

Kentucky Fruit Facts

April 2004 (4/04)

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

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Fruit Crop Situation

John Strang, Extension Horticulturist

Spring has arrived in fits and starts as is normal in Kentucky. We have experienced wide temperature variations from day to day and some fairly windy conditions that made spraying difficult. Many apple growers missed at least one early scab spray, because they waited for proper conditions to apply the late dormant or delayed dormant oil and fixed copper spray and all of a sudden found that the trees were at pink. During this period in late March and early April we had one rust and four scab infection periods. Growers that missed these early scab sprays are encouraged to use eradicant/protectant fungicide programs now and at regular intervals for the rest of the spring season.

Bloom is in progress for many apple and pear growers. Keep a close eye on the fire blight situation in your area during this period. The cool temperatures early in the week of April 12th inhibited fire blight development. If you are looking for honeybees for pollination, in Central



and Eastern Kentucky contact Robin Mountain at Kentucky State University at 502/597-6580, e-mail mountainbeeky@juno.com or Kent Williams at 270/382-2348 in Western Kentucky.

Most fruit growers made it through the winter with minimal bud losses on peaches and minor cane die back on grapes. A few European grape growers with one year old vines had their vines injured down to the soil line where the temperature dropped to -8° F or lower at the end of January. Some grape growers that had significant leaf loss late last summer due to downy and powdery mildew or were on extremely fertile sites where vines kept growing late into the fall, noticed more extensive cane dieback. The spring freeze on the morning of April 5 caused some additional peach flower bud losses, but most growers still have a good peach crop.

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Upcoming Fruit & Vegetable Meetings

Apr. 19 Cantaloupe, Watermelon and Pumpkin Production, Fleming county. Contact Mike Jackson 606/845-4641.

Apr. 24 Kentucky Nut Growers' Association Spring Meeting, Elizabethtown Extension Office, Elizabethtown, KY. Contact Hugh Ligon 270/827-9044.

Apr. 28 Ag Expo, Henderson, KY. Contact Mike Keen 270/826-8387.

Jun. 8 Apple IPM Program, Jackson's Orchard, Bill Jackson owner, Bowling Green, KY. Contact John Strang 859/257-5685 or Bill Jackson 270/781-5303.

Jun. 19 Kentucky Vineyard Society Summer Meeting and Grape IPM Program. Site to be announced. Contact Len Olson 502/540-5650.

Jul. 14-16 American Society for Enology & Viticulture, Eastern Section Meeting, 2004 Annual Technical Meeting and Symposium, Grapes, Wine and Environment - How soils, cultural practices and warm climates affect wine quality, Hotel Roanoke & Convention Center, Roanoke, VA. See web site for further details: www.nysaes.cornell.edu/fst/asev/ or contact Tony Wolf: vitis@vt.edu

Sept. 11 The KSU/Pawpaw Foundation Pawpaw Workshop, Kentucky State University Research Farm, Frankfort, KY. Contact Kirk Pomper phone:502-597-5942 or e-mail: kpomper@dcr.net

Oct. 15-16 Kentucky Vineyard Society Fall Meeting and Amateur Wine Competition, Shepherdsville, KY. Contact Len Olson 502/540-5650.

Jan. 3-4, 2005 Kentucky Fruit and Vegetable Conference and Trade Show, Holiday Inn North, Lexington, KY.

Periodical Cicadas and Fruit Crops

by Ric Bessin, UK Extension Entomologist

This is the year that we will have periodical cicadas from one end of the state to the other. This may not be the worst year in the cycle, wait until 2008 for that, but they are troublesome in many areas. In particular, areas along the Ohio River across from Indiana and extreme southeastern Kentucky may have the largest numbers. Fruit growers need to be watching their orchards and vineyards when the cicadas begin their emergence during the next few weeks.

Cicadas damage fruit crops in two ways, during egg laying and the nymphs feeding on their roots over the next 17 years. The adult female selects thin branches, about the diameter of a pencil, for egg laying. Her egg layer it saw-

like and tears into the wood. Egg groups of 10 to 20 eggs is laid into a slit about a centimeter long. There may be 10 or more of these slits in a row, weakening the branches. Many of the branches break, but remain hanging on the tree. This is called flagging. On older trees this looks terrible, but doesn't cause much yield loss, but on young trees it can ruin the developing architecture of the tree. The degree of damage caused by the nymphs feeding on the roots over the next 17 years has not been studied, but as the nymphs approach emergence in the last few years they will place more stress on the trees.

In terms of managing cicadas, growers should be listening for their arrival. If there are significant numbers in the orchard, or if the trees are young, it may be necessary to spray to control them. Studies have shown that cicadas are sensitive to the pyrethroid insecticides. In apples, Danitol, Asana, and Warrior can be used to control them. These sprays are also very damaging to mite predators, so mite problems may be likely with some of these treatments. Danitol at higher rates also suppresses spider mites. For peaches, Asana and Warrior are available. Grapes are not a preferred crop for cicadas, but use Danitol if they become a problem.

Plant Pathologists Are Seeking Tobacco/Fruit Crop Connections

by John Hartman, UK Extension Plant Pathologist

A new project being undertaken in the U.K. plant pathology department involves testing for certain soilborne diseases in fruit crops growing on land formerly planted to tobacco. If you have recently planted tree fruits or small fruits into fields that were in tobacco sometime in the past 5 years, we would like to include your field in the study. Or, if you are planning to put a new fruit planting into a former tobacco field, we would be interested.

If fruit blocks on your farm are now or will be planted into tobacco, contact me with the following information: a) your name, address and county, b) year of last tobacco crop in field, and c) year and type of fruit crop planted into the former tobacco field. Write to me at: Department of Plant Pathology, 203 Plant Science Building, University of Kentucky, Lexington 40546-0312 or via e-mail: jhartman@uky.edu, or telephone me at 859-257-7445 ext 80720.

Changes For Captan Fungicide Use in Fruits

by John Hartman, Extension Plant Pathologist

Our 2004 *Midwest Commercial Small Fruit and Grape Spray Guide* (ID-94) and our 2004 *Commercial Tree Fruit Spray Guide* (ID-92) contain new information on use of captan for management of fruit crop diseases.

- Federal registration now permits the use of Captan 80 WDG fungicide on raspberries and blackberries. However, at the time our 2004 spray guide was written, other formulations such as Captan 50 WP and Captec 2L had not received such registration. The re-entry interval for Captan 80 WDG in brambles is now 3 days. On brambles, captan is used for anthracnose, spur blight, and gray mold diseases.
- For strawberries, the re-entry interval for all captan formulations is 24 hours. Captan is used for managing leaf spots, gray mold, and anthracnose fruit rot of strawberries.
- For blueberries, Captan 80WDG has a 3-day re-entry interval. It is used against anthracnose, stem cankers, and mummyberry.
- For grapes, the Captan 80 WDG formulation has a 3-day re-entry interval. New labels on the Captan 50 WP and Captec 4L formulation may also have the reduced re-entry interval on the label this season. All older captan products will still have the 4-day re-entry label. Captan is used for management of grape downy mildew and cane and leaf spot.
- For apples, pears, and stone fruits, the 80 WDG formulation of captan has a 24-hour re-entry period, but the Captan 50WP and Captec 4L formulations still have a 4-day re-entry interval. These labels may change, however, all old captan products still have the 4-day re-entry interval on the label. In tree fruits, captan is used for managing scab and fruit rots of apples and for stone fruit blossom blight, peach scab and plum black knot.
- Check the label before using any fungicide product.

'Ovation' Strawberry Released by USDA-ARS at Beltsville, MD

Condensed from Ohio's, March 2004 Today's Grower by John Strang, Extension Horticulturist

The 'Ovation' strawberry is large, firm, attractive and has a very late fruiting season. It has resistance to red stele and is little affected by most foliage diseases, although it does show some powdery mildew after fruiting. However, this does not seem to reduce the strong plant vigor. Anthracnose plant disease has not been observed on plants in the field, but growth chamber studies indicate that infection is possible under conditions favorable for development.

Yields in Maryland, Ohio, and Pennsylvania in the plasticulture production system have been outstanding and 'Ovation' is an excellent variety to follow Chandler. In the traditional matted row-system, 'Ovation' has been the top yielding late season cultivar in Ohio and New Jersey. It has been average to below average in Maryland trial yields, however fruit size and appearance have been excellent. Although we have not evaluated this cultivar in Kentucky, varieties that have been released from the USDA breeding program in Maryland have generally done very well for us.

Nutritional evaluations of 'Ovation' fruit have shown that it is very high in antioxidants in comparison with other cultivars.

Raspberry Crown Borer

by Ric Bessin, UK Extension Entomologist

Several samples of raspberry crown borer have turned up in the crowns of blackberries at the UK South Farm. These are the larvae of a clearwing moth, similar to lesser peachtree borer, peachtree borer, grape root borer, and squash vine borer. In raspberries, this pest can cause reddening of leaves, cane wilting, and even cane death. In blackberries the symptoms can be this severe, they it can also be much more subtle, only reducing growth, weakening vines, and lowering yields. Piles of frass around the crown of the plant are symptomatic of infested canes. Canes may appear swollen around the sites of tunneling. The problem at

South Farm was spotted as the some of the blackberry canes were pruned in the spring, a number of the canes were tunneled at their bases.



The insect takes two years to complete its life cycle. In mid summer, eggs are laid individually on lowers leaves. The eggs hatch in the fall and the small larvae overwinter just beneath the soil line on the crown of the plant. The following spring they tunnel into the crown and bases of the canes. They pass the second winter in the crown before emerging the following summer.

Control of raspberry crown borer begins with removal of wild brambles in the vicinity of the cultivated raspberries and blackberries. Infested plants that are seriously weakened need to be removed and destroyed. In terms of chemical control, azinphosmethyl (Guthion Solupak and Sniper 2E) can be used as a drench around the base of the plants in the early spring.

Sprays can also be applied to the lower canes after harvest to reduce egg laying and emergence of the young larvae.

Codling Moth and Oriental Fruit Moth

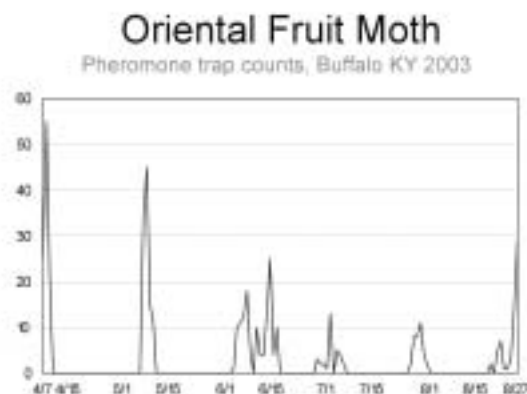
by Ric Bessin, UK Extension Entomologist

Codling moth and OFM are often confused as the larvae are very similar in appearance. But they can be distinguished easily using a microscope, as the OFM has a

comb on the rear. Both of these insects have become more of a problem in several orchard over the past two seasons, probably as a result of the loss of a few key insecticides, Lorsban and PennCap-M. We have a few isolated populations that do not appear to be controlled with the standard Imidan or Guthion sprays that have been used for decades. Fortunately, there have been a several new reduced risk insecticides that have been labeled for codling moth and Oriental fruit moth control for apples. However, how well these work will depend on their timing. Several of these new insecticides must be applied early and are more sensitive to precise timing that Guthion/Imidan.

Monitoring Using Traps

Both the codling moth and OFM are monitored using pheromone traps. Traps for OFM are placed in orchards before bloom, while those for codling moth are placed in the orchard during bloom. For each of these insects, a minimum of two traps are used, with one additional trap per each 10 acres above 10. Traps are available for many different sources. Traps are hung in the southwestern quadrant of the tree at about head height. The lures need to be changed monthly. Codling moth typically has 3 generations per year, while OFM can have 6 or more. The biofix for codling moth is the date the fifth moth is captured in the trap, while the peak flight for a generation is used with OFM. It is important to continue to use the traps through early September, as many growers do not pay as much attention to the last generations as they should.



Codling Moth Degree Days

Product	DD	Days after biofix (50°F base)		
		60°F Ave.	65°F Ave.	70°F Avg
Esteem	100	10	7	5 (2 nd 14 to 21 days later)
Confirm	150	15	10	7 (2 nd 14 days later)
Intrepid	150	15	10	7 (2 nd 14-21 days later)
Assail	150	15	10	7 (2 nd 14 days later)
Calypso	150	15	10	7 (2 nd 14 days later)
Spintor	200	20	13	10 (2 nd 14 days later)
Guthion	250	25	17	13
Imidan	250	25	17	13
Danitol	250	25	17	13
Avaunt	250	25	17	13

In orchards where Imidan/Guthion are not controlling these pests, other insecticides will need to be used. As several of these insecticides are only allowed to be used 2 or 3 times per season, several insecticides may be needed for the different generations.

Mating Disruption

Mating disruption has been used effectively for both OFM and codling moth in Kentucky. The sprayable formulations used every two weeks have worked well as an alternative to insecticide sprays.

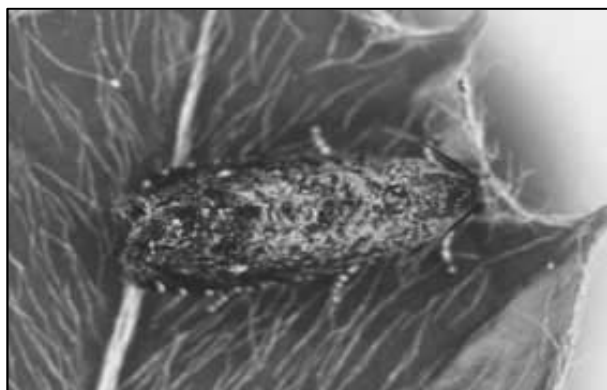
Biofix is the date that the fifth moth is captured in the trap. Degree days are the number of degrees above a base of fifty for 24 hours. It is calculated by 50°F from the average daily temperature. If the low temperature is below 50°F, then 50°F is substituted for the low temperature.



Codling moth adult

Oriental Fruit Moth Degree Days

The biofix for OFM is the date of the peak flight for each generation. Degree days are calculated using a base of 45°F and a target of 380 Degree days for application of an insecticide. Unlike codling moth, there can be 6 or more generations per year.



Oriental fruit moth adult



Plum curculio remains a problem in the early spring when night time temperatures reach 60°F. In the past, Imidan/Guthion have provided excellent curculio control. There are some alternatives with the newer insecticides including Danitol and Avaunt.

San Jose Scale *(photo to the right)*

With the loss of Lorsban and Penncap-M, San Jose scale has become a much more serious pest in many peach and apple orchards. Significant tree loss has occurred in some peach orchards. San Jose scale management relies on proper pruning and a thorough dormant oil application. During the season, Esteem 35W has provided excellent control when used at pink or when the crawlers are active.



TREE FRUIT DISEASE CONTROL MEASURES SHOULD BE UNDER WAY

by John Hartman, UK Extension Plant Pathologist

Stone fruits. Peaches are past bloom in most Kentucky orchards. It is too late to apply sprays for control of peach leaf curl disease. Fungicides applied at petal fall are intended to prevent the blossom blight phase of brown rot disease. The next sprays will be applied at shuck-split and are directed towards management of brown rot, scab, powdery mildew, and if needed, bacterial spot. Last year, wet spring weather favored scab disease and prevented adequate fungicide application to manage it. Growers should be concentrating now on fungicide applications that will help prevent peach scab disease. See the commercial tree fruit spray guide for suggestions of fungicides specifically effective against peach scab.

Pome fruits. Most apples are at or near full bloom. Many growers this spring have already contended with long, cool rainy periods with extended apple scab infection periods during the green tip and tight cluster stages. This week, prolonged wetness with cool temperatures will again make scab infections possible. It is hoped that the dry and warmer weather that occurred the past week gave

apple growers adequate time to protect their crop so that new scab infections during the current rainy disease-favorable weather would not occur. For scab management, there are many effective fungicides and fungicide combinations for growers to choose from.

Although fire blight bacterial activity occurred in cankers late last week, further development of fire blight would be stopped with current cool (average less than 50 F) temperatures. Should temperatures warm significantly for several days during bloom, growers will need to be prepared to apply streptomycin to prevent fire blight. Warm weather with occasional light showers will favor primary infections of fire blight.

Disease management advice. Commercial growers should be consulting U.K. Cooperative Extension Publication ID-92, Kentucky Commercial Tree Fruit Spray Guide 2004, available at County Extension Offices statewide. Backyard growers should use ID-21, Disease and Insect Control Programs for Home Grown Fruit in Kentucky Including Organic Alternatives.

2003 Blackberry Jam Evaluation

By Sarah Ball Brandl- Nutrition Education Program Coordinator – Robinson Station and Martha Yount- Breathitt County Family and Consumer Science Agent

During the summer of 2003, four blackberry cultivars/selections grown at the Robinson Station were tested in home food preservation trials. Berries from the 4 different cultivars were made into Blackberry Jam.

Each cultivar or selections' 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 the 2003 Robinson Station Field Day, and other Extension events. Overall, about 100 people participated in this evaluation. All four selections produced an acceptable jam. The chart below shows how each cultivar ranked according to yield, appearance, texture and flavor. The cultivars/selections are ranked in descending order with the best jam producer (A1689, Kiowa, Ouachita, Triple Crown) listed first.

A1689 was voted the best overall berry among these tested for jam making, with Kiowa the second favorite. Both of these varieties are thorny blackberries, while Ouachita is a thornless erect type and Triple Crown is thornless semi-erect. Finished product yields were different for each of the varieties.

Recipe for Blackberry Jam

5 cups crushed berries
7 cups sugar
1 package powdered pectin

Steps:

Wash jars and lid bands in hot soapy water and rinse with warm water. Put jars in boiling water until ready to use. Pour boiling water over flat lids in a saucepan, do not boil lids. Let stand in hot water until ready to use.

Prepare fruit as directed. Wash and crush with a masher, crushing one cup at a time. Do not puree fruit.

Measure exact amounts of fruit and sugar and put into separate bowls. Do not reduce sugar or use substitutes. Mix the box of pectin into the fruit in a large saucepan. Bring mixture to a full rolling boil on high heat stirring constantly. 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.

Ladle quickly into prepared jars, filling to ¼ inch of the top. Wipe jars and threads clean and cover with flat lids. Screw on band, do not over-tighten. Process for 10 minutes in a boiling water bath. Yield: 8- ½ pint jars.

*Nutritional Analysis: per 1 tablespoon
15 calories, 0 g fat, 0 g protein, 3 g carbohydrate, 0 mg sodium, 3 g sugar.*

2003 Blackberry Jam Evaluation				
Cultivar	Yield	Appearance	Texture	Flavor
A1689	84 oz.	good, large seeds	very good	Best fruit taste
Kiowa	76 oz.	good, gooey	large core	wild berry flavor
Ouachita	74 oz.	runny, good color	seedy	good, sweet
Triple Crown	80 oz.	large seeds	lumpy, seedy	tart, good, sweet

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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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