Carrots: Select young, sweet, tender carrots, 1 inch in diameter of a deep even orange color. Sort, wash, and cook 5 to 10 minutes according to size. Scrape, fill container, using whole carrots. Add 1 teaspoon of salt to each quart and fill with hot water. Exhaust 5 minutes before sealing. Process under 10 pounds pressure at 240 degrees F., quart glass jars for 35 minutes, pint glass jars and No. 2 and No. 3 plain tin cans 30 minutes.

Sweet Corn: Much depends upon careful selection of tender, juicy sweet corn, before it reaches a starchy stage. It

should never stand longer than an hour after being taken from the stalk to retain that sweet good flavor. Shuck, silk, and clean carefully.

Whole Grain Style Corn: Simmer in water 4 to 5 minutes. Cut from cob deeply enough to remove most of the kernels. Do not scrape the cob. Add 1 teaspoon of salt and 2 teaspoons of sugar to each quart of corn and half as much boiling water as corn by weight. Heat to boiling and pack into containers at once. Process immediately at 10 pounds pressure at 240 degrees F., quart glass jars 70 minutes, pint glass jars 60 minutes, C enamel No. 3 tin cans, 65 minutes or No. 2 cans 50 minutes.

Cream Style Corn: Without precooking, remove the corn from the cob by shallow cutting through the grain and scraping. Add 1 teaspoon of salt and 2 teaspoons of sugar to each quart, and half as much boiling water as corn by weight. Heat to boiling. Fill into containers at once. Process immediately at 15 pounds pressure 250 degrees F.; pint glass jars for 75 minutes and No. 2 C enamel tin cans, 70 minutes.

Greens: Can as soon after picking as possible. Cut off stems and imperfect portion. Wash thoroughly to remove sand and grit. To the greens add water heated to simmering and simmer in an uncovered kettle for 5 minutes or until the greens are wilted. Pack hot into cans, taking care that the material is not packed too solidly. Loosen in center before adding liquid. Add 1 teaspoon of salt to each quart of greens. Fill with boiling strained water in which greens were cooked. Seal and process immediately at 15 pounds pressure or 250 degrees F., quart glass jars for 65 minutes, pint glass jars for 60 minutes and No. 2 plain tin cans, 55 minutes.

Okra: Wash pods, cover with water and bring to a boil in an uncovered kettle. Pack hot in the containers and add 1 teaspoon of salt to each quart. Process immediately at 10 pounds pressure, or 240 degrees F., quart glass jars for 40 minutes, pint glass jars for 35 minutes, and No. 2 and No. 3 plain tin cans for 30 minutes.

Okra and Tomato Gumbo: Use 4 tablespoons of butter or bacon drippings, 1 pint chopped onions, 2 quarts fresh tomatoes (cut in quarters), 1 quart okra (sliced), 4 teaspoons of salt or to taste, 2 pepper pods without seed, 3 tablespoons of chopped parsley, and 1 bay leaf (crushed). Heat the fat, brown lightly the onion and okra. Add the bay leaf, parsley, chopped tomatoes and pepper pods. Allow this mixture to steam in a covered pan for 5 minutes. While hot

fill No. 2 plain tin cans or pint jars to within $\frac{1}{2}$ inch of the top. Seal and process at 10 pounds for 50 minutes.

Peas, Green: Use only freshly gathered young, tender peas; shell, discarding any imperfect peas, wash and simmer for 5 minutes in an uncovered kettle. Pack boiling hot in containers and add 1 teaspoon of salt to each quart. Process immediately at 10 pounds pressure, or 240 degrees F., pint and quart glass jars for 45 minutes, and No. 2 and No. 3 C enamel tin cans for 40 minutes. Quality depends on speed. Important: "One hour from garden to can"; grade for uniformity; correct precook; do not over fill cans.

Blackeyed Peas and Lima Beans: Use only fresh gathered young, tender shelled peas or beans. Important: "One hour from garden to can." Shell, sort and grade. Place in diluted brine to prevent discoloration or souring. Drain. Add hot water and heat 10 minutes. Fill container within $\frac{1}{2}$ inch of top. Add 1 teaspoon of sugar and $\frac{1}{2}$ teaspoon of salt to each pint. Process No. 3 C enamel cans or pint jars at 10 pounds pressure, 240 degrees F., for 50 minutes; quart jars 55 minutes; No. 2 C enamel cans 40 minutes. One-fourth part of snap peas will add to flavor of finished product.

Pumpkin: Wash the pumpkin, peel and cut into 1 to $1\frac{1}{2}$ inch cubes. Add a small quantity of water and simmer until heated through, stirring occasionally. Pack hot into containers, add 1 teaspoon of salt to each quart and cover with water in which pumpkin was cooked. If another method is desired, bake or steam pumpkin until heated through. Remove from shell and fill into containers while hot. Add salt and boiling water to cover. Process immediately at 15 pounds pressure or 250 degrees F. quart glass jars for 75 minutes, No. 2 sanitary or R enamel tin cans for 60 minutes and No. 3 cans for 70 minutes. If canning in tin use the sanitary or R enamel cans.

Snap Peas and Beans: May be of two classes.

First Class: Snap peas and beans should be about $\frac{1}{4}$ inch in diameter, of a deep green color, crisp, tender and fleshy, with seeds not larger than pin heads.

Second Class: Snap peas and beans of a good green color with seeds about half mature.

Preparation: Wash thoroughly, snap the ends and cut into even lengths $1\frac{1}{2}$ to 2 inches. Cover with boiling water and simmer uncovered for about 5 minutes or until the beans are wilted and will bend without breaking. Pack hot into the containers and cover with hot water and add 1 tea-

spoon of salt to each quart. Process at 240 degrees F. or 10 pounds pressure, quart jars 35 minutes, No. 2 plain tin cans 25 minutes, and pint jars and No. 3 plain tin cans 30 minutes.

Squash: Same as pumpkin.

Sweet Potatoes: Wash the sweet potatoes thoroughly and boil or steam until the skins slip off readily. Peel quickly, cut into medium sized sections, and pack hot in containers. Add immediately 1 teaspoon of salt to each quart and enough boiling water to cover. Process at once at 10 pounds pressure or 240 degrees F., quart glass jars for 120 minutes, pint glass jars and No. 2 plain tin cans for 95 minutes, and No. 3 plain tin cans for 115 minutes. In case they are canned at harvesting time it is important that the precooking be slow in order to develop the sugar in sweet potatoes.

Vegetable Soup: 1 quart tomato pulp, 1 pint corn, 1 pint lima beans or peas, 1 pint okra, 1 c. onion chopped fine, 1½ teaspoons salt. Cook together tomatoes and onions, put through a sieve to remove seeds, and cook to the consistency of catsup. Add corn and other vegetables which have been prepared for canning. Bring to a boil and pack hot. Process at 10 pounds pressure, No. 1 cans, 40 minutes, No. 2 cans 50 minutes, (plain tin), pint jars 60 minutes, and quart jars 70 minutes.

Other Products

Peanut Butter:

Two quarts Spanish peanuts, 4 quarts Virginia peanuts, 1½ tablespoons of salt.

Roast the peanuts uniformly brown. Cool, remove the red skins and tiny hearts or germs (if the germs are not removed they may impart a bitter flavor). Grind, add the salt and grind twice again so as to have the salt well distributed throughout. A good type of meat grinder is satisfactory for grinding peanuts provided the burrs are not worn. The finest burrs should be used and the machine should be set to grind the nuts as fine as possible. If the butter is not fine enough, after grinding it through the machine once, it should be passed through again. Pack into small jars. It is important to fill the jars as full as possible, pressing the butter in on the bottom first and filling so as to remove air bubbles as the packing is done. Care should be taken not to leave any air space between the top of the peanut butter in the jar and the lid.

Sterilize 12-ounce containers for one hour at 180 degrees F. (simmering) in a water bath. If there is too much oil in the butter, it will separate and the nuts will rise, leaving the oil in the bottom of the jars. The Spanish peanuts contain a large amount of oil; therefore, it is necessary to mix the variety with the Virginia peanuts in the proportions given above.

Hominy: Select a sweet white corn with flat grain. Shell, wash thoroughly and soak in lukewarm water for an hour. Dissolve 2 tablespoons lye in 1 gallon of boiling water. Use enamel kettle or bucket. Add the soaked corn and boil for 30 minutes, or long enough to loosen the hulls. Remove and rinse thoroughly. Rub to loosen the hulls and kernels near the germ, or use a barrel churn for 5 or 10 minutes for this purpose. Let stand in fresh water for 2 or 3 hours, changing water 6 or 7 times to be sure all lye is removed. Cover with fresh water and boil until tender. Pack hot into pint jars or No. 2 C enamel or plain tin cans, add $\frac{1}{2}$ teaspoon of salt to each can. Process for 50 minutes under 15 pounds pressure or 250 degrees F.

Canned Pecans: Select good well developed pecans—shell and sort according to size. Free them from bits of shell and unmaturing nuts. Place pecans one layer thick in shallow pans. Put in a slow oven; heat but do not scorch. Put jars in a pan of cold water and bring to boiling point, remove and wipe quite dry and adjust rubber. Pack hot pecans into hot, dry jars to within one inch of the top. Dry top and adjust carefully. Place bail in place and semi-seal. Place in pressure cooker to which has been added $1\frac{1}{2}$ to 2 inches of water. Adjust cooker lid and clamp. Then close and raise pressure to 5 pounds. Release pressure immediately to bring remaining moisture out of jars. Remove from cooker and complete the seal. If tin cans are desired, seal and process No. 2 cans, 5 pound pressure for 10 minutes.

Pork and Beans: Sort dried beans carefully by hand. Wash. Soak 8 to 10 hours in slightly warm soft water depending upon age, quality and size of beans. Change water once. Bring to boil and boil 5 minutes. Place $\frac{1}{4}$ ounce (thin slice one inch square) of bacon in bottom of a can or jar. Fill can with hot beans to within about one inch of the top. (The beans may swell during processing.) Add hot tomato sauce and process at 10 pounds for 70 minutes both pint jars or No. 2 plain tin cans.

Boston Brown Bread: $1\frac{1}{4}$ cups rye meal, $\frac{1}{4}$ cup cornmeal, $1\frac{1}{2}$ cups graham flour, 1 teaspoon salt, $\frac{3}{4}$ cup mo-

lasses, $\frac{1}{4}$ cup cane sugar, $\frac{1}{4}$ cup brown sugar, 2 cups sour milk with $\frac{3}{4}$ tablespoon soda or $1\frac{3}{4}$ cups sweet milk with 5 teaspoons baking powder. Sour milk is preferred.

Mix and sift dry ingredients, add milk and molasses, stir until well mixed.

Fill No. 2 cans half full; tie heavy brown paper, which is greased, over top of can; put in cooker, leave pet cock slightly open, and steam 75 minutes. Remove, seal cans immediately and process under 10 pounds pressure for 60 minutes. Cans should be lined with greased brown paper on the bottom and sides, and a piece placed over the top before sealing. Bread canned will keep indefinitely.

(A pressure of 15 pounds may darken both beans and sauce and make the sauce bitter.)