

From the Garden or Orchard to the Table:

Jams and Jellies

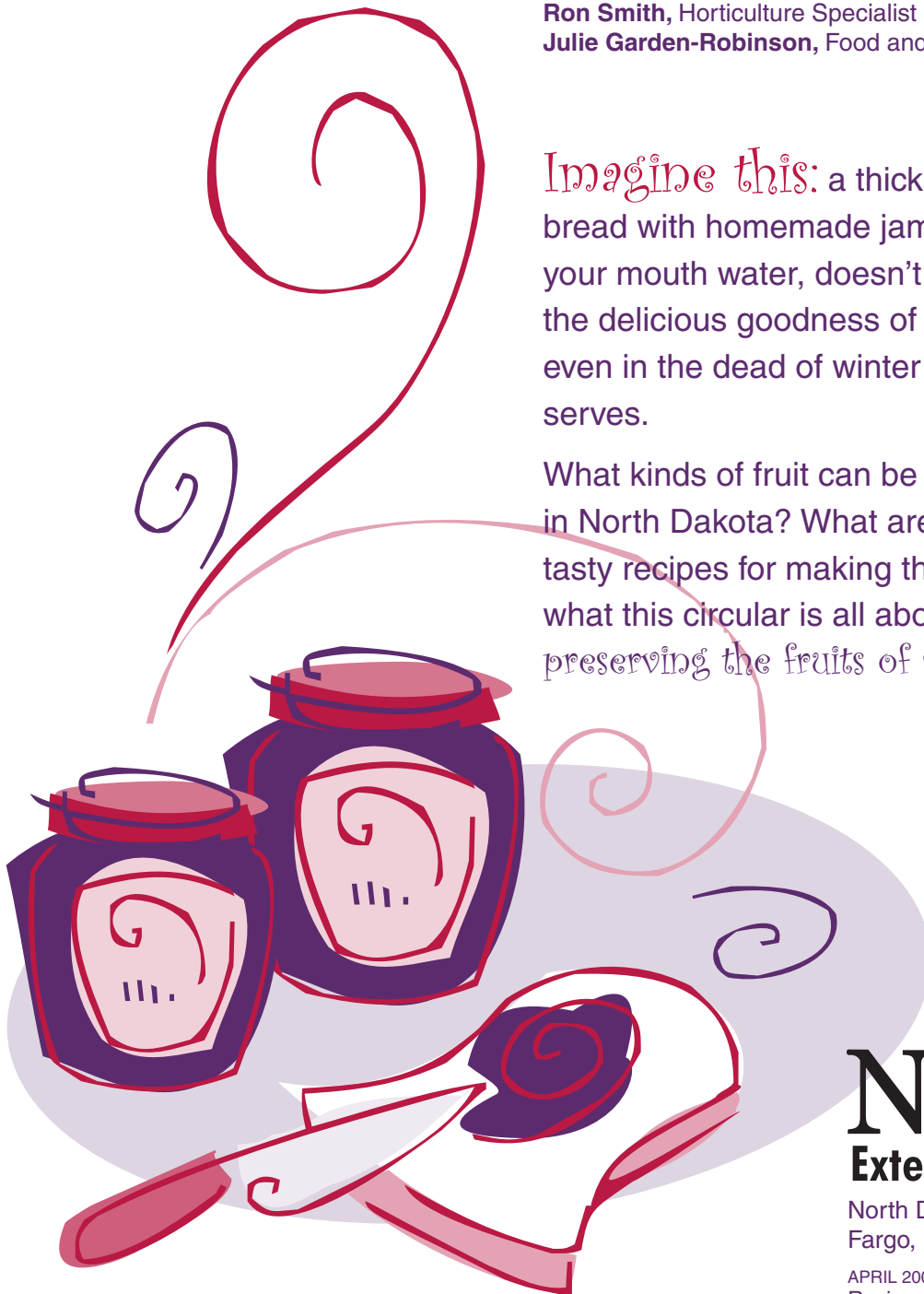
from North Dakota Fruits

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Imagine this: a thick slice of homemade bread with homemade jam or jelly. It makes your mouth water, doesn't it? You can enjoy the delicious goodness of North Dakota fruits even in the dead of winter with homemade preserves.

What kinds of fruit can be successfully grown in North Dakota? What are some tested and tasty recipes for making the preserves? That's what this circular is all about — growing and preserving the fruits of summer!

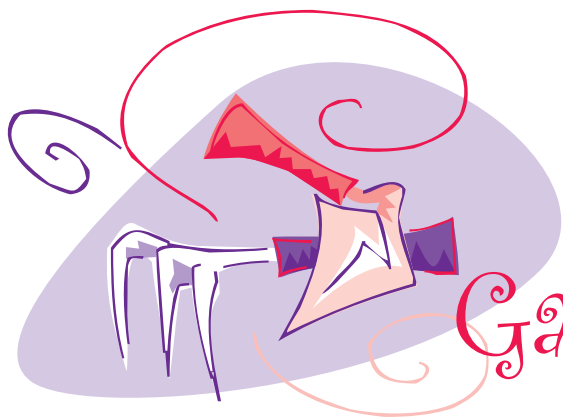


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Garden Fruits to Consider

Strawberries

The delicious, nutritious flavor of locally grown or area strawberries is universally loved. Key to good strawberry production is the selection of the site for planting: It should get as much direct sunshine as possible, the soil should be well-drained, and the site possess good air circulation for quick drying of the leaves to prevent disease problems. Many gardeners have had great success with raised-bed plantings of strawberries. This accomplishes two things: the blossoms are less vulnerable to low frost pockets in the spring, and the berry crop is much easier to pick.

Strawberry production is usually highest on first-year plants, that is, plants that have gone through just one winter. Here is how to get the highest fruit production: In the early spring, select a desirable cultivar to plant (refer to Table 1). Remove the blossoms that appear during the first growing season. This will produce stocky plants that will be doubly productive in year two. After harvest in the second year, mow the tops down after a hard frost or two. During the spring of the third season, clear out a two- to three-foot wide patch or path (depending on how you've organized the planting) with a tiller and leave another path or patch alone. The result will look like either a checkerboard or a runway system through the jungle. While it is clear, prepare the bared soil areas with mulch.

Over the summer, the remaining plants will send out new runners to the bare spots and become established. Don't worry about the poor fruit production from those new plantlets, but be prepared for a bountiful fruit set the following year! Then, of course,

remember to clear out the adjacent patches or rows that had been cleared the previous spring. This action results in a continuous supply of robust plants producing plump, big and juicy berries!

Typical strawberry plantings go through a gradual decline in productivity and plant quality. This is due to a number of factors — viruses, insect activity (especially the lygus or Tarnished plant bug), and in some cases, root knot nematodes.

If your strawberries never seem to get off to a good start, it could be a result of what was grown previously on that particular site. Crops in the tomato family (*Solanaceae*), including potatoes, peppers and eggplant, or members of the melon family, could harbor *Verticillium* fungus which could be having a negative impact on the strawberry planting.

Selecting strawberry cultivars to grow in your garden is a lot like trying to select a new car; all have some desirable features, but no one is absolutely perfect for all situations. Consequently, some experimentation is needed on your part, but only select those cultivars that are listed as resistant to diseases like red stele, verticillium wilt and fruit rot. The cultivars listed in Table 1 reflect those that possess these resistance characteristics.

Table 1. Strawberry cultivars showing disease resistance.

Cavendish	Primetime
Earliglow	Redchief
Gloosecap	Tribute
Lateglow	Tristar



Raspberries

In favorite fruit polls, fresh raspberries top the list for desirability. In addition to simply tasting scrumptious, they are high in fiber and vitamin C. Brightly colored fruits like strawberries and raspberries are high in a natural substance called ellagic acid, a compound which may help lower risk for cancer. In growing raspberries for making preserves, the toughest chore is to make sure they are not immediately eaten! Consumed fresh, they can be used on cereal, over ice cream, in pies, in tarts and in fruit smoothies. The remaining fruits make outstanding jams which can be enjoyed mostly through the winter months, teasing taste buds for another fresh crop of fruit in the upcoming growing season.

Raspberries need about the same physical conditions as strawberries: well-drained soil, full sunlight, free airflow and soil rich in organic matter. To be productive, raspberries need to have their fertility level maintained, as nutrient-starved plants are poor producers. Consequently, about five to eight pounds of a 10-10-10 fertilizer per 1,000 square feet need to be worked into the soil prior to planting of the brambles. At the onset of new growth, scatter about 1/4 cup of the same material in a circle 10-12 inches from each plant. Fertilizer applications should continue each year the crop is being managed: fertilize in April/May as new growth is just beginning, and again after harvest. With the right cultivar selection and proper care, the home gardener can expect up to 1,500 pounds from a half-acre of plants, or about two quarts per plant.

Good management efforts will keep the raspberries productive for five to eight years before viruses take the plants out completely, or reduce production to a level that isn't worth picking. Productivity can be maintained by continually replacing those plants that show a decline or viral symptoms, and replacing them with new offshoots from plants displaying vigorous growth and ample fruit production. Plants grown mostly on a north-facing slope will stay dormant longer in the spring and spread their bearing period out a little longer than those grown mostly on a south-facing slope. They also will be less subject to late spring frosts due to better cold air drainage.

While this is true for the red and purple summer-bearing raspberries, fall-bearing cultivars are better planted on a south-facing slope to allow for faster maturation and greater assurance of having a harvest. Refer to Table 2 for cultivar selections.

Table 2. Raspberry cultivars hardy for cold climates (Zone 3).

Summer Bearing	Fall Bearing
Boyne	Fall Red
Killarney	Heritage
Latham	Nordic*
Madawaska*	Reveille*
Newburgh*	

* Trial in ND only; tested in WI and MN

Raspberries grow and produce fruit in a rather unique manner. They are actually biennially growing canes on perennial root systems. This means that the first year, the canes (called primocanes) do not produce fruit, but form flower buds along the canes and their branches. The following season, these canes (called floricanes) produce flowers — and fruit — and then die.

Being shallow-rooted plants (70 percent of the root system is in the upper 10 inches of soil), raspberries would typically need supplemental irrigation to be consistently productive in most areas of the Upper Midwest. It is an extra expense, but well worth it for the extra quality and quantity that is evident in the developing fruit.

Inquiries often come in about raspberry canes producing fruit in August or September from the same plants that produced fruits in early July. While they might be the same plants, they are not the same canes; the fall fruit production is actually coming from primocanes that would normally bear the following season. What happens is that the primocanes grow and produce a certain number of nodes. The growing tip then changes from a vegetative state to a reproductive one. Will those same canes produce the next season? Yes, just not from the same area on the cane. The fruit borne on the upper cane will be small; the fruit borne the following season in the mid-section of the cane will be much bigger and sweeter.

Other Fruits for Jelly or Jam Making

Apples

While not a commercial apple production state, North Dakota is none-the-less a good bet for growing some of the hardiest apples in home landscape settings. The biggest disadvantage of growing apples is the long wait — five to seven years — before enough fruit is produced to warrant harvesting. Apple trees should be purchased from local garden centers that handle cultivars having good hardiness, or from mail-order nurseries that grow cultivars hardy to Zone 3. The advantage of making a local purchase is that the money stays locally, and you get to select the tree, not someone else on a production line.

Apple trees need to be planted where cold air pockets cannot collect, so avoid planting them in low areas on the property. While they need free airflow, they need to be protected from the direct prairie winds, which could not only damage the trees physically, but keep the pollinating insects from doing their work at critical time. In much of the prairie region, apple trees, especially young ones, need protection from rabbits, mice and deer. Their damage can easily misshape a tree, and if the bark is girdled on the trunk, cause its death. There are several repellents on the market for this, so don't overlook this autumn chore, even as the trees mature to bearing age.

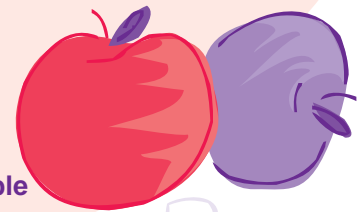
With home-grown apples, the trees need careful annual pruning. While impossible to give complete instructions on apple tree pruning in this circular, try to prune with two objectives in mind: to be able to reach the fruit for harvest without having to get an extension ladder, and to allow for as much sunlight and air circulation as possible to pass through the

canopy. This will greatly reduce the incidence of disease and breakage. For more detailed information, check out the publication, "Pruning Trees and Shrubs" (H1036) or contact your local extension service office.

Table 3 lists some of the hardiest cultivars of apples that can be grown in the northern prairie region.

Table 3. Apple cultivars hardy in North Dakota.

Haralson and Haralred
Fireside
Honeygold
Beacon
Prairie Spy
Sweet Sixteen
Hazen
Dolgo Crabapple



There are other apples that can be grown in North Dakota, but the intent in this publication is to use selections that are good for making sauces and preserves. All of the above make excellent applesauce. While some cultivars claim to be self-fruitful, fruit set is always better with two different cultivars planted in the landscape.

Grapes

Grapes need full sunlight and high temperatures to ripen, so like the autumn-bearing raspberries, it is a good practice to plant them on south-facing slopes, the south side of a shelter belt or the south sides of buildings or fences. Like the other fruits, they thrive best in rich, loamy, well-drained soil. If more than one vine is to be planted, space them six to eight

feet apart. After planting, remove all but the strongest cane, and shorten it to two strong buds. Each bud will develop into a cane.

Fruit production is best if the vines are not allowed to sprawl over the ground, training them instead to what is known as a four-arm Kniffen system (see Figure 1). This system is for grape cultivars listed in this circular that produce vines hardy enough to survive winters above ground. If marginal or tender cultivars are selected, their canes must be buried each fall before the arrival of winter. Grapes will benefit from annual applications of fertilizer (10-10-10 or something similar) at a rate of about one cup spread out in a circle at 10-12 inches from the base of the plant.

Proper timing of harvest isn't as easy as one might expect. Since grapes change color long before they are fully mature, it is possible to pick clusters before they have reached their peak of sugar content, size or flavor. The taste test is the only sure way for homeowners to know the right time for picking. If

sweet enough, then harvest; if not, wait another week. Grapes do not "mellow" into a sweeter taste after harvesting, which is true of all the other fruits described in this circular.

Table 4 lists some of the hardy grape cultivars that can be grown in North Dakota. All will make excellent grape jelly.

Table 4. Hardy grapes.

Beta
Bluebell (southern half of state)
Swenson Red (southern half of state)
Valiant

Cherries and Plums

Many cultivars of cherries and plums can be successfully grown in North Dakota and nicely processed into tasty jellies and jams. Unfortunately, the *Prunus spp.* has some drawbacks that one should consider before growing these fruits for edible purposes. A fungal disease known as black knot has become quite widespread, especially with chokecherries, a common ornamental with edible fruit that is grown throughout our region. In addition, many of the species will sucker which could cause frustration with homeowners who attempt to keep everything in place in the landscape. That said, for some folks these disadvantages are worth the struggle to enjoy the tart, tasty fruit. Like apples, these plant species need full sunlight, well-drained soil, and, with two different cultivars, will set more fruit.

Hardy plums, sandcherry-plum hybrids, apricots, and Nanking and Korean cherries will produce crops on relatively young growth. In comparison to apples, these species will need more severe pruning to keep them highly productive.

Table 5 lists some members of *Prunus* group to consider for jellies and jams.

It should be noted that apricots most likely will not bear on an annual basis, but perhaps once every three to four years. The sour cherries should be

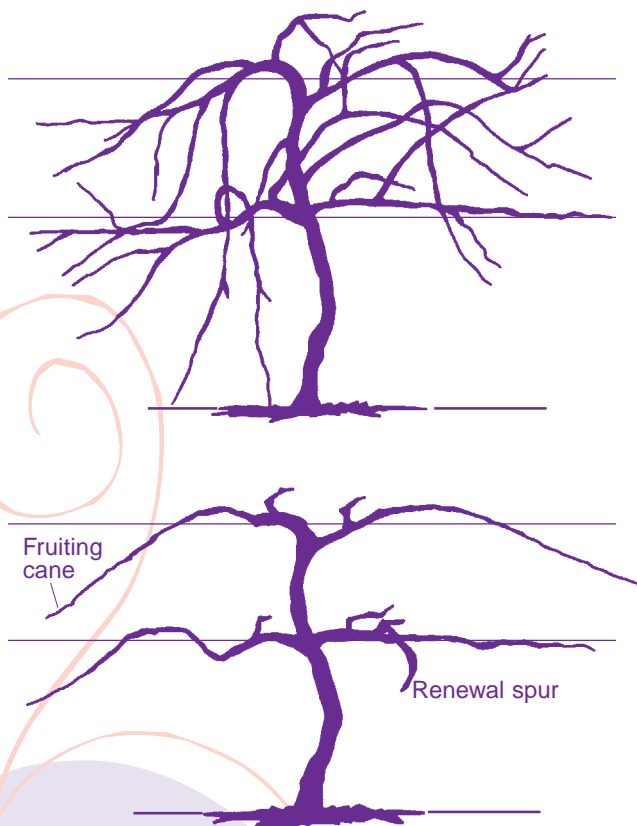


Figure 1. A vine before pruning (top) which has been trained to the Four-Arm Kniffen System. The same vine (bottom) after pruning.

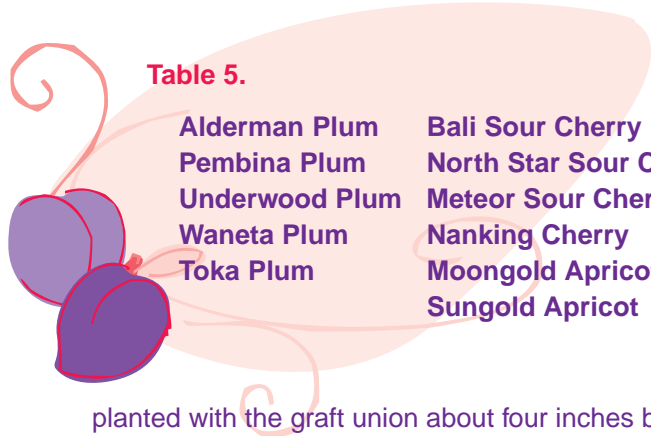


Table 5.

Alderman Plum	Bali Sour Cherry
Pembina Plum	North Star Sour Cherry
Underwood Plum	Meteor Sour Cherry
Waneta Plum	Nanking Cherry
Toka Plum	Moongold Apricot
	Sungold Apricot

planted with the graft union about four inches below the soil to prevent killing from low temperatures. A three- to four-inch application of mulch over the root system would aid in the survival of these two species.

Juneberries

Juneberries, the “poor man’s blueberry,” can be treated from a growing perspective much like any other fruit discussed so far. Soil with good drainage, such as a sandy loam, will provide higher success with this crop than heavy clay soils. Plants can begin to produce a crop two to four years after planting, and can get to be quite large in size as a multi-stemmed shrub. Birds are a big problem with Juneberries; they will eat them slightly under-ripe for our picking objectives. One or two shrubs in a home landscape can be a 100 percent contribution to the robins that have returned after winter unless extensive protective measures are taken to keep them at bay with netting. To keep them productive, selective pruning should take place annually. Remove the oldest branches every three to five years, and pinch or nip back the vigorous shoots that appear the following growing season.

Eaten fresh, the fruits are tasty and may also be used for wine, pies, jams and fruit rolls. They can also be canned or frozen. To get to this fruit, keep the shrubs within reach of either a step stool or small folding ladder. Heights of eight to nine feet are suggested. Do the pruning in late winter or early spring before new growth begins.

There are many cultivars available on the market, with a fairly wide variation in fruit size, seed density and flavor. Commercial growers look for ‘Moonlake’ or ‘Northline’ because the seed size and weight are lower and the fruit is of a desirable flavor. Lacking the availability of either of these, the cultivars ‘Pembina’, ‘Honeywood’ and ‘Smoky’ are usually available on the homeowner market and are of excellent quality.

Rhubarb

Rhubarb is legally considered a fruit, even though it is grown as a vegetable. The reason for this is its end uses: sauces, pies and in combination with other fruits and in jams. Rhubarb can be harvested in early spring, the stalks diced and utilized in pies, or frozen for winter use. Two to three plants are usually enough for the average family’s use. While the stalks are edible, the leaves never are, under any preparation regimen.

The soil for rhubarb should be fertile loam, well-drained and enriched with compost. Recommended cultivars to consider are ‘Valentine’, ‘McDonald’, ‘Canadian Red’, and ‘Sunrise’.

Currants and Gooseberries

Currants and Gooseberries, both native plants to the Great Plains, are commonly grown as ornamental shrubs in the sub-canopy shade of larger landscape trees. Of the same genus (*Ribes*), these plants are known for sweet-tasting fruits that make excellent jellies and jams — provided the right ones are selected. The Clove, or Buffalo Currant (*Ribes odoratum*), is grown for it’s edible fruit and very fragrant yellow flowers preceding the fruit. Keep in mind that this species is dioecious (meaning separate sexes), and that in order to have fruit, one must have the female of the species. The major difference between currants and gooseberries is the size of the fruit; currants are about pea size, while gooseberries are about cherry size.

Both the gooseberry and currant can be grown as either individual specimen plants or in hedge form. They will do well in our calcareous soil, in full sun or partial shade.

Making Jams and Jellies

Many sun-ripened fresh fruits taste delicious by themselves or topping a bowl of ice cream, but why not preserve your summer bounty? Making jellies, jams and syrups is a way to enjoy the fruits of the season when summertime is just a memory. At about 50 calories, 14 grams carbohydrate and no fat per tablespoon serving, jellies and jams provide lots of flavor without lots of calories.

Ingredients

Making jams, jellies and syrups successfully depends on having the right proportion of the main ingredients: fruit, acid, sugar and pectin, the gelling agent. Measuring carefully will help ensure success.

Fruit

Fruit provides color and flavor to jams, jellies and syrups, along with at least part of the acid and pectin needed for gelling to occur. Start with high-quality fruit, discarding spoiled or damaged fruit. Your end product is only as good as your starting ingredients. Fresh, frozen, canned or dried fruit may be used to make jams. Commercially frozen or canned fruit will require the addition of pectin. For a more uniform end product, use canned fruit without added sugar. If dried fruit is used in jams, it must be cooked in water until tender before using in jams.

Acid

Acid provides flavor and aids in gelling. It's best to follow a research-tested recipe. Acid is naturally present in fruits, but sometimes bottled lemon juice is needed for proper gelling. As a ballpark estimate of acid content taste can be used — it's "acidic enough" if it's comparable in tartness to a good tart apple or a mixture of 3 tablespoons water, 1 teaspoon bottled lemon juice and 1/2 teaspoon sugar. If the juice isn't this tart, add two teaspoons to one tablespoon of bottled lemon juice OR 1/8 teaspoon citric acid per cup of fruit juice.

Sugar

Sugar contributes flavor, helps preserve jams and jellies, and it interacts with pectin to make a gel. Do not alter the amount of sugar or other ingredients called for in a jelly or jam recipe, because syrup could result, which probably isn't the desired outcome.

Sugar sources include granulated "table" sugar, light corn syrup or mild honey. Strongly flavored sweeteners such as brown sugar or molasses are not recommended. Granulated sugar provides the most consistent product.



Flavorful fruit spreads can be made with less sugar and fewer calories than regular jams and jellies by following specially formulated recipes and using specialized pectin products such as low-methoxyl pectin. Sugar substitutes, or artificial sweeteners, should only be used in recipes specially formulated to include them. For example, sweeteners such as Equal® or Nutrasweet® lose their sweetness when heated. Sucralose®, sold as Spenda®, is a heat-stable, non-caloric sweetener that can be used with modified pectin in low- or no-sugar recipes.

Pectin

Pectin, a carbohydrate naturally present in many fruits, acts as a gelling agent in jams and jellies. In general, the riper the fruit, the less pectin it contains.

As a rule of thumb, use a mixture of about 3/4 ripe and 1/4 under-ripe fruit when making jelly without added pectin. Not all fruit has adequate pectin to form a gel, so many jam and jelly recipes call for added commercial pectin. Liquid and powdered pectin products are available; however, they are **not interchangeable**. They must be used as directed in order to produce a satisfactory product. Liquid pectin is added to the hot, cooked fruit-sugar mixture, while powdered pectin is mixed with unheated fruit or juice. For best quality, check the box of pectin for the “use by” date.

In some jam and jelly recipes, gelatin is used in place of pectin. Most gelatin-containing recipes should not be water-bath processed or stored at room temperature unless they have been research-tested for stability and safety. Most gelatin-containing recipes must be refrigerated and used within three to four weeks.

Testing for Pectin Content in Fruit: Place 1 tablespoon cooked, cooled fruit juice in a dish and add 1 tablespoon grain- or denatured alcohol. Stir slightly to mix. Juices rich in pectin will form a solid jelly-like mass. Juices low in pectin will form small particles of a jelly-like material. NOTE: Dispose of this mixture without tasting. If the test indicates the juice is rich in pectin, use 1 cup sugar for each cup of juice. If the product is low in pectin, a commercial product must be used to help ensure proper gel formation.

Equipment

Assemble needed equipment before you begin making jam or jelly. Following is a list of the usual equipment needed to extract juice and make jams and jellies:

- Heavy metal pan(s) with cover(s)
- Jelly bags or closely woven cheesecloth and colander
- Knives
- Bowls
- Measuring cups, spoons and/or scale
- Mixing spoons
- Thermometer
- Timer
- Canning jars and lids (pint or half-pint)
- Funnel
- Ladle
- Rubber spatula (heat-tolerant)
- Jar lifter
- Pot holders
- Boiling water bath canner (or deep cooking pot with tight lid)
- Rack
- Towels
- Labeling supplies



Important Tip

Make only one recipe at a time, using 6 to 8 cups juice. Doubled recipes usually don't gel properly.

Extracting Juice for Making Jelly

The method for extracting juice depends on the type and firmness of the fruit. Wash fruit but do not pare or core (to preserve pectin), then cut in small pieces. Wash berries and carefully remove stems.

Firm fruit like apples usually requires some cooking and a small amount of water (about one cup water per pound apples). To extract juice from berries, add only enough water to prevent scorching. After adding water, bring to a boil and stir constantly. Apples, for example, should be cooked for about 20 minutes, while grapes require only about 10 minutes of cooking. Reduce heat and pour contents into a damp jelly bag or let juice drip through a double layer of cheesecloth. Excessive pressing or squeezing of cooked fruit will cause cloudy jelly.

Juice can be stored for about one week in the refrigerator if it will not be used right away. Juice can also be frozen for several months in containers, leaving 1½-inch headspace.

Making Jams

Wash and remove hulls and stems. Place fruit in water to cover, and cook until fruit mixture is tender. Mash through a sieve. Measure pulp. Add sugar in the proportions listed in tested recipes. Continue to cook slowly until thick.

Preparing Jars and Lids

Half-pint jars are generally recommended. Before beginning, carefully check jars for cracks or chips. Jars with defects may prevent adequate seals. Wash jars, lids and bands in hot, soapy water and rinse carefully. Sterilize jars in boiling water for 10 minutes. Keep the jars in hot water, removing excess water just before filling to prevent cracking or breaking when hot fruit mixture is added. Follow the manufacturer's directions for heat treating the lids.

Processing Jellies and Jams

Jams, jellies and syrups that will be stored at room temperature are processed in a water bath canner to help prevent mold growth. Pour the jelly, jam or syrup into hot, sterilized jars, leaving ¼-inch headspace. Remove bubbles with bubble freer or spatula, clean rims and jar threads carefully before applying lid and ring. Do not over-tighten lids, which may lead to buckling and a poor seal. Consult manufacturer's directions; most recommend "finger tight."

Place jars in canner filled with simmering water. The water should be one to two inches over the tops of the jars. Begin timing when the water is boiling gently. At the end of the recommended processing time, remove jars carefully with a jar lifter and place on a rack or protected surface away from drafts. Do not disturb the jars for at least 12 hours. Sealed lids will be concave. You may hear them "pop."

Using paraffin is NOT recommended as a way to seal jellies and jams. Turning jars upside down to seal also is not recommended. USDA recommends processing jams, jellies and syrups in a boiling water bath canner to inactivate molds that may be present. Unsterilized jars may be used if the jelly or jam is processed for 10 minutes.

Table 6. Recommended water bath process time for jams and jellies in a boiling water bath canner.

Style of Pack	Jar Size	0-1,000 ft.	1,001-6,000 ft.	Above 6,000 ft.
Hot	Half-pints or pints	5 min.	10 min.	15 min.

Remaking Soft Jellies

Sometimes jellies turn out softer than desired. They can be remade following these steps, but it's generally a good idea to make a smaller test batch:

To Remake Jellies with Powdered Pectin:

For each quart of jelly, mix $\frac{1}{4}$ cup sugar, $\frac{1}{2}$ cup water, 2 tablespoons bottled lemon juice and 4 teaspoons powdered pectin. Bring to a boil while stirring. Add jelly and bring to a rolling boil over high heat, stirring constantly. Boil hard $\frac{1}{2}$ minute. Remove from heat, quickly skim foam off jelly, and fill sterile jars, leaving $\frac{1}{4}$ -inch headspace. Adjust new lids and process as recommended.

To Remake Jellies with Liquid Pectin:

For each quart of jelly, measure $\frac{3}{4}$ cup sugar, 2 tablespoons bottled lemon juice, and 2 tablespoons liquid pectin. Bring jelly only to boil over high heat, while stirring. Remove from heat and quickly add the sugar, lemon juice and pectin. Bring to a full rolling boil, stirring constantly. Boil hard for 1 minute. Quickly skim off foam and fill sterile jars, leaving $\frac{1}{4}$ -inch headspace. Adjust new lids and process as recommended.

To Remake Jellies without Added Pectin:

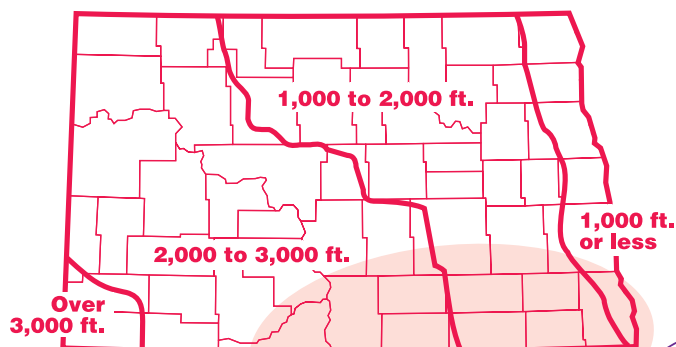
For each quart of jelly, add 2 tablespoons bottled lemon juice. Heat to boiling and boil for 3 to 4 minutes. Remove from heat, quickly skim off foam, and fill sterile jars, leaving $\frac{1}{4}$ -inch headspace. Adjust new lids and process as recommended.

Storage

Store preserves in a cool, dark place and for best quality, use within one year.

Important Tip

Use the jar size specified in the recipe. Use of larger jars may result in excessively soft products, and the processing time may not be long enough, leading to spoilage.



The altitude in North Dakota varies from 800 feet above sea level in the east to 3,000 feet in the west. The map above shows the approximate altitude of areas in North Dakota.



Recipes

The following recipes are from a variety of sources including the USDA Complete Guide to Home Canning and Cooperative Extension Services in Minnesota, Wisconsin and Washington. The yields may vary depending on the degree of cooking/thickness of the product. For this reason, it is suggested to sterilize extra jars “just in case” of higher yields.

Apple or Crabapple Jelly

4 cups crabapple juice (about 3 pounds crabapples and 3 cups water)
4 cups sugar

To prepare juice, select firm, crisp crabapples, about 1/4 firm-ripe and 3/4 fully ripe. Sort, wash and remove stem and blossom ends; do not pare or core. Cut crabapples into small pieces. Add water, cover and bring to boil on high heat. Reduce heat and simmer for 20 to 25 minutes, or until crabapples are soft. Extract juice and pour into jelly bag. To make jelly, sterilize canning jars and measure juice into saucepot. Add sugar and stir well. Boil over high heat to 8 degrees Fahrenheit above the boiling point of water (approximately 220° F depending on the altitude where you live), or until jelly mixture sheets from spoon. Remove from heat; skim off foam quickly. Pour jelly immediately into hot canning jars, leaving ¼-inch headspace. Wipe jar rims and adjust lids. Adjust lids and process in a boiling water bath canner for 5 minutes for pints at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 4 to 5 half-pints

Apple Spread

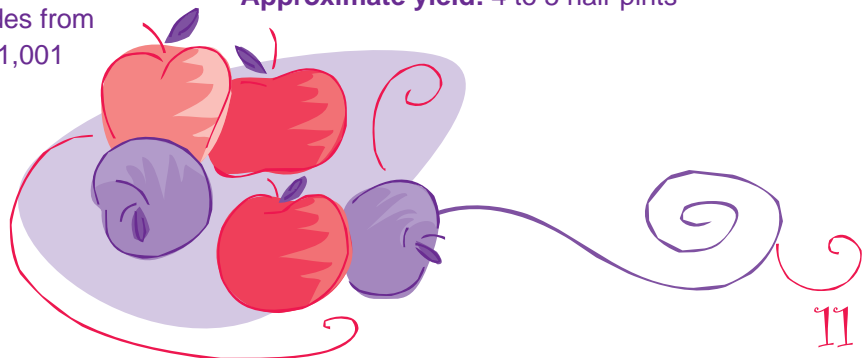
(Refrigerated and reduced-sugar)

2 tablespoons unflavored gelatin powder
1 quart bottle unsweetened apple juice
2 tablespoons bottled lemon juice
2 tablespoons liquid, low-calorie sweetener
Food coloring, if desired

In a saucepan, soften the gelatin in the apple and lemon juices. To dissolve gelatin, bring to a full rolling boil and boil 2 minutes. Remove from heat. Stir in sweetener and food coloring, if desired. Fill jars, leaving ¼-inch headspace. Adjust lids. Do not process or freeze. **CAUTION:** Store in refrigerator and use within 4 weeks.

Optional: For spiced apple jelly, add 2 sticks of cinnamon and 4 whole cloves to mixture before boiling. Remove both spices before adding the sweetener and food coloring.

Approximate yield: 4 to 5 half-pints



Blackberry-Huckleberry Jam

- 6 cups wild blackberries
- ¼ cup water
- 7 cups sugar
- 1 cup huckleberries (half underripe)
- ½ bottle liquid pectin

Wash blackberries, crush, and combine with water in saucepan. Bring to a boil and simmer, covered, 5 minutes. Force mixture through coarse sieve or food mill to remove most of the seeds. Measure. Add water to give 3 cups of blackberry pulp. Combine pulp, huckleberries and sugar in large (8 quart) kettle, mixing well. Heat to a full rolling boil; boil hard 1 minute, stirring constantly. Remove from heat; stir in pectin; skim. Pour into hot, sterilized jars. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

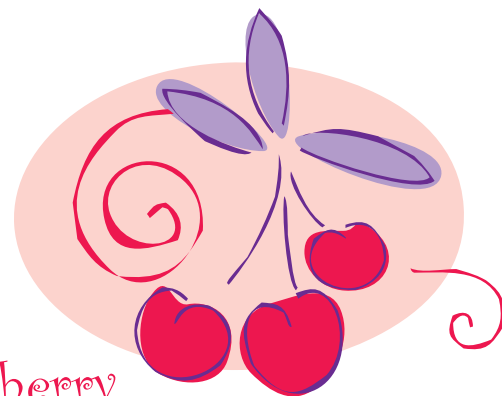
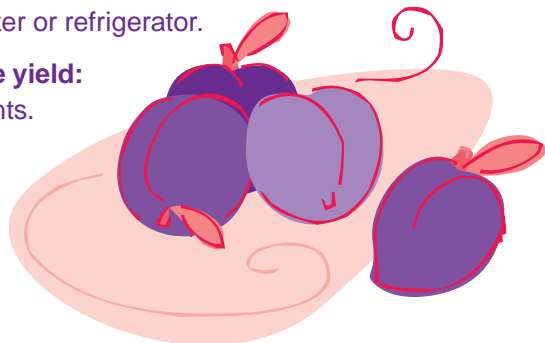
Approximate yield: 9 to 10 half-pints

Wild Plum Jam (Freezer Jam)

- 3 cups wild plums (finely mashed or sieved)
- 6 cups sugar
- 1 box powdered pectin
- 1 cup water

Combine fruit and sugar. Let stand about 20 minutes, stirring occasionally. Boil powdered pectin and water rapidly for 1 minute, stirring constantly. Remove from heat. Add the fruit and stir about 2 minutes. Pour into jars; tighten lids. Let stand at room temperature for 24 hours until set. Store in freezer or refrigerator.

Approximate yield:
7 to 9 half-pints.



Chokecherry Jelly with Liquid Pectin

To extract the juice, wash all fruits thoroughly before cooking. Add enough water to cover the washed fruit and cook 15 minutes or until fruit is soft. Do not crush or grind the seeds which contain a cyanide-forming compound that can be toxic. When fruit is tender, press lightly through a colander. Then, let juice drip through a double layer of cheesecloth or a jelly bag. Excessive pressing or squeezing of cooked fruit will cause cloudy jelly. One pound of fruit should yield at least 1 cup of clear juice.

- 3 cups chokecherry juice
- 6 ½ cups sugar
- 2 pouches liquid pectin
- ¼ teaspoon almond extract (optional)

Pour juice into large heavy kettle. Add sugar and stir to mix. Place over high heat. Bring to a boil, stirring constantly. Stir in pectin. Bring to a full rolling boil and boil hard for 1 minute, stirring constantly. Remove from heat. Stir and skim 5 minutes. Add almond extract if desired. Pour into hot, sterilized half-pint jars, leaving ¼ inch headspace. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 5 to 6 half-pints



Chokecherry Jelly with Powdered Pectin

(Extract juice as in previous chokecherry jelly recipe.)

- 3½ cups chokecherry juice
- 4 cups sugar
- 1 box powdered pectin

Stir pectin into juice. Bring mixture to a full rolling boil over high heat, stirring constantly. Quickly add sugar to juice mixture. Bring to a full rolling boil and boil 1 minute, stirring constantly. Remove from heat. Skim off any foam. Pour into hot, sterilized half-pint jars leaving ¼-inch headspace. Cover with two-piece lids. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 5 to 6 half-pints



Gooseberry Jam

- 6 cups gooseberries (¾ ripe{red},
¼ underripe{green})
- 1½ cups water
- 4 cups sugar

Wash berries, place in saucepan with added water and bring to boiling. Reduce heat and simmer until gooseberries are soft, approximately 15 minutes. Remove from heat and measure pulp (about 4 cups). Add sugar and boil about 7-9 minutes. Remove from heat, skim, and pour into hot, sterilized jars. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

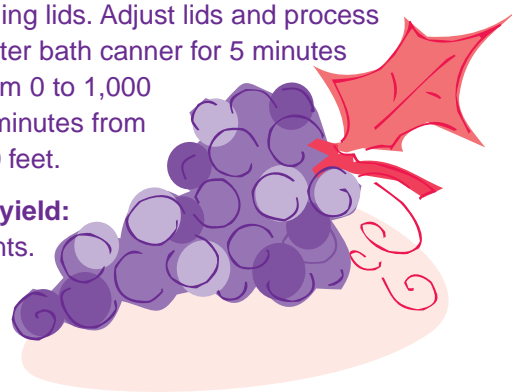
Approximate yield: 7 to 9 half-pints

Wild Grape Jelly

- Juice of 1 lemon or 2 Tbsp. bottled juice
- 6 cups wild grape juice
- 1 package powdered fruit pectin
- 7½ cups sugar

To extract the juice, use 1 cup water per 1 pound fruit. Cool for 5-10 minutes in covered pot. Continue extraction as directed in chokecherry jelly recipe. Add the strained lemon juice to the grape juice; heat to boiling. Add the pectin and again bring to a boil. Stir in the sugar. Bring to a rolling boil; boil hard for 1 minute, stirring constantly. Remove from heat; skim. Pour into hot sterilized jars and seal with two-piece self-sealing lids. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield:
9 to 10 half-pints.



Grape Plum Jelly

- 3½ pounds ripe plums
- 3 pounds ripe Concord grapes
- 1 cup water
- ½ teaspoon butter or margarine (optional
ingredient to reduce foaming)
- 8½ cups sugar
- 1 box (1¾ oz) powdered pectin

Wash grapes. Wash and pit plums; do not peel. Thoroughly crush plums and grapes, one layer at a time, in a saucepan. Add water. Bring to a boil, cover, and simmer 10 minutes. Strain juice through a jelly bag or double layer of cheesecloth. Measure sugar and set aside. Combine 6½ cups of juice with butter and pectin in a large saucepan. Bring to a hard boil over heat, stirring constantly. Add the sugar and return to a full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, skim off foam, and quickly fill into sterile half-pint jars, leaving ¼-inch headspace. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 10 half-pints

Juneberry Jam

Wash berries and put through coarse food chopper. Measure 4 cups pulp, and add water just to cover in large pan. Boil gently. Add:

- Juice of 2 lemons or 2 tablespoons bottled juice
- 2 oranges — first grated and then cut up into small pieces
- 3 cups sugar

Boil about 20 minutes. Pour into hot sterilized jars and seal with two-piece self-sealing lids. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes at altitudes from 1,001 to 6,000 feet.

Approximate yield: 5 to 6 half-pints

Raspberry Jam

- 4 cups crushed raspberries (about 2 quarts)
- 6½ cups sugar
- 1 pouch liquid pectin

Place fruit in a pan, and add sugar. Bring to a full rolling boil, stirring constantly. Boil for one minute. Add liquid pectin and boil for the time stated on package. Remove from heat and skim foam. Stir for 5 minutes. Ladle into prepared half-pint jars, leaving ¼-inch headspace. Remove bubbles by running a spatula or bubble freer between the jam and the side of the jar. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 7 to 9 half-pints

Strawberry Jam – Low Sugar

- 6 cups crushed strawberries
- 4 cups sugar
- 1 box low-sugar pectin

Sort, wash, remove stems and crush berries. Measure strawberries into a large saucepan. Whisk no-sugar pectin into prepared fruit to avoid lumps. Bring to a boil over medium-high heat. Boil 1 minute, stirring constantly. Remove from heat and skim foam if needed. Ladle into hot, sterilized half-pint jars, leaving ¼-inch headspace. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes from 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield:
7 to 9 half-pints.



Strawberry-Rhubarb Jam

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

Wash and cut rhubarb into 1-inch pieces and blend or grind. Wash, stem and crush strawberries, one layer at a time, in a large saucepan. Add butter, if desired, 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 for 1 minute, stirring constantly. Remove from heat, and quickly skim off foam, and fill into sterile half-pint jars, leaving ¼-inch headspace. Adjust lids and process in a boiling water bath canner for 5 minutes at altitudes of 0 to 1,000 feet or for 10 minutes from 1,001 to 6,000 feet.

Approximate yield: 7 to 8 half-pints

Syrups

General Recipe: Syrups Made with Juice

- 4 cups juice
- 4 cups sugar
- ¼ cup bottled lemon juice (if desired)
- ½ package or less powdered pectin (if desired)

Mix juice, sugar, lemon juice and pectin. Bring to boil and boil 2 minutes. Remove from heat, skim off foam, and pour into ½ pint or 1 pint canning jars to within ½-inch of top. Adjust lids and process in boiling water bath canner for 10 minutes. Remove from canner and cool. Check lids, label, and store in cool, dry place.

Approximate yield:
8 half-pints or 4 pints

Blackberry Syrup

- 4 cups blackberry juice
- 4 cups sugar
- ¼ cup bottled lemon juice

Mix all ingredients and simmer until dissolved. Pour into clean, hot jars. Adjust lids and process for 10 minutes in boiling water bath canner.

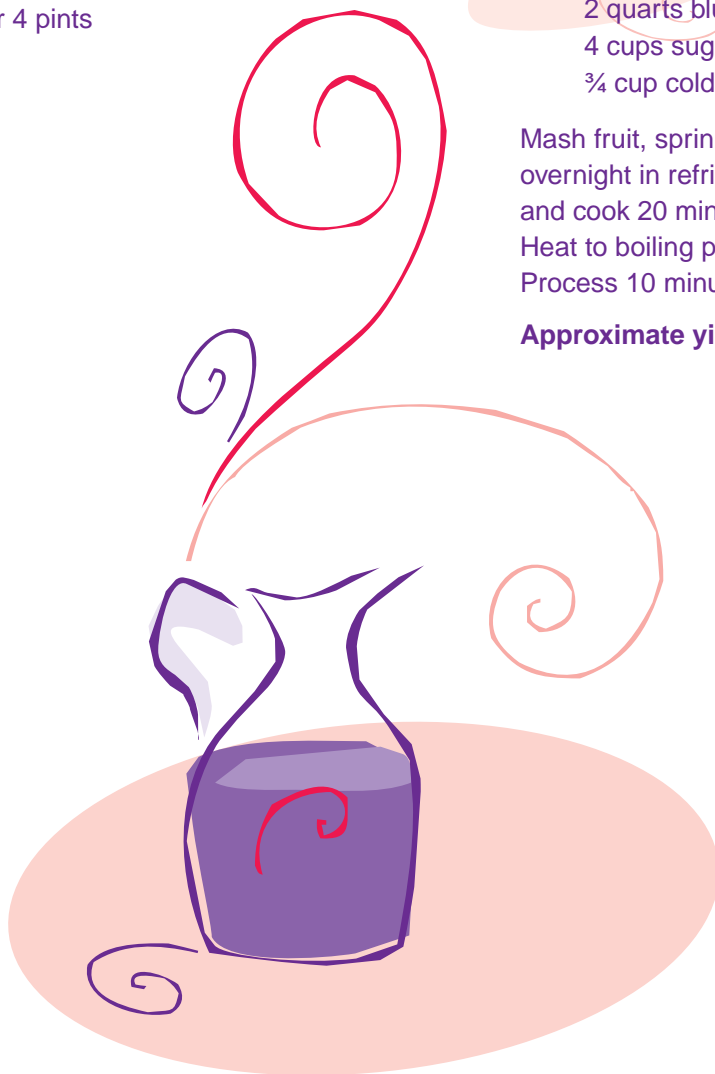
Approximate yield: 8 half-pints or 4 pints


Blueberry Syrup

- 2 quarts blueberries
- 4 cups sugar
- ¾ cup cold water

Mash fruit, sprinkle with sugar, cover and let stand overnight in refrigerator. Add water, bring to a boil and cook 20 minutes. Strain through cheesecloth. Heat to boiling point, pour into hot, clean jars. Process 10 minutes in boiling water bath canner.

Approximate yield: 8 half-pints or 4 pints





For more information, contact your county office of the
NDSU Extension Service or visit these Web sites:

Horticulture: www.ag.ndsu.nodak.edu/horticulture.htm

Food Preservation: www.ag.ndsu.nodak.edu/food.htm

National Center for Home Food Preservation: www.uga.edu/nchfp/