

Kentucky Fruit Facts

August 2004 (8/04)

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

John Strang, Extension Horticulturist

Apple and peach harvest is proceeding well. Fruit color is outstanding due to the cool weather in July and August. Blackberry harvest is winding down after a particularly productive season. However, a number of growers experienced shelf life problems and slightly lower fruit sugar levels with fresh market blackberries due to our excess moisture.

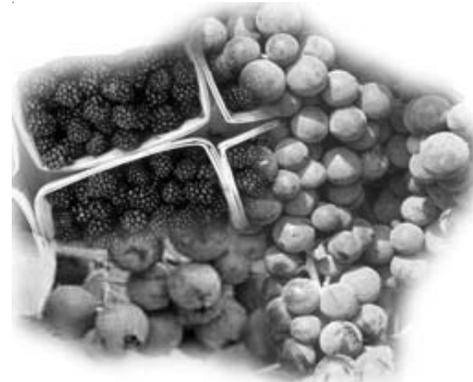
There has been no letup in disease control this season. Downy mildew is particularly bad due to the cool nights and rainfall. Blackberry rust and rosette disease are showing up in the disease diagnostic lab more frequently than in past years.

Upcoming Meetings

Sept. 11 The KSU/Pawpaw Foundation Pawpaw Workshop, Kentucky State University Research Farm, Frankfort, KY. See program and registration information below.

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Sept. 10-12 Appalachian Heirloom Seed Conservancy Fall Conference, Sustainable Mountain Agriculture Center (Bill Best's operation), Berea. \$10.00 registration fee. For more information contact Roger Postley or Bill Best, or e-mail KentuckySeeds@hotmail.com. See program below.

Oct. 15-16 Kentucky Vineyard Society Fall Meeting and Amateur Wine Competition, Paraquet Springs Conference Center, Shepherdsville, KY. Registration and lunch are \$20.00 and an optional wine tasting of Kentucky wines that will be open to the public is \$10.00. Contact Len Olson 502/540-5650.

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

The Kentucky State University/ PawPaw Foundation Pawpaw Workshop -- September 11, 2004

Kentucky State University and the PawPaw Foundation will host a Pawpaw Workshop on September 11, 2004, at the KSU Research Farm in Frankfort, Kentucky. The workshop objective is to discuss progress in the

pawpaw regional variety trials, cultivar development, seedling and clonal propagation, germplasm collection, postharvest fruit physiology and handling, marketing and product development. This workshop will be a unique experience for scientists, nurserymen, entrepreneurs, and enthusiasts to share information about the production and uses of pawpaw. In addition to presentations on pawpaw, the workshop will also offer an opportunity to taste pawpaw fruit, tour the Kentucky State University pawpaw orchards, view demonstrations on how to propagate pawpaw, and allow participants a chance to sample pawpaw recipes. The workshop will have a number of invited speakers; however, there will also be a poster session and show-and-tell session about pawpaw for non-scientists and enthusiasts. The workshop will be limited to 150 attendees. Pre-Registration is required before the meeting and must be paid by September 1, 2004. The registration fee, which includes lunch and dinner, is \$20.00 for PawPaw Foundation members and is \$30.00 for non-PPF members; however, the non-member registration fee also includes a 6 month introductory PPF membership. Please contact Ms. Jean Ward at 502-597-6174 for information on how to register for the Pawpaw Workshop.

Schedule of Events

Friday, 9/10/04

6:00-9:00 pm On your own pre-conference gathering in Frankfort. The location of the restaurant will be announced in September.

Saturday, 9/11/04

8:00-9:00 am Registration and refreshments-
KSU Farm
:00-10:15 Pawpaw 101 and Regional Variety
Trial Report - Kirk Pomper
10:15-11:00 Fruit Tasting
11:00-12 noon Propagation Round Table
– Kirk Pomper, Sheri Crabtree,
Robert Geneve, and others
12:00-1:00 pm Lunch
1:00 -2:00 pm Fruit Ripening and Storage-
Douglas Archbold & Federica Galli
2:00-2:30 Antioxidants and Lipids in Pawpaw
Changzheng Wang and
Meshack Afithile
2:30-3:00 More Fruit Tasting and Discussion
3:00-3:45 New Pawpaw Cultivars
- Neal Peterson
3:45-4:45 Pawpaw Marketing and SARE
Growers Roundtable - Chris Chmiel,
Neal Peterson, and others
4:45-6:00 pm KSU Orchard and Greenhouse Tours
Kirk Pomper and Sheri Crabtree
6:00–9:00 pm Dinner followed by PPF Award
Presentations, Show-and-Tell
Session, and Poster Session

Dr. Sanjun Gu will be joining the Kentucky State University Land Grant Program

Dr. Sanjun Gu will be joining the Kentucky State University Land Grant Program on October 1, 2004 as the Co-Investigator of Horticulture (Viticulture). Dr. Gu received his Ph.D. in 2003 from the University of Nebraska in Viticulture. His Ph.D. thesis research project examined rootstock and mounding effects on growth and cold hardiness of 'Gewurztraminer' and bud dormancy



of 'Lacrosse' and 'Chambourcin'. At KSU, Dr. Gu will pursue research supported by a USDA Capacity Building grant entitled: "Sustainable Control of Grape Black Rot, Japanese Beetle, and Leafhoppers in the Southeastern United States" that was co-authored by Drs. Jonathan Egilla (formerly of KSU) and Kirk W. Pomper and will be funded for a period of three years. The goal of the research project is to identify sustainable, environmentally safe pest management strategies that reduce dependence on conventional chemical pesticides, while improving the yield and quality of grapes. The Horticulture community is pleased to welcome Dr. Gu to Kentucky!

Will Wet Spring and Summer Weather Mean More Rotten Apples?

by John Hartman, U.K. Extension Plant Pathologist

Rainy periods in spring and summer were an obstacle that apple growers faced when trying to manage apple diseases this year. Rains interfered with late dormant pruning and sanitation efforts and prevented timely applications of preventive fungicides. Continued rainy weather and cooler than normal weather for parts of the summer likely also affected the kinds of diseases affecting apples, particularly fruit rot diseases. Based on weather patterns this spring and summer, it seems likely that black rot fruit decay and sooty blotch and flyspeck will predominate as near-harvest apple diseases. Unless the weather becomes more typically hot and humid, white rot and bitter rot may appear somewhat less frequently than normal.

Several of the fungi that cause fruit rot disease can begin their infections at bloom or shortly thereafter. The fungi may invade killed fruitlets, infect sepals, or exist in a latent phase in healthy fruit, only to begin decaying fruits them when they reach full size. Apple fruit rots can occur both in the orchard and in storage after harvest. Decayed fruit represent a significant loss to growers because much of the investment in the crop is made before the fruits show any indication of decay. Symptoms of decay of the several fruit rot diseases have been described in previous issues of this newsletter (i.e., Kentucky Pest News # 930, August 20, 2001 and KPN #961, July 15, 2002).

Black rot is caused by the fungus *Botryosphaeria obtusa*. The fungus infects blossoms and leaves (causing frog-eye leaf spot) as twigs, branches, and fruits. Black rot inoculum originates from colonized dead wood within the tree or from mummified fruit and fruitlets. Fruit with black rot infections at the calyx end usually result from sepal infections that occurred early in the season. These infections, which may happen as soon as the flower bud scales loosen, typically develop into blossom end rot. If black rot infections appear on the sides of growing fruit in summer, the source of inoculum can often be traced

to one or more killed fruitlets located above the infection site within the tree canopy. Late fruit infections occur through cracks in the cuticle, wounds and lenticels. Black rot fruit infections are favored by temperatures about 70 degrees F with prolonged wetness. The black rot fungus can also be one of several different fungi that may be present in fruit with moldy core. Infected fruits eventually shrivel and dry down to pycnidia-covered mummies which remain attached to the tree, serving as inoculum sources in the spring of the following year.

White rot of apple is caused by the fungus *Botryosphaeria dothidea*. The fungus is ubiquitous in nature, causing diseases on a wide variety of other woody hosts such as birch, chestnut, willow, mountain ash, quince, pear, sweet gum, Rhododendron, grape, roses, stone fruit, blueberry, blackberry, currant and gooseberry. As with black rot, the white rot fungus can also infect woody tissue and cause cankers. The white rot fungus does not infect apple leaf tissue. Latent infections may occur on immature fruit up to 7 weeks after petal fall. Fruit infections can occur throughout the growing season, but rot symptoms usually do not appear before soluble solids reach near 10 percent. Fruit infection can occur in as few as 2 to 4 hours at 80 degrees F. Under warm conditions exceeding 80 degrees F the decay is soft, watery and a light tan color extending as a cylinder of decay from the surface to the core. Under cooler temperatures, the decay is usually firmer and a darker tan. Most rotted fruits drop, but some may shrivel and remain attached to the tree, serving as a source of inoculum for further fruit infection.

Bitter rot is usually found by now in Kentucky orchards. It is especially damaging in summers when hot, humid weather predominates. Decay lesions are circular, slightly sunken, and under moist conditions, often covered with a creamy mass of salmon-pink spores produced by acervuli scattered in concentric rings on the decayed fruit surface. In cross section, the firm, brown decay appears V-shaped. Fruit are susceptible to infection from 3 weeks after petal fall until harvest and the disease develops most favorably at tempera-

tures of 80 to 90 degrees F. The disease is caused by the fungus *Colletotrichum gloeosporioides* or by *C. acutatum*. Peaches, nectarines, grapes, strawberries, and blueberries are also attacked by this pathogen.

Dry eye rot (blossom end rot) and calyx end rot are normally minor diseases in Kentucky. These diseases appear when very wet weather occurs during bloom as happened here this spring. Dry eye rot is caused by *Botrytis cinerea*, the “gray mold” fungus. Calyx end rot is caused by *Sclerotinia sclerotiorum*. The two diseases are often confused with each other because symptoms of both begin at the calyx end of the fruit and both cause a reddish color at the site of infection. Usually, isolation of the pathogen is necessary for positive identification. Fruit infected with either of the pathogens have a tendency to drop prematurely. If harvested, fruit infected with dry eye rot will develop gray mold in storage. The diseases are typically minor and do not spread to other fruit in summer once symptoms appear. Therefore, by the time these diseases appear it is too late to do anything about them.

Sooty blotch and **flyspeck** are important apple summer diseases but don't cause fruit rot. Sooty blotch symptoms appeared last month on apple fruits that have not been treated with fungicide. Sooty blotch and flyspeck, caused by a complex of different fungi, grow superficially on apple fruit surfaces, lowering their quality and market value. We know from previous research that there is a correlation between accumulated leaf wetness hours and appearance of symptoms of sooty blotch and flyspeck disease. Beginning at 10 days after petal fall, the number of hours of leaf wetness from dew or rain each day are added together. When the total approaches 200 hours, we typically see sooty blotch symptoms appearing on fruits of untreated trees. In many Kentucky locations, that total was reached in early June, thus this disease complex has been present on fruits for a long time this summer.

Blackberry Rosette (Double Blossom) Disease Appearing

by John Hartman, U.K. Extension Plant Pathologist and Terry Jones, U.K. Extension Horticulturist

Rosette disease, also called double blossom, is caused by the fungus *Cercospora rubi*. This disease is being observed frequently on blackberries in the field this summer and is the subject of many recent diagnoses in the plant disease diagnostic laboratory. Disease symptoms appear the year after infection occurs, so it is possible that wet weather last year provided conditions for increased disease incidence

this year. Blackberry rosette is a very serious disease which can destroy a blackberry planting by reducing fruit yield and quality and causing death of canes. Rosette occurs in all regions of Kentucky.



Symptoms.

Blackberry growers will notice flowers with distorted petals, giving

the appearance of a double flower (hence double blossom). The mycelium of the fungus grows over the flower pistils and stamens producing a whitish spore mass. Unopened flowers are usually elongated and larger, coarser, and redder than normal. Sepals on infected flowers enlarge and occasionally become leaf-like. On some varieties, shoots may appear abnormal with leafy proliferation (rosette) or witches broom while on other varieties the rosette may fail to develop but infected blossoms are sterile. Berries do not develop from infected branches and other parts of the cane may produce only small, poor quality fruit. Thus, this loss of yield should concern growers.

How the disease is spread. The disease begins when the buds of new canes become infected from fungal spores produced on infected distorted flowers of old canes. Symptoms from these infections do not appear until the next year. Blackberries can become infected from spores produced on wild blackberries nearby. Blackberry nursery stock can harbor the causal fungus in rooted plants, but not in root

pieces, which are commonly sold for blackberry propagation. We have observed that one can obtain successful growth of disease-free blackberries from root pieces taken from infected plants while rooted plants from the same source become diseased.

Disease management. Select a site isolated from wild blackberries or other brambles. In many parts of Kentucky, this may be difficult. Use disease-free nursery stock, roots only. If the disease is not already severe, infected rosettes and blossom clusters should be picked off and destroyed before they produce spores. Old canes should be removed and destroyed immediately after harvest. Remove and destroy wild blackberries and other brambles near the planting.

If the disease is serious, application of Bordeaux mixture or Benlate at just the right times may be needed. Bordeaux mixture can partially reduce disease incidence if applied weekly from bloom through harvest. The fungicide Benlate can be used up to 5 times in a season at two week intervals beginning at first bloom and extending through harvest. However, this fungicide is no longer being manufactured and when stocks of Benlate run out, it will no longer be available. Fungicides such as Abound and Pristine, now available for use on blackberries, may be effective against rosette disease. However, fungicides are not totally effective when disease pressure is high and/or spray coverage and timings are deficient.

Some growers control this disease by harvesting blackberries in alternate years and destroying the above ground parts of both the new and old canes in spring every other year. Splitting the planting into two fields allows harvest every year with biennial cropping on each half. There are several blackberry varieties that show some resistant to rosette (double blossom) disease. Rosette rarely occurs on red and black raspberries.

Appalachian Heirloom Seed Conservancy Fall Conference

September 10-12, 2004

The Appalachian Heirloom Seed Conservancy is a non-profit organization whose mission is to preserve the heirloom food plants/sustainable agricultural practices of central Appalachia.

This conference is a meeting of many regional and local edible heirloom plant and produce enthusiasts. The event will include heirloom seed swaps, lectures, informal talks, demonstrations, workshops,

tours, information exchange, and great gardening fellowship!

WHEN: September 10 - 12, 2004

WHERE: Berea Kentucky

Sustainable Mountain Agriculture Center
(Bill Best's operation)

Directions:

Exit #77 from I-75, East toward Berea.

Turn left at Glades Rd. (3rd paved road on left)

Pass through two traffic lights to County Rd 1016.

Turf left about 1.5 mi. to Barker Lane.

Turn right one mile to Tee with Blue Lick Rd.,

Turn right 100 yards to Pilot Knob Cemetery Rd.

Take it one mile to Sustainable Mountain Ag. Ctr.

For more information:

At the Lexington Farmers' Market, ask Roger Postley or Bill Best. Other-wise, contact: AHSC, Box 519, Richmond KY 40476, or e-mail Kentucky Seeds@hotmail.com.

Schedule of Events:

Friday, Sept. 10

7 pm - ? 'Early Bird' reception -- informal get together. (soft drinks & snacks provided)

Saturday, Sept. 11

8-9:00 am Registration

9 am-3 pm Seed Swap

9 am Open period for Seed Swap

10:00 am In-Situ Raised Beds

-Toni Eddleman

11 am TBA

12-1:00 pm Lunch (on your own)

1-3:00 pm Marketing Heirloom Vegetables

- Dean Pearson

3-5:00 pm Tours of Sustainable Mountain Ag. Ctr.

5-7:00 pm Keynote addresses:

5-6:00 pm Sustainable Farming on Small Acreage - Bill Best, Founder, SMAC

6-7:00 pm Collecting Local Heirlooms

- Brook Elliott, Managing Director, AHSC

7 - ?? pm Group dinner/ general confab.

Dinner fee \$5.00 ea. AHSC will provide drinks, burgers and smoked sausage, some side salads, baked beans, condiments and soft drinks. Attendee pot-luck add-ons are encouraged! We have stoves and refrigerators available.

2004 Regional Winegrape Price Survey

Matt Ernst & Tim Woods, University of Kentucky
Department of Agricultural Economics

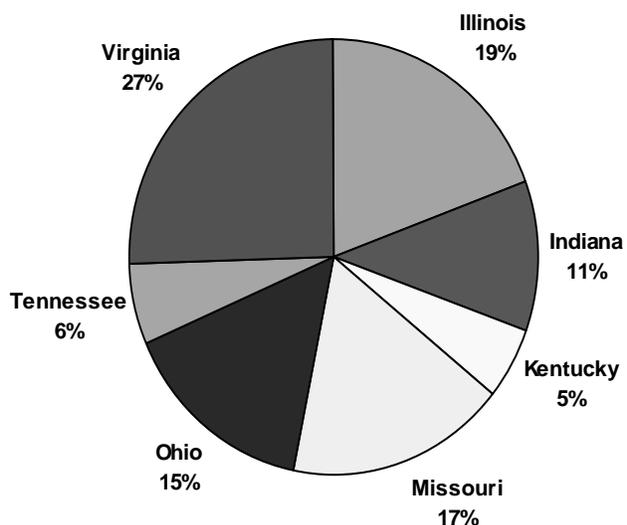
Author's Note

This report is the working summary of data returned from this survey. This version is being released on August 4, 2004 to benefit grape growers during the 2004 harvest. A final report will be released in September as a University of Kentucky Department of Agricultural Economics Extension publication. This forthcoming publication will include a slightly updated and more detailed analysis of the survey; no significant change in price report information is expected.

Summary

Winegrape acreage in Kentucky has expanded significantly between 2000 and 2004. One of the challenges new grape producers face is a lack of widely reported price information for their crop. To determine regional prices for winegrapes, a one-page survey was mailed to 281 wineries in Illinois, Indiana, Kentucky, Missouri, Ohio, Tennessee, and Virginia during the summer of 2004. This survey included demographic questions and questions concerning prices paid for grapes in 2003.

Figure 1. Respondents by State (98 Responses)



Responses to this survey indicate that grape prices paid in these states will remain steady in 2004, with some increases expected for certain vinifera varieties. Responding wineries also cited an expected increase in wine production for 2004; two-thirds (66%) of the wineries surveyed indicated that they will increase their wine production this year.

While the apparent increase in wine production could be interpreted as creating continued market opportunities for grape growers, current and future grape growers should exercise care when expanding production. Some wineries responding to this survey noted that recent, rapid increases in winegrape plantings in these states could potentially create a market glut and drive down prices for some varieties in the near future.

Survey Procedure and Demographics

The survey was mailed to 281 wineries in June, 2004, with a second mailing following three weeks later in July. Winery addresses were obtained from state winery association Web sites. The survey has garnered a 35% response rate, with 98 wineries responding as of August 4, 2004. A additional four wineries returned incomplete surveys. This represents a total response rate of 36%, a commendable rate for a mail survey. Due to a greater number of wineries in Virginia, the proportion of responding wineries from Virginia was slightly greater than that from other states (Figure 1).

The size of the wineries surveyed was evenly distributed between wineries producing less than 1,000 cases of wine in 2003 (32%), those producing 1,000-4,999 cases of wine (31%), and those producing 5,000 or more cases of wine (35%). Three wineries did not indicate their size of production for 2003.

Eighty percent (78) of respondents indicated that they purchased winegrapes in 2003. Of these respondents, over half (40) said that 100% of grape purchases came from growers in their state (Figure 1). An additional 23% (18) of wineries surveyed said that 50-99% of their grape purchases came from grapes grown in their state. This means that 74% of the surveyed wineries purchasing grapes in 2003 obtained more than half of their grape purchases from an in-state source. The prices they report are therefore good indicators of grape prices in this region.

Future Trends

The survey included two questions related to the future of the wine industry in the region. These responses indicate continued expansion of the region's wine production. Significantly, two-thirds (66%) of responding wineries indicated that they would increase their production in 2004. This increase was distributed across all winery sizes and locations (Figure 2).

Those surveyed were asked if they used concentrate in the production of wine; 18 wineries (18%) indicated that they used concentrate. While the use of concentrate may be making it easier for wineries to expand production, two respondents specifically noted that they only use concentrate for flavoring to increase sweetness (brix).

Price Report

Grape price ranges, as well as median and average prices paid, are reported in Table 1. The most frequent price range reported for each variety is also noted where applicable. Wineries surveyed expect most grape prices to remain steady at 2003 price levels during the 2004 season.

Price increases for Cabernet sauvignon, Merlot, and Riesling were expected by more than 20% of wineries purchasing these varieties. Prices for Traminette were also anticipated to increase by 21% of wineries purchasing this variety; yet an equal percentage of wineries expected Traminette prices to decrease.

The most common varieties purchased by the wineries responding to this survey were Chambourcin and Vidal blanc. There also appears to be a strong overall demand reported for vinifera varieties in all states.

Conclusion

This price survey supplies grape growers and buyers in the region with a sample of common prices paid for winegrapes. The results indicate that winegrape prices will hold steady from 2003 levels while wine production in the states surveyed (IL, IN, KY, MO, OH, TN, VA) will increase in 2004. Continued expansion of bearing grape acreage in these states will probably contribute to steady, if not lower, prices paid by wineries for most grape varieties in coming seasons.

Table 1 Price Paid Per Ton in 2003 (By variety, 98 wineries surveyed in IL, IN, KY, OH, MO, TN, VA)

	Number Responding	Minimum Price	Maximum Price	Median Price	Average Price	Most frequent price range reported per ton
<i>American</i>						
Concord	26	300	1000	450	505	\$300-\$600
Niagara	17	300	1000	450	540	\$300-\$800
Norton/Cynthiana	21	600	1300	1000	941	\$800-\$1000
<i>French Hybrid</i>						
Cayuga White	16	450	1000	650	680	\$450-\$800
Chambourcin	36	450	1300	850	870	\$800-\$1000
Chardonel	24	700	1200	825	890	\$700-\$1000
Foch	15	400	1300	800	765	N/A
Traminette	19	700	1455	950	958	\$700-\$1000
Seyval	27	300	1000	800	759	\$600-\$900
Vidal blanc	35	500	1200	800	748	\$600-\$900
Vignoles	16	620	1500	950	933	\$900-\$1000
<i>Vinifera</i>						
Cabernet Franc	27	850	2500	1300	1356	\$1200-\$1500
Cabernet Sauvignon	25	655	2500	1300	1254	\$1200-\$1500
Chardonnay	27	900	2000	1300	1323	\$1300-1500

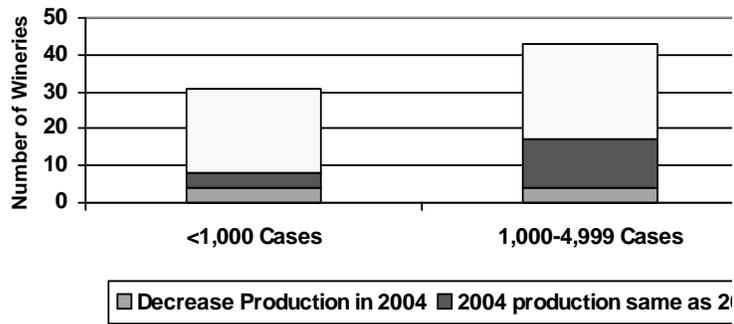
Varieties with Only 5-10 Wineries Reporting

Price range reported and comments

Merlot	\$825-\$1600; most \$1200-\$1600	Some increases expected in 2004.
Riesling	\$650-\$1400; most \$1200-\$1400	Some increases expected in 2004.
Syrah	\$900-\$1500; most \$900-\$1200	
Viognier	\$1400-\$2000	

Acknowledgements: The authors express their thanks to all the wineries that responded to this survey.

Figure 2. 2004 Wine Production Intentions by 2003



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