

# Kentucky Fruit Facts

February 2004 (2-04)

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

John Strang, Extension Fruit Specialist, Editor  
Karen Shahan, Staff Assistant

## Kentucky Weather

John Strang, Extension Horticulturist and Tom Priddy, UK Ag. Meteorologist

The jet stream has divided into northern and southern streams as it moves across the US. Consequently, both northern and southern weather systems are moving rapidly across the country. Kentucky lies between these and is influenced by both the northern and southern systems.

The months of October, November and December were wetter than normal and we are progressing through the winter in a saturated state. Currently, we are experiencing a normal average winter! The weather models predict that Kentucky will have normal temperatures and rainfall up through May.

We experienced our lowest temperatures of the season up to this point on the morning of



January 31 and it was actually colder than forecast. I expect that we lost moderate to heavy numbers of peach buds in several areas and could have some damage to *Vinifera* or European grapes on colder sites. Grower thermometers often show slightly colder temperatures than those reported officially. One of our Horticulture Extension Agents reported that he had -17 °F at his house in Boone County and my thermometer in a frost pocket in Lexington registered -12 °F .

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## Low Temp (°F) data for morning of Jan 31 for colder sites

Covington	-12
Williamstown	-9
Lexington	-6
Bardstown	-6
Louisville	-5
Dix Dam	-5
Evansville, IN	-5
Berea	-2
Henderson	-2
Hardinsburg	-1
Grayson	0

## Upcoming Meetings

**Feb. 19 Commercial Vine Crop, Sweet and Indian Corn Production**, Bath County Library, Owingsville KY 7:00 pm  
Contact Gary Hamilton, 606/674-6121

**Feb. 24 Production for Farmers Markets**, Estill County Extension office. Contact Eric Baker 606/723-4557.

**Feb. 24 Home-based Microprocessor Workshop**, Louisville Health Department, Louisville, KY. 9:00 a.m.- 4:30 p.m., \$50.00 registration fee includes lunch. (See article below for further information.)

**Feb. 26 Fruit Tree Pruning and Grafting Workshop**. Laurel County. Contact Glenn Williams 606/864-4167.

**Feb. 27 Northern Piedmont Specialty Crops School**, Person County Office Building (Cooperative Extension Center), 304 S. Morgan St., Roxboro, NC. 8:00 a.m.- 3:00 p.m. Cost for one-day school is \$25. Pre- registration is required to guarantee you a seat and a meal (included in registration fee.) The program will cover: What it takes to Become a Successful Grower and Direct Marketer, Roadside Marketing, and Community Supported Agriculture. Speakers are John Sedlock and family that raise and market 10 acres of asparagus in IL, John Whitmore, a specialty crop grower in Leesburg, VA, William Brinkley, a vegetable grower in Creedmoor, NC, and Theresa Nartea, program director for the NC Center for Environmental Farming Systems. Contact Carl Cantaluppi phone: 919/603-1350 or e-mail: [carl\\_cantaluppi@ncsu.edu](mailto:carl_cantaluppi@ncsu.edu)

**Mar. 2 Home Fruit Production**, Estill County Extension Office, Irvine, KY. 6:00 p.m. Contact Eric Baker 606/723-5912.

**Mar. 2-3 Small Fruit and Strawberry School**, Mt Vernon Holiday Inn, Mt. Vernon, IL. Contact Elizabeth Wahle ([wahle@uiuc.edu](mailto:wahle@uiuc.edu)) 618/692-9434.

**Mar. 3 Home-based Microprocessor Workshop**, Hopkins County Extension Office, Madisonville, KY. 9:00 a.m.- 4:30 p.m., \$50.00 registration fee includes lunch. See article below for further information.

**Mar. 4 Fruit Tree Pruning Demonstration**, Pineville, KY (Bell County) 1:00 p.m. Contact Stacy White 606/337-2376.

**Mar. 4 Orchard Management Workshop**, Harlan KY. Contact Jeremy Williams 606/573-4464.

**Mar. 6 Kentucky Vineyard Society Grape Pruning Demonstration**, Princeton Research and Education Center, Princeton, KY. 1:00 p.m. CST. Contact Joe Masabni 270/365-7541 ext. 247. (See article below.)

**Mar. 6 Tunnel Vegetable Growing Workshop**, Au Naturel Farms, Paul Wiediger, Smith Grove, KY. Noon-5:00 p.m., \$35.00 for workshop. Contact Paul Wiediger 270/749-4600.

**Mar. 8 Home-based Microprocessor Workshop**, Blue Licks State Park, Nicholas County. 9:00 a.m.- 4:30 p.m., \$50 registration fee includes lunch. See article below for further information.

**Mar. 11 Commercial Tomato, Pepper and Green Bean Production**, Bath County Library, Owingsville KY 7:00 pm  
Contact Gary Hamilton, 606/674-6121

**Mar. 11 Fruit Pruning Workshop**, Apple Hill Restaurant and Orchard, Hazard, KY (Perry County). 10:00 a.m. Contact Charles May 606/436-2044.

**Mar. 13 Kentucky Vineyard Society Grape Pruning Demonstration and Grape IPM Program**, Talon Winery, Harriet Allen and Charles Tackett owners, Lexington, KY. 1:00 p.m. EST. Contact John Pitcock 502/859-0101 or John Strang 859/257-5685. (See article at end of newsletter.)

**Mar. 16 Vegetable and Blueberry Production for Farmers Markets**, Elliott County Extension Office, Sandy Hook, KY. 6:00 p.m. Contact Ben Meredith 606/738-6400.

**Mar. 18 Grape Spraying and Pruning**, Jessamine City County Park, Nicholasville, KY. 6:30 p.m. Contact Robert Amburgey, 859/885-4811.

**Mar. 19 Purchase Area Blackberry Workshop**. McCracken County Extension Office 1:00.p.m. Contact Kathy Keeney 270/554-9520.

**Mar. 22 Commercial Cole Crop and Small Fruit Production**, Bath County Library, Owingsville KY 7:00 pm  
Contact Gary Hamilton, 606/674-6121.

**Mar. 23 Mammoth Cave Area Blackberry Workshop**, Sherman Marklin's farm, 1432 Harris School Rd., Franklin, KY. 1:00.p.m. Contact Joe Masabni 270/365-7541 ext. 247 or Sherman Marklin 270/586-7513.

**Mar. 26 Pennyryle and Green River Blackberry Workshop**, Crittenden County Extension Offices and Yoder's farm, 346 Rooster Lane, Marion, KY. 1:00 p.m. Contact Tom Moore 270/965-5236.

**Apr. 13 Apple IPM Program**, Mathis Orchard, Coleman (Walter) Mathis owner, Mayfield, KY. Contact Joe Masabni 270/365-7541 ext. 247 or Coleman Mathis 270/247-5466.

**Jan. 3-4, 2005 Kentucky Fruit and Vegetable Conference and Trade Show**, Holiday Inn North, Lexington KY. Contact John Strang, 859/257-5685.

## Kentucky Vineyard Society Grapevine Pruning Demonstration - March 6

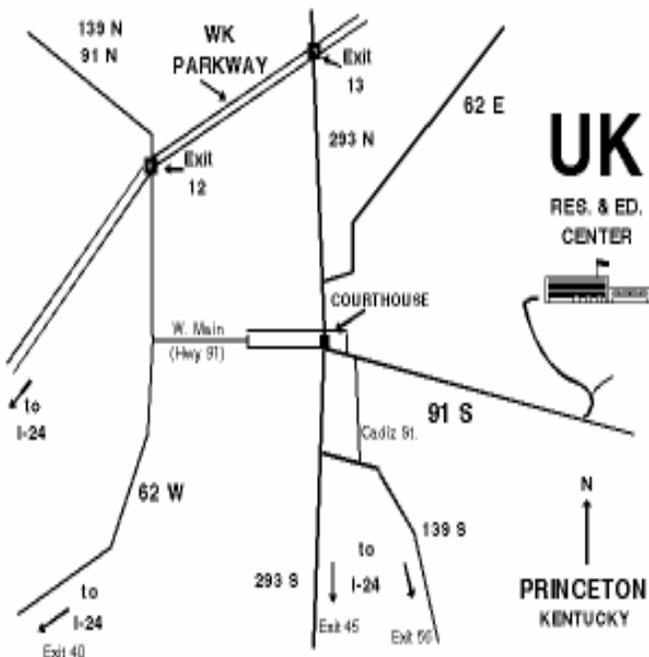
Princeton Research and Education Center  
Princeton KY  
1:00 p.m. CST to Noon

We will meet at the Research and Education Center then proceed to the vineyard as a group.

This demonstration will cover the pruning of American, French American hybrid and European grapes.

There is no need to preregister for this program.

Contact Joe Masabni, 270/365-7541, Ext. 247.



## Home-based Processing and Microprocessing

The University of Kentucky Cooperative Extension Service, Kentucky Department of Agriculture and Kentucky Cabinet for Health Services are partnering to support farm friendly legislation. House Bill 391 and Farmers Market Legislation allows Kentucky farmers who grow

and harvest produce to process value-added products and sell them from designated farmers markets, certified roadside stands and the processor's farm. There are two processing categories in HB 391, Home-based Processors and Home-based Microprocessors.

Home-based Processors may sell jams, jellies, breads, fruit pies, cakes and cookies after they register with the Cabinet for Health Services. There is no fee and application forms are available from your county health department, county Extension Office or on-line at <http://chs.ky.gov/publichealth/Food-Program.htm>. Instructions are on the application form.

Home-based Microprocessors may sell acid, acidified and low acid foods. Prior to sending the Home-based Microprocessor application form and \$50.00 application fee to the Cabinet for Health Service, farmers must attend a Home-based Microprocessor Workshop and have their recipes approved. Workshops are \$50.00, including lunch. Farmers must attend the entire workshop and pass both exams to complete the Home-based Microprocessor Workshop as established by HB 391 regulations.

Questions should be directed to Dr. Sandra Bastin at 859-257-1812 or email [sbastin@uky.edu](mailto:sbastin@uky.edu). Recipes must also be approved by a designated representative of the University of Kentucky, at a fee of \$5.00 for each recipe. Then it is up to the processor to follow recommended, safe canning procedures before the sale of their value-added products.

Specifics on the next three workshops are listed in the Upcoming Meetings section of Fruit Facts. A registration form for the workshops and a link to the application forms from the Cabinet for Health Services can be found on the UK College of Agriculture web page at <http://www.ca.uky.edu/> under Hot Topics on the right hand side of the screen.

Send the registration form and payment to:

Dr. Sandra Bastin  
242 Scovell Hall  
University of Kentucky  
Lexington, Kentucky 40546

Make checks payable to the **University of Kentucky**

# Fire Blight - Be Aware and Be Wary

By John Hartman, Extension Plant Pathologist

Fire blight incidence and severity was much reduced during 2003 compared to the previous two years. In 2004, growers might ask - "Will there be an epidemic this year?" and my answer is - "I don't know." Fire blight, caused by the bacterium *Erwinia amylovora*, is perhaps the most destructive disease of apple, but serious outbreaks don't occur every year. The disease can develop quickly, destroying flowers, shoots, limbs, sometimes whole trees, and, occasionally, entire blocks of susceptible trees. Fire blight not only causes yield loss, but also the expense of replanting killed trees, the cost of lower yields from the replants while they become established, and reduced yield from trees which have been severely pruned.

Why orchards may be more susceptible to fire blight. During recent years, Kentucky growers have begun changing their growing practices that make orchards more vulnerable to fire blight infection. Some of these growing practices include establishment of high density orchards, use of uniformly susceptible apple rootstocks such as M.9 and M.26, and use of popular new apple cultivars such as Gala, Fuji, Honeycrisp, Jonagold, Braeburn, and others that are highly susceptible to fire blight. In infected orchards, systemic invasion of rootstocks resulting from blossom and shoot infection is increasingly common and can kill trees. The new (and more profitable) growing practices encourage earlier fruit bearing and easier tree management which are beneficial to growers.

However, these horticultural changes are likely to not only increase fire blight incidence but also disease severity. Thus, while potential profitability has increased, growers are having to live with increased risk due to fire blight. Some plant pathologists suggest that growers can expect at least one severe epidemic of fire blight every 10 years. In the eastern U.S. severe fire blight outbreaks occurred in 1991 and in 2000. In 1991, fire blight losses in southwestern Michigan were estimated at \$3.8 million and in 2000, projected losses in southwest Michigan are estimated to be \$42

million. Most observers suggest that these losses are a reflection of the increased susceptibility of orchards due to the changes in growing systems, rather than due to a series of unusually fire blight-favorable weather events.

Maryblyt as a fire blight management tool. In Kentucky, apple and pear growers have been able to control fire blight reasonably well with well-timed applications of the antibiotic streptomycin. When used properly during bloom, streptomycin is highly effective at controlling disease. Optimal spray timing is achieved through the use of the computer program Maryblyt. This computer program forecasts fire blight in apples and pears by predicting the four distinct types of infection events (i.e., blossom, shoot, canker, and trauma blight) as well as the appearance of symptoms that follow. Kentucky apple growers who are subscribed to the electronic mail list-serve have received fire blight management information based on the Maryblyt program using data from the U.K. Horticulture research facilities in Lexington and Princeton (and soon, hopefully on data from Quicksand). This is generalized information that lets growers know what we are seeing at U.K. and does not reflect conditions in individual orchards statewide. Thus, many growers have obtained their own computer programs.

Apple and pear growers are aware that primary infection of the flowers leads to blossom blight. The impact of blossom blight is great because blossom infections provide inoculum for the shoot, root, and trauma blight phases. Consequently, management practices focus on controlling this phase. In the Maryblyt model, blossom blight risks are determined by knowing 1) whether or not the flowers are open; 2) that the epiphytic inoculum potential (bacterial population indicator) is high; 3) that a heavy dew or more than 0.01 inch of rain occurred in the last 24 hours, or more than 0.1 inch the previous day; and 4) average daily temperature is more than 60 F. When all four conditions are met it is assumed that an infection has occurred. In reality, some infection can occur when not all four conditions are met, but in practice, growers consider making an application when three of the four risk factors are present and go ahead and make an application when all four conditions have been met.

Growers need to know that Maryblyt may over or underestimate the severity of fire blight because a) it assumes that all trees are equally susceptible, b) actions are triggered by minimal thresholds and don't account for exceeding the threshold (for example, infection will occur at 60 degrees F, but the program doesn't indicate that more might take place if the temperature is 70 degrees F), c) level of previous fire blight and how well it was managed, d) it is assumed that there is always inoculum present from limb and branch cankers in the orchard (leading to false predictions of disease). Despite these deficiencies, Kentucky growers have succeeded fairly well using Maryblyt to time antibiotic applications. In Kentucky, this results in 1 - 4 treatments per year on susceptible varieties. Without Maryblyt, 4 - 6 applications are often needed.

Thus, growers can use less chemical and make more effective applications by using Maryblyt. Apple and pear growers should profit from improved understanding of fire blight and more precise disease management that is made possible by use of disease-predictive technology. Despite improved methods, there is still much to learn about fire blight. There needs to be more precise information about the role of cankers as sources of bacterial inoculum.

Cankers are sources of primary inoculum which lead to primary infection of blossoms. In spring, bacteria mainly originate as primary inoculum at the margins of cankers formed the previous growing season. Plant pathologists recognize two types of cankers; one type which shows no line of demarcation between diseased and healthy tissues produces infectious bacteria the following spring, whereas cankers with definite lines of demarcation at the canker margin are usually inactive. In most cases during the previous growing season both canker types result from the downward spread of bacteria following infection of blossoms, fruiting spurs, and shoots.

How cankers form and bacteria survive. Following primary infections in spring, bacterial cells multiply and spread intercellularly through the cortical parenchyma of blossom spurs and may enter the xylem and phloem, where they then invade systemically into supporting limbs and the main trunk. As foliar expansion and

shoot growth slow later in the season, trees respond to the infection and bacterial invasion slows and eventually stops. In cankers with no demarcation to healthy tissues the bacteria apparently survive over winter in the living phloem tissue around the canker margin. In well-defined cankers, a periderm forms around the invaded tissues, isolating them and preventing further spread of the pathogen in the host. Although the tree has isolated the pathogen, bacteria still survive, but cannot colonize surrounding tissue in the spring to build up inoculum levels. These well-defined cankers typically have wrinkled, roughened, cracked or raised margins. But it is the not-so-well-defined cankers that are thought to be the major contributors of primary inoculum in the spring, via ooze production and extension of cankers in healthy tissues.

The movement of bacteria out of overwintering cankers is thought to occur in early spring and is sometimes visible as ooze, which forms on the surfaces of cankers. However, even in the absence of visible ooze on canker surfaces, bacteria are still present and could still be a source of fire blight primary inoculum. The proportion of fire blight cankers that successfully overwinter the bacteria and subsequently produce primary inoculum in the spring may be about 10 to 15%. Plant pathologists don't have a complete understanding of exactly which overwintering cankers are most heavily involved in fire blight survival and spring inoculum production. A better understanding of overwintering cankers is needed to help growers and advisors to more precisely estimate disease pressure at the beginning of the growing season.

Manage fire blight by doing the following:

- Use disease-tolerant varieties.
- Avoid over-fertilization with nitrogen.
- Prune out all visible fire blight cankers in winter.
- Prepare to spray with streptomycin antibiotic during bloom.
- Use a disease-predictive system to time the chemical applications.
- Detect the disease early and break out infected flower/fruit spurs before the branches become infected.

# Kentucky Blueberry Jam Evaluations 2001- 2003

By Martha Yount, Family and Consumer Science Agent- Breathitt County, Sarah Ball Brandl, Limited Resource Audience Program Coordinator- Robinson Station,. Jackson, KY, and Charles T. Back, Research Technician, Department of Horticulture, Robinson Station, Jackson, KY

During the summer of 2003, 5 blueberry varieties grown at the Robinson Station were made into jam during food preservation trials.

The berries were evaluated using an identical standard jam recipe. 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 Small Fruit Workshop held at the Robinson Station during the July field day. Overall, about 200 people participated in the 2003 blueberry jam evaluation. Table 1 below shows how the different varieties ranked according to yield, appearance, texture and flavor. Results from previous tests are shown in Tables 2 and 3.

This was the third year for the taste testing of the blueberry varieties. Overall, we have tested 14 different varieties. This year, we compared Duke, the winner from the first year

(Table 3.), with three numbered and one recently named North Carolina varieties. In this 2003 evaluation (Table 1) “Duke” and “NC 1827” were chosen as the best blueberries for jam production based on the categories of appearance, texture and flavor. Most of the varieties tested over the past 3 years have been suitable for jam and yielded a good product. In 2002 (Table 2) Sampson produced an excellent blueberry jam but in 2003 the jam was runny and gritty. Weather conditions during berry production may have played a role in this difference. In 2002 it was very hot and dry during June and July but in 2003 it was cool and wet. Six varieties that did not rate an acceptable score were: Reka, Sierra, Bluecrop, Nelson, Bluejay and Blueray.

Based on limited testing the blueberry varieties that made the best jam are Duke, Bluegold, O’Neal, NC 1827, NC 2852, and NC 1832. Duke and Bluegold are Highbush blueberries and are well adapted for production in Kentucky. O’Neal is a Southern Highbush variety. It blooms early and normally sustains spring frost injury, resulting in low yields. The NC selections are all crosses of Highbush or Rabbiteye with other blueberry species that have not been named as yet and are still being evaluated for adaptation to Kentucky. It is important to note that in 2002 an excellent jam was produced when varieties were mixed.

**Table 1 2003 Blueberry Cultivar Jam Evaluation**

Variety	Yield	Appearance	Texture	Flavor
Duke	7 –8 oz. jars	excellent	good	sweet
NC 1827	6.5 - 8oz. jars	excellent	smooth	sweet
NC 1832	7 - 8 oz. jars	visible berries	good, seedy	berry flavor
NC 2852	7 - 8oz. jars	excellent	seedy	very good
Sampson	7 - 8 oz. jars	runny	gritty	too sweet

**Table 2 2002 Blueberry Cultivar Jam Evaluation**

Variety	Yield	Appearance	Texture	Flavor
Bluegold	7.5 - 8 oz. jars	good	lots of fruit	good berry flavor
Sampson	6.5 - 8 oz. jars	good and thick	full berries, good	fruiter, good taste
Bluecrop	6.5 - 8 oz. jars	watery, thin	grainy, thin	weak, bland
Nelson	6.5 - 8 oz. jars	lumpy, thick	grainy, coarse	too sweet, bland
Brigitta	7.5 - 8 oz. jars	good, smooth	seedy, grainy	too sweet

**Table 3**                    **2001 Blueberry Cultivar Jam Evaluation**

Variety	Yield	Appearance	Texture	Flavor
Duke	60 oz	good	best texture for jam	excellent flavor
O'Neal	56 oz	berries held shape	smooth texture	good taste
Mixed berries	56 oz	good	great texture	nice flavor
Bluejay	48 oz	poor	mushy, gritty	after taste
Blueray	52 oz	watery	foamy, runny,	not as sweet, lacks flavor
Reka	56 oz	watery	runny texture	tart taste
Sierra	56 oz	good color	lumpy	sour, tangy

## **Kentucky Vineyard Society Grape Pruning Demonstration and Grape IPM Program - Mar. 13**

Talon Winery, Harriet Allen and Charles Tackett, Owners, John Pitcock Winemaker  
Phone 502/859-0101. The program will begin at 1:00 p.m. EST. There is no need to preregister for the program.

### **Directions**

Upon arriving in Lexington, follow New Circle Rd. or Man 'O War Boulevard towards the south of town to Tates Creek Road (Rt. 1974). Follow Tates Creek Road. south for a little over 5 miles to Tallon Winery. Along the way you will pass 1981 on your right and the winery is about a mile past this. You will pass a bed and breakfast on your right and go into a sharp curve to the right. The farm entrance is the first drive on your left just after this. Look for a tall white cylindrical water tower and drive towards the tower.

## **2004 Commercial Fruit and Vegetable Spray Guides and the 2003 Research Report Now Available**

The 2004 Commercial Tree Fruit Spray Guide (ID-92), Midwest Commercial Small Fruit and Grape Spray Guide (ID-94), Vegetable Production Guide for Commercial Growers (ID-36), and 2003 Fruit and Vegetable Crops Research Report (PR-488) should now be available through your local county extension office. There is no charge for these publications.

These may also be found on our Horticulture Department web page at: <http://www.uky.edu/Ag/Horticulture> Go to Commercial Horticulture and then either Fruits or Vegetables depending on you interest.

## **Receiving The Fruit Facts Newsletter**

### Electronically on the Internet

Fruit Facts is available electronically on the web in the pdf format. To get notification of the monthly Fruit Facts posting automatically and approximately two weeks earlier than it would normally be received via mail, you can subscribe to the University of Kentucky Listserve.

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Subject: Fruit Facts

Message: subscribe ky-fruitfacts, followed by a blank line

You will receive two responses, the first notifying you that your request has been received and to wait for the second message. The second message describes how to confirm your request. You must confirm your request using one of the three ways shown (web access, e-mail reply or new e-mail message). Upon successfully confirming, you should get a welcome message.

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**Mailed Hard Copy** Contact:

Joe Masabni  
Research & Education Center  
P.O. Box 469  
Princeton, KY 42445  
270/365-7541 ext.247

OR

John Strang  
Department of Horticulture  
University of Kentucky  
N-318 Ag. Sci. North  
Lexington, KY 40546-0091  
859/257-5685

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John G. Strang,  
Extension Fruit & Vegetable Specialist

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