

Kentucky Fruit Facts

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Fruit Crop News

John Strang, U.K. Extension Horticulturist, Matt Dixon and Tom Priddy, U.K. Ag Meteorologists

Heat units necessary for fruit crop development have accumulated very rapidly as reported in last month's Fruit Facts and our fruit crops continue to develop well ahead of schedule. Figure 1 shows Lexington heat unit accumulations expressed as Growing Degree Days for 2017 in comparison with a number of previous years. As of March 27, plant development is running about a month earlier than normal.

The week of freezing weather ending the morning of March 16 caused freeze damage on a few of our fruit crops. Figure 2 shows the Kentucky NWS lowest temperatures experienced between March 15 and 17. Some sites at lower elevations were somewhat colder than those shown here.

Peach flower injury appeared to be less than what would be expected based on the charts found in the "Disease and Insect Control Programs for Homegrown Fruit in Kentucky (ID-21)" publication at <http://www2.ca.uky.edu/agcomm/pubs/id/id21/id21.pdf> Keep in mind that peaches only need about 10% of their flowers to survive to produce a full crop. Injury to peach buds and flowers was quite variable across the state. At the UKREC in Princeton 'Redhaven' peach had 36% live flowers and at the Horticulture Research Farm in Lexington an older

'Madison' tree which was in pink had 82% live buds, while the 'Coralstar' tree in my backyard located in a frost pocket did not have any live buds. Growers in Owensboro and Bowling Green report that they still have full crops of peaches, while those in Somerset and Paris report freeze outs on peaches. Peach buds in the northern portion of Kentucky were still mostly in the pink stage and avoided injury.

Matted row strawberry growers should be fine as the flower buds were not visible in the crowns at the time of the freezes. However many plasticulture strawberry growers had plants in bloom. Growers that covered plants with 2-3 floating row cover layers and in some cases ran drip irrigation beneath the row covers, covered plants with straw and then pulled the row covers over the plants are finding live flower buds. It is still a little too early to evaluate flower survival because, many flowers are very small and down in the crowns.

Highbush blueberry growers that have varieties with expanding flower buds may find a very few damaged flowers, but most should not find any damage. Southern highbush blueberry growers that are growing varieties such as Oneal and Star that have expanded flower buds have lost the crop in the southern part of the state.

Grape growers are seeing little or no injury. Plants that are in a weakened condition, particularly young plants or those infected with crown gall may have pushed buds a little early and could have some injury.

Apples, pears, tart cherries, blackberries and raspberries are not showing any damage.

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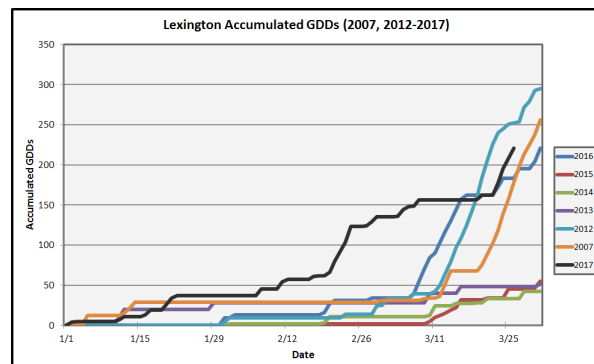


Figure 1 - GDD Graph

Low Temperatures Across Kentucky

March 15, 2017

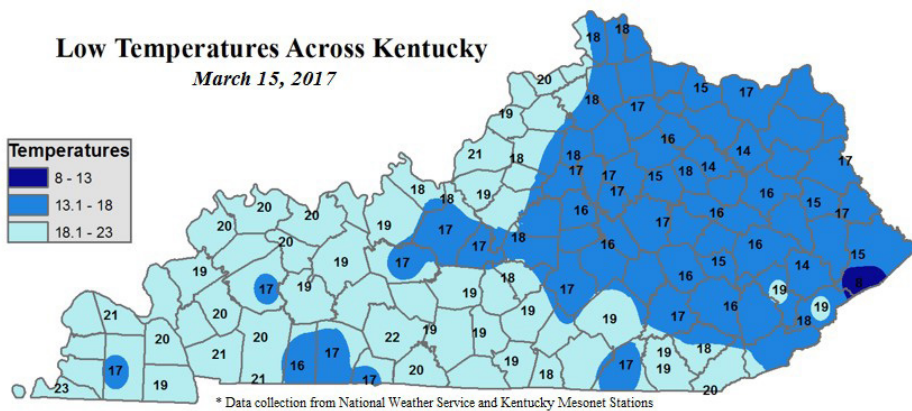
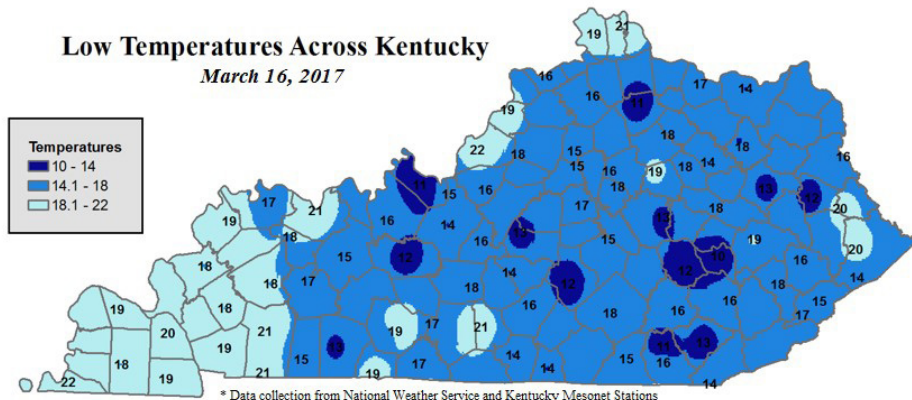


Figure 2.
Kentucky
extreme low
temperatures
for March
15-16, 2017

Low Temperatures Across Kentucky

March 16, 2017



Mar. 30 Fruit Tree Grafting Workshop – Harrison County Extension Office, 668 New Lair Rd., Cynthiana, KY 41031. 6:00 p.m. Contact: 859-234-5510.

Mar. 30 Fruit Tree Grafting Workshop – Daviess County Extension Office, 4800 New Hartford Rd # A, Owensboro, KY 42303 1:00 and 6:00 p.m. CT. Contact: 270-685-8480.

Mar. 31 Plasticulture Strawberry Growers Meeting – Christian County Extension Office, 2850 Pembrok Rd., Hopkinsville, KY 42240. 6:30 p.m. CT., Contact: 270-886-6328.

Apr. 3 Fruit Tree Pruning and Grafting Workshop – Mason County Extension Office, 800 U.S. 68, Maysville, KY 41056. 4:00 p.m. Pruning; 6:00 p.m. Grafting. Contact: 606-564-6808.

Apr. 10 Pruning and Thinning Fruit Trees – Bullitt County Extension Office, 384 Halls Lane, Shepherdsville, KY 40165. 6:00 p.m. Call to preregister, there is no charge. 502-543-2257.

Apr. 11 Berry Production – Lee County Extension Office, 257 Industrial Park Rd., Beattyville, KY 41311. Time to be determined. Contact: 606-464-2757.

Apr. 24 Grafting Fruit Trees – Bullitt County Extension Office, 384 Halls Lane, Shepherdsville, KY 40165. 6:00 p.m. Call to preregister, there is no charge 502-543-2257.

Apr 29 Kentucky Nut Growers Association Spring Meeting – Harden County Extension Office, 201 Peterson Dr., Elizabethtown, KY 42701. Contact: Danny Ganno Phone: 270-860-8362 or Email: danganno@yahoo.com

May 2 Orchard Spray Technology Workshop – University of Kentucky Horticultural Research Farm, 4321 Emmert Farm Lane, Lexington, KY 40514. Dr. Andrew Landers from Cornell University will conduct a day long training improving pesticide application profitability for tree fruit growers. Registration information follows. Contact: Nicole Gauthie 859-218-0720



Orchard Spray Technology Workshop

May 2 at the UK Horticultural Research Farm in Lexington.

Our guest trainer is Dr. Andrew Landers, an expert in spray technology from Cornell University. Details can be found at <https://effectivespraying.com/>. Participants will receive a copy of Effective Orchard Spraying as the workshop manual.

This workshop will be focused on tree fruit, but all Kentucky fruit growers are welcome to attend. This is a full day workshop that includes morning classroom sessions and afternoon field demonstrations.

We are offering this workshop at no charge, thanks to

sponsors from the UK IPM Fruit Working Group and the Kentucky State Horticultural Society. Please remember to thank members for this opportunity.

A small fee will be collected at the door to cover a catered box lunch.

Please note, this workshop is limited to 30 participants. Others will be placed on a waiting list. Thus, we appreciate any cancellations as soon as possible so that we can better serve growers who are on the waiting list.

Use the link below to register.

Meeting Registration

Registration for Effective Orchard Spraying - May 2, 2017, UK South Farm, Lexington KY

FILL OUT FORM

(Click on link, for problems, contact Nicole Gauthier at 859-218-0720)

2016 Fungicide Costs per Acre**

By Dr. Nicole Gauthier, UK Extension Plant Pathologist, and Kimberly Leonberger, UK Extension Associate

Table 1 - Blueberry

Fungicide	Unit	Average Price	Rate Berry low	Rate Berry high	Price Per Application Berry low	Price Per Application Berry high
Abound	oz	2.32	6.20	15.40	14.38	35.73
Agri-Fos	qt	7.75	1.25	2.50	9.68	19.36
Aliette	lb	15.13	2.50	5.00	37.83	75.65
Bravo WeatherStik	oz	0.34	48.00	64.00	16.44	21.92
Bumper 41.8 EC	oz	1.06	4.00	6.00	4.24	6.36
Cabrio EG	oz	2.48	14.00		34.76	
Captan	lb	7.28	2.50	6.00	18.21	43.71
CaptEstate 68 WDG	lb	15.88	3.50	5.25	55.58	83.37
Champ	pt	5.24	1.33	4.67	6.98	24.43
Cuprofix ultra 40 D	lb	4.68	1.25	4.00	5.84	12.00
Elevate 50 WDG	lb	46.27	1.00	1.50	46.27	69.40
Flint	oz	14.40	2.00	3.20	28.81	46.09
Indar	oz	2.27	6.00		13.62	
Kocide 2000 Protech	lb	7.27	1.50	6.00	10.91	43.62
Kocide 3000	lb	10.22	0.75	3.50	7.67	35.78
Nevado 4F	pt	7.25	1.50	2.00	10.88	14.50
Orbit	oz	3.63	4.00	6.00	14.52	21.78
Pristine	oz	3.28	18.50	23.00	60.62	75.36
Procure 480 SC	oz	3.90	4.00	8.00	15.60	31.20
ProPhyt	pt	4.60	2.00	4.00	9.20	18.40
PropiMax	oz	2.83	6.00		16.98	

Blueberries cont.

Fungicide	Unit	Average Price	Rate Berry low	Rate Berry high	Price Per Application Berry low	Price Per Application Berry high
Quadris Top	oz	3.20	12.00	14.00	38.40	44.80
Quintec	oz	3.57	4.00	6.00	14.27	21.41
Rally 40 WSP	oz	4.11	1.25	5.00	5.14	20.55
Rampart / Agri-Fos	qt	8.50	1.00	3.00	8.50	25.50
Ridomil Gold Copper	pk	83.74	0.40		33.49	
Ridomil Gold SL	pt	111.04	1.00	3.60	111.04	399.76
Rovral	pt	21.18	1.00	2.00	21.18	42.36
Scala	oz	3.85	9.00	18.00	34.68	69.36
Serenade Max	lb	13.75	1.00	3.00	13.75	41.25
Switch	oz	5.49	11.00	14.00	60.38	76.85
Thiram Protector L	lb	8.05	4.40		35.42	
Topsin M WSB	lb	13.20	0.75	1.00	9.90	13.20
Ziram	lb	4.61	3.00		13.83	

Table 2 - Strawberry

Fungicide	FRAC	Average Price Per	Unit	Rate Per Average low	Rate Per Average high	Price Per Application low	Price Per Application high
Abound	11	1.63	oz	6.2	15.4	10.10	25.09
Cabrio	11	2.51	oz	14.0		35.18	
Captan 50WP	M	5.13	lb	4.0	6.0	20.50	30.76
Captevate	17 + M	12.62	lb	3.5	5.3	44.17	66.25
Elevate	17	41.75	lb	1.5		62.63	
Fontelis	7	1.79	oz	16.0	24.0	28.70	43.05
Merivon	7+11	6.71	oz	4.0	8.0	26.84	53.67
Pristine	7+11	3.58	oz	18.5	23.0	66.29	82.42
Procure 480 SC	3	4.11	oz	4.0	8.0	16.44	32.88
Quadris Top	3+11	1.93	oz	12.0	14.0	23.21	27.08
Quilt Xcel	3+11	1.16	oz	14.0		16.23	
Quintec	13	3.61	oz	4.0	6.0	14.43	21.65
Rally 40 WSP	3	3.33	oz	2.5	5.0	8.31	16.63
Scala	9	2.88	oz	18.0		51.89	
Switch	9+12	5.13	oz	11.0	14.0	56.38	71.75

Strawberry cont.

Fungicide	FRAC	Average Price Per	Unit	Rate Per Average low	Rate Per Average high	Price Per Application low	Price Per Application high
Topsin M WSB	1	10.50	lb	0.8	1.0	7.88	10.50
Torino	U6	7.31	oz	3.4		24.84	

**Product rates are for cost example purposes, only. Refer to label for approved crop, rate, and time of application

Generics: Bravo (Equus, Chlorothalonil); Topsin M (T-Methyl, Thiophanate Methyl); Ridomil (Metastar); Rally (Sonoma); Aliette (Legion)

Table 3 - Blackberries & Raspberries

Fungicide	FRAC	Average Price Per	Unit	Rate Per Average low	Rate Per Average high	Price Per Application low	Price Per Application high
Abound	11	2.32	oz	6.2	15.4	14.4	35.73
Agri-Fos	33	7.75	qt	1.25	2.5	9.7	19.36
Aliette	33	15.13	lb	2.5	5.0	37.8	75.65
Bravo WeatherStik	M	0.34	oz	48	64.0	16.4	21.92
Bumper 41.8 EC	3	1.06	oz	4	6.0	4.2	6.36
Cabrio EG	11	2.48	oz	14	0.0	34.8	0.00
Captan	M	7.28	lb	2.5	6.0	18.2	43.71
CaptEvate 68 WDG	17 + M	15.88	lb	3.5	5.3	55.6	83.37
Champ	M	5.24	pt	1.333	4.7	7.0	24.43
Cuprofix ultra 40 D	M	4.68	pt	1.25	4.0	5.8	12.00
Elevate 50 WDG	17	46.27	lb	1	1.5	46.3	69.40
Flint	11	14.40	oz	2	3.2	28.8	46.09
Indar	3	2.27	oz	6	0.0	13.6	0.00
Kocide 2000 Protech	M	7.27	lb	1.5	6.0	10.9	43.62
Kocide 3000	M	10.22	lb	0.75	3.5	7.7	35.78
Nevado 4F	2	7.25	pt	1.5	2.0	10.9	14.50
Orbit	3	3.63	oz	4	6.0	14.5	21.78
Pristine	7 + 11	3.28	oz	18.5	23.0	60.6	75.36
Procure 480 SC	3	3.90	oz	4	8.0	15.6	31.20
ProPhyt	33	4.60	pt	2	4.0	9.2	18.40
PropiMax	3	2.83	oz	6		17.0	
Quadris Top	3 + 11	3.20	oz	12	14.0	38.4	44.80

Blackberries & Raspberries cont.

Fungicide	FRAC	Average Price Per	Unit	Rate Per Average low	Rate Per Average high	Price Per Application low	Price Per Application high
Quintec	13	3.57	oz	4	6.0	14.3	21.41
Rally 40 WSP	3	4.11	oz	1.25	5.0	5.1	20.55
Rampart / Agri-Fos	33	8.50	qt	1	3.0	8.5	25.50
Ridomil Gold Cop- per	4 + M	83.74	pk	0.4		33.5	
Ridomil Gold SL	4	111.04	pt	1	3.6	111.0	399.76
Rovral	2	21.18	pt	1	2.0	21.2	42.36
Scala	9	3.85	oz	9	18.0	34.7	69.36
Serenade Max	F6	13.75	lb	1	3.0	13.8	41.25
Switch	9	5.49	oz	11	14.0	60.4	76.85
Thiram Protector L	M	8.05	lb	4.4		35.4	
Topsin M WSB	1	13.20	lb	0.75	1.0	9.9	13.20
Ziram	M	4.61	lb	3		13.8	

****Product rates are for cost example purposes, only. Refer to label for approved crop, rate, and time of application**

Generics: Bravo (Equus, Chlorothalonil); Topsin M (T-Methyl, Thiophanate Methyl); Ridomil (Metastar); Rally (Sonoma); Aliette (Legion)

Outcomes of the March 2017 Freeze at the UKREC Research Orchard, Princeton, KY

Daniel Becker, UK Extension Associate, and Dwight Wolfe, UK Research Specialist

Kentucky experienced a prolonged advective freeze during the nights of March 12-16th wherein temperatures in the low teens and low 20's were common across much of the state. In the months prior to this event, the state experienced above average warmth and 3-10 times greater accrual of growing degree days (GDD base 45°F) compared with the prior 10 years, resulting in a roughly 30 day advance of the normal season.

A large variation in floral development among fruit species and cultivars was observed on March 6 at the UKREC research orchard. The apple cultivar 'Fuji' generally exhibited the least growth, having a visual estimation of 20% dormant, 50% silver tip, 20% green tip, and 10% half-inch green buds, respectively. Peach cultivars had a wider

range of development states. 'Crimson Lady' displayed more advanced maturity with a majority of flowers in the pink (50%) and bloom stages (30%), while 'Redhaven' was somewhat more delayed with a majority in the pink (50%) and half-inch green (30%) stages.

As the 20 and 17.5°F lows on March 16th and 17th (Kentucky Mesonet) in Princeton exceeded the 25°F LT(10%) but not the 15°F LT(90%) for peach flowers at the pink stage, it is possible that a substantial loss occurred. Similarly, apples in the half-inch green stage have an Lethal Temperature (LT) (10 and 90%) of 23 and 15°F, respectively. However, any loss of apple blooms is likely not as dramatic as for peaches considering their less advanced development state overall, leading to the expectation of normal yields for the 2017 harvest season, and barring any further damage.

On March 16, flower bearing shoots were collected from 'Redhaven' and 'Crimson Lady', peach trees at the UKREC orchard, Princeton, KY. Flowers were categorized

as non-viable (dead) and viable (alive) along with the percentage of each. The average number of viable flowers per shoot inch and the projected percentage of full crop was then calculated (Table 4).

Significant differences were observed in floral viability between the cultivars ‘Redhaven’ and ‘Crimson Lady’. Thirty-six percent of the ‘Redhaven’ flowers were deemed viable while less than three percent of those from ‘Crimson Lady’ survived. Despite the loss sustained by ‘Redhaven’, a crop greater than 2.5 times that of a full is still possible. Barring any additional fruit damage, this would require further thinning to prevent over-cropping. In contrast, ‘Crimson Lady’ with roughly 3% viability and 1/10 potential yield is expected to sustain a total crop loss for 2017.

Advanced floral development during the freeze episode inevitably contributed to the near complete mortality of ‘Crimson Lady’ while the more delayed growth of ‘Redhaven’ resulted in greater viability. ‘Redhaven’ is described as requiring 950 chill hours while ‘Crimson Lady’ is portrayed as needing 650 chill hours. Evidently, the greater chilling needed by ‘Redhaven’ in this situation served as a safeguard against crop loss. Cultivars with similarly high or higher requirements, trialed previously in Kentucky and suggested for commercial production include Contender (1,050), Coralstar (950), Cresthaven (850-950), Encore (850-950), Harrow Diamond (950), and White Lady (850-950).

Table 4 - March 18, 2017 peach flower viability assessment following extended freeze events on the 12-17th at the UKREC research orchard.

Cultivar	Non-viable		Viable				
	Total	%	Total	%	# per inch of shoot	% of full crop	# of flowers per shoot
Redhaven	16.5 a	63.9 b	9.8 a	36.1 a	0.33 a	267.3 a	26.3 a
Crimson Lady	10.9 b	97.1 a	0.4 b	2.9 b	0.01 b	11.2 b	11.3 b
Significance ^Δ	**	***	***	***	***	***	***

^ΔNS, *, **, *** Non-significant or significant at P ≤ 0.05, 0.01, or 0.001, respectively, based on Duncan’s multiple range test. Means within columns followed by different lowercase letters are significant at P ≤ 0.05.

Do You Need to Spray for Fire Blight?

Asian pears are blooming in Kentucky and European pear and apple bloom will follow shortly. Streptomycin sprays during bloom are one of the two primary ways that growers have to reduce fire blight infections. Applying this bactericide just before fire blight infections occur minimizes the number of sprays and maximizes the effectiveness of streptomycin. The Fire Blight Disease Prediction Model will tell Kentucky apple and pear growers when they need to spray for fire blight when it is run during the bloom period.

To get started go to http://www.wagwx.ca.uky.edu/plant_disease.html Click on the Fire Blight model for either apples or pears on the left hand side of the screen. Select your county and the current date and click the circle under Fire Blight History indicating that fire blight occurred in your neighborhood last year. Then click the Submit Choices box. On March 29 the model shows that there is little chance of infection on Asian pear trees in Fayette and Caldwell counties for the next week based on the current weather forecast, but Adair county growers had better get the streptomycin on today before the rain tomorrow.

FRUIT HUMOR

What Do You Get When Strawberries Cross the Road?



Receiving Fruit Facts on the Internet

By subscribing to the email notification service you will receive an email announcement when each new issue is posted on the web with a link.

To subscribe, send an email message:

TO: listserv@lsv.uky.edu
SUBJECT: Fruit Facts
MESSAGE: subscribe KY-FRUITFACTS
Followed by a blank line

OR to unsubscribe, the lines:
signoff KY-FRUITFACTS
Followed by a blank line

You should receive confirmation by return email. If you have a problem, or if you wish to communicate with a person about "fruitfacts", the owner's address (the TO: line of the message) is: owner-ky-fruit-facts@lsv.uky.edu