

Kentucky Fruit Facts

Jan-Feb 2009/ (1-2/2009)

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

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

Fruit Crop News

It has been a difficult winter so far to get serious amounts of pruning done, however some growers have made remarkable progress. Remember to prune the oldest apples, pears, cherries and plums first and leave the youngest trees until we are closer to bud break. It is better to prune peach trees later in the spring and after bloom if you have the labor to finish in a short period of time. Blackberries and raspberries should also be pruned closer to bud break. Prune the hardiest and oldest grapevines first and save the youngest vines until spring.

The National Weather Service prediction for March is for above normal temperature and rainfall. The outlook for April is for average temperatures and rainfall. We are moving into strong La Nina conditions for the coming summer.

The KSHS now has a web site located at <http://www.kyhort.org> Growers are encouraged to look it

Inside This Issue:

- 1 - Fruit Crop News
- 2 - Upcoming Meetings
- 2 - Farmers' Markets
- 3 - Ice, Ice and More Ice and Fruit Crop Flower Bud Survival
- 4 - Winery Contracting & Grape Pruning & Training Workshop
- 4 - Kentucky Horticultural Economic Outlook
- 5 - New Discovery for Grape Crown Gall Biological Control
- 6 - Manage Blackberry and Raspberry Anthracnose and Cane Blight in Early Spring
- 7 - 2009 Midwest Commercial Fruit Spray Guide Changes
- 7 - New Publications Available Through County Extension Office and Off the Internet



over and provide suggestions for postings. We are working on a section that locates KSHS member fruit operations on a map of the state and will provide their websites. If you are a KSHS member and would like your website listed please send your website url to John Strang at jstrang@uky.edu.

We have some good news to report. Dr. John Hartman, U.K. Extension Plant Pathologist, who retired this past June has been hired in a 40% post retirement appointment. He will continue to provide support for our fruit and ornamental commodity areas.

Please welcome our newest Extension Associate, Vaden Fenton to Kentucky. Many of you



had a chance to meet Vaden at our Fruit and Vegetable Conference in January where he was in charge of setting up projectors and helped to make the meeting run smoothly. He began working

at the UKREC in Princeton, Kentucky in August. His crop responsibilities are 70% Vegetables and 30% small fruit. Vaden has his Master's Degree from Southern Illinois University where he studied Tree Training and Management of High Density Tree Crop Production. He has experience as a Vegetable IPM Scout. Vaden can be reached by writing P.O. Box 469, Princeton, KY 42445; by Office phone: 270-365-7542 X 262; Cell phone: 270-559-6319; or email: vfe222@uky.edu.

Upcoming Meetings

Mar. 5 Home Table Grape Production, Washington County Extension Office, 211 Progress Ave., Springfield. 6:00 p.m. Contact Dennis Morgeson 859-336-7741.

Mar. 9 Regional Produce Growers Meeting, Bath County Agricultural Education and Marketing Center, Intersection of I-64 (123 exit) and US 60, Owingsville. Contact Gary Hamilton 606-674-6121.

Mar. 11 Fresh Market Table Grape Production for Farmers' Markets, Russell County Extension Office, Jamestown, 5:00 p.m. EST. Contact Raymond Thompson, 270-866-4477.

Mar. 12 Franklin County Winter School, Small Orchards and Small Fruit Production, Franklin County Extension Office, 101 Lakeview Ct., Frankfort, KY 40601, 7:00 p.m. Contact Kim Cowherd 502-695-9035.

March 12th Pruning and Grafting Apples. Perry County at 10:00 a.m. James Combs Orchard. Contact Charles May (606) 436-2044.

March 12th Grafting Apples. Wolfe County Extension Office at 6:00 p.m. Contact Daniel Wilson (606)-668-3712.

Mar. 14 Apple Grafting Workshop, Winchester Public Library, 2:00 p.m. Contact Julie Maruskin 859-744-5661.

March 19th Fruit Tree Pruning Workshop & Apples Grafting Workshop. Adair County at 1:00 p.m. CST. Contact Nick Roy (270) 384-2317.

Mar. 21 Winery Contracting, U.K. Good Barn, 10:00- Noon. Contact Tom Cottrell 859-257-0037 and **Grape Pruning and Trellising Demonstration,** U.K. Horticultural Research Farm, Lexington, 1:30- 3:30 p.m. Contact Chris Smigell 859-230-5311 or John Strang 859-257-5685. See program below.

March 24th Gardener's Toolbox on Blueberries & Strawberries. 12:00 p.m., Lawrence County Extension Office. Contact Julia Rollins (606)-673-9495.

March 25th Apple Grafting Class. Martin County Extension Office at 2:00 p.m. Contact Roger Mollette (606) 298-7742. (Call for rain dates.)

March 30th Vegetable Production Meeting. 6:00 p.m. at the Fleming County Extension Office. Contact Jeff Smith (606) 845-4641.

Apr. 15 Orchard Meeting and Tour, Haney's Appledale Orchard, Nancy, KY. Contact Beth Wilson 606-679-6361 or John Strang 859-257-5685.

Apr. 18 Kentucky Nut Growers Association Spring Meeting, Hardin County Extension Office, Elizabethtown, KY. Contact Carl Ray 270-281-4800.

May 19 Mid Mississippi Valley Orchard and KSHS Orchard Tour, Reid's Orchard, Owensboro, KY Contact Annette Heisdorffer 270-685-8480 or John Strang 859-257-5685.

April 21st Gardener's Toolbox on Raspberries. 12:00 p.m., Morgan County Extension Office. Contact Sarah Fannin (606) 743-3292

Jan. 4-5, 2010 Kentucky Fruit and Vegetable Conference and Trade Show. Embassy Suites Hotel, Lexington, KY. Contact John Strang 859-257-5685.

Farmers' Markets

By Janet Eaton

The Kentucky Farmers' Market Association (KFMA) is a membership organization that serves as a voice for all markets and market vendors. It maintains a Web site to increase communication between all concerned with markets, www.kentuckyfarmersmarket.org Coy Wilson is president of the organization.

There are now 120 registered farmers' markets in the state with gross sales of more than \$8 million. The Kentucky Department of Agriculture issues an annual report on farmers' markets each year summarizing all data collected during the registration process. The 2008 report can be found at www.kyagr.com/marketing/farmmarket/index.htm

Ice, Ice and More Ice and Fruit Crop Flower Bud Survival

By John Strang, U.K. Extension Horticulturist

Most fruit orchards held up to the ice barrage we sustained Tuesday January 27th very well due to good pruning practices. John Reid, Reid's Orchard in Owensboro reported that they had very little damage to the apples and practically none to the peaches because they had completed their peach pruning prior to the storm. Coleman Mathis of Mayfield also reported little or no damage to his apples and equated the ice storm to the weight provided by a good fruit crop. Maurice Fegenbush in Bloomfield had some scaffold limb breakage on about 20 percent of his 13-year-old peach trees. He noted that most of the broken limbs had some decay due to sunscald and most of the broken limbs were longer because they had grown into areas where there were missing trees. His younger trees were fine. James Bennett, of Buffalo had little or no damage to his apples and lost a few older peach trees. I visited Tom and Lisa

Manley's five-year-old peach orchard in Bardwell where the ice loads were extremely severe.



Bolting a split trunk back together.
(Pictures by Lisa Manley)

western Kentucky were seriously damaged by the ice storm. Growers should remove broken limbs close to the trunk or cut them back to an outwardly growing limb if one can be found. Broken stubs should be removed to help the trees grow over the wounds and to reduce colonization by shot hole borers.

Blueberry growers should take advantage of storm damaged pine trees. Pine chip and needle mulch is one of the best mulches for blueberries as it does not raise that soil pH as much as that from other deciduous trees. If new plantings are planned in the future, composted pine bark is an excellent amendment to mix into blueberry beds at planting to replace peat moss.



Tom & Lisa Manley's peach orchard in Bardwell, KY during the ice storm.

We experienced the coldest temperatures of the winter so far on the morning of January 16th. The coldest temperature reported for the sites across the state monitored by the Kentucky Agriculture Weather Center was -6°F in Covington. On this date other areas of the state experienced temperatures mostly between -3 and 3°F. At this point all of our fruit buds were fully dormant and we had not received any warm temperatures to initiate dehardening. Dwight Wolfe cut peach buds on February 13 at the UK Research and Education Center in Princeton and found 82% live buds on Redhaven and 93% live buds on Flat Wonderful. Amy Poston assessed peach bud damage at our Horticulture Research Farm in Lexington and found 76% live buds on Redhaven and 54% live buds on Redskin. This is still plenty for a full crop. When he was at Ohio State University Dick Funt noted that roughly 10% of the thornless blackberry crop was lost for every degree that the temperature dropped below zero down to -10°F where all of the crop was lost. Generally our grape primary bud survival looks good. However, I have had at least one report that canes were killed back to the cordons on several varieties. With grapes if they are well hardened off, when exposed to injurious temperatures the primary buds will be killed and the canes will remain alive. When the canes are killed back this normally indicates that the canes did not harden off properly in the fall. Poor hardening can result from severe defoliation due to Japanese beetle feeding and downy or powdery mildew. Additionally, excessive nitrogen, over cropping and severe drought stress can also delay hardening. Extension specialists in Indiana and Ohio have reported that northern portions of their states reached -18°F and they are see substantial crop losses for blackberries, peaches and less hardy grape varieties.

Winery Contracting and Grape Pruning and Training Workshop - Saturday March 21

Winery Contracting Program:

10:00 a.m. EST – Noon

University of Kentucky, E.S. Good Barn

Gorham Hall, 1451 University Drive, Lexington, KY

Directions to E.S. Good Barn: Proceed North on Nicholasville Rd. (US 27) to the UK Campus and turn right on Stadium Drive. (This is just prior to the Nicholasville Cooper Drive/Waller intersection) The E. S. Good Barn will be the large barn on your right. You may park in any of the lots on Saturday.

Tom Cottrell – Extension Enologist

Tim Woods – Extension Agricultural Economist

Grape Quality concerns and specifications: Brix, TA

or pH, MOG, rot, and other

Description of product to be purchased: variety, tonnage, quality parameters

Price and penalties for not meeting quality and quantity targets

Responsibility and procedures for determining ripeness

Defining responsibility and consequences for decision to pick

Determination of delivery format

Specification of weighing procedures

Discussion

**Lunch on your own on the way to the Horticultural Research Farm **

Vineyard Program:

1:30 -3:30 p.m. EST

4320 Emmert Farm Lane, Lexington, KY 40514

Directions to Horticultural Research Farm:

The U.K. Horticultural Research Farm is located on the south side of Lexington approximately one block west of the intersection of Man O'War Boulevard and Nicholasville Road (U.S. 27). The entrance to the farm (Emmert Farm Lane) is off of Man O'War Boulevard at the traffic light opposite the entrance to the Lowe's and Walmart.

Planting and Training New Vines, Fertilization and High Cordon Training – Patsy Wilson, Extension Viticulturist and Graduate Student

Trellis Construction and De-hilling Vines

– Brandon O'Daniel, Graduate Student

Pruning Vines to a VSP – Chris Smigell, Small Fruit and Vegetable Extension Associate

Geneva Double Curtain Training – John Strang, Extension Fruit and Vegetable Specialist

Scott Henry Training

– Brandon O'Daniel, Graduate Student

Questions? Contact: Pam Compton phone: 859-257-2909. e-mail: pscompl@uky.edu

Kentucky Horticultural Economic Outlook

By Dr. Tim Woods, U.K. Extension Agricultural Economist

The value of Horticultural cash receipts in 2008 is projected to be \$115 million, with floriculture, nursery, greenhouse and sod (\$81 M) and all produce (\$34 M). This is up from \$110 million in 2007 and \$68 million ten years ago. Industry growth has been steady. Gross produce receipts rose slightly in 2008 as producers benefitted from more direct market channels, especially farmers' markets, and an outstanding fruit production and marketing season. Over 2,000 vendors sold in farmers' markets in 2008, with additional growth observed in the produce auctions, restaurants, wineries, and other wholesaling. A weaker overall economy and relatively slower housing starts led to modest overall declines for Kentucky's green industry.

Tree fruit growers overcame generally dry conditions to report good apple quality and an outstanding fall festival season. Apple and peach yields reached near record levels for Kentucky, while prices remained very strong as supplies declined from the Great Lakes. Berry growers continued to increase acreage, utilizing more value-added and local grocery sales. Kentucky wineries reported purchasing more local grapes in 2008 and bottling more wine. Grape sales make up a growing component to the \$10 million total fruit sales. Registered wineries have grown from five in 2004 to 44 in 2008. Vineyard and winery expansions are continuing, according to our recent survey, increasing the need for improved planting coordination.

Kentucky has more than doubled cash receipts from vegetables over the last ten years. Total vegetable acreage for 2008 should wind up around 10,500 acres, up 17% over 2007 and up 45% from the level reported in the 2002 Ag. Census. A significant amount of commercial marketing has continued through private wholesale arrangements, Direct marketers continued diversifying product offerings to meet strong demand for locally grown products, while wholesale vegetable prices were exceptionally strong across all crops during Kentucky's season. Volume of vegetables marketed through auctions, CSA's, on-farm retailing and to restaurants increased in 2008. Over 350 producers sold through the produce auctions in 2007 and the total will be higher again for 2008.

The outlook is fairly bullish for commercial fruit and vegetable production in Kentucky for 2009. Forty-seven percent of growers surveyed in 2008 indicated they expected to see their produce sales increase somewhat over the next three years. This held true for growers primarily involved in direct markets. Auction and independent grower-shipper wholesale sales will likely again increase. Gross sales will continue to be driven by higher-value direct marketing at farmers' markets, directly off the farm and to foodservice. Overall vegetable acreage will likely expand along with new interest in small fruit and orchard crops based on profitability in 2008.

New Discovery for Grape Crown Gall Biological Control

By John Hartman, U.K. Extension
Plant Pathologist

Crown gall is especially devastating to grapes in Kentucky and some vineyards have been lost due to the disease. In grapes, *Vitis vinifera* cultivars are more susceptible to crown gall than *V. labrusca* cultivars.

Symptoms. The disease is characterized by galls or knobby overgrowths that form on susceptible plant tissues, generally on grape trunks (photo 1) at or above the graft unions. Galls are rarely observed on the roots, but roots may develop necrosis. New galls first appear in early summer as white, fleshy, callus growth. Galls turn brown by late summer and in the fall become dry and corky. The woody tumors may be gnarled with rough surfaces (photo 2). When galls are numerous they



disrupt the translocation of water and mineral elements, leading to poor growth, gradual dieback, and sometimes death of vines. In general, affected plants are more susceptible to adverse environmental conditions, especially winter injury.

Cause and biology of the disease. Crown gall is caused by the soil-borne bacterium, *Agrobacterium vitis*, formerly thought to be a strain of *Agrobacterium tumefaciens*. The bacterium survives at low levels for long periods of time in soil, and also in galls and in diseased plants. The crown gall bacterium is widely present in Kentucky soils and may be systemically present in many grape vines,



but the bacterium seldom causes disease unless the vine is injured. Galls develop following an injury to grape cells permitting entrance of the pathogen and systemic movement in the plant. Such injuries may occur during intermittent freezing and thawing weather common to Kentucky each winter. Overwintering bacteria may be spread to wound sites by splashing rain, running water, on cultivation implements or on pruning tools. Contaminated nursery stock may be another source of the disease. Biological control of crown gall (*A. tumefaciens*) on other crops has been achieved through application of antagonistic strains of related bacteria (*A. rhizogenes*, strain K84) which prevent the crown gall bacteria from causing disease. Recently researchers A. Kawaguchi, K. Inoue, and Y. Ichinose in Japan have expanded on this concept by using a non-pathogenic strain of *A. vitis*. The report appeared in a recent paper entitled: Biological Control of Crown Gall of Grapevine, Rose, and Tomato by Nonpathogenic *Agrobacterium vitis* Strain VAR03-1.

A nonpathogenic strain of *A. vitis* VAR03-1 was tested as a biological control agent for crown gall of grapevine (*Vitis vinifera*). When roots of grapevine were soaked in a cell suspension of antagonists before planting in soil infested with tumorigenic *A. vitis*, treatment with VAR03-1 significantly reduced the number of plants with tumors and disease severity. Moreover, VAR03-1 greatly controlled crown gall of grapevine due to tumorigenic *A. vitis* in the field. VAR03-1 established viable populations in the rhizosphere of grapevine and persisted on roots for 2 years.

This research is the first report that a nonpathogenic strain, VAR03-1, can effectively control crown gall caused by tumorigenic *A. vitis*.

Thus, there is hope that in the future, a biological control product effective against grape crown gall will be developed and made available to Kentucky grape growers.

Manage Blackberry and Raspberry Anthracnose and Cane Blight in Early Spring

By Dr. John Hartman, U.K. Extension Plant Pathologist

Blackberries, raspberries and black raspberries grown in Kentucky are susceptible to stem cankers caused by fungi. Crop yields are reduced due to cane infections girdling the stems leading to wilting and dieback or due to partial girdling of stems resulting in loss of vigor and reduction in fruit size and quality. Anthracnose and other diseases such as cane blight, spur blight, and Septoria cane and leaf spot may cause similar symptoms. Black raspberries are especially susceptible to anthracnose.

Symptoms. Anthracnose symptoms are most striking on canes but can also occur on leaves, petioles, flower buds, and fruit. In the spring, reddish purple spots appear on young canes. As the disease progresses, the spots enlarge into an oval shape and the tan to gray centers become sunken with purplish raised margins (Figure 1). Diseased tissue extends down into the bark and partly girdles the stem. By late summer or early fall, the diseased tissue often cracks. Within these lesions, spores are produced which are spread by running water, splashing rain, and wind. Canes weakened by anthracnose are more susceptible to winter injury and eventually may die.

On leaves, anthracnose appears as small, irregular, yellowish-white spots. As spots enlarge, they may have a tan center with reddish margins. Spots sometimes drop out, giving a shothole symptom. Fruit infections are not common unless there is a high level of anthracnose in the planting. Infected fruit is typically dry and seedy.

Disease cause and life cycle. Anthracnose is caused by the fungus *Elsinoe veneta* which overwinters on the bark or within lesions on floricanes infected the previous season. In early spring, just as the canes are leafing out, fungal spores are produced on these diseased canes. These spores are blown, rain-splashed, or vectored by insects to young, rapidly growing, succulent shoots where new infections occur. Symptoms appear as small tan lesions in about a week. The primary damage to plants is caused by these early infections. Be aware that highly variable winter and early spring temperatures can cause injury to the stems of some raspberry and blackberry cultivars. These injuries can become points of entry for fungi causing anthracnose and cane cankers.

Apply liquid lime-sulfur, sulfurix or copper hydroxide in late winter/early spring, just as the buds are swelling and leaf tips are beginning to emerge. Fungicide applications are best made when new leaves are exposed only 1/4 to 3/4 inches; if they are larger, there is a risk of fungicide "burn." Later applications would require a half rate which would be less effective. See U.K. Cooperative Extension publication "Midwest Commercial Small Fruit and Grape Spray Guide 2009 (ID-94) for rates and timing. Carefully inspect bramble plantings; now or very soon may be the time to apply fungicides for managing these cane and stem diseases.



Figure 1. Oval, tan lesions such as these on a black raspberry stem harbor fungal spores which can cause new infections.

Plant clean, disease-free nursery stock. Cut out all diseased canes, cane "handles," and any infections observed on new plants. Provide good air movement through the planting by removing weeds and spindly canes.

2009 Midwest Commercial Fruit Spray Guide Changes

By Dr. Megan Kennelly, Kansas State University

The following are some changes to look for in the 2009 Midwest Fruit Spray Guides. Specialists from the region meet every year to discuss the guides. This insect list was compiled by Rick Weinzierl from U. of Illinois. Among the changes in insecticide listings (including some labels that were in effect for the 2008 season but were not available when the 2008 guide was printed) are:

* Altacor (rynaxypyr / chlorantraniliprole) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth), as well as apple maggot in apples, pears, peaches, and grapes.

* Belt (flubendiamide) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth) in apples, pears, and grapes.

* Delegate (spinetoram) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth), as well as apple maggot, cherry fruit fly, pear psylla, cherry fruitworm, cranberry fruitworm, and raspberry sawfly in apples, pears, peaches, cherries, blueberries, brambles, and grapes.

* Radiant (also spinetoram) is listed for control of leafrollers in strawberries.

* Movento (spirotetramat) is listed for use on apples, pears, peaches, and grapes for control of aphids (including woolly apple aphid), San Jose scale, pear psylla, and grape phylloxera.

* Assail (acetamiprid) is labeled for additional pests of peaches, blueberries, brambles, and strawberries.

* Venom and Clutch are listed specifically for multicolored Asian lady beetle control in grapes. (Other insecticides labeled for use against other grape pests may also be effective.)

* Two pre-mixes have new registrations in tree fruits and small fruits. Leverage is a combination of cyfluthrin (Baythroid) and imidacloprid (Admire and Provado). Voliam Flexi is a combination of chlorantraniliprole (Altacor) and thiamethoxam (Actara). Each is registered on the same crops for which the individual components were registered.

* The active ingredient bifenthrin is no longer being packaged by FMC under the trade name Capture 2EC. Instead, the product name for the same formulation is now Brigade 2EC.

New Publications Available Through County Extension Offices and Off the Internet

2009 Midwest Tree Fruit Spray Guide (ID-92) <http://www.extension.iastate.edu/Publications/PM1282.pdf>

Please note the error in the apple spray schedule on page 2. Under Apple Half-Inch Green cross out the Pest/Problem, "Primary Scab" and the Material, "Renounce". Renounce is an insecticide and will not control Scab. The pest at this spot on the chart is San Jose Scale and it is controlled by Esteem. At the top of page 19 the Pear Pre-bloom heading should be Pear Petal-fall.

2009 Midwest Commercial Small Fruit and Grape Spray Guide (ID-94)

http://www.hort.purdue.edu/hort/ext/sfg/sfg_sprayguide.html

2008 Fruit and Vegetable Crops Research Report (PR-572)

<http://www.ca.uky.edu/agc/pubs/pr/pr572/pr572.pdf>

An IPM Scouting Guide for Common Pests of Solanaceous Crops in Kentucky (ID-172)

<http://www.ca.uky.edu/agc/pubs/id/id172/id172.pdf>

Receiving Fruit Facts Electronically on the Internet

Fruit Facts is available 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 UK College of Agriculture's Fruit Facts listserv.

New subscription requests and requests to unsubscribe should be addressed as follows.

To subscribe type "ListServer,l-s-v" in the To: line of your e-mail message.

Please enter a subject in the Subject: line -- the system needs for the Subject line not to be empty (blank).

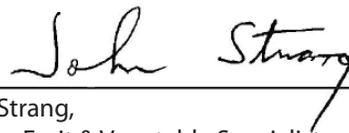
In the message body, enter the following two lines (nothing more!):

subscribe KY-FRUITFACTS

Or, to unsubscribe, the lines:

unsubscribe KY-FRUITFACTS

You should receive confirmation by return e-mail. If you have a problem, or if you wish to communicate with a person about "fruitfacts", the owner's address (the To: line of the message) is: owner-ky-fruitfacts@lsv.uky.edu



John G. Strang,
Extension Fruit & Vegetable Specialist

Cooperative Extension Service
University of Kentucky
Horticulture Department
N-318 Ag. Science Ctr. No.
Lexington KY 40546-0091

