Kentucky Fruit Facts

August Newsletter 2020
http://www.uky.edu/hort/documents-list-fruit-facts

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Inside this Issue:

Note: We have ceased publishing Fruit Facts as a hard copy or mailed newsletter. If you would like to continue receiving Fruit Facts, please sign up for email delivery as described at the end of this newsletter or contact your County Extension Office to have them print a copy for you.

Fruit Crop News

John Strang, U.K. Extension Horticulturist, Daniel Becker, Extension Associate, and Matt Dixon, U.K. Ag Meteorologist

This summer's challenges continue for fruit growers. Our masthead photo shows a limb with a number of small peaches in which the seeds were killed during this spring's freezes in addition to a few peaches that survived and sized up. Unfortunately, there were not enough good peaches on the tree to justify a normal spray schedule. July was especially dry for many growers across the state and local mid-summer showers have been particularly welcome. On the bright side farmer to consumer sales and prices have been very good based on random communications with growers.

In talking with Jonathan Price, KSHS President, Jackson's Orchard, Bowling Green, Ky recently he noted that early peaches had been slightly late in maturing. However, now apples and peaches appear to be maturing at about the normal time.

Figure 1 shows an apple shoot with Potato leafhopper damage. Potato leafhopper injury has been particularly severe this season and Ric Bessin indicates that they are still hanging around. Note the wedge-shaped chlorosis extending in from the leaf margins, and occasional dead leaf tips referred to as "hopper burn". In some cases, leaf size is reduced and there is a downward curling of the damaged leaves. Adult leafhoppers (Figure 2) do not over winter in Kentucky and migrate up from the south every year. Figure 3 shows damage from white apple leafhoppers. Leafhoppers are a little more of a challenge to control, because the insects migrate in and out of the orchard making it difficult to get them all with one spray. See the Midwest Fruit Pest Management Guide for insecticide control recommendations. https://ag.purdue.edu/hla/Hort/Pages/sfg_sprayguide.aspx

Several of us have recently completed a long overdue update of our Fruit and Nut Cultivar Nursery Sources. It may be found at https://www.uky.edu/hort/sites/www.uky.edu.hort/files/documents/HortFact_3002_2020.pdf

Looking forward, after a wet weekend, conditions look to turn dry and cool next week. Normal highs for the Lexington area run in the middle 80s for the second half of August, while average lows are in the middle 60s. Look for temperatures to run slightly

below these norms next week. Outlooks through the end of the month suggest this cooler and somewhat drier pattern sticking around. Looking farther out, the three-month outlook for August through October suggest higher odds for above normal temperatures and normal precipitation.

Figure 1. Potato leafhopper damage on apple

Figure 2. Potato leafhopper adult, courtesy Lee Townsend, UK Entomology

Figure 3. White apple leafhopper damage on apple

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Upcoming Meetings & Deadlines

Many meetings have been cancelled due to COVID-19

All times EST unless noted

Sept. 14 Early Apple Tasting, Bullitt County Extension Office, 384 Halls Lane, Shepherdsville, KY 40165. 6:00 p.m. Contact 502-543-2257.

Oct. 19 Late Apple Tasting, Bullitt County Extension Office, 384 Halls Lane, Shepherdsville, KY 40165. 6:00 p.m. Contact 502-543-2257.

Nov. 12, Grower-Buyer MeetUps(tentative), virtual, N.E. Region Boyd County**,** Contact Cindy Finneseth 859-490-0889, info@kyhortcouncil.org

Jan. 4-5, 2021 Kentucky Fruit and Vegetable Conference, This, will be a virtual conference. Contact Cindy Finneseth 859-490-0889, info@kyhortcouncil.org

Feb. 2021 Direct Marketing Summit, This will be a virtual meeting. Contact Cindy Finneseth 859-490-0889, info@kyhortcouncil.org

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KY Fruit & Vegetable Conference Seeks Presentation Proposals

From the Kentucky Horticulture Council

The 2021 Kentucky Fruit & Vegetable Conference Planning Committee is seeking proposals for educational presentations. We welcome ideas for mini-sessions (20 minutes total; 15 minutes speaking and 5 minutes for Q&A). We are especially interested in presentations from local growers.

Session topics should be highly focused for produce growers in Kentucky. Topics can address production methods, research results, business management strategies, and best practices. Specific content requests from the 2020 Conference survey include: variety trials, crop rotation, processing, postharvest handling, growing in high tunnels, urban farming, strategies for marketing, and soil health.

This event historically has an attendance of 500 participants including growers, exhibitors, speakers, organizational representatives, and governmental agencies, with more than 70 educational sessions, grower roundtables, a trade show, and a Kentucky

wine tasting. In 2021, due to the uncertainty around in-person meetings, we are planning for a virtual conference to be spread over four Tuesdays in January. The full agenda with registration details will be published in late October.

We encourage you to consider submitting a proposal to share your knowledge, passion, and innovation with others or suggest speakers you'd like to hear! Submit proposals at https://www.surveymonkey.com/r/2021FruitVegConfProposalCall or info@kyhortcouncil.org.

Deadline to submit proposals is September 15th, 2020. Presentation date and time will be confirmed with speakers by October 15th, 2020.

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Nectarines at UKREC, Princeton, KY

By Dwight Wolfe, Horticulture Research Specialist

Nectarines are fuzz less peaches that resulted from a peach mutation. We have two trees of five nectarine cultivars from John Clark's University of Arkansas breeding program at Clarksville, Arkansas, in a peach and nectarine planting at UKREC, Princeton, KY. Trees were planted in 2015 at a spacing of 16 X 20 feet. All five nectarine cultivars are cling types (i.e., the flesh doesn't separate from the pit easily). We found all of them to be sweet and to have good flavor, and to be virtually free of any bacterial spot on any of the fruit. As part of the spray program trees were sprayed with Mycoshield 17 W in mid-April for bacterial spot control. Dr. Clark's breeding program is highly focused on bacterial spot and leaf infections were very minimal. More specific descriptions of flavor and bacterial spot resistance are listed in Table 1. Westbrook has particularly intense red color over the whole fruit, but it and Arrington tended to be smaller than the other nectarine cultivars (Figure 4). However, both are early ripening cultivars and as with other early ripening cultivars need to be thinned early to attain maximum size. Yield and fruit size are not reported because of severe bird and raccoon fruit losses. Further information regarding these nectarines can be found in the September-October 2018 Fruit Facts Newsletter.

Table 1: Descriptions of Five Nectarine Cultivars at UKREC, Princeton, KY

Cultivar[1]	Date of 50% bloom in 2020	Date of harvest In 2020[2]	Flesh color/ texture	Firmness at maturity	Flavor[3]	Bacterial spot Resistance[3]
Westbrook	Mar 19	June 17	Yellow / melting	Moderately firm	very good for early season	Resistant—no signs of disease
Arrington	Mar 17	June 25	Yellow / melting	Firm	very good, mild nectarine flavor	Moderately resistant—disease seldom on fruit
Bradley	Mar 17	July 2	Yellow / melting	Firm	good with some processing peach type-related flavor	Moderately resistant—disease seldom on fruit
Bowden	Mar 17	July 2	White / non-melting	Very firm	excellent white nectarine flavor with standard acid & sweet	Moderately resistant—disease seldom on fruit
Amoore Sweet	Mar 16	July 2	Yellow / non-melting	Very firm	very sweet, unique low-acid flavor, mango-like	Moderately resistant—disease seldom on fruit

1 Arranged in order of ripening
2 Due to to bird and raccoon damage, these dates may be a few days premature to when fruit was fully ripe.
3 Sources of descriptions are listed below.
https://www.uaex.edu/farm-ranch/crops-commercial-horticulture/docs/Westbrook.pdf
https://www.uaex.edu/farm-ranch/crops-commercial-horticulture/docs/Arrington.pdf
https://www.uaex.edu/farm-ranch/crops-commercial-horticulture/docs/Bradley.pdf
https://www.uaex.edu/farm-ranch/crops-commercial-horticulture/docs/Bowden.pdf
https://www.uaex.edu/farm-ranch/crops-commercial-horticulture/docs/Amoore.pdf

Figure 4. Five nectarine cultivars located at UKREC, Princeton, KY. Note intense red color of Westbrook nectarine that covered the entire fruit. Photos of Westbrook and Arrington were taken June 17 and June 25, respectively. Photo sizes were adjusted so that the quarters in each of the photos are all the same diameter. The fruits of Westbrook and Arrington tended to be smaller than those of Bradley, Bowden, and Amoore Sweet. Photos by Ginny Travis.

Experiences using PGR's to Promote Lateral Branching of Sweet Cherries

By Daniel Becker, Fruit and Vegetable Extension Associate

Sweet cherries develop lateral branches with greater difficulty than either apples or pears. Techniques like notching, scoring, and bud removal are often ineffective and do not achieve the desired shoot density when used alone. Applications of branch promoting plant growth regulators (PGR's) are used, but can have inconsistent results depending on cultivar, tree age and growth stage. Here at the UKREC in Princeton we have had both successes and failures promoting lateral branching on sweet cherries. The trees are part of a small trial to observe the adaptability and survival of a few of the newer dwarfing rootstocks to Kentucky growing conditions; namely, the humid climate and poorly drained clay soils common in much of the state.

On 20 April 2017, Cytokin® (Miller Chemical & Fertilizer, LLC.), was applied using a backpack sprayer at a rate of 0.5 fl. oz./2 gal. of water when a majority of buds were in the bud burst and popcorn growth stage (Figure 5). Trees on Gisela 3 and 5 rootstocks, planted in 2015, were in their second leaf, while trees on Krymsk 6 and 7, planted in 2016, were in their first leaf. Trees responded favorably and large numbers of laterals developed, requiring shoot thinning in May to establish an 8-10-inch density necessary for the UFO training system (Figures 6 and 7). Tying to the first trellis wire by hand began in June, using green Tapener® tape (Figures 8). Though, some shoots had not reached the first wire at this time added support was necessary to avoid breakage. Cherry shoots are brittle and only loosely held in their sockets, making them more susceptible to wind damage. Black T-bands were used to secure larger, more lignified shoots from July onward (Figure 9).

Trees were sprayed again the following year on 15 April 2018 using the same methods. Bud growth was slightly delayed, though, not appreciably different. Far fewer new shoots developed post-application, especially for trees on the more dwarfing Gisela 3 and 5 (≈30 and 50% of standard) rootstocks (Figure 10). The trees were in their third leaf and the bark had thickened, creating a barrier to PGR adsorption. Both rootstocks are also noted for decreasing branching on scion cultivars, a likely compounding factor for reduced response.. In contrast, trees on more vigorous Krymsk 6 and 7 (≈60 and 80% of standard) rootstocks responded favorably and had mostly filled their lower canopy with uprights by the end of the year (Figure 11). Greater shoot development was expected because they are only in their second leaf and had not yet formed an effective barrier to penetration of the PGR.

Older trees and those on very dwarfing rootstocks require greater effort to alter their development. Interrupting the movement of plant hormones along with increasing the penetration of applied PGR's are primary factors in inducing lateral branching. In early spring 2019, we intend to employ additional bud activation techniques to fill in any remaining canopy gaps. Selected buds where shoots are desired will have a hacksaw notch above them to remove a thin layer of bark. An application of white latex paint mixed with 7,500 ppm of MaxCel® (PGR) will then cover the wound. This method dramatically improved both the number and length of lateral shoots in a Washington State University study. We will time this application for mid-April, around terminal bud-swell but before bud break.

Notching and then painting with a PGR-latex paint mixture in 2019 was effective in inducing lateral branching and filling canopy gaps. Combining bud activation techniques is a viable procedure, especially for older trees that are less responsive to either PGR's or mechanical wounding to create barriers to hormone movement. For more information see Hort Fact—3011 at https://www.uky.edu/hort/sites/www.uky.edu.hort/files/documents/HortFact3011.pdf

Figure 5. Bud burst-popcorn stages when Cytokinin® was applied.

Figure 6. Large number of laterals developed on cordon prior to shoot thinning.

Figure 7. Large number of laterals developed on cordon prior to shoot thinning.

Figure 8. Shoots as they reached the first trellis wire prior to tying.

Figure 9. Shoots secured to wire with black T-bands

Figure 10. Less shoot development following PGR treatment on Gisela 3 and 5 rootstocks.

Figure 11. Enhanced shoot development on more vigorous Krymsk 6 and 7 rootstocks

Amid COVID challenges, farmers markets, produce auctions see higher prices

By Brett Wolff, Center for Crop Diversification

Like all agricultural businesses operating in the midst of the challenges posed by the 2020 COVID-19 pandemic, Kentucky farmers markets and produce auctions have had to make some adaptations to comply with social distancing and other recommendations and mandates. Both market types typically involve large crowds, and business as usual has been a challenge. Auctions have countered with expanded order buying, drive through auction formats similar to the Dutch flower auctions, and even exploring added delivery services from the auction. Farmers markets and their vendors have expanded pre-ordering, curbside options, and various adaptations to allow for effective social distancing.

Despite some of the challenges, and the shifting market landscape (including decreases in restaurant and farm-to-school purchasing), auctions are generally seeing considerably higher prices and overall sales volume in 2020 so far. Most of the auctions operating in Kentucky report their prices, which are then posted to the UK Center for Crop Diversification website. Farmers market sales are more difficult to track, but anecdotal evidence suggests higher than usual sales and prices for many products. Vendors seem to be selling out sooner, doing more sales ahead of market, and in some cases receiving higher prices for their products.

To the right you'll find a comparison of prices in 2020 as compared to previous benchmark prices for three representative crops (tomatoes, strawberries, and green beans) sold at Kentucky farmers markets (Table 4) and through the two largest auctions in Kentucky (Tables 2 and 3). Note that the reference prices and the units vary between the two market channels.

For farmers markets, the higher prices for most products may reflect increased demand or decreased supply due to later-than-usual frosts and cold weather. Typically, farmers market prices don't change considerably between seasons, so this price change is noteworthy.

In the case of the auctions, these considerably higher prices for almost all commodities have off-set a slight dip in the number of units sold, but have resulted in overall much higher total sales. This may be attributable to an overall increased interest in local product or an increase in the number of small buyers looking for extra income through roadside resale stands. One major potential challenge in the second half of 2020 is the possible impacts of the on-going pandemic on fall agritourism operations. These businesses buy large volumes of the pumpkins and fall décor items sold at produce auctions.

While auction prices are determined at the time of sale based on buyer interest, farmers market prices are set by vendors themselves. As always, the recommendation is to base pricing on a good understanding of operational costs as well as a survey of what a given market channel typically brings for a product.

Table 2: Fairview Produce Auction Monthly Average Prices

		2020	2019	% Difference
Tomatoes	April	$3.14	$3.07	2.3%
(per lb)	May	$2.76	$1.84	50.0%
	June	$1.92	$1.10	74.5%
Straw-berries	April	$3.54	$2.53	39.9%
(per pt)	May	$2.60	$1.74	49.4%
	June	$2.62	$1.92	36.5%
Green Beans	May	$47.28	$50.88	-7.1%
(per bushel)	June	$41.22	$30.27	36.2%

Table 3: Lincoln County Produce Auction Monthly Average Prices

		2020	2019	% Difference
Tomatoes	May	$2.52	$1.66	51.8%
(per lb)	June	$2.16	$1.47	46.9%
Straw-berries	April	$2.46	ND	-
(per pt)	May	$2.55	$2.07	23.2%
	June	$1.92	$2.05	-6.3%
Green Beans	May	ND	$40.75	-
(per bushel)	June	$70.65	$38.32	84.4%

Table 4: KY Farmers Market Monthly Average Prices				
		2020	**2016-2018 Avg. Price**	**% Difference**
Tomatoes	May	$3.00	$2.54	18.1%
(per lb)	June	$3.14	$2.57	22.2%
	July	$2.93	$2.45	19.6%
Straw-berries	April	$7.50	$4.38	71.4%
(per qt)	May	$7.28	$4.88	49.2%
	June	$6.19	$5.14	20.4%
Green Beans	May	$3.00	$2.80	7.1%
(per lb)	June	$2.83	$2.83	0.0%
	July	$3.33	$2.73	22.0%

The Food Connection develops KY Seasonal Eating Resource Hub

From The Food Connection at the University of Kentucky

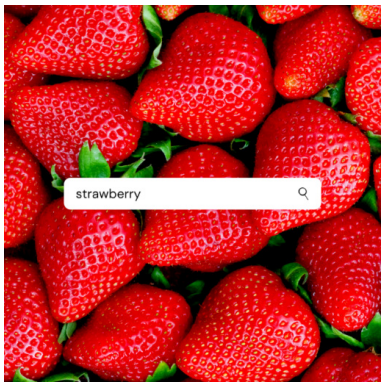
To have a healthy and vibrant local food economy, we need a community of eaters who are comfortable and confident bringing seasonal foods into their home kitchens. To support our Kentucky farmers during the growing season, Chef Tanya Whitehouse and The Food Connection team are happy to provide this Seasonal Eating Resource Hub. Our aim is to provide 'plug-and-play' recipes, images, and text for farmers market vendors, CSA managers, and other local food community members looking for ways to share simple, fun, and accessible ideas for how to make the most of the harvest.

For each of the vegetables, fruit, and other local foods listed, you'll find:

- Recipes that are accessible for those new to cooking, kid-friendly, and ingredient-focused
- Making the Most of Local Food graphic cards for your social media or newsletters that provide tips for produce storage, fun facts, and innovative applications.
- Cooking videos to improve knife work and other skills as well as full length recipe demonstration

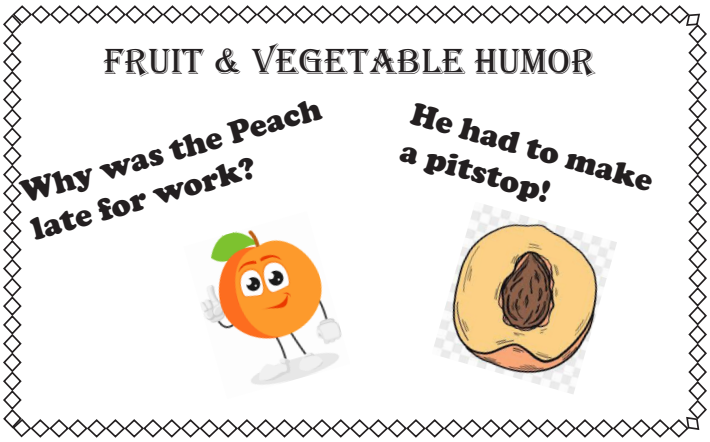
How can I use these digital products?

You are welcome and encouraged to download photos and square cards for use on your own social media channels. You may also want to embed these resources in newsletters, emails, or other communications with your audiences. Video clips are shareable from YouTube. Sharing is caring! Please consider attributing these materials to The Food Connection at the University of Kentucky. Connect with us on Facebook, Instagram, and Twitter. To make sure everyone has the same opportunity to get this information, consider using alt text, captioning, or writing out the tip when posting social media graphics with text overlay. These small changes make this information more accessible.



See "KY Seasonal Eating Resource Hub" article.
https://foodconnection.ca.uky.edu/seasonalhub

- Social Media Graphics with Strawberry Tips
- Downloadable Strawberry Photos
- Strawberries Live Demo
- Preparing Strawberries - Video
- Macerated Strawberries - Video
- Strawberry Pistachio Tart - Video
- Sweet Strawberry Tea - Video
- Spinach and Strawberry Salad - Video
- Spinach and Strawberry Salad - Recipe
- Strawberry Shortcake Recipe
- Spring Strawberry Salad Recipe



Apple Bitter Rot Season is Upon Us

By Kimberly Leonberger, Plant Pathology Extension Associate and Nicole Gauthier, Plant Pathology Extension Specialist

While fruit rots have a variety of causes, the most common fungal fruit rot of apple in Kentucky is bitter rot. The disease results in rotten, inedible fruit. Fungicides are available for management; however, sanitation is critical for disease prevention. Ongoing research at the University of Kentucky is providing new insights and understanding of the pathogens that cause bitter rot.

Bitter Rot Facts

- Symptoms begin as small, slightly sunken lesions that enlarge and eventually develop a bull's-eye pattern (Figure 12). Cutting into infected fruit reveals an internal rot with a V-shaped pattern (Figure 13).
- Symptoms may not appear immediately after infection and may take several months to develop.
- Initial infection begins as early as bloom and may continue through harvest.
- The fungal pathogen overwinters in fallen fruit, dried fruit (mummies), and in crevices in bark and dead wood.
- Bitter rot is caused by multiple species of the fungus Colletotrichum.

Figure 12. Sunken lesions with bull's-eye appearance are common symptoms of bitter rot on apple. (Photo: Nicole W Gauthier, UK)

Figure 13. .Internal V-shaped rot in apple caused by bitter rot. (Photo: Nicole W Gauthier, UK)

Management Options

- Remove and discard diseased fruit immediately.
- At the end of the season, remove fallen fruit from the ground and prune out cankers and dead wood that may harbor fungi.
- Plant cultivars that are less susceptible to bitter rot, including 'Rome Beauty,' 'Winesap,' and 'Red' or 'Yellow Delicious.'
- Homeowners can apply fungicides that contain captan or mancozeb beginning soon after petal fall and continuing every 10 to 14 days until harvest. Always follow label directions when utilizing fungicides.

Research Update

- Five species of the Colletotrichum fungus have been documented as causal agents of bitter rot in Kentucky.
- More than one species has been documented within the same orchard and within a single tree, suggesting that multiple species may exist together.
- Aggressiveness and fungicide sensitivity varies across species, so individual orchards may have varying degrees of disease persistence.
- Continued research is needed to provide growers with more targeted management recommendations.
- Samples of bitter rot infected fruit are needed to continue with this research. Please contact Dr. Nicole W Gauthier (nicole.ward@uky.edu) for more information.

Additional Information

- Apple Fruit Diseases Appearing at Harvest (PPFS-FR-T-2)
- Fruit, Orchard, and Vineyard Sanitation (PPFS-GEN-05)
- Simplified Backyard Apple Spray Guides (PPFS-FR-T-18)
- Backyard Apple Disease & Pest Management Using Cultural Practices (with Low Spray, No Spray, & Organic Options) (PPFS-FR-T-21)
- IPM Scouting Guide for Common Problems of Apple (ID-219)
- Scouting Guide for Problems of Apple Mobile Website (Apple Scout)

- •Effectiveness of Fungicides for Management of Apple Diseases (PPFS-FR-T-15)
- •Midwest Fruit Pest Management Guide (ID-232)
- •*Characterization of Colletotrichum species causing bitter rot of apples in Kentucky orchards (Thesis by Misbakhul Munir)*

You can find these links at https://kentuckypestnews.wordpress.com/2020/07/14/apple-bitter-rot-season-is-upon-us-2/

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Phomopsis Twig Blight & Stem Canker of Blueberry

By Kim Leonberger, Plant Pathology Extension Associate and Nicole Gauthier, Plant Pathology Extension Specialist

Phomopsis twig blight and stem canker is becoming more common in Kentucky blueberry. Stressed plants are more susceptible to this disease, and reports are often associated with fields that have a history of Phytophthora root rot or severe abiotic disorder such as high pH.

Phomopsis Disease Facts

- •Symptoms first appear in spring as blighted twigs that result in flower bud loss (Figure 14). Necrotic, reddish-brown lesions may develop around blighted areas and spread downward. Wilting and flagging is observed as stems die (Figure 15). Girdling cankers can often be observed lower on stems. Leaf spots can also occur on foliage, and fruit may ripen prematurely or rot.
- •Disease is favored by warm, moist periods. Plants damaged by freezing temperatures or stressed by by poor planting sites are more susceptible to disease.
- •Caused by the fungus Phomopsis vaccinii.
- •The pathogen survives winter in dead or infected twigs.

Figure 14. Symptoms first appear as blighted twigs. (Photo: Annemiek Schilder, Michigan State University)

Figure 15. Infected plants exhibit wilting and flagging as stems die. (Photo: Mary Ann Hansen, VPI, Bugwood.org)

Management Options

- •Select resistant cultivars such as ‘Bluetta’ and ‘Elliott’
- •Prune out infected twigs by cutting a minimum of 6 inches below infected tissue. Discard cuttings; never leave them in the field.
- •Avoid planting sites prone to frosts.
- •Maintain plant health with proper fertilization, irrigation, and weed management.
- •Avoid wounding stems.
- •Fungicides may be applied preventatively (before infection) beginning at bud break and continuing through full bloom for plantings with high infection risk. Homeowners may use fungicides that contain the active ingredients captan or propiconazole. Contact a County Extension Agent for more information on fungicide use.
- •Fungicides do not cure Phomopsis tip blight.

Additional Information

- •Fruit, Orchard, and Vineyard Sanitation (PPFS-GEN-05)
- •Blueberry Diseases (PPFS-FR-S-10)
- •Midwest Blueberry Production Guide (ID-210)
- •Disease and Insect Control Programs for Homegrown Fruit in Kentucky (ID-21)
- •Backyard Berry Disease &Pest Management Using Cultural Practices (with Low Spray, No

Spray, & Organic Options) (PPFS-FR-S-25)
•Commercial Fruit Pest Management Guide (ID-232)

You can find these links at https://kentuckypestnews.wordpress.com/2020/07/21/phomopsis-twig-blight-stem-canker-of-blueberry/

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Periodical Cicada: Guardians of Time

By Ric Bessin and Raul Villanueva, Entomology Extension Specialists and Daniel Becker, Horticulture Extension Associate for Vegetables/Fruit

One of the more spectacular entomological events is the emergence of millions of periodical cicadas. What makes this event so unusual is that it occurs so infrequently, each brood emerging every 13 or 17 years. Depending on where one lives, a person may be in high school before experiencing a periodical cicada emergence. Early settlers to this country referred to these insects as locusts, in reference to plagues of locusts. A large emergence of cicadas can provide a striking visual image, and the sounds they produce can be deafening.

Periodical Cicadas vs. Annual Cicadas

Periodical cicadas (Figure 16) are different from the dog-day cicadas that emerge each summer. Periodical cicadas emerge in May and are active in June, dog-day cicadas emerge in July. Periodical cicadas have black bodies, red eyes, and red-orange wing veins in two pairs of clear wings that are held roof-like over the abdomen. These clumsy fliers often stay in the upper canopy of trees while they are active from late April thru June. Encounters with periodical cicadas can be unnerving to some but these insects cannot sting nor do they harm humans, livestock, or pets.

Figure 16. A 2020 periodical cicada from Louisville (Photo: Andrew Bessin)

Cicada Broods and Emergence

Also unusual for this insect (although it is actually a group of closely related species) is the extended life cycle and the synchronized emergence every 13 or 17 years. It is thought that cicadas do this to help avoid predator populations from synchronizing with their emergence and the cicadas can then overwhelm predators with their sheer numbers. There are 15 broods of periodical cicadas in the United States and six of those occur in Kentucky, although two of those broods are very limited in numbers and location relative to other broods. The table below shows the broods we have in Kentucky and when and where they will emerge.

Brood Number	Cycle of Emergence	Next Emergence	Location in Kentucky
X	17 year	2021	Along Ohio River and SE KY counties
XIX	13 year	2024	Pennyrile and Green River Areas; low risk in other areas
XIV	17 year	2025	Most of state east of Purchase Area
I	17 year	2029	Smaller emergence in parts of Harlan, Lecher, Martin, and Pike Counties
XXIII	13 year	2031	West of I-65
V	17 year	2033	Smaller emergence in parts of Boyd, Greenup, and Lawrence Counties

We can predict when the broods will emerge decades into the future, just like clockwork. However, there are some individuals or partial broods that emerge on off-cycle years. A few individuals emerge a year early, and several 17-year broods in recent years have portions that emerge after 13 years. There is a 4-year acceleration hypothesis to explain why the latter emerge early. While this is not a periodical cicada year for Kentucky, we have had some reports from Louisville and Daviess, Caldwell, and Lyon counties in western Kentucky. This may be a 4-year early emergence from Brood XIX or a year early emergence from Brood X.

The cicadas found in western Kentucky are confirmed specimens of Brood XIX, Magicicada tredecim (Figure 17) (identified by Dr. Gene Kritsky, School of Behavioral and Natural Sciences, Mount St. Joseph University). He believes that these may be emerging in small numbers, thus it may not be a threatening population for ornamental, grape, apple, or peach crops.

Figure 17. Ventral view of Magicicada tredecim found in Princeton (Caldwell County) KY (Photo: Raul Villanueva, UK)

Periodical Cicada Impact on Plants

Periodical cicadas are pests of many trees and woody ornamentals. These insects can cause problems in orchards, vineyards, nurseries, and home and commercial landscapes. Physical injury or “flagging” occurs after females slit twigs to insert batches of eggs. Twigs break at these weak spots and are left to dangle, turn brown, and die. This “pruning” is not a serious problem for large trees but can adversely affect the developing structure of small trees. A more subtle impact can occur several years later as growing nymphs remove sap from roots. Some nursery and orchards will delay planting in cicada years until after the activity has ended. After egg hatch, cicada nymphs search and colonize tree roots where they will feed for the next 13 or 17 years.

Continued monitoring will be required over the coming weeks to assess populations and potential for damage in order to decide if pesticide application is necessary. Obviously, if a substantial emergence occurs, significant control measures must be applied to protect potential plant host that might be affected by cicadas.

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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

College of Agriculture,
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Cooperative Extension Service