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N. C. State College of Agriculture and Engineering
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N. C. Agricultural Experiment Station and
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Agricultural Extension Service

B. W. KILGORE, Director

CANNING AND PRESERVING WITH 4-H RECIPES

A North Carolina Canning Club at Work

RALEIGH AND WEST RALEIGH

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INTRODUCTION

This Bulletin on Canning, Preserving, and Pickling, was originally intended for the use of the North Carolina Canning Club members, but the demand from those outside the clubs for the methods and recipes has been so great that this second edition, enlarging on the sterilization of fruits and vegetables in glass jars, has been made. To the regulations and standards given, the club members are expected to conform.

The purpose is to have over the whole State a uniform standard for canning club products, and to permit the 4-H Brand to be seen from Cherokee to Currituck on standard products only.

There doubtless are many outside recipes just as good, some that are perhaps better; but these offered in the Bulletin have been tried for years, proven satisfactory, and are chosen as the standards for North Carolina. Any club member, therefore, canning under the 4-H Brand is required to use these recipes to the exclusion of all others.

Perhaps it would not be amiss to say here that there is not one unnecessary step taken in grading, packing, and processing fruits and vegetables to insure safe keeping, and I would strongly advise any person canning for home use to adhere strictly to the standards here given for a commercial pack, that the percentage of spoils may be reduced to a minimum.

JANE S. McKIMMON,
State Home Demonstration Agent.

CANNING AND PRESERVING WITH 4-H RECIPES

Jane S. McKimmon, State Agent in Home Demonstration Work

THE 4-H BRAND

The 4-H brand represents Head, Hand, Heart, and Health.

In the production of a product which shall rank with the best standard brands, the **Head** is developed by devising ways and means, and evolving plans.

The **Hand** is taught to cunningly and systematically execute.

The **Heart** grows big enough to take in all other workers and bid the hand lend assistance wherever it is needed.

The **Health** is promoted by wholesome work in the fresh air and the happy commingling of friends and neighbors.

Fig. 1—The 4-H Brand.

PART I

CANNING

It is the part of wisdom when deciding to can in tin or glass to order supplies early and to be in readiness when the fruit or vegetables ripen.

Cans.—In ordering tin cans the best are none too good. Always stipulate that they shall be twice dipped, as leaks may occur with the cheaper ones. Be sure, also, that the order includes solder hemmed caps. These caps are sealed very easily on the cans; whereas, those without solder are troublesome and tedious. The No. 3 can is most popular for tomatoes, peaches, etc., and holds a quart. No. 2 is the next size smaller, and is used generally for peas, corn, soup mixture, etc. No. 1 is the size used for pimentos. No. 10 is supposed to hold a gallon. All of these cans may be ordered with the same size opening; and care should be taken in ordering to state the size of the capping steel—$2\frac{1}{16}$ inches in diameter or larger, as the case may be. Two and one-sixteenth inches is the standard opening for North Carolina clubs.

The Canner.—The hot-water canner has been used almost exclusively by

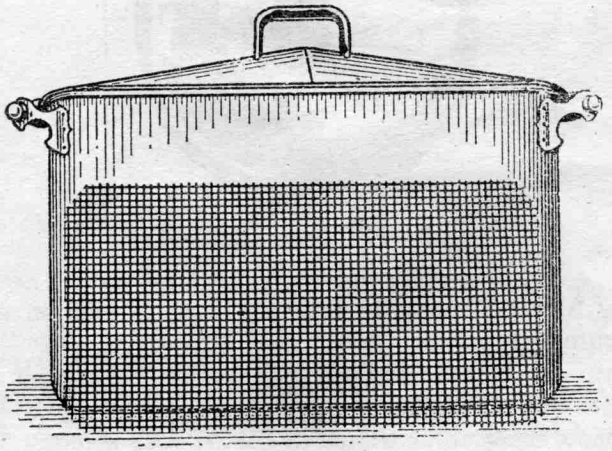

Fig. 2—Sterilizer, showing false bottom.

the North Carolina Canning Clubs, and many excellent types of this canner are on the market. It is stipulated that all canners used by the club girls shall have closely-fitting tops, as steam plays an important part in the sterilization of cans. Out-of-door canning is encouraged, and the use of canners with good fire-boxes built in them is urged. It is usually best to buy a canner, as it comes equipped with capping steel, tipping copper, tongs (with which to lift cans), and handy baskets or trays, which will enable you to lift out of or lower into the hot water many cans at once.

The Home-made Canner.—Good home-made canners may be used, however, and are very satisfactorily devised from a large galvanized tub which is fitted with a tight top and used either on the cooking-stove or on an improvised oven in the yard. Wire baskets may be devised of stout wire netting, to be

had at hardware stores. A good canner substitute, when only a few cans are to be sterilized at once, is a twenty-pound lard bucket or a wash boiler. If glass jars are to be used in these home-made canners, be sure to make a false bottom of galvanized wire netting (one-half-inch mesh), which shall keep the jars from coming in contact with the metal bottom of the vessel.

A high-pressure or steam-pressure canner is especially desirable when peas, corn, spinach, squash, pumpkin, etc., are canned. These products require the three-day process in a hot-water canner, but may be canned at high pressure in one processing. A good steam-pressure canner may be subjected to 30 pounds pressure. Most products do not require over 15 pounds pressure.

Fig. 3—The Pressure Cooker.

The Capping Steel.—Unless the capping steel is kept in good condition there will be untold trouble in sealing cans.

To remove rust from the steel, rub with coarse sandpaper or use a file, being careful not to hurt the edge.

The steel is now ready to be tinned or coated with solder. To do this it is necessary to have soldering flux, solder, and sal ammoniac.

Heat steel quite hot, dip quickly in flux, and rub in sal ammoniac and solder. It should emerge bright and shining.

Soldering Flux.—Put one-half cup of commercial hydrochloric (muriatic) acid in glass or china vessel (never metal), add as much zinc as it will dissolve (half a top of an old Mason jar, which is made of zinc, will do). The mixture will boil furiously. When this has subsided, remove zinc, add one-half cup of water, and place mixture in glass jar ready for use.

Sal Ammoniac Mixture.—Place in a vessel a handful of sal ammoniac, melt or cut into this small pieces of solder.

Tipping Copper.—This is a small pointed copper implement to be used in sealing or tipping the small hole in top of can, and should be kept brightly tinned in the same manner as the capping steel.

STEPS TO BE TAKEN WHEN CANNING, WITH DEFINITIONS OF TERMS USED

1. **Sterilizing.**—Sterilize all cans which are to be used by first washing to remove any trash or dirt, and then placing them in a canner where water is boiling. Let them remain ten minutes. Remove and turn open end down on table that no dust or insect may enter before they are used.

2. **Sorting and Grading.**—Select only sound, thoroughly ripe fruit, and grade as to size and color. Thoroughly clean and peel.

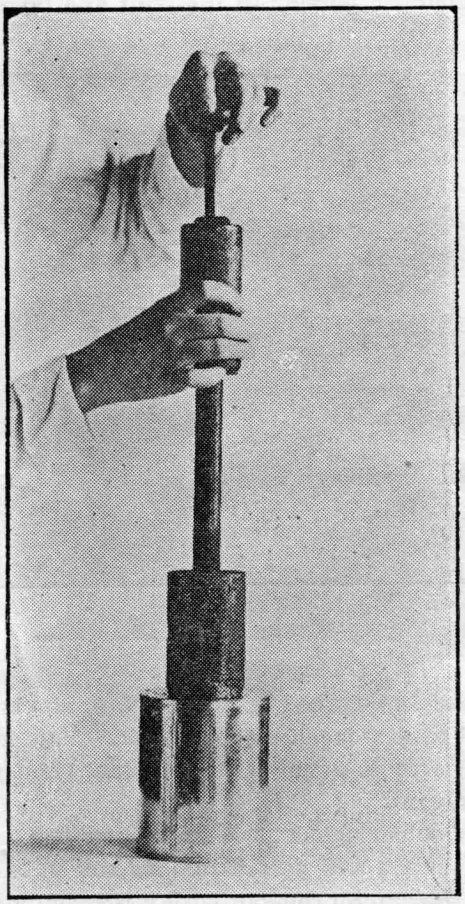

Fig. 4—Using the Capping Steel.

3. **Blanching.**—Where the recipe calls for blanching, be sure it is never omitted. Blanching is simply plunging fruit or vegetables into boiling water for a few minutes before packing them into cans. It is necessary that this be done with string beans, peas, beans, etc., and with some fruits. The flavor of the vegetable is made more delicate and the vegetable itself more pliable. This makes packing easier. The liquor in the can is made clearer, also, by the process. To blanch, place vegetables or fruit in the wire basket

of canner or in a thin muslin sack before plunging in boiling water. The time of blanching is given in time-table. Plunge into cold water immediately.

4. **Packing.**—After fruit or vegetables are blanched, pack them in sterilized cans or jars until the can is filled to about one-quarter inch of the top. Begin to pack firmly with spoon or paddle when the first bit of fruit is put into a can, pressing down gently until the can is filled; now pour in brine or syrup, waiting until you are sure every crevice is filled. Tomatoes must have no water added. Sufficient juice will be present to fill crevices. Be sure the can is up to standard weight. This is shown by placing it on the scales and consulting the table. Do not pack the can so full that the fruit touches the cap, as then it can never be sealed properly. The hot steel will force steam from the fruit and pin holes will be blown in the solder. If the can will not seal, remove a portion of the fruit and try again.

Fig. 5—Standard Packs in Tin.

5. **Paddling.**—In packing canned or preserved products in glass it is necessary to use a thin flexible wooden or reed blade. This is run into the jar to help place fruit and also to remove air bubbles. The paddle is also quite useful in packing tin cans.

6. **Fluxing.**—Apply soldering flux with a wick to the edge of the can openings, thus roughing the tin and permitting the solder to adhere more easily.

7. **Capping.**—Seal the cap on the can with a capping steel after it has been packed. Always wipe around the edge of the opening with soldering flux before using the capping steel. Mark on the can in pencil the name of product. It will not boil off.

8. **Exhausting.**—After the can is packed and capped it is placed in the canner of boiling water, where it remains the number of minutes, usually three, indicated on the time-table. This is done to force the air from the can through the little hole left open in the top, and is called exhausting. Cans that are not exhausted frequently bulge after processing and are looked upon

with suspicion. Cans exhausted too long frequently cave in at the sides. The time-table should be used carefully and followed strictly in this part of the process.

9. **Tipping.**—Seal with a drop of solder the small hole in the top of can. This is done immediately after the can has been exhausted and makes it ready for processing. Always put soldering flux around the opening before attempting to tip.

10. **Processing.**—After the can has been capped, exhausted, and tipped it is ready for the processing. This is simply sterilizing by boiling continuously for a given length of time. First plunge the cans under water to be sure there are no leaks. These will be revealed by streams of bubbles rising to the surface. If there be any, the can must be taken out and resealed. It is either packed too full or the capping steel is cold or needs tinning. Place cans for processing in trays and lower them into the boiling water. The temperature of the water will then be reduced. Wait until boiling begins

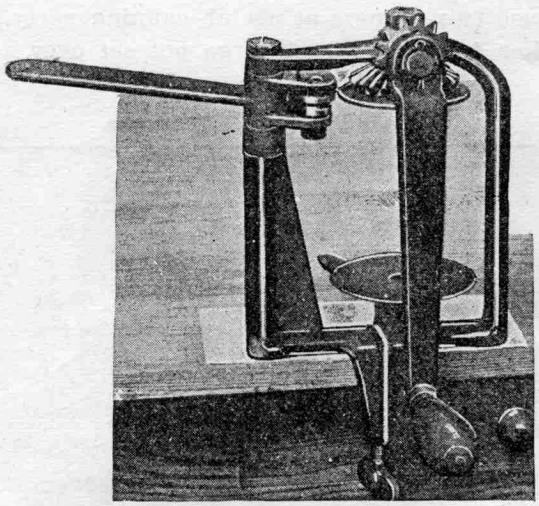

Fig. 6—A Hand-Sealer to be Used with the Sanitary Can.

again before time is counted. Keep the water boiling every minute of the time during processing and remove cans promptly when time is up. Consult time-table and always have a clock or watch at hand. Do not guess.

11. **Cooling.**—Cans should be cooled as quickly as possible after processing. Place them in tubs of cold water, and when they are taken out separate them in order that the air may keep them cool. Never stack cans while warm and never leave them in the sunshine. The flavor of the fruit is injured and the fibre or flesh breaks down if the can is left too long in a heated state. Always store canned products in a cool place. Never allow the can to rust by keeping it in a damp cellar. Its appearance will injure the chance of marketing, and rust may eat holes in the tin.

12. **Labeling.**—Do not label a can until ready to sell, when the fresh label will be a great asset. After packing can write plainly with pencil on the side the name of the product. This will not boil off, and no trouble will be

experienced in pasting on them the proper labels. Place the label in such a way that the smooth end of the can will be the top, turning the sealed end down. A better appearance is thus made. Use a good paste, such as given in the recipe below, and put paste on only one end of the label. Pull the label tightly around can, making it look thoroughly neat and trim. The 4-H label may be used by club members only, and then only when products are of the standard regulation. The label must contain the name and address of member and net weight in ounces of contents of can.

SOME THINGS TO BE OBSERVED WHEN CANNING

1. Keep water at a jumping boil and do not allow fire to die down for an instant while cans are in the canner.

2. Keep cover on canner every moment of the processing time. Steam plays a large part in cooking contents of can.

3. If possible, use two canners at a club canning party, one for scalding fruit and the other for canning. A large pot set over a fire is good for scalding.

Fig. 7—Standard Glass Containers: 10-ounce Ketchup Bottle, Quart Queen Jar, 12-ounce Jar No. 5042, 6-ounce Jelly Glass, 10-ounce 4-H Jam Pot.

4. The quality or grade of the pack depends on the number of whole fruit or uniform pieces of fruit in the can, the color of the fruit, the weight, and the flavor.

5. The flavor is often injured by letting peeled fruit stand too long before cooking. Prepare at any one time as many cans only as can be processed immediately.

6. Let "Straight from vine to can" be the motto. Never can stale fruit.

7. Mark every can as it is filled, with the name and its contents. A pencil may be used, as the writing will not boil off. This prevents confusion when labeling.

Paste.—To 1 cup of flour add 1 cup of cold water and mix thoroughly. Add 2½ to 3 cups of boiling water, stirring to prevent lumps. Place on stove and bring slowly to boiling point and boil 5 minutes. Stir to prevent burning.

When cooked, add 1 teaspoon of powdered alum and ½ teaspoon of oil of cloves. Pour into small glasses with covers.

This will keep, and makes excellent paste to use in labeling cans or jars.

Artificial Preservatives.—Artificial preservatives in the form of "Acids," "Preserving Powders," and "Formulas" of various kinds are used in some localities in the preservation of foods. They are recommended by advertisements and agents as being perfectly harmless and are guaranteed to keep fruits and vegetables indefinitely. The object in using preservatives of any kind is to kill bacteria, thereby preventing fermentation and decay. Bacteria are minute forms of life of very delicate structure, and if these different preservatives act on the structure of bacteria in such a way as to kill them, what might be the effect of these same preservatives when brought in contact with the delicate structure inside the human body? Do not use artificial preservatives of any kind. The cheapest, surest, and only absolutely safe way is to sterilize by means of heat applied in the form of cooking.

INSTRUCTIONS TO AGENTS FOR PUBLIC CANNING DEMONSTRATIONS

There will be many calls for public demonstrations. These are to be encouraged, as it is desirable that the work be put before the public; but care should be taken that both club members and county agent know how to can before making an attempt in public.

Have everything ready before the audience arrives; the canner filled with water first and next a good fire to keep the water boiling. Detail one girl to look after this. Two canners are best, if possible, or a large pot and a canner, that there may be one for scalding fruit and the other for processing products. Cover two tables with white oil cloth (if this is not possible, scour table clean and white); secure two large tubs filled with cold water, one for washing cans and the other for the cold plunge before peeling the scalded fruit; one dishpan and three or four pans and bowls for holding fruit, peeled and unpeeled; three tablespoons; three teaspoons; two paring knives; a wash pan; one cake of soap; hand towels; plenty of dish towels; several pieces of clean cloth; cans; caps; solder; soldering flux; wick or twist of cloth to apply same; a pair of scales; capping steel; tipping copper; a pair of scissors; a clock; labels; paste. Have enough wood for the fire and plenty of water and water-buckets convenient.

Let every girl have a white apron and cap, and do not have too many working at one time at a public demonstration. Seven girls are enough: one to attend to the fire, cooking, and timing of products; two, to scald and peel;

two, to pack and weigh; one, to cap and tip; and one to label. Let the girls stand on one side of the table that the audience may observe what is being done.

Be sure to impress proper weight of the cans upon club girls. Tell them what is required before products can be put upon the market. Continually preach only **red, ripe tomatoes,** and **firm, thoroughly ripe fruits and berries** for canning. The idea is prevalent that unripe fruit is good enough for canning, if it is well cooked. This, of course, will lower the grade.

Let no girl use the Club label whose products are not up to standard.

The following standards are sent out by the United States Department of Agriculture:

SCORE FOR JUDGING THE QUALITY OF CANNED FRUITS AND VEGETABLES

	Score of 100
I. Appearance	25
(a) Color.	
(b) Clearness.	
II. Texture	10
III. Flavor	20
IV. Uniformity	15
(a) Ripeness.	
(b) Appropriate size	
V. Pack (arrangement)	15
VI. Container	15
(a) Appropriate package.	
(b) Label.	
(c) Neatness.	

STANDARDS FOR 4–H BRAND CANNED VEGETABLES

Tomatoes.—Cans to contain not less than 2 pounds 1 ounce tomatoes in No. 3 and not less than 1 pound 4 ounces tomatoes in No. 2. To be filled with sound ripe fruit, carefully peeled and cored; tomatoes to be whole or in large pieces, firm, uniformly red, and of good flavor.

Tomatoes and Green Pepper.—Cans to contain not less than 2 pounds packed in No. 3 cans. For this pack add one medium-size green sweet pepper, after removing the stem and seeds, to each can of tomatoes.

String Beans.—Net weight in No. 3 can before liquor is added at least 1 pound 8 ounces, brine 8 to 10 ounces. Net weight No. 2, 13 ounces beans and about 8 ounces liquor. Beans to be tender, green, uniform in size, well strung, and of good flavor. The net weight which appears on label should be for No. 3, 2 pounds, for No. 2, 1 pound 5 ounces.

Peas.—No 2 cans to have at least 13½ ounces net weight of peas and about 8½ ounces liquor—peas to be fairly uniform in size, tender, whole, and of good flavor; liquor clear. Net weight appearing on label should be for No. 2 cans 1 pound 8 ounces.

Baby Beets.—To be packed in No. 2 lacquered tins, about 30 baby beets to each can, maximum size 1½ inches in diameter and average size 1 inch in diameter. No. 2 can to have at least 16 ounces whole beets and 4 ounces liquid. Net weight which appears on label should be for No. 2 can 1 pound 4 ounces.

Okra.—Net weight of contents in No. 3 can should appear on label, 2 pounds. Only young, tender okra should be packed, and it is best to simply remove the cap without cutting into the seed pod and pack it whole. Brine is added as explained in the table.

Peppers.—No. 2 cans to contain between 8 and 10 whole peppers. Flat No. 1 cans to contain 4 or 5 whole peppers, and net weight of contents appearing on the label should be for No. 2 can not less than 1 pound, or flat No. 1 can not less than 8 ounces.

Soup Mixture.—No. 3 cans contain 34 ounces. Net contents.

STANDARDS FOR 4–H BRAND CANNED FRUITS

Figs.—Net weight contents No. 2 enamel-lined can of figs should appear on label not less than 1 pound 6 ounces. Figs should remain whole, and a No. 2 can contain about 30 to 35 whole figs.

Peaches.—No. 3 can to have at least 1 pound 5 ounces solids and 11 ounces liquid; to contain between 10 and 12 halves of peaches, and have net weight of contents appearing on label not less than 2 pounds.

Pears.—Net weight in No. 3 can should be not less than 2 pounds, having 11 ounces liquid, 1 pound 5 ounces solids, and between 12 and 14 halves.

Berries.—No. 3 can, blackberries or raspberries, net weight 2 pounds; No. 2 cans, net weight 1 pound 6 ounces, whole berries weighing about one-half of total in each case. Berries to be large, whole, of good color and flavor.

Almost all No. 3 cans, no matter what they contain, weigh 38 ounces gross.

LIST OF ARTICLES REQUIRED FOR A CANNING DEMONSTRATION

Canning outfit—capping steel, tipping copper, file, sandpaper.
Pipe for canner.
Dry wood and kindling.
Matches.
Plenty of water.
Shelter in case of rain.
Tin cans with solder-hemmed caps.
Wire solder.
Sal ammoniac (commercial).
Muriatic acid (commercial).
Small pieces of zinc (old Mason-jar tops will do).
Very small camel's-hair brush or rag mop.
Clean rags.
Lead pencil.
Watch or clock.
Household scales.
Old tin can.
Old cup and saucer.
Paring knives.
Granite-ware pans.
Two tables or large boxes.
Bucket and dipper.
Salt and sugar.
Two teaspoons.
Two tablespoons.
Glass jars with tops and rubbers.
Something to can.
Flour sack for blanching.

TIME-TABLE FOR PRODUCTS IN TIN

Use this table only after recipes have been read

	Blanch	Liquor	No. Can	Exhaust Minutes	Process or Boil
Tomatoes	1 min.	No water	3	3	25 min.
Tomatoes	1 min.	No water	10	5	1 hr.
String beans	3-5 min.	Brine*	3	3	1 hr.
String beans	3-5 min.	Brine*	10	3	2 hrs. and 20 min.
Sweet potatoes	Cook ¾ done	2 tablespoon water	3	3	3 hrs.
Baby beets	Cook ¾ done	Brine*	3	3	1½ hr.
Soup mixture	Boil down thick		2	3	1 hr.
Apples	1 min.	No. 3 syrup	3	3	8 min.
Berries	1 min.	No. 4 syrup	3	3	10 min.
Berries	1 min.	No. 4 syrup	10	3	32 min.
Figs		No. 4 syrup	2	3	25 min.
Peaches	1 min.	No. 4 syrup	3	3	20 min.
Pears	1 min.	No. 4 syrup	3	3	20 min.
Pears	1 min.	No. 4 syrup	10	3	35 min.

*Brine is made of 2½ ounces (⅓ cup) of salt to 1 gallon of water.

To make syrups recommended, boil sugar and water together in proportions given below:

Syrup No. 1, use 14 ounces to 1 gallon water.
Syrup No. 2, use 1 pound 14 ounces to 1 gallon water.
Syrup No. 3, use 3 pounds 9 ounces to 1 gallon water.
Syrup No. 4, use 5 pounds 8 ounces to 1 gallon water.
Syrup No. 5, use 6 pounds 13 ounces to 1 gallon water.
One pint sugar is one pound. A pound is 16 ounces.

TIME-TABLE FOR PRODUCTS IN TIN

The following vegetables should be processed the same length of time on each of three successive days:

	Blanch	Liquor	No. Can	Exhaust Minutes	Process or Boil on Each of Three Successive Days
Corn	2 min. on cob	Water, salt, and sugar	2	10	1 hr. and 15 min.
Garden peas	1 to 4 min.	Water, salt, and sugar	2	3	1 hr. and 15 min.
Asparagus	1 min.	Brine*	3	3	1 hr.
Asparagus	1 min.	Brine*	2	3	50 min.
Lima beans	2 to 4 min.	Brine*	2	3	1 hr. and 10 min.
Okra	3 min.	Brine*	3	3	1 hr. and 10 min.
Okra	3 min.	Brine*	2	3	50 min.
Squash		Cook soft and creamy	3	3	1½ hr.
Squash		Cook soft and creamy	2	3	1 hr. and 10 min.
Pumpkin		Cook soft and creamy	3	3	1½ hr.
Pumpkin		Cook soft and creamy	2	3	1 hr. and 10 min.
Spinach	4 min.	Brine*	3	3	1 hr. and 15 min.
Spinach	4 min.	Brine*	2	3	1 hr.

*Brine is made of 2½ ounces (⅓ cup) of salt to 1 gallon of water.

TIME-TABLE FOR PRODUCTS IN GLASS

	Blanch	Liquor	Size Jar	Process or Boil
Tomatoes	1 min.	No water	qt.	40 min.
Tomatoes	1 min.	No water	pt.	30 min.
String beans	3 to 5 min.	Brine*	qt.	1 hr. and 25 min.
String beans	3 to 5 min.	Brine*	pt.	1 hr. and 10 min.
Sweet potatoes	Cook ¾ done	2 teaspoonfuls water	qt.	3½ hrs.
Sweet potatoes	Cook ¾ done	2 tablespoonfuls water	pt.	3 hrs.
Sauer kraut		Brine*	qt.	40 min.
Baby beets	Cook ¾ done	Brine*	qt.	2 hrs.
Baby beets	Cook ¾ done	Brine*	pt.	1¾ hr.
Soup mixture	Boil down thick		qt.	2 hrs.
Soup mixture	Boil down thick		pt.	1½ hr.
Apples	1 min.	No. 3 syrup	qt.	25 min.
Apples	1 min.	No. 3 syrup	pt.	20 min.
Berries	1 min.	No. 4 syrup	qt.	25 min.
Berries	1 min.	No. 4 syrup	pt.	20 min.
Figs		No. 4 syrup	qt.	40 min.
Figs		No. 4 syrup	pt.	30 min.
Peaches	1 min.	No. 4 syrup	qt.	35 min.
Peaches	1 min.	No. 4 syrup	pt.	25 min.
Pears	1 min.	No. 4 syrup	qt.	35 min.
Pears	1 min.	No. 4 syrup	pt.	25 min.
Cherries		No. 4 syrup	qt.	30 min.
Cherries		No. 4 syrup	pt.	20 min.

*Brine is made of 2½ ounces (⅓ cup) of salt to 1 gallon of water.

To make syrups recommended, boil sugar and water together in proportions given below:

Syrup No. 1, use 14 ounces to 1 gallon water.
Syrup No. 2, use 1 pound 14 ounces to 1 gallon water.
Syrup No. 3, use 3 pounds 9 ounces to 1 gallon water.
Syrup No. 4, use 5 pounds 8 ounces to 1 gallon water.
Syrup No. 5, use 6 pounds 13 ounces to 1 gallon water.
One pint of sugar is one pound. A pound is 16 ounces.

TIME-TABLE FOR PRODUCTS IN GLASS

The following vegetables should be processed the same length of time on each of three successive days:

	Blanch	Liquor	Size Jar	Process or Boil on Each of Three Successive Days
Corn	2 min. on cob	Water, salt, and sugar	pt.	1½ hr.
Garden peas	1 to 4 min.	Water, salt, and sugar	pt.	1½ hr.
Asparagus	1 min.	Brine*	qt.	1 hr. and 20 min.
Asparagus	1 min.	Brine*	pt.	1 hr.
Lima beans	2 to 4 min.	Brine*	pt.	1 hr. and 25 min.
Okra	3 min.	Brine*	qt.	1½ hr.
Okra	3 min.	Brine*	pt.	1 hr. and 15 min.
Squash		Cook done	qt.	1¾ hr.
Squash		Cook done	pt.	1 hr. and 25 min.
Pumpkin		Cook done	qt.	1¾ hr.
Pumpkin		Cook done	pt.	1 hr. and 25 min.
Spinach	4 min.	Brine*	qt.	1½ hr.
Spinach	4 min.	Brine*	pt.	1 hr. and 15 min.

*Brine is made of 2½ ounces (⅓ cup) of salt to 1 gallon of water.

TIME-TABLE FOR CANNING VEGETABLES—STEAM PRESSURE

Vegetable	Process, Minutes	Temperature, Degrees Fahrenheit	Pressure, Pounds	Vegetable	Process, Minutes	Temperature, Degrees Fahrenheit	Pressure, Pounds
Asparagus	30	240	10	Peas	45	240	10
String beans, No. 2	45	240	10	Soup, concentrated vegetable	30	228	10
String beans, No. 3	55	240	10	Spinach	30	228	15
Beets	30	228	5	Sweet potatoes	70	250	15
Corn	80	250	15				
Okra	30	240	10				

Corn, lima beans, and peas should never be packed in larger container than No. 2. Corn is cut from cob after blanching.

The brine used is made of 2½ ounces salt to 1 gallon of water, except for asparagus, which contains 4 ounces to 1 gallon.

Beets and rhubarb when packed in tin must be put in enamel-lined cans.

Process pints as for No. 2 cans; quarts as for No. 3 cans, adding 10 minutes to each period.

String beans when more mature should be processed at 15 pounds pressure for 30 minutes for No. 2, and 45 minutes for No. 3.

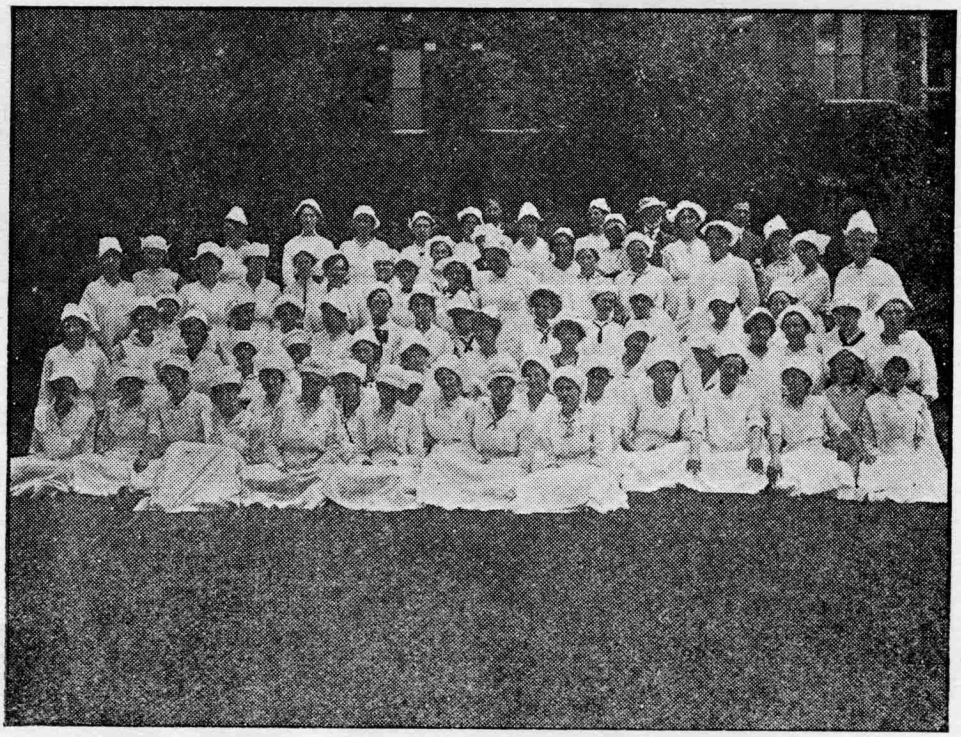

Fig. 8—North Carolina County Agents Attending Canning School and Conference.

CANNING IN GLASS

Glass jars are more economical for home canning than are tin cans, as they can be used over and over again and the cost be spread over several years.

The Kind of Jar.—Select, if possible, a good spring-top jar of clear white glass. Fruit or vegetables show to great advantage through crystal clear glass.

The square Queen jar is very good, and is used as an exhibit jar by the Canning Club girls.

If clear glass cannot be had, the green glass may be used, but the appearance of the canned product is much injured.

Sterilization, however, can be effected as well in one as the other, and the green jars serve excellently well for home use.

A good spring top is preferable, though the old Mason top will serve for one or two years. After that time it is advisable to fit old Mason jars with the White Crown tops. These tops have a porcelain crown with a rubber ring that fits on the edge of the jar. A brass rim screws down and holds the crown firmly. With this top the most perfect hermetic seal can be effected. These tops may be had from the dealers.

Rubbers.—The various types of jars are fitted with rubber rings on which the tops rest when in place. Rings are used to aid in sealing the jars and keeping them air-tight. After the contents of a jar have been sterilized, it is very necessary that the jar be kept air-tight in order that whatever is en-

closed may remain sterile and free from the action of bacteria. Do not use rubbers the second time. The first season's cooking usually destroys the life or elasticity of the rubber. For this reason it is important that good fresh rubbers be used, as those used one season cannot be depended upon to make air-tight seals the second time. In buying rubbers, as in buying jars, get a good grade.

Test the rubber for elasticity by stretching and folding. If it shows signs of cracking it is a poor product. If the spring is rather loose on a jar, use two rubber rings instead of one.

Fig. 9—A Good General Exhibit. Packed by North Carolina Club Girls.

To Sterilize Jars.—To sterilize glass jars, place them in the canner in tepid water. Do not fill the canner with more than three inches of water. Place cover on the canner. Bring the water to a boil and boil jars at least eight minutes.

No glass jars should be placed in a canner that has not an extra bottom or basket to keep them from touching the true bottom of the canner. If this happens jars will break. A piece of half-inch mesh galvanized wire netting will answer the purpose.

Rubbers should be sterilized by placing in a bowl of boiling water and allowing them to remain for three minutes.

Packing or Filling the Jars.—Remove the jars from the sterilizer, prepare the fruit or vegetables, and pack them in the jars in symmetrical layers, using a thin reed paddle or a spoon to push into place. Pack right into the neck of the jars and then fill with water, brine, or syrup, as the case may be.

Use your paddle to draw out air bubbles. Wipe clean the rim of the jars and place the rubbers thereon. Push springs down lightly and place jars in the canner holding tepid water. The fruits or vegetables are to be cooked in the jars.

If the water in the canner is boiling, add cold water until it comes up to two-thirds its height on the jars. Never place a cold or even cool jar in boiling water or you will have breakage.

Processing.—When the water begins to boil violently, count time. Consult your time-table for glass, noting the exact number of minutes, and never cut this time short. Have a clock handy, and do not guess at time.

Fig. 10—A Fine Commercial Exhibit. Packed by North Carolina Club Girls.

Leave the jars lightly sealed during the whole processing, and when the time is up, remove the jars one at a time from the canner, seal tightly, and set aside.

You will see that exhaustion and processing take place at the same time with glass. This method prevents the blow-out of rubbers and makes the jars easy to handle. In processing a glass jar for three successive days, allow the jar to remain lightly sealed for the first day's processing, sealing tightly as you remove from the canner. Set aside until the next day. On the second day raise the clamp of the jar, place the jar in tepid water in the canner, process or boil for the same length of time as on the first day. Remove from the canner and seal tightly. Set aside until the third day, when the same process should be repeated.

Shrinkage of Water in a Jar.—If the water shrinks in a jar, as it will frequently do with string beans and peas, have a kettle of boiling water ready

and, just ten minutes before taking the jar from the canner, open the top of the jar and pour in boiling water until the jar is filled. Spring down top lightly, allow to remain in canner ten minutes, seal tightly, and remove.

Processing Time for Glass Longer Than for Tin.—It is necessary to process products packed in glass jars longer than those packed in tin. Glass is not as good a conductor of heat as tin, and we therefore add, roughly speaking, fifteen minutes to the time given for tin when canning fruits, berries, and tomatoes in glass, and twenty-five minutes for all vegetables.

Compare the time-tables.

Fig. 11—An Exhibit Packed by First-year Club Girls of North Carolina. Peaches, String Beans, and Soup Mixture.

Cooling.—Be careful not to set hot glass jars in a breeze or on a cold table top. Set aside out of a draught. Do not permit jars to touch each other.

Labeling.—Have every jar brightly polished and place label midway between the seams and one-quarter inch from the lower edge. The steps for canning in glass are almost identical with those in tin, with the exception that care must be exercised not to put cold glass in hot water, or vice versa. Exhaustion may be for a longer period in glass, as there is no danger of a caved-in can, and the danger of blow-outs of the rubber rings is lessened.

CANNING FRUITS AND BERRIES IN GLASS AND TIN

4-H RECIPES

Dewberries, Blackberries, and Raspberries.—To can dewberries, blackberries, and raspberries the following method will prove satisfactory. Gather berries when ripe but firm. Place in wire basket of canner or in a muslin sack and plunge into boiling water 1 minute (blanch). This will slightly

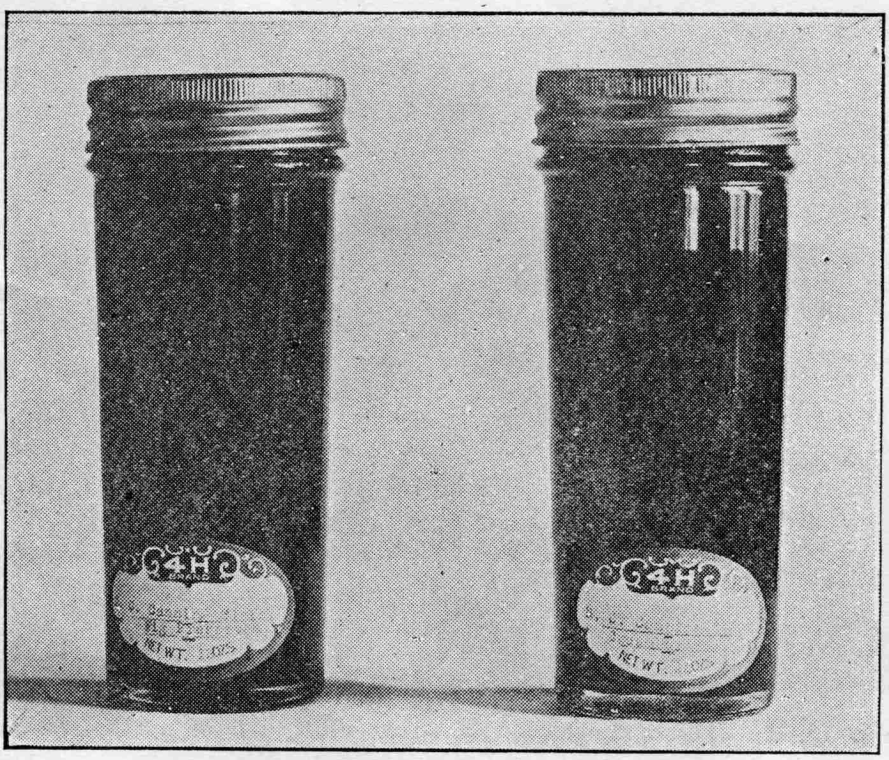

Fig. 12—Properly Labeled Jars.

soften the berries and enable you to put almost twice as many in a can or jar. It will also prevent that condition where berries rise to the top of the jar, leaving at least one-third of the space filled with juice.

Pack the sterilized can or jar to within ¼ inch of the top with berries. Fill the spaces and cover the berries well with a syrup made of 1 quart of the water in which the berries have been blanched and 1 pint of sugar.

The flavor of all canned berries is finer when syrup or sugar is added.

Exhaust No. 3 tin cans 3 minutes.

Process No. 3 tin cans 10 minutes.

Process quart glass jars 25 minutes, permitting jars to remain lightly sealed while processing. As you lift jars one at the time from the canner, seal tightly immediately.

Read carefully the chapter on "Canning in Glass."

Strawberries do not make a very good canned product. They are flabby and poorly colored. If they are canned, the recipe for blackberries may be followed.

Huckleberries.—Huckleberries should be canned just as are blackberries. Care should be taken that they are well stemmed and perfectly clean before blanching.

Huckleberries should never be canned in unlacquered tin, as frequently you will find the juice oozing through the seams of the plain tin can. Glass jars are best.

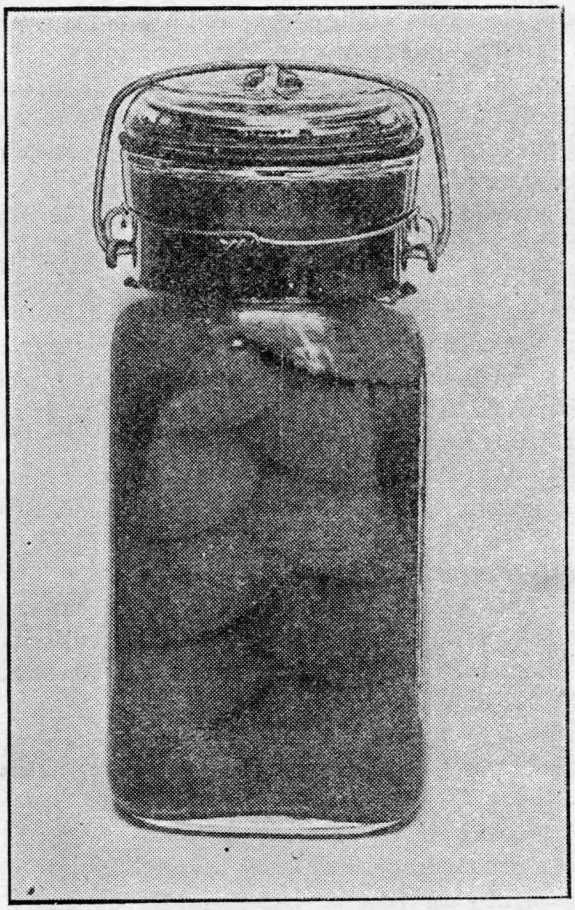

Fig. 13—A Good Pack of Peaches.

Peaches.—Clingstones—Eaton's Gold, ripe in September; Heath, ripe in September and October; Albright, ripe in October.

Freestone—Hiley, Belle, Reeves, Elberta, Matthews, and Chair's Choice—all ripe in August.

Select peaches of uniform size and color for canning. The discarded fruit, if ripe and sound, may be used in marmalade or jam.

Peaches must always be cut in halves when canned. This can be easily done in a freestone peach. If a clingstone is used, cut the peach before peeling all around the edge or suture, grasp a half with each hand, giving a quick twist, and the peach will break in halves. Peel very smoothly, leaving no

edge, and remove the stone. Place these halves in wire basket and plunge in boiling water for one minute. They will then be pliable enough to pack.

Place in jar in overlapping layers with the pit side down, paddling very carefully to remove air bubbles.

Add a syrup made of 1 pint of sugar and 1 pint of water. It is necessary to use a heavy syrup, as the pack is so close that only a limited amount can be poured into the jar. Always add the syrup bit by bit as you pack. It will be difficult to fill all crevices otherwise.

Fill No. 3 tin can full, but it is not necessary to pack in symmetrical layers. For this pack use syrup 1 pint sugar and 1½ pint of water.

Exhaust No. 3 can 3 minutes; process can 15 minutes.

Always add a peach stone, which has been cracked, to the boiling syrup. It will improve the flavor. Remove before adding syrup to peaches. Peaches should always be graded as to color and size. Never pack in the same jar peaches of varying colors.

When canning peaches in glass, process quart jars 35 minutes. Process pint jars 25 minutes.

Read carefully the chapter on "Canning in Glass."

Canned Apples.—Late fall and winter apples, which are slightly acid, are best for canning. They shrink more in canning than most fruits, therefore they should be blanched for 1 minute before processing. Plunge into cold water afterwards, pack tightly in No. 3 cans, cover with syrup (1 pint of sugar, 1½ pint of water).

Exhaust No. 3 tin cans 3 minutes; process 8 minutes.

When canning apples in glass, process quart jars 25 minutes. Process pint jars 20 minutes.

Read carefully the chapter on "Canning in Glass."

Canned Pears.—The Bartlett pear is the best for canning. Select ripe, sound, medium-sized fruit (cut in halves). Remove all the hard portions around the seed, submerge in cold water to prevent discoloration, pack and proceed as for apples, using No. 3 can.

Exhaust No. 3 tin cans 3 minutes; process 20 minutes.

When canning pears in glass, process quart jars 35 minutes. Process pint jars 25 minutes.

Read carefully the chapter on "Canning in Glass."

Canned Figs.—Select ripe but firm figs, peel by hand, or by scalding with soda water, pack firmly in jars or cans, add syrup made from 1½ pint of water and 1 pint of sugar. Use No. 2 cans.

Exhaust 3 minutes; process 25 minutes.

When canning figs in glass, process pint jars 30 minutes.

Read carefully the chapter on "Canning in Glass."

Canned Cherries.—Cherries are canned without the seed and should always be put in glass jars. The acid is frequently so strong that it eats through tin; and even lacquered tin does not do as well as glass. Be careful to notice that all cherries are sound at heart. The large wax cherries are often canned whole, and are very delicious.

Pack seeded cherries in jar to within ¼ inch of top, fill jar with a syrup made of 1 pint of water and 1 pint of sugar. Place rubber on jar, seal, lightly, and process quart jars 30 minutes. Process pint jars 20 minutes.

Read carefully the chapter on "Canning in Glass."

4-H BRAND RECIPES—VEGETABLES

Canned Tomatoes.—Pick tomatoes from vine when they are beginning to turn red and place on shelves in shade until thoroughly ripe.

Select only ripe tomatoes for canning. Any fruit less well colored may be used for soup mixture or ketchup.

One green or light tomato will ruin the grade of the pack.

Scald by placing in wire basket and plunging this into boiling water for one minute, then immediately into cold water. The skin will slip off easily. Do not peel any more than may be immediately canned, as tomatoes ferment quickly.

Fig. 14—An Exhibit Pack of String Beans.

Be careful to remove with sharp knife the hard part of tomato at stem, but do not cut into seed cells.

Put into your cans as many whole tomatoes as possible, cutting them only when they are too large to slip in. Fill to within ¼ inch of top, press gently and shake down fruit to fill crevices.

A level teaspoonful of sugar and a level teaspoonful of salt to a No. 3 can or a quart jar of tomatoes improve the flavor of the product.

Use no water with tomatoes. If the can is properly filled the juice will be sufficient. A No. 3 can of tomatoes when filled should weigh 38 ounces.

Exhaust No. 3 tin cans 3 minutes; seal; process 25 minutes.

When canning tomatoes in glass jars, process quart jars 40 minutes. Process pint jars 30 minutes.

Read carefully the chapter on "Canning in Glass."

String Beans.—To can string beans select those that are young and tender and which have few strings. The Green Pod Stringless is a good variety. The trade likes a green bean about the size of a rat-tail, hence the term "rat-tail beans." If the beans are gathered when young and tender, and every vestige of string is removed, there is no doubt of a market. Snap the bean at both ends, string, and put in the wire basket of the canner or in a thin cotton bag, and plunge into boiling water for from 3 to 5 minutes, and then into cold water. This removes certain acids and makes the flavor of the beans better. Never forget this when canning beans. Pack tightly in sterilized cans to within ¼ inch of the top, and fill with hot water. Add 1 level teaspoonful of salt. (Instead of hot water and salt a brine may be used—1 gallon of water and one-third cup of salt). Seal, exhaust No. 3 can for 3 minutes, tip, and return to the canner for 1 hour's processing.

For No. 10 cans use 1 level tablespoonful of salt, exhaust 3 minutes, tip, and process 2 hours and 20 minutes. Turn cans over once or twice while processing.

Sometimes a No. 10 can of string beans caves in after processing. Be sure to see that the beans are plunged into cold water after blanching. Pack them tightly in the can, fill entirely full of the brine, and reduce your exhaustion period to a minimum. These measures will reduce the likelihood of a cave-in.

Always can beans the same day they are gathered, remembering the motto, "Straight from the vine to the can." This insures sterilization in 1 day's cooking. Stale beans or old beans necessitate the three-day process.

When canning string beans in glass jars, process quart jars 1 hour and 25 minutes. Process pint jars 1 hour and 10 minutes.

Read carefully the chapter on "Canning in Glass."

Soup Mixture.—5 quarts tomatoes; 2 quarts corn; 2 quarts okra; 2 tablespoonfuls sugar (level); 2 tablespoonfuls salt (level). Scald and peel tomatoes, cutting out green or hard spots. Chop and measure. Cut young and tender field or sugar corn from cob. Slice okra in rings ½ inch thick. Peel and quarter tomatoes. Place all in open agate kettle and boil until thick. Pour in No. 2 can while hot, seal, and process 1 hour. Process a No. 3 can 1½ hour.

Always use an asbestos mat under the kettle when boiling soup mixture. It is very easily scorched.

When canning soup mixture in glass jars, process quart jars 2 hours. Process pint jars 1½ hour.

Read carefully the chapter on "Canning in Glass."

Canned Sweet Potatoes.—The Norton yam or other varieties of yellow potatoes are best for canning.

Select potatoes of medium size. Place in wire trays or sacks and boil until three-fourths done. Remove peeling. Cut in slices three quarters of an inch thick, pack No. 3 can full, using only 2 tablespoonfuls water in a can. This is known as a dry pack, and is the proper commercial pack.

Exhaust a No. 3 tin can 3 minutes; seal; process 3 hours.

When canning sweet potatoes in glass, process quart jars 3½ hours. Process pint jars 3 hours.

Read carefully the chapter on "Canning in Glass."

Canned Baby Beets.—Use only young and tender beets not over 1 inch in diameter, preferably three fourths of an inch.

Boil three-fourths done, pack in cans or jars, using fruit of uniform size, and arrange symmetrically.

After packing jar, fill crevices with hot water. (Never use cold water after cooking beets.)

Seal; process No. 3 can 1½ hour.

If large beets are to be used, boil three-fourths done. Slice in one-fourth inch slices, and proceed as with small beets.

When canning beets in glass jars, process quart jars for 2 hours. Process pint jars for 1½ hour.

Read carefully the chapter on "Canning in Glass."

Sauerkraut.*—Sauerkraut is made by the natural fermentation of cabbage in casks. The cabbage heads are stripped of all outside or green leaves, leaving only the white, sound head. It is then cut into thin slices in a specially constructed machine. The long, fine-cut cabbage is evenly spread and well packed in casks. To each layer salt is added at the rate of about 2 pounds per 100 pounds of cabbage. The salt is used as flavoring and to modify in some degree the fermentation. If too much salt is used, a pinkish color results; if too little, the fermented product may become more or less slimy. The temperature of the weather at the time of putting up the cabbage also influences the fermentation. If the weather is very warm, the fermentation is too rapid, the product has a very white but more or less slimy appearance, and the cabbage is tough rather than of a natural crispness. If the temperature is very low, the fermentation will be arrested. The best temperature is probably between 60° and 70° F., and the process requires about four weeks. Fermentation begins as soon as the cabbage is placed in the cask, but there is only a slight rise of temperature as compared with most fermentation processes. A heavy foam rises to the top, which must be skimmed off every day, and when this ceases to form the brine goes down and the process is complete. Use can be made of the kraut at once, though it seems to be better after standing. The kraut will keep in the casks for a long time, provided there is no leakage, and the spoilage is usually limited to a few inches on the top.

Kraut is easily canned, which is the only clean way of dispensing it in groceries in small quantities. The canning should be done while it is in the freshest possible state at the point of production, when it is from 4 to 6 weeks old. Kraut is easily kept. The cans should be filled full, weighed, and sufficient hot water added to fill the can; then exhausted for 3 minutes, capped, and processed at boiling temperature for 25 minutes. This is for No. 3 cans.

When canning sauerkraut in glass, process quart jars 40 minutes.

Read carefully the chapter on "Canning in Glass."

Canning Peppers.—The peppers should be picked in the early morning and

*Bitting. Bulletin No. 196, U. S. Department of Agriculture.

handled carefully to prevent bruising. This can be done by placing them in shallow trays, from which they can be easily sorted. The medium-sized, uniformly sound peppers should be canned whole. The irregular, broken ones may be cut into strips and canned or used in relishes, sauces, or soup mixtures.

Standard Packing in Tins.—Select sound, uniform peppers of medium size. To remove seeds, cut around the stem of each with a slender paring knife and remove the inside partitions. To peel, place the peppers in a hot oven from 6 to 10 minutes (until the skin blisters and cracks), being careful not to allow them to burn. Then remove the skin with a slender paring knife. Flatten the peppers and pack in horizontal layers. Place whole, uniform peppers in the cans, putting four peppers into the flat No. 1 can and eight into the No. 2 can.

This number makes the standard pack, the net weight of which should not be less than 1 pound in a No. 2 can and 8 ounces in a flat No. 1 can. The

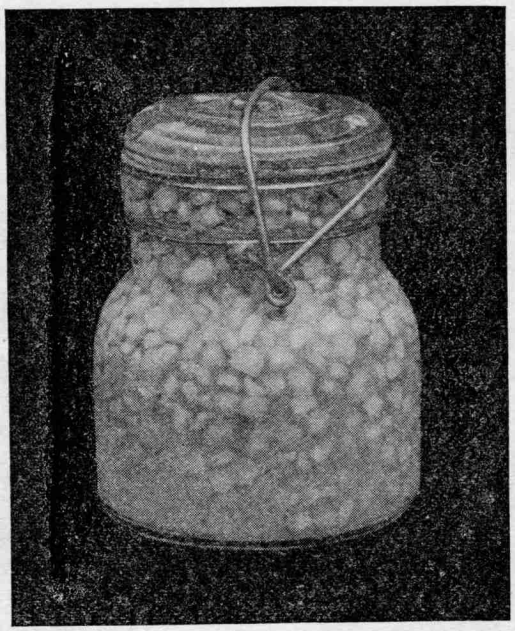

Fig. 15—Jar as Placed in Cooking Vessel Before Being Sealed Tight.

peppers should be so selected as to fill the cans. No liquid is used. The processing brings out of the peppers a thick liquor, which almost covers them in the can or jar. Cap and exhaust flat No. 1 cans for 2 minutes and No. 2 cans for 3 minutes. Tip and process in hot water at boiling temperature, the flat No. 1 cans for 15 minutes, the No. 2 cans for 25 minutes.

When canning peppers in glass, use a 12-ounce or a pint jar and process 40 minutes.

Read carefully the chapter on "Canning in Glass."

Fractional Sterilization, or the So-called Three-Days' Process.—Such vegetables as corn, beans, peas, squash, spinach, pumpkin, etc., cannot be sterilized in one day's processing in a hot-water canner. The heat is not sufficient to destroy spores, therefore the following method is required:

Vegetables are prepared and packed as heretofore directed, and the filled cans put into the canner and processed a given length of time to kill all active bacteria. This is usually accomplished in one cooking, but the spores from which bacteria develop are not destroyed. When the can is set aside to cool these spores develop into active bacteria, and by placing the can in the canner the second day in the same manner and for the same length of time as on the first, these bacteria are destroyed. It happens that some spores are late in developing and bacteria appear after the second boiling, therefore it is necessary to place the can in the canner again on the third day for the prescribed length of time. This completes the process and gives us a well sterilized can. After each day's processing the cans should be cooled quickly and set aside until the next day.

Process glass jars for the required number of minutes on first day, then push springs down tightly as you remove the jars from the canner. Remember that exhausting and processing are done at the same time with glass jars and for the same number of minutes. On the second day raise springs after the water has begun to boil, and spring tightly when removing from the canner. Raise springs again on the third day when jars are in the canner, and seal tightly as jars are removed.

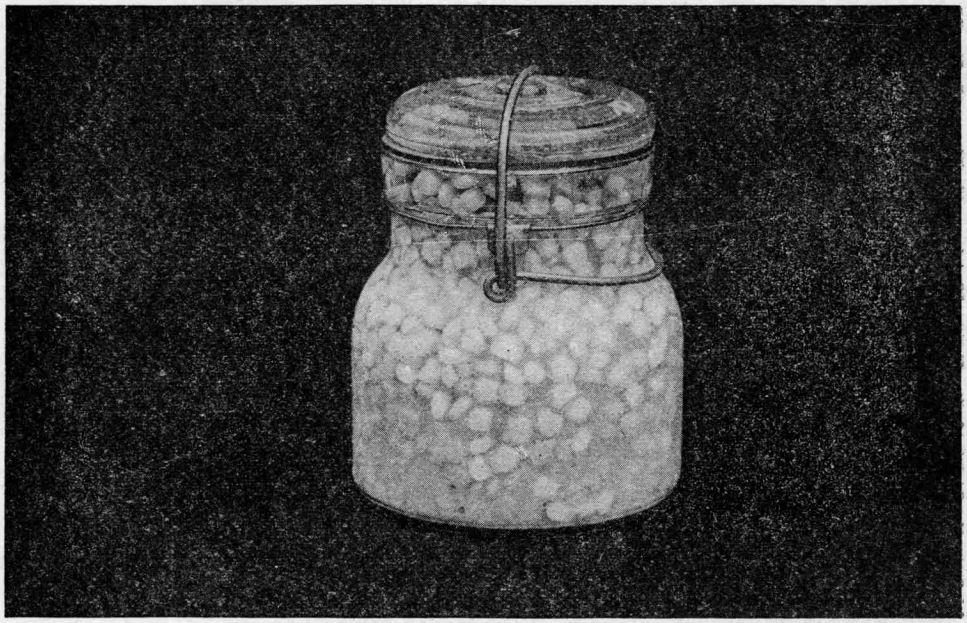

Fig. 16—Jar Sealed Tight.

Corn.—In canning corn, select when it is young, tender, and at the milky stage. It is best to take it straight from the garden to the canner, as corn deteriorates very quickly.

Sugar corn is best, but if this corn cannot be had, use field corn; but be sure it is fresh and tender.

Blanch the corn on the cob for 2 minutes, then cut the corn from the cob, using a sharp knife.

Do not prepare more corn than may be canned immediately, as it quickly sours and the can may be lost. Pack in No. 2 cans (do not use larger cans for corn) to within 1 inch of the top; fill with cold water; add 1 level teaspoonful of salt and 2 level teaspoonfuls of sugar; seal, but do not tip; exhaust 15 minutes. Tip the hole with a drop of solder; return to the boiling water and process for 1 hour and 15 minutes. Remove from the fire and set aside for 24 hours.

After the water is boiling in the canner the second day, place the cans therein for a second processing of 1 hour and 15 minutes in length; remove, set aside for 24 hours, and process again 1 hour and 15 minutes on the third day.

This is the only sure method of keeping corn. Never use any acids or preserving powders.

When canning corn in glass, use a pint jar, as it is very difficult to sterilize a quart jar.

Process a pint jar 1½ hour.

Read carefully the chapter on "Canning in Glass."

Garden Peas.—Use No. 2 cans or pint jars for peas, as it is very difficult to sterilize them in larger jars.

Grade the peas, keeping the young and tender small peas in a different vessel from the larger and older peas. This grading is necessary to prevent spoilage. Large peas require a much longer boiling period than young and tender ones.

Place small peas in sack and plunge into boiling water for 3 minutes, then into cold. (This is called blanching.) Large peas must be blanched 5 minutes.

Pack peas in No. 2 can, fill with brine and add 1 teaspoonful of sugar. Exhaust 3 minutes and process 1 hour and 15 minutes after water is boiling furiously. For older peas process 1½ hour.

Peas must be processed or boiled the same length of time on each of three days.

Remove from the canner after first day's processing and set aside until next day. Return to the canner on second day, boil tender peas 1 hour, larger peas 1½ hour. Remove from canner and set aside until the third day, when the last processing or boiling is done. Boil tender peas 1 hour and larger peas 1½ hour.

When canning peas in glass, process pint jars of tender peas 1½ hour. Process pint jars of older peas 2 hours.

Read carefully the chapter on "Canning in Glass."

Lima Beans.—Use No. 2 can or pint jar for beans. Select young and tender lima or butterbeans, grade them as to size, blanch from 2 to 4 minutes, and pack can or jar to within one-half inch of the top. Fill can or jar with brine (1 gallon of water and one-third cup salt).

Exhaust can 3 minutes and process 1 hour on first day. Remove from canner and set aside for 24 hours.

After the water is boiling in canner on the second day place the cans therein for a second processing or boiling of 1 hour in length; remove; set aside for 24 hours, and process 1 hour on the third day.

When canning butterbeans in glass use a pint jar and process 1 hour and 25 minutes each of three days.

Read carefully the chapter on "Canning in Glass."

Okra.—Gather young pods, wash in cold water, cut off stem but do not cut into seed pod. Can okra whole. Put in wire basket of canner or in muslin sack and plunge into boiling water for 3 minutes and then into cold.

Pack in jars or cans and fill with brine (1 gallon water to one-third cup of salt).

Exhaust No. 3 tin cans 3 minutes. Process 1 hour and 15 minutes.

Exhaust No. 2 tin cans 3 minutes. Process 1 hour.

Remove from canner after processing and set aside for 24 hours.

After the water is boiling in the canner on the second day, place the cans therein for a second processing of the same length of time as on the first day. Remove from canner and set aside for 24 hours, and process on the third day in the same manner and for the same length of time as on the second day.

When canning okra in glass, process one-quart jar 1½ hour each day. Process one-pint jar 1 hour and 15 minutes each day.

Read carefully the chapter on "Canning in Glass."

Squash.—Can only young and tender squash. Cut in pieces and cook on stove until soft and creamy.

Pack in cans or jars to within one-fourth inch of the top. Add a little brine with squash (1 gallon water to one-third cup of salt).

Exhaust No. 3 tin cans 3 minutes; process 1 hour and 25 minutes. Exhaust No. 2 tin cans 3 minutes; process 1 hour and 10 minutes.

Remove from canner and set aside for 24 hours. After water is boiling in canner on the second day place the cans therein for a second processing of the same length of time as on the first day. Remove from canner and set aside for 24 hours, and process on the third day for the same length of time and in the same manner as on the second day.

When canning squash in glass, process quart jars 1¾ hour each day. Process pint jars 1 hour and 25 minutes each day.

Read carefully the chapter on "Canning in Glass."

Pumpkin.—Pumpkin is canned just as you would can squash.

Spinach.—Prepare the spinach by cutting off all dead leaves and roots. Cover each peck of spinach thus prepared with scalding soda solution (1 teaspoonful of soda to 1 gallon water), and let stand for 2 minutes. Wash thoroughly through several cold waters, drain well. Blanch in rapidly boiling water for 4 minutes. Drain well, pack in sterilized No. 3 cans or jars, cover with boiling salt water (1 teaspoonful of salt to 1 quart of water). Exhaust 3 minutes. Process 1 hour at boiling on each of three successive days.

When canning spinach in glass process a quart jar 1 hour and 25 minutes on each of three successive days.

Read carefully the chapter on "Canning in Glass."

Use of No. 10 Cans.—Only experienced girls should be permitted to can in No. 10 cans. It is difficult to sterilize perfectly so large a filled container, and care must be exercised as to just what is put in a can and how it is accomplished.

String beans, tomatoes, soup mixtures, peaches, pears, apples, and black-

berries have been successfully canned in these containers and marketed by the club girls.

Do not try corn, peas, squash, pumpkin, or the other things most difficult to sterilize in a No. 10 can.

Caved-in Cans.—There has been some trouble with a No. 10 sinking in at the sides. This is found more frequently with string beans. It is caused by the exhaustion of the air and the consequent shrinkage of water.

To prevent, dip beans in cold water after blanching, pack the can as tightly and as full as possible, and fill with cold or tepid brine. Reduce exhaustion to 3 minutes, and if the cave-in persists, do not exhaust at all.

Tomato Ketchup.—Select only ripe tomatoes for ketchup; wash, but do not peel; cut out green cores and bad places; quarter, measure, and place on stove in open-top porcelain-lined or agate vessel. For every gallon of tomatoes add 1 level cup of finely chopped onions. Boil until both tomato and onion are soft. Strain juice and pulp through a coarse wire sieve, mashing through all the pulp possible. Measure this strained pulp and juice and proceed as in the following recipe:

2 gallons strained mixture tomatoes and onions,
2½ level teaspoonfuls ground cloves,
3 level teaspoonfuls ground ginger,
2 level teaspoonfuls ground red pepper,
3 level tablespoonfuls ground allspice,
1 level tablespoonful ground black pepper,
1½ level cup (½-pint cup) sugar,
¾ level cup (½-pint cup) salt,
1 quart vinegar.

Place strained tomatoes in agate vessel; add spices, sugar, and salt; boil until thick; then add hot vinegar slowly and let boil 30 minutes before beginning to bottle mixture.

Use clear flint 10-ounce grape-juice bottle. Wash well with soda and place in vessel of hot water until you are ready to use. It is best to put wire netting in the bottom of the vessel, place the bottles filled with water thereon, and let come to a boil, thus sterilizing. Pour out water. Fill hot bottles with boiling ketchup. Cork tightly.

The measures for all recipes must be taken level. Scrape off spoons with a knife, patting and scraping until measure is level. These measures have been taken accurately, and one should get good results if directions are followed to the letter.

A good ketchup may be made in winter by using 5 cans of 4-H tomatoes, 1 cup of chopped onions, and half the quantity of all other ingredients mentioned in the above recipe.

Chili Sauce.—Tomatoes for chili sauce are mashed through a colander instead of through a sieve, thus allowing the seed to remain in the finished product. Use the same recipe as for tomato ketchup, adding 2 level cups chopped green sweet bell peppers (leaving out seed), another level teaspoon of ground red pepper, and 1 level tablespoonful of salt. Boil until quite thick—much thicker than ketchup. Put up in pint or half-pint glass jars, sealing as in canned products.

1 cup water to 1 lb. sugar makes thin syrup

PART II

PRESERVES

To make preserves, take whole berries, small fruits, or uniform pieces of larger fruits, and cook them in syrup until they are saturated. The proportions are usually 1 pound of fruit to ¾ pound of sugar.

When fruit is cooked in syrup fusion between the fruit juices and the syrup takes place. If the syrup is thin when the fruit is put into it, the mixing or fusion of the fruit juices and the syrup, through the cells of the fruit, takes place very evenly and the fruit remains plump; but if the syrup is very heavy, the fruit juices are drawn out rapidly and the heavy syrup cannot enter the fruit rapidly enough to prevent a shrinkage or shriveling.

It is necessary, therefore, to start preserves in a thin syrup. Boil until the fruit is done. Remove the fruit and place it in a shallow dish, allowing it to stand in some of the syrup while the remainder boils thicker. Pour this thick syrup over the fruit on the platter and let stand until cold or until the next day, when the whole may be returned to the kettle, allowed to come to a boil, and the fruit removed and set aside in a shallow dish until the syrup is again boiled down. When thick enough this syrup is poured over the fruit as at first and the vessel covered and allowed to stand until next morning. The fruit is packed cold in quart or commercial jars, the syrup poured in little by little as the packing progresses, and until the jar is quite full. The packer must use a thin reed paddle to remove air bubbles and to push the fruit in place.

Pack preserves in square jar, or if for the market, in jar No. 5042.

All jars packed with preserves must be processed after filling 15 minutes to destroy mold spores. Fill the jar. Process 15 minutes.

Never use metal kettle for preserves, jams, or jellies. Porcelain-lined or agate kettles are desirable.

Always cook preserves, jams, and jellies in open vessel that evaporation may take place easily.

The jar 5042 is the 12-ounce cylindrical, glass-top, screw-rim jar, which has been selected as the commercial container for 4-H fancy products. The jar selected for exhibits at fairs is the crystal-clear square quart jar.

Peach Preserves.—Peel peaches, cut in halves if small, in quarters if large. Use 1 pound of fruit to ¾ pound of sugar. Put enough water with sugar to make a thin syrup and proceed as in directions for preserving. Pack in jar No. 5042 as symmetrically as possible. Paddle.

Process 15 minutes to prevent mold.

Pear Preserves.—Large pound pears are excellent for preserves. Peel pears and cut into uniform pieces that are not too small. Use 1 pound of fruit to ¾ pound of sugar. Put enough water with the sugar to make thin syrup. Proceed as in directions for preserving. Pack in jar No. 5042 as symmetrically as possible. Paddle.

Process 15 minutes to prevent mold.

Fig Preserves.—Gather figs when just ripe. (They must not be soft or cracked.) Peel carefully, trying not to cut too near the seed. Use 1 pound of sugar to each pound of fruit and the juice of ½ a lemon to each pound of fruit. Peeled figs will bear a much heavier syrup at the beginning of the preserving process than most fruits.

Put sugar in preserving kettle with enough water to keep from sticking. Stir occasionally until it begins to boil. Add lemon juice. This will prevent crystals forming. Add part of the figs; let them boil until clear and transparent. Remove to a platter, which should be placed in the sun if possible, and add more figs to syrup until all are used. When all figs are removed, boil syrup down until it is thick like honey. When this is done, pour in all the figs which have been sunning or standing; boil 2 minutes. Set aside until next morning, when they may be packed in jar No. 5042.

Process for 15 minutes.

Packing.—Arrange figs in rows in the jars with stems up, pouring in a little syrup as you place each row. Use your paddle and you will get a beautiful effect.

This fig recipe has been used most successfully in Anson County with its large trade to outsiders, and was given to the organization by the county agent.

Figs which are peeled by hand should be labeled "Skinless Figs," as they bring a better price in the market than those that have the skins removed by scalding in soda water.

Strawberry Preserves.—Select large, firm berries. Cap and use 1 pound of fruit to ¾ pound of sugar. Proceed as in directions for preserving. Pack in jar No. 5042. All berries are best made into jam.

Cherry Preserves.—Select firm cherries, remove seed, use 1 pound of fruit to ¾ pound of sugar. Proceed as in directions for preserving. Pack in jar No. 5042.

***Preserved Watermelon Rind.**—Cut 1 pound rind into 1-inch squares. Remove peel and all pink part. Soak over night in lime water (1 ounce lime to 2 quarts water). The following morning let stand for 2 hours in clear water. Drain well, then drop into boiling water and boil rapidly for 10 minutes. Drain again and add gradually to the syrup (made by boiling together 2 cups of sugar and 1 quart of water.) Add to this the juice of ½ lemon and 3 extra slices of lemon. Cook until the melon is tender and transparent. Allow to stand until cold; arrange the pieces attractively in the jars, garnishing with slices of lemon. Cover with the syrup testing 50 to 55 degrees. Pack in jar No. 5042. Process 15 minutes.

Orange Marmalade.—Use 6 oranges and ½ lemon. Peel off the yellow skin of the oranges as thin as possible. Use the white part of the skin for orange pectin. Remove the tough membrane from the pulp. Add lemon juice and measure. To every cup of pulp add ¾ cup of sugar. Do not add sugar until the fruit has reached the boiling point; then add very slowly that the temperature may not be reduced. Six tablespoonfuls of orange pectin cooked with the marmalade gives a clearer appearance. Some of the yellow skin of the

*Powell. Home Demonstration Work. U. S. Department of Agriculture.

orange may be cut in very thin slices and added as soon as all the sugar is in. Cook to a jelly-like consistency or to a temperature of 105½ C. Pack in 4-H jam pot or in jar No. 5042. See Pectin for use with fruits containing little pectin.

Gingered Pears.—10 pounds of pears, peeled and quartered; 7½ pounds of sugar; 4 ounces of ginger root or 2 level tablespoonfuls of powdered ginger; juice and the grated yellow part of the rind of 3 lemons.

Grind pears through meat chopper. Place all ingredients in enameled kettle. Cook for about 2 hours, or until amber colored and of the consistency of jam. Pack while boiling hot in jar No. 5042 or in 4-H jam pot.

JAMS

Jam is much easier to make than preserves and is a marketable product. It differs from preserves in the method of cooking, the object here being to cook the fruit into a soft pulp that can be mashed and blended into a smooth paste. Blackberries, strawberries, raspberries, and such soft fruits as clearstone peaches and figs make excellent jam.

As in preserves, 1 pound of fruit to ¾ pound of sugar is the proportion used. Put fruit and sugar into preserving kettle with enough water to prevent burning. Boil slowly until tender, mash fruit with wooden bat or spoon, and continue to cook slowly until fruit is a smooth, thick mass. Jam is much thicker when cold than when hot.

Packing Jams.—After jam is done it should be poured immediately into jam pot or jar No. 5042, which has been thoroughly sterilized and allowed to stand in hot water. If the jam pot is used, the jam should be poured into it while boiling hot and the sterilized cork forced in very tightly. If jar No. 5042 is used, while the jar is standing in hot water, fill with boiling-hot jam, fit rubber, and screw down top tightly and quickly. These jars will need no processing if sealing is done while product is boiling hot.

The Jam Pot.—The North Carolina 4-H jam pot is made of North Carolina clay in North Carolina potteries, and is a very artistic little container, holding 10 ounces.

Blackberry Jam.—Select wild berries if possible; they are well flavored and have small seed. Be sure they are fully ripe. Use 1 pound of fruit to ¾ pound of sugar and proceed as in directions for jam. Pack in 4-H jam pot or in jar No. 5042.

Strawberry and Raspberry Jam.—Gather berries when fully ripe. Cap. Use 1 pound fruit to ¾ pound sugar and proceed as in directions for jam. Pack in 4-H jam pot or in jar No. 5042.

Peach Jam.—Select soft, ripe, clearstone peaches. Cut in small pieces, mash, and add sugar. Use 1 pound fruit to ¾ pound sugar, and proceed as in directions for jam. Pack in 4-H jam pot or in jar No. 5042.

Fig Jam.—Select soft, thoroughly ripe figs. Peel and mash. Use 1 pound fruit to ¾ pound sugar with juice of ½ lemon for every pound of fruit, and proceed as in directions for jam. Pack in 4-H jam pot or in jar No. 5042.

Damson Jam.—Wash fruit and pick off stems. To seed, place a small quantity in a colander and lower into hot water. Allow them to boil slowly. Press out the seed and remove. Keep water over a slow fire until all are finished. Use 1 pound of fruit to ¾ pound sugar and proceed as in directions for jam. Pack in 4-H jam pot or in jar No. 5042.

JELLY

In making jelly always select firm fruit or berries not overripe. "This fruit must contain acid and pectin. The pectin is a carbohydrate which has been very little investigated. For our purposes it is sufficient to know that it is essential for successful jelly-making. Heating is necessary in order to extract pectin from the fruit. Frequently when no pectin is found in the raw, pressed juice of certain fruits, juice cooked out of the same fruit will yield large amounts of it.

"To juicy fruit add the smallest possible amount of water. When heated through, crush the fruit and cook the whole mass thoroughly. Strain through moistened double cheese cloth or flannel bags." Always have a drip bag of stout material—flannel is good—that the pulp may not ooze through. To extract all the juice squeeze the bag and afterwards strain this clouded juice through another bag to make it clear.

Never cook in a tin or iron vessel, and never cook with the lid on the vessel.

Jelly is one of the things that cannot be repacked. Its firmness is destroyed when it is reheated. Therefore, have the glasses and jars ready for filling when the jelly is cooked. Peaches, pears, huckleberries, and cherries do not make good jelly. These are best in preserves and jams.

Perhaps the best lesson in jelly making can be given by following directions for making apple jelly:

Apple Jelly.*—In making apple jelly select a good tart apple, firm and juicy. The winesap apple is excellent for this purpose. Wash well and take out all defective spots. Cut into quarters straight through the core and do not peel. The core and peeling give a great deal of pectin, which is needed in jelly-making. Put these pieces in a porcelain-lined or agate vessel to cook. For each measure or weight of apple taken there should be added at least 1 measure or weight of water. With some fruits which are hard and difficult to cook it is the practice to add 1½ measure or weight of water to each measure or weight of fruit taken. Cook until they are quite soft. Have ready a bag of unbleached muslin or flannel, which should be hung from a strong nail or hook, pour into it the cooked apples, and allow them to drip overnight into a large bowl. The juice thus obtained is measured next morning; and for every pint of juice add 1 level pint of sugar. Cook this mixture in a porcelain-lined or agate vessel until it jells—that is, until it slides in sheets from the spoon. Practice will make one expert in determining when jelly is cooked enough. If a centigrade thermometer is used the jelly should be done at about 105½ degrees temperature. If cooked too long the product becomes sticky as do preserves, and then cannot be called jelly. Should one be fortu-

nate enough to have any quinces it would be well to make the jelly half of apples and half of quinces. Quinces jell more easily than almost any other fruit.

After jelly is done, pour it in glasses which have been sterilized. Set away in a cool place, covering with a cloth, and next morning melt paraffin and pour a thin coating over every glass or jar. Never seal jelly while hot.

Put the top on the glass, write name on label, and paste it under the bottom of the glass. This will serve until the jelly is ready for the market, when the 4-H label may be pasted ¼ inch from the lower edge of the glass.*

Blackberry Jelly.*—Blackberries should not be fully ripe for good jelly. Wash them and place in a vessel with 1 quart of water to ½ bushel of fruit. Cook until soft. Put into the bag, let drip, measure 1 pint of juice to 1 pint of sugar, and proceed as in apple jelly.

Scuppernong Jelly.*—Grapes should not be fully ripe. Wash and place in vessel both the grape and the hull. It is best to pop the grape from the hull before cooking. Cook until soft, pour into a bag, let drip, measure 1 pint of juice to 1 level pint of sugar, and proceed as in apple jelly. Scuppernong jelly made without the hulls is of light amber color and quite flat and insipid. When the hulls are added a beautiful red color and a delicious acid flavor is obtained.

To prevent cream of tartar crystals forming in scuppernong or any other grape jelly, can the boiled juice in glass jars and leave until the crystals form and deposit. The juice can then be poured off and used as given in the recipe.

It is hoped that North Carolina will make a specialty of its scuppernong jelly, and that the club girls will take great pains in putting out a fine product.*

Pectin for Use With Fruits With Little Pectin.—Some fruits have not enough pectin to form a jelly, and it becomes necessary to obtain this pectin from other fruits. It has been discovered that from the white skin of the orange, when properly treated, a great deal of pectin may be extracted. Here is a method which has been suggested by Dr. Straughn, of the United States Bureau of Chemistry:

Peel every particle of the outside yellow skin of the orange, cutting it off as thin as possible. Remove all the white peel. Grind this peel with a meat chopper, and to each cupful pressed down add the juice of a lemon and allow to stand one hour. Add 2 cups of water. Heat to boiling and boil 5 minutes. Set aside until next morning; then add 4 cups of water, heat to boiling, and boil 10 minutes. Allow to cool, drip through cheese cloth, and then through bag. This pectin may be prepared, poured into jars while hot, sealed, sterilized, and kept for later use. The peel which has been allowed to drain may be again treated as described and a quantity of pectin will be obtained.

Pectin Test.—A most valuable aid in determining when a juice contains sufficient pectin is the alcohol pectin test. Pour a teaspoonful of fruit juice into a cup and pour into the cup a teaspoonful of grain alcohol of 95 per cent strength; mix by gently shaking, then pour into a spoon. If the precipitated

*See Pectin Test.

pectin is in a solid lump it is safe to add a measure of sugar to a measure of juice in making jelly; if, however, it has not gathered in one lump the amount of sugar should be decreased. If test shows small amount of pectin, use 1 cup of sugar to 1 pint of juice.

Strawberry Jelly.—Strawberry jelly can be made by using 1 cup orange pectin to 1 cup strawberry juice. Add 1½ cup of sugar. Boil until jelly stage is reached (about 105½ C.). Prepare strawberry juice by crushing berries and boiling for 10 minutes, stirring constantly. Place in jelly bag and allow to drip.

Mint Jelly.—Take 1 pint orange pectin as prepared above, heat to boiling. Add 1 pound of sugar. Boil until jelly stage is reached (about 105½ C.). At this point add green vegetable coloring (Burnett's)—a very small quantity on one tine of a fork will be sufficient. Add 2 drops of oil of peppermint. Stir thoroughly. Pour into glasses.

Fig. 17—An Exhibit of Jellies.

ADDITIONAL SUGGESTIONS FOR MAKING JELLY

The Jelly Bag.—White flannel, cut into a square and two adjacent sides French-seamed together, makes the best home-made jelly bag. If the two open sides are hemmed and loops placed at corner and seam, the bag may easily be hung on nails while the juice is dripping.

Cooking the Jelly.—Sugar should be added slowly as soon as juice begins to boil.

Rapid boiling produces a clearer jelly. The jelly should, therefore, be boiled rapidly until the jelly stage is reached.

Pouring Jelly Into Glasses.—The glasses should be sterilized by putting them into a vessel of cold water and letting the water come to the boiling temperature and boiling for 5 minutes. Remove the glasses from the water, drain while hot, and pour jelly in as soon as it has reached the jelly stage.

Skimming.—The jelly need not be skimmed until cooking is completed.

The Thermometer.—That jelly-making may be done with more certainty the use of a centigrade thermometer is advised. It would be well to purchase a thermometer registering from 0 to 150 degrees. Different juices jell at slightly different temperatures, but when the mercury begins to reach 104 degrees centigrade constant watching is necessary. Many juices jell at 105½° centigrade. Test the different juices and determine at exactly what temperature they jell. The skillful use of a thermometer will save many a failure in jelly-making.

The Hydrometer.—By means of the hydrometer the density of the juice can be determined and the amount of sugar necessary to make a jelly is determined from this. The hydrometer should be graduated in degrees Brix and indicates the per cents solids in the solution. It should read in ½ degree from 0 to 30, from 30 to 60, or from 60 to 90. Before taking the reading of the Brix, the juice should be cooled to about room temperature, either by allowing it to stand or by placing it in a double boiler, the lower one to be filled with cold water.

PICKLES

Cucumber Pickle.—Pickle-making begins with the brine, and to carelessly made or carelessly kept brine is attributed most of the soft and unfit cucumbers. Make the brine with enough salt to float an egg. (This old-fashioned test is a good one.) From 65 per cent to 70 per cent salt will be necessary. Fill until two-thirds full a keg on which may be fitted a tight wooden top.

Gather the cucumbers when they are small if a purely commercial pickle is desired. They should not be over 2 inches long, preferably 1½ inch. Do not wash unless they are covered with sand or dirt. Put these cucumbers into the keg of brine each morning, taking care to add salt from time to time to keep the brine sufficiently strong. Stir from the bottom frequently, also. Keep the top tightly fitted to the keg at all times, as exposure to air and light will surely cause pickles to soften.

Let cucumbers remain in brine until a certain fermentation has taken place, which will make them ready for pickling. This can be determined usualiy by the change of color from green to an olive or greenish brown color. A little experience will soon make a person expert in choosing the right time for pickling. Roughly speaking, leave cucumbers for six weeks in brine before using. Always place a weight on them that they may be covered with brine.

Before converting into pickles, remove from brine and soak over night in twice their bulk of cold water.

Spiced Vinegar

To 1 gallon of vinegar add:

2 sticks of cinnamon,

2 tablespoonfuls of unground allspice,

2 tablespoonfuls of unground cloves,

2 pounds of sugar,

1 cup of horse radish ground or cut in small pieces.

Always use first quality vinegar.

Tie spices in muslin bag, drop these in vinegar, add sugar and horse radish, and boil for 15 minutes. Add salt to taste if too much salt has been removed from the cucumbers. Set spiced vinegar aside for 3 days before removing spice bag, when it will be ready for the pickle.

Cooking Pickles.—Place the spiced vinegar in porcelain or agate vessel, bring to a boil, add cucumbers, a few at a time; let boil again; remove pickles and pack in stone jars or large glass jars. Continue until all cucumbers are pickled. One gallon of vinegar will pickle three-fourths of a peck of cucumbers.

It is advisable to pack pickles in stone jars or any large jars first, that enough vinegar may be added not only to surround, but to cover them.

Fusion takes place between the juices of the cucumber and the vinegar, and we get a weakened liquor in consequence. It is advisable, therefore, that pickles be kept for at least six weeks in plenty of spiced vinegar before packing them tightly in commercial jars where there is room for only a small amount of vinegar.

Vinegar.—Frequently pickles are spoiled by the use of inferior vinegar. Distilled white vinegar is best, and can be had from vinegar works or grocery stores.

Good, strong cider vinegar may be used for sliced tomato pickle, chow-chow, and mustard pickle, but in packing pickles, like cucumbers or onions, a white distilled vinegar must be used.

Commercial Packing.—Always add fresh spiced vinegar when packing in commercial jars. Pack cucumbers of one size only in a jar and arrange symmetrically. Use as a model a first-class jar of pickles, which can be found in any good grocery store.

Jars, after being packed with pickles, should be put into the canner and processed 15 minutes to prevent mold.

Cucumber pickles should be garnished with 2 small red peppers from which the seed have been removed, one pod on each side of the jar. Another and an additional garnish would be small silver-skin onions ½ to ¾ of an inch in diameter, 10 to a quart jar. These onions must be dropped into boiling brine and allowed to boil 3 minutes before placing in a large jar holding the cucumber pickles.

Never allow spices to remain in the jar, as they darken pickle and produce in time a bitter taste.

Pack in jar No. 5042, the 12-ounce glass-top, screw-rim jar, or the square Queen jar.

Sliced Cucumber Pickle

72 cucumbers about 7 inches long,
2 quarts sliced onions,
2½ ounces tumeric,
¼ ounce mace, unground,
½ ounce cloves, unground.
½ ounce black pepper,
2 ounces ground mustard,
3 ounces white mustard seed,
3½ ounces celery seed,
4 pounds sugar.

Tie mace and cloves loosely in muslin bag and drop in enough vinegar to cover pickle. Boil for 15 minutes. Add tumeric, black pepper, mustard, celery seed, and sugar. Let this come to a boil and add pickles, which have been previously prepared.

To prepare pickles, remove cucumbers from brine in which they have been kept for six weeks as in recipe for cucumber pickle, soak over night in plenty of cold water, drain, and cut in cross slices or rings ½ inch thick.

Slice onions, scald with boiling brine, drop in cold water for a minute, and remove. Chop peppers from which all seed have been removed. Mix and boil all for 15 minutes. Do not boil until the cucumbers soften. Let spice bag remain in large jar with pickles for three days before removing. Pack these pickles after six weeks in square glass jars or jar No. 5042.

When Canning Club girls are making pickles for the market they are strongly advised to select sliced green tomato, chow-chow, sweet pickle peaches, and sweet pickle watermelon rind as their commercial products. These are far easier to keep up to standard than cucumber pickles.

The question of brine enters so materially into the preserving of cucumbers, and there are so many small points which are hard to master, that it is not thought wise for club members to undertake for the market anything so formidable.

Onion Pickle

Select small silver-skin onions, sort in sizes ½ inch in diameter in the one lot, and ¾ inch in the other. Remove skins until the smooth surface is reached.

Place in a large jar or crock and pour over them a strong brine. Let stand for 24 hours.

The next day make a strong brine, bring to a boil, drop in the onions, and boil for 5 minutes. Now put them in cold water for 1 hour. Drain, place in large jars, and pour over them spiced vinegar.

Let these stand for at least six weeks before packing in commercial jars.

Process these packed commercial jars for 15 minutes as in cucumber pickles.

Jar No. 5042 is the best jar for the onion pickles.

Garnish with a sprig of mace on each side of jar. Add, also, small rings of hot red pepper.

Sliced Green Tomato Pickle (Sweet)

1 gallon sliced green tomatoes,
6 large onions, sliced,
1 teaspoonful ground black pepper,
1 small red pepper,
2 tablespoonfuls white mustard seed,
½ cup celery seed,
2 pounds brown sugar,
1 tablespoon allspice,
1 tablespoon cloves, pounded, and tied loosely in muslin bag.

Sprinkle sliced tomatoes and sliced onions with salt. Let stand 4 hours in separate bowls, then soak in cold water 4 hours. Drain well, pressing out the water.

Put in porcelain kettle, mixing the mustard and celery seed, sugar and pepper, thoroughly with chopped ingredients. Cover with good vinegar to which the spices have been added.

Boil slowly until quite soft and tender. This pickle is not good if removed from the fire before the tomatoes are tender. After cooking, leave in the jar with plenty of the prepared vinegar. Take spice bag out after 3 days.

Pack in commercial jars after six weeks. Use jar No. 5042.

Process 30 minutes.

Chow-Chow

1 gallon chopped cabbage,
½ gallon chopped green tomatoes,
1 dozen large onions (chopped),
1 dozen sweet bell peppers, green (chopped),
½ dozen sweet bell peppers, red (chopped),
2 pounds sugar,
½ cup ground mustard,
1 cup white mustard seed,
2 tablespoonfuls celery seed,
1 tablespoonful ground ginger,
1 ounce cloves mashed and tied in muslin bag.

Sprinkle lightly with salt the chopped ingredients, putting each in separate bowl. Let stand over night. Press the brine from them.

Bring vinegar with other ingredients to a boil, add chopped ingredients, and boil slowly half an hour.

Pour into a large jar, remove spice bag after 3 days. After 6 weeks pack in commercial jars.

Use same vinegar in which pickles were cooked when packing chow-chow, or chopped pickles, in commercial jars.

Use jar No. 5042. Process 15 minutes.

Mustard Pickle

Dressing.—½ pound ground mustard,
½ ounce tumeric,
½ cup flour,
1½ pound brown sugar.

Rub these to a smooth paste with one cup of vinegar. Add ½ ounce of celery seed. Add gradually 1 gallon of vinegar. Place on stove until it thickens, stirring all the while.

The Pickle.—This dressing may be poured over:

1 pint very small whole cucumbers which have been taken from brine and soaked over night,

1 pint sliced cucumbers,

1 pint small onions (treated first as in onion pickle),

3 green sweet bell peppers (chopped, leaving out seed),

3 red sweet bell peppers (chopped, leaving out seed),

1 pint tiny green tomatoes (cut in half).

Keep in large jar for 6 weeks.

Pack for market in No. 5042, using same dressing in which it has stood.

Process 15 minutes.

Tomato Soy

1 peck medium size green tomatoes (sliced),

1 dozen silver-skin onions,

½ pound white mustard seed,

2 ounces whole ginger root,

3 ounces celery seed,

¼ ounce allspice (whole),

½ ounce cloves (whole),

2 ounces ground mustard (smallest size box),

1 cup horse-radish cut in small strips,

½ cup garlic,

2 pounds brown sugar,

1 pint good olive oil.

Slice the tomatoes and onions, sprinkle them well with salt, place in separate bowls, and let stand 24 hours.

Pour off the brine, put tomatoes and onions in colander, and pour fresh water over them.

Place in porcelain-lined kettle in layers of tomato and onion, with all the ingredients mixed and sprinkled over the layers.

Cover with boiling vinegar in which the allspice and cloves have been dropped after tying in bag.

Let simmer for an hour or until the tomatoes look clear.

Put in sterilized jar when cold.

Pour over this the pint of olive oil. Cover jar tightly and do not use or pack in commercial jars until pickle has stood for at least six weeks.

This pickle is best packed in the 4-H jam pot. It is quite delicious, though rather expensive. It might be used as a rather fancy product.

Stuffed Bell Pepper Pickle

Chop fine 1 medium-sized, hard, white head of cabbage, sprinkle it with salt, and allow to stand for 2 hours. Squeeze dry by placing in muslin bag and twisting tightly.

Thoroughly mix with this cabbage:

2 ounces white mustard seed,

2 tablespoonfuls celery seed,

2 tablespoonfuls grated horse-radish.

The Peppers.—Select sweet bell peppers of medium and uniform size, cut off the top with the stem, remove every seed, stuff peppers with the filling, replace top and stitch firmly with needle and coarse thread.

Place peppers in stone jars, pouring over them enough boiling spiced vinegar to cover thoroughly. Allow to remain in vinegar 6 weeks before packing in commercial jars. Use fresh spiced vinegar for packing.

Pack in square Queen jars or jar No. 5042.

Process 15 minutes.

*Dixie Relish

1 quart chopped cabbage,

1 pint chopped white onion,

1 pint chopped sweet red pepper,

1 pint chopped sweet green pepper,

5 tablespoonfuls salt,

4 tablespoonfuls mustard seed,

2 tablespoonfuls celery seed (crushed),

2 cups sugar,

1 quart vinegar.

Soak the pepper in brine (1 cup salt to 1 gallon water) for 24 hours. Freshen in clear, cold water for 1 or 2 hours. Drain well. Remove the seed and coarse white sections. Chop separately, and measure the chopped cabbage, peppers, and onions before mixing. Add spices, sugar, and vinegar. Let stand over night covered in a crock or enameled vessel. Pack in small sterilized jars—No. 5042.

When ready to pack, drain off the vinegar from the relish, in order that the jar may be well packed. Pack the relish in the jars, pressing it carefully; then pour over it the vinegar which was drained off. Paddle the jar thoroughly, to get out every bubble and allow the vinegar to displace all air spaces. Garnish each jar with two quarter-inch pointed strips of red pepper 3 inches long. Place these strips vertically on opposite sides of the seams of the jar.

Process for 15 minutes at boiling temperature.

Sweet Pickle Peaches

½ bushel firm clingstone peaches,

1 gallon vinegar,

8 pounds sugar,

1 ounce cloves,

3 sticks cinnamon.

Select ripe but firm peaches—absolutely sound. Peel by hand, endeavoring to do it as smoothly as possible.

Boil vinegar, sugar, and cinnamon and cloves (tied in bag) 5 minutes; add peaches, one-fourth at a time; allow them to get hot throughout, remove

*Creswell. Home Demonstration. United States Department Agriculture.

from fire, place in jar, and when all have been heated, pour over them the vinegar and seal the jar. Let remain in this jar one month before packing in commercial jars.

Use jar No. 5042, or square Queen jars.

Process 15 minutes.

Watermelon Rind Sweet Pickle

7 pounds prepared watermelon rind,
3 pints vinegar,
4 pounds sugar,
¾ ounce cloves (whole),
2 sticks cinnamon,
1½ ounce ginger root.

Prepare 7 pounds of rind. Remove the green part and cut off the pink melon until the rind is firm. Cut these pieces into uniform strips 1¼ inch wide and 2½ inches long, or cut into fancy shapes with small cutters.

Let stand over night in weak brine. Rinse off and scald until tender in alum water. Rinse again in cold water.

Place in porcelain-lined kettle, pour in vinegar, sugar, cinnamon, and slightly pounded ginger root. Tie cloves in bag and add. Cook until rind is tender. Put in jars, seal, and allow pickle to stand one month before packing in commercial jars.

Use jar No. 5042, processing 15 minutes.

Yellow Cucumber Sweet Pickle.

Thoroughly ripe cucumbers that have turned yellow can be treated in the same manner as the watermelon rind and made into excellent sweet pickle.

SHIPPING

Packing Tin for Shipping

When tin cans are packed to be shipped, a box containing two dozen cans is the regulation shipping case. These boxes must be uniform in size and of neat appearance. Under no condition ship to a merchant a box containing five, six, or even three dozen cans. This is most unbusinesslike and the dealer is justifiably provoked when he tries to pack such a box in a space designed for boxes of regulation size. Barrels are not good shipping containers for tin, but are excellent for small shipments of glass.

Pack cans in box and nail on top. Be careful not to drive nails into cans. Many cans have been spoiled in this manner. Paste on both ends of the box a label such as you have on the cans, that the contents of the box may be easily discerned. Write name and address of the purchaser plainly on a tag and tack with very short tacks on top of box. Write the name of the club member or shipper on another tag and tack this in the upper left-hand corner of top. Be careful that tacks do not pierce the cans.

Packing Glass for Shipping

The corrugated paper boxes with partitions have not been found sufficiently safe in shipping products packed in glass in less than carload lots. It is, therefore, advised that each separate glass jar be wrapped in excelsior, tied, and packed in boxes or barrels, the sides, top, and bottom of which are lined with same packing. Jars wrapped in this manner are packed, also, in the strong corrugated paper boxes. Barrels are good shipping containers where only a few dozen jars are shipped at once. Use uniform boxes in making a shipment. There are many box factories from which supplies may be had.

Bill of Lading

Send to the merchant to whom shipment is made the bill of lading given by the freight agent, and notify the merchant of the shipment. Send to him, also, a list of what has been shipped. This is called an invoice. Keep a copy of the invoice for your own information.

Express Receipt

Always get an express receipt when shipping by express. Keep this in case of trouble.

Some Shipping Terms

F. O. B. means free on board. For example: Should a shipment of tomatoes be made to New York at $2 per case, f. o. b. Raleigh, it would mean that the club member would deliver the cased tomatoes to the freight depot at Raleigh, and the purchaser would pay both the price per case and the freight.

Should the club member deliver products f. o. b. New York, it would mean she would deliver them to the freight depot, Raleigh, and also pay the freight to New York.

C. O. D. means collect on delivery, and the purchaser must pay the price of the products to the transportation company before they can be taken from the express office.

Bill of Lading with Sight Draft Attached is also a call for the money before the purchaser can take products from the freight office. Any banker will explain this to the shipper.

Drop Shipment. When a wholesale merchant purchases a number of club products he frequently desires to have them shipped direct to some firm or firms purchasing from him, that he may eliminate the expense of two shipments. This is called a drop shipment.

Lend this to a neighbor