

Kentucky Fruit Facts

Mar-Apr 2010/ (3-4/2010)

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

John Strang, Extension Fruit Specialist, Editor
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Fruit Crop News

By John Strang, John Hartman and Tom Priddy

Just about all growers have completed their pruning, begun their spray programs and are watching their floral developmental stages flash by unbelievably fast. We were running about a week later than normal for bloom prior to our extended period of 70-80°F temperatures. On April 4 apples in Lexington ranged from tight cluster to pink, pears were at white bud, peaches at full bloom, European plums at full bloom, tart cherries at first bloom, the earliest blueberries were just beginning to bloom and grapes were at bud break. In 2009 on April 3rd apples were at tight cluster to pink, pears at first bloom, peaches at full bloom to petal fall, and European plums were at full bloom to petal fall. So it looks like we have just about lost the advantage of our cold winter in delaying bloom.

This season is looking like a bumper crop year for most fruit crops. However, we have noted that some



peach trees in Central Kentucky, particularly the less hardy varieties lost quite a few and some lost all of their flower buds over the winter. The stage was set for this year's large crop by the Easter freeze in 2007 which led to a large apple crop in 2008. The apple crop in 2009 was down due to the biennial bearing initiated in 2007 and cold wet pollination conditions. So we are anticipating a large crop in 2010 and flower bud numbers confirm this.

Tree fruit growers that used oil at green tip should be aware that using Captan or Sevin within 14 days of the oil application could produce phytotoxicity and leaf drop. Phytotoxicity could also occur if oil is used during the season at temperatures above 90°F.

At the apple pink and petal fall stages boron as Solubor at 2 lb per acre and feed grade urea at 3 lb per acre can be added to pesticide sprays to enhance bloom and nitrogen availability to increase fruit size.

Growers can determine the threat of fire blight for their orchard by using the Maryblyt computer program that you might have downloaded recently.

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Data from the Lexington National Weather Service, the week of March 22, was recorded in the program and data from the 5-day forecast available from the Weather Service was added. Starting with green tip on March 24, daily maximum and minimum temperatures were entered along with rainfall amounts. Just to be sure to cover all possibilities, April 2 was chosen as the first day of bloom (which it may have been for some pears or crabapples, perhaps).

Based on these calculations, even with predicted rain this past weekend (April 3-4), fire blight infections would not occur Saturday or Sunday because temperatures have not been warm long enough. However, by Tuesday, May 6, the weather will have been warm enough to favor the disease except trees would have had to be in bloom and there would need to be rain. If trees were in bloom then and if rain was in the forecast for Tuesday or Wednesday (which it is not), all the conditions needed for infection would then be in place for fire blight infections. With this information, growers could take preventive action before the expected rain arrives.

Try this at home using the Maryblyt program and local weather data and forecasts. Download here if you haven't already done so <http://www.caf.wvu.edu/kearneysville/Maryblyt/index.html> and try it out. If you experiment with the program and add made-up bloom, warm temperatures, and even small amounts of rainfall you will see that the fire blight alert goes from yellow to orange to red over a period of days. Then, enter the actual data from your orchard and see how your crop is doing.

The weather situation is changing. We are in the process of moving from an El Nino to a La Nina pattern, which could substantially affect our weather. Tom Priddy, U.K. Agricultural Meteorologist points out that in 1998 we experienced a very wet spring due to a strong El Nino weather pattern that switched rapidly to a La Nino pattern. This led us into a summer drought. At least two of nine weather models suggest that history might repeat itself. Under La Nina conditions more hurricanes form in the deep Tropics from African easterly waves and these systems have a much greater likelihood of becoming major hurricanes, which eventually threaten the U.S. and Caribbean islands. Right now it's just a waiting game in the equatorial pacific to see what spring and summer will bring. Currently most of Kentucky is behind on spring rainfall. The three month NWS outlook is for normal temperatures and rainfall.

Upcoming Meetings

Apr. 15 – Fruit Grower Orchard Meeting, Bennett Orchard, Hodgenville, KY. Contact John Strang 859-257-5685 office; 859-396-9311 mobile; email: jstrang@uky.edu or David Harrison 270-358-3401. See program below.

Apr. 17 – Kentucky Nut Grower's Spring Meeting, Hardin County Extension Office, 201 Peterson Dr., Elizabethtown, KY 42701; 9:30 am - 2:00 p.m. Program will feature the nut display, scion wood exchange, potluck luncheon and the annual spring auction. Contact Carl Ray 270-281-4800 or Kirk Pomper 502-547-5942; email: kirk.pomper@kysu.edu

May 20 - KSHS Orchard Meeting and Tour, Mathis Orchard, Mayfield, KY. Contact John Strang 859-257-5685 office; 859-396-9311 mobile; email: jstrang@uky.edu or Kenny Perry 270-247-2334.

Jun. 29 – Mississippi Valley Peach Orchard Tour. Bader Farms, 5 miles north of Campbell, MO on Hwy WW. Details will be posted as they become available.

Aug. 19-21 2010 North American Fruit Explorer's (NAFEX) Annual Meeting, Best Western Motel/Conf. Ctr., 4343 St. Rd. 26 East, Lafayette, IN. Phone: 765-447-0575, 888-295-2346. See www.nafex.org for details. Program and registration information will be in the next Fruit Facts issue.

Sept. 2 – Robinson Center All Commodities Field Day, Quicksand, KY. Contact Shawn Wright 606-666-2438 X 234; email: shawn.wright@uky.edu

Jan. 3-4, 2011, Kentucky Fruit and Vegetable Conference, Embassy Suites Hotel, 1801 Newtown Pike, Lexington, KY. Contact John Strang 859-257-5685 office; 859-396-9311 mobile; email: jstrang@uky.edu or Tim Coolong 859-257-3374 office or 859-421-5973 mobile; email: tcool2@uky.edu

Fruit Grower Orchard Meeting

Thursday, April 15 - Bennett's Orchard
591 Bennett Rd., Buffalo, KY 42716
PH: 270-325-3234

Program:

All times EDT

- 10:00 a.m. Registration
- 10:15 Tour of Bennett Orchard & Farm Market – *James and Mike Bennett*
- 11:00 Early Season Fruit Diseases
- *John Hartman*
- 11:30 Growing Fruit after the Guthion Phase Out - *Ric Bessin*
- 12:00 a.m. Lunch will be available at cost for those that preregister.

Preregister for lunch by calling Mary Ann Kelley at 270/365-7541 Ext. 216 between 8:00 a.m. and 4:30 p.m. CDT weekdays by Tuesday April 13 and give her a count for the Fruit Grower Meeting at Bennett's Orchard.

- 1:00 p.m. Fruit Thinning – *John Strang*
- 1:30 Orchard Weed Control – *Shawn Wright*
- 2:00 Kentucky Mesonet
- *Tom Priddy and Stu Foster*
- 2:30 Apple Grower Round Table Discussion
- *Larry Ayres, moderator*
- 3:00 p.m. KSHS Board of Directors Meeting

Directions:

From Elizabethtown (intersection of US31-W and WK Parkway): Follow KY 61 (bypassing Hodgenville and going toward Greensburg) for approximately 17 miles to KY 584. (KY 61 will go right at intersection where Hardee's and McDonald's are located, and go left just past Lincoln Birthplace National Historic Site). Turn left onto KY 584. Follow KY 584 for 1.2 miles and turn right onto Bennett Road (across from Mt. Tabor Baptist Church). Bennett Road will fork to left after about 0.2 miles, follow left fork. Bennett Orchard is on right another 0.2 mile.

From Bardstown (US31-E & Bluegrass Pkwy exit #21): Exit onto US31-E and go approximately 23 miles to downtown Hodgenville. Follow circle around to US31-E which junctions with KY61 at Hardee's –McDonald's intersection. Continue as described above.

From Campbellsville: Follow KY210 from Campbellsville toward Hodgenville, cross LaRue County line and continue 4.8 miles to KY584. Turn left onto KY 584 and go 2.2 miles to Bennett Road and turn left. Continue as indicated above.

Shawn Wright - Extension Horticulturist

By John Strang, U.K. Extension Horticulturist

I am pleased to report that Dr. Shawn Wright has accepted our Extension Horticulture position at the Robinson Center for Appalachian Resource Sustainability, Quicksand, KY and began work on March 15, 2010. (This is the position held by Dr. Terry Jones who retired at the end of 2009.)

Shawn received his A.S. degree from Jamestown Community College in Math and Science in 1984, his B.S. degree from SUNNY College of Environmental Science and Forestry in Environmental and Forest Biology in 1986, his M.S. Degree in Botany from the University of Tennessee in 1988 and his Ph.D. in Crop Science from North Carolina State University in 1998.

Shawn has gained considerable experience over his career. From 1989 to 1991 he was a County Horticulturist and 4-H Program Assistant and from 1992 to 1993 he was the Recycling Program Director/Education Specialist for Cornell Cooperative Extension. In 1994 he was Program Director for Rural Community Development for the LORMAR Community Development Foundation in the Philippines. From 1995 to 1998 he worked on his Ph.D., conducted weed research, did extension work, and taught a Fundamentals of Weed Science course. Then from 1998 to 2001 he held a Postdoctoral Research Scientist position in the Department of Agronomy at Iowa State University where he ran a distance education program and conducted weed science research on agronomic crops. From 2001 through 2009 Shawn worked at the Ohio State University South Centers in Piketon, OH where he conducted fruit and vegetable research and provided extension programming.

Shawn's background meshes particularly well with our current fruit, vegetable and ornamental extension program. His expertise in weed control will be very helpful. He has done considerable work in the small fruit area with plasticulture strawberries, blueberries, raspberries, and blackberries. His crop experience also covers squash, cucumber, carrots, okra, Asian vegetables, pawpaws, ginseng, goldenseal, bedding plants and much more. Please help us welcome Shawn to his new position.

Bacterial Spot Rating of Peach Cultivars at UKREC, Princeton, KY

By Dwight Wolfe

Bacterial spot can be a big problem on susceptible peach cultivars, especially during years with wet raining growing seasons like the one we have had this year. The main symptom is the “shot hole” appearance of the leaves that then turn yellow and fall prematurely. Many of the newer cultivars have varying degrees of resistance to this disease. Cultivars being grown at UKREC, Princeton, KY, were rated this past July, on a scale from 1 to 5, with 1 representing none or just a few leaves infected to 5 representing 50% or greater of the leaves infected. The majority of these cultivars showed a fair amount of resistance to bacterial spot in our orchard. The cultivars and their ratings are listed below in Table 1. More information on this and other peach fruit disease can be found in, Peach Fruit Diseases, by John Hartman, Plant Pathology Fact Sheet: PPFs-FR-T-09.

Table 1. Bacterial Spot Rating of Peach Cultivars Currently Being Grown at UKREC, Princeton, KY.

Cultivar	Flesh Color	Bacterial Spot Rating ¹
Allstar ® (FA80 CV) PP#10549	Yellow	1.0
Blushingstar ® (FA18 CV) PP#10554	White	1.0
Contender	Yellow	1.0
Crimson Rocket PP#15216	Yellow	1.0
Encore ® NJ 260 PP#4572	Yellow	1.0
Glowingstar ® (FA17 CV) PP#10556	Yellow	1.0
Klondike White PP#10872	White	1.0
PF 24C-Cold Hardy PP#15659	Yellow	1.0
PF 25 Flamin' Fury ® PP#9940	Yellow	1.0
PF 27A Flamin' Fury ® PP#9939	Yellow	1.0
Sweet-N-Up PP#15063	Yellow	1.0
Crethaven	Yellow	1.5
John Boy II TM (R1T2 Ctv.) PP#11591	Yellow	1.5
John Boy TM (Clendening Strain) PP#6827	Yellow	1.5
PF 1 Flamin' Fury(R) PP#9129	White	1.5
Coralstar ® (FA59 CV) PP#10547	Yellow	2.0
Ernie's Choice NJ 275	Yellow	2.0
Flat Wonderful 'H28-52-96270' PP#16836	White	2.0
Lauro PP#8558	Yellow	2.0
PF 15A Flamin' Fury ® PP#8978	Yellow	2.0
PF 17 Flamin' Fury ® PP#8169	Yellow	2.0
PF 20-007 Flamin' Fury ® PP#12331	Yellow	2.0
PF 35-007 Flamin' Fury ® PP#14368	Yellow	2.0
PF 5 B Flamin' Fury(R) PP#9850	Yellow	2.0
PF 7 Flamin' Fury ® PP#10490	Yellow	2.0
PF Lucky 13 PP#14384	Yellow	2.0
PF Lucky 21 Flamin' Fury ® PP#15497	Yellow	2.0
Redhaven	Yellow	2.0
RedStar® TM PP10546*	Yellow	2.0
Summer Breeze TM (HB110 Cltv.) PP#10749	Yellow	2.0
White Lady PP#5821	White	2.0
Spring Snow PP#9883	White	2.5
Galaxy	White	3.0
Reliance Yellow	3.0	
TruGold PVP#200400055	Yellow	3.0
Snow Giant PP#8085	White	3.0
Snowbrite PP#8195	White	3.0
Sugar May PP#8034	White	3.0
Sugar Giant PP#8442	White	3.0

¹ Rating is from 1 to 5 with 1=none to a few leaves showing symptoms, 5=more than half of the leaves showing symptoms of bacterial spot.

Food Sampling at Farmers' Markets

By Dr. Tim Woods, U.K. Agricultural Economist and Sara Williamson U.K. Agricultural Economics Extension Associate

The consumer packaged goods industry spends a great deal of money on product sampling each year. However, little information has been available to determine the specific impact that product sampling has on food sales. However, an August 2009 study of US retail grocery shoppers reports that in-store sampling has a tremendous impact, both during the event and for several weeks afterward. The RISE (Report on In-Store Sampling Effectiveness) study, conducted by market research firm Knowledge Networks, and commissioned by Promo Works in 2009 found:

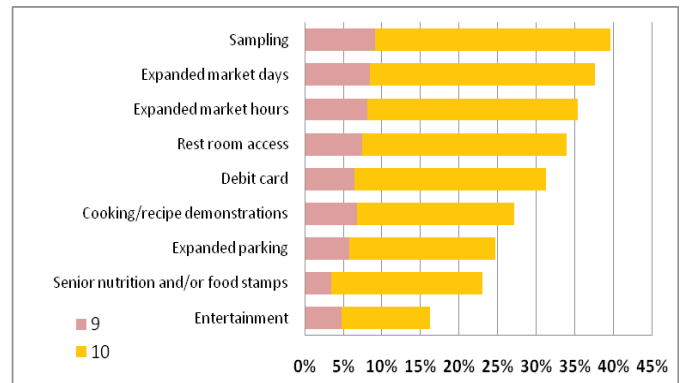
- Purchases of sampled items increased an average of +58% over 20 weeks after the sampling event.
- Several food categories experienced an average +475% cumulative sales increase on the day of sampling.
- The consumers who sampled products showed an overall shopping basket expenditure increase of +10%, compared to the retailer's average frequent shopper basket.

Similarly, a consumer survey of Kentucky farmers' market shoppers was conducted by Extension Specialist Dr. Tim Woods in the summer of 2009, and results indicate that markets could experience a sales lift from sampling, just as their commercial counterparts have. Survey analysis provided evidence that sampling is more desirable at Kentucky markets than is debit card acceptance or restroom accessibility. With state legislation in place that provides the necessary provisions for product sampling at Kentucky farmers' markets, vendors have a unique opportunity to use sampling as a low-cost and high yield marketing tool.

According to the Kentucky Department of Agriculture (KDA), there are currently 137 farmers' markets in the state, representing a 44% increase over 2004 market numbers. For markets only, Kentucky's estimated cumulative revenue for 2009 is around \$10 million. However, of the more than 1,100 producers that have completed food sampling training offered by the KDA, few actually offered food samples last season. Given that Kentucky households reported "taste preferences" as the second most important reason for not purchasing more fresh produce in the Kentucky Food Consumer Panel (Woods and Hu, 2009), the opportunities to increase sales with food sampling could be significant.

To learn more about direct marketing of food products, contact Tim Woods at (859) 257-7270. To learn more about certification for sampling or to inquire about necessary equipment, contact the Kentucky Department of Agriculture or the Kentucky Farmers' Market Association. (Tim Woods and Sara Williamson)

Services in Most Demand at KY Farmers' Markets (scale 1-10)



(Consumer intercept survey 2009, conducted by specialist Dr. Tim Woods)

Farmers can get Loans for Cold Storage

The USDA's Farm Storage Facility Loan (FSFL) program has been amended to allow producers to build cold storage facilities to store their fresh fruits and vegetables.

To be eligible, cold storage facilities must have a useful life of 15 years and include:

- New structures suitable for a cold storage facility;
- New walk-in prefabricated permanently installed coolers suitable for storing fresh fruits and vegetables;
- New permanently affixed cooling, circulating and monitoring equipment;
- Electrical equipment integral to the proper operation of a cold storage facility; and must be
- An addition or modification to an existing storage facility.

USDA will not make cold storage facility loans for portable structures, portable handling and cooling equipment, used or pre-owned structures or cooling equipment, or structures not suitable for fresh fruits and vegetables cold storage.

The maximum loan amount for a Farm Storage Facility loan is \$500,000 per loan. One partial disbursement of up to half the anticipated total cost is available when that portion of the structure has been completed. The final disbursement will be made when the entire structure has been completed and inspected by a USDA representative.

All loans require a down payment of at least 15 percent. Applications must be approved before construction can begin. Loan terms of seven, 10 or 12 years are available depending on the amount of the loan. Loans applications should be submitted to the local county office that maintains the records of the farm or farms to which the application applies.

For more information on this program, contact your local Farm Service Agency office or <http://www.fsa.usda.gov>

Time to Set Traps in Apples

By Ric Bessin, UK Extension Entomologist

As our orchards begin to flower, growers should have their pheromone traps in place for Oriental fruit moth and codling moth. Ideally, we would like to have these traps in place by the pink stage, but there still is time to hang them. I like to have the traps set on the second row from the outside of the orchard, at least half way up in the tree, and on the southwest corner. Both of these traps will help to determine the need for and the timing of insecticide applications. This is the next to last year we will be able use Guthion in Kentucky and the total use has already been greatly reduced. Most growers have replaced Guthion with other insecticides, some of which (Assail, Calypso, Clutch, Esteem, Intrepid are applied at 150 DD, 50 to 100 DD for Rimon) require earlier treatment, that should be applied according to degree day accumulations.



Codling moth adult, note coppery wing tips.

For codling moth, we use the day the fifth moth is captured in the trap as the start of degree day counting. Minimum and maximum temperatures are then used to calculate daily degree day values. Essentially, the average daily temperature minus 50F is the daily degree day value. If the number is less than zero, then just use zero. When 250 of the degree day units have been recorded, then an insecticide (Imidan, Danitol, Delegate, Altacor, Avaunt, Belt, Warrior, Voliam Flexi, and Voliam Xpress) is used for codling moth control. Earlier application timing is used with some products (see above paragraph). If more than ten moths were captured within a week, a second spray is used in the next cover spray. With Oriental fruit moth, we use 175 DD45 (base 45F) with Imidan, Danitol, Delegate, Altacor, Avaunt, Belt, Warrior, Voliam Flexi, and Voliam Xpress and 100 DD with Assail, Calypso, Clutch, Esteem, Intrepid and Rimon.



Oriental fruit moth.

Pear Fire Blight: Maryblyt Predictions Can Aid in Disease Management

By John Hartman

Pears grown for fruit in backyards and orchards in the region are in flower now. Fire blight can be a devastating disease of nursery and landscape flowering pears in Kentucky (Figures 4 & 5) and can also damage pears (both Asian and European) in fruit orchards.



Fig. 4. Fire blight has destroyed this young nursery ornamental pear (University of Tennessee photo).



Fig. 5. Multiple fire blight strikes in the top of a mature landscape ornamental pear tree.

Fire blight primary infections occur during bloom (Figures 6-8). During warm spring weather, the causal bacteria (*Erwinia amylovora*) grow on the surface of flower parts such as the stigma. After several warm days, high populations of bacteria become available to be washed by rainfall or even heavy dew into the nectaries at the base of the flowers. Once inside the flower, the bacteria continue to grow, killing the fruit spur (Figure 9) and spreading into the subtending twigs and branches. Disease build-up from these infections leads to shoot infections, the most noticeable part of this disease, which appears later.

This year, a new version of a computer program called Maryblyt has become available to help nursery growers and orchardists make decisions to manage fire blight disease. This new version of the program, called Maryblyt 7, utilizes Windows-based computers and was updated by plant pathologists Dr. A. R. Biggs (Tree Fruit Research and



Fig. 6. Apple flowers at the pink stage are not yet susceptible to fire blight infection. The equivalent just-before-bloom stage in pears would be white bud.

Education Center, Kearneysville West Virginia) and Dr. W. W. Turecek, (USDA-ARS, Florida). They have indicated that it is free for the downloading by growers, extension agents and crop advisors.

Go to the following link <http://www.caf.wvu.edu/kearneysville/Maryblyt/index.html> to download a copy of the new Maryblyt 7 program.



Fig. 7. Apple flowers during full bloom are susceptible to fire blight primary infection.

This is a good time for growers to get the program running for the 2010 season. Growers can enter the data themselves and the program automatically provides a chart and graph of fire blight status. Growers only need to provide date, growth stage, daily maximum and minimum temperatures, and rainfall (or heavy dew) for their nursery or orchard. Weather data are entered into the program starting at green tip (perhaps sometime between March 21-24 this year) so weather data from recent weeks will need to be found. For archived temperature and rainfall data, growers can consult the U.K. Ag Weather Center, <http://www.wagwx.ca.uky.edu/> and choose to use climatology data from National Weather Stations or Mesonet weather stations located nearby. Growers wanting weather data specific to their orchard or nursery can purchase a maximum/minimum thermometer and a rain gauge at the hardware store.



Fig. 8. Apple flowers at petal-fall are no longer susceptible to fire blight infection.

Trying Maryblyt 7. Entering Lexington temperature and rainfall data from March 21 to today (April 5) into the Maryblyt program with a pear bloom date beginning April 3, reveals some interesting fire blight infection information. An alert system that goes from yellow to orange to red indicates the level of threat of fire blight infection. Using Lexington data, with fruiting and flowering pears in bloom, if there is a rain shower today (30% chance on April 5 in some parts of Kentucky) fire blight will be on “red alert” and there would be infection today. Symptoms would begin to appear some time later. If it does not rain, there would be no infection today. Growers using the program would continue with Maryblyt 7 in the coming weeks to learn when symptoms are expected to appear and also use it to manage fire blight of crabapples and apples as they come into bloom in the coming days. By knowing when infection is expected, preventive orchard and nursery applications of streptomycin can be used in a timely way.



Fig. 9. Fire blight-infected ornamental pear flower spur. Bacteria built up from this infection can spread internally to the attached branch and externally to nearby elongating shoots.

Blueberry Oat Bars

Linda Ison, Crestwood Farm, Crestwood KY

COMBINE:

1 3/4 C. oats (uncooked quick or old fashioned)
1 1/2 C. flour
3/4 C. firmly packed brown sugar
1/2 C chopped nuts
1/2 tsp baking soda.

ADD:

3/4 C. melted margarine - mixing until crumbly.
Reserve 3/4 C. mixture; press remaining onto bottom of greased 11" x 7" baking dish.

Bake 10 minutes in a preheated 350 degree oven.

COMBINE:

2 C. fresh or thawed blueberries,
1/2 to 3/4 C. sugar
2 Tbsp. water

Bring to a boil; simmer 2 min., sitting occasionally.

COMBINE:

1 Tbsp. water
2 Tbsp. cornstarch
2 tsp. lemon juice
Mix well.

Gradually stir into blueberry mixture; cook and stir about 30 seconds or until thickened. Spread over partially baked base to within 1/4" of edge; sprinkle with reserved oat mixture.

Bake at 350 degrees for 18-20 minutes or until topping is golden brown. Cool; cut into bars.

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).

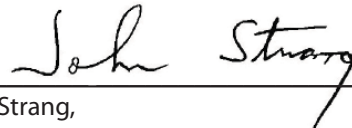
In the message body, enter the following two lines (nothing more!):

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