

March 2006

# NEOHOMA

*The NEw Oregon HOmeMAker*

Quarterly Newsletter for Coos County Family Food Education Program  
Oregon State University Extension Service

## Pectin And Its Partners

Jams, jellies and the like have been produced for many years — at least since the 18th Century. Recipes were published in the "London Housewife's Family Companion" of 1750 which described jellies made from apple, currant, and quince, all fruits rich in gelling pectin. Pectin was first isolated in the 1820s, and shown to be the key to making jams and jellies. Gradually, people mixed fruits that set readily with fruits that do not set well — strawberry with red currant, for example. Extracts of apple peels and cores were also used for "difficult to set" jams.

Commercial jam producers soon began searching for abundant supplies of pectin. German apple juice producers began drying the residue left after pressing apples for juice for sale to commercial jam makers, who would cook the dried apple residue in water, with or without fruit juice, to make a *jellying* juice. The first commercial production of a liquid pectin extract was recorded in 1908 in Germany, and the process spread rapidly to the United States, where a patent was obtained by Douglas (US Pat. 1,082,682) in 1913. This was followed by a rapid growth of the pectin industry in the United States, and later in Europe. In recent years, the center of production has moved to Europe and to citrus-producing countries like Mexico and Brazil. Further changes in the industry continue. These changes are constrained by the need for large capital investment to set up a plant of economic size, and the need for convenient, large-scale sources of raw material.

Working with pectin has its own rewards, as anyone who has ever witnessed this fascinating substance transform hot fruit syrups into delicate gels could attest. A glass jar filled with your favorite jam or jelly on the table just says "Home". Often we deliberately leave it sitting on the table, like a bottled jar of sunshine, to lift our spirits on a dull wintry day — a treasured dividend from our gathering and preserving tasks the previous summer. Berries and fruits, picked at peak condition and turned quickly into jams and jellies, afford an opportunity to experience the pleasures and rewards of "making your own".

skin and core of raw fruit. However, in varying degrees, it is found in all plants. In nature, it functions as the structural "cement" that helps hold cell walls together. In solution, pectin has the almost uncanny ability to form a mesh that traps liquid, sets as it cools, and, in the case of jam, the mesh supports suspended bits and pieces of fruit.

Pectin needs partners, namely acid and sugar, to do the job of gelling properly. Acid helps extract pectin from fruit during the cooking process and *helps* the gelling process. A sugary liquid, properly cooked with an acid, will set or gel. When fruits or berries aren't sufficiently

Pectin is a carbohydrate found mostly in the

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# Family Food Education Program Coos County



*Stephanie Polizzi, Program Administrator*

*Blooming, Growing and Springing into Action  
NEOHOMA 2/06*

What a delight to see the daffodils and tulips brightening our days this time of year. But flowers aren't the only thing blooming this Spring. Our Family Food Education program is taking on some promising new blossoming of its own.

**Blooming:** It begins in April with this nutrition educator learning the ways of food safety and preservation. I'll be attending the 8-week training and should emerge fully knowledgeable and ready to meet the challenges just in time for our local trainings. Yes, we have TWO food safety and preservation trainings scheduled to begin in May, one in Coos County and one in Curry County. Both trainings will be conducted by our Coos County FFE extraordinaire, Marlene Neideigh and we are thrilled she has accepted this monumental task.

**Growing:** With these food safety and preservation trainings, we are hoping to encourage new members to participate in the FFE program and improve our capacity to reach larger target audiences. We are also making plans to grow the program to include the new nutrition curriculum. Not only will the nutrition training provide current volunteers the opportunity to develop their knowledge base, but hopefully, we will attract new members who see the value in expanding nutrition education in the community. The nutrition training will be offered in September in a one-day training in both counties.

Newly nutrition-trained FFE will be exposed to the Smart Start Eating and Reading curriculum which we will use to facilitate nutrition education in elementary schools. It's easy, fun and will help us to impact the health of our community youth. In addition, FFE volunteers have been asked to provide education and support for community gardens, food banks and gleaning groups. You may start seeing us at school wellness projects, community centers, health fairs and fund raising events.

**Springing into Action:** Our workshop schedule is budding and blooming all over both counties. Coos County FFE have 13 workshops planned from April to October. Curry County FFE have fewer workshops but several community events, and of course there are the county fairs! We have really focused on increasing our visibility and exposure in the community but we're not done yet!

We're in the process of developing a brochure to introduce the FFE volunteer program to the communities we serve. This pamphlet will include our events, workshops and training schedule and will aid in growing our capacity to make connections.

**Cultivating and Decorating:** So you see, Spring for the Family Food Educators is about cultivating and growing relationships. With all the seeds we have planted and our abundance of energy, we will decorate our communities with bright and appealing knowledge. Thank you all for your contributions in creating this new plan and for your continued commitment and support of this resplendent organization!

## OSU Extension Service Mission Statement

The Oregon State University Extension Service engages the people Of Oregon with research-based knowledge and education that focus on strengthening communities and economics, sustaining natural resources, and promoting healthy families and individuals.

## FAMILY FOOD EDUCATION PROGRAM GOAL

The goal of the Family Food Education Program is to assist the general public in the safe preparation and preservation of fruits, vegetables, meats and fish, through scientifically tested methods and recipes for canning, freezing, drying and smoking. These methods and recipes are disseminated via classes, workshops, telephone and Email service.

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## NEOHOMA

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Stephanie Polizzi  
Publisher  
Miller Chappell  
Editor

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tart, the recipe will call for added lemon juice. Sugar enhances the strength of the gel by attracting some of the water away from the pectin. In the absence of sufficient water, pectin molecules are more likely to unite with each other. Sugar also acts as a preservative; firms the structure of the fruit, and helps the jam or jelly hold its color and flavor.

barb (low pectin) for instance. Alternatively, commercially packaged pectin is added to fruits low in natural pectin. Increasingly, even high pectin fruits are combined with commercially produced pectin because the cooking time is usually reduced. Commercial pectin producers have developed pectin/acid combinations that permit jelling of fruits with little or no added sugar.

If you're using commercial pectin, remember that each jam or jelly recipe is designed to maintain the correct balance between pectin, acid, and sugar for the fruit you're using. If you tinker with the proportions or substitute liquid pectin for powdered pectin or vice versa, don't be surprised if your jam or jelly doesn't set properly.

Just-ripe fruits contain the highest pectin level. As the fruit ripens further, pectin turns to pectic acid thereby decreasing pectin content. In fruits that are not fully ripened the pectin has not properly developed. (Note: Under ripe fruit will cause your jam or jelly to look milky when the product has cooled to room temperature.) It's safe to eat but isn't as tasty as it could be.

Pectin content varies according to the type of fruit and its ripeness. Some fruits, such as apples, blackberries, cranberries, currants, grapes, and quince, are rich in natural pectin and therefore have an abundance of setting power.

Don't fall victim to advertisements for "jam berries" that imply that overripe, mushy fruit is optimal for preserving – 'taint so! In very ripe fruit, flavors are fully developed, but the pectin is likely past its prime. For best results, mix fully ripe fruit, which has the best flavor, with just-ripe fruit, which has the highest gelling power. Relegate the over ripe fruit to the compost pile.

Low pectin fruits are often combined with those high in pectin – orange (high pectin) and rhu-

Give jam and jelly making a try this season! Come winter you'll be happy you did!

## STRAWBERRY-RHUBARB JELLY

Yield: About 7 half-pint jars

1½ pounds red stalks of rhubarb	1½ quarts ripe strawberries
6 ounces liquid pectin	6 cups sugar
½ teaspoon butter or margarine (optional to reduce foaming)	

Wash and cut rhubarb into 1-inch pieces and blend or grind. Wash, stem and crush strawberries, one layer at a time, in a saucepan. Place both fruits in a jelly bag or double layer of cheesecloth and gently squeeze out juice. Measure 3½ cups of juice into a large saucepan. Add butter and sugar, thoroughly mixing into juice. Bring to a boil over high heat, stirring constantly. Immediately stir in pectin. Bring to a full rolling boil and boil hard 1 minute, stirring constantly. Remove from heat, quickly skim off foam and fill hot, sterile jars, leaving ¼-inch headspace. Wipe jar rims with a clean, damp towel and adjust lids/rings. Process for 5 minutes in boiling water canner (10 minutes above 1,000 ft.).

# Causes and Possible Solutions for Problems with Jellied Fruit Products

Table Provided by: National Center for Home Food Preservation  
University of Georgia Cooperative Extension Service

## JELLIES and JAMS

Problem	Cause	Prevention
Formation of crystals	1. Excess sugar.	1. Use a tested recipe and measure ingredients precisely
	2. Undissolved sugar sticking to sides of saucepot.	2. Dissolve all sugar as jelly cooks. If necessary, wipe side of pan free of crystals with damp cloth before filling jars.
	3. Tartrate crystals in grape juice.	3. Extract grape juice and allow tartrate crystals to settle out by refrigerating the juice overnight. Strain juice before making jelly.
	4. Mixture cooked too slowly or too long.	4. Cook at a rapid boil. Remove from heat immediately when jelling point is reached. Make small batches at a time; do not double tested recipes.
Bubbles	1. Air became trapped in hot jelly.	1. Remove foam from jelly or jam before filling jars. Ladle or pour jelly quickly into jar. Do not allow jelly or jam to start gelling before jars are filled.
	2. May denote spoilage. If bubbles are moving, do not use.	2. Follow recommended methods for applying lids and processing. (See Mold or Fermentation, below.)
Too soft	1. Overcooking fruit to extract juice.	1. Avoid overcooking as this lowers the jelling capacity of pectin.
	2. Using too much water to extract the juice.	2. Use only the amount of water suggested in the instructions.
	3. Incorrect proportions of sugar and juice.	3. Follow recommended proportions.
	4. Undercooking causing insufficient concentration of sugar.	4. Cook rapidly to jelling point.
	5. Insufficient acid.	5. Lemon juice is sometimes added if the fruit is acid deficient.
	6. Making too large a batch at one time.	6. Use only 4 to 6 cups of juice in each batch of jelly.
	7. Moving product too soon.	7. Do not move jellied products for at least 12 hours after they are made.
	8. Insufficient time before using.	8. Some fruits take up to 2 weeks to set up completely. Plum jelly and jellies or jams made from bottled juices may take the longer time.

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**Causes and Possible Solutions for Problems with Jellied Fruit Products**  
*(Continued from Page #4)*

**JELLIES and JAMS** *(Continued)*

<b>Problem</b>	<b>Cause</b>	<b>Prevention</b>
Syneresis or "weeping"	1. Excess acid in juice makes pectin unstable.	1. Maintain proper acidity of juice.
	2. Storage place too warm or storage temperature fluctuated.	2. Store processed jars in a cool, dark, and dry place. Refrigerate after opening.
Darker than normal color	1. Overcooking sugar and juice.	1. Avoid long boiling. Best to make small quantity of jelly and cook rapidly.
	2. Stored too long or at too high of temperature.	2. Store processed jars in a cool, dry, dark place and use within one year. Refrigerate after opening.
Cloudiness	1. Green fruit (starch).	1. Use firm, ripe fruit, or slightly under ripe.
	2. Imperfect straining of homemade juice.	2. Do not squeeze juice but let it drip through jelly bag.
	3. Jelly or jam allowed to stand before it was poured into jars or poured too slowly.	3. Pour into jars immediately upon reaching gelling point. Work quickly.
Mold or Fermentation (Denotes spoilage; do not use.)	1. Yeasts and mold grow on jelly.	1. Process in a boiling water canner. Test seal before storing. Pre-sterilize jars when processed less than 10 minutes in boiling water.
	2. Imperfect sealing. (Common also with paraffin-covered jellies.)	2. Use new flat lids for each jar and make sure there are no flaws. Pretreat the lids per manufacturer's directions. Use ring bands in good condition – no rust, no dents, and no bends. Wipe sealing surface of jar clean after filling, before applying lid.
	3. Improper storage.	3. Store processed jars in a dark, dry, cool place. Refrigerate after opening.
Too stiff or tough	1. Overcooking.	1. Cook jelly mixture to a temperature 8°F higher than the boiling point of water or until it "sheets" from a spoon.
	2. Too much pectin in fruit.	2. Use ripe fruit. Decrease amount if using commercial pectin.
	3. Too little sugar, which requires excessive cooking.	3. When pectin is not added, try ¾ cup sugar to 1 cup juice for most fruits.

*(Continued on Page #6)*

**Causes and Possible Solutions for Problems with Jellied Fruit Products**  
*(Continued from Page #5)*

**PRESERVES**

<b>Problem</b>	<b>Cause</b>	<b>Prevention</b>
Not a characteristic fruit flavor	1. Overcooked or scorched.	1. Should be stirred frequently when mixture begins to thicken to prevent sticking. Cook only to jellifying point.
	2. Poor quality fruit used.	2. Select only sound, good flavored fruit of optimum maturity.
Shriveled product	1. Syrup is too heavy.	1. Follow instructions for the type of fruit being preserved.
Tough product	1. Starting the cooking of fruit in syrup that is too heavy (too much sugar).	1. Cook each fruit according to directions. By evaporation, the syrup concentration will gradually increase.
	2. Not plumping fruit properly.	2. Fruit should plump at least 24 hours covered in syrup before canned.
	3. Overcooking.	3. Cook according to directions.
Sticky, gummy product	1. Overcooking.	1. Follow recommended directions for each product. (Cook only until syrup is quite thick and fruit is fairly translucent.)
Darker than normal color	1. Cooking too large of quantities at one time.	1. It is usually best to cook not more than 2 to 4 pounds of prepared fruit at a time.
	2. Cooked too slowly.	2. A better color is usually produced if the product is cooked rapidly.
	3. Overcooked.	3. Cook only until syrup is quite thick and the fruit is fairly translucent.
Loss of color	1. Improper storage.	1. Store processed jars in a dark, dry, cool place.
Mold or Fermentation (Denotes spoilage; do not use.)	1. Imperfect sealing.	1. Use new flat lids for each jar and make sure there are no flaws. Pretreat the lids per manufacturer's directions. Use ring bands in good condition – no rust, no dents and no bends. Wipe sealing surface of jar clean after filling, before applying lid.
	2. Yeast or mold growth.	2. Process in a boiling water canner. Test seal before storing. Pre-sterilize jars when processed less than 10 minutes in boiling water.
	3. Improper storage.	3. Store processed jars in a dark, dry, cool place. Refrigerate after opening.

# Family Food Education 2006 Workshop Calendar

Myrtle Point workshops are conducted at the Extension Office  
Ohlsen-Baxter Building — 631 Alder Street

Coos Bay Classes are conducted at Gloria Dei Lutheran Church  
1290 Thompson Road — Kitchen is in the NW corner

Regular workshops are \$7.00 — Tuna workshop is \$12.00

For further information contact the Extension Office  
572-5263 — rhonda.fischer@oregonstate.edu

*Walk-Ins Welcome — Reservations Appreciated*

Jams & Jellies	April 20	Myrtle Point Coos Bay	1:00 PM—3:00 PM 6:00 PM—8:00 PM
Freezing & Drying	May 18	Myrtle Point Coos Bay	1:00 PM—3:00 PM 6:00 PM—8:00 PM
Boiling Water Canning, Pressure Canning & Pie Fillings	June 15	Myrtle Point Coos Bay	1:00 PM—4:00 PM 6:00 PM—9:00 PM
Infused Oils & Flavored Vinegars	July 20	Myrtle Point Coos Bay	1:00 PM—3:00 PM 6:00 PM—8:00 PM
Pickles & Sauerkraut	August 17	Myrtle Point Coos Bay	1:00 PM—3:00 PM 6:00 PM—8:00 PM
Home Canning Tuna	September 23	Myrtle Point <i>Only</i>	10:00 AM—2:00 PM
Gifts From The Kitchen	October 19	Myrtle Point Coos Bay	1:00 PM—3:00 PM 6:00 PM—8:00 PM



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# Family Food Education Program Instructor Training

**Tuesdays — 9:00 AM - 4:00 PM**

**May 30 — July 19**

**Coos County Extension Office**

**631 Alder Street, Myrtle Point**

Classes will be conducted by Marlene Neideigh. Ms. Neideigh is a Board Certified, State of Oregon, Teacher. She is also a veteran of the Family Food Education Program (Formerly the Master Food Preserver Program), and a life long home food preserver. Ms. Neideigh will be assisted by other veteran Family Food Education Volunteers. The classes emphasize the safe canning, freezing, drying and smoking of foods, via scientifically verified methods. Upon successful completion of the eight lesson course, graduates will be certified as Family Food Education Volunteers.

For Registration contact FFE Program Administrator, *Stephanie Polizzi*  
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