

FANCY FRUIT

Issue: 23-11
September 14, 2023

A Newsletter for Commercial and Advanced Amateur fruit growers.

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Pears- Mature/ Fruit ripe for picking



Paw Paws- Maturation

Crop conditions

(Chloe Richard, richa267@purdue.edu)



Apple: (Pixie Crunch): Mature/ Fruit ripe for picking



Grapes- Mature/ Fruit ripe for picking



Field Strawberries- New plugs transplanted last week for berries next year



Primocane Fruiting Blackberry- Green to Ripe fruit

Cool weather has arrived, but will it last?

(Austin Pearson, pearsona@purdue.edu)

The fall crisp was in the air this morning (9/13), so cool that I had to grab that sweatshirt I bought in mid-August while getting my kiddo on the bus. It was actually refreshing, in a sense. Minimum temperatures in Crawfordsville (Montgomery County) and Rensselaer (Jasper County) dropped to 44F this morning, which were the coolest in the state. Family traveling in northern Minnesota called this morning to report a low temperature of 28F. That is just downright cold, and they can keep that up north for the time being. Over the last 30 days (8/15-9/12) though, temperatures have been normal (Figure 1). This is misleading, however, especially as we have experienced oppressively hot and milder temperatures over the past 30 days. Since May 1, modified growing degree days (MGDDs) have accumulated between 2200 and 3200 MGDDs (Figure 2, left), which was near normal to 150 units below normal across the state (Figure 2, right).

The bigger story continues to be the dry conditions that are creeping back into the state.

This is not at all surprising as nearly the entire state saw less than 75 percent of normal precipitation over the last 30 days (Figure 3).

Central Indiana measured between 1 and 1.5 inches of rain since August 15, which was between 25 and 50 percent of normal.

Vegetation is dormant in most locations, agricultural crops are rapidly maturing, and water levels have dropped dramatically as a result.

The release of the September 12 US Drought Monitor depicts 63.52% of the state in at least abnormally dry conditions with 4.14% in Moderate Drought (Figure 4).

The national Climate Prediction Center (CPC) still

expects drought to linger and expand in Indiana throughout the fall. People are asking about the expected El Niño and continued drought through the winter already. We've got a bit of time before we can truly answer that question, especially as there is a lot of uncertainty with the outlook for this fall (September, October, and November). That being said, the forecast is not conducive for rain through September 20 (Figure 5). Areas north of I-70 could see less than a tenth of an inch, which will not help ongoing drought concerns. The reprieve in warm temperatures has certainly helped with moisture loss, but they are not expected to last as a warmup is on the way. The CPC has increased confidence in above-normal temperatures through the end of September (Figure 6).

Coupled with this are elevated chances for below-normal precipitation for much of the state. The good news: harvest conditions should be great (typing this as I knock on wood).

U.S. Drought monitor

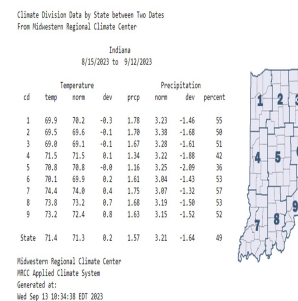


Figure 1: Climate Division data by state, between August 15 and September 12, 2023, which includes observed temperature and precipitation, normal temperature and precipitation, temperature deviation from normal and percent of normal precipitation.

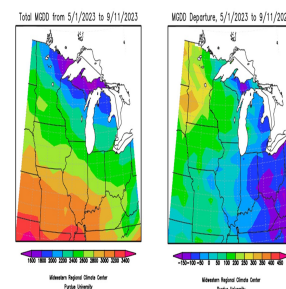


Figure 2: Total Accumulated Midwest Modified Growing Degree Days (MGDDs) May 1-September 11, 2023 (left) and Total Accumulated MGDDs represented as the departure from the 1991-2020 climatological normal (right).

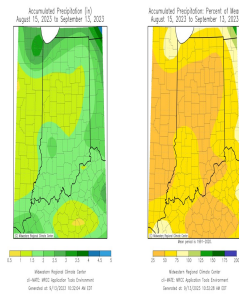


Figure 3: Observed precipitation (left) and percent of mean precipitation (right) for August 15-September 13, 2023.

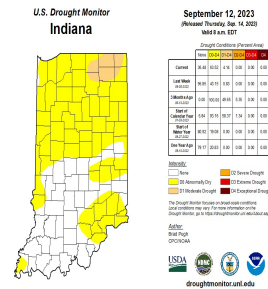


Figure 4: September 12, 2023, US Drought Monitor. The US Drought Monitor is released every Thursday morning by 8:30 AM.

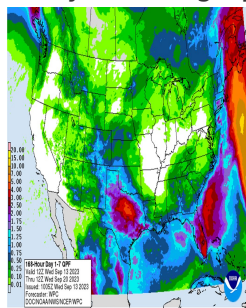


Figure 5: NWS Weather Prediction Center 7-day quantitative precipitation forecast for the continental United States, valid September 13-20, 2023.

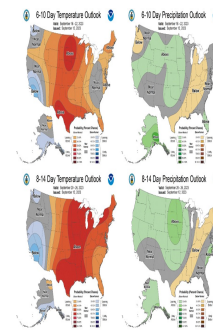


Figure 6: CPC 6-10 day temperature and precipitation outlooks for the United States, valid September 18-22, 2023 (top). CPC 8-14 day temperature and precipitation outlooks for the United States, valid September 20-26 (bottom).

Pits, Spots and Rots

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

In Indiana, our 'normal' or average weather is one of extremes, punctuated with an occasional glorious summer day of sun and 76 degrees F.

This year has been one of flooding and droughts, freezes and scorching heat. Again. With these weather extremes come physiological disorders and summer fruit rots, for those lucky enough to even have a crop.

Physiological disorders in apples are easily confused with hail injury, disease, or insect damage (Fig. 1). Recognizing the different causes of these problems is important to implement the appropriate management to minimize or prevent the problem from occurring next year.

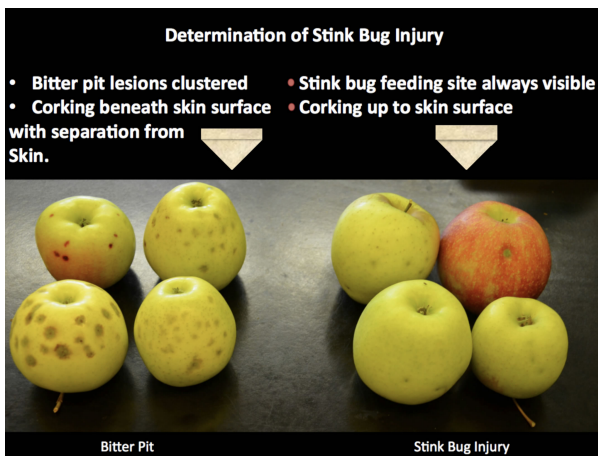


Figure 1. Bitter pit versus stink bug. Photo by Peter Jentsch.

Bitter pit commonly presents during hot weather, and dry spells, particularly on varieties like Gala or Honeycrisp. Symptoms of bitter pit include circular or even irregular sunken spots on the fruit surface, beneath brownish or streaked dead regions (Fig. 2). The affected tissue in these pits is dark and spongy. Those brave enough to taste it may discover that it tastes...bitter, and simply quite terrible, for those wondering. I do the hard experimenting so you don't have to!



Figure 2 Lenticel rot. Photo by Janna Beckerman

Symptoms of bitter pit may be mistaken for hail damage, bitter rot, or any of the below problems. A key diagnostic feature is that hail usually affects only one side of the fruit, whereas bitter pit is more severe on blossom end of the fruit. Some varieties, like Honeycrisp, are more prone

to this disorder, whereas hail will impact (literally) all varieties of fruit. Bitter pit can show up throughout the orchard, not just the edges, like one may observe with insect damage. Lastly, large fruit from trees with light crops are more likely to have bitter pit than trees that were adequately and not over-thinned. Lenticel spot, or lenticel rot are the names given to disorders of apple fruits whose symptom is a small brown or black spot centered on a lenticel. Lenticel spot, per se, is not caused by fungi or bacteria, although the spots may be invaded by opportunistic secondary rot fungi, like the bitter rot, white rot or black rot fungi, while fruit is stored. I have not recovered sufficiently from tasting bitter pit to see if the flavor of lenticel rot is something of diagnostic note.

Cork spot (Fig. 3) is another physiological disorder affecting the outer portion of the fruit. Symptoms begin on the fruit flesh as small dimples or depressions. This disorder begins developing in June, and continues throughout the growth and enlargement of the apple. Lesions enlarge to 1/4 - 1/2 inch corky, discolored areas in the flesh of the apple. Unlike bitter pit, the corky spots may occur anywhere on the apple. It is important to note that all of these problems are only surface blemishes. Unfortunately, their unattractive appearance often reduces the marketability of the fruit.



Figure 3. Cork spot is often confused with stink bug damage. Photo by Janna Beckerman

Bitter pit, lenticel rot and cork spot disorders can be mistaken for brown marmorated stink bug injury (BMSB) (Fig. 1,2). BMSB usually appears around the edges of the orchard, although I do question their literacy skills and their ability to follow directions. BMSB can occur all over the apple, and more around the shoulder than the calyx. There should be a ‘sting’ in the center of the depression—this is a key diagnostic feature.

For those that have had problems with these disorders: Bitter pit, lenticel rot, cork spot and Jonathan spot are complex problem that require an integrated management scheme to reduce the problem to acceptable levels. This was reviewed in a 2021 article that you can see [here](#).

Recent research has found that ‘Honeycrisp’ trees on Budagovsky.10 (B.10) rootstock had the lowest bitter pit (BP) incidence; Honeycrisp on Vineland (V).6 rootstock had the highest, according to a study published in the journal [Frontiers in Plant Science](#). 14 rootstocks were evaluated by Dr. Sherif Sherif’s team at Virginia Tech, including 14 rootstocks — B.10, (G).11, G.202, G.214, G.30, G.41, G.935, G.969, Malling (M).26 East Malling/Ashton Long (EMLA), M.9, V.1, V.5, V.6, and V.7. Unfortunately, none of

the popular Geneva (G)rootstocks examined in the study, such as G.11, G.30, G.41, G.202, G.241, G.935, and G.969, performed as well as B.10.

I don’t think anyone (including the author of the study) found this surprising, considering B.10 is an offspring of B.9. One problem with B.9 is getting it to the upper wire in a trellis system, in addition to a (slightly) delayed period to cropping compared to other rootstocks. However, the precocity of other rootstocks come at a cost, in this instance. As a fairly new rootstock, B. 10 demand exceeds supply right now, but it is something to consider with future plantings, coupled with the management [outlined previously](#).

Table 1: Apple Rootstock info: B.10. From <https://apples.extension.org/apple-rootstock-info-b-10/>

Characteristic	Detail	Description
Rootstock	B.10	Formerly Bud. 62-396. It is a release from the Michurinsk University of Agriculture (Russia) breeding program, which is trying to select for improved winter hardiness. A 10-year trial in Pennsylvania with Golden Delicious as the scion cultivar showed that trees on this rootstock were similar in size to trees on G.935 and M.9 T337 (15 percent smaller). Main scaffold branch angle was close to 90 degrees. Production efficiency and total yield were slightly better than trees on M.9 T337.
Synonyms	Bud 10, Budagovsky 10	
Origin	Malling 27 X Robusta 5	
Availability	Commercial	
Tree Size		
Precocity	Very early	
Winter Hardiness	Very Hardy	
Suckering		
Tree Support Needed		
Where tested within NC-140 or other research plantings	BC, CHIH, CO, IL, IN, IA, MA, MN, MI, NJ, NS, NY-G, OH, UT, WI	Cold hardy, yield efficient, Fireblight tolerant, with good root anchorage and stress tolerance. Production is similar to M-9.

References and additional information:

Bitter pit control in apples. Available at: <http://www.omafr.gov.on.ca/english/crops/facts/00-009.htm>

Rosenberger, D.A., J.R. Schupp , S.A. Hoying , L. Cheng, and C.B. Watkins. 2004. Controlling Bitter Pit in ‘Honeycrisp’ Apples. HortTechnology 14(3) 342-9.

<http://horttech.ashspublications.org/content/14/3/342.full.pdf>

Bitter pit versus stink bug.

<http://blogs.cornell.edu/jentsch/2014/09/18/bmsb-update-assessing-fruit-damage-at-harvest-is-it-hail-bitter-pit-apple-maggot-or-stink-bug/>

Strawberry Chat Update— Farmer Interviews

(Wenjing Guan, guan40@purdue.edu)

This summer, we interviewed four farmers growing strawberries in plasticulture in Indiana. Their business is on different scales, and they sell through varied market channels. How do strawberries fit into their overall crop and market strategy? What are the opportunities and challenges? The lessons the experienced farmers share will be of great value to others interested in this crop.

This interview is with Calvin Beasley at Beasley's Orchard. Beasley's Orchard, located west of Indianapolis, is a diversified fruit and vegetable farm. Its primary business is in agritourism and U-pick.

This interview is with Richard Ritter. Richard runs a 20-acre diversified vegetable farm in southwest Indiana. His primary market is a farm stand.

The next two episodes are interviews with two small-scale, diversified urban farms using organic practices. The farmers participated in on-farm trials with Wenjing on the project 'Enhance Strawberry Production in North Central Region through Tunnel-based Systems' supported by North-Central SARE. Both the farmers are new to growing strawberries, and they grow the crops in

caterpillar tunnels. They shared their experience and thought about growing strawberries.

This interview is with Nic and Marie, owners of the Outlier Farm in Bloomington, IN.

This interview is with David Robb, owner of Eden Prairie Farm in Eden, IN, close to Indianapolis.

Crop Production in Organic Hydroponic Systems Workshop

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

SAVE THE DATE!

Hydroponic lettuce can receive USDA organic label if standard guidelines for organic production are followed. This may fetch premium price for produce. Learn about how to develop organic fertilizer recipes, manage insects and diseases, and maintain food safety standards in organic hydroponic systems

Crop Production in Organic Hydroponic Systems

October 25, 2023

**Location: Daniel Turf Center, 1340 Cherry
Ln, West Lafayette, IN 47907**

time: 8 am-noon

Registration opening soon!



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