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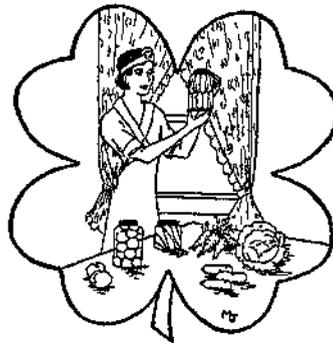
COLLEGE OF AGRICULTURE

AGRICULTURAL EXTENSION SERVICE

ARIZONA

BOYS' AND GIRLS' 4-H CLUB WORK

THIRD YEAR CANNING CLUB



By
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AND
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CLUB EMBLEM

The four-leaf clover with an H on each leaflet is the national Boys' and Girls' 4-H Club emblem. The four H's represent the fourfold development of head, heart, hands, and health.

CLUB PLEDGE

As a true club member I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living for my club, my community, and my country.

CLUB MOTTO

Make the Best Better

CLUB CREED

The Arizona 4-H Club creed is: I believe in boys' and girls' club work because of the opportunity it gives me to become a useful citizen.

I believe in the training of my head because of the power it will give me to think, to plan, and to reason.

I believe in the training of my hands because it will make me helpful, skillful, and useful.

I believe in the training for health because of the strength it will give me to enjoy life, to resist disease, and to become efficient.

I believe in the great trinity of club work: the school, the home, and achievement.

I believe in my country, in the state of Arizona, and in my responsibility for their development.

To the fulfillment of all these things I am willing to dedicate my service.

4-H CANNING CLUBS

The five years of 4-H club work in canning are designed to give club girls a practical working knowledge of the general field of food preservation, and if possible should be taken in order.

All canning club girls should take the first year's work before taking the work of the following years, because the first year's work covers the simpler processes in food preservation. If it is impossible to obtain fruit and tomatoes, and the girls who wish to form a canning club are of the age required for second year work, it is permissible to take the second year before the first. The remaining years should be taken in the order specified. The third year's work is not absolutely essential, however it is important so that club girls can receive general instructions in the entire field.

The fifth year's work is not necessary for completion of the canning requirements but it does make a splendid program for older girls who have had the previous work.

More than one year's canning may be carried on during any one year, particularly if the first year's work is the one taken with some other year. The requirements for each year's work are as follows:

REQUIREMENTS FOR FIRST YEAR 4-H CANNING CLUBS

1. Each member shall can at least 3 quarts of tomatoes or 3 pints of ripe pimientos.
2. Each member shall can 9 quarts of fruit, 3 quarts each of any three varieties.

Exhibits:

1. Three jars of tomatoes or ripe pimientos.
2. One jar each of three varieties of fruit.

REQUIREMENTS FOR SECOND YEAR 4-H CANNING CLUBS

1. Each member shall can 9 quarts of vegetables, 3 quarts each of any three varieties.
2. Each member shall make 9 pints of vegetable or fruit preserves, 3 pints each of any three varieties.

Exhibits:

1. Three jars of vegetables, three varieties.
2. Three jars of preserves, 3 varieties.

REQUIREMENTS FOR THIRD YEAR 4-H CANNING CLUBS

1. Each member shall can 9 quarts of pickles or relishes, 3 quarts each of any three varieties.
2. Each member shall make 9 pints of jams, butters, conserves, or marmalades, 3 pints each of any three varieties.

Exhibits:

1. Three jars pickles or relishes, three varieties.
2. Three jars jams, butters, conserves or marmalades, three varieties.

REQUIREMENTS FOR FOURTH YEAR 4-H CANNING CLUBS

1. Each member shall can 9 pints of meat, 1 pint each of any three varieties.
2. Each member shall make 9 pints of jelly, having at least three varieties.

Exhibits:

1. Three jars canned meat, three varieties.
2. Three jars jelly, three varieties.

REQUIREMENTS FOR FIFTH YEAR 4-H CANNING CLUBS

Each member shall can:

1. Three varieties of fruit.
2. Three varieties of vegetables, including tomatoes and greens.
3. Three varieties of pickles or relishes.
4. Three varieties of preserves (jams, butters, or marmalades).
5. Three varieties of jelly.
6. Three varieties of meats.

Exhibits: (The budget needed for a single individual for one week)

1. Three jars of vegetables, including tomatoes and greens.
2. Three jars of canned fruit, three varieties.
3. Three jars of canned meat, three varieties.
4. One jar of preserves which may be either jam, butter, marmalade, or jelly.
5. One jar of pickles or relish.
6. One jar of tomato, fruit, or kraut juice.

ARIZONA BOYS' AND GIRLS' 4-H CLUB WORK

THIRD YEAR CANNING CLUB

By

FRANCES L. BROWN AND OLIVE G. PICARD

REQUIREMENTS FOR THIRD YEAR 4-H CANNING CLUBS

1. Prepare a club program of work.
2. Finish with 60 per cent of enrollment.
3. All work completed with stories and reports submitted by November 15.

REQUIREMENTS FOR MEMBERS

Each member shall:

1. Be at least thirteen years of age.
2. Have completed the first two years of canning work or its equivalent.
3. Make at least 9 quarts of pickles and relishes.
4. Make at least 9 pints of jams, butters, conserves, and marmalades.
5. Do at least two thirds of the work in her own home—as home work.
6. Make an effort to exhibit at local, county, and state fairs.
7. Attend at least six club meetings.
8. Keep records of all work.
9. Write a story of the work and make a final report.

DIRECTIONS FOR WORK

Each member shall make 9 quarts of any of the following pickles or relishes—3 quarts each of any three varieties, such as

Sour cucumber pickles	Pickled pears	Mangoes
Sweet cucumber pickles	Pickled crab apples	Chowchow
Dill cucumber pickles	Sweet pickled beets	Dixie relish
Mixed pickles, sour	Sweet pickled carrots	Pepper hash
Mixed pickles, sweet	Sweet pickled beans	Tomato catsup
Green tomato pickles	Sweet pickled watermelon	Chili sauce
Mustard mixed pickles	Sweet pickled muskmelon	Corn relish
Pickled peaches	Chopped pickles	Beet relish

Each member shall make 9 pints of jams, butters, conserves, or marmalades—3 pints each of any three varieties, such as

JAMS	BUTTERS	CONSERVES	MARMALADES
Quince	Peach	Grape	Orange
Cherry	Apple	Plum	Grapefruit
Plum	Pium	Cherry	Carrot
Tomato	Apricot	Rhubarb	Muskmelon
Fig	Quince	Tomato	Rhubarb
Blackberry	Tomato	Fig	Tomato
Strawberry	Pumpkin	Peach	Grape
Raspberry	Crabapple	Carrot	
Gooseberry	Muskmelon	Muskmelon	
Carrot		Apricot	
Pear			

Each member should make an effort to exhibit the following at local, county, or state fairs: 3 quarts of pickles or relishes (three varieties); and 3 pints of jams, butters, conserves, or marmalades (three varieties). Pickles or relishes, jams, butters, conserves or marmalades may be exhibited in any standard type glass jars. If the member cannot make a complete exhibit she should exhibit at least a portion. If the directions are read carefully and the recipes followed accurately, results will be satisfactory.

Sample exhibit—1 quart green tomato sweet pickles, 1 quart pickled peaches, 1 quart of chili sauce, 1 pint of gooseberry jam, 1 pint of apricot butter, and 1 pint of carrot marmalade.

PICKLES AND RELISHES

Pickles have little or no food value but do stimulate the appetite and add interest to an otherwise unattractive or unappetizing meal.

Pickles are made either by using salt alone or by using a salt brine, or by using vinegar on the vegetables or fruits. Sugar and spices may be added to create or improve flavor.

Relishes consist of finely mixed chopped vegetables properly seasoned.

Only vegetable pickles are preserved by salt. Fruit pickles are generally preserved in a sweetened spiced vinegar.

KINDS OF PICKLES

Pickles are classified largely according to the method of preparation or preservation:

1. Pickles preserved by the use of salt.
2. Pickles preserved by the use of vinegar.
3. Pickles preserved by the use of vinegar and spices.

PREPARATION OR METHODS

The best pickles are made by fermentation in a brine. This, however, is a rather long time process. This process is called curing and is as follows:

Preparation

Use wooden barrels or kegs, or for smaller quantities use stone crocks, glass jars, granite kettles, or pans. Never use iron for brining or cooking pickles. In picking the cucumbers leave $\frac{1}{2}$ inch of stem on each. It is not necessary to wash the cucumbers before putting them into brine, since the bacteria on the outside of the vegetables aid in the process and the brine pickles are washed before being eaten.

Brine

Soft water should be used in making the brine. Water containing much iron or lime will discolor the pickles. Put the cucumbers into brine very soon after they are gathered. A good measure of salt is absolutely necessary to prevent spoilage, but salt alone is not enough. Salt draws out water from the vegetable tissues and toughens them somewhat. For this reason a weaker brine will give a better texture to the finished product. About 1 pound of salt dissolved in 9 pints of water makes a brine that is not too heavy. The cucumbers should be weighted down so this solution will completely cover them. A cheesecloth may be placed over the top to exclude the dust and at the same time admit air.

The appearance of bubbles indicates that fermentation is taking place. When the frothing ceases the acid present in the brine is strong enough to kill most bacteria in the liquid, and from this time on the pickle brine should be covered. It is necessary to exclude the air, because air may carry yeast, which might cause the scum. This scum might cause the pickles to soften and spoil.

Excluding the Air

As soon as fermentation ceases and bubbles no longer appear, take care to weight the cucumbers down under the brine. Cover with a piece of cheesecloth and then pour on a thick layer of melted paraffin. Place lids on the crocks or jars and wrap a strip of cheesecloth dipped in hot melted paraffin around where the lid and top of container meet, letting paraffin harden and seal the opening. The containers should not be disturbed after they have been sealed.

When these pickles are opened, they should be firm, a good olive green color, and in fine condition. The great secret of pickle making lies in bringing about acid fermentation quickly, and after this in preserving the acidity of the brine by covering tightly.

If desired, as soon as fermentation ceases the pickles may be taken from the brine, freshened, and made into sweet or sour pickles, with vinegar, with or without sugar or spices.

Test for Acid

To determine when the brine reaches the acid stage, put a piece of blue litmus paper into it. If it turns red, all air should be excluded. Get litmus paper at drug store. A practical test is to

cut a cucumber crosswise. If it is translucent all through, it is "cured." This process usually takes from eight to twelve days if kept at about 86 degrees F.

Grading

Cucumbers should be graded according to size.

Size 1, 1 to 2 inches, small gherkins.

Size 2, 2 to 3 inches, small pickles.

Size 3, 3 to 4 inches, medium pickles.

Size 4, 4 inches and over, large pickles.

Long-Time Process

Another method of brining cucumbers is to use six parts water, one part salt, and one part cider vinegar. Pack the cucumbers securely in a jar, cover with the solution, and place horse-radish or grape leaves on the top. Weight the cucumbers with a large stone on an inverted plate.

Freshening—First Method

Before using these pickles, they must be freshened. To do this take the cucumbers from the brine and rinse them in warm water. Then soak them in cold water for two or three days, changing the water each day. They may then be used either in the making of sour or sweet pickles.

Second Method

Remove vegetables from brine and heat them in a large amount of water just to the simmering point. Then pour off this water and repeat the process, but allow the vegetable to stand in the second hot water for several hours or until the product suits the taste. Pickles keep better if a little salty. If product is too salty, pour off this water and repeat the heating process. After processing, drain well.

Third Method

Wash the vegetables as taken from the brine and cover with clear cold water. Let stand several hours, drain well, and place in a granite kettle which has been lined with spinach or grape leaves. Cover the cucumbers with the leaves and pour over them boiling water to cover. Allow to stand in this water until cold, then drain well and pour over them a boiling hot solution of one part vinegar to three parts water. Allow them to stand in this solution for three or four hours and drain again. Cover a second time with a boiling hot solution of equal parts of vinegar and water, and allow to stand over night, when they may be drained and made up into either sweet or sour pickles.

Short-Time Process—(Short Process No. 1)

Wash the vegetables to be pickled and prepare as for brining, then parboil until tender. Drain and put into clean jars or en-

ameled cans, pour hot vinegar over them, and seal. Spices and sugar may be added if desired.

(Short Process No. 2)

Prepare vegetables by washing and scraping or peeling when necessary. Cut or break up into desired size. Soak (each kind separately) in crocks or granite ware over night in a brine of one cup of salt to 1 gallon of water. Drain from this brine and scald for about ten minutes (or until just tender but not soft) in equal parts of vinegar and water. Pour this liquor off and pack the pickles in clean jars and pour desired pickling mixture, boiling hot, over them before sealing.

SCORE CARD FOR PICKLES AND RELISHES

	Per cent
Pack—full, attractive, practical.....	20
Liquid—clean, clear, sparkling.....	10
Color—natural, characteristic, not faded or unnaturally bright.....	20
Quality of product—uniform in size, color, shape, and consistency. They should be plump not shrunken; crisp yet tender and not soft.....	40
Appearance of container—clear suitable container, clean, neatly labeled.....	10
Total.....	100

SCORE CARD FOR CATSUP

	Per cent
Pack—full, attractive, practical.....	20
Color—characteristic, natural, bright not dull.....	20
Quality of product—fine grained, smooth, thick, not solid or watery.....	50
Appearance of container—clear suitable container, clean, neatly labeled.....	10
Total.....	100

GENERAL NOTES ON PICKLES

Shriveled pickles—Too strong a brine or too strong vinegar, or too much sugar will cause pickles to shrivel. If very sweet or very sour pickles are to be the finished product, use weak solutions first, then use the strong ones to complete the process.

Soft pickles—If too weak a brine is used or if brine does not cover pickles in the jar, or if products are over cooked, or if pickles are left in a strong brine too long, pickles will be soft.

Hollow pickles—This is the result of keeping the cucumbers for too long a time before they are put in the brine. They should be put into the brine at once.

Kind of salt to use—Common, coarse salt or rock salt is best.

Vinegar evaporates and becomes dark if heated too long. White acid vinegar may be used but cider vinegar is preferable in most cases.

Brown sugar adds a pleasing flavor but darkens the color.

Cherry leaves, spinach, grape leaves, and cabbage leaves are added to give or preserve a green color.

Nasturtium leaves and seeds, horse-radish, ginger root, and red peppers are used for flavor.

Oil of cloves and oil of cinnamon are used in place of the ground spice in pickled peaches, relish, etc., three drops being the amount recommended to displace one half teaspoon ground spice.

The following are a few sample recipes but other recipes may be used if desired:

Dill Pickles

Cucumbers, dill, vinegar, water. Put cucumbers in a brine made of 4 quarts of water and 1 quart of salt. Let stand twenty-four hours, weight to keep in brine. Remove from brine; put in crock one layer of dill (mixed spices may be added if desired) on the bottom, another layer when half filled, and a layer on top. Make a brine of 4 quarts of water, 1 quart of vinegar, and 1 quart of salt, and boil brine for five minutes. Let stand until cold. Pour this cold brine over the contents of the crock and put some covering material over all, such as grape leaves, beet tops, or sour cherry leaves. Should any spoilage occur in the surface this layer will protect the cucumbers.

Pickled Beets

Beets, spiced vinegar (1 pint of vinegar, one-half cup of water, one-half cup of sugar, one tablespoon of stick cinnamon, one teaspoon of whole allspice, six whole cloves). Cook beets until tender, slip skins. Bring the spiced vinegar mixture (spices in bag) to boiling point. Add beets, whole or sliced. Boil five minutes. Pack, remove spice bag from liquid. Fill clean jars with liquid, seal, store.

Cucumber Pickles

Scrub two hundred cucumbers, put them into stone jar or bowl, cover with scalding hot brine (proportion 9 pints of water to 1 pint of salt). Let the cucumbers stand over night in the brine. In the morning rinse and drain them. Wash jars and place in the bottom of each a slice of red pepper, slice of green pepper, and a little horse-radish washed, scraped, and cut into pieces. Pack the jars full with the cucumbers and on top of each scatter a few cloves, white mustard seed, and black mustard seed. Add $\frac{1}{2}$ pint of brown sugar to 1 gallon of best cider vinegar and bring to the boiling point. Fill the clean jars to overflowing with the boiling vinegar and seal at once. Sugar may be omitted if a very sour pickle is preferred.

Sour Cucumber Pickles

If using brined cucumbers soak to remove most of the salt. Drain well and place in porcelain lined kettle with enough pure vinegar to cover cucumbers. Bring to the boiling point, drain off

vinegar, and pack cucumbers into hot, clean jars. If desired, add spices and three tablespoons of sugar to each jar. Cover to overflowing with fresh cold vinegar.

Sweet Cucumber Pickles

If using brined cucumbers soak to remove most of the salt. Place cucumbers in porcelain lined kettle, cover with pure vinegar and bring to boiling point. Drain off vinegar and pack cucumbers into hot, clean jars and cover the cucumbers to overflowing with syrup made of 1 gallon of pure vinegar, one-fourth cup of whole mixed pickle spices. (Tie spices in a cheesecloth bag.) Boil the spices in the vinegar for five minutes, discard the spices and add eight cups granulated sugar. As soon as the sugar is dissolved pour hot syrup over cucumbers and seal immediately.

Pepper Relish

One cup of chopped green pepper, one cup of chopped red pepper, one chopped onion (small), one cup of vinegar, four teaspoons of sugar, one-half teaspoon of salt. Bring vinegar, salt, and sugar to boil. Pour over the vegetable mixture. Place in jars, seal. (Will keep about one week.)

Chowchow

Two quarts green tomatoes, twelve small cucumbers, four green peppers, one small head cabbage, six onions, one cup salt, 1 quart string beans, 1 gallon vinegar, one tablespoon celery seed, one tablespoon mustard, one tablespoon allspice, one tablespoon pepper, one tablespoon cloves. Chop together tomatoes, cucumbers, peppers, cabbage, onions, and string beans. Let the mixture stand in a covered enamel pan over night. Place mixture in a pan with alternate layers of salt, using one cup salt, reserving enough salt for top layer. Let mixture stand twelve hours, then drain. To 1 gallon vinegar add one tablespoon each of celery seed, mustard, allspice, pepper, and cloves; heat to boiling point, add vegetables and cook mixture until tender. Pack the chowchow into clean, hot jars and seal at once.

Sweet Pickled Carrots

Carrots, spiced syrup (1 quart of vinegar, 1 quart of sugar, one tablespoon of stick cinnamon, one tablespoon of whole cloves, one tablespoon of whole allspice, one tablespoon of mace). Boil young carrots until skins slip. Slip skins, slice or leave whole. Pour the spiced syrup boiling hot over the carrots. Let stand over night, then bring to boiling point and boil five minutes. Remove spices. Pack, fill jar with spiced syrup, seal, store.

Green Tomato Pickles

One gallon of sliced tomatoes, four large onions sliced through, one-fourth cup of salt, one cup of sugar, two pods of hot red peppers (whole), two cups of vinegar, one tablespoon each of mus-

tard, celery seed, cloves, allspice, and mustard seed; one teaspoon mace, one stick cinnamon (spices tied in cheesecloth bag). Cover tomatoes and onions with the salt. Let stand over night. Drain, and boil vinegar, sugar, and spices and pour boiling hot over chopped or sliced ingredients. Let stand twenty-four hours, boil up and pour over; repeat three times. This syrup is suitable for all peaches, pears, watermelon rind, plums, etc. Pack into hot, clean jars and seal.

Pickled Watermelon Rind

Soak 2 pounds watermelon rind over night in salt water (three tablespoons salt to 1 quart water.) Drain off brine and cook watermelon rind in clear water until tender. Make a syrup of two cups sugar, two cups water, two cups vinegar, one lemon sliced thin, one tablespoon cinnamon, one teaspoon cloves, and one teaspoon allspice. Add rind to the hot solution and boil rapidly until rind is clear. Pack into clean, hot jars and seal immediately.

Pear or Peach Sweet Pickles

Twelve pounds of fruit, 8 pounds of sugar, 1 quart of vinegar. Peel or skin peaches or pears (usually cling peaches are used) and stick six or eight whole cloves into each one. Then make a syrup of the vinegar and sugar and add a spice bag made of mixed spices and one piece of ginger root if desired. Add four or five whole sticks of cinnamon and one tablespoon of ground cinnamon, one teaspoon of ground cloves, and one teaspoon of ground allspice to the syrup and drop a few of the peaches in this boiling syrup at a time. Cook until the fruit can be readily pierced with a straw, let stand in kettle over night. Next day pack in hot, clean jars covering fruit with syrup. Put on caps, screwing band firmly tight and process twenty-five minutes in water bath or forty-five minutes at 250 degrees in oven.

Pickled Crab Apples

Choose firm crab apples of uniform size. Do not pare but remove blossom ends. Make a spiced syrup in the following proportions: 1 quart of vinegar, four cups of sugar, one tablespoon each of cinnamon, cloves, allspice, and mace. Spices may be tied in a bag. Cook syrup until it coats a spoon, add the apples and heat them slowly to avoid bursting. Simmer them until tender. Pack into clean, hot jars, cover with syrup and seal at once.

Tomato Catsup

Ten pounds of ripe tomatoes, three medium onions, two sweet red peppers, one cup of vinegar, three-fourths cup of sugar, two teaspoons of paprika, one teaspoon of ground mustard, one teaspoon of celery seed, one tablespoon of salt, one teaspoon of whole allspice, one teaspoon of whole cloves, three pieces of stick cinnamon (2 inches long). Clean peppers, removing cores and seeds, and peel tomatoes and onions. Cook until tender (thirty min.) and press through sieve. Boil pulp rapidly until somewhat thick-

ened (thirty min.). Add vinegar, sugar, and spices (whole spices in bag). Boil until thick, stirring frequently. Fill hot sterilized bottles, seal well with well fitting corks, dip bottle tops in hot sealing wax. Store.

Chili Sauce

Four quarts of chopped and peeled tomatoes, two cups of chopped onions, one cup of chopped sweet red pepper, one cup of chopped green pepper, one small, hot red pepper, three tablespoons of salt, one-half cup sugar, one tablespoon of white mustard seed, one teaspoon of cinnamon, one teaspoon of allspice, two and one-half cups of vinegar, one clove of garlic chopped. If desired add one tablespoon of celery seed and one cup of chopped celery. Combine the vegetables, chopped separately, salt and sugar, and cook until the mixture begins to thicken, then add the vinegar and spices, and cook until the mixture becomes a thick sauce. Pour into hot, clean jars and seal immediately.

Pickled Onions

Four quarts of small white onions, 3 pints of boiling water, three tablespoons of whole allspice, three tablespoons of whole white mustard seed, one-fourth cup of grated horse-radish, one cup of salt, 1 quart of white vinegar, three tablespoons of peppercorns, one-fourth cup of sugar. Peel onions. Pour boiling water and salt over the onions and let stand twenty-four hours. Drain, cover again with boiling water, then let this stand from five to ten minutes. Drain and pack jars. Boil vinegar, water, sugar, and spices for three minutes. Remove allspice and peppercorns. Add a sprig of mace and a bit of red pepper to each jar. Fill jar with liquid. Seal, store.

Cantaloupe Pickles

Cantaloupe, one-fourth cup of salt, pickling syrup (1 quart water, 1 quart sugar, one cup vinegar, one tablespoon each of stick cinnamon, whole allspice, and whole cloves). Select firm, slightly underripe cantaloupe. Remove rind and seeds. Soak three hours in salt water (one-fourth cup of salt to 1 quart of water). Drain, add cantaloupe to pickling syrup (in bag). Boil rapidly in syrup for ten minutes. Stand in syrup over night, then drain from syrup and boil syrup until thick. Add cantaloupe and cook until clear (about one hour). Pack, seal, store.

Dixie Relish

One quart of chopped cabbage, 1 pint of chopped white onions, 1 pint of sweet red peppers, 1 pint of sweet green peppers, four tablespoons of whole mustard seed, two tablespoons of crushed celery seed, one-half cup of sugar, 1 quart of strong cider vinegar, five tablespoons of salt. Soak the chopped peppers in brine (one cup of salt to 1 gallon of water) for twenty-four hours. Freshen in cold water for one-half hour. Drain well. Remove seeds and coarse white pulp. All ingredients should be chopped separately and

then well mixed. Let stand over night in a covered crock or covered enameled vessel. Pack in small glass-top jars as follows: drain off the vinegar; pack the relish into jars, not filling them completely; add the vinegar to fill; with a wooden paddle or silver spoon handle press the relish to remove all air bubbles. Garnish each jar with two strips of red pepper placed vertically on opposite sides of the jar. Place rubbers on jars and put lids on loosely. Place jars in a wash boiler sterilizer with water halfway up the sides of the jars. Heat the water to boiling point and boil for 10 minutes. Remove and seal.

Mustard Pickles

Two quarts of medium-sized cucumbers in thick slices, 1 quart of very small, whole, white onions, 1 quart finely cut cauliflower, six coarsely chopped green peppers, two cups of coarsely chopped carrots. Soak each vegetable separately two hours in a brine of one-half cup of salt to 1 quart of water. Drain thoroughly. Cook until tender in lightly salted water. Drain again, mix together while hot, then add the following mixture which has been cooked in a double boiler until fairly thick: 3 quarts of vinegar, one cup of ground white mustard, three cups of sugar, one-fourth teaspoon of turmeric powder, one cup of flour mixed to a paste with one-half cup of water. Add this mixture hot and seal pickles at once. Green string beans and celery may be added if desired. Cabbage may be substituted for cauliflower.

Pickled Figs

Make a strong soda solution with boiling water and pour this over just enough figs to cover the bottom of a preserving kettle. Let them remain in this solution five minutes and then drain them thoroughly. Take 1 quart of vinegar to 3 pounds of sugar and when dissolved add the figs and cook slowly for one hour. Pack the jars with figs and cover with boiling syrup. Seal the jars. If you have some syrup left, more figs may be cooked in it. A spice bag filled with whole cloves, cinnamon, and allspice may be boiled with the vinegar syrup if desired. Some persons, instead of using a soda solution, prefer to soak the figs in rather weak salt water for about six hours, rinse, and then boil as above.

Mixed Pickles

Separate two large heads of cauliflower, chop 1 gallon of green tomatoes, six large onions, six green peppers, and six cucumbers. Mix well. Use enameled kettle. Put in first a layer of vegetable mixture, then a layer of salt until all ingredients are used, being sure the last layer is salt. Let stand twenty-four hours, then squeeze as dry as possible. Make a pickling solution of 1 pint of vinegar, 1 pound of sugar, and one level teaspoon each of cloves, cinnamon, allspice, and mace. If desired little red peppers may be added. Mix sugar and spices with vinegar, boil five minutes and pour over vegetables, stirring well so that vinegar will mix in

with them. Allow to stand several hours. Bring pickles to boil and cook one-half hour, then pour into hot, clean jars and seal.

Cucumber Sweet Pickles (Ripe)

Eight large ripe cucumbers, $\frac{1}{8}$ pound of stick cinnamon, 1 ounce of whole cloves, six cups of sugar, $1\frac{1}{2}$ pints of vinegar. Pare cucumbers, quarter, remove seeds, and cut the quarters into medium-sized pieces. Boil for one minute in salted water (two tablespoons of salt to 1 quart of water), drain and simmer in clear water until tender but firm. Drain well. Tie spices in a bag and boil them with the vinegar and sugar for five minutes. Pour mixture over the cucumbers. Cover jar and let stand over night. Drain off syrup, boil for ten minutes and pour over the cucumbers again. Flavor is improved if this process is repeated several times. Pack the pickles into clean, hot glass jars and seal.

DEFINITIONS

Jams, butters, marmalades, and conserves all belong to the class of fruit put up as preserves. All preserves have a high sugar content. They have enough sugar cooked into them to keep them from spoilage, provided they are kept airtight. These products are concentrated foods, economical, and if correctly made are very delicious and wholesome but should be used in small quantities. A thin covering of paraffin will keep them airtight.

Jam

A thick preserve in which the fruit, whole or in portions, has been literally jammed together; the consistency of a jam should allow it to spread and yet not be runny. It is permissible with blackberry or raspberry or grape jam to have the seeds removed if desired.

Butter

A thick preserve that has been partially cooked and then put through a sieve or colander and further cooked until it is smooth (the consistency of butter).

Conserve

A thick preserve resembling a marmalade, or it might be a jam which is made of a combination of fruits, or a combination of fruits and nuts, as grapes, raisins, and nuts.

Marmalade

A marmalade is a thick preserve in which the fruit is divided into pieces with enough juice to keep it from mashing into a jam. Usually the juice of a marmalade is a jelly in consistency, and the portions of the fruit are imbedded in this clear jelly. For example orange marmalade. Marmalade, like jam, should be of a consistency that will spread and yet not be runny, though the juice need not be a jelly.

In making preserves only good grades of fresh fruits that are sound, whole fruits, or at least large pieces of fruits are used, and high grade preserves are cooked in a heavy solution of sugar in such a way that the whole fruit or pieces keep their shape and yet are tender, clear, and transparent or at least translucent, and they are covered by a clear, transparent, heavy syrup that may be a jelly.

In making jams, butters, conserves, and marmalades, while it is just as desirable to use fresh fruits, they need not be whole or sound, as unsound portions can be removed and the remainder only used. Fresh fruits and berries that have been crushed, if clean, may be used.

In making these preserves it is better to make up only a rather small quantity at a time and to use flat pans or kettles. They should be cooked quickly as a rule since long, slow cooking tends to darken the color and impair the flavor and texture. Constant attention and frequent stirring are necessary to prevent the mixtures from scorching or sticking. Jars and lids should be clean and sterilized if possible and the products as cooked poured boiling hot into the clean hot jar and sealed at once.

In making up berries and small fruits if about one fourth of the product is slightly underripe, the finished product will have a more jellylike consistency. Sometimes in making these products, the juice formed by the first cooking is strained off for jelly making, and the jam or butter is made from the remains. In general these products are made largely as preserves are made. A few sample recipes are given on the following pages but others may be used if preferred.

SCORE CARD FOR JAMS, BUTTERS, MARMALADES, AND CONSERVES

	Per cent
Pack—full, attractive, practical.....	20
Color—clear, natural color, not faded, browned, or darkened, or unnaturally bright.....	20
Juice or liquid—clean, clear, heavy, may be a jelly.....	10
Consistency and texture—uniform, smooth, clear, translucent	40
Appearance of container—clean, suitable container, clear glass, neat label.....	10
Total.....	100

Amber Marmalade

One orange, weighing about 7 ounces; one grapefruit, weighing about 1 pound 3 ounces; one lemon, weighing about 3 ounces. Select especially tender, clean, yellow, smooth-skinned fruit, free from blemishes. The thick-skinned varieties are better for this purpose than those having a thin, tough peel, since this thin peel is likely to become still tougher after cooking with sugar and acid. Wash the fruit well. Remove the skins and slice them very thin. Cook this peel in a quart of cold water three times for five minutes each, discarding the water after each boiling. Cut the fruit pulp

into thin slices, removing the seeds and "rag," and combine this sliced pulp with the parboiled skins. To each weight or measure of fruit add three times its own weight or measure of water and boil for twenty-five minutes. Then add equal weight or measure of sugar and boil rapidly for twenty-five minutes longer, or until the jelly stage is reached. Put at once into scalded jelly glasses, and when cold cover with paraffin.

Orange Marmalade

Three pounds of oranges, three lemons, 1½ pints of water, 3 pounds of sugar. Wash, remove peel and seeds, cutting one half of peel into very thin strips, and add it to pulp and remainder of peel, which has first had the yellow portion grated off and has been passed through a food chopper with the pulp. Cover with water and let stand over night. Boil for ten minutes the next morning; allow to stand for twelve hours, add sugar, and again let stand over night. Cook rapidly next morning until the jelly test can be obtained (about 222 degrees F.). Cool to 176 degrees F. Pour into sterilized glasses and seal.

Orange and Lemon Marmalade

Four medium or three large oranges, four lemons. Slice the fruit, unpeeled, paper thin. Measure and add five times as much cold water as fruit. Allow this to stand from twelve to twenty-four hours, then boil vigorously for thirty-five to forty-five minutes. This should render the peel tender and should reduce the quantity to one half of its original measure. Separate this into two- or four-cup lots. Cooking four cups or less at one time gives better flavor and color.

If oranges are rather sweet or overripe, add additional lemon juice at this stage—about one tablespoon to one cup of fruit. Boil eight minutes. Add three-fourths cup of sugar for each cup of fruit. Boil rapidly until the jelly point is reached. Pour into hot, sterilized glasses or seal in jars. This yields twelve to eighteen glasses. (From University of Florida Extension Circular No. 75.)

Note: Jelly test—when the jelly moves from the spoon in a mass rather than in single streams it is ready to be removed from the stove.

Strawberry Jam

One pound of strawberries, 1 pound of sugar. Wash the berries, remove the hulls, and all dark spots. Put berries in a bowl and crush with a wooden spoon. Add sugar, heat quickly and cook rapidly until clear. It will require but a few minutes. Pour into clean, hot jars, seal. Avoid long cooking, as it is better to undercook the strawberry products a trifle than to overcook them, since the flavor, color, and consistency are changed by too much heat.

Tomato Marmalade

One quart of ripe tomatoes, one-half cup of cider vinegar, one-third cup of sugar, one teaspoon of salt, one teaspoon of mixed spices. To 1 quart of ripe tomatoes, skinned and sliced, add one-half cup of cider vinegar, one-third cup of sugar, one teaspoon of salt, and one teaspoon of mixed spices. Cook mixture slowly until it is thick, stirring to prevent burning. Pack into clean, hot jars. Seal immediately.

Fig Jam

This can be made from the bruised and soft figs, by mashing the fruit well. Place figs in a little water, bring to a boil, measure fruit, add same amount of sugar as fruit and cook for one hour, stirring to prevent burning. Pack hot marmalade into clean, hot jars and seal immediately. Peel the fruit if desired before it is mashed.

Carrot Marmalade

Two cups of ground carrots, cooked until tender, one and a half cups of sugar, two lemons, quartered and cut in thin slices, two teaspoons of ground gingerroot may be added if desired. Cook slowly until thick. Do not stir. Pack in hot jars and sterilize.

Grape Conserve

Five pounds of blue grapes, two medium sized oranges, 1 pound of raisins, 4 pounds of sugar, $\frac{1}{2}$ pound of walnut meats coarsely cut. Pick over grapes. Wash and separate skins from pulp. Put the skins in a sauce pan with water to cover and boil until tender. Boil the pulp five minutes and rub through a sieve to remove seeds, and add to skins. Wash oranges and put them and the raisins through the coarse knife of the food chopper. Add 1 pint water and boil rapidly for one-half hour or until the orange is tender. Add grape mixture, and sugar heated and boil to marmalade consistency. Add nut meats just before removing from heat. Seal in sterilized jars.

Damson Plum Conserve

Two pounds of Damson plums, one cup of English walnuts, one lemon, juice and grated rind, 1 pound of seedless raisins, three cups of sugar. Wash raisins. Remove seeds from the plums and weigh the fruit. Add sugar, lemon, and raisins. Cook mixture until it is thick and clear. Pour boiling water over nuts and let stand for two minutes. Drain water from nuts, cut or chop them, and add to mixture just before removing conserve from stove. Pour conserve into clean, hot jars and seal at once.

Plum Butter

Wash the plums, place them with a little water in a preserving kettle, and cook until soft. Then separate the skins and the pits by rubbing the pulp through a colander or a coarse wire sieve.

In the case of large freestone plums it will probably be easier and quicker to dip the fruit into boiling water a few seconds until the skins crack, then dip into cold water, so that the skins can be readily slipped off, the flesh split open, and the pits removed. If the plums are very juicy, the pulp put through a colander will be quite thin and should be boiled down to thicken somewhat before the sugar is added. For each measure of pulp, whether put through the colander or not, use a half to three fourths of a measure of sugar and cook slowly with frequent stirrings until the butter is as thick as desired. If a tart butter is favored, less sugar should be used. Cinnamon, allspice, and cloves should be added to suit the taste when the cooking is finished. Pack the plum butter hot in hot sterilized jars or glasses and then cover with hot paraffin, or else sterilize as directed for apple butter.

Apple Butter

Apple butter (without cider) is made as follows: Select tart apples, wash and slice. Put in a kettle with enough water to cover, and cook slowly until the apples are tender. Pass through a sieve to remove the seeds and skins. To each gallon of pulp, add 1 pound of sugar (brown sugar is best), and cook until the mass is as thick as dairy butter when cooled. Stir often to prevent scorching. Test for thickness by cooling small amounts at frequent intervals after the mixture begins to thicken. Add spices to suit the taste when the cooking is done. About one-half teaspoon each of cinnamon, cloves, and allspice may be used for each gallon. Pack into sterilized pint jars and process thirty minutes at simmering temperature.

Rhubarb and Apple Conserve

Two cups of sugar, two-thirds cup of water, two cups of rhubarb, cut in small pieces, one cup of sliced apple, two-thirds cup chopped English walnuts. Make a syrup of sugar and water and when boiling add fruit and simmer until mixture is thick and clear. Add nuts and pack conserve into clean, hot jars and seal immediately.

Peach Butter

Well-ripened freestone peaches are best to use. To peel the peaches, dip in boiling water for a few seconds until the skin slips, put into cold water and peel. Pit the peeled peaches and cook with but very little water until soft; put through a colander or sieve. To each measure or pound of pulp add half a measure or $\frac{1}{2}$ pound of sugar. Cook slowly and stir frequently until the product is of the desired consistency. While still hot, pack into sterilized jars and seal, or put in sterilized glasses and when cold cover with hot paraffin.

Muskmelon Butter

Select ripe muskmelons. Cut in halves, remove rinds, seeds, and soft parts. Place the melons in a preserving kettle with as little water as possible and boil until tender. Press through a colander

and measure the pulp. To each quart of pulp add one-half cup of sugar, juice of one-half lemon, and a little cinnamon if desired. Continue boiling until mixture is thick enough to spread. Stir constantly to prevent burning. Pack hot butter into clean, hot jars. Seal immediately.

Tomato Conserve

One quart of tomatoes, fresh or canned (drain off juice), one cup of seedless raisins, one lemon, cut in small pieces, one-half cup English walnuts, four cups sugar. Wash raisins. Blanch, peel, and core fresh tomatoes. Mix ingredients, except nuts, and cook mixture until it is thick and clear. Add nuts, chopped fine, and pour mixture into clean, hot jars, and seal at once.

TIMETABLE SHOWING INCREASED TIME FOR DIFFERENT
ALTITUDES IN ARIZONA
WATER-BATH METHOD

Place	Elevation	Boiling times at given elevations for varying times at sea level				
		5 min.	15 min.	20 min.	25 min.	45 min.
Ajo	1,770	6.77	20.3	26.1	33.8	60.9
Alpine	8,500	13.5	40.5	54.0	67.5	121.5
Ashfork	5,160	10.2	30.5	40.8	51.0	91.8
Benson	3,523	8.5	25.5	34.0	42.5	76.5
Bisbee	5,425	10.4	31.2	41.6	52.0	93.6
Bouse	1,100	6.1	18.3	24.4	30.5	54.9
Bowie	3,756	8.7	26.1	34.8	43.5	78.3
Buckeye	980	6.0	18.0	24.0	30.0	54.0
Camel Back	1,249	6.2	18.6	24.8	31.0	55.8
Canille	5,255	10.3	30.9	41.2	51.5	92.7
Casa Grande	1,400	6.4	19.2	25.6	32.0	57.6
Chandler	1,213	6.2	18.6	24.8	31.0	55.8
Clemenceau	3,460	8.5	25.5	34.0	42.5	76.5
Clifton	3,465	8.5	25.5	34.0	42.5	76.5
Cochise Stronghold ...	4,950	9.9	29.7	39.6	49.5	89.1
Douglas	3,930	8.9	26.7	35.6	44.5	80.1
Fairbank	3,862	8.86	26.6	35.4	44.3	80.0
Flagstaff	6,907	11.9	35.7	47.6	59.5	107.1
Florence	1,500	6.5	19.5	26.0	32.5	58.5
Ft. Apache	5,300	10.3	30.9	41.2	51.5	92.7
Ft. Defiance	6,950	11.95	35.8	47.8	59.7	107.5
Ganado	6,840	11.8	35.4	47.2	59.0	106.2
Gila Bend	737	5.7	17.1	22.8	28.5	51.3
Globe	3,440	8.4	25.2	33.6	42.0	75.6
Grand Canyon	6,866	11.86	35.6	47.4	59.3	106.7
Holbrook	5,069	10.1	30.3	40.4	50.5	90.9
Jerome	5,250	10.2	30.6	40.8	51.0	91.8
Kingman	3,268	8.3	24.9	33.2	41.5	74.7
Litchfield Park	1,180	6.2	18.6	24.8	31.0	55.8
Maricopa	1,188	6.2	18.6	24.8	31.0	55.8
Marinette	1,150	6.1	18.3	24.4	30.5	54.9
McNary	7,251	12.2	36.6	48.8	61.0	109.8
Mesa	1,245	6.2	18.6	24.8	31.0	55.8

TIMETABLE SHOWING INCREASED TIME FOR DIFFERENT
ALTITUDES IN ARIZONA
WATER-BATH METHOD—*Continued*

Place	Elevation	Boiling times at given elevations for varying times at sea level				
		5 min.	15 min.	20 min.	25 min.	45 min.
Miami	3,603	8.6	25.8	34.4	43.0	77.4
Mohawk	538	5.4	16.2	21.6	27.0	48.6
Mormon Lake	7,000	12.0	36.0	48.0	60.0	108.0
Nogales	3,839	8.8	26.4	35.2	44.0	79.2
Oracle	4,522	9.5	28.5	38.0	47.5	85.5
Parker	350	5.3	15.9	21.2	26.5	47.7
Payson	4,906	9.9	29.7	39.6	49.5	89.1
Phoenix	1,108	6.1	18.3	24.4	30.5	54.9
Pinedale	6,500	11.5	34.5	46.0	57.5	103.5
Prescott	5,389	10.4	31.2	41.6	52.0	93.6
Quartzsite	871	5.9	17.7	23.6	29.5	53.1
Redrock	1,856	6.9	20.7	27.6	34.5	62.1
Roll	257	5.3	15.9	21.2	26.5	47.7
Roosevelt (Gila)	2,275	7.3	21.9	29.2	36.5	65.7
Rucker Canyon	5,634	10.6	31.8	42.4	53.0	95.4
Sacaton	1,280	6.3	18.9	25.2	31.5	56.7
St. Johns	5,650	10.6	31.8	42.4	53.0	95.4
Salome	1,775	6.8	20.4	27.2	34.0	61.2
Seligman	5,219	10.2	30.6	40.8	51.0	91.8
Snowflake	5,644	10.6	31.8	42.4	53.0	95.4
San Simon	3,609	8.6	25.8	34.4	43.0	77.4
Springerville	6,322	11.8	35.4	47.2	59.0	106.2
Superior	3,000	8.0	24.0	32.0	40.0	72.0
Tempe	1,159	6.2	18.6	24.8	31.0	55.8
Thatcher	2,800	7.8	23.4	31.2	39.0	70.2
Tombstone	4,580	9.6	28.8	38.4	48.0	86.4
Tuba City	4,500	9.5	28.5	38.0	47.5	85.5
Tucson	2,423	7.4	22.2	29.6	37.0	66.6
Vail	3,241	8.2	24.6	32.8	41.0	73.8
Wellton	225	5.2	15.6	20.8	26.0	46.8
Wickenburg	2,072	7.1	21.3	28.4	35.5	63.9
Willcox	4,200	9.2	27.6	36.8	46.0	82.8
Williams	6,750	11.7	35.1	46.8	58.5	105.3
Winslow	4,848	9.8	29.4	39.2	49.0	88.2
Yuma Valley	110	5.1	15.3	20.4	25.5	45.9

Note: For other communities not listed here increase the processing time 20 per cent for every 1,000 feet increase in elevation above sea level.