



Kentucky Fruit Facts

June 2002 (6/02)

John Strang, Editor, Marilyn Hooks and Karen Shahan, Staff Assistants

Fruit Facts can be found on the web at: <http://www.ca.uky.edu/HLA/fruifact/>

Fruit Crop Status and News

The untimely low temperatures on the mornings of May 19, 21 and 22 caused some damage for a number of fruit growers in the central and eastern parts of the state. Although the coldest temperatures reported by official Kentucky weather stations were not below 30°F, a number of growers recorded temperatures considerably below this.

Young, tender, vigorously growing grape shoots were particularly susceptible to injury. Young vines that were close to the ground where it was colder show substantial die back. These vines should be left alone to regrow, flowers should be removed and an eye kept on the insect and disease situation to prevent any further leaf loss. Keep the vines watered this summer and keep competition from weeds to a minimum. Some growers had fruiting shoots on older vines with substantial shoot, leaf and flower death. Do not attempt to prune off dead tissue. The vines will shed the dead shoots over time. Older vines with strong established root systems will mature the grape clusters that survive on the primary shoots and send out secondary shoots. The secondary shoots will produce a partial crop. Unfortunately the crops on the primary and secondary shoots will ripen at different times. This will require several harvests of the grapes as they ripen. It is important to maintain a spray schedule to maintain the foliage for initiating next years crop on severely injured vines.

Apple and peach growers have generally fared fairly well, however several eastern growers have lost the crop on some apple varieties and several others have light crops due to the March freezes which killed flowers in the tight cluster stage. I have seen some injured blackberry and black raspberry flowers and small fruit. Surprisingly, strawberry growers seemed to have weathered the freezes without injury.

This springs high temperatures and excessive rains have substantially increased the disease pressure on many of our fruit crops. We have seen heavy **fire blight** and **cedar apple rust infections** on apple in the central and eastern Kentucky areas, heavy **black rot** infections on grapes, and heavy **orange rust** infections on blackberries and black raspberries. Plants infected with orange rust should be dug up and burned/destroyed. This is a systemic disease and it also resides in the roots. Nova sprays for infection prevention on blackberries should be continued at least on an every two week basis until mid to late June and then resumed from late August through September. The late August through September sprays are the most important because this is the period for systemic infections.

As of May 28 we need about 75 more hours of leaf wetness to initiate sprays on apples for sooty blotch and fly speck in the Lexington area.

Strawberry and blueberry harvest have begun and fruit quality is excellent.
(John Strang, John Hartman)

Upcoming Meetings

Jun. 4 - Apple IPM Meeting, Joseph Beachy's Orchard, Casey County, Liberty, KY
Contact Tommy Yankey 606/787-7384 or John Strang 859/257-5685. See program below

Jun. 15 - Kentucky Vineyard Society Summer Meeting & Grape IPM Meeting, Lover's Leap Vineyards and Winery, Ann and Jerry Holder owners, 129 Lovers Leap, Lawrenceburg, KY. (See program below.) Contact John Pitcock 502/227-4630.

Jul. 9-12 - 27th Conference of The American Society for Enology & Viticulture - Eastern Section meeting, Sheraton Baltimore North, 903 Dulaney Valley Rd., Towson, MD, Baltimore, MD. The program centers around four red varieties, Merlot, Cabernet Franc, Syrah and Chambourcin. For the complete program see the website:
<http://www.nysaes.cornell.edu/fst/asev/>

Jul. 18 - UK Research and Education Center All-Commodity Field Day, Princeton, KY
Contact; Sam McNeill 270/365-7541 ext 213; fax, 270/365-2667; e-mail, smcneill@uky.edu

Jul. 18 - Farm and Garden Machinery and Equipment - Third Thursday Program, Kentucky State University Research Farm, 1525 Mills Lane, Frankfort, KY, 10 a.m.-3 p.m. Contact 502/597-6437, e-mail msimon@gwmail.kysu.edu

Aug. 15 - Nutrition and Food Preservation - Third Thursday Program, Kentucky State University Research Farm, 1525 Mills Lane, Frankfort, KY, 10 a.m.-3 p.m. Contact 502/597-6437, e-mail msimon@gwmail.kysu.edu

Sept. 19 - Pawpaws and Related New Crops - Third Thursday Program, Kentucky State University Research Farm, 1525 Mills Lane, Frankfort, KY, 10 a.m.-3 p.m. Contact 502/597-6437, e-mail msimon@gwmail.kysu.edu

Jan. 6-7, 2003 Kentucky Annual Fruit and Vegetable Grower Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact John Strang 859/257-5685

June 4 -- Commercial Apple IPM Meeting

Joseph Beachy's Orchard (formerly Wayne Hughes Orchard) Casey County, Liberty, KY
Contact Tommy Yankey 606/787-7384

Directions:

From Liberty, KY

Take Hwy 70 west approximately 8.5 miles. The Beachy Apple Basket market will be on your right.

From Cumberland Parkway

Exit the Cumberland Parkway at Columbia. Take Hwy. 206 for approximately 26 miles towards Liberty. Turn left at the intersection of Hwy. 206 and Hwy. 70 (The Y) onto 70 west. Follow 70 west approximately 1 mile and the Beachy Apple Basket market will be on your right.

From Elizabethtown

From E-town take Hwy. 210 to Campbellsville. Turn left onto Hwy. 55 (Broadway). Follow Broadway for 6 traffic lights. Turn right by Community Trust Bank. You will be turning onto Roberts Rd. Follow this road until the road ends. Turn left onto 70 east. Joseph Beachy's apple barn is approximately 24 miles. There is a sign out by the road marking the location.

Program:

All times EDT

- 10:00 a.m. Registration
- 10:15 Apple Grower Round Table Discussion
- 11:00 Managing Summer Apple Diseases
- John Hartman
- 11:30 Weed Specimen Identification and Control
- John Strang
- 12:00 Lunch will be available at cost (in the \$6.00 range) for those that preregister.
Preregister by calling Mary Ann Kelley at 270/365-7541 ext. 216 between 8:00 AM and 4:30 PM CST weekdays by June 3 and give her a count for the Apple IPM meeting at Beachy's Orchard.
- 1:00 p.m. Managing Summer Apple Insects - Ric Bessin
- 1:30 Tour of Beachy's Market and Orchard
- Joseph Beachy and Tommy Yankey
- 2:00 Orchard Disease and Insect Scouting Exercise - John Hartman, Ric Bessin and John Strang
- 2:30 Adjourn

June 15 – Kentucky Vineyard Society Summer Meeting & Grape Integrated Pest Management

Lover's Leap Vineyards and Winery, Ann and Jerry Holder owners, 129 Lovers Leap, Lawrenceburg, KY. 502/839-1299 (winery). Contact John Pitcock 502/227-4630.

Directions:

Travel 127 Bypass from Frankfort or Lawrenceburg to the junction of Hwy. 151 and Hwy. 127 South. Travel

1.0 miles to Hwy. 326. Turn on Hwy. 326 (Ninevah Rd.) and travel 3.7 miles to Lanes Mill Rd. Turn left on Lanes Mill Rd. and travel 1.0 mile to the winery, which is on the right side of the road.

Program:

(All times EDT)

- 9:30 a.m. Registration and Introductions
- Dave Loney
- 10:00 Vineyard Disease Management
- John Hartman
- 10:30 Vineyard Insect Management
- Ric Bessin
- 11:00 Vineyard Frost Assessment and Cultural Concerns - John Strang and Chris Smigell
- 11:30 Vineyard Scouting
- John Hartman, Ric Bessin & John Strang
- Noon Lunch will be available at cost for those that preregister.
- Preregister by calling Lovers Leap Vineyard and Winery at 502/839-1299 by June 14 and give Ann or Debbie a count for the KVS meeting.**
- 1:00 p.m. Vineyard Equipment Demonstration
- Jerry Holder

This meeting is open for anyone interested in grape production and wine making.

Grape Berry Moth Control Begins Just After Bloom

Ric Bessin, Extension Entomologist

Grape berry moth larvae can cause serious damage to vineyards by feeding on the blossoms and berries. Infested berries may appear shriveled with fine webbing. Damage by grape berry moth may increase mold, rots and numbers of fruit flies. While grape berry moth larvae may only damage a few berries in a cluster, it is impractical for growers to remove damaged berries and webbing from clusters.

The adult moths will become active in the next few weeks and the first sprays may need to be applied just after bloom. Grape growers can use pheromone traps to monitor for male grape berry moths and time applications of sprays. After the emergence of the first male moth, egg laying can be expected over the next two to three weeks. Two pheromone traps will monitor a vineyard of up to 10 acres.

Grape Black Rot Disease is Active

John Hartman, Extension Plant Pathologist

Wet periods in late April and early May were very favorable for infections, and new infections will continue to occur just about any time there is more rain. Early symptoms are visible as tiny pinpoint-sized brown spots on the leaves where larger spots will develop. Larger spots are easily seen now as angular brown spots with tan centers scattered across the leaves. Where spots are numerous, they coalesce and cause a general leaf blighting. Symptoms are also appearing now throughout Kentucky on leaf petioles, fruit cluster stalks, and tender green shoots. As the fruits begin to enlarge and mature, there will be fruit spotting and decay generating the typical hard, black, shriveled mummies which produce crop losses ranging from 5 to 80%.

The pathogen, *Guignardia bidwellii*, is present almost every year in Kentucky and thrives under the warm humid weather which typifies our summers. Black rot disease has a Kentucky connection because, in North America, it was first recorded here in 1804. Management of black rot requires an integrated approach involving cultural practices and chemical controls.

Cultural practices to reduce black rot. Keep the foliage dry and less prone to disease by use of intelligent field site selection, training systems that ventilate the leaves, judicious nitrogen use, and appropriate irrigation practices. Plant disease-free plants and choose cultivars that resist diseases. Although most grape varieties are susceptible to black rot, a few such as Cascade, Cayuga White, Chancellor, Chelois, Cynthia/Norton, DeChaunac, Elvira, Ives, Vidal 256, and Vignoles are less susceptible. Use good sanitation by removing and destroying diseased and dead wood, and mummies from the vine and on the ground.

Fungicides for disease control. Leaf wetness requirements for black rot infections have been worked out. Fungicide sprays can be timed to coincide only with actual infection periods. However, even chemical controls need to be integrated because there are other fungal diseases in addition to black rot that need managing.

More complete information about varietal susceptibility and timing and materials for grape disease control can be found in ID-94 Kentucky Commercial Small Fruit & Grape Spray Guide, available at County Extension Offices.

Codling Moths Active

Ric Bessin, Extension Entomologist

During the week of May 15 we recorded an upsurge of codling moths in pheromone traps in central KY. These locations reached the 'biofix' date during the week of May 15. What this means is that in 250 degree days we will need to apply a spray for codling moth larvae if we are using Imidan or Guthion. But if we use Intrepid or Confirm, we only have to wait 100 to 150 DD before spraying these newer materials. If you choose to use Esteem for first generation codling moth control as well as San Jose crawlers, then you should use an earlier spray timing, closer to 150 DD.

To calculate Degree days, subtract 50 from the average daily temperature. For example, if today's average temperature was 65, then 65-50 would result in 15 degree days. Continue to add up these daily values until you reach the target for the insecticide you are using against codling moth.

The University of Kentucky Ag Weather Center has a degree day calculator for codling moth on line. To use this model, go to <http://www.agwx.ca.uky.edu/> Click on Ag/Wx Calculators at the top of the screen; select Insect; then select codling moth; and then click on the weather station in Kentucky that most closely represents your orchard and enter the biofix date as the starting point. The model then generates the degree days total for each day based on recorded temperatures and projects into the future based on forecasts and historical averages.

Effect of Rain on Fungicide Wash-Off

J. W. Travis, Plant Pathologist, Pennsylvania State University, Fruit Times Newsletter Vol. 21, No 7.

If you are using protectant fungicides you need to consider the effect of rain on wash-off of the materials. The Strobilurin (Sovran, Flint) and sterol inhibitor (Nova, Procure, Rubigan) fungicides are absorbed into the leaf and fruit tissue after application (once the residue has dried) and are not affected by rain wash-off. The protectant (Dithane, Manzate, Penncozeb, Captan, Ziram, Thiram, Polyram) fungicide residues can be affected by rain. A general rule-of-thumb for the effect of rain on washing off protectant fungicides follows.

1. Less than one inch of rain since the last spray will not significantly affect residues.
2. One to two inches of rain will reduce the residue by ½ - reduce the number of days until the

next spray by ½.

3. Over two inches of rain since the last spray will remove most of the spray residue, renew the fungicide deposit as soon as possible.

This rule has been used for many years to provide growers with general guidance. Newer protectant fungicide materials may be less subject to wash-off, but information is limited.

Spray Adjuvants and Foliar Fungicides

John Hartman, Extension Plant Pathologist

Spray adjuvants are normally thought of as chemical additives, which are not pesticides, that are designed for pesticide applications primarily to enhance pest management, spray operations or environmental safety. Adjuvants include surfactants, supplements, detergents, wetting agents, penetrants, oils, crop oils, petroleum oils, vegetable oils, phytoblends, stickers, film foamers, extenders, spreaders, spreader-stickers, deposit builders, binders, thickening agents, film makers, foams, emulsifiers, dispersants, antiflocculants, stabilizing agents, synergists, sequesterents, safeners, coupling agents, co-solvents, compatibility agents, buffering agents, humectants, antifoam agents, modifiers, and all-purpose spray adjuvants. Many of these terms are used interchangeably. For example, wetting agents and spreaders reduce surface tension of the spray on the target surface while stickers, binders and extenders are adjuvants that allow spray residue to resist wash-off.

It is important to realize that commercial fungicide formulations often contain additives along with the active ingredient to aid in fungicide spread and retention. Some pesticides might serve as adjuvants themselves because, when tank-mixed with a fungicide; they may modify the performance of the spray. For example, when maneb or mancozeb fungicides are added to copper sprays, bacterial spot control from copper is enhanced on tomato and pepper. However, maneb or mancozeb are not considered to be adjuvants commercially because they are used primarily as fungicides.

Not all adjuvants are alike. Growers need to consult the fungicide label and the adjuvant label to determine if their fruit disease management program will be enhanced with an adjuvant. Fruit growers are

increasingly using dilute horticultural oils not only late in the dormant season but also during the summer to enhance insect management efforts. Some of these oils can affect the performance of fungicides; indeed some oils are mildly fungitoxic.

Enhancement of protectant fungicides is attained primarily by utilizing those adjuvants that possess spreading (wetting) and sticking properties. The spreader helps to evenly cover as much of the leaf surface as possible with the spray and the sticker helps to maintain the spray residue on the leaf surface for periods of time. There is some uncertainty on whether or not adjuvants enhance systemic fungicide performance. Growers need to be aware that an adjuvant that increases solubility or penetration of fungicides into the plant might cause phytotoxicity. Thus, only use adjuvants recommended on the fungicide label.

Considerations for adjuvant use.

- Many if not most chemicals should perform well by themselves when applied under normal to ideal conditions. Spray adjuvants offer a degree of performance insurance when environmental conditions or application practices are less than ideal. No adjuvant will completely compensate for poor coverage or timing.
- Determine what type of adjuvant, if any, is needed by reading the relevant labels.
- For many wettable powder fungicides, spray adjuvants possessing spreading and sticking agents will enhance effectiveness to some degree when used at the prescribed rate.
- Use of adjuvants with spreading or sticking agents in conjunction with flowable fungicide formulations does not appear to be as essential as with the wettable powder formulations. In fact, some flowable fungicide labels clearly discourage use of adjuvants while others make general statements about adjuvants such as "Add a spreader-sticker spray adjuvant if needed" (usually with glossy-leaved crops).
- Be aware of differences in leaf texture (hairy vs smooth or old vs young) and their effect on adjuvants.
- Avoid using detergents for spreading agents. Most adjuvants sold on the market are non-ionic whereas detergents are ionic and are likely to cause or enhance burns on the leaves or fruit. Also, non-ionic adjuvants are less likely to combine with minerals in hard water.
- With low-volume sprays, spreaders can enhance

initial spray coverage. Sticking agents can enhance redistribution of the fungicide on plant tissue. Where small spray droplets are formed by a mist blower, spreader adjuvants may reduce "bounce", thereby allowing a greater amount of the fungicide to remain on the plant surface.

- Silicon-containing adjuvants should not be added to spray mixes on crops where bacterial diseases are likely to be present because they enhance ingress of bacterial cells into leaves. Growers should not expect adjuvants to perform miraculous functions.

Some examples of adjuvants (not an inclusive list).

R-11 Spreader Activator. Can be used, for example, with Abound, Benlate, Copper, Mancozeb, Rally, Rovral (also has good sticking properties by itself), Sulfur, Topsin-M, and Vanguard.

R-56 Spreader Sticker. Can be used, for example with Abound, Benlate, Captan (avoid excessive wetting or injury may result), Mancozeb, Rally, Rovral (also has good sticking properties by itself), Topsin-M, and Ziram.

Nufilm P or 17 Pinolene Sticker. Tenacious stickers (i.e., Nufilm) usually are not the adjuvant of choice for systemic products. Milder stickers with good spreading properties (R-56) or spreader activators (R-11) would be more appropriate choices. Can be used, for example, with Copper, Mancozeb, and Ziram.

Sylgard 309 Organosilicone Spreader. Organosilicones are extremely effective spreading agents. At low rates they are very effective spreaders while at higher rates they also act as penetrants. Low volume applications may benefit from the use of organosilicones by improving coverage. Can be used, for example, with Abound, Benlate, Captan (avoid excessive wetting or injury may result), Copper, Mancozeb, Rally, Rovral (also has good sticking properties by itself), Sulfur, and Topsin-M.

Hasten Esterified Vegetable Oil.

Trifol Buffer Spray and Acidification Agent.

IN-PLACE Deposition and Retention Agent.

Adjuvants are not recommended with fungicides such as Bravo Weather Stick or Sulfur.

'We Be Jammin' With Kentucky Blueberries

Sarah Ball Brandl, Martha Yount, Amanda Ferguson and Terry Jones, Expanded Food and Nutrition Education (EFNEP) Coordinator, Breathitt County Family and Consumer Science Agent, Summer Horticulture Intern, UK Student, and Extension Horticulturist respectively.

With the decline in tobacco production, it is important to look for suitable agricultural alternatives for farmers. One such alternative could be the highbush blueberry (*Vaccinium corymbosum*). *Vaccinium* is increasing in popularity in the world of pharmaceuticals. As consumers become more conscious of the foods they eat, they may find themselves eating more blueberries. The blueberry, as well as its cousin the bilberry, has long been used in folk medicines for ailments such as blood vessel disorders, ophthalmological conditions, urinary tract infections, and several other afflictions. Scientists attribute the blueberry's healing powers to the flavonoid anthocyanin which is responsible for the blue berry color and is only found in the skin. Anthocyanins and other flavonoids may help fight the development of cancer, cardiovascular disease, as well as eye problems such as glaucoma and poor night vision.

The initial start up costs of blueberry production can be relatively high, four to five thousand dollars an acre. This high cost is mainly due to site preparation, purchase of plants, and labor. However, after the plants reach maturity, approximately five to seven years, the profits will steadily increase to around six thousand dollars an acre/year. Profits can be further increased with marketing strategies such as u-pick business, rather than selling through a wholesaler. However, each farmer should make this decision based on their own land and facilities.

The longevity of a properly managed blueberry crop will be similar to that of a well-managed apple orchard. Blueberries require acidic soils with a pH of 4.5 to 5.2, with good drainage and high organic matter. It is best to plant more than one cultivar to ensure good pollination and a continuous harvest of berries. Harvest usually begins in early June and lasts until August.

The University of Kentucky is currently evaluating fourteen blueberry varieties at Robinson Station in Quicksand, Kentucky for their yield potential, firmness, taste, and size. Of these fourteen varieties, six were chosen to be tested in the area of value-added products, by making them into jam and observing how well the berries withstand being frozen.

overall favorite jam in all testing groups was "Duke."

The six cultivars chosen are listed and briefly described below. For more information on blueberry production, contact your local County Extension Office. Additional information on blueberry research conducted at Robinson Station is available in the 2001 Fruit and Vegetable Crops Research Report PR-452.

Bluejay is a fast growing northern variety which is easily established. The plant has a medium spread. Mid season it produces a hard berry that is light blue in color and medium sized. This variety works well with a mechanical harvester.

Blueray -- This northern variety is extremely cold hardy. It is a vigorous upright bush that yields large berries that are light blue in color, firm, and flavorful. Berries are harvested mid season.

Duke a northern variety that is an early producer. It has an open stocky bush with multiple canes. The berries are light blue, large, and firm. It is believed that Duke's berry flavor improves with cold storage. This variety has not performed well in southern Kentucky.

O'Neal is a southern highbush variety that is an early producer. The berry is firm with a sweet flavor and a medium size. The bush is erect and spreads slightly. This cultivar tolerates the heat of hot summers well.

Reka – This northern blueberry variety is an early producer and has been very productive. The bush is an upright grower, and produces firm, medium sized berries that have a small fruit scar.

Sierra – This variety ripens early and yields very large berries. The plant has an upright growth pattern, and the berries have a good flavor and color. This plant is known to be very vigorous.

Methods and Results:

Six blueberry varieties grown at the Robinson Station were used in home food preservation trials (jam production and freezing quality) in the summer of 2001.

Jam Production: The berries were evaluated using an identical standard jam recipe as individual varieties and as part of a mixed product. Each jam produced was sampled and yield was recorded. The finished jams were then evaluated in blind taste tests at several Extension events, including the Robinson Station Field Day. Table 1 shows how the different varieties ranked for yield, taste and texture. The

A product of "Mixed" varieties, came in second to

“Duke” in color, flavor and texture.

Frozen Blueberries: The six blueberries were dry packed in freezer bags and stored in a freezer for approximately 6 months. Dry packing is a freezer in which berries are rinsed with water and then frozen without water, juice, or syrup being added. Berries were quick frozen to hold their shape and to prevent them from sticking together. For quick freezing the berries were spread out on trays or cookie sheets and frozen, then placed into the freezer bags or containers. This makes it possible to remove a many berries from the container as needed and return the rest still frozen to the freezer. If not used immediately, cover and refrigerate thawed berries. Thawed berries should be used within three days. Frozen berries will keep in the freezer for up to 1 year. Frozen berries are very good for use in recipes such as blueberry pancakes or

muffins. Frozen berries will lose some of their texture and do not do as well in recipes that call for fresh berries such as a fruit salad.

The six frozen blueberry cultivars were thawed and evaluated for taste, appearance, and texture by thirty Extension agents. Bluejay and Blueray were rated the least desirable of the six. Comments included: mushy, bitter, sour and gritty. Duke which made the best jam, ranked second as a frozen berry.

Comments included good flavor, firm skin, tart and good. O’Neal was rated the best tasting overall of the frozen berries. Comments included: great blueberry taste, good, the best. Reka was judged as being fair with a tart taste. This cultivars berry held its shape very well when thawed. Sierra had the best color of any frozen berry. Comments included: a very large but sour berry. For valued added products Duke and O’Neal were the best of the six cultivars tested.

Table 1. 2001 Blueberry Jam Evaluation ¹			
Variety	Jam Yield ²	Taste	Texture/Comments
Bluejay	48 oz.	After taste	Mushy and gritty
Blueray	52 oz.	Not as sweet	Foamy, runny - lacking flavor
Duke	60 oz.	Excellent flavor	Best texture for jam
O’Neal	56 oz.	Good taste	Smooth texture, berries held shape
Reka	56 oz.	Tart taste	Runny texture
Sierra	56 oz.	Sour, tangy	Hulls, lumpy, good color
Mixed	56 oz.	Nice flavor	Great texture.

¹ A total of 150 people tasted and evaluated the jams.

² All recipes began with 4 cups of crushed raw blueberries. Four cups of crushed berries is about 6 cups of whole berries.

<p>Blueberry Jam - Cooked 4 Cups Crushed Blueberries 4 Cups Sugar 1 Box Pectin</p> <p>Wash jars and lid bands in hot soapy water; rinse with warm water. Put jars in boiling water until ready to use. Pour boiling water over flat lids in saucepan off heat. Let stand in hot water until ready to use.</p> <p>Prepare fruit as directed. Wash and crush with a masher, crushing one cup at a time. <i>Do Not puree fruit.</i></p> <p>Measure exact amounts of fruit</p>	<p>and sugar and put into separate bowls. Do not reduce sugar or use substitutes. Bring mixture (fruit and pectin) to a full rolling boil on high heat stirring constantly.</p> <p>Stir in sugar all at once and return to a full rolling boil. Boil mixture for 1 minute stirring constantly. Remove from heat and skim off the foam.</p> <p>Ladle quickly into prepared jars, filling to 1/4 inch of the top. Wipe jars and threads clean and cover with flat lids. Screw on band, do not over tighten. Process 10 minutes in a boiling water bath. Yield: 6- ½ pints.</p>
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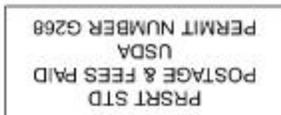
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John Strang, Extension Horticulturist



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