UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

Lexington KY 40546

Kentucky Fruit Facts

August/September (9/2005)

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 very hot dry summer until just recently when a number of orchards received rain from a system that stalled over the state and Katrina. Fruit growers that could water found that it was difficult to get enough water on to make a difference. Harvest dates this year are pretty close to last seasons dates. Japanese beetle and green June bug damage was severe in many areas.

Apple growers are concerned about fruit color development and size. Mites have been severe due to the dry weather and several growers have codling moth problems. Calcium chloride sprays are recommended to reduce bitter pit and cork spot.

Grapes are maturing on time and quality is excellent where vines are not overcropped, defoliated by Japanese beetles or canopy managed too heavily with pruning shears. Downy and powdery mildew are showing up, so don't let up on the spray program. Dr. Kurtural has evaluated several petiole analyses and found a number of instances of low nitrogen, sulfur, and iron. Yields are expected be about 20% lower than optimal on grapes that were not frost injured due to phomopsis and lack of nitrogen. After removing the crop take soil samples to assess potassium fertility.

Inside This Issue:

Dr. Sanjun Gu, Viticulture Research Associate at Kentucky State University has developed an excellent web site resource for grape growers. It can be found at: http://www.pawpaw.kysu.edu/viticulture/index.htm

Peach quality has been excellent where the fruit sized up and the market has been strong. Pawpaw fruit size is small due to the drought. Blackberry growers produced an excellent crop where water was available. The lack of rain resulted in blackberry fruit with high sugar contents and excellent shelf life. Strawberry growers should have applied a mid August nitrogen application of 35-50 lb of actual N per acre and a herbicide application to control grasses and winter annual weeds.

Upcoming Meetings

Sept. 17 Kentucky Vineyard Society and U.K. Horticulture Fall Viticulture and Enology Meeting, Washington County Cooperative Extension Office, Springfield, KY. (See program below.)

Sept. 19 Harvesting the Fruits of Your Labor, (A walk through the orchard to observe different varieties and different rootstocks). Sun Ray Orchard, Shepherdsville, KY. 6:00 p.m. Contact Darold Ackridge 502-543-2257.

Oct. 4 Blueberry Production Workshop, Powell County Extension Office, Stanton, KY. Program will cover economics, varieties, research results, production problems, and organic production techniques. 1:30-4:30 P.M. Contact Mike Reed phone: 606-663-6404, email: mreed@uky.edu

Oct. 17 Tasting the Fruits of Your Labor (taste about 20 different apple varieties). Bullett County Extension Office, Shepherdsville, KY. 7:00 p.m. Contact Darold Ackridge 502-543-2257.

Oct. 21-23 Appalachian Heirloom Seed Conservancy Second Annual Fall Conference, Sustainable Mountain Agriculture Center, Pilot Knob Cemetery Road, Berea, KY. (The program follows.) Contact Brook Elliot phone: 859-623-2765, email: KentuckySeeds@hotmail.com or Roger Postly phone: 859-278-4846, email: Rpostley@aol.com

Jan. 10-11 2006 Kentucky Fruit and Vegetable Grower Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact: John Strang 859-257-5685, e-mail: jstrang@uky.edu

Kentucky Vineyard Society and U.K. Horticulture Fall Viticulture and Enology Meeting

September 17, 2005

Location: Washington County, Cooperative Extension Office
211 Progress Avenue
Springfield, KY 40069

Directions from Lexington: Take the Bluegrass Parkway to Exit 42, turn left at top of ramp, take Hwy 555 to Springfield, (approximately 11 miles). Continue on through the first light, take the second turn on the left onto Progress Avenue. We are the third building on the left.

Directions from Louisville: Take Hwy 150 to Bardstown. Turn left at the light on to John Rowan Blvd. and continue on through the next several lights (this is a bypass type road). The road will end with a light, turn left and continue on to Springfield. At the first intersection in Springfield, turn left and take the next right onto Progress Avenue. We are the third building on the left.

Agenda:

ALL TIMES ARE EDT:

Morning Session

10:00 AM	Site selection for vineyards Kaan Kurtural
10:30 AM	Site preparation, cultivar selection, vineyard design for vineyards Kaan Kurtural
11:00 AM	Weed control during vineyard establishment Joe Masabni
11:30 AM	Basics of small winery set-up: Some DO's and DON'Ts Tom Cottrell
12:10 PM	Lunch and Travel to Commercial Vineyard Site

Afternoon Session

1:30 PM	Weed control in established vineyards: a commercial perspective Joe Masabni
2:00 PM	Fall control of fungal diseases in commercial vineyards John Hartmann
2:30 PM	Fall control of vineyard insects in commercial vineyards Ric Bessin
3:00 PM	Harvest indices for commercial wine production Tom Cottrell
4:00 PM	Conclude

Please pre-register by 9 September 2005 by calling Washington County Cooperative Extension Office at (859) 336 – 7741 e-mail: washingt@uky.edu

There is no charge to attend the meeting or for lunch for Kentucky Vineyard Society members and their guests.

Dr. Tom Cottrell, New for Fall of 05!

Enology Extension! 859 257-0037,
tom.cottrell@uky.edu

Personal:

I started at UK 7/1/05. I think I have met or at least seen most of the people with winery licenses in Kentucky. I am delighted with some of the wines! Some of the others may need work. The key piece is that excellent grapes can be grown in some Kentucky locations. I am here to help. With 35 years of winemaking experience, I have seen most of the mistakes, and I want to help avoid them! Call or e-mail when you have a question.

Political:

It is very important to your success to have the ability to choose when to sell through a distributor, and when to change distributors. Now is the time to respond to your winery organizations to help formulate good laws on these issues. Take some time to be heard and to help.

Practical: As harvest approaches:

Measure Brix, TA (Total Acid) and pH if possible. Be prepared to add 35 mg/L (ppm) of SO_2 to pressed white juice.

You can compute this by using the number of gallons times 35 times 0.0077. This gives you the number of grams of potassium Meta bi-sulfite to add to that number of gallons. If the grapes are not really clean, change the 35 to 50. If they are really nasty, hand sort out the rotten bunches.

For Red must, add 54 grams per ton of grapes at the crusher. Use 77 grams if the grapes are not really clean.

Use at least ½ to 1 gram of yeast per gallon at inoculation. For whites, of course, add after a racking, after 12 hours or more settling. For fruity whites, best results will be obtained if the fermentation temperature is between 55 and 60°F. 55° F is best. For red must pour the yeast inoculum in the center of the container, don't stir for a day, then punch down twice daily, making sure the temperature gets up to 85°F or so.

Dr. Kaan Kurtural Hired as University of Kentucky Extension Viticulturist

It's finally official, Dr. Kaan Kurtural, phone: 859-257-1332, e-mail: skkurt2@uky.edu, began work as our Viticulturist in the University of Kentucky Department of Horticulture on August 1. Kaan received his BS degree in Plant and Soil Science from Southern Illinois University at Carbondale in 1997 and his MS from SIU in 2000. He recently completed his PhD at SIU, where his research involved vineyard canopy management, site selection using GIS, plant nutrition, root pruning, and the use of cryoprotectants. His major advisor was initially Dr. Imed Dami, who is currently the Viticulturist at Ohio State University and then Dr. Brad Taylor.

Kaan is a native of Turkey where his family has operated a 120 hectar vineyard for seven generations growing 'Sultana' and 'Carignan' grapes. During his stay at SIU he managed the SIU research vineyard, conducted research in grower vineyards, assisted in organizing and participating in grower workshops, field days and grower conferences. Much of the work that he has done in Illinois has direct application to the rapidly growing grape and wine industry in Kentucky.

NOTE: These Extension Viticulture and Enology Research Specialist positions are new positions in the Department of Horticulture. Both are located in Lexington, KY and are funded by tobacco settlement funds acquired from the Kentucky Agricultural Development Board through a grant submitted by the Kentucky Grape and Wine Council. Kentucky growers are very fortunate to have Dr. Kurtural and Dr. Cottrell.

Appalachian Heirloom Seed Conservancy Second Annual Meeting

October 21-23, 2005

Sustainable Mountain Agriculture Center
Pilot Knob Cemetery Road, Berea, KY.
Contact Brook Elliot, (859) 623-2765, KentuckySeeds@hotmail.com or Roger Postley, (859) 278-4846, RPostley@aol.com

Registration and charges:

Member, pre-registered -- $5.00; at door -- $8.00
Non-member -- $15 all or $10/day
(fees will apply toward membership)
Friday night reception -- no charge
(*appetizers and soft drinks, + 'goodies'; pot-luck contributions encouraged)
Saturday dinner -- $5.00 cook-out (chicken, burgers, brats, salads, +; pot-luck contributions encouraged)
Saturday night 'hang-around' – 'left-overs'…
(pot-luck contributions encouraged)
Sunday luncheon -- $3.00
(cold cut sandwiches, chips, salads, soft drinks, +)

Friday night (Oct. 21) informal get-together (Seed swaps inevitable.) 6:00 PM to ??

Saturday (Oct. 22) "doors open" at 8:00 AM

8:00-10:00	Registration, 'Seed Swap' and SMAC tours
10:00-11:00	"The Regional Library Heirloom Project" -- Julie Maruskin
11:00-12:00	"Multiplying Onions" -- Tom Greenwood
12:00 - 1:30	Free time for lunch; concurrent AHSC Advisory Board meeting
1:30 - 3:30	"The Mechanics of Vegetable Seed Saving" (double session) Merlyn Niedens
3:30 - 4:30	"Marketing Heirlooms – For Producers and Consumers" (concurrent with SMAC tours) Panel moderated by Roger Postley
4:30 - 5:30	Free time - clean up - set up dinner
5:30 - 6:00	State of AHSC by Brook Elliot
6:00 - 7:00	Keynote Address "Heirloom Beans" -- Donna Hudson
7:00 - ??	Dinner (expect to be gloriously stuffed!)
8ish - ??	Informal 'hang-around' (Seed and story swaps are inevitable.)

Sunday (Oct. 23), "doors open" at 8:00 AM

8:00 -10:00	Seed Swap
10:00 -11:00	"The Shaker Seed Industry" -- Deborah Larkin
11:00 -12:00	"Preserving the Heritage Crop" -- Rita Smart
12:00 - 1:00	Lunch break (Lunch or on-your-own)
1:00 - ??	"Heirloom Fruits" John Strang

VINEYARD SITE SELECTION

S. Kaan Kurtural, Extension Specialist for Viticulture
Department of Horticulture, University of Kentucky

Successful viticulture begins with selecting a suitable vineyard site. Therefore, site selection is the most important decision a prospective grower makes when considering grape growing on a commercial scale. The decision as to where to plant the vineyard will affect yields and profitability for the rest of the vineyard life (20 to 40 years). There are three aspects that should be considered when selecting a vineyard site: climate, soils and proximity to crop hazards

Climate

Climate is defined as the prevailing weather of a geographic region. There are three categories of the climate that prospective vineyardists have to consider: macroclimate, mesoclimate and microclimate.

Macroclimate is the climate of a large region measured in many square miles. For example, the lower Midwest region is characterized by a continental climate where temperatures fluctuate on a day-to-day basis. The macroclimate in Kentucky is characterized as humid, and continental with severe winter temperatures and warm summer temperatures. The conditions in these climates are excellent for the growth of annual row crops. Most rainfall occurs in the summer months. However, in some years rainfall is sparse, resulting in drought. The fluctuation of daily temperatures during midwinter is usually more harmful to grapevines than steady cool temperatures.

Minimum winter temperature is the most important factor influencing the distribution of the fruit industry. Occurrences of critical temperatures actually define where perennial fruit crops can be grown. Many of the fruit species were either bred for specific fruit quality factors or have been moved from the climate in which they evolved. Thus, many

domestic forms are not completely adapted to the environment in which they are cultivated. Even in established fruit growing areas, temperatures occasionally reach critical levels and cause significant damage. The moderate hardiness of grapes increases the likelihood for damage since grapes are the most cold-sensitive among temperate fruit crops.

Freezing injury, or winterkill, occurs as a result of permanent parts of the grapevine being damaged by sub-freezing temperatures. This is different from spring freeze damage which kills emerged shoots and flower buds, therefore the crop. Thus, winterkill can be much more costly, as entire plants can be destroyed, not just the crop. Common injuries include winter sunscald, frost-splitting of trunks, death of dormant buds, stem blackening, and death of tissue in twigs, branches and trunks. However, the injuries listed do not occur indiscriminately; many factors of plant hardiness and health determine the probability and extent of such injuries. Levels of damage from minimum temperature exposure have been linked to tissue type; level of plant dormancy and season; fluctuating mid-winter temperatures; and plant size, wood maturity, and variety hardiness. Hardiness is a product of not only the lowest temperatures that a plant can withstand, but also how well the plant acclimatizes to the winter conditions of an area.

The protection of cultivated plants against winter injury may present problems not found in natural environments. Grapes have been subjected to this exact circumstance for hundreds of years, but there exist many cultural practices which have augmented the ability of fruit species to survive outside of their indigenous range. In general, the hardiness of the major temperate fruit crops, from hardiest to most sensitive is best summarized as follows: apple>pear>plum>cherry>peach/grape. This means that most apple and pear cultivars can withstand lower temperatures than can the peach or grape, and possess superior acclimation processes. However, great variation occurs within and among each fruit crop, with native varieties and hybrids being naturally hardier than introduced ones. As an example, cold hardiness of grapevines can be classified as follows: *V. riparia* (hardiest) >*V. labrusca*>'hybrids' (interspecific crosses) >*V. vinifera*>*V. rotundifolia* (most sensitive). The greater hardiness of the hybrids is the main reason they became established in the eastern United States before vinifera.

A prerequisite for understanding minimum temperature occurrence is an understanding of the two main types of freezes: **advective** and **radiative**. Radiative freeze events usually occur during calm, clear weather as the ground cools – by infrared radiation to space after sunset. As the ground heat dissipates into the atmosphere, the ground becomes cooler, and begins to cool the air directly above it. Since the earth, and air, are naturally cooler at higher elevations—a product of the atmospheric lapse rate—they cool more quickly. Cold air is much denser than warm air, and will actually begin to flow in a viscous manner, from high to low areas, when these radiative conditions prevail. The flowing cold air 'fills' lower lying areas, displacing warmer air upwards; thus creating a temperature inversion, where temperature increases with altitude - the inverse of atmospheric lapse.

Advective freezes involve the movement of an entire frontal system of cold air across the landscape. These polar-derived cold air masses tend to be turbulent, and rapidly moving, allowing little or no temperature stratification near the ground. They are also termed 'top-down' freezes because the standard atmospheric lapse rate, or decreasing temperature with increasing altitude, usually holds true. Both types of freezes can produce critical temperatures at any time; however, radiative freezes usually happen in spring and fall, while advective freezes are most prevalent in winter. The frequency of critical temperature occurrence in a given region is the basis for identifying minimum temperature hardiness zones.

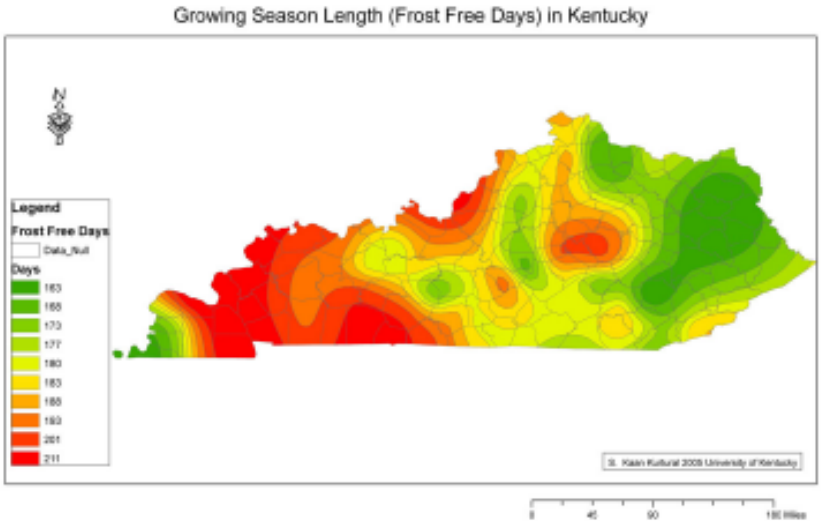

Figure 1. The growing season length (frost free days) in Kentucky. [see the web version for color]

The frequency of specified critical temperatures can be predicted for a proposed vineyard site on the basis of historical temperature data and the proposed site's elevation. The predominance of French-American hybrid acreage in

Kentucky supports the use of -15°F as a critical threshold for predicting significant cold injury. Hybrid cultivars exposed to -15°F may sustain 50% primary-bud injury, and possibly cane, cordon or trunk injury. This threshold is representative of moderately cold-hardy hybrids (e.g. 'Chambourcin', 'Chardonel', 'Seyval blanc', 'Vignoles') that are predominantly grown in Kentucky. However, setting a critical threshold at -15°F would not exclude injury at warmer temperatures since cold hardiness varies with cultivars, acclimation and season.

The *length of the growing season* is another consideration in selecting a suitable vineyard site. The number of frost-free-days (FFD) is between the last spring frost and the first killing fall-frost. Grape varieties have different requirements of growing season length to commercially ripen fruit and harden-off for the upcoming winter. As a general rule of thumb, grapevines require between 150 FFD (early ripening varieties) and 190 or more FFD (late varieties). The frost-free-day means for Kentucky are depicted in Figure 1.

Growing Degree Day (GDD) summation (50°F base) between 1 April and 31 October has been used to predict the vine's ability to mature a high quality crop in the northern hemisphere. Therefore, suitability models must measure heat unit accumulation to ensure sufficient crop maturity. The Amerine and Winkler GDD summation divides the viticultural area into five regions based on the GDD summation. Region I is characterized as accumulating less than 2500°F or fewer GDD, region II accumulating between 2501°F and 3000°F GDD, region III 3001°F to 3500°F GDD, region IV between 3501°F GDD to 4000°F GDD, and region V more than 4000°F GDD. The growing degree day accumulation in Kentucky is depicted in Figure 2.

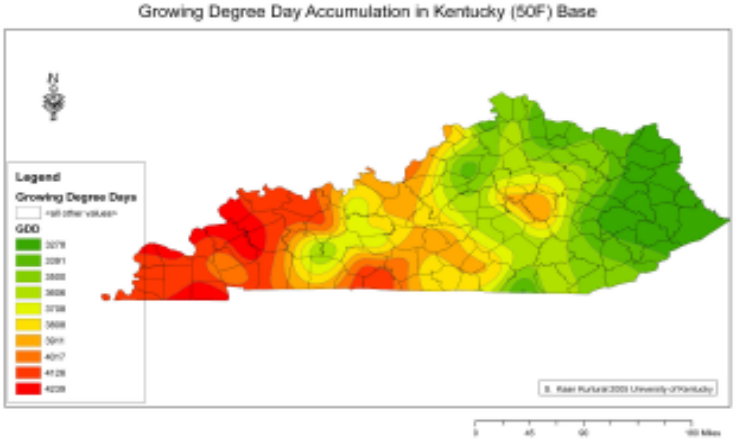

Figure 2. The growing degree day accumulation in Kentucky based on 50°F from April 1 to October 31. [see the web version for color]

Mesoclimate is the climate of the vineyard site affected by its local topography. The topography of a given site including the absolute elevation, slope, aspect and soils will greatly affect the suitability of a proposed site. Mesoclimate is much smaller in area than the macroclimate.

Absolute and relative elevation: The physics of topographic effects on air temperature are well documented and its horticultural significance well appreciated. Under radiative cooling conditions, with calm winds and clear skies, the earth loses heat to space and cools the adjacent layer of air. If the vineyard is on a slope, the cold, relatively dense air moves downhill. The sinking, cold air displaces warmer air to higher elevations producing thermal inversions or thermal belts. Above the warm belts, air temperature again decreases at an average rate of 3.6°F per1000 feet of increase in elevation. The sinking, cold air collects in low-lying areas and will create frost pockets.

A combination of local experience and research was used to help define the upper and lower limits of the desired thermal belt for the mountainous valley regions of Virginia and Illinois. It was estimated that the upper limits of the thermal belt ranged from 1500 feet above sea level in Northern Virginia, to approximately 2000 feet in the southern portion of the state. For a county that ranged in absolute elevation from 200 to 2300 feet the best elevation range was estimated to be 680 to 1500 feet above sea level (asl). In southern Illinois, for counties that ranged in absolute elevation from 300 to 900 feet asl, the best elevation range was determined to be 750 to 900 feet.

The relative elevation of the site is also important and must be considered in tandem with the absolute elevation. Relative elevation refers to the position of a site based on its elevation relative to surrounding sites. Poor relative elevation can reduce the quality of an otherwise good absolute elevation site. Small valleys that are perched in mountainous areas, even though they may fall within the best absolute elevation range may still lie in ponds of cold air drainage. These areas are thus subject to increased frequency of frost and winter injury.

Slope: The slope is the inclination or the declination of the land surface as it varies from the horizontal and is measured as a percentage of elevation change over horizontal distance. Perfectly flat land would have a slope of 0% and vertical cliffs would have a slope of 100%. A slight to moderate slope (5% to 10%) is desirable in vineyard sites as it accelerates the drainage of denser cold air from the vineyard. Cold air is denser than warm air and will drain downhill. Lands sloping greater than 15% are not recommended because it is hazardous to operate equipment on steep slopes and these lands erode readily.

Aspect: The aspect of a slope is the prevailing compass direction which the slope faces. Aspect affects the angle that the sunlight hits the vineyards and thus its total heat balance. Even in warm grape growing regions vineyards should be exposed to direct sunlight at least for a portion of the day. Eastern exposures provide optimal exposure. The early morning exposure hastens onset of photosynthesis and speeds drying of dew on the foliage and fruit. Vineyards with southern and western aspects can warm earlier in the spring, and the vines may undergo budbreak earlier than vineyards with northern slopes. Southern aspects in the northern hemisphere can lead to early deacclimation of grapevines during mid-winter (January – thaw).

Aspect also has an effect on winter temperatures. Johnstone et al. reported that minimum temperatures on northerly slopes in Georgia were 1.0°F to 2.5°F cooler than the corresponding elevations of southerly slopes during freezes with temperature inversions. In the same study, the frost-free growing season was on average about two weeks longer on the slope with the southern aspect than on the corresponding slope with the northern aspect.

Microclimate is the environment within and around the canopy of the grapevine. It is described by the sunlight exposure, air temperature, wind speed and wetness of leaves and clusters.

Soil requirements

Grapevines are grown in a wide range of soil types around the world. Soil affects grapevine productivity and wine quality and it is comprised of many components.

Internal water drainage: The best vineyard soils are those that permit deep and spreading root growth and provide a steady, moderate supply of water. The internal water drainage of vineyard soils is the most important soil physical property and the desirable value is > 50 mm per hour. This property can be modified with tile drainage during site establishment but adds to the cost of the establishment.

Organic matter: Organic matter contributes porosity, structure, nutrients and moisture to the vineyard soils. The organic matter provides a pool of slowly available nitrogen to support vine growth. Organic matter values greater than 3% to 5% may be counter-productive in that excessive nitrogen that is released by organic matter decomposition may lead to excessive vegetative growth. The desired range for vineyard soils is 2% to 3% organic matter.

Texture: The direct effects of soil texture (proportions of sand, silt and clay) on wine quality are poorly defined, but the indirect effects of texture on soil hydrology are more important. Texture affects the water-holding capacity of the soils and internal water drainage. Ideal vineyard sites would have loam, sand loam or sand clay loam textures.

Table 1. Example of grape cultivars recommended for the lower Midwest with color, winter hardiness, expected ripening date and average cluster weight in pounds

Cultivar	Color	Winter hardiness	Days from bloom to harvest	Ripening date	Average cluster weight (lbs)
Cayuga white	White	-15°F to -20°F	100	Midseason	0.33
Chambourcin	Blue	-10°F to -20°F	115	Late	0.42
Chancellor	Blue	-15°F to -25°F	100	Early midseason	0.25
Chardonel	White	-10°F to -20°F	110	Late midseason	0.36
Frontenac	Blue	-20°F to -35°F	100	Late midseason	0.27
GR-7	Red	-15°F to -25°F	100	Midseason	0.31
LaCrescent	White	-20°F to -35°F	105	Late midseason	0.24
LaCrosse	White	-20°F to -35°F	104	Late midseason	0.25
Leon Millot	Blue	-20°F to -35°F	85	Early	0.18
Marechal Foch	Blue	-20°F to -35°F	90	Early	0.20
Norton	Blue	-20°F to -35°F	120	Late	0.18
St. Croix	Blue	-20°F to -35°F	99	Early midseason	0.24
Seyval blanc	White	-15°F to -25°F	100	Early late midseason	0.43
Traminette	White	-10°F to -20°F	110	Late midseason	0.24
Vidal blanc	White	-10°F to -20°F	110	Late midseason	0.34
Vignoles	White	-15°F to -25°F	105	Midseason	0.17

Soil pH: Soil pH can be modified during site preparation with lime or sulfur applications. Soil pH values between 6.0 and 6.8 provide the optimum availability of nutrients in vineyard soils. Soil pH less than 5.0 increases the aluminum solubility within the root zone and precipitates essential micronutrients such as iron out of the soil solution. However, there are grape cultivars that prefer low soil pH <5.5 e.g. 'Concord' and 'Norton'.

Proximity to crop hazards

Elements outside climate and soil requirements must be considered during site selection for vineyards. These include herbicide drift and wildlife.

Growth regulator type herbicides such as 2,4-D are frequently used in row crops, right of ways and golf course. Grapevines are very sensitive to growth regulator type herbicides and serious injury such as stunting during establishment can occur from drift onto the grape leaves. These high risk areas should be avoided during site selection.

Deer depredation affects young and mature vines. It is most devastating in newly established vineyards where foliage is damaged by the deer. Sites close to woodlands are most prone to deer damage. The extent and cost of protection methods depend on the severity of deer depredation.

Birds, particularly wild turkeys, also cause serious crop loss in vineyards by consuming berries when the sugar to acid ratio of the berries reaches palatable levels. Proximity of the vineyards to wooded areas, power lines increases the risk of bird damage.

Summary: Selecting a suitable vineyard site matched to appropriate cultivars is the determining factor for economic success in commercial grape production. Keep in mind that no site is perfect. In selecting a vineyard more emphasis should be placed on climate and topography of the site than on soil characteristics. The ideal vineyard is located in the highest surrounding area with a gentle sloping terrain where critical winter temperatures occur once or twice in a 10 year period and spring and fall frosts are minimum. Soils are deep and well-drained, and soil organic matter percentage is moderate. The vineyard site is not surrounded by woods and far away from drift of growth regulator type herbicides. An example of grape cultivars with various cold hardiness levels and corresponding minimum temperatures at which injury begins in presented in Table 1.

Cherry leaf Spot

by John Hartman
Extension Plant Pathologist

Cherry leaf spot is appearing in backyard cherry trees in Kentucky. Cherry leaf spot can be a serious disease of tart cherries and can cause extensive defoliation. Sweet cherry and wild black cherry are also affected. Cool, moist weather early this spring may have favored early infections. Loss of leaves reduces size and quality of the cherry crop, reduces flower bud set for next year, weakens trees, and increases sensitivity to winter injury. Cherry leaf spot is caused by a fungus called *Blumeriella jaapi*, formerly known as *Coccomyces hiemalis.* Symptoms. Small purple spots 1/8 to 1/4 inch in diameter appear on the leaves. On the under surfaces of the leaves, following heavy dew or rains, a white fungal growth (white spore masses called acervuli) may develop. Affected leaves turn yellow and fall off early in the season, thereby reducing the vigor of the tree. In severe cases, trees may become nearly defoliated by mid-season. In years when the disease is very active, it is not uncommon to see yellow leaves littering a lawn in the summer under a sour cherry or a black cherry tree.

On some species such as plum, the infected spots drop out leaving a shot-hole symptom. Another leaf spot with circular brown lesions larger than those of cherry leaf spot is also currently being seen in the plant disease diagnostic laboratory. This spot, affecting mainly sweet cherry, is thought to be caused by one of the anthracnose fungi.

Disease Managenent. Sprays for control of this disease are usually begun in spring, just after bloom, and are continued regularly until one or two weeks after harvest. Fungicides containing dodine, fenarimol, fenbuconazole, pyraclostrobin + boscalid, tebuconazole or triflumizole are effective in control of this disease. For current fungicide recommendations, consult U.K. publication ID-92, "2005 Commercial Tree Fruit Spray Guide." In small plantings, leaves should be raked up and destroyed to reduce inoculum for the next season.

Avoiding Raspberry Diseases

by John Hartman, Extension Plant Pathologist

Raspberries are a rewarding crop for the backyard garden because it is possible to obtain a harvest of high quality fruit with appropriate management. Good control of diseases can almost always be obtained with proper site selection and timely cultural practices, thus minimizing the need for pesticides. Red and black raspberries are threatened by cane diseases such as anthracnose, spur blight, and cane blight. Both are susceptible to gray mold fruit rot and also to Septoria leaf spot. Black raspberry is susceptible to orange rust, but red raspberries are not. Both types of raspberry are susceptible to Phytophthora root rot and Verticillium wilt.

The following is a checklist of cultural practices that will minimize raspberry disease problems:

- Start with healthy plants from a reputable nursery; virus-free stocks are preferred.
- Choose a well-drained planting site with good air movement and sunlight exposure. If there are doubts about the soil drainage, build a raised bed to minimize Phytophthora root rot disease. Red raspberry cultivars such as Boyne, Killarney, Latham, Newburgh, Nordic, and Prelude are tolerant to resistant to root rot. Fall- bearing cultivars such as Anne, Caroline, and Josephine and black raspberries such as Bristol, Dundee, and Jewel are also resistant.
- To minimize the threat from Verticillium wilt, avoid sites where tomatoes, potato, eggplants, or strawberries have been grown within the last three years. No raspberry cultivars are resistant to Verticillium wilt.
- Selecting fall-fruiting varieties such as Heritage minimizes cane blights and cankers because cane diseases are eliminated when canes are cut and removed in late winter. Leaf spot disease fungi which are harbored on the canes are also removed in this way.
- For summer-bearing raspberries, prune out the old canes just after the last fruit have been harvested in early July, leaving the new canes for next year's fruit production. Otherwise the old canes can be source of infection of the new canes.
- Maintain a row width between 1-2 feet to maximize ventilation and rapid drying. Stake or trellis the rows or plants so that the canes are held upright for better air movement.
- If irrigation is needed, avoid sprinkler irrigation which can spread diseases. Mulch the raspberries to conserve water and minimize disease-favoring foliage wetting.
- Harvest berries promptly to avoid letting berries become overripe. Remove berries with gray mold or other fruit rot diseases from the planting.
- Dig up diseased plants, including roots, and burn or discard them.
- If black raspberries are being grown, destroy nearby stands of wild brambles to minimize the threat of orange rust disease.

EPA Finalizes Guthion (Azinphos-methyl) Ruling for Peaches

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The Environmental Protection Agency recently announced their decision to terminate azinphos-methyl (Guthion, Azinphos-methyl 50WS) use on peaches and nectarine. They have ruled that existing supplies of this chemical can be used on these crops through September 30, 2006. Previously the EPA proposed terminating azinphos-methyl use on peaches and nectarine at the end of 2005. Several people and groups presented comments to the EPA with the intent to extend azinphos-methyl use on peaches and nectarines. However, the Agency does not believe that the comments submitted during the comment period merit any substantial extension of azinphos-methyl use or denial of the requests for voluntary use termination. Therefore, the Agency finds insufficient justification for extending azinphos-methyl use on peaches/nectarines. This means the future of azinphos-methyl has been set. Growers with current labeled product can use azinphos-methyl only through next years growing season. Read more about this ruling in the August 17, 2005 (Volume 70, Number 158) of the Federal Register, at: www.epa.gov/fedrgstr.

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