1948

Canning Meats, Relishes, Fruit Spreads : Extension Circular 9-41-2

Jessie Greene

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MEATS
RELISHES
FRUIT SPREADS

EXTENSION CIRCULAR
9-41-2

PREPARED FOR 2nd YEAR 4-H FOOD PRESERVATION CLUBS

THE UNIVERSITY OF NEBRASKA, AGRICULTURAL COLLEGE
EXTENSION SERVICE AND UNITED STATES DEPARTMENT OF AGRICULTURE CO-OPERATING

W. H. BROKAW, DIRECTOR, LINCOLN
Canning Meats, Relishes and Fruit Spreads

THE first year of the food preservation project teaches approved methods of canning fruits and vegetables and stresses the foods needed for good health. The second year aims to continue this study of nutrition and take up the canning of meats, relishes and fruit spreads. Some canning is also included in the cooking club projects. It may be practical to dry, brine, freeze or store some foods, and club members may substitute up to one-half of the canning requirement with dried, brined, frozen or stored foods.

Contents

Problem VI. Eat This Way Every Day
Problem VII. Canning Meats and Poultry. Safety Quiz.
Problem VIII. Relishes and Pickles.
Problem IX. Fruit Spreads.
Problem X. Planning the Diet Around Our Budget.

Requirements

1. Can at least 50 jars including:
   A. 3 jars of meat
   B. 3 jars of relishes or fruit spreads
   C. 3 varieties of fruits
   D. 3 varieties of vegetables
2. Score your food habits.
3. Figure a canning and storage budget for your family.
4. Keep a food record for a week.
5. Keep a record of condition of canned products when opened.

Adjusting Requirements to Home Needs

Club members may substitute dried, brined, frozen or stored foods up to one-half of the required amount. For information on these methods of food preservation, get the following from the County Extension Agent:

"Preservation of Vegetables by Salting or Brining," F.B. 1932.
"Food Preservation by Freezing," E. C. 9965.

Other materials especially useful in this project are:

"Use and Care of the Pressure Cooker," E. C. 11-218.

* Acknowledgment is given to Miss Mabel Doremus and Miss May Stanek, specialists in foods and nutrition and Miss Matilda Peters, associate professor in home economics foods and nutrition, for the suggestions used in revision and for their approval of the finished manuscript.

Credit is given to the U. S. Department of Agriculture for material taken from "Home Canning of Meat" AWI-110 and "Home-Made Jellies, Jams and Preserves," FB 1800.
CANNING MEATS, RELISHES, FRUIT SPREADS

FOOD SELECTION SCORE CARD

<table>
<thead>
<tr>
<th>Kind of Food, No. Servings</th>
<th>Value Points</th>
<th>Perfect Score</th>
<th>First Week</th>
<th>Second Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td></td>
<td></td>
<td>S M T W T F S</td>
<td>S M T W T F S</td>
</tr>
<tr>
<td>2 full cups</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 full cups</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 full cups</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 servings</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 servings</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 servings (one green or yellow)</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 servings</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole Grain Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and enriched or restored</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 servings</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat, Eggs, Cheese, Dried Beans or Peas</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving any one</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving each, any two</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter or fortified margarine</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 tablespoon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Deductions                |               |               |            |             |
| Deduct for                |               |               |            |             |
| Use of tea or coffee      | 10            |               |            |             |
| Sweets between meals      | 10            |               |            |             |

Total without Deductions  |               |               |            |             |

<table>
<thead>
<tr>
<th>Av. 1st week</th>
<th>Av. 2nd week</th>
</tr>
</thead>
</table>

* Potatoes may be included as one cereal.

PROBLEM VI

EAT THIS WAY EVERY DAY

D o you eat according to the 4 3 2 2 2 daily standard of good nutrition? Your food score will answer this question because in order to have a perfect score your daily diet should include:

- 4 servings or cups milk.
- 3 servings vegetables including one that is green or yellow. Dark green leaves are especially good. Potatoes may be included as one serving.
- 2 servings fruit including a citrus fruit, tomato or raw cabbage.
- 2 servings cereal or bread, whole grain and enriched or restored.
- 2 servings protein food such as meat, eggs, cheese, dried beans, or peas.
- 2 servings or tablespoons butter or fortified margarine.

Directions For Using The Food Selection Score Card

Score yourself each day for a week at the beginning of the project and each day for another week near the close of the project. If you did not use as much as the lowest number on the score card give yourself a zero. Do not divide the numbers. For example, 2 cups of milk is 10 points; less than 2 cups is zero. If your average score shows that your food habits are above 90, try to keep them so. If your average is below 90, raise it by improving your food habits where they need it. Compare the averages for the two weeks.

Milk. One serving is one standard measuring cup. Include milk cooked in food, served with foods, or taken as a beverage.

Vegetables and fruits. One serving is one-half of a standard measuring cup. Oranges and grapefruit (citrus fruits), tomatoes and raw cabbage are the best sources of vitamin C. Citrus fruit averages about twice as much vitamin C as tomatoes. Tomatoes may be either cooked or raw because short cooking of a food that is as acid as tomatoes has little effect on Vitamin C. Tomatoes may be counted either as vegetables or fruits. Any raw fruit or vegetable will furnish some Vitamin C.

Whole grain products. One serving is ½-cup cooked cereal or one slice of bread. Examples are cereals and breads made from whole grain products such as oatmeal, graham, cracked wheat, or rye graham. At least one-half of the cereal and breadstuffs eaten should be approximately whole grain, and all white flour products used should be made with enriched flour.

Meat. Includes fish, game and poultry, but does not include bacon or salt pork, which are classified as fats.

Butter or fortified margarine. One serving is one tablespoon. Butter used for seasoning vegetables should be counted in addition to that eaten on bread.

Deductions. Subtract 10 points for sweets if they are eaten between meals, but make no deduction if they are eaten at the end of a meal. Sweets include all confections, cakes, cookies, and food made with a considerable amount of sugar or syrup. One reason deductions are made for tea and coffee is that...
they usually take the place of milk. The reason deductions are made for
sweets between meals is that they dull the appetite for the following meal,
and therefore not enough essential food is eaten.

Why should you eat this way every day? What is the reason for the
4 3 2 2 2 2 daily standard for good nutrition?

The body needs food for:

Heat and energy (power to do work).

Building and repairing the body tissues.

Regulating body processes.

Cereals, breads and starchy vegetables, fats, and sweets produce energy
for work and play and furnish heat to keep the body warm. Starches, sugars
and fats may be called fuel foods.

Protein foods such as meat, eggs, poultry, fish, dried beans and peas, milk,
and cheese, build and repair body tissues; that is, they provide material
for growth and also for replacing worn-out tissues.

Vegetables, fruits, whole grains, milk and other protein foods contain
substances which regulate body processes. In other words they keep the
body in good working order. For example, calcium and other minerals help
to regulate the beating of the heart, and iodine is necessary for proper
working of the thyroid gland. Iron helps the body to build the "red" part of
the blood which has the job of carrying oxygen from the air in the lungs to all parts
of the body. If there is not enough "red" blood, the muscles and organs
suffer. Vitamins also play an important part in regulating the body.

One reason for a daily standard is that the foods in it, if eaten in the right
amounts, meet all of the body needs. These foods are called protective foods
because each supplies a number of materials which are essential to good health,
and some also protect against disease. They are important for other reasons
than those mentioned in the table below. For example milk is valuable for
protein and vitamins A and G as well as for calcium. Greens are valuable for
Vitamin G, iron and calcium as well as Vitamin A.

The following table helps understand why the foods listed on the daily stand-
ard are essential or protective foods. Sugar is not mentioned because it is
purely a fuel food and the average person eats enough fuel foods. All foods
have some fuel value, but fats, cereals, breads and starchy vegetables have more
than the other foods in the standard.

<table>
<thead>
<tr>
<th>Food in the Daily Standard</th>
<th>Especially Important for</th>
<th>Use in the Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>Calcium</td>
<td>Builds bone and teeth and keeps them strong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Helps regulate heart beat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Helps blood to clot.</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Vitamin A</td>
<td>Keep eyes, skin and mucous membrane healthy.</td>
</tr>
<tr>
<td>green or yellow</td>
<td></td>
<td>Protect against infection.</td>
</tr>
<tr>
<td>Butter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruits and raw vegetables</td>
<td>Vitamin C</td>
<td>Keep gums healthy.</td>
</tr>
<tr>
<td>Citrus fruit</td>
<td></td>
<td>Protect against infection.</td>
</tr>
<tr>
<td>Tomato or raw cabbage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole Grains</td>
<td>Vitamin B or G or Thiamin</td>
<td>Keep nerves in good condition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Help body use starch and sugar.</td>
</tr>
<tr>
<td>Proteins</td>
<td>Vitamin B or G or Riboflavin</td>
<td>Help body use starch, sugar, fats and oxygen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Build and repair tissues.</td>
</tr>
</tbody>
</table>

That there is need for following the daily standard was shown in a recent
survey of five widely separated counties. Five-day food records were obtained
from 697 children in 70 Nebraska rural schools, using the Basic Seven Chart
as the basis of comparison. Results were as follows:

Only about
1/10 were getting 4 servings of milk or milk products daily,
1/7 were getting 5 servings of fruits and vegetables including potatoes
daily.
1/5 were getting enough green or yellow vegetables.
1/3 were eating enough citrus or tomatoes.
1/2 were getting two servings of meat, poultry, fish, eggs or dried beans or
peas daily.
Almost all of the children were apparently eating plenty of bread, although the survey did not show what proportion was whole grain or enriched.

This survey shows there is a need for checking your food habits to see where you are falling short of the standard and then working to raise your food scores to 90 or above.

While working on 4-H projects, developing head and hands, do not neglect the heart and health H's. What do the National Club Pledge and Creed say about these? "I pledge my Heart to greater loyalty." "I believe in the training of my Heart for the nobleness it will give me to become kind, sympathetic and true." Are you loyal to your home and parents by doing your part of the home work willingly, and taking responsibility cheerfully? Are you kind, sympathetic and true? "I pledge my Health to better living... I believe in the training of my Health for the strength it will give me to enjoy life, to resist disease and to work efficiently." Good food habits are an important part of healthful living. Other phases are discussed in the health circular "You Yourself."

Reviewing Last Year's Budget

If your food score is 90 or above, your vegetable and fruit budget for the 36 non-growing weeks should be satisfactory because it is based on a perfect score. A perfect score includes 3 servings of vegetables and 2 servings of fruit daily. However, these need not all be canned or stored. For an explanation of the amounts in Family Canning and Storage Budget, see page 8 of "Canning Fruits and Vegetables," E. C. 9-31-2. How did your Family Canning and Storage Budget work out last year? If you did not have enough canned or stored products, did you use more fresh, frozen, dried or brined foods so you could meet the 432222 daily standard? If you provided this budget and had a large quantity left over, were your home meals planned by the daily standard? It is just as important to carry out a plan for using canned and stored products as it is to make a budget or plan of what is needed.

The survey mentioned previously showed that the diet of many Nebraska boys and girls is lacking in green and yellow vegetables which supply Vitamin A, and also in citrus fruits, tomatoes and raw cabbage, which supply Vitamin C. What planning is necessary in order that more people may have a year-round supply of these two essential vitamins?

First—Raise enough, including green and yellow vegetables, tomatoes and cabbage in the home garden for fresh use with a surplus to store.

Second—Store enough so that each member of the family may meet the daily standard for these vegetables during the non-growing months.

Third—Plan family meals that meet the standard for good nutrition.

Fourth—Eat according to the standard.

Budget amounts will serve as a guide for planning. If some products are prepared in other ways, such as frozen, dried or brined, they may replace equal amounts of canned or stored products in the budget.

If you want to look your best, feel your best, and do your best work, learn what foods you need and then be sure to get them.
CANNING MEATS, RELISHES, FRUIT SPREADS

Simplified Budget

If you were in a first-year canning club last year you figured your Family Canning and Storage Budget. Refigure your budget for the coming year using the following simplified form. This budget is 80 quarts of canned products, two bushels of potatoes, and 250 pounds of other stored vegetables and fruits per adult person per year.

<table>
<thead>
<tr>
<th>Average for One Adult</th>
<th>My Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>40</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>(20)</td>
</tr>
<tr>
<td>Green or yellow Others</td>
<td>(10) (10)</td>
</tr>
<tr>
<td>Fruits</td>
<td>40</td>
</tr>
</tbody>
</table>

To figure amounts for children refer to the following:

Basis for Figuring Family Budget

- Boy, 14 to 17 years: ½ more than adult budget
- Girl, 13 to 17 years: same as adult budget
- Child, 8 to 12 years: ½ of adult budget
- Child, 5 to 7 years: ⅓ of adult budget
- Child under 4 years (minus corn, onions, cabbage): ⅓ of adult budget

Sealing Jars

- Shoulder Seal:
  - Illustration A: Porcelain lined regular Mason screw lid with separate rubber.
    - Place rubber, then lid.
    - Tighten lid, turn back ¼ inch.
    - Turn lid until tight.

- Top Seal:
  - Illustration C: Metal disc with composition gasket and screw band.
    - Place disc so that gasket rests on edge of jar; place and tighten screw band firmly but not so hard that it cuts through gasket.
    - Do not disturb after processing.
    - Remove screw band.

- Illustration D: Glass disk with separate rubber and screw band.
  - Adjust rubber on glass disc.
  - Place disc and screw band on jar, tighten band, then turn back ¼ turn, or so that band and jar just mesh together.
  - Turn the screw band until tight.
  - Remove screw band.
General Directions for Canning All Meats and Poultry

Hot pack (precooking in a pan)

- Precook until medium done.
- If salt is desired, add one teaspoon to the quart jar.
- Pack meat hot. Leave about one inch above meat for head space in jars.
- Pour in boiling hot broth or boiling water to cover meat. Again leave one inch at top of jars for head space.
- Work out air bubbles with knife. Add more liquid if needed to cover meat. Be sure to leave one inch head space in jars.
- Wipe sealing edges with clean damp cloth if necessary.
- Adjust lids for a partial seal according to type of lid.
- Process at once in a steam pressure canner; see page 17.

Raw pack (precooking in the jar)

- If salt is desired, place it in clean, empty containers. Use 1 teaspoon in pint and one teaspoon in quart jars.
- Fill jars with raw meat. Leave about one inch above meat in jars.
- Set open jars in a large vessel with a good lid. Have warm water about 2 inches below rim of jar. Do not let water bubble into jars. Cover vessel and boil slowly until meat is medium done.
- Add boiling water if needed, leaving about one inch above meat in jars for head space. Work out air bubbles with knife.
- Wipe sealing edges if necessary.
- Adjust lids for a partial seal according to type of lid.
- Process at once in a steam pressure canner; see page 17.

Meats

- Can only meat from healthy animals in top condition, slaughtered and handled in a strictly sanitary manner. After killing, chill the meat at once and keep it chilled until canning time; or else can the meat as soon as the body heat is gone from it.
- Chilling meat makes it easier to handle and also prevents undesirable changes. Chilling calls for refrigeration or weather that can be counted on to keep the meat at 40°F. or lower. Meat held at temperatures slightly above freezing may be canned at any convenient time within a few days. Some people think that the heat used in canning will make the meat “safe” even though it has started to spoil. This is not true; meat should not be canned unless it is in prime condition.
- If possible, avoid freezing meat which is to be canned. If meat does freeze, keep it frozen until canning time. Thawed meat is very perishable. Cut or saw the frozen meat into strips or two inches thick just before canning. It will require more time to precook frozen meat which is not thawed.
- Meat is overcooked during canning. This is especially true of the more tender cuts. If a freezer-locker is available, the more tender cuts may be frozen and the less tender cuts canned. For canning in large pieces, use loin, round, chuck or shoulder, and other cuts suitable for roasts, steaks or chops. For canning as stew meat, use the trimmings and the less tender cuts such as brisket, plate, neck and shanks.

Cut meat from bone. Set bones aside to make soup. Trim away most of the fat without unduly slashing the lean. Too much fat makes meat hard to process and excessive fat in canned meats is difficult to utilize. For larger pieces, cut into pieces that will slip easily into the jars with the grain of the meat running lengthwise of the jar. Wide mouth jars are preferable for canning meat in larger pieces.

Hot pack (precooking in a pan)

- Follow “General Directions for Canning All Meats and Poultry, Hot Pack,” page 12, with these additions:
- On Stove—Put meat in large, shallow pan, add just enough water to keep from sticking, cover.
- In Oven—Place in baking pan and cook in a moderate oven, 350°F. While precooking, stir or turn occasionally so meat will cook evenly.

Raw pack (precooking in the jar)

- Follow “General Directions for Canning All Meats and Poultry—Raw Pack,” page 12, with these additions:
- Cook until meat is medium done, 75 minutes in glass jars. If you have a meat thermometer, insert it to center of jar. Meat is ready when temperature at center of jar is 170°F.

Ground meat—hot pack (precooking in an oven)

- Follow general directions for Hot Pack Meat, page 12, with these additions:
- Grind meat and if desired add one level teaspoon of salt to the pound of ground meat, mixing well. Sausage—Omit sage as it is likely to give the canned sausage a bitter flavor.
- Form into fairly thin cakes that can be packed in glass jars without breaking.
- Put meat cakes into cooking pan. Precook in oven until medium done or when red color at center of cakes is almost gone.
- Pack cakes hot.
- Skim fat off drippings and do not use the fat in canning.
- Add water to the meat juice and use in filling jars.

Heart and tongue—hot pack

- Follow general directions for Hot Pack Meat, page 12, with these additions:
- Remove thick connective tissue before cutting heart into pieces.
- Drop tongue into boiling water and simmer about 45 minutes or until skin can be removed, before cutting into pieces.

Soup stock—hot pack (precooking in a pan)

- Follow general directions for Hot Pack Meat, page 12, with these additions:
- Make fairly concentrated stock by covering bony pieces with lightly salted water and simmering until meat is tender. Do not cook too long or soup will lose flavor.
Skim off fat, remove all pieces of bone, but do not strain out meat and sediment.

If a more concentrated stock is desired, reduce volume by rapid boiling. Pour hot stock into containers, partially seal and process.

**Poultry**

Directions given for chicken apply also to other poultry, rabbit and small game.

**Selecting.** For best flavored canned chicken, select plump stewing hens. It is not advisable to can young chickens because they will be greatly overcooked in processing and, as a result, the meat may fall to pieces. Older chickens have a better flavor when canned.

**Preparing.** It is advisable not to feed the chickens for at least 12 hours before killing. This insures a clean alimentary tract, which makes drawing easier. Quick and thorough bleeding is essential to good keeping and flavor. Cut off the head with a sharp hatchet and let the neck hang down so the blood drains from the body. Scald, pick and singe. Remove the feet, cutting at the knee joint. The feet, if scalded, may be skinned and used with the bony pieces for broth. The skin needs to be thoroughly cleaned. Wash with mild soap or soda and warm water if necessary, but do not soak in water. Rinse thoroughly with clear water and wipe with a clean, damp cloth.

**Cutting.** There are a number of satisfactory methods for cutting up chickens. The following is adapted from the method recommended by the Bureau of Human Nutrition and Home Economics in Washington, D. C., "Home Canning of Meat." AWI-110.

With a sharp knife, cut off wings and legs at joints. Pulling the wing or leg away from the body while cutting will help in disjointing the bird. Cut legs into drumsticks and second joints.

With the index finger, separate the gullet and windpipe from the skin of the neck. Cut through the skin from the upper part of the neck to the opening made by removing the wing. Loosen the gullet and windpipe from the neck down as far as the crop. Remove and discard lungs and kidneys. Cut off oil sac near tail. Cut off the neck close to the body. Cut through the backbone at the joint where it was broken. Remove breast from backbone by cutting along the white spots of the ribs and breaking the shoulder blade joints. Separate breast by cutting straight down between wishbone and point of breast. Leave meat attached to wish bone.

Remove breast meat from center bone by carving down side of breast. Leave bone in other meaty pieces.

Wash but do not soak in water. Drain.

Sort in three piles: meaty pieces, bony pieces, giblets.
Hot pack poultry with bone (precooking in a pan)
Follow “General Directions for Canning all Meat and Poultry—Hot Pack,” page 12, with these additions:
Broth or hot water will be needed as liquid. To make broth, use the bony pieces. Cover them with cold water, simmer until meat is tender. Drain or strain broth into bowl; skim off fat.
Pour hot broth or hot water over raw meaty pieces to cover meat. Put on lid and precook until meat is medium done, or when cut shows almost no pink color at center of pieces. Stir occasionally so that meat will heat evenly.
Pack second joints and drumsticks with skin next to glass. Fit breast pieces into the center of the jar.
Cover meat with hot broth using ½ to ¾ cup for each quart jar.

Hot pack poultry without bone (precooking in a pan)
Follow general directions for Hot Pack Poultry with Bone with these additions:
Remove bone from meaty pieces. Bone poultry either raw or after pre-cooking.
Boneless poultry must be processed in the steam pressure canner for a longer time than poultry with bone. Process at once.

Raw pack poultry with bone (precooking in the jar)
Follow “General Directions for Canning All Meat and Poultry—Raw Pack,” page 12, with these additions:
Pack second joints and drumsticks. Have skin next to glass. Fit breast pieces into the center of the jar.
Cook until meat is medium done, 75 minutes in glass jars.

Raw pack poultry without bone (precooking in the jar)
Follow “General Directions for Canning All Meat and Poultry—Raw Pack,” page 12, with these additions:
Remove bone from meaty pieces before packing.
Boneless poultry must be processed for a longer time in the steam pressure canner than poultry with bone.

Giblets—hot pack (precooking in a pan)
Follow “General Directions for Canning All Meat and Poultry—Hot Pack,” page 12, with these additions:
Because of flavor, it is best to can livers alone. Gizzards and hearts may be canned together.
Put giblets in cooking pan. Cover with broth made from bony pieces or with hot water. Cover pan and precook giblets until medium done. Stir occasionally.

Processing in a Steam Pressure Canner
Have 2 to 3 inches of boiling water in a steam-pressure canner so it will not boil dry and be damaged.
Place each jar on rack in canner as soon as filled.

Fasten lid securely on canner.
Let steam pour from open petcock or weighted gauge opening for at least 10 minutes. Then close petcock or put on weighted gauge.
When pressure reaches 10 pounds, note the time and process according to the table below.
Adjust heat under canner to keep pressure uniform and steady.
See detailed directions for using the pressure cooker, E.C. 9-31-2, pages 18 and 19.

Why Use the Pressure Cooker?
It is not safe to can meat in a boiling-water bath, in an oven, in a steamer without pressure, or in an open kettle. None of these will heat the meat to a temperature high enough to kill the spores of dangerous bacteria in a reasonable length of time.
Since the pressure cooker method is the only one recommended by the government for non-acid vegetables and meats, time tables are not given for the boiling-water bath for processing these products. If you do not have a pressure cooker it will be best to use some other method of food preservation. For example, some vegetables can be preserved by freezing, drying or brining, and meat may be preserved by freezing and curing.

Change of Time for Higher Altitude
For each 2,000 ft. above sea level, add one pound of pressure. Process for the length of time given below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Steam Pressure 10 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pt. Glass</td>
</tr>
<tr>
<td>Beef, veal, pork, lamb</td>
<td>75 min.</td>
</tr>
<tr>
<td>Ground meat</td>
<td>75 min.</td>
</tr>
<tr>
<td>Heart and tongue</td>
<td>75 min.</td>
</tr>
<tr>
<td>Soup stock</td>
<td>20 min.</td>
</tr>
<tr>
<td>Poultry with bone</td>
<td>65 min.</td>
</tr>
<tr>
<td>Poultry without bone</td>
<td>75 min.</td>
</tr>
<tr>
<td>Giblets</td>
<td>75 min.</td>
</tr>
</tbody>
</table>

Precautions in Using Canned Products
Examine the jar to see that the cover, if metal, is firm and flat or curved slightly inward. There should be no sign of leakage around the rubber ring or elsewhere. It should be possible to lift jar by the lid after screw band or bail has been removed.
The contents of the jar should appear normal in color and the liquid free from unusual cloudiness.
There should be no “off” odor.
Do not taste home-canned, non-acid vegetables and meats before boiling.
Shortly before using, boil all non-acid vegetables and meats 10 minutes in a covered pan, even though there is no sign of spoilage. This applies to non-acid foods canned by any method.
CANNING MEATS, RELISHES, FRUIT SPREADS

CANNING MEATS—PROBLEM VII

Watch the pressure gauge closely.

Food which shows signs of spoilage should be boiled for 10 minutes before discarding or throwing out where livestock such as chickens may eat it. If there is an objectionable odor, the contents may be emptied into a toilet or privy, so there will be no danger of poisoning livestock.

Follow directions carefully. Do not use short cuts in canning. They may be both expensive and dangerous.

The processing times and pressure given are based on the methods described in this circular. It is risky to use these with other methods.

Oven canning is not safe because dry air conducts heat slowly and the jars may burst and blow out the oven door.

Safety Quiz for Home Canners

"Yes" answers to these questions are correct for safety first:

Do you avoid oven canning, because of difficulty in insuring sterilization and because of hazards of jars exploding?

Do you inspect jars to be sure there are no cracks, bubbles or other defects? These are danger spots where the jars may give way later and break.

Do you try out jar lids, making sure you know how to adjust correctly the type you are using? Some types require looser adjustment than others and steam may build up in them so they may break if too tight during processing.

When using the glass disc type of jar lid, do you leave enough "give" to allow air in the jar to escape during canning? With this type, the metal screw band must be screwed down over glass disc and topseal rubber so loosely that the threads are just meshed enough to hold disc in place during canning.

When using the metal disc type of jar lid, do you screw the metal band on firmly, but not so hard that you cut through the composition gasket? When screwed down firmly, this lid has enough "give" to let air escape during canning. Do you leave this lid "as is" when you take it from the canner? Do not tighten; you may break the seal.

Do you avoid burns on your hands by picking up hot jars with a thick cloth or good strong tongs?

Do you turn saucepan handles so they do not come out over stove edge where they might cause accidents?

Do you watch a boiling water bath canner so it does not boil over and put out a gas flame?

Has the pressure gauge on your canner been tested recently so that you can rely on its accuracy?

Do you make sure a steam pressure gauge is clear and clean so that steam can escape freely from petcock?

Do you make sure you have enough water in a steam pressure canner so it will not boil dry? Extra water is required if the canner leaks steam.

Before opening a steam pressure canner, do you let pressure drop to zero, wait a minute or two, then open the petcock slowly before unscrewing the clamps on the lid?

When lifting a steam pressure canner lid, do you tilt the far side up to protect your face from escaping steam?

Do you slide any canner away from heat rather that lift a hot, heavy container?

Left: Tilt the far side of pressure canner lid to protect from escaping steam. Right: A clear ringing sound indicates a good seal on a C-type jar if there is plenty of head space. A dull sound indicates either a poor seal or food touching the inside of the lid.
Score Card For Canned Meat

Flavor, odor and texture are important factors in judging canned meats. However, when it is not advisable to open jars, only the first four divisions of the score card are used. Multiply each of the first four divisions by two to get total score when the jars are not opened. Only in extreme cases is it advisable to open club members’ jars as this would bar them from exhibiting the products again.

Container 5

- Clean, clear glass. Specified size. Tight seal.
- Attractive neat labels.
- Wide-mouthed jar desirable.
- Uniform jars and labels in exhibit. Labels uniformly placed.
- No swelling or bulging.

Preparation and Pack 10

- Trimming—free from undesirable bone, skin, gristle, tendon, etc.
- Amount of fat—some necessary for quality. Excessive fat objectionable. Beef may have slightly more than pork.
- Preheating—recommended.
- Full but not crowded.
- Size—convenient for serving.
- Arrangement—attractive.
- No foreign matter.

Liquid or Broth 10

- Enough to cover unbrowned meat desirable.
- May be jellied when cold.
- Color—attractive, brown or colorless according to method of preheating.
- Clear or fairly so—no great amount of scum, sediment or bits of floating tissue.
- No bubbles indicating spoilage.

Appearance and texture—judged before opening 25

- Color—depends upon method of preparation.
- Quality—good original product.
- Firm with no soft spots.
- Shape—well preserved, not overcooked, undercooked, frayed or fallen to pieces.
- Texture—more accurately judged by tasting. Fibers not too coarse.
- Uniformity—size of pieces uniform.

Flavor, odor and texture—judged after opening 50

- Pleasing flavor—characteristic of fresh cooked meat.
- No suggestion of staleness, undercooking or overcooking, scorching, or spoilage.
- No odor of ammonia.
- Not hard or tough.

Total Score 100

Problem VIII

Relishes and Pickles

Pickles and relishes have little food value, but serve as appetizers because of their tart, spicy flavor and attractive colors. They often add the needed touch to a simple meal which might otherwise be commonplace. Since their nutritive value is not high they have little or no place in the diet of growing children, and should be used in moderation by adults.

Ingredients

- Vinegar—Clear standard vinegar, free from sediment, with 4 to 6 per cent acetic acid.
- Salt—Pure, granulated salt is best because it does not have material added to prevent lumping. Table salt may be used. Medium granulated salt and flake salt, the kinds used in making butter or curing meat, are also satisfactory for brining but require 1½ times the amounts called for in these recipes.
- Spices—Whole spices for most cooked pickles. Spices tied in a bag may be removed when pickles are sufficiently flavored. Have a clean, thin, white cloth large enough for juices to circulate through the spices and draw out the flavor. Loose spices make pickles dark. A bitter flavor is developed if spices are boiled with vinegar for a long time.
- Sugar—White or brown added for flavor.
- Fruits and Vegetables—Should be fresh, mature, crisp and unbruised. Pickles should not be overcooked or the texture and flavor will be impaired.

Equipment

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

Use glass top jars because acids may corrode metal if directly touching. Do not use zinc lids. The acid of the vinegar may eat into the metal and form substances injurious to health which impair the flavor and break the seal.

To sterilize jars and lids, when the food is not to be processed in the jar, boil jars and lids 15 to 20 minutes just before filling.

Dilled Cucumbers or Green Tomatoes

40 to 50 medium-sized or large cucumbers, or green tomatoes

Fresh or dried dill

1 pint (2 cups) vinegar

½ cup (2 oz.) whole mixed pickle spices

1 pound (1½ cups) salt

2 gallons water

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

Cover with a heavy plate and weight it to hold the vegetable under the brine. If not under brine, pickles are likely to mold and get slippery. Use
only enough brine to cover the plate, for as the liquid is drawn from the vege-
table the crock may overflow.

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

To store, pack the cured pickles in hot, sterile quart glass jars. Strain the
pickle brine, bring to boil and pour over pickles to top of jar. If desired, add
1/4 cup vinegar to each quart. Seal tightly.

**Sauerkraut**

40 to 50 pounds cabbage  
1 pound (1 1/2 cups) salt

Remove the outer leaves and wash cabbage; drain. Cut in halves or quar-
ters; remove the core. Shred about 5 pounds of cabbage at a time and,
using the hands, mix thoroughly with 3 1/2 tablespoons salt. Measure care-
fully, as oversalting prevents proper fermentation and undersalting may re-
sult in spoilage. To be sure of results, use a scale for weighing the cabbage
and measure the salt accurately.

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

Cover cabbage with 2 or 3 layers of thin, clean, white cloth and tuck the
edges down against inside of jar. Cover with a large heavy plate that fits
loosely inside jar. Weight with a paraffined brick or stone heavy enough so
liquid comes over plate. Do not use a limestone or metal weight. The calcium
in limestone neutralizes the acid formed by fermentation so that there is not
enough acid present to preserve the kraut. Metals in contact with salt or
acid may corrode and cause undesirable substances and flavors.

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

**Glass jar method.** Pack the salted cabbage into clean glass jars, pressing
down firmly and evenly. Fill with cabbage to shoulder of jar (1 1/2 to 2 inches
from top) and be sure juice completely covers cabbage. A quart jar takes about
2 pounds of cabbage and 4 level teaspoons of pure, granulated salt.

Wipe off top of jar. Cover cabbage with two or three layers of thin, clean,
white cloth and tuck edges down against inside of jar. Crosscut two smooth,
dry, clean wood strips (ice cream spoons, wooden garden labels or tongue de-
pressors cut to right size are suitable) over cloth to keep cabbage pressed
under brine. Put lid on jar and make a partial seal.

Set jars on a tray or pan to catch the juice that leaks out. Keep at room
temperature, about 70°F, is best. Remove scum every few days if it forms.
Add a little weak brine to keep cabbage covered (1 1/2 tablespoons salt to 1
quart water). Let ferment about 10 days, or until liquid settles, and bubbles
no longer rise to surface. If you expect to use the kraut within a few weeks
seal the jars tightly and keep in a cool place.

**To store kraut.** Stone-jar method—Pack kraut into clean, quart jars to with-
in one inch of top. Fill with juice to within 1/2 inch of top. If more juice is
needed, add boiling hot brine (1 1/2 tablespoons salt to one quart water).

**Glass-jar method**—Remove lids from glass jars of kraut. From here the
procedure is the same for both methods. Set jars in a pan of cold water; have
water come to shoulder of jars. Bring water slowly to boiling; then remove
jars. Add boiling hot weak brine (made as above) if needed to fill jar to
within 1/2 inch of top. Wipe off jar rims. Adjust lids to make a partial seal.
Boil jars 30 minutes in boiling water bath (be sure water covers jars). Re-
move jars; complete the seals.

**Bread and Butter Pickles**

1 gal. sliced cucumbers  
2 cups sugar

1/2 cup salt  
1/2 teaspoon pepper

2 cups sliced onions  
1 teaspoon mustard

About 1 cup water  
1 teaspoon celery salt

Vinegar  
2 teaspoons turmeric

Select cucumbers with small seeds.
Mix sliced cucumbers and salt; let stand overnight. Drain well in morning.
Boil onions in water 3 minutes and add to the cucumbers. The onions
are slightly cooked but still chewy.

Cover with vinegar slightly diluted. The liquid in which onions are cooked
may be used to dilute the vinegar.

Add remaining ingredients and mix.
Bring to a boil and can. Seal.

**Pepper-Onion Relish**

1 quart finely chopped onion  
2 cups finely chopped green

pepper

1 quart vinegar  
1 cup sugar

4 teaspoons salt  
1 cup vinegar

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

**Piccalilli**

1 quart chopped green tomatoes  
1/2 cup salt

2 medium sweet red peppers  
3 cups vinegar

2 medium green peppers  
2 cups brown sugar

2 large mild onions  
1 teaspoon mustard, or

1 small head cabbage  
2 tablespoons mixed pickle

spices

Combine the vegetables; cover with salt. Let stand overnight. Drain and
press in a clean, thin, white cloth to remove all the liquid possible. Add the
vinegar, sugar and spices, and simmer until clear. Pack into clean, hot, sterile
jars. Fill jars to top; seal tightly. Makes about 3 pints.
**Chili Sauce**

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

Combine the tomatoes, sweet pepper, onion and hot pepper. Put the celery seed, mustard seed, bay leaf, cloves, ginger, nutmeg and cinnamon loosely in a thin, white cloth; tie top tightly and add to tomato mixture. Boil until \(\frac{1}{2}\) original volume. Stir frequently to prevent sticking.

Add the sugar, vinegar, and salt. Boil rapidly, stirring constantly, about 5 minutes. Pack into clean, hot, sterile jars. Fill jars to top; seal tightly. Makes about 3 quarts.

**Catsup**

2\(\frac{1}{2}\) quarts (15 to 17 medium-sized) sliced tomatoes
\(\frac{3}{4}\) cup chopped onion
3-inch piece stick cinnamon
1 large garlic clove, chopped
1 cup vinegar
\(\frac{1}{2}\) cup sugar
\(\frac{1}{4}\) teaspoon salt
1 teaspoon paprika
Dash cayenne pepper
1 teaspoon whole cloves

Simmer together tomatoes and onion for about 20 to 30 minutes; press through a sieve. Put the cinnamon, garlic and cloves loosely in a clean, thin, white cloth; tie top tightly; add to vinegar and simmer 30 minutes. Remove spices. Boil sieved tomatoes rapidly until \(\frac{1}{2}\) original volume. Stir frequently to prevent sticking.

Add spiced vinegar, sugar, salt, paprika and cayenne pepper to tomato mixture. Boil rapidly, stirring constantly, about 10 minutes or until slightly thickened. Pour into clean, hot, sterile jars. Fill jars to top; seal tightly. Makes about 2 pints.

**English Chutney**

12 large green tomatoes, peeled
6 onions
6 large apples, peeled and cut up
4 cups vinegar or less
2 cups sugar

Put the first three ingredients through coarse food chopper. Add sugar, peppers, salt and vinegar. Put in a large sauce pan and simmer until mixture thickens, about \(\frac{1}{2}\) hour. Pack in sterile jars and seal.

* The chopped vegetables may be drained before cooking to reduce the boiling time. The juice drained off may be canned for a delicious vegetable drink.
** The full amount of vinegar may not be needed to add only a part at first. If more is added than is needed it takes longer boiling to thicken the mixture and this impairs the flavor.
*** These peppers are hot and may be removed when the pickle mixture is flavored enough. A sweet red pepper may be chopped and added for color and flavor.

**Pickled Peaches**

4 pounds peaches
1 tablespoon whole cloves
4 two-inch pieces stick cinnamon
1 tablespoon whole cloves
1 cup vinegar

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

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

* Part sirup may be used—see problem IX.

**Other Fruit Pickles**

The spiced vinegar given for pickled peaches may be used for other fruits such as pears and crab apples. The amount of sugar, amount and kind of spices, and amount of vinegar in pickled fruit may be varied according to taste. Where strong vinegar is used, you may prefer half vinegar and half water for the liquid.

For crab apple and pear pickle about one tablespoon whole allspice and a little crushed ginger root, or piece of ginger, may be substituted for a part of the spice.

**Score Card for Pickles and Relishes**

| Container | 10 |
| Appearance | 20 |
| Color—characteristic of product. | 20 |
| Uniformity of mixture—pieces uniform in size. | 30 |
| Pack—Full but not crowded, no foreign matter. | 30 |
| Texture | 30 |
| Pickles: Firm and crisp for cucumbers or mixed pickles. Tender not shriveled or overcooked. Relishes: Thick mass with ingredients well distributed. | 40 |
| Flavor | 40 |
| Characteristic of ingredients. Free from excessive acid, spice, sugar or overcooked flavor. | 40 |

**Pickle Trouble**

**Hollow Pickles**

Cause: Faulty development while growing. Stood too long between picking and brining. Using cucumbers which are too large.

Remedy: Select firm solid cucumbers. Gather and brine within 24 hours. Select cucumbers of suitable size.
Dark Pickles
Cause: Too much spice or cooked too long. Lime which is alkaline often found in hard water discolors pickles and may prevent proper acid formation. Iron is also objectionable.
Remedy: Place spices loosely in a bag and remove when pickles are sufficiently flavored. Use soft water. If hard water is used add one cup vinegar to 10 gal. water. It may take more vinegar to overcome alkalinity.

Shriveled Pickles
Cause: Too strong salt, sugar or vinegar solution. Cooking too quickly in strong sugar or vinegar solution. Not allowing product to plump.
Remedy: Use weaker solutions at first and gradually strengthen. Bring products slowly to a boil. Cool and let stand several hours to plump.

Soft or Slippery Pickles (when soft cannot be made firm)
Cause: Result of bacterial action. Pickles not kept under brine or brine too weak during curing. Overcooking. Fermentation. Scum, wild yeasts and molds form on surface of brine and weaken it.
Remedy: Wash well to remove dirt. Keep brine strong enough by adding extra salt from time to time and keep pickles covered with brine. Do not stir while curing. Heat pickles only a short time. Reheat vinegar not more than 3 or 4 times. If vinegar is diluted too much, pickles become soft from fermentation. Skim often and keep surface free from mold.

Suggested Menus Using Home Preserved Foods

- Vegetable Soup
- Cottage Cheese Pear Salad Whole Wheat Bread
- Ginger Bread Apple Sauce Milk
- Oven Browned Canned Meat Corn Pudding Carrot Sticks Peach Shortcake
- Creamed Asparagus Baked Potatoes Cabbage Salad
- Raspberry Sherbet Sponge Cake Milk

Problem IX

Fruit Spreads

Jellies

Since fruit spreads require more sugar than canned fruits, use less of these spreads when sugar is scarce.

Jelly is a form of preserves in which only the juice of the fruit is used. A fruit jelly is a semisolid mass which holds its shape when turned out on a plate but quivers when the plate is moved. It should have the color and delicate flavor of the fruit from which it is made. Jelly should be so tender that it cuts easily with a clean-cut surface. Fruit juice for jelly making must contain acid and a substance called pectin in the right proportion. These are found in amounts larger in under-ripe than thoroughly ripe fruit. To extract the pectin it is necessary to boil fruit until soft, but this should be done as rapidly as possible. Long cooking destroys the jellying power of pectin, especially in very acid fruits. For this reason, add no more water than necessary to the fruit for extracting the pectin. Sugar must be used in the proper proportion with pectin and acid to produce a jelly of the most desirable texture.

Fruits for jelly making. The following fruits at the proper stage of maturity have pectin and acid enough for jelly making: tart apples, blackberries, currants, cranberries, gooseberries, grapes and most plums. For best results, use a mixture of slightly under-ripe and ripe fruit, the under-ripe to furnish pectin and acid, and the ripe to contribute flavor and color. Some fruits lack acid but contain enough pectin, some lack pectin but contain enough acid. Sometimes a fruit rich in pectin is combined with one rich in acid in order to get the proper proportions for jelly. Sometimes a homemade or commercial pectin preparation is added to a fruit juice low in pectin. Acid in the form of lemon juice or powdered tartaric or citric acid may be added to a juice which is low in acid.

Equipment for jelly making. Two kettles: A 6-quart kettle for making extraction. A 3- or 4-quart flat-bottomed kettle for boiling juice.
- A long-handled wooden spoon.
- A pointed jelly bag made from any close material such as flannel, firm muslin such as a flour sack, or several layers of good quality cheesecloth.
- A support for the bag.
- An enameled pitcher.
- Low jelly glasses with lids.
- A large pan in which to sterilize the glasses.
- Tongs to lift jelly glasses.
- A fork.
- Paraffin.
- Container for melting paraffin.
- Tray to hold glasses while the jelly is setting.

Amount of fruit and yield. Work with small amounts, not more than 6 quarts of berries or 8 pounds of apples or grapes at a time.
One pound of prepared fruit yields about one cup of juice and when combined with one cup of sugar yields about 1½ cups or 2 average sized glasses of jelly.

Preparing fruit. Look over and discard damaged parts.
Wash thoroughly; may use a cloth or brush for hard fruits.
Lift the fruit out of the water instead of pouring water off, as most of the dirt settles to bottom of container.
Leave stems on currants, skin on grapes and plums.
Do not peel apples, pears, etc., unless poisonous spray has dried on the fruit. Discard stem and blossom ends as the spray concentrates at these points.
Cut the fruit into small uniform pieces, leaving the core.
Wash berries quickly and carefully to prevent loss of juice. Drain, remove the caps and stems.

Extracting the juice. The amount of water given in the table below is usually enough for boiling the fruit. However, if fruit is grown under drought conditions, the amount of water and also the time of boiling may need to be increased.

The amount of pectin present the more sugar is required to make jelly. Too little sugar will make jelly tough; too much sugar makes it syrupy.

Replacing up to one-half the sugar with an equal measure of honey or corn sirup in jams, jellies or preserves.

Boiling to the jelly stage. Heat the fruit juice and sugar quickly to boil.
Pour the hot cooked fruit at once into a jelly bag placed over a bowl. Some fruits such as currants, crab apples and wild grapes are so rich in pectin and acid that two extractions of juice can be made from the same lot of fruit. However, it is more economical to make butter from the pulp after one extraction, and the butter will be a better flavor if it contains some fruit juice.

Preparing the containers. Before cooking the extracted juice, wash the jelly glasses and cover. Place glasses on a rack in a pan, cover them with cold water and boil for 15 or 20 minutes. Keep hot until used. As the glasses are removed, add more to keep a continuous supply sterilized. To prevent breaking, plunge the glass into the hot water with a scooping motion so that the water reaches the inside and outside of the glass at the same time.

Boiling to the jelly stage. Heat the fruit juice and sugar quickly to boiling. Stir until the sugar is dissolved. Boil rapidly until the jelly stage is reached. To test for the jelly stage, dip a large spoon into the boiling sirup and lift the spoon so that the sirup runs off the side. When the sirup no longer runs off the spoon in a steady stream, but separates into two distinct lines of drops which “sheet” together, stop the cooking.

Allow the hot sirup to stand in the kettle while the jelly glasses are lifted from the boiling water, drained, and placed on a tray. When dry, scrape paraffin into the jelly glasses. Remove scum from the hot sirup and pour into the glasses to within ¼ inch of the top. The hot liquid melts the paraffin.
and when cool it seals the top of the jelly. Do not disturb the jelly while it is cooling and setting.

Storing. When cool, place the tin covers on the jelly glasses. Label with name of fruit and date of making. Store in a cool, dry place.

Jelly Failures

<table>
<thead>
<tr>
<th>Jelly Failures</th>
<th>Causes</th>
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<tbody>
<tr>
<td>Failure to set, thin.</td>
<td>Improper balance of pectin, sugar, acid and mineral salts.</td>
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<tr>
<td></td>
<td>Fruit lacked one or more of these essentials.</td>
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<tr>
<td>Gummy, tough.</td>
<td>Overcooking destroys pectin.</td>
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<tr>
<td>Thin.</td>
<td>Excess of acid.</td>
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<tr>
<td></td>
<td>Too little sugar.</td>
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<tr>
<td>Tough.</td>
<td>Undercooking results in too little concentration.</td>
</tr>
<tr>
<td>Sugar crystals.</td>
<td>Too much sugar, too little acid.</td>
</tr>
<tr>
<td>Weeping (liquid seep-</td>
<td>Sugar added too near the end of the cooking period.</td>
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<tr>
<td>out of jelly)</td>
<td></td>
</tr>
<tr>
<td>Cloudiness.</td>
<td>Storing in a warm or a damp place.</td>
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<tr>
<td>Mold or fermentation.</td>
<td>Imperfect straining.</td>
</tr>
<tr>
<td></td>
<td>Imperfect seal. Containers not sterilized or careless handling after sterilization.</td>
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</table>

Preserves, Marmalades, Jams, Conserves, Butters

A fruit preserve consists of whole small fruits or pieces of larger fruits cooked in a sirup until clear and stored in the sirup or jellied juice.

A marmalade is a jellied fruit product which holds suspended within it all or part of the fruit pulp and the skin or sliced peel. Citrus fruits are especially desirable because of the flavor and texture of the finished product.

Preserves with less sugar. Sugar for preserves is measured by weight. Fruits vary in weight but in general a pound of freshly prepared fruit measures about 3 cups while a pound of cooked or pulped fruit measures 2 cups. One pound of white sugar is about 2 cups. Three-fourths of a pound is 1 1/2 cups. A satisfactory product from the standpoint of flavor can be obtained with one cup sugar to 3 cups fruit but the sirup will be thinner.

Preserves with corn sirup or honey. Replace up to one-half the sugar called for in the recipe with either corn sirup or honey. Example: for each 4 pounds of strawberries (12 cups) the recipe may call for 3 pounds of sugar (6 cups), but to make the sugar go farther you may use instead 3 cups sugar and 3 cups honey or sirup.

Cherry Preserves

Select sour red cherries. Discard imperfect ones. Wash and drain. Remove stems and pits without tearing fruit if possible. For each pound of pitted cherries, use ¾ pound of sugar. Combine fruit and sugar in alternate layers and let stand 8 to 10 hours or overnight before cooking. Or, if preferred, add the sugar and ¼ cup of water for each pound of the fruit and cook it at once. In either case, stir carefully while it is being heated to the boiling point. Boil rapidly until sirup is somewhat thick, taking care to prevent scorching. Pour at once into hot sterilized jars and seal.

Strawberry Preserves

The color and flavor of strawberries are easily destroyed by heat; so it is well to cook them only a short time.

Method 1. Select large, firm, tart berries. Wash, drain and remove caps. For each pound of fruit, use one pound of sugar. Combine fruit and sugar in alternate layers and let stand 8 to 10 hours or overnight before cooking. Stir carefully while heating to boiling. Boil rapidly for 15 to 20 minutes or until the sirup is somewhat thick, taking care to prevent burning. Remove the scum. Pour at once into hot sterilized jars and seal.

Method 2. Pick out the smaller, less perfect, berries for juice. Crush and cook for about 3 minutes, stirring while cooking them. Strain. To each pound of choice prepared berries allow ⅛ cup of this juice and one pound of sugar.
Add the sugar to the hot juice, stir, and heat slowly until the sugar is entirely dissolved. Drop the berries into the sirup, simmer for 3 to 5 minutes then boil rapidly for 10 to 15 minutes, or until the fruit is somewhat clear. Remove the scum. Allow the preserves to stand about 8 hours or overnight in a glass or porcelain bowl. Fill hot sterilized jars ⅔ full with the drained berries, without reheating them. Boil the sirup rapidly until fairly thick or to 221° F.

Pour the boiling hot butter into sterilized jars and seal.

**Tomato Preserves**

5 lbs. ripe tomatoes (11 cups quartered)  
4 lbs. sugar  
2 lemons sliced thin

Scald, peel and quarter tomatoes. Add sugar and let stand overnight. Drain off juice and boil it rapidly until it spins a thread when dropped from spoon. Add tomatoes and lemons and boil until they are thick and clear. Pour into sterilized jars and seal.

The lemon rind will be more tender if cooked a short time in the juice drained from the tomatoes before sugar is added.

The sugar and boiling may be reduced if the tomatoes are drained before adding sugar. In this case drain the tomatoes before weighing them. The juice drained off has many uses. It may be canned if not needed immediately.

**Grape Marmalade**

Wash grapes, stem, and press the pulp from skins. Boil skins 20 minutes in just enough water to prevent sticking. Cook pulp until soft, then press through a colander to remove seeds. Add skins to pulp. Measure. Add ¼ cup sugar for each cup grapes. Boil to the jellying point. Pour into hot sterilized jars. Seal.

Add the sugar to the hot juice, stir, and heat slowly until the sugar is entirely dissolved.

**Fruit Butters**

Fruits most commonly used for butters are tart apples, apricots, grapes, peaches, pears, plums and quinces. Fruit combinations such as apple and grape, apple and plum, or apple and quince make especially good butters. Use only sound ripe fruit. The firm portions of windfalls or culls may be used for butters. Wash the fruit thoroughly and prepare it as follows:

**Apples:** Slice. May cook in water, cider or a 50-50 mixture of cider and water.

**Apricots and peaches:** Scald; remove skins and pits. Crush or grind fruit and cook in own juice.

**Grapes:** Remove from stems, crush, cook in own juice.

**Pears:** Quarter; remove stems, but not cores and skins. Add water; cook.

**Plums:** Crush and cook in own juice.

**Quinces:** Cut into small pieces, and remove blossom ends, but leave cores and skins. Add water.

For fruits which must be cooked in water, add only enough to cook them tender without sticking. If more water than necessary is added either the juice must be drained off or longer boiling is required to obtain the butter consistency.

Cook until the fruit is soft, stirring constantly. If fruit is cooked in a steamer or pressure cooker, little or no liquid is required.

Press through a colander or fine sieve if necessary to remove all fibrous material.

The amount of sugar varies according to taste, but the usual proportion is half as much sugar as fruit pulp. Add ⅓ to ½ teaspoon of salt to each gallon of butter.

Boil rapidly and stir constantly to prevent burning. As the butter cooks down and becomes thicker reduce the heat to prevent spattering. Fruit butter may be cooked in a moderate oven. It will require less attention because there is less danger of sticking and burning. The oven should not be hot enough to cause darkening or burning.

To save stirring, butter may be placed in a slow oven to reduce its volume.

When the butter is thick, test by pouring a small quantity on a cold plate. Cook until no rim of liquid separates around the edge of the butter.

Stir in spices as desired, for example, one to 2 teaspoons of mixed ground spices to the gallon of butter. Use only fresh spices and just enough to give a delicate flavor without obscuring the natural fruit flavor. If a light-colored butter is desired, add whole spices tied loosely in a cheesecloth bag while the butter is cooking.

Pour the boiling hot butter into sterilized jars and seal.

**Score Card for Fruit Spreads**

<table>
<thead>
<tr>
<th>Jellies, Preserves, Marmalades, Jams, Conserves, Butters.</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform size, clean, neatly labeled.</td>
<td></td>
</tr>
<tr>
<td>Jelly: glasses sealed with paraffin and covered.</td>
<td></td>
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<tr>
<td>Other spreads: sealed jars.</td>
<td></td>
</tr>
<tr>
<td>Characteristic of the fruit.</td>
<td>20</td>
</tr>
<tr>
<td>Free from discoloration due to overcooking or excess of spices.</td>
<td></td>
</tr>
<tr>
<td>Jelly: partly transparent.</td>
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<tr>
<td>Holds shape when turned out on a plate, quivers when moved.</td>
<td>30</td>
</tr>
<tr>
<td>Tender, cuts easily, holds sharp edges. Free from crystals.</td>
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</tr>
<tr>
<td>Preserves: whole small fruits or uniform pieces of larger fruits clear and tender, holds shape, thick sirup or jeliled juice.</td>
<td></td>
</tr>
<tr>
<td>Marmalade: shredded pulp and skin in jellied mass. Citrus marmalades, jellied mass and fruit clear.</td>
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<tr>
<td>Jam: thick mass, with crushed fruit well distributed in jellied juice.</td>
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<tr>
<td>Conserve: similar to jams but always contains a mixture of fruits and may contain nuts or raisins or both.</td>
<td></td>
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<tr>
<td>Butter: thick mass of fruit pulp showing no separation of liquid, soft enough to spread.</td>
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</tr>
<tr>
<td>Characteristic of the fruit.</td>
<td>40</td>
</tr>
<tr>
<td>Free from excessive sweetness, acid, bitterness, spiciness or overcooked flavor.</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
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</table>
PROBLEM X
PLANNING THE DIET AROUND YOUR BUDGET

Do you follow the National Food Guide, the Basic Seven, every day? Do your home meals measure up to the 4 3 2 2 2 2 daily standard of good nutrition? The Basic Seven helps you choose the kind of food your body needs. It is also important to know the quantity of the various foods required because you might eat only small amounts of foods from each of the seven groups every day and not have enough for proper nourishment. You might also eat foods from each group in a single meal, but to obtain the most good from your food it should be divided among three meals, each providing about one-third of the daily food requirement. The 4 3 2 2 2 2 daily standard, which represents a perfect score on the Food Selection Score Card, gives the approximate amounts or servings of the foods included in the Basic Seven.

For scoring use one cup of milk and \( \frac{1}{2} \) cup of fruits, vegetables, and cereals as average servings for growing boys and girls and for adults. In order to get a clear idea of the size of an average serving, measure the fruit, vegetable or cereal in a standard measuring cup, then place it in a serving dish. A “serving” is a good guide for eating, but may be indefinite for figuring amounts of food.

The Family Canning and Storage Budget found on page 9 of “Canning Fruits and Vegetables,” Extension Circular 9-31-2, is based on the 3 servings of vegetables and 2 servings of fruit in the standard. Keeping the food record for a week and making the summary will help you know how well your home meals meet up to the 4 3 2 2 2 2 daily standard of good nutrition.

Some General Rules for Menu Planning

Use the whole day as a unit rather than the individual meal. Plan home meals that meet the standard for good nutrition using the pattern menus as a guide.

Use daily some food from each of the following food groups: carbohydrate foods (sweet or starchy), protein foods, fatty foods, milk, fruits and vegetables.

Use some raw food each day.

Plan to have in every meal at least one food which has staying quality, one which requires chewing, one which contains roughage, and generally some hot food or drink.

Combine or alternate bland foods with those of more pronounced flavor.

Combine or alternate soft foods with those crisp in texture.

Have variety in color, texture, flavor, form and arrangement of foods.

Alternate simple and less nutritious dishes with those which are richer, more nutritious, and harder to digest.

When a greater number of foods are served at one meal, decrease the size of the portions and use fewer rich foods. When a more simple meal is desired, use a few nutritious, easily digested foods and serve larger portions.

Food Record for a Week

Keep the record below; then fill out summaries on pages 36 and 37. Use the example day as a sample. On page 36 total the number of servings in each column for the week, then divide by 7 to get the average per day. The averages will show how your home meals for one week compare with the daily standard.

Now check your summary on page 37. Are calcium, protein, and vitamins A, B₁, B₂, or G and C represented by some foods each day? If so, other important minerals and vitamins will be supplied in sufficient amounts. Milk is such an excellent source of calcium and Vitamin G that if you meet the standard for milk you need not depend on other foods for this important mineral and vitamin. It is important that the right foods be selected for home meals and equally important that each member of the family eat enough of these foods for good health.

<table>
<thead>
<tr>
<th>Day</th>
<th>Breakfast</th>
<th>Dinner</th>
<th>Supper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
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<td>Sunday</td>
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**Example Day**

"Servings." Four cups milk: 3 cups as a beverage and one cup used on the vegetable and in the pudding. Three servings of vegetables: potatoes, carrots and cabbage. Carrots give a check for a yellow vegetable. Two servings of fruit: orange and apple sauce. Orange gives a check for a citrus fruit and raw cabbage gives a second check in this column. Two servings of whole grain products: oatmeal and graham bread. Two servings of protein: meat and dry beans. Two servings of butter.


**SUMMARY OF FOOD RECORD FOR A WEEK**

Example: A day which meets the 4 3 2 2 2 daily standard for good nutrition.
Breakfast—orange, oatmeal, cream, toast, butter, milk.
Dinner—roast pork, baked potatoes, creamed carrots, custard pudding, milk.
Supper—baked beans, cabbage slaw, graham bread, butter, apple sauce, cookies, milk.

<table>
<thead>
<tr>
<th>Servings</th>
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<tbody>
<tr>
<td><strong>Day of Week</strong></td>
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<tr>
<td><strong>Example</strong></td>
</tr>
<tr>
<td>Monday</td>
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<td>Sunday</td>
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<tr>
<td>Totals for one week</td>
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<tr>
<td>Average per day</td>
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</tbody>
</table>

**More About Meal Planning**

An adequate and well-planned diet is one of the requirements for health, and health is important to happiness and success in life. Planning attractive meals is the solution to the problem of getting people to enjoy the food that is good for them as well as eating it. One of the first essentials in Meal Planning is to select foods that meet the daily standard of good nutrition. It is also important to know how to combine these foods into appetizing and satisfying meals. Using the pattern menus given on page 6 of E.C. 9-31-2 "Canning Fruits and Vegetables," the fol-

**Foods Supplying Essential Nutrients**

<table>
<thead>
<tr>
<th>Day</th>
<th>Calcium</th>
<th>Protein</th>
<th>Vit. A</th>
<th>Vit. B1 Thiamin</th>
<th>Vit. B2 or G Riboflavin</th>
<th>Vit. C Ascorbic acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>milk</td>
<td>meat, *beans milk</td>
<td>milk, carrots, butter, cream</td>
<td>pork, *beanz, oatmeal</td>
<td>milk, pork</td>
<td>orange, raw cabbage</td>
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* Dry beans.
The following discussion shows how meals planned by this pattern meet the daily standard. The pattern breakfast of fruit, whole grain cereal and milk is simple; yet all three foods contribute to the daily standard. The pattern dinner contains a protein dish, potatoes and another vegetable, whole grain bread, butter, a milk dessert, and milk as a beverage. The pattern supper completes the standard. A serving of protein makes a total of two for a day. A serving of vegetable makes three for the day. If a green or yellow vegetable has not been supplied for dinner, one of these is selected for supper. If two servings of whole grain have been eaten, any bread may be served with butter for supper which makes two servings of butter. A serving of fruit sauce will make two servings of fruit for the day, but you must check to see whether the breakfast fruit was orange or grapefruit, and also whether tomatoes or raw cabbage have been served. If a citrus fruit, tomato, or raw cabbage has been served, any fruit desired may be used for supper. If neither has been served, one of them should be included in the supper menu. The pattern menu for growing boys and girls gives milk only as a beverage for supper but if, after checking, more milk is needed to meet the daily requirement, it may be included in some other way in the supper menu.

Suggested Menus

The following menus are given to show that the 4 3 2 2 2 2 daily food standard for growing boys and girls may be carried out in simple meals that are satisfactory for the average family. They follow the pattern menus for number of servings given on page 6 of "Canning Fruits and Vegetables," Extension Circular 9-31-2, but not the exact pattern in every case. For example, in the Friday menu a protein dish is served for breakfast, dinner and supper, which makes three servings. Tomato juice served for breakfast in the Friday menu was counted as a serving of vegetable because there were two servings of fruit and only two other servings of vegetables. Tomato juice served for breakfast on Tuesday and supper on Sunday was counted each time as a serving of fruit because there were three servings of vegetables besides tomatoes and only one serving of fruit on each of these days. The Up Side Down Cake contained only a small amount of fruit. Toast and sandwiches include butter. Milk is used with or in the preparation of two foods each day and it is given as a beverage at each meal to growing boys and girls. Thus it should supply the required amount for each member of the family. Oatmeal, cracked wheat, graham, brown and whole wheat breads are counted as whole grain products. Grape jam for dinner and apple butter for supper on Monday together were counted as one serving of fruit.

The breakfasts and suppers would be too light for many people doing active muscular work, and may be adapted by adding more energy foods. Protein and fatty foods are rich and concentrated; so you will select these in smaller amounts and the regulating and energy foods in larger amounts.

Since the time of year was not considered, these menus show a greater variety of fruits and vegetables than might be served during any given week. However, if the products of orchard and garden are canned, and stored for use during the non-growing months, a good variety is available at any season. Words in boldface type are the foods which meet the standard.
Canned meat exhibit at state fair.

CHORUS—4-H SONG OF HEALTH

“Our goal is health the quest for man and maid,
The great adventure rare
For health holds life and laughter and strength
And happiness to spare.
Ours, goal is health the quest for man and maid,
Lift high the goblet fair,
And pledge the toast from coast to coast,
Our health, the wealth we keep and share!”

HEALTH IS WEALTH

He spent his health to get his wealth
And then with might and main
He turned around and spent his wealth
To get his health again.

Distributed in furtherance of Acts of May 8 and June 30, 1914. Extension Service of the University of Nebraska College of Agriculture, the U. S. Department of Agriculture cooperating. W. H. Brokaw, Director, Lincoln, Nebraska.