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Food Preservation

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Oregon 4-H Food Preservation Project

This 4-H Food Preservation Project will help your family enjoy more interesting and nutritious meals, and reduce your cost of living.

There is no "Out of Season" for products of your garden, orchard, poultry, or feedlot when you freeze or can these wonderful foods. Many homes have freezers in them today. Do you have one? Perhaps you have a locker. You'll find that this method of food preservation will save a lot of time, and it's convenient too.

Some foods are better canned than frozen and some are good either canned or frozen. This project is planned so you can help fill your family's freezer and/or canning shelves. You may start with any division.

In the first four divisions you may

- 1) Can all the requirements,
- 2) Freeze all of the requirements, or
- 3) Can or freeze all of the requirements.

A precooked and prepared frozen foods division has been added for you if you are 12 years of age or over by January 1. Perhaps you would like to take the 4-H Dinner Club project and the "Precooked and Prepared Frozen Foods" division at the same time.

Food Preservation Division I

What you can learn -

1. Why food spoils.
2. To select, clean, and test jars and lids and frozen foods packaging materials.
3. About different kinds of jars and packaging materials and how to seal them.
4. To use a hot-water bath canner.
5. To select good quality fruit for canning or freezing.
6. To can or freeze fruits.

Requirements: Division I

Because some mothers hesitate to allow their daughters to attempt canning entirely unaided, we recommend that mothers work with their daughters until they feel that the girls are competent to carry on alone. Each girl would take credit in her record book for one-half the number of containers of produce canned in cooperation with her mother at each canning session. For the two jars she is to exhibit, she should do everything except put the jars into the boiling water and take them out.

- 1) Can and/or freeze at least 25 containers of tomatoes or fruits of not less than 2 kinds.
- 2) Record the work done.

Exhibit: Division I

Canning - 2 jars of fruit, one each of two kinds.

Frozen Foods - 2 containers of fruit, one each of two kinds, one in dry sugar and one with no sugar.

Food Preservation Division II

What you can learn -

1. To can or freeze some different kinds of fruits.
2. To pack fruit in syrup for freezing.
3. To use a nondarkening agent in freezing fruits.
4. To make jams, conserves, jelly, or marmalade.
5. To gain more experience in the use of the hot water bath.

Requirements: Division II

- 1) Can and/or freeze 25 containers of tomatoes or fruits, including at least one kind not preserved in the first year's work.
- 2) Make at least 20 containers of jam, fruit butter, marmalade, or conserve.
- 3) Record the work done.

Exhibit: Division II

Canning - 2 jars of fruit, one each of 2 kinds

1 jar of jam

1 jar of conserve, jelly, marmalade, or fruit butter

Frozen Foods - 3 containers of fruit, one each of 3 kinds. Pack one in dry sugar, one in sugar syrup using a nondarkening agent, and one with no sugar.

Food Preservation Division III

What you can learn -

1. To improve your skill in packing fruits and making jams, etc.
2. To select good quality vegetables for canning and freezing.
3. To use the pressure canner.
4. To can vegetables.
5. To freeze vegetables.
6. To make pickles and relishes.
7. To cut up and can/or freeze poultry or rabbits.

Requirements: Division III

- 1) Can and/or freeze at least:
 - a) 15 jars or packages of tomatoes or fruits.
 - b) 25 jars or packages of vegetables, at least 2 kinds.
 - c) 5 jars or packages of poultry or rabbits.
- 2) Make at least:
 - a) 15 jars of jams, fruit butters, marmalades, jellies.
 - b) 10 jars of pickles and relishes.
- 3) Record the work done.

Exhibit: Division III

- Canning - 1 jar fruit
- 2 jars vegetables (2 kinds)
- 2 jars relishes or pickles (2 kinds)
- 1 jar jam, conserve
- Frozen Foods - 1 package fruit
- 1 package vegetable
- 1 package rabbit or poultry

Food Preservation Division IV

What you will learn -

1. To can and/or freeze meat or fish.
2. To improve your skill in cutting and preserving rabbit or poultry.
3. To gain more experience in canning and/or freezing fruits and vegetables.

Requirements: Division IV

- 1) Can and/or freeze at least:
 - a) 10 jars or packages of fruit or tomatoes.
 - b) 20 jars or packages of vegetables.
 - c) 15 jars or packages of meat, fish, fowl, or rabbit.
- 2) Make at least:
 - a) 25 jars of jam, fruit butters, marmalades, jelly, or conserve.
 - b) 10 jars of pickles or relishes.
- 3) Record the work done.

Exhibit: Division IV

- Canning - 1 jar fruit
- 1 jar vegetable
- 1 jar pickles and relish
- 1 glass of jelly
- 2 jars meat, fish, fowl, or rabbit.
- Frozen Foods - 1 package fruit using a nondarkening agent
- 1 package vegetable
- 1 package meat or fish
- 1 package poultry or rabbit

Food Preservation Division - Precooked and Prepared Frozen Foods
(For 4-H Club members 12 years of age or over)

What you will learn -

1. To prepare baked or precooked foods for freezing.
2. To package baked and prepared foods for freezing.
3. To thaw foods and prepare them for the table.
4. To select suitable containers and packaging materials for different products.
5. To show others good ways of freezing these foods.
6. To plan and prepare family meals using frozen foods.

Requirements:

- 1) Prepare, package, and wrap at least:

1 pie	1 family sized serving of salad
1 unfrosted cake	1 family sized serving of sandwiches
1 package rolls, bread, or cookies	1 package fruit juice or tomato juice
- 2) Prepare and package at least:

5 containers of stew, soup, casserole, or other precooked main dishes.
--
- 3) Study thawing methods for different foods and their preparation for the table.
- 4) Cook or prepare the frozen foods for two family meals (using 3 or 4 frozen products each).
- 5) Give a demonstration on one recommended freezing practice at Community or County Fair or public event.
- 6) Freeze 20 containers of fruit (uncooked).
- 7) Freeze 20 containers of vegetables (uncooked).
- 8) Package 5 packages of meat (minimum) (uncooked).
- 9) Package 5 packages of poultry or rabbits (minimum) (uncooked).
- 10) Record your work.

What to Exhibit: Frozen foods for a complete meal for one person (a minimum of 4 items).

Items may be wrapped individually or arranged on a foil plate and wrapped.

YOUR CANNED FOODS EXHIBIT

Jar sizes

Either pint or quart jars may be used, depending on the size of container that is best suited to the size of your family and the kind of food canned. In some exhibits, especially Divisions III and IV, it is possible that both quart and pint jars may be used to advantage. Use the type of jar you prefer.

Labels

Standard labels for jars to exhibit can be obtained from your County Extension Agent. Tie a hard knot 1 inch from the tag before tying label to neck of jar. This will allow the label to hang loosely.

FORM
Variety of Product _____
Date canned _____
Method of Canning* _____
Method of Processing** _____
Time of Processing _____
Pounds of Pressure*** _____

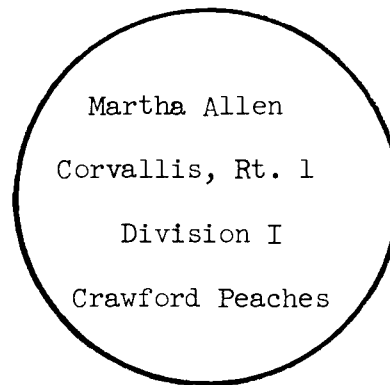
EXAMPLE
Variety of Product <u>Crawford peaches</u>
Date canned <u>August 20, 1956</u>
Method of Canning <u>Hot pack</u>
Method of Processing <u>Hot water bath</u>
Time of Processing <u>20 minutes</u>
Pounds of Pressure _____

*Hot pack, cold pack, or open kettle if product is jam or pickles.

**Hot water bath, pressure canner.

***Number of pounds pressure for canning low-acid vegetables and meats.

Sample label which should appear on the bottom of each jar exhibited:



Rules

A. To give a basis for judging fairly, jars must meet the following eight qualifications. Jars not meeting these eight qualifications will not be judged.

1. Exhibit must qualify according to requirements of contest entered as to:
 - Number, type, and size containers.
 - Type and variety of product.
 2. All containers in exhibit to be standard, clear-glass fruit jars made for home canning except jellies, jams, butters, fruit conserves, pickles, and relishes. It is not safe to use other than standard canning jars in water bath or pressure canner. The exhibitor is at a disadvantage if clear jars are not used because the judge cannot see color of the food and clearness of liquid.
 3. All of the following must be given on the tag attached to the jar to give the judge the information needed to judge fairly.
 - Method of canning
 - Method of processing.
 - Length of time processed
 - Pounds of pressure when pressure canner is used
 4. Water bath method must be used instead of open kettle for canning fruits and tomatoes.
 5. Pressure canner must be used instead of water bath for low-acid vegetables and meats.
 6. Water bath processing time must not be less than that recommended in current United States Department of Agriculture canning bulletins.
 - Note: Altitude canning requires longer processing time.
 - See timetables for details.
 7. The time of processing by pressure canner and the number of pounds pressure must not be less than that recommended in current United States Department of Agriculture canning bulletins.
 - Note: Altitude canning requires more pounds of pressure.
 - See timetable for details.
 8. Pickles must be sealed for exhibit purposes.
- B. Give variety of fruit or vegetable on label, or write "unknown" if you don't know the variety.
- C. Label on bottom of jar is scored, so be sure it is complete.

- D. Jams and jellies may be sealed with paraffin. Jam may be sealed in a standard canning jar but jelly should be exhibited in a standard jelly glass.

TIPS FOR JUDGING YOUR JAMS, FRUIT BUTTERS, JELLIES, PRESERVES, AND MARMALADES

Jams and Fruit Butters

Package--sealed jars of uniform size, clean, and neatly labeled.

Appearance--color--bright, characteristic of the fruit; free from discoloration due to overcooking or excess of spices.

Consistency--

Jam: Thick, more or less homogeneous mass, with fruit well distributed in jellied juice.

Fruit Butter: Thick, homogeneous mass of fruit pulp showing no separation of liquid, yet soft enough to spread.

Flavor--characteristic of the fruit. Free from excessive sweetness, spiciness, or overcooked flavor.

Jellies

Package--glasses of uniform size, clean, and neatly labeled.

Appearance--characteristic of the fruit, bright color, and (with some kinds of fruit) translucent.

Consistency--holds its shape when turned out on a plate, but quivers when moved. Tender, cutting easily with a spoon, and holding sharp edges. Free from crystals.

Flavor--characteristic of the fruit. Free from excessive sweetness, acid, or overcooked flavor.

Preserves and Marmalades

Package--sealed jars of uniform size, clean, and neatly labeled.

Appearance--color characteristic of the fruit, clear, free from discoloration due to overcooking.

Consistency--

Preserves: Whole, small fruits or uniform pieces of larger fruits, clear and tender, yet retaining shape, and surrounded by thick syrup or jellied juice.

Marmalade: Shredded pulp and skin distributed in jellied mass.
Citrus marmalades--jellied mass and fruit clear.

Flavor--characteristic of the fruit. Free from excessive sweetness, bitterness, or overcooked flavor.

JUDGING AND IMPROVING YOUR HOME-CANNED FOODS

To learn to do "top notch" work in food preservation, you need to judge every jar of food you can at home. You will compare efforts with those of other members at club meetings. You are to exhibit your canned products, too. Here is some information on standards of judging and why certain things happen.

Standard	Defect	Prevention
<u>PACK</u> 1. Attractive	Food broken and carelessly packed.	Learn to work quickly and skillfully to make an attractive pack without fancy packing.
	Undesirable particles in the pack.	Wash food well and remove sand, stems, etc:
	Fruit floating.	Use a lighter syrup for that fruit. Use a hot pack method for some fruit, such as apricots. (Precooking removes some air and reduces floating.) Do not over-cook in precooking or processing because cell structure will collapse. Use cold pack for berries (except strawberries) to prevent cell-structure collapse. Can strawberries to equalize density of syrup inside and outside of strawberries.
	Tomatoes floating or separating.	Use well-ripened tomatoes. Fill jar to correct level. Do not process too long nor use pressure cooker. Cool promptly after recommended processing time.
2. Uniform	Not uniform in maturity.	Grade raw product for maturity.
	Not uniform in size or shape.	Grade for size and shape before canning. If cut, make uniform pieces.
	Uneven peeling marks and bits of skin or blemishes on food.	Use good quality food. Use good workmanship in removing blemishes and in peeling. Remove white core and green stem end from tomatoes.
3. Balanced liquid and solid.	Too much liquid in proportion to fruit.	Use hot pack if it is suited to fruit being canned. For cold pack, fill container with fruit to correct level and then fill with liquid to correct level. Do not overprocess so fruit collapses and juice is drawn out of the fruit.

Standard	Defect	Prevention
PACK (continued)	Too little liquid in jar in proportion to fruit.	Fill properly before processing and use correct canning method. (See numbers 4 and 5 in this outline.)
	Liquid on vegetables does not extend as far to the top of the jar as do the vegetables.	Adequate liquid is necessary for proper heat penetration. Use hot pack (precooked) method for vegetables. See USDA Home and Garden Bulletin No. 8 for proper fill. Use recommended pressure canning method.
	Too much or too little liquid on meat or fish.	Follow directions for hot or cold pack meat or fish.
4. Proper fill level.	Jar of fruit or vegetables filled to not more than 1/2 to 1 inch from top	Use proper fill for the product to be canned and use correct canning method. Leave 1 inch head space when packing corn, mature peas, and shell beans because of swelling.
	Jars of meat or fish too full or not full enough.	Follow directions for packing and processing. Avoid loss of liquid from jar. Jar may be less full than the standard fill for fruits and vegetables.
5. Indicates proper method used.	Food crushed or unduly soft or broken up.	Do not force too much or too large pieces into jar. Fill to proper level. Process correct length of time. Keep pressure steady in pressure cooker. Keep at least 1 inch of water over the tops of the jars in water bath. Keep water in water bath boiling continuously after it begins to boil.
	Pieces of vegetable look hard or undercooked.	Follow timetable and pounds pressure using hot pack (precooked) method. Allow extra pounds pressure for higher altitudes.
	Meat or liquid on meat looks undercooked.	Use correct processing pressure and time.
	Food in solid mass, pulled from bottom to top of container.	Fill properly and keep water bath boiling steadily with 1 inch of water above top of jar. See directions for operating pressure cooker.
	Indication of loss of liquid.	Follow directions for each food.

Standard	Defect	Prevention
<u>PACK</u> (continued)	Browning of fruit, indicating enzymes were not destroyed.	Hot pack method for peaches and pears helps prevent this. Process as soon as prepared for canning. Use proper method and processing time.
	Corn, brown on top.	Process immediately after filling jar. Follow pressure and time directions exactly.
	Jelly-like liquid on fruit.	Do not use underripe fruit. Use long enough processing time.
	Moldy fruit.	Use correct method and good seal.
	Gas bubbles in jar.	Use correct method and good seal.
<u>CONTAINER</u>		
6. Clean.	Jar or closure not clean	Avoid careless handling before canning, in storage, or in taking to contest.
	Sticky jar.	Before storing jar, test for complete seal, remove screw band if used. Wipe jar thoroughly.
	Hard water deposit on jar.	Remove hard water deposit so food can be seen clearly. (Washing with vinegar and water effective.)
7. Complete labels.	Tag on jar not complete.	See Rule 3 on page 7.
	Label on bottom of jar incomplete.	See directions on page 7.
	Label on bottom of jar loose.	Wipe jar thoroughly before applying label. Check whether label is tight before entering jars in contest.
8. Appropriate for food.	Mouth of jar too small for size of fruit.	Cut large fruits into suitable pieces, or use wide-mouth jar.
	Too large jars used for vegetables.	Do not use larger jars than pints for cream-style corn, greens, and fish.
<u>QUALITY</u>		
9. Natural flavor*.	Syrup appears too light to bring out natural flavor.	Use the amount of sugar that is suited to the type of fruit. Keep a record of the proportions used so as to gain from your experience.
	Syrup appears so heavy as to obscure flavor of fruit	

*The judge has the privilege of opening any can to test for flavor.

Standard	Defect	Prevention
CONTENTS*		
10. Maturity that gives maximum flavor and eating quality.	Fruit too soft or broken.	Learn to know the ripeness of each type of fruit that gives maximum quality in canned food.
	Fruit looks underripe.	
11. Texture, tender, not mushy.	Vegetable appears hard or tough.	Can vegetables when in prime eating condition. Do not let them get overmature. Can as soon as possible after gathering.
	Peaches, ragged stem end.	Do not let stand too long between picking and canning. Peel and pack carefully.
	Peaches, ragged edges.	This is characteristic of some early varieties. Indicate variety on label. If you have a choice, use other variety in display.
12. Clearness of liquid.	Pears, excessive softness or browning in core area.	Do not harvest too late or hold too long.
	Opaque appearance of syrup indicating artificial color was used.	Do not use artificial color except for such products as minted pears or cinnamon apples. Use color in moderation.
	Cloudy peas or beans.	Avoid the presence of a few overmature peas or beans. Follow time and pressure in directions for processing. Can soon after gathering. Do not overfill jar before processing.
	Sediment of yellowish flakes or crystals in asparagus, turnip greens, spinach.	These are caused by ingredients in the vegetables and may appear even if proper canning methods have been used.
	Too much fat on meat or fowl.	Remove excess fat before canning. Fat interferes with heat penetration and sealing.
13. Natural color.	Pink liquid on meat.	Use correct time and pressure.
	Berries, faded.	Learn varieties well suited to canning. Use amount of sugar that gives good color and flavor. Store in a dark place. Do not break in handling or by overcooking.
	Pears, yellow.	Comice and D'Anjou have a tendency to turn yellow or pink. Mark variety on label so judge will know variety.

*The judge has the privilege of opening any can to test for flavor.

Standard	Defect	Prevention
<u>CONTENTS</u> (continued)	Pears, pink.	Do not overcook. Do not put jars too close together during cooling after processing. Overripe pears and some varieties turn pink more readily than others. There is more difficulty during some seasons than others.
	Pears, chalk appearance in vicinity of core or stem.	Do not harvest too green.
	Tan or brown color of peaches, pears, apricots.	Do not leave too much head space in jar. Process long enough in water bath. Do not use pressure canner. Hot pack method reduces tendency to browning. Avoid standing after peeling or dip in brine.
	White or yellow spots on greens.	Use good quality greens, not overmature; clean and sort carefully.
	Gray color in foods or discoloration of beets or red fruits.	Avoid use of tin or iron utensils, or chipped enamel utensils. May be caused by some hard water.

YOUR FROZEN FOODS EXHIBIT

1. Exhibit must qualify according to requirements of contest entered as to:
 - 1) Number, type, size of containers.
 - 2) Kind, pack, and variety of product.

2. Each exhibit must be properly labeled. (Use typewriter, wax pencil, or waterproof ink.) Label can be attached to container with locker tape or you may write on the package. The label must include -
 - 1) Name of Product -ex. strawberries.
 - 2) Method of Processing or Kind of Pack*-ex. dry sugar.
 - 3) Variety of or Type Product -ex. Marshall or Roasting Hen.
 - 4) Date of Packing -ex. July 1, 1957.
 - 5) Name of Member -ex. Mary Jones.
 - 6) County -ex. Crook.

3. All containers and wrappings should be neat, suitable, properly sealed, well labeled and properly filled.

*Method of processing: Example: Steam blanched, water blanched, syrup blanched; dry pack, sugar pack, syrup pack, etc.

4. All products must be uniform and be a typical color; be practically free of defects; and have a flavor and odor typical of the variety or product.
5. Use the timetable for blanching in the Oregon State College Extension Bulletin 688, "Freezing Preservation of Fruits and Vegetables."

JUDGE YOUR FROZEN FOODS

<u>CONTAINER OR WRAPPING:</u>	Good	Fair	Improve
1. Neatness			
*2. Suitability			
*3. Seal			
4. Label			
<u>PACK:</u>			
*5. Attractiveness			
6. Uniformity			
*7. Proper fill			
<u>CONTENTS:</u>			
8. Selection			
9. Maturity			
*10. Texture: tender, not mushy			
11. Natural color			
*12. Free from defects			
*13. Natural flavor or odor			

FRUITS AND VEGETABLES

Explanations of points in judging chart above.

CONTAINER

1. Neatness--Clean, orderly, and undamaged.
2. Suitability--
 - a. Usability: Easy to get materials out in the frozen state. Can be stacked in locker easily.
 - b. Moisture-vapor proof: Protection against loss or entry of moisture or odors.
3. Properly sealed--Liquid tight during freezing, storage or thawing--bags completely sealed.
4. Label--Must be complete and accurately filled out as directed. Can be written with typewriter, waterproof ink, or wax pencil.

SAMPLE OF RECOMMENDED LABEL

Product: _____ Method of processing** : _____
 Variety of product: _____ Date of processing: _____
 Packed and exhibited by _____ County _____

*Items to be given special consideration in close decisions.
 **Method of processing: Example: Steam blanched, water blanched, syrup blanched, dry pack, sugar pack, syrup pack, etc.

PACK

5. Attractiveness--Appetizing in appearance.
6. Uniformity--No special consideration is given to "fancy" pack.
 - a. Size: If cut, pieces should all be about the same size.
If fruits and vegetables, should be reasonably uniform in size.
 - b. Texture: All pieces should be uniform in texture, not green fruit which might give hard texture combined with overmature fruit which would be mushy.
7. Properly filled--
 - a. Containers should be efficiently filled.
 - b. Head space should be at a minimum when frozen.
 - c. When syrup is used it should completely cover the product. Ascorbic acid may be added to the fruits that oxidize readily. Crumpled wax paper or cellophane may be placed under the lid to hold the fruit under the syrup.

CONTENTS

8. Selection--The variety used should be suitable for freezing. Example: Stratagem peas not Surprise peas. Products chosen better suited to freezing than other methods of preservation.
9. Maturity--The uniform maturity yielding the best color, flavor, and texture for the specific variety or type of product. Common defect of cut fruit is the use of immature fruit which is not suitable for freezing -ex. Frying chicken should be a young bird.
10. Texture--The fruit should be tender without being mushy and firm without being hard or tough. The product will be no better after freezing than it was when put into container. Exhibits should show no evidence of having thawed in transit.
11. Color--Color should be of a practically uniform bright color, internally and externally typical of the variety or type of product. Not dark from oxidation. Example: Peaches turn brown when oxidized. Meat wrapped improperly gets "locker burn."
12. Free from defects--The product should be free of bruises, or other blemishes of any kind. Foreign matter, loose hulls, peel, or other material should not be present. Products will be defrosted and examined for blemishes and quality.
13. Natural flavor and odor--The product should be free from objectionable flavors or off flavors or objectionable odors of any kind. Example: No cob flavor in corn. Flavor should not be flat from product being washed too much. All blanched samples should be adequately blanched to destroy enzyme activity. Ribbon winners will be subject to taste test by the judges.

RECORDS

Record all work done in the record book in the spaces provided for this purpose. Write neatly. If more work is done than required, record that also. If there is not enough space for all records, extra pages may be inserted. A special record is available for members taking the Precooked and Prepared Frozen Foods division.

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