



Kentucky Fruit Facts

Research & Education Center

P.O. Box 469, Princeton, KY 42445

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

Fruit Crop and Weather Situation

Apples have been ripening roughly 10 days earlier than normal this season. Color, size and quality have generally been excellent, although the crop size is down somewhat. Water core is showing up in some varieties, so timely harvest is important this year. Growers have noted considerable frost ringing on 'Gala' and 'Red Delicious' where these varieties did not freeze out this spring. In Lexington we have seen some early fruit drop and we have had constant pressure throughout the season from codling moth. Sooty Blotch and Fly Speck are evident in many orchards due to the relatively rainy season. As harvest proceeds, growers should examine the fruit coming out of each block for insect, disease and physiological problems to evaluate the effectiveness of this year's spray program in preparation for next year.

La Nina officially ended back in July. Rainfall has slacked off recently and west central Kentucky is on the dry side. However, this period corresponds with our normally driest time of the year.

For those apple growers that also grow pumpkins, Nova has been cleared for powdery mildew control in cucurbits. This offers growers another alternative to the use of chlorothalonil plus Benlate or Topsin-M. Quadris (the same material as Abound used on grapes) and Flint are also cleared for powdery mildew control in

pumpkins. However, Quadris can damage apple varieties that have McIntosh in their parentage, while Flint can injure Concord grapes. Quadris and Flint are very difficult to wash out of the spray tank. It is important to keep the leaves on pumpkin vines as long as possible to receive the continued benefits of photosynthesis. The last portion of the season produces a significant weight gain in pumpkins. If the leaves are not retained, fruit flesh thickness is reduced, the pumpkins will not store as well and they are more prone to sunburn in the field.

Robert and Gail Rudd recently sold their orchard to their neighbor, Jim Collins. The orchard will be operated as the Collins Family Orchard, 1125 Hensley Rd., East Bernstadt, KY 40729, phone 606/843-6835. Robert will be working with Jim to teach him the intricacies of the operation. We welcome Jim and his family into our select group of Kentucky apple growers.

Jerry Brown is continuing to improve. He had neck surgery on Saturday September 2 at Western Baptist Hospital in Paducah to relieve pressure on his spinal chord. He will be returning to Lourdes Hospital, 1530 Lone Oak Rd, Paducah, KY 42003 after recovery. The receptionists phone number there is 270/444-244. (Strang, Bessin, Hartman)

Meetings

Sep. 21 - Grapes, Berries, Pawpaws, and Tree

Fruits; Kentucky State University Farm, Frankfort, KY. Contact 502/ 597-7871; e-mail kysufarm@mis.net

Oct. 28 - Fall Kentucky Vineyard Society

Meeting, Louisville area. Napa River Grill, Louisville, KY. Dr. Tony Wolf, Viticulture Extension Specialist, Virginia Tech will be the featured speaker. The meeting will include a gourmet dining experience. Contact Ken Harmet, KVS Secretary phone 270/269-2411, e-mail sharmet@apex.net.

Dec. 11-13 - Southeast Vegetable and Fruit Expo and AgTech 2000, Sheraton Greensboro Hotel at Four Seasons, Greensboro, NC. The Southeast Vegetable and Fruit Expo will focus on produce issues. AgTech 2000 will focus on new technologies and opportunities, such as precision farming and biotechnology in all types of agriculture including cotton, tobacco, soybeans etc. Contact Allan Thornton phone 910/592-7161 E-mail: athornto@sampson.ces.ncsu.edu

Jan. 8-9, 2001 - Annual Fruit and Vegetable Grower Meeting, Holiday Inn North, Lexington, KY. Contact John Strang 606/257-5685.

Plum Pox Update

Testing for the plum pox virus (PPV) will continue at the Biggerville Lab, Penn State University into the fall as long as conditions remain favorable. Results of testing weeds and native tree species for PPV have all been negative to date. Although it is still too early to say with certainty that the virus can not be found in anything except commercial stone fruit, the fact that it has not been found in any wild plant continues to support the idea that eradication is possible. (from Fruit Times newsletter, John Halbrendt, Penn State Univ., Plant Pathologist)

Can Kentucky Apple Growers Learn From The Michigan Fire Blight Epidemic?

Fire blight review. Kentucky apple growers are familiar with fire blight disease. This highly contagious and deadly disease attacks blossoms, leaves, shoots, branches, fruits, and roots. The disease usually first enters the tree through flowers during bloom. Once established in the tree fire blight quickly invades through the current season's growth into older growth. Death of infected branches is so rapid that the leaves do not have time to fall off the tree. Young non-bearing and newly bearing trees can easily be killed by the infection while mature bearing trees may survive even if all the new growth is killed. Heavy rainstorms in spring and early summer can spread blight and result in what is known as "trauma" blight.

Antibiotic sprays applied during bloom are used to control fire blight. A computer program called Maryblyt is used to track disease development and to time antibiotic applications. Streptomycin, the most

commonly used antibiotic for fire blight control, works well if used immediately before infection or within about 12 hours (24 hours maximum) after an infection. Where streptomycin resistance exists, oxytetracycline may be used, but it must be applied before an infection to be effective.

Michigan's fire blight disaster unfolds. In mid-May, 2000, fire blight symptoms began to appear prematurely in some Idared and Jonathan orchards of Southwest Michigan. Prior to that, beginning May 9, while Golden Delicious and Rome were in bloom, Maryblyt predicted three infection periods associated with favorable temperatures and rain. However, unbeknownst to growers, infections probably also occurred on May 7 and 8 when predicted bacteria levels reached record highs. Although there was no rain on these dates, relative humidity averaged about 80%, which, although rare, is high enough for infection to occur. With minimum nighttime temperatures over 65°F, bacterial populations increased and resulted in very high populations; populations that overwhelmed subsequent antibiotic treatments. Orchardists who applied antibiotics ahead of this weather achieved the best control.

The blossom blight symptoms of mid-May appeared mainly in unsprayed blocks of susceptible varieties, and also in less susceptible varieties such as Golden Delicious that were not sprayed. In addition, fire blight strikes could be found on varieties that are normally resistant such as Empire, McIntosh and Red Delicious. Thus, extremely high levels of inoculum and good infection conditions must have been present. Just as blossom infection symptoms peaked on May 18, several days of widespread hail and thunderstorms moved through the area. The storm system spread the disease to many previously uninfected blocks throughout the region. Growers who applied antibiotics after rains were hard pressed to cover all their acreage within 24 hours. In addition the weather system spread streptomycin-resistant fire blight strains to a large area where they previously were not found. It seems that where streptomycin resistant fire blight exists the use of streptomycin makes the disease worse because it removes competitors of the bacteria, which normally slow its spread. Thus, the application of streptomycin actually increased the severity of the disease in some orchards.

At the beginning of June, the second wave of fire blight symptoms appeared in all the susceptible varieties following the trauma of the May storms. The symptoms from this infection were severe and widespread. Blight severity was such that most apple growers who planted new trees in the last five years will lose those trees. There is also concern about the health of the older orchards. All apple growers will lose a portion of their crop for the next several years due to this fire blight epidemic.

Factors contributing to the fire blight disaster.

- In the mix of fresh market and processing apple varieties grown in Southwest Michigan are Braeburn, Fuji, Gala, Idared, Jonathan, and Jonagold which are very susceptible to fire blight; Golden Delicious and Rome are less susceptible; and a few such as Red Delicious are almost resistant. Unfortunately, most of the new plantings there in the past decade are of the susceptible varieties.
- Common dwarfing rootstocks such as Malling 26 and Malling 9, used to improve fruitfulness, size, and fruit quality were widely planted. These rootstocks are very blight susceptible; they may even increase the susceptibility of the scion varieties. Rootstocks can become infected by direct infection of rootstock suckers at the base of the tree or when bacteria move down through the trunk without causing symptoms and then into the roots. Infected rootstocks are quickly girdled, killing the tree. Such systemic movement from a minor infection can result in tree death, even of resistant Red Delicious trees.
- To preserve the economic viability of their orchards, many of the top growers in the region have been replacing older orchards of standard and semi-dwarf trees with high-density orchards using dwarfing rootstocks. Fire blight can spread more rapidly from tree to tree in susceptible high density plantings.
- Streptomycin-resistant fire blight was found in one county in the region in 1990 and resistance had spread countywide by 1999. Streptomycin-resistant bacteria are difficult to manage without a costly combination of streptomycin plus oxytetracycline.
- Due to the slump in apple prices during recent years, some orchards were abandoned and served as sources of inoculum this year.

Costs of the fire blight epidemic. Many acres of high-density apple plantings have been severely affected by this epidemic. These orchards will be destroyed as economic units by the death of most of the orchard's trees. From 350,000 to 450,000 apple trees will be killed and 1,550 to 2,300 acres of apple orchards will be lost. The development cost of these orchards was over \$9 million. Apple yields will be reduced by 35% over the region. Some growers will suffer 100% losses in some plantings. The Southwest Michigan region produces an average of 4.5 to 7 million bushels and the expected crop loss is 2.7 million bushels - about \$10 million. It will take at least 5 years for yields to recover with a cumulative loss of yield of nearly \$36 million. The region's total economic loss is almost \$42 million.

This epidemic will change the way apples are grown in Southwest Michigan. Few growers will again chance the risk of planting the new premium varieties hoping to maintain profits in a market with global oversupply, believing they could control fire blight. A major unanswered question is what varieties can be grown profitably in the future without undue fire blight risk.

Can we reduce the threat of fire blight in Kentucky?

The fire blight epidemic in Southwestern Michigan is as severe as anyone can remember. It took an unusual combination of weather events, disease susceptible varieties, streptomycin resistant bacteria, and planting configurations to all come together for this epidemic to occur. Nevertheless, Kentucky growers can learn from this disaster and take actions now that will reduce fire blight.

- In some orchards, fire blight develops when the grower mistakenly thinks that there was none there the previous season. This winter, examine the orchard and cut out any and all fire blight and destroy the prunings.
- Until new compounds come along in the distant future, streptomycin is about the only chemical tool available for managing the disease. To avoid development of bacteria with resistance, use streptomycin only when it will be effective - during bloom, and then use it no more than 3-4 times a year.
- When putting out a new orchard, be aware that most of the popular new varieties are very susceptible to fire blight. Try to select tolerant varieties. Improving current blight susceptible varieties through genetic engineering shows promise for the future, but the public's negative view of genetically altered crops may prevent use of this new technology. The new blight-resistant rootstocks will help growers most years, but only resistant varieties combined with resistant rootstocks will allow growers to avoid losses in perfect blight-favorable years.
- Be aware of the disease risks when using high density plantings.

Much of this information was obtained from an article for Michigan fruit growers and written by Mark Longstroth, Extension Horticulturist working in Michigan. (Hartman)

US Apple Crop Forecast

During the recent US Apple conference, US Apple issued its estimate of the 2000 US apple crop of 238.9 million bushels, compared to the U.S. Department of Agriculture's (USDA) estimate of 254.2 million bushels.

The 1999 U.S. apple crop of 252 million bushels was valued at \$1.5 billion. Apples are grown commercially in 36 states; the majority of the crop is produced in Washington, New York, Michigan, California, Pennsylvania, Virginia and New England.

Many feel the U.S. apple industry is at a crossroads in light of the world-wide apple glut U.S. growers are facing.

US Apple stated in their recent press release, "Rugged economic conditions in recent years have plunged much of the U.S. industry into uncertain times. Apples have been a mainstay crop in the United States since the first European settlements were formed in the 1600s. Yet in the coming weeks, many growers must decide whether they can afford to harvest this year's crop.

Twenty years of increasing world production, stagnant domestic consumption, natural disasters and low-priced imports converged two years ago, resulting in growers receiving the lowest prices since the late 1980s for 1998 apples bound for fresh-market sale. Meanwhile, prices growers received for processing apples also plummeted, due in large part to a flood of below-cost apple-juice concentrate from China that destabilized the market for U.S.-processed concentrate and U.S. processing apples.

Processed concentrate is used to make reconstituted apple juice. Growers suffered severe economic losses of \$760 million over the past three years according to USDA. This summer, a US Apple-led group successfully argued in U.S. trade courts that much of the Chinese apple juice concentrate supply was being illegally sold below cost – that is, dumped – on the U.S. market. As a result, the U.S. government levied tariffs of up to 52 percent on Chinese concentrate imports to try to restore fairness to that market”.

Win Cowgill, Agricultural Agent and Jeremy Compton, North Jersey Tree Fruit Technician

Reducing Fruit Doubling and Open Sutures in Peaches and Nectarines

Some orchards seem to suffer annually from excessive numbers of fruit doubles and open sutures. Research headed by Scott Johnson has shown that mid-August water stress plays a key role in contributing to the formation of these fruit abnormalities.

These problems are more common in early and mid-season varieties which are usually not heavily irrigated after harvest. Late-season varieties, which are generally well-irrigated in August, rarely have many open sutures or double fruits. Plums, regardless of season of maturity, rarely have doubles or open sutures.

If you have been struggling with either of these fruit problems make sure that trees are not suffering from irrigation stress in mid-August. University of California research has shown that a single, well-timed irrigation can drastically reduce the number of malformed fruit. In most field situations a safe strategy would be to apply a

deep irrigation in mid-August and then again about 10 to 20 days later as soil moisture and weather conditions warrant.

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