# 4-H Food Preservation Leader Guide

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The 4-H Food Preservation project gives 4-H members the opportunity to express creativity, practice decision-making, and learn skills that will be useful throughout their lives. As a 4-H Food Preservation project leader, you set the stage to help members:

- Learn principles of safe food preservation
- Practice food preservation techniques in canning, freezing, and drying
- Use preserved food creatively in meals and snacks
- Share what they learn in meaningful ways

The project has three levels: Beginning, Expanding, and Advanced. Each level builds upon skills learned previously.

Members of any age who are just beginning the project should start with the Beginning Level. Members are encouraged to repeat techniques until they learn the skills. They may spend as many as 3 years in each level to fully explore the skills and options before moving on. Learning activities in each level are outlined on pages 4–5.

## The role of parents

Members at all levels need to practice techniques at club meetings. Many learning experiences take place at home as well. For some activities, safety is an important consideration, as members are working with heavy jars and canners, hot liquids, and a variety of equipment. Therefore, it is important that parents understand their role as supervisors of food preservation activities. Be sure parents receive the member handouts that discuss expectations of them and goals of the project.
Invite parents to the first meeting, if possible, and talk about the goals of the project; what members will be doing; and the number, length, time, and place of project meetings. Parents might also help with transportation to and from meetings or help with a tour or field trip.

Resource materials

Important: be sure to use the most current instructions from a reliable source when preserving foods.

- Many materials are available from your local Oregon State University Extension Service office. Most of these are in the Family Food Educator notebook.
- You can find the *USDA Complete Guide to Home Canning* on the web.
- You can buy the *Ball Blue Book of Preserving* (Ball Corporation, Muncie, Indiana) where preserving supplies are sold. Be sure to use one that is copyright 2006 or later.
- You can find jam and jelly recipes on pectin product inserts and web sites. However, be sure to seal the jars following USDA recommendations for boiling water canning.
- More specific 4-H Food Preservation Project resources are listed for each level on the OSU Extension 4-H web site under Home Economics projects. General references on being a club leader and organizing a club can be found on the same web site under Volunteers.

In all cases, use the most current recommendations.

Teaching techniques

As a 4-H leader, you are a teacher. If you use a variety of teaching techniques, you can stimulate and maintain interest in the project. Some of these techniques are listed here.

Demonstrations

A demonstration is showing by doing. You or other adults will demonstrate techniques to club members, and members might be expected to share what they have learned by demonstrating techniques to others. Plan to ask every club member to give an informal “mini-demonstration” to the club showing a skill they have learned. Doing this also gives each member an opportunity to practice speaking in front of a group.

Supervised practice sessions

Subject matter can be taught most effectively by having members practice techniques that the leader has demonstrated. To reinforce their learning, it is important for members to see and sample products soon after completing the preservation process.

Since the preservation process is often too long to complete during a meeting, you might need to examine and evaluate some products at the next meeting. You might occasionally find it worthwhile to preserve a product ahead of time. That way, a finished product can be seen and sampled by members as they preserve the same product. This immediate feedback helps keep the members’ interest.

Field trips

Field trips can be enjoyable learning experiences. Possibilities include visits to:

- Stores or stands that sell fresh produce
- Stores that sell equipment for preserving food
- Facilities that package or process fruits, vegetables, or meats

Experiments

Experiments help members explore the whys and hows of food preservation, such as:

- How does the packing method affect the color of frozen food?
- Why is light-colored fruit treated before drying?
- What effects does blanching have on the color, texture, and flavor of frozen vegetables?

Some examples of experiments are on pages 8–9.
Other

There may be other learning opportunities available in your area, such as:
• Foods and nutrition participation days
• Food preservation judging or meal contests
• Educational displays
• Special community activities
  Check with your local OSU Extension Service office about possibilities.

Ways to share

Encourage club members to share their skills with others and show what they have learned. Member materials include suggestions for each of the three project levels. They may include:
• Giving presentations at project meetings, shopping areas, service clubs, farmer’s markets, and outdoor cookery or backpacking group meetings
• Making displays for store windows, libraries, and schools
• Preparing meals or snacks for families and friends, using preserved foods
• Making a preserved foods gift package for someone
• Becoming a junior or teen leader or otherwise helping younger members learn food preservation techniques
• Participating in fairs or contests, such as:
  – An individual educational display
  – A club educational exhibit
  – A presentation
  – A foods contest
  – An individual exhibit
Help members check exhibit requirements in the fair premium books as they plan their exhibits or other participation. You’ll find more information on preparing presentations and displays on the OSU Extension 4-H web site under Communications.

Topics to share through presentations and displays can be based on any of the skills or information a club member is learning. Topic examples include the following:

**Beginning level**
• Choosing containers for freezing
• Using canned or frozen fruits in recipes
• Selecting fruit to preserve

**Expanding level**
• Pretreating fruit for drying
• Reconstituting and using dried fruit
• Selecting and using a pressure canner
• Steps in making juice
• Selecting pectin for jelly
• Pretreating vegetables for freezing
• Making quick pickles or relish

**Advanced level**
• Choosing a food preservation method for meat, poultry, or fish
• Pickling methods
• Preparing a meal for one or two using preserved foods
• Planning a backpacking meal of dried foods
• Preparing and freezing a convenience food
• Preparing a quick meal using preserved foods
• Storage and shelf life of preserved foods
• Comparing the costs, quality, and flavor of home canned foods with store-bought foods

Evaluation

Young people often measure progress in terms of success. They feel satisfaction when they can see improvement or progress in their work. Family and friends are a source of evaluation and feedback when club members serve preserved foods at meals or snack time. Fair exhibits offer a member an opportunity to be evaluated by a qualified judge.

Self-evaluation is perhaps the most effective, because it measures self-development. You can help members informally evaluate their own accomplishments by asking them to ask themselves:
• What did I learn?
• How did I share what I learned with others?
• What shall I plan to do or learn next?

Feeling good about accomplishments can often be a better indicator of success than a blue ribbon.
An overview

**Beginning Level**

*Skills to learn*
- Making cooked and uncooked jam
- Canning fruit and tomatoes using a boiling water canner
- Freezing fruit
- Drying fruit leather
- Using preserved foods in recipes
- Selecting and using food preservation equipment
- Labeling preserved food correctly
- Keeping food safe to eat

*Suggested activities to do at home*
Choose at least two each year:
- Can jars of fruit and/or tomatoes. Try different berries and other kinds of fruits.
- Freeze containers of fruit. Try different berries and fruit.
- Prepare jam with added pectin, uncooked and/or cooked.
- Make fruit leather. Try different kinds of fruit or combinations.
- Prepare a dish from a recipe using preserved tomatoes.

*Exhibits (optional)*
Possible exhibit choices are detailed in the class descriptions of the county and state fair books. All exhibits must be accompanied by complete information and instructions/recipe for the product on the 4-H Food Preservation Exhibit Explanation card. Label products as described in the books.
Choose from:
- Canned fruit or berries
- Canned tomatoes (using boiling water canner)
- Fruit leather
- Cooked jam using commercial pectin
- Cooked jelly using commercially available juice and pectin
- Gift pack of preserved foods

**Expanding Level**

*Skills to learn*
- Making juice from fruits or tomatoes
- Making fruit jelly with commercial pectin
- Canning syrups
- Canning fruit pie fillings
- Canning vegetables or tomatoes using a pressure canner
- Making quick (non-fermented) pickles and relishes
- Freezing vegetables
- Drying fruits, vegetables, and herbs
- Using preserved foods in meals
- Developing a family food preservation plan
- Evaluating preserved foods

*Suggested activities to do at home*
Choose two or more each year:
- Make juice from fruit or tomatoes. Try different kinds of fruits.
- Make syrup from fruit juice you have extracted.
- Make jelly using commercial pectin. Try different kinds of juice.
- Can fruit pie fillings.
- Can vegetables or tomatoes using a pressure canner. Try different kinds of vegetables.
- Freeze vegetables. Try different kinds of vegetables.
- Make quick pickles from fruit or vegetables.
- Make one or more types of relish.
- Dry fruit, vegetables, or herbs. Try a variety of sizes of cut pieces depending on how you plan to use them.
- Make a family food preservation plan.
- Serve three or more preserved foods.
- Continue to label your products clearly and fully.
- Use the standards to evaluate your preserved foods for quality and safety.

*Exhibits (optional)*
Possible exhibit choices are detailed in the class descriptions of the county and state fair books. All exhibits must be accompanied by complete information and instructions/recipe for the product.
on the 4-H Food Preservation Exhibit Explanation card. Label products as described in the books.

Choose from:
- Cooked jelly
- Dried fruit
- Dried vegetables
- Dried herbs
- Canned vegetables or tomatoes
- Canned pie filling
- Canned syrup or juice
- Quick pickles
- Relish
- Gift pack of preserved foods

**Advanced Level**

**Skills to learn**
- Making fermented pickles or sauerkraut
- Canning meat, poultry, and fish
- Canning a concentrated tomato product (tomato sauce or ketchup)
- Canning salsa
- Making jelly or jam without added commercial pectin
- Canning vegetable-meat combinations
- Freezing meat, poultry, and fish
- Making and freezing prepared foods
- Drying meat or poultry jerky
- Drying herbs and making a seasoning combination
- Using preserved foods in meals
- Developing a family food preservation plan
- Evaluating preserved foods

**Suggested activities to do at home**

Choose at least three each year:
- Can a concentrated tomato product such as tomato sauce or ketchup.
- Can meat, fish, or poultry. Try several different kinds.
- Can a combination dish that might make the basis for an easy meal.
- Make and preserve salsa by canning.
- Make jelly or jam without added commercial pectin.
- Make fermented pickles or sauerkraut.
- Freeze meat, poultry, or fish.
- Make and freeze casseroles or other dishes to make your own convenience foods.
- Dry meat or poultry jerky.
- Dry herbs and make a seasoning combination.
- Make a food preservation plan. Note the shelf life of the different products.
- Serve three or more preserved foods in meals.
- Use standards to evaluate your preserved foods for quality and safety.
- Continue to label your products clearly and fully.

**Exhibits (optional)**

Possible exhibit choices are detailed in the class descriptions of the county and state fair books.
All exhibits must be accompanied by complete information and instructions/recipe for the product on the 4-H Food Preservation Exhibit Explanation card. Label products as described in the books.

Choose from:
- Canned meat, fish, or poultry
- Canned tomato sauce or ketchup
- Canned combination dish
- Canned salsa
- Dried meat or poultry jerky
- Dried herb seasoning combination
- Fermented (brined) pickles or sauerkraut
- Cooked jelly or jam without added commercial pectin
- Gift package of preserved foods

**Meeting outlines**

The meeting outlines on the following pages are examples. They suggest discussion topics, learning activities, and references. Adapt and modify them to fit your club members’ needs and interests, available resources, and your own creative efforts. You may wish to have more than seven meetings. You can plan winter activities in addition to those for the summer food preservation season.

Members who are enrolled in a level for more than 1 year can repeat activities with a variety of products or modify them by adding new topics, learning games, or ways of sharing.
**Meeting 1**
Before Meeting 1, make one batch of freezer jam for tasting.

**Discussion**
- Overview of the food preservation project: goals, activities, ways to share
- History of Food Preservation (see page 8)
- Ways food is preserved
- Kitchen safety
- Steps in making freezer jam

**Activities**
- Make a berry freezer jam (store until Meeting 2)
- Fix biscuits or toast and serve with the jam you made before the meeting.

**References**
- 4-H Food Preservation Beginning Level, 4-H 93310
- Ways Food is Preserved, SP 50-493
- Uncooked Freezer Jams, SP 50-763

**Meeting 2**

**Discussion**
- Evaluating freezer jam (from Meeting 1)
- Selecting fruit to preserve
- Choosing containers for freezing
- Steps in freezing
- Labeling frozen foods

**Activities**
- Freezing fruit experiment (see page 8) (Store frozen fruit until Meeting 5)

**References**
- Labeling Preserved Foods, 4-H 93313
- Freezing Fruits and Vegetables, PNW 214

**Meeting 3**

**Discussion**
- Choosing equipment for canning fruit (jars, lids, boiling water canner)
- Using a boiling water canner
- Steps in canning fruit
- Labeling canned foods

**Activities**
- Practice using a boiling water canner
- Can a fruit

**References**
- Canning Equipment, SP 50-495
- Labeling Preserved Foods, 4-H 93313
- Canning Fruits, PNW 199

**Meeting 4**
Before Meeting 4, make a batch of fruit leather for tasting.

**Discussion**
- Evaluating canned fruit (from Meeting 3) (see page 11)
- Role of fruit in the diet (nutrients provided and amounts needed)
- Using canned fruit in recipes
- Steps in making fruit leather

**Activities**
- Prepare fruit leather

**References**
- Making Dried Fruit Leather, FS 232
- Canning Fruits, PNW 199
- Canned Fruits and Tomatoes: Problems and Solutions, SP 50-743

**Meeting 5**

**Discussion**
- Evaluating fruit leather (from Meeting 4) (see page 10)
- Preparing tomatoes for canning
- Talk about ways to share (see page 3)

**Activities**
- Can tomatoes (using a boiling water canner)
- Thaw frozen fruit (from Meeting 2 experiment) and compare the batches

**References**
- Making Dried Fruit Leather, FS 232
- Canning Fruits, PNW 199
- Canning Tomatoes and Tomato Products, PNW 300

**Meeting 6**

**Discussion**
- Evaluating canned tomatoes (from Meeting 5) (see page 11)
- Continue discussion of ways to share what you have learned
- Using tomatoes in recipes

**Activities**
- Prepare recipes using canned tomatoes and/or canned fruit

**References**
- Any cookbook
- Using Preserved Foods Safely, SP 50-494
**Meeting 7**  
Sharing what has been learned.

**Additional meetings or years**  
Topics to be explored at this level include:
– Cooked jams with various pectin types, including low sugar options
– A variety of fruits and berries for canning and/or freezing
– A variety of fruit or fruit combinations for fruit leather

Additional specific resources are listed on the OSU Extension 4-H web site.

**Expanding Level**

**Meeting 1**  
**Discussion**
– Overview of the food preservation project for the Expanding Level
– Ingredients necessary for gel formation
– Steps in making jelly using canned, bottled, or frozen juice

**Activities**
– Make jelly with liquid and/or powdered pectin

**References**
Directions and recipes from pectin inserts
MyPyramid guidelines
4-H Food Preservation Expanding Level, 4-H 93320
Making Jellies, Jams and Fruit Spreads, SP 50-764

**Meeting 2**  
**Discussion**
– Evaluating jelly (from Meeting 1) (see page 10)
– Pretreating fruit for drying
– Steps in drying fruit

**Activities**
– Pretreat fruit for drying experiment (see page 9) (Store dried fruit until Meeting 3.)

**References**
Jams and Jellies: Problems and Solutions, SP 50-746
Drying Fruits and Vegetables, PNW 397

**Meeting 3**  
**Discussion**
– Evaluating dried fruit (from Meeting 2) (see page 11)
– Using dried and reconstituted fruits in meals
– Preventing botulism
– Care and use of pressure canners

**Activities**
– Practice using pressure canners

**References**
Drying Fruits and Vegetables, PNW 397
Enjoying Home Dried Fruits and Vegetables, SP 50-587
You Can Prevent Foodborne Illness, PNW 250
Using Preserved Foods Safely, SP 50-494
Using and Caring for your Pressure Canner, PNW 421

**Meeting 4**  
**Discussion**
– Selecting vegetables to preserve
– Review steps in canning
– Role of vegetables in the diet (nutrients provided and amounts needed)
– Making a food preservation plan

**Activities**
– Can a vegetable or tomatoes (using a pressure canner)
– Make a family food preservation plan

**References**
Canning Vegetables, PNW 172
Canning Tomatoes and Tomato Products, PNW 300

**Meeting 5**  
**Discussion**
– Evaluating canned vegetables (from Meeting 4) (see page 12)
– Blanching vegetables for freezing (and drying)
– What to do when your home freezer stops
– Discuss ways of sharing

**Activities**
– Prepare a vegetable for freezing
– Blanch vegetables for freezing experiment (see page 9) (Store frozen vegetables until Meeting 6.)

**References**
Canned Vegetables: Problems and Solutions, SP 50-742
Freezing Fruits and Vegetables, PNW 214
You Can Prevent Foodborne Illness, PNW 250
If Your Home Freezer Stops, SP 50-470
Meeting 6
Discussion
– Evaluating frozen vegetables
– Using frozen vegetables in meals
– Steps in making quick pickles
Activities
– Compare batches of frozen vegetables (from Meeting 5)
– Make quick pickles
References
Pickling Vegetables, PNW 355
Analyzing Pickle Recipes, SP 50-464
Pickle Fact Sheet, SP 50-466

Meeting 7
Discussion
– Evaluating pickles (from Meeting 6) (see page 13)
Activities
– Sharing What Has Been Learned — A meal, presentation, etc.
References
Pickles & Relishes: Problems & Solutions, SP 50-744

History of food preservation
Humans did not preserve food centuries ago. As a result, primitive humans had a very scant diet when fresh food was hard to find.

Then, one day, humans started to store seeds, grains, and nuts in caves—the earliest steps toward food preservation! Soon they discovered that meat could be kept for some time by hanging it outside to freeze in the winter or by placing it in a cold spot in a cave. Later, they found that they could dry meat by placing thin strips in the sun. Eventually, smoked meat and salted meat were added to man’s store of preserved foods.

Many centuries passed before humans started to use more sophisticated methods of food preservation. We can thank the great French General Napoleon Bonaparte for popularizing the use of canned foods. When his troops were suffering from a poor quality diet in the 1790s, he offered a reward to anyone who could invent a good method of food preservation.

The award was won by Nicholas Appert, a French candymaker. Appert packed heated food into glass bottles which he then sealed with corks. He placed the bottles in a kettle of water and gradually heated them for varying lengths of time (depending on the kind of food being preserved). This was the foundation for our modern canning procedure.

By 1924, more and more people began to use mechanical refrigerators. This paved the way for frozen foods. Clarence Birdseye is given credit for developing quick freezing processes and for promoting the use of home freezers.

Throughout history, food preservation techniques have guaranteed humans a supply of nutritious food throughout the year.

Experiments
Packing light-colored fruit for freezing (Beginning Level)
Purpose: To evaluate the effect of packing method on the color of frozen fruit
Reference: Freezing Fruits and Vegetables, PNW 214

Prepare 2 pounds of a light-colored fruit (apples, peaches, or pears) for freezing. Divide the fruit into three batches and pack each batch a different way, as follows:

1. Syrup pack
   (Add ascorbic acid or a commercial anti-browning mixture.)
2. Dry sugar pack
   (Add ascorbic acid or a commercial anti-browning mixture.)
3. Dry pack (no sugar)
   (Do not add ascorbic acid.)

Pack into separate freezer containers; seal, label, and freeze.

After 3 to 4 weeks, thaw and compare the color of the batches. Is the color light (like the original color), slightly brown, or very brown? Is there a difference in the sweetness?

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<th>Color of product</th>
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<tr>
<td>Syrup pack</td>
<td></td>
</tr>
<tr>
<td>Dry sugar pack</td>
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<tr>
<td>Dry pack</td>
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Discussion questions
Are there differences in the color? Why?
Are any of the batches too brown to serve?
How could you use fruits packed in syrup?
Fruits packed in sugar?

Science “Why”
Enzymes cause light-colored fruits to turn brown when they are exposed to the air. Fruits that have been treated with an anti-browning compound (such as ascorbic acid) hold their color better.
Personal preference will determine whether untreated fruit (i.e., no anti-browning compound) is too brown to serve.
Fruits packed in syrup could be served as a dessert. Fruits packed in sugar might be used for a pie.

Blanching vegetables for freezing (Expanding Level)
Purpose: To evaluate the effect of blanching on the color, texture, and flavor of frozen vegetables.
Reference: Freezing Fruits and Vegetables, PNW 214
Prepare 1 pound of Chinese or other edible-pod peas for freezing. (The experimental results are more clear-cut when this vegetable is used.) Wash the peas; remove stems, blossom ends, and strings; leave whole.
Divide the peas into two batches. Blanch one batch 2½ to 3 minutes; cool immediately. Do not blanch the second batch.
Pack into separate freezer containers; seal, label, and freeze.
After 1 to 2 weeks, thaw, cook, and compare the color, texture, and flavor.
Is the color natural or off-color? Is the flavor typical or “hay-like?” Are the peas tough or tender?

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<th>Type of pretreatment</th>
<th>Color of product</th>
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<tbody>
<tr>
<td>Example: no pretreatment</td>
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Discussion question
Were there differences in the color, flavor and texture? Why?

Science “Why”
Enzymes cause light-colored fruits to turn brown when exposed to air. Pretreating by dipping or blanching before drying helps prevent browning.
The method that you choose to prevent browning will depend on the fruit you are drying, the ingredients you have available, and your own personal preferences. If you don’t mind brown dried fruit, you may decide not to pretreat your light-colored fruit at all.

Pretreating light-colored fruit for drying (Expanding Level)
Purpose: To evaluate the effects of pretreating on the color of dried fruit.
Reference: Drying Fruits and Vegetables, PNW 397
Prepare 2 to 3 pounds of a light-colored fruit (apples, peaches, pears) for drying.
Divide the fruit into several batches. Leave one batch untreated. Pretreat each of the other batches a different way. Choose among:
– Ascorbic acid dip
– Citric acid dip
– Salt dip
– Syrup blanching
Label each batch and dry as directed.
After drying, compare the results. Is the color light (like the original color), slightly brown, or very brown? (Members might also reconstitute the fruit and compare the flavor and texture.)

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<tbody>
<tr>
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Discussion questions
Which method was the most effective way to prevent browning? The least effective?
Is it always necessary to pretreat light-colored fruit before drying?

Science “Why”
Enzymes cause light-colored fruits to turn brown when exposed to air. Pretreating by dipping or blanching before drying helps prevent browning.
The method that you choose to prevent browning will depend on the fruit you are drying, the ingredients you have available, and your own personal preferences. If you don’t mind brown dried fruit, you may decide not to pretreat your light-colored fruit at all.
Evaluating Preserved Foods

Evaluating jam and jelly

See Jams and Jellies: Problems and Solutions, SP 50-746

Judging score cards
- Jam Check Sheet, 512-01
- Juice, Jelly and Syrup Check Sheet, 512-02

Appearance

Jam
Evenly crushed or small pieces of fruit, natural color.
Fruit tender, no excessive seeds or rough skins.

Jelly
Color as nearly like the natural color as possible.
Clear and translucent; free from sediment and cloudiness.

Consistency

Jam
Soft enough to spread.

Jelly
Firm enough to hold shape yet tender and quivery.
Holds sharp edge when cut.

Container

Jam
Clean standard jar, properly labeled.
Vacuum sealed with a two-piece metal lid.
Free from cracks, rust, or other damage.
Sealing with lids by processing in a boiling water canner is required for exhibit.

Jelly
Clean standard jar, properly labeled.
Vacuum sealed with two-piece metal lid.
Free from cracks, rust, or other damage.
Sealing with lids by processing in a boiling water canner is required for exhibit.

Flavor
Characteristic of fruit(s) used; free from scorched or burned taste

Common problems/probable reasons
See Jams and Jellies: Problems and Solutions, SP 50-746

Evaluating fruit leather

Judging score cards
- Dried Foods Check Sheet, 512-06

Appearance

Appropriate and even thickness
Color appropriate for product; not overly dark
Free from large seeds, most peelings, and large pieces of fruit
Free from mold

Texture
Leathery and pliable
Not overly sticky, crisp, or brittle

Flavor
Characteristic of fruit(s) used; free from scorched or burned taste

Cloudy
Juice not well-strained or jelly not well-skimmed
Poured too slowly or from too great a distance above glass
Allowed to cool before pouring in glasses
Jelly set too fast, usually because of unripe fruit

Soft
Too much juice
Too little sugar
Mixture not acidic enough
Cooking too large an amount at one time
Too little cooking

Stiff
Too much pectin
Overcooking

Crystals (jelly)
Too much sugar
Cooking too little, too slowly, or too long
Crystals on top may be caused by evaporation

Weeping (jelly)
Too much acid
Storage place too warm or temperature fluctuation

Fermented, moldy (jelly)
Too little sugar
Too little cooking
Improper sterilization of jars or poor seal
Evaluating dried fruits and vegetables
Judging score cards
  Dried Foods Check Sheet, 512-06

Appearance
Color appropriate for product and uniform; not overly dark; no signs of mold
Pieces are neatly cut, uniform in size and suitable for later use; free from cores and objectionable seeds or peel

Texture
Fruits
  Leathery and pliable. Not overly sticky or brittle
Vegetables
  Hard, brittle; dry enough to rattle

Flavor/Odor
Fruit
  Similar to natural fruit; free from scorched or burned taste
Vegetables
  Pleasant odor; after rehydrating should taste like fresh product

Common problems/probable reasons
Off color
  Not properly pretreated
  Drying at too high a temperature or too long
Too hard
  Overdried
Too moist
  Underdried

Evaluating meat jerky
Judging score cards
  Dried Foods Check Sheet, 512-06

Appearance
Pieces thin and fairly uniform in thickness
Uniform color
All fat removed

Texture
Pieces uniformly dry; leathery but not brittle
Not hard or tough
Piece cracks but does not break when bent

Evaluating canned fruits
See Canned Fruits and Tomatoes: Problems and Solutions, SP50-743
Judging score cards
  Canned Fruit and Vegetable Check Sheet, 512-04

Appearance
Fruit
  Uniform in size, color, shape
  Well-ripened, free from bruises or brown spots
  Fresh, tender, firm
  Clean-cut edges, shape well-preserved
  Color as natural as possible
    - No undue bleaching or darkening
    - No artificial coloring
  Free from mold, discoloration, or other indications of spoilage
  Flavor characteristic of the fruit; not overpowered by sweetener

Liquid
  Clear, bright
  Free from sediment, cloudiness, and bubbles
  Covers food in jar
  Syrup of consistency suitable for product

Pack
  A firm but not tight pack
  Sufficient liquid to cover food
  Fruit packed to ½ inch from top of jar
  Liquid to within ½ inch from top of jar

Container
  Clean standard jar
  Vacuum sealed
  Free from cracks, rust, or other damage
  Properly labeled

Recommendations for specific fruits
Apples
  Free of seeds and skin
  Pared and quartered or canned as sauce
  Not dark (caused by overcooking with too much sugar)

Apricots
  Peeled or canned with skin left on
  Not floating

Peaches
  Peeled or canned with skin left on
  Not floating
  Halves packed upside down in overlapping layers
  Fruit free of fuzz or skin

Pears
  Pared and cut into even pieces or halves
  Fruit white and firm, but tender

4-H Food Preservation Leader Guide
Rhubarb
Skin left on to give better shape and color

Common problems/probable reasons
Fruit soft and mushy
Overripe fruit
Overcooking
Fruit looks hard
Underripe fruit
Product is floating
Syrup too heavy
Fruit overripe
Pack too loose
Fruit processed too long or at too high a temperature

Evaluating canned vegetables
See Canned Vegetables: Problems and Solutions, SP 50-742
Judging score cards
Canned Fruit and Vegetable Check Sheet, 512-04

Appearance
Vegetables
Prime stage of maturity, tender and firm; not tough or old, woody, or mushy
Uniform in size and shape
Natural, clear, bright color (not unduly bleached or darkened; no artificial coloring)
Not overcooked; shape well-preserved
Free from indications of spoilage

Liquid
Clear
Free from cloudiness, bubbles, or extraneous material

Pack
A firm but not tight pack
Pieces well arranged to use the space to advantage
Vegetables packed to ½ inch from top of jar (except corn, peas, and shelled beans which should be ¾ inch from top)
Sufficient liquid to cover food and make a loose pack of greens, corn, shelled peas, and beans
Liquid on all packs to within ½ inch from top of jar

Container
Clean, standard jar
Vacuum sealed
Free from cracks, rust or other damage
Properly labeled

Recommendations for specific vegetables
Beans
Beans in pods not over ⅛ inch in diameter
Few, if any, free beans
Beets
Peeled, all traces of skin removed, stem end and root cut off
A deep, even red color
Carrots
Only young carrots used
Scraped or pared well; smooth surface with no skin
Corn
Distinct kernel in fairly clear liquid preferred
Pack full, but not too dense
Corn free from silk or pieces of cob
Greens
Heavy stems removed
Thoroughly washed; no dirt or grit showing in jar
Pack full but not too tight
Color reasonably bright green
Peas
Clear liquid
Tomatoes
Cut and whole tomatoes not combined
Strained tomato juice, instead of water, preferable liquid
A bright red color
Free from cores and skin; seeds may show

Common problem/probable reasons
Cloudy liquid
Starch from overripe vegetables
Spoilage
Minerals in hard water

Evaluating canned meats
See Canned Meat, Poultry and Fish: Problems and Solutions, SP 50-741
Judging score cards
Canned Meat and Fish Check Sheet, 512-05

Appearance
Meat
Firm, normal color, free of gristle and excess fat
Cut across grain into uniform, attractive pieces
Moist, not overcooked

Liquid
Gels when cold
Preferably covers meat
Clear with little sediment (meat canned raw-pack will have more sediment than a precooked pack)
Layer of fat at top not more than ½ to 1 inch

Pack
Pieces of uniform size, appropriate to serve
Packed to within ½ to 1 inch from top of jar
Full pack, but not too tight to prevent good heat penetration in processing
Liquid preferably covers meat

Container
Clean, standard jar
Vacuum sealed
Free from cracks, rust or other damage
Properly labeled

Common problem/probable reason
Fat layer too thick
Failure to remove enough fat

Evaluating pickles
See Pickles and Relishes: Problems and Solutions, SP 50-744
Judging score cards
Pickles and Relishes Check Sheet, 512-03

Appearance

Fruit or cucumber
Uniform in size, color, and shape
Plump, not shriveled or soft
Natural color characteristic of the kind of pickle
No artificial color

Liquid
Clear

Pack
Full without crowding
Sufficient liquid to cover food
Liquid to ½ inch from top of jar

Container
Clean, standard jar
Vacuum sealed
Free from cracks, rusts, or other damage
Properly labeled

Common problems/probable reasons
Shrivelng
Too strong brining solution
Soft or slippery
Brine or vinegar too weak
Pickles not kept covered with liquid
Scum not removed daily during brining
Jars not sealed airtight
Pickles stored in warm area