

FANCY FRUIT

Issue: 21-04
May 20, 2021

A Newsletter for Commercial and Advanced Amateur fruit growers.

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Grape: prior to bloom



Apple at 7 mm

Crop Conditions

(Peter M Hirst, hirst@purdue.edu, (765) 494-1323)



Thornless blackberry: pre-bloom



Black Raspberry Pre-bloom

Weather & Climate

(Beth Hall, hall556@purdue.edu)

Growing degree-day accumulations still lag while dry conditions linger

Beth Hall

Indiana State Climate Office

Abnormally dry conditions are still lingering in parts of Indiana (Figure 1) with interest growing on how much the warmer weather might exacerbate the situation. Fortunately, the climate outlooks for the next several weeks and through June are favoring above-normal precipitation (in addition to above-normal temperatures), so hopefully any dry periods will

be short lived.

The El Nino – Southern Oscillation (ENSO) pattern has finally shifted away from the La Nina phase to the Neutral phase. It is expected that this Neutral phase will continue throughout the summer. For Indiana, a Neutral phase this time of year has not correlated strongly with either above- or below-normal temperatures or precipitation, but have slightly favored higher corn yields. This may imply that temperature and precipitation patterns could still be highly variable but average toward normal conditions at the monthly or even seasonal time scales. Hopefully, the variability swings back and forth often enough to provide the necessary relief every few days!

Modified growing degree-day (MGDD) accumulations (Figure 2) are still slightly behind the climatological average with the greatest lags in the southern counties (Figure 3). However, as Figure 4 shows, for most of the state MGDD accumulations this year are slightly ahead of where they were in 2020.

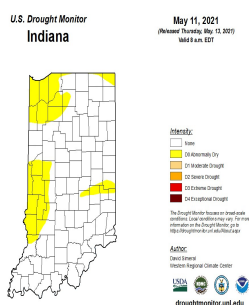


Figure 1 U.S. Drought Monitor Indiana

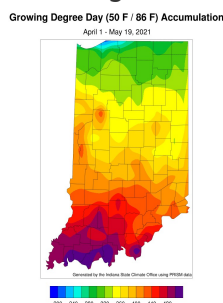


Figure 2. Modified growing degree day accumulation from April 1 to May 19, 2021.

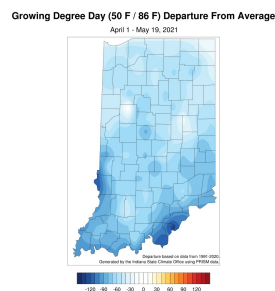


Figure 3. Modified growing degree-day accumulation departures for April 1 through May 19, 2021 compared to the 1991-2020 climatological period.

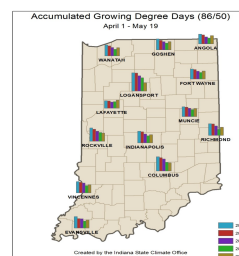


Figure 4

2021 BGIN MEETING & FARM TOUR

(Bruce Bordelon, bordelon@purdue.edu, (765) 494-8212)

2021 BGIN MEETING & FARM TOUR

THURSDAY, JUNE 3RD

HOSTED BY JOHN NELSON

THE BLUEBERRY RANCH

54743 BUCKEYE RD.

MISHAWAKA, IN 46545

574 255 5773

Directions: From 80/90 Take exit 83 heading south on Capitol for 2 miles. Turn east onto Douglas for 2.5 miles to Buckeye. Head south for .75 miles to farm.

4 p.m. (Eastern Time) Gather for farm tour

5 p.m. Potluck dinner Drinks and a Covid safe main part of meal will be provided. Please bring a side dish and/or dessert to share within your comfort level. You may want to consider bringing

single serve items to avoid community sharing. Please bring table service for your family.

5:45 p.m. BGIN business meeting Elizabeth Long, Stephen Meyers, and Devin DeBoer will be speaking this year.

Masks are required, as will as social distancing.

I'm looking forward to meeting in person this year. I hope to see you there.

Pam Owen, BGIN president

219 987 3946

Organic Standards

(Janna L Beckerman, jbeckerm@purdue.edu, (765) 494-4628)

On April 30th, 2021, significant legislation was introduced with bipartisan support in the House, impacting the future of the U.S. organic sector. The bill, titled, Continuous Improvement and Accountability in Organic Standards provides a roadmap for organic through three main areas by:

1. Clearing the backlog of recommendations, and requiring the USDA to issue an Organic Improvement Action Plan.
 1. The plan must include detailed timelines, prioritization, and implementation plans for dealing with each recommendation. If the agency decides not to implement a recommendation, it must tell the public why and submit a report to Congress detailing the reasons.
2. Establishing a new framework for advancing future organic standards.
 1. Any bill that is supported by the majority of the the National Organic Standards Board requires USDA to issue a final rule implementing the recommendation within two years.

2. Improving oversight and ensuring consistent enforcement.

1. The bill requires USDA to report annually to Congress on whether accredited third-party certifiers have implemented new rules and guidance, and identify any inconsistencies found.

Organic is a voluntary regulatory program for farmers and businesses that choose to meet a strict federal standard and market their products under the USDA organic seal.

The bill was introduced by Reps. Peter DeFazio, D-Ore.; Rodney Davis, R-Ill.; Chellie Pingree, D-Maine; Jimmy Panetta, D-Calif.; Dan Newhouse, R-Wash.; and Ron Kind, D-Wis.

For more information see:

<https://ota.com/advocacy/critical-issues/continuous-improvement-and-accountability-organic-standards> See:

https://www.capitalpress.com/ag_sectors/organic/legislation-addresses-backlog

Protect your grapevines from cicadas

(Miranda Purcell, mrpurcel@purdue.edu)

The periodical cicada (Figure 1) emergence is expected to begin shortly. Female cicadas lay eggs in 200+ woody tree species (Figure 2), and they have a strong preference for grapevines, apples, cherries, peaches, & plums. Egg laying can weaken and damage branches, causing them to turn brown, die, and break off. The loss of branches could cause serious damage or even death to young trees & grapevines. Cicada nymphs have also been known to feed on roots, which may cause a reduction in vigor.



Photo: John Ghent, Bugwood.org

Figure 1. Periodical cicada. Photo: John Ghent, Bugwood.org



Figure 2. Cutting/slitting egg laying damage caused by female periodical cicadas on grapevines. Photo: E. Y. Long

What can you do?

Young trees with branches and stems ranging in diameter from 3/16" to 7/16" are susceptible to cicada damage, and thus should be the main focus of protective efforts. Insect netting can be used to prevent females from accessing grapevines to deposit eggs (Figure 3). Netting should have no larger than 1/2-inch openings and should be fastened around the bottom of the trunk. The best time to do this is when male cicadas begin "singing" and before egg laying begins. Nets should be kept on 2 weeks past when "singing" stops, which is estimated to be around late July.

Chemical control is also an option, but it is only recommended for large, commercial vineyards where netting is not feasible. Chemical control is not as effective as netting because insecticides must be applied repeatedly against waves of

cicadas over an ~1 month period whereas netting is only applied once to exclude egg-laying females. Further, chemical control is only recommended for reducing cicada injury to young vines because mature vines can typically tolerate egg laying damage. See link below for more information on chemical control.



Figure 3. Example of netting grapevines to exclude female periodical cicadas. Photo: Wikimedia.org

Figure 3. Example of netting grapevines to exclude female periodical cicadas. Photo: Wikimedia.org

For more information:

[Be prepared to protect your grapevines from 17-year periodical cicadas emerging in May | Purdue University, The Ohio State University](#)

How can I get involved?

[Purdue University Cicada Tracker- Citizen Science Project](#)

[Indiana Cicada Fest Bioblitz](#)

Please contact Miranda Purcell, Viticulture Extension Specialist, with any questions (mrpurcel@purdue.edu).

Grower and Winemaker Town Hall- Eastern Viticulture & Enology Forum starting June 8th

(Miranda Purcell, mrpurcel@purdue.edu)

Cornell AgriTech
New York State Agricultural Experiment Station

VT VIRGINIA TECH

PennState Extension

Eastern Viticulture and Enology Forum

Grower and Winemaker Town Hall: Questions From the Field and Cellar

In collaboration with viticulture and enology extension programs at: Ohio State University, University of Maryland, Rutgers University, North Carolina State University, University of Georgia, University of Tennessee, Texas Tech, Texas A&M, Colorado State University, New Mexico State University, Iowa State University, Purdue University, University of Minnesota, Michigan State University, and University of Wisconsin

Regional viticulture and enology specialists will present a Grower and Winemaker Town Hall virtual meeting series to give seasonal updates and answer pre-submitted and live questions from grape and wine industry stakeholders.

There will be a total of four town hall meetings throughout the growing season.

Meetings will be held from 3PM to 5PM on the following Tuesdays: June 8th, July 13th, August 10th, and September 7th. The first two meetings will be hosted by Cornell University and the second two meetings will be hosted by Penn State Extension.

Use this [link to register](#) and choose your breakout room (viticulture or enology) for the June 8th meeting.

The structure of these meetings depends on pre-submitted questions.

Use this [link to pre-submit questions](#) for viticulture and enology specialists to answer live during the meeting.

Please feel free to submit questions related to any topic by June 1st.

But please see below for the topic area suggestions for our first meeting on June 8th. Updated topic suggestions will follow in forthcoming meeting announcements.

Viticulture focus area: pre-bloom to post-fruit set

management (canopy management, fruit zone leaf removal, nutrition, young vine establishment, fruit set, fungal disease management)

Enology focus area: filtration and bottling (types of filtration, filter pad maintenance & usage, pre-bottling sanitation, pre-bottling additions, bottling line cleanliness & quality controls)

–[Cain Hickey](#), [Beth Chang](#), and [Tim Martinson](#)

Eastern Viticulture and Enology Forum Hosts

Phytophthora in berry crops

(Janna L Beckerman, jbeckerm@purdue.edu, (765) 494-4628)

As we wait for the locusts (actually, seventeen-year cicadas), and deal with a plague of biblical proportion, many across the state also experienced flooding and frosts. Indiana weather is never dull! Flooding and/or frosts during periods of active growth can significantly damage flower and fruit, resulting in crop loss (Fig. 1). Unfortunately, many berry growers had actively growing plants whose roots were under water for > 48 hours due to flooding, on top of cold conditions and frost.

When soils are flooded, soil pore space fills with water, displacing the air and depriving roots of oxygen needed for water uptake and photosynthesis. Not only can plants not photosynthesize, but their roots leak, losing nutrients, and begin dying. The first plant symptoms of flood damage are wilted leaves that may develop a yellowish cast or off-green color, a result of apoxia (not enough oxygen), along with symptoms of nutrient deficiencies (nitrogen and potassium). Other symptoms of waterlogging and flood damage include flower or fruit drop, along with leaf curl (epinasty) or drop (abscission), or symptoms of nutrient deficiency. The lack of oxygen results in the closing of stomates (gas

exchange pores on leaves), followed by a stoppage of photosynthesis. If the situation remains anaerobic, an odor of rot may develop, as roots turn brown and die. Leaf wilt and curl often happen after the flood, when fields dry out, new roots haven't grown, and damaged roots are unable to take up sufficient water to support the plant.

If flooding was brief and plants were only stressed, watch crop development to determine if side dressing or foliar application of nitrogen or potassium are needed. When applying nitrogen, nitrate-based fertilizers provide more balanced growth than ammonium-based fertilizers. Potassium nitrate addresses the loss of both key nutrients due to leaching.

If all of this wasn't bad enough, these same wet conditions favor disease outbreaks, as leaking and dying roots attract the zoospores of *Phytophthora* and *Pythium*, that swim towards these roots and infect the plant. After flooding, check all berry crops (except grape, which is rarely infected) for Phytophthora root rot symptoms. Blueberry plants infected with by Phytophthora may be stunted, or develop scorched, yellow leaves that may defoliate (Fig. 2). Brambles are highly susceptible as well (Fig. 3), especially red raspberry varieties Canby, Hilton, Ruby, Polana, and Titan. Black raspberry cultivars, such as Bristol, Dundee, and Jewel are considered moderately to highly resistant to root rot and blackberry cultivars are also relatively resistant to Phytophthora.

On strawberry, red stele is a common name for the root and crown rot that develops (Fig.4). Symptoms include wilted foliage during hot weather and stunted foliage. A key diagnostic symptom is the red stele (core of the strawberry root-crown) that appears when roots are cut longitudinally (Fig. 4). Red stele reduces yield, fruit size and quality. Resistant strawberry

cultivars include such as Earliglow, Allstar, Guardian, LateglowMidway, Redchief, Redglow, Sparkle, Sunrise, and Surecrop; Honeoye, Jewel, and Cardinal are very susceptible. This list can be found in the Midwest Fruit Pest Management Guide at

<https://ag.purdue.edu/hla/Hort/Documents/ID-465.pdf>

Leather rot is another disease caused by a different *Phytophthora* species infects strawberry fruit (Fig. 5) or the plant crown. Infection occurs during flowering or after fruit set when conditions are wet and when berries contact the soil. Infected blossom clusters turn brown and die; on immature fruit, infected areas appear brown to black. As fruit matures and ripens, the color ranges from light tan (bleached) to light red or green fruit become hard and leathery. The flavor of the infected fruit is somewhat appalling, bitter and the texture is tough.

Even plants that survive flooding are often stressed, weakened and more susceptible to plant pathogens, especially to anthracnose and botrytis to the above-ground portions (More on that next time).

Going forward, if flooding was severe, and crops were lost, consider the possible a short-term cover crop like buckwheat or rye, which can be planted and mowed in time for fall planting.

Deep rooted cover crops (forage radish and turnip, sudangrass, sorghum) may also improve soil compaction and drainage.

Fungicides recommendations vary per crop, and are listed in detail in the [Midwest Fruit Pest Management Guide](#).

For more information see:

<https://blogs.cornell.edu/livepath/gallery/strawberries/red-stele-root-rot-of-strawberry/> and <http://www.omafra.gov.on.ca/IPM/english/strawberries/diseases-and-disorders/leather-rot.html#beginner>



Figure 1. Spring flooding is a recurring problem in the Midwest. Photo by Dan Coyro, AP.



Figure 2. Phytophthora root rot on blueberry. Photo by Jerry Weiland, USDA.



Figure 3. Raspberry production impacted by Phytophthora outbreak. Photo by OMAFRA.



Figure 4. Red stele. Photos by Meg McGrath, Cornell.



Figure 5. Leather rot. Photo by OMAFRA.

Extension Events

(Lori K Jolly-Brown, ljollybr@purdue.edu)

Small Farm Education Field Day July 29th, 2021
at the Purdue Student Farm.

Small Farm Education Field Day Webinar Series
August 2, 4, 6, 9, 11, 13, 2021.

Watch for details at the Purdue Student Farm
website

<https://www.purdue.edu/hla/sites/studentfarm/>

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