UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

Lexington KY 40546

# Kentucky Fruit Facts

April/May 2007 (4&5/2007)

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

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## Fruit Crop News

The Easter Freeze has made the 2007 season a very trying one. Most growers have completely lost or lost major portions of this seasons fruit crop. Devastating losses are not confined to just fruit growers, but include wheat, forage, corn, and nursery crop growers. Growers are encouraged to register their perceived crop losses with their local county USDA Farm Service Agency (FSA) so that the extent of Kentucky's losses can be assessed for possible federal legislative disaster aid. The freeze has affected most states in the Midwest from Arkansas and Missouri to Virginia and from southern Michigan to the Carolinas.

A cold event like this over a multiple day period only happens every 100 to 200 years according to Tom Priddy at the UK Agricultural Weather Center. Seasoned growers say that they have not seen a crop loss such as this since 1955.

## Upcoming Meetings

**May 19 -- N. Kentucky Wine Festival**, Campbell County Fairgrounds, Alexandria. For more information, visit the website at http://www.nkywinefestival.com-

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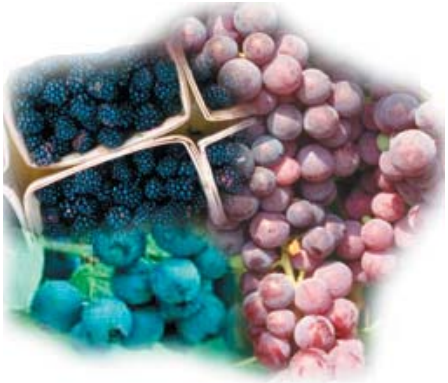

**June 2 -- 32nd Annual Rotary Club Wine and Cheese Tasting**, For the wine novice and enthusiast alike, the Bardstown Rotary Club, in conjunction with the American Heart Association will feature Award Winning Kentucky wines on the lawn of historic Spalding Hall from 6:30-9:00 PM. For more information, call 502-348-4877 or 800-638-4877 or visit the website at http://www.visitbardstown.com

**Jun. 3-4 -- National Value Added Agricultural Conference**, Embassy Suites Hotel, Lexington. Contact Jennifer Hunter 859-257-7272 X 246, e-mail: jhunter@uky.edu. For an agenda see: http://www.uky.edu/Ag/AgEcon/vaac/welcome.html

**Jun. 7 -- Fruit Grower Meeting**, Evans Orchard and Cider Mill, 180 Stone Rd, Georgetown, 40324. Contact Mark Reese 502-863-0984 or John Strang 859-257-5685.

**Jul. 7 -- Viticultural Field Day**, University of Kentucky Horticultural Research Farm, Lexington. 10:00 a.m. - 5:00 p.m. Registration $25 for KVS members; $50 non KVS members, includes lunch and KVS wine glass. Contact Kate Edwards 859-527-6635.

**Jul. 14 -- Kentucky Nut Growers Association Summer Grafting Meeting**, Don Compton's Farm, 387 W. Short St, Marengo, IN 47140; 812-365-2278.

**Jul. 26 -- All Commodities Field Day**, UK Research and Education Center, Princeton. Contact Joe Masabni 270-365-7541 X 247; e-mail jmasabni@uky.edu for information on the fruit and vegetable tours.

**Oct. 27 -- Kentucky Nut Growers Association Fall Meeting**, UK Research and Education Center, Princeton. Contact Joe Masabni 270-365-7541 X 247; e-mail jmasabni@uky.edu

**Jan. 7-8, 2008 -- Kentucky Fruit and Vegetable Conference**, Embassy Suites, Lexington, KY. Contact John Strang 859-257-5685; e-mail: jstrang@uky.edu

## Fruit Grower Meeting - Thursday, June 7

Evans Orchard and Cider Mill
180 Stone Road, Georgetown, KY 40324
Kevan and Sue Evans, owners
502-863-2255 market/ 502-867-3044 Kevan's cell

**Directions:**

From Lexington take Newtown Pike (Rt. 922) north 8 miles from I-75/I-64. Turn right on Stone road at the Evans Orchard and Cider Mill sign. The orchard entrance is just past Kevans' house about one block on the left.

I-75 from the south take Georgetown exit 125 and turn right onto Rt. 460. Travel about 3 miles east on 460 and turn right onto Rt. 922. Proceed 0.8 miles to Stone Rd. and turn left at the Evans Orchard sign and proceed as described above.

I-75 from the north take Georgetown exit 126 and turn right off the exit ramp. Follow signs to Rt. 460 through a commercial area. Turn left onto Rt. 460 at the light (don't get on the bypass), travel about 3 miles east to Rt. 922, turn right and proceed as described above.

**Program:**

All times EDT

| | |
|---|---|
| 10:00 am | Registration |
| 10:15 | Tour of Evans Orchard and Cider Mill<br>- Kevan Evans |
| 10:45 | Fruit Disease Control Where There is A Crop<br>- John Hartman |
| 11:05 | Fruit Freeze Update & Summer Pruning for Growth Control<br>- John Strang |
| 11:35 | Fruit Pricing for 2007 - Jim Mansfield |
| 12:00 | Lunch |

Lunch will be available at cost (in the $7.00 range) for those that preregister.

**Preregister for lunch** by calling Mary Ann Kelley at 270/365-7541 Ext. 216 between 8:00 a.m. and 4:30 p.m. CDT weekdays by Wednesday June 6 and give her a count for the Fruit Grower Meeting at Evans Orchard and Cider Mill.

| | |
|---|---|
| 1:00 p.m. | Apple Rootstock Trials at the UKREC<br>- Dwight Wolfe |
| 1:30 | Cold Storage and Equipment Maintenance<br>- George Duncan |
| 1:45 | Apple Grower Round Table Discussion<br>- Maurice Fegenbush, moderator |
| 2:30 | Adjourn |

## Effects of the Easter Freeze on Fruit Crops

*by John Strang, Kaan Kurtural, and Joe Masabni, U.K. Extension Horticulturists*

The Easter freeze, which extended over 5 nights from April 5th to the 9th was a particularly difficult freeze for Kentucky fruit growers. Temperatures during the two weeks preceding the freeze often reached 80˚F and advanced floral developmental stages two to two and a half weeks ahead of normal. These temperatures also made the new growth particularly tender. Kentucky as well as a good portion of the midwest experienced a series of advective freezes, when a cold polar air mass moved into the area with considerable wind. It is very difficult to try and protect flowers from this type of freeze, because there is no inversion. Heat will not stay in the orchard if supplied and overhead sprinkling is worthless, because of excessive evaporative cooling from the wind. Some matted row strawberry growers raked the straw mulch back over their plants and achieved fairly good protection and some plasticulture strawberry growers covered plants with a floating row cover and sprinkled over the row cover affording excellent protection.

Temperatures dropped below the critical temperatures for 90% kill (Table 1) for the floral stages of development often on two and sometimes on three nights. Not only did the temperature drop below the critical temperatures, but it stayed down there for six to eight hours on some nights increasing injury. The injury was also increased by the wind which accelerated the freezing rate.

Average projected crop losses across the state are shown in Table 2. Losses varied, across the state, because floral development in western and southern Kentucky was a week or more ahead of Lexington and

Lexington was about a week more advanced than northern Kentucky. Additionally, a few areas like Owensboro were slightly warmer than other areas of the state. Pollination weather following the freeze has generally been good.

Apple injury varied by variety from100 % crop loss to essentially no crop loss on a few varieties, because some varieties bloom later than others and some varieties had a wide range of floral developmental stages on the tree at one time. Growers report that varieties that had better levels of survival were Pink Lady, Arkansas Black, Enterprise, Golden Delicious, Gala, Jonathan, Grimes Golden and Lodi. Frost marking and ringing is liable to be serious on surviving fruit. Some growers have reported very serious fire blight infections, even on more resistant varieties like Red Delicious.

Pear injury was very serious and essentially 100% of the crop was lost on European and Asian pears. Asian pears also sustained serious wood damage on smaller caliber twigs and shoots.

Peaches, plums, cherries and pawpaws sustained a 100 % crop loss. The exception is a full peach crop on a few varieties in the Owensboro area. There is very little variation in bloom time between blooms on the same tree and between varieties with these crops.

Blackberries sustained serious crop losses, however there are a few blooms on thornless varieties. Thornless varieties show some wood injury and we will need to see if the plants can support the few remaining flowers. With serious winter injury blackberry canes can collapse and die when the weather gets hot and the plant can not move enough water to support new growth.

Raspberries appear to have come through the freeze with little or no injury to the crop. Fall bearing varieties have had the new shoots arising from the ground killed, but these will regenerate and produce a full crop, although it may be a little later than normal.

The blueberry crop was particularly hard hit, considering that this is one of our most consistent producing crops from year to year. Early maturing varieties such as Duke also bloom earlier and like many other varieties lost their entire crop. In our variety trial in Lexington there are very few berries and some experimental Rabbiteye and Southern highbush blueberries had their leaves killed and sustained serious wood injury and tip dieback. On the other hand the exceptionally late maturing and blooming Elliot and Aurora varieties have a full crop. A few growers in the Henderson area and in northern Kentucky had very good flower bud survival due to warmer temperatures and slow floral development respectively.

We are projecting an average of about a 50 % crop loss on matted row strawberries. Most of the primary berries were killed. These are the largest berries and represent about 30 % of the crop yield. Additionally, many of the secondary flowers were also killed. Thus, expect berry size to be on the small side this season. Later maturing strawberry varieties also bloom later and these varieties should show less injury. Grape losses are reported in the following article by Dr. Kurtural.

Persian walnuts are showing serious wood injury. Some pecans are fine, while others have lost their crops and have wood injury. We are waiting to see how the other nut crops have fared.

**Table 1**. Low temperatures (˚F) recorded across the state at Kentucky weather stations from the western to the eastern portions of the state for designated evening dates. Note: orchard temperatures in rural areas are often a degree or two colder than these.

| Station | Th. Apr. 5 | Fri. Apr. 6 | Sa. Apr. 7 | Su. Apr.8 | Mo. Apr. 9 |
|---|---|---|---|---|---|
| Mayfield | 30 | 26 | **22**[1] | **24** | 28 |
| Paducah | 33 | 30 | **23** | **23** | 30 |
| Princeton | 30 | 28 | **22** | **22** | 27 |
| Henderson | 31 | 28 | **22** | **22** | 27 |
| Hardinsburg | 28 | 26 | **24** | 27 | 30 |
| Bowling Green | 30 | 27 | **24** | 28 | 42 |
| Glasgow | 28 | **24** | **19** | **22** | 26 |
| Campbellsville | 29 | **24** | **20** | **22** | 27 |
| Bardstown | 28 | **24** | **20** | **22** | **25** |
| Louisville | 28 | **25** | **24** | **24** | 27 |
| Somerset | 30 | 26 | **20** | **21** | 26 |
| Berea | 32 | 27 | **22** | **25** | 28 |
| Lexington | 28 | **24** | **22** | **24** | 27 |
| Spindletop | 27 | **23** | **22** | **24** | 26 |
| Williamstown | 28 | **24** | **24** | 26 | 28 |
| Covington | 27 | **24** | 26 | 28 | 28 |
| Grayson | 30 | 26 | **24** | 28 | 30 |
| Huntington | 30 | 26 | **24** | 28 | 30 |
| London | 30 | 26 | **20** | **21** | 26 |
| Jackson | 28 | **24** | **21** | **25** | 30 |
| Quicksand | 30 | 26 | **22** | **24** | 28 |
| Cumberland Gap | 30 | 26 | **22** | **24** | 28 |

[1]Bolded temperatures are generally below the 90% kill level for tree fruit crops.

Table 2. Projected Fruit and Nut Crop Losses from The Easter Freeze.

| Crop | Projected Crop Loss (%) | Projected Crop Loss Range (%) |
|---|---|---|
| Apples | 90 % | 60 - 100 % |
| Pears | 100 % | |
| Peaches | 98 % | 0-100 % (one grower has a crop on 2 peach varieties in Owensboro) |
| Plums | 100 % | |
| Cherries | 100 % | |
| Pawpaws | 100 % | |
| Grapes | 60 % ? | 0-100% |
| Blackberries | 90 % ? | |
| Raspberries | 0 % | |
| Blueberries | 90 % | Varies by variety and area of state |
| Strawberries (matted row) | 50 % | 25 - 75 % |
| Pecans | 85 % ? | West end of state hurt more |
| Hickories | 60 % ? | |
| Black Walnuts | ? | Depends on if variety was leafed out |
| Persian Walnuts | 100% | There is serious wood injury |
| Chestnuts | ? | |

? It is still very difficult to assess damage on some crops, because of variety differences, flower buds that are not visible yet and wood injury, growth vigor, and pollination effectiveness that are not readily assessable at this time.

## Easter Freeze Update for Grape Growers

*By S. Kaan Kurtural, UK Extension Viticulturist*

Extensive damage was observed on grapevines due to the above normal temperatures in March followed by four night of damaging low temperatures during the Easter weekend (Figures 1 and 2.) All cultivars, regardless of heritage suffered damage. However, the extent of damage varied with vineyard location, cultivar phenology, species and the level of canopy management applied by the vineyard owner.

Vineyards in northern Kentucky faired considerably better in terms of primary bud damage compared to central Kentucky vineyards as the vines in northern Kentucky were not as advanced in phenology and were still mostly dormant. Vineyards in western Kentucky faired the best mainly due to the cultivar heritage since French-American hybrids have the highest cropping potential due to fertile secondary and latent buds. Vineyards in the central portion of the state, where majority of the acreage is, suffered the most losses as some vines had as many as four leaves unfolded and shoots longer than eight inches. Across the state the late ripening vinifera varieties were the last to break bud so visual damage to the vines was minimal even 2 weeks after the freeze event. However, due to the sap flow already in the conductive tissues damage is expected irrespective of cultivars, but especially in the cultivars of vinifera. It is still difficult to estimate the extent of the damage and crop loss and put a dollar figure on it at this point.

What can growers do?

- Pruning for producing vineyards: With the expected cane and trunk damage, practice minimum pruning. Leave three times the amount of buds. The nature of the grapevine is to heal damaged permanent structures by generating leaf area this spring. It will be difficult to control and manage canopies with this many shoots in 2007 but growers have to ensure fruitful bud production and retention for 2008.
- Pruning for vineyards in the 2nd leaf: Being the eternal pessimist I would plan for the worst and skip suckering the vines in the 2nd leaf. Leave suckers at the base of the vines for trunk renewal.
- Fertilizing for producing vineyards: Adhere to the lowest recommendations if any for nitrogen application in producing vineyards if your vineyard suffered damage. Keep in mind that any vineyard nitrogen applications must be completed by two weeks after fruit set.
- Fertilizing for vineyards in the 2nd leaf: Since majority of these vineyards will behave much like newly set vines in this year, do not exceed 6 ounce of 20-20-20 fertilizer after >80% of the shoots have > 12” to 14” of shoot growth.

• Watering: If you do not receive enough rain this summer you will need to water both producing and newly set or vines in the 2nd leaf. Keep in mind that shoots that look healthy now have the propensity to fail due to the freeze damage to the canes and the trunks.

• Pest control

• *Fungal diseases:* DO NOT skip any fungicide applications in this year. Late season diseases such as downy mildew and powdery mildew prematurely defoliates grapevines and predisposes them to winter injury. Visit HortFact 3110 to calculate how many gallons of water per acre you need to apply to your vineyard based on your row spacing.

• *Insect pests:* DO NOT skip insecticides for leaf phase phylloxera, Japanese beetles and grape root borer in this year. They need to be managed aggressively regardless of the age of the vineyard.

Figure 1. Bud break from basal and latent buds in response to damaging temperatures in Cabernet Sauvignon in central Kentucky.

Figure 2. Damaged cordon in response to the damaging temperatures during Easter weekend in northern Kentucky

## Insecticide and Calcium Program for 2007 If The Crop is Lost

*by Ric Bessin, UK Extension Entomologist and John Strang, UK Extension Horticulturist*

There are a few insects that don't mind that there isn't a crop and these should be of prime concern this season. There is a tendency to forget about spraying the orchard if there isn't a crop, but there are several insect pests that can seriously affect next years crop. Japanese beetles can be a problem in just about all of our fruit crops. If these build up and cause serious defoliation, control will be necessary.

In apples, San Jose scale is a pest at the top of the must be controlled list. It is important to keep up with the development of this pest and keep the numbers down. Crawlers are normally controlled during the latter part of May in Kentucky. Another pest that can affect next years crop is the wooly apple aphid. Watch for the white snowy signs of this pest on the limbs and don't let it build up in the orchard.

If an apple block has a light crop and is receiving a full season spray program, try to include calcium chloride in as many cover sprays as possible. Trees with a light crop undergo very vigorous growth and available plant calcium is mobilized to the shoot tips. This leads to fruit calcium deficiency and serious cork spot and bitter pit problems.

Peach trees should also be watched for San Jose scale development and controls applied. Peach tree borers find a tree without a crop just as enticing as one with a crop. Make sure that peach tree and lesser peach tree borer sprays are applied at the appropriate times. This might be a good year to get controls up into the upper portion of the tree for lesser peach tree borer, since there won't be crop residue problems. Even without fruit, Oriental fruit moth will attack terminal growth and cause dieback on peaches. This can be a serious problem on smaller trees. Growers should treat at 75 to 175 DD (base 45) after peak flight.

Plum trees should also have peach tree borer controls applied..

On blackberries and raspberries, check the crowns for raspberry crown borer. Treat crowns in late fall or early spring if the population warrants this.

## Fungicide Program If the Crop is Lost

*by John Hartman Extension Plant Pathologist; Ric Bessin UK Extension Entomologist; and John Strang, Extension Horticulturist*

In March, abnormally warm temperatures induced Kentucky tree fruits and small fruits to break dormancy, to begin blooming and to develop green shoots and leaves. An historic and sudden outbreak of cold weather at the end of the first week of April exposed these vulnerable plant tissues to killing and damaging temperatures. The most obvious effect was a near total loss of the fruit crop in many orchards and vineyards. This has led some growers to ask if it should be necessary to incur the costs of spraying their orchards and vineyards this year.

Apples. Spray for apple scab, especially early in the season to prevent primary infections so that fewer sprays will be needed later on. Unsprayed apples and flowering crabapples are showing scab symptoms with leaf spots actively producing spores in the olive-colored velvety-textured area of the lesions. These lesions may be developing from the scab infection period that occurred on April 14 or 15.

Additional apple scab lesions should be appearing as a result of the extremely favorable scab infection weather in most areas of the state on May 3, 4, 5, & 6. In the days leading up to Derby weekend, some areas may have experienced as much as 50 hours of continuous leaf wetness.

Weather forecasts suggest that more scab-favorable weather may occur in the coming days. With so much inoculum available, growers will want to continue their apple scab management program.

Also, prevent cedar-apple rust which will still pose a threat for the next few weeks. The reddish-orange spots are appearing now on unsprayed susceptible apple leaves. On cedar galls, production of spores for new infections of nearby apples should be coming to an end. A fungicide containing mancozeb (Dithane, Penncozeb, and others) might be the treatment of choice because it is effective for both diseases and the long pre-harvest interval (77 days) may not be a concern this year. Be aware that unsprayed crabapples near the orchard could be a source of secondary scab. Note, that dry weather conditions unfavorable for scab could still be favorable for powdery mildew. For suggestions of fungicide use, consult the UK Cooperative Extension Publication ID-92 "2007 Commercial Tree Fruit Spray Guide."

Fire blight symptoms on pears and flowering pears are occurring statewide. Primary infections likely occurred on April 3, blossom blight symptoms began to appear about April 25, and now shoot blight symptoms are widespread. Weather is favorable for fire blight and still-elongating susceptible shoots are still available, so expect this disease to continue.

Peaches and other stone fruits. Most of the sprays normally applied for stone fruits are for management of fruit diseases. Thus, with no fruit crop, fungicide sprays may not be needed this season. Growers fighting plum black knot and peach perennial canker may need to utilize sprays as needed, though the time is probably past for best management of these diseases. In stone fruits, injured cambium in the trunk and branches is more likely than in apples. If there is sufficient winter injury, expect bark splitting and additional canker-causing microbes to attack these trees.

Strawberries. As flowering continues, healthy flowers (those with yellow as opposed to black centers) will need fungicide applications during bloom for botrytis fruit rot management.

Blackberries and raspberries. Hopefully, most growers applied liquid lime-sulfur to manage anthracnose while the canes were still dormant. Additional fungicide treatments should not be needed this season. How much winter damage occurred in the woody canes remains to be seen.

Blueberries. Fungicide sprays for blueberry fruit diseases will not be needed this growing season, especially if there is little or no crop. Winter damage to the stems and branches is possible and would increase the incidence of stem canker, anthracnose, and twig blight diseases which cause twig and branch dieback. Fungicide applied through the season for these stem diseases might be useful. See the "Midwest Commercial Small Fruit and Grape Spray Guide 2007" for suggested fungicides.

All fruit crops with woody stems, branches and vines. If temperatures were low enough and if plant growth was sufficiently advanced, injury to bark, cambium, and wood are likely. This can be observed by cutting into the twigs or stems and looking for browning of the inner bark and outer wood. The amount of browning can vary a lot and it is difficult to know how much browning results in killing of the twig or stem. If there are sufficient surviving cells, plants can regenerate and replace the killed cells from those that are still living. Some plants that appear winter injured now will grow out of it while others may survive but take years to recover, if at all. Some severely damaged plants may grow for a few weeks or months until it gets hot and dry and then collapse. Young plants are the most likely to be damaged.

## Care of Dormant Grapevines for Planting

*By S. Kaan Kurtural, UK Extension Viticulturist*

Dormant grapevines are shipped from nurseries beginning on 15 April. Whether you are replanting or setting out new grapevines here are a couple of tips. The proper way to store dormant grapevines is to keep them in controlled temperature storage at 35˚F and at 50% relative humidity. Once you receive the dormant grapevines go over the order and make sure you received what you ordered. If you are not going to plant the vines right away make sure the grapevines are moist and wrapped in plastic to keep the roots and the buds hydrated. You need to monitor the temperature of the storage unit weekly. If you are using storage space such as coolers at apple packing houses etc., make sure there are no ripening fruits with your dormant grapevines. You can plant dormant grapevines at any time the soil will allow. However, you need to plant the grapevines after all danger of frost has passed. Before planting you need to soak the grapevines. You can put them in a bucket of water for at least an hour before you plant and keep them soaked during planting. You need to water the vines in, as soon as you plant them and keep them watered throughout the season if you do not receive sufficient rain.

## Wine Grape Contracting

*By Tim Woods, UK Extension Agricultural Economist*

Kentucky and the surrounding states continue to see rapidly expanding interest in wineries and wine grape production. Wineries in the 12 states between Arkansas and Pennsylvania have grown from 69 in 1993 to 572 in 2006. This number continues to grow at a rapid pace. Many new wineries are coming on line and many existing wineries are expanding. Indeed, 40% of the wineries surveyed in this area in 2006 indicated they were planning major capital improvements to expand capacity. Fifty out of 78 (64%) projected immediate production increases.

Wine grapes, of course, take some time to mature and yield adequate volumes to meet the crushing needs of these wineries. While many of the new wineries are relatively small and focusing on local distribution, the collective market demand is substantial. The growth in wineries leads to keen competition for wine grapes, especially the hybrid and vinifera varieties that tend to be in shorter supply.

Many of these smaller wineries are vertically integrated, attempting to grow most of their own grapes. This survey, however, indicated about 65% of the wineries are involved in some degree of contracting and 40% of them are scanning the market to supplement their supply by spot market purchases. To no ones' surprise, grape prices have moved higher since the 2003 price survey, and substantially higher for the difficult-to-grow vinifera varieties (up 12-23%). Late freezing Spring weather conditions this year will likely drive supply much tighter and prices much higher in this region for the near future.

The limits on supply limit the extent to which many of these wineries can expand, even when they sense strong demand from their retail wine customers. Many of these wineries strive to provide a broad scope of wine types, and they are often unable to grow all the varieties they need for this inventory themselves.

All of these factors (growing number of wineries, slow growing wine grape supplies, and demand for additional varieties) are leading to a stronger interest among the wineries to secure wine grape supplies through contracts. This presents a good opportunity for growers to secure their market relationships through contracts with selected wineries.

Most contracts in the major wine growing regions emphasize grape quality (minimum brix levels, disease issues, etc.). While these physical attributes are important, grape growers and wineries in the Mid-South should also consider delivery contingencies in the contract. The delivery terms of the contract should be clear and agreed upon by both parties. What are the grower's obligations in the case of a freeze or destruction by pests? As with any legal document, it is important to get a review by legal counsel. A contract generally binds parties to an agreement they hope will benefit each party. The difficulty is always with processing the unfavorable production outcomes.

Sample contracts for new growers or new wineries will soon be available through the New Crop Opportunities Center: http://www.uky.edu/Ag/NewCrops/ or through Tom Cottrell or Tim Woods. Growers may be able to approach some of the more established wineries to examine different contracts they use, as well.

# Grape Herbicide Costs

*by Joe Masabni, UK Extension Horticulturist, adapted from University of Illinois*

## Relative Costs of Herbicides Labeled For Use in Grapes

University of Illinois Extension

| *Trade Name* | *Common Name* | *Product Rate/Acre** | *Unit price** (approximate)* | *Cost/Acre**** |
|---|---|---|---|---|
| **Preemergence-Bearing** | | | | |
| **Annual grasses and small-seeded broadleaves** | | | | |
| Devrinol 50DF | napropamide | 8 lbs | $10.00/lb | $80.00 |
| Karmex 80DF | diuron | 2-6 lbs | $4.50/lb | $9.00-$27.00 |
| Princep 4L | simazine | 2-4.8 qts | $19.00/gal | $9.50-$22.80 |
| Surflan 4AS | oryzalin | 2-6 qts | $96.00/gal | $48.00-$144.00 |
| Solicam 80DF | norflurazon | 2.5-5 lbs | $19.50/lb | $48.75-$97.50 |
| Treflan 4EC | trifluralin | 1-4 pints | $30.50/gal | $3.80-$15.25 |
| **Annual broadleaves and grasses** | | | | |
| Chateau 51 WDG | flumioxazin | 6-12 oz | $84.64/lb | $31.74-$63.48 |
| **Annual and perennial grasses and broadleaves** | | | | |
| Casoron 4G | dichlobenil | 100-150 lbs | $2.25/lb | $225.00-$337.50 |
| Kerb 50WP (RUP) | pronamide | 2-8 lbs | $39.50/lb | $79.00-$316.00 |
| **Annual broadleaves, especially winter annuals** | | | | |
| Goal 2XL | oxyfluorfen | 2-8 pts | $103.50/gal | $25.75-$103.5 |
| **Postemergent-Bearing** | | | | |
| **Most annual weeds and top kill of perennial weeds** | | | | |
| Gramoxone Extra 2.5L (RUP) | paraquat | 2-3 pts | $46.00/gal | $11.50-$17.25 |
| **Most annual and perennial grasses** | | | | |
| Poast 1.5EC | sethoxydim | 1.5-2.5 pts | $82.00/gal | $15.50-$25.75 |
| **Most annual and some perennial grasses and broadleaves** | | | | |
| Rely 1L | glufosinate | 3-6 qt | $79.00/gal | $59.25-$118.50 |
| **Annuals and some perennial grasses and broadleaves** | | | | |
| Generic Glyphosate | glyphosate | 8 oz-5 qts | $35.00/gal | $2.25-$43.75 |
| Roundup Weathermax | glyphosate | 11 oz-3.3 qts | $68.00/gal | $5.75-$56.00 |
| Touchdown 5EC | glyphosate | 12 oz-5 qts | $36.50/gal | $3.50-$45.75 |

*see label for specific rate (rate will vary depending on crop age, soil texture, length of control desired, and weed to be controlled)

**prices are for comparison only, and are not intended as a tool to negotiate prices

***assumes a broadcast rate for full acre application, adjust for band application

# Relative Costs of Herbicides Labeled For Use in Grapes

University of Illinois Extension

| *Trade Name* | *Common Name* | *Product Rate/Acre** | *Unit price** (approximate)* | *Cost/Acre**** |
|---|---|---|---|---|
| **Preemergence Non-Bearing Grapes** | | | | |
| | **Annual grasses and small-seed broadleaves** | | | |
| Prowl 4EC | pendimethalin | 2-4 qt | $23.50/gal | $11.75-$23.50 |
| | **Annual grasses and broadleaves** | | | |
| Snapshot 2.5TG | isoxaben + trifluralin | 100-200 lb | $1.75/lb | $175.00-$350.00 |
| | **Most broadleaves** | | | |
| Gallery | isoxaben | 0.66-1.33 lb | $136.5/lb | $90.25-$226.59 |
| **Postemergent Non-Bearing Grapes** | | | | |
| | **Annual and perennial grasses and broadleaves** | | | |
| Kerb 50 WP (RUP) | pronamide | 2-8 lbs | $39.50/lb | $79.00-$316.00 |
| | **Most annual and perennial grasses (postemergent only)** | | | |
| Fusilade DX 2EC | fluazifop | 1-1.5 pt | $168.50/gal | $42.25-$63.25 |
| Select 2EC | clethodim | 6-8 fl oz | $217.75/gal | $10.25-$13.75 |

*see label for specific rate (rate will vary depending on crop age, soil texture, length of control desired, and weed to be controlled)
**prices are for comparison only, and are not intended as a tool to negotiate prices
***assumes a broadcast rate for full acre application, adjust for band application

## New and Revised Publications now available

The following publications are now available through your County Extension Office or from the web.

· HO-85 Honeyvine Milkweed Control in Tree Fruits, Small Fruits, and Grapes (new -web only) http://www.ca.uky.edu/agc/pubs/ho/ho85/ho85.pdf

· ID-163 Agricultural Lime Recommendations Based on Lime Quality (new) http://www.ca.uky.edu/agc/pubs/id/id163/id163.pdf

· HO-82 Rootstocks for Kentucky Fruit Trees (revised) http://www.ca.uky.edu/agc/pubs/ho/ho82/ho82.pdf

· ID-119 Ornamental Gourd Production in Kentucky (revised) http://www.ca.uky.edu/agc/pubs/id/id119/id119.pdf

## Blueberry Oat Bars

Combine 1 3/4 C. oats (uncooked quick or old fashioned), 1 1/2 C. flour, 3/4 C. firmly packed brown sugar, 1/2 C. chopped nuts and 1/2 tsp. baking soda.
Add 3/4 C. melted margarine mixing until crumbly. Reserve 3/4 C. mixture; press remaining onto bottom of greased 11" x 7 " baking dish.
Bake 10 minutes in preheated 350˚ oven.
Combine 2 C. fresh or thawed blueberries, 1/2 to 3/4 C. sugar and 2 Tbsp. water. Bring to a boil; simmer 2 min., stirring occasionally.
Combine 1 Tbsp. water, 2 Tbsp. cornstarch and 2 tsp. lemon juice; mix well. Gradually stir in blueberry mixture; cook and stir about 30 seconds or until thickened. Spread over partially baked base to within 1/4" of edge; sprinkle with reserved oat mixture.
Bake at 350˚ F for 18-20 min. or until topping is golden brown. Cool; cut into bars.

## Receiving Fruit Facts Electronically on the Internet

Fruit Facts is available on the web in the pdf format. To get notification of the monthly Fruit Facts posting automatically and approximately two weeks earlier than it would normally be received via mail, you can subscribe to the UK College of Agricultures's Majordomo list processor.

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Extension Fruit & Vegetable Specialist

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