

Pest&Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant

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What Is This?

(John Obermeyer)

It is not uncommon to receive samples and pictures of “bugs” from family, friends and neighbors. Except for the spiders, most children and adults seem pleased with identification and brief information. Generally, the kids like it when they can safely touch the critter, the adults want to know what to spray!

This week, I have received both a live and photo (even in focus) of the same insect, but different areas of the state. Knowing all insect species have population highs and lows throughout the years, I going to assume that this insect is up in numbers and you might be seeing them as well. As you will learn, this is a good thing!



Here is the insect being found. (Photo Credit: John Obermeyer)

The assassin bugs, this species known as the wheel bug (*Arilus cristatus*), are predators of other insects. Both the immature (nymph above) and adult (below) lurk among foliage and flowers waiting for unsuspecting prey. Their straw-like mouthpart is jabbed into their victim, then they suck out the juices. Though that sound cruel, it is a

good thing for us, so my plea is to leave them be and let them do their job! Within this paragraph you have just gotten my identification and brief information...with the added bonus of scientific name and pictures. With that, I'll let you decide if you let it crawl over you!



Adult wheel bug (note the “cog” like structure) sucking the life out of a Japanese beetle in soybean. (Photo Credit: John Obermeyer)

Happy scouting!

2021 Western Bean Cutworm Pheromone Trap Report

(John Obermeyer)

		WBC Trapped	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7
			6/17/21- 6/23/21	6/24/21- 6/30/21	7/1/21- 7/7/21	7/8/21- 7/14/21	7/15/21- 7/21/21	7/22/21- 7/28/21	7/29/21- 8/4/21
County	Cooperator								
Adams	Roe/Mercer Landmark	0	0						
Allen	Anderson/NICK	0	0						
Allen	Gynn/Southwind Farms	0	0						
Allen	Kneubuhler/G&K Concepts	0	0						
Bartholomew	Bush/Pioneer Hybrids	0	0						
Boone	Emanuel/Boone Co. CES	0	0						
Clay	Mace/Ceres Solutions/Brazil	0	0						
Clay	Fritz/Ceres Solutions/Clay City	0	0						
Clinton	Emanuel/Boone Co. CES	0	0						
Dubois	Eck/Dubois Co. CES	0	0						
Elkhart	Kauffman/Crop Tech Inc.	0	0						
Fayette	Schelle/Falmouth Farm Supply Inc.	0	0						
Fountain	Mosckiewicz/Syngenta	1	1						
Hamilton	Campbell/Beck's Hybrids	0	0						
Hancock	Gordon/Koppert Biological Systems	0	0						
Hendricks	Nicholson/Nicholson Consulting	0	0						
Hendricks	Tucker/Bayer	0	0						
Howard	Shanks/Clinton Co. CES	0	0						
Jasper	Oversreel/Jasper Co. CES	0	2						
Jasper	Ritter/Dairyland Seeds	0	0						
Jay	Boyer/Davis PAC	0	0						
Jay	Liechty/G&K Concepts	0	0						
Jay	Shrack/Ran-Del Agri Services	0	0						
Jennings	Bauerle/SEPAC	0	0						
Knox	Clinkenbeard/Ceres Solutions/Freelandville	0	0						
Kosciusko	Jenkins/Ceres Solutions/Mentone	0	3						
Lake	Kleine/Rose Acre Farms	0	0						
Lake	Moyer/Dekalb Hybrids/Shelby	0	2						
Lake	Moyer/Dekalb Hybrids/Scheider	0	1						
LaPorte	Rocke/Agri-Mgmt. Solutions	1	1						
Marshall	Harrell/Harrell Ag Services	0	1						
Miami	Early/Pioneer Hybrids	0	1						
Montgomery	Delo/Nicholson Consulting	0	0						
Newton	Moyer/Dekalb Hybrids/Lake Village	0	0						
Porter	Trageser/IPPAC	0	1						
Posey	Schmidt/Posey Co. CES	0	0						
Pulaski	Capouch/M&R Ag Services/Medaryville	1	0						
Pulaski	Leman/Ceres Solutions	1	0						
Putnam	Nicholson/Nicholson Consulting	0	1						
Randolph	Boyer/DIPAC	0	0						
Rush	Schelle/Falmouth Farm Supply Inc.	0	0						
Shelby	Fisher/Shelby County Coop	0	0						
Starke	Capouch/M&R Ag Services/Monterey	3	4						

County	Cooperator	WBC Trapped						
		Wk 1 6/17/21- 6/23/21	Wk 2 6/24/21- 6/30/21	Wk 3 7/1/21- 7/7/21	Wk 4 7/8/21- 7/14/21	Wk 5 7/15/21- 7/21/21	Wk 6 7/22/21- 7/28/21	Wk 7 7/29/21- 8/4/21
Starke	Capouch/M&R Ag Services, San Pierre	3	0					
St. Joseph	Carbriener/Breman	0	0					
St. Joseph	Deutscher/Helena Agri-Enterprises, Trap 1	0	0					
St. Joseph	Deutscher/Helena Agri-Enterprises, Trap 2	0	0					
Sullivan	McCullough/Ceres Solutions/Farmersburg	9	0					
Tippecanoe	Bower/Ceres Solutions	2	6					
Tippecanoe	Nagel/Ceres Solutions	0	0					
Tippecanoe	Obermeyer/Purdue Entomology	0	1					
Tippecanoe	Westerfeld/Bayer Research Farm	0	0					
Tipton	Campbell/Beck's Hybrids	0	0					
Vermillion	Lynch/Ceres Solutions/Clinton	0	0					
White	Foley/ConAgra	0	1					

* = Intensive Capture...this occurs when 9 or more moths are caught over a 2-night period

So Lush, So Green, And Oh So Poisonous

(Keith Johnson)

It's that time of year when the yew (pronounced like the letter "U") is likely in need of a trim to look best as a landscaping plant. Yews have been used as a common landscaping shrub or small tree for decades. They have closely spaced, glossy, rather tough, dark green, linear pointed-end leaves that are 1.5 – 2 inches long. Hard-to-see male and female flowers are found on separate plants and form fleshy red to yellow fruits that contain a single seed.

Many plants have poisonous compounds that can cause all kinds of concerns, and even death, if consumed. The interactions that I have had with veterinarians, suggest that the yew is right at or near the top of plants that cause livestock death. A disheartening scenario is when yew trimmings are thrown over the fence by the livestock owner or neighbor thinking that the trimmings would make a great snack for the livestock. Fresh or dry trimmings, it doesn't matter. The result will be the same – death.

Yews are hardy perennial landscaping plants, but don't toss the trimmings to your equine, heard, or flock or they won't see the light of the next day.

In memory of livestock that met "Their Maker" because they ate yew.



A yew bush used as landscaping is in need of a trim. Don't feed the trimmings to livestock or death will occur. (Photo Credit: Keith Johnson)

Potential Impacts Of Recent Flooding On Corn Growth And Yield

(Dan Quinn)

Over the last couple weeks, portions of Indiana have received significant rainfall amounts that have approached > than 5-6 in. With

this occurrence of heavy rainfall, the risk of potential flooding and saturated soils also increases, especially in poorly-drained soils, low-lying areas of fields, and fields close to creek and river bottoms. So, the question that always gets asked is, what impacts will flooding and saturated soils have on corn growth and yield? And the answer to this question is "well, it depends" (I am convinced this term was first coined by early agronomists). The overall extent of flooding injury to corn is determined by multiple factors such as 1) what growth stage was the corn plant at when the flooding occurred, 2) how significant was the flooding and where on the plant did the water rise to, 3) how long did the flooding occur 4) what were the air and soil temperatures at the time of the flooding, and 5) how much mud or debris are on the corn plants once the water has drained?

Understanding the growth stage of the corn plant and the level at which the water reached on the corn plant at the time of the flooding or ponding is important. Corn that is younger than V6 (six fully exposed, collared leaves) is more susceptible to flooding than corn that is older than V6 (Nielsen, 2019). The growing point of corn at or below the V6 growth stage is at or below the soil surface. Therefore, corn plants at this stage are more likely to be completely submerged, thus causing significant damage to the corn growing point and plant death rather quickly. Within about 48 hours, the supply of oxygen in a flooded soil is depleted and the growing point can no longer respire and perform critical functions (Lauer, 2008). If temperatures are warm or greater than 77°F, which is consistent with the temperatures recently experienced in Indiana, corn plants that are fully submerged above the growing point may not survive after 1-3 days. Higher soil and air temperatures increases plant growth and warm water contains less oxygen than cool water (Ciampitti et. al., 2021). To confirm plant survival, wait at least 3 days after the water is drained from the field and check for new leaf growth and the health of the growing point. The health of the growing point can be assessed by splitting the stalk. Healthy growing points will be white or cream-colored, whereas dead growing points will be dark and soft (Lee et. al., 2007). Corn survival increases significantly if water levels do not submerge the growing point of plant and if the growing point was submerged less than 48 hours (Ciampitti et. al., 2021).

Corn root growth and function can also be significantly harmed following flooding, especially after soil oxygen has been depleted. The longer an area of a field is flooded, the risk of yield loss and even plant death increases, even if the plants aren't completely submerged and continue to photosynthesize. Without oxygen in the soil, corn plants cannot perform critical functions such as nutrient and water uptake, and root growth inhibition and even death will also occur. Much of the corn in Indiana is in the rapid growth phase and has not reached pollination. Therefore, restricted water and nutrient uptake due to poor root function caused by flooding has the potential to impact corn ear size, specifically kernel number. The good news is that the majority of Indiana was on the drier side during the early part of the growing season, which allowed corn root systems to grow deeper and become more established prior to the recent rainfall events. However, root system damage to the corn plants today could potentially increase photosynthetic stress during pollination and grain fill later in the season due to reduced root function, thus harming yield.

Flooding can also cause soil and mud to be deposited on corn leaves and within the whorl. This can potentially harm recovering plants and limit overall photosynthesis by hindering the plants ability to capture sunlight and may also damage the waxy surface layer of the leaf. In addition, soil and mud deposited on the leaves, stalks, and within the whorl can encourage the development of fungal and bacterial diseases

in the damaged plant tissue (Nielsen, 2019; Ciampitti et. al., 2021). Furthermore, if flood water rises above the developing corn ear, ear rots can occur.

Lastly, flooding and ponding can cause significant losses of soil nitrogen from either leaching or denitrification. Fertilizer that is in the form of nitrate is negatively charged and has the ability to move through the soil profile and below the corn root zone following significant rainfall events. This is most likely to occur on coarse-textured, or sandier soil types. In much heavier soils, or low-lying areas of fields where ponding occurs, nitrogen loss most likely occurs due to denitrification. This is caused by the lack of oxygen which causes an anaerobic environment and results in microbes converting plant available nitrate to nitrous oxide or di-nitrogen gas, which can escape from the soil and into the atmosphere (White, 2018). Determining the amount of nitrogen that is lost and if a supplemental application of nitrogen fertilizer should be made is often difficult and can be inaccurate due to the many factors that influence this decision. Specific factors include, nitrogen fertilizer source used, percent nitrate of fertilizer source used, time of fertilizer application, amount of time between fertilizer application and rainfall event, duration of saturated soil conditions, soil temperatures following fertilizer application, and soil texture. Fields that are showing signs of significant nitrogen stress following a flood event prior to pollination will likely benefit the most from a supplemental N application.



What impact will this flooding have on yield, "well, it depends." (Photo Credit: John Obermeyer)

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Southwest Purdue Ag Center Virtual Field Day Research Highlight

(Wenjing Guan)

Southwest Purdue Ag Center held a virtual field day on June 24, 2021. Multiple projects are highlighted at the virtual field day. If you are interested in learning more about these projects, please check this playlist
<https://www.youtube.com/playlist?list=PLveWDgbh5ujHd6WjcbkVZIFS5NhqtTyM> that include 24 videos.

Topics related to vegetable production include:

- Pest and pollinator considerations in melon production
- Herbicide updates
- Strawberry production in alternative systems
- Food safety updates
- Fusarium wilt of watermelon
- Corn earworm trapping and management in sweet corn
- Maggot damage on onion transplants
- Watermelon and cantaloupe variety trials at Southwest Purdue Ag Center

Storm Tracks Favor Some Parts Of Indiana Skipping Others

(Beth Hall)

As we welcome July, Indiana seems to be in a very wet phase. Or, at least part of the state has been. The jet stream – a narrow band of fast-flowing air near the altitudes where commercial jets fly – naturally meanders in a north-south-north ribbon around the hemispheres. Typically, these “ribbons” also shift eastward as they are meandering. However, recently that eastward shift has seemed to stall more than usual, causing hot dry conditions in the western US while pulling up moist air from the Gulf of Mexico into the eastern half of the US. Storm systems track along with the location of the jet stream, so any slight stalling in its eastward migration seem to cause excess rainfall in one part of Indiana while the other part of the state stays dry. Looking over the past several months, if not into last summer, these storm tracks have seemed to favor southern Indiana, leaving northern counties getting less precipitation than normal. However, the past week or so has shifted these storm tracks to the north (Figure 1) bringing some

areas 4"-6" above average rainfall, leaving the southern counties dry. This has helped to eliminate abnormally dry conditions within the northern counties, but several central and southern counties are still in abnormally dry conditions according to the US Drought Monitor (Figure 2).

Accumulated Precipitation (in): Departure from 1991-2020 Normals June 16, 2021 to July 01, 2021

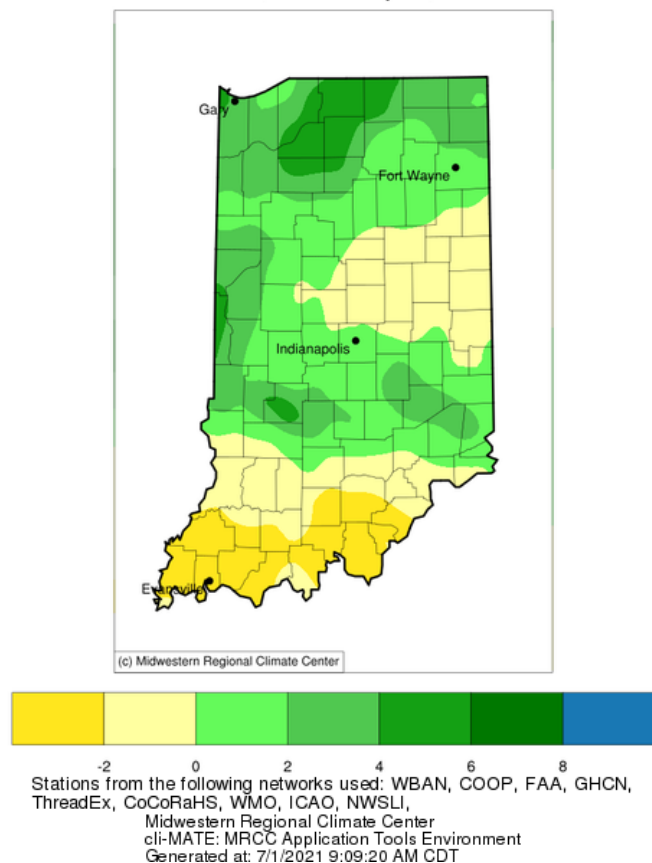


Figure 1. Precipitation departures from normal for the last few weeks in June.

there is a slight risk of heavy precipitation falling across Indiana from July 8-10, 2021.

With respect to temperatures, June was a relatively normal month. There were certainly periods of above normal and below normal temperatures, but when averaged over the entire month, those extremes seemed to wash out. This meant that modified growing degree day accumulations are still lagging behind average amounts in the southern part of Indiana, and are slightly ahead of average in the northern counties (Figure 3). Figure 4 shows a comparison of 2021 accumulated modified growing degree days around the state compared to recent years.

Growing Degree Day (50 F / 86 F) Accumulation

April 1 - June 30, 2021

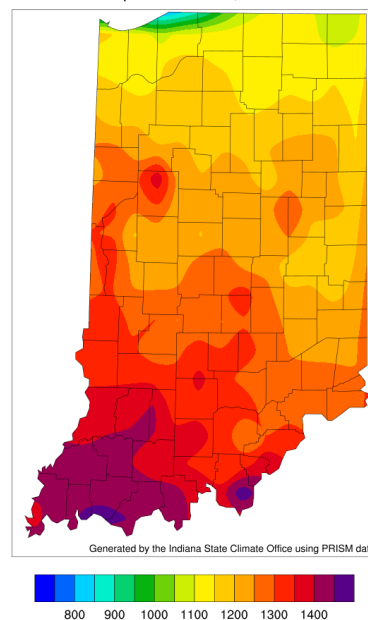


Figure 3. Modified growing degree day accumulations from April 1 to June 30, 2021.

U.S. Drought Monitor Indiana

June 29, 2021
(Released Thursday, Jul. 1, 2021)
Valid 8 a.m. EDT

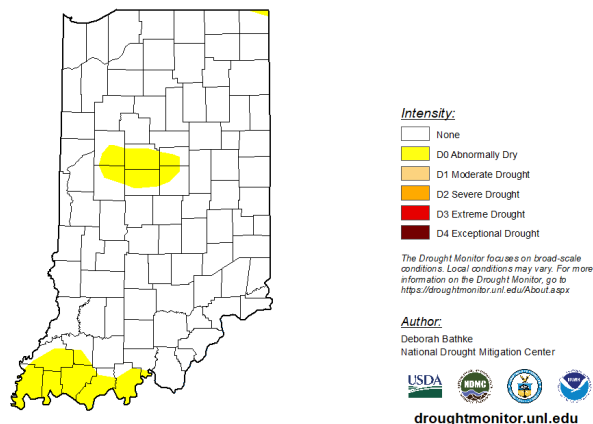
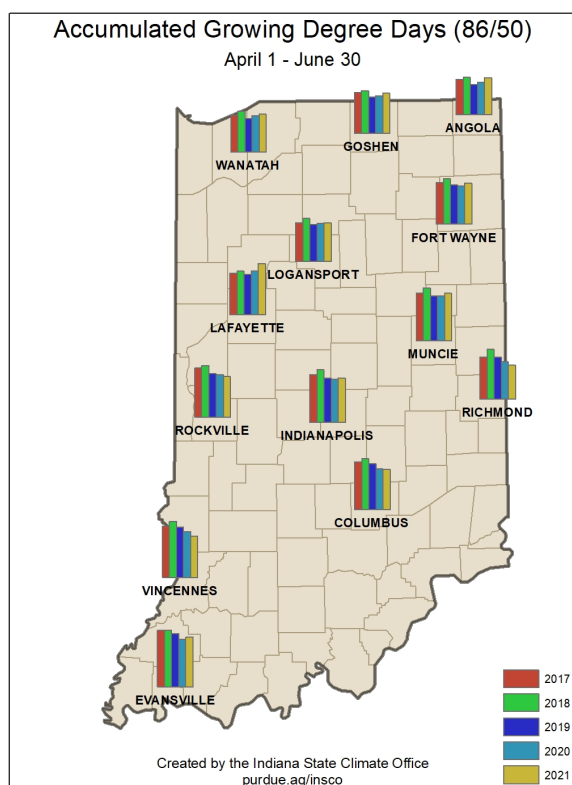


Figure 2. US Drought Monitor status for Indiana as of data through June 29, 2021.

Things will clear up across the state for most of the next week, and then wet conditions are expected to return by the end of next week. The July outlook issued by the national Climate Prediction Center is slightly favoring above-average temperatures and precipitation. However, how much falls and when will be driven by those storm tracks. At this time,

Figure 4. Comparison of 2021 modified growing degree day accumulations from April 1 - June 30 to the past four years.



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