

# Pest & Crop newsletter

**Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant**

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## Western Bean Cutworm Flight Increases

(Christian Krupke) & (John Obermeyer)

The western bean cutworm (WBC) trapping season continues, and after a slow start, moth flights have **rapidly** increased in many northern Indiana county traps the past two weeks. With warm temperatures, egg development and hatch will happen within about 6-8 days after they are first placed by females. This will give little time for egg scouting. Unfortunately larval scouting is far more difficult, time-consuming and less reliable. In other words, some larvae have hatched and have already infested corn whorls, leaf axils, and/or ears. Control is very difficult at this point and those just looking for egg masses beginning now will likely be underestimating the population.



Egg mass showing varying development, darker are further advanced. (Photo Credit: John Obermeyer)



Hatching larvae often eat the eggshells, making detection while scouting more difficult. (Photo Credit: John Obermeyer)

However, it's not too late! Although some eggs have hatched, our current period of increased moth activity represents the peak for egg-laying, as **the vast majority of WBC eggs will be laid over the next 2 weeks**. Use moth trap catches and recent field histories as your guide for prioritizing scouting areas - unlike armyworms and black cutworms, these moths don't usually travel great distances before laying eggs. As you view the "Western Bean Cutworm Adult Pheromone Trap Report", notice the variability of moth captures, even within close proximity to one another. Although the relationship between trap catches and damage is not particularly strong (i.e., high trap counts does not always mean high damage), traps are a good timing mechanism and presence/absence indicator. When they spike suddenly, it's time to scout...for most that means now.

Pre-tassel corn is preferred by egg-laying females. Research conducted at the University of Nebraska has shown that larvae survive best in late whorl stage corn. This is likely because this synchronizes their development with the onset of pollen shed, and pollen is a key, high-protein food source for young larvae before they move into corn ears.





Newly hatched larva heading down the silk channel to the ear tip. (Photo Credit: John Obermeyer)

Scouting should begin once moths are being captured nightly. In five different areas of a field, inspect 20 consecutive plants for egg masses which are laid on the upper surface of the top leaves of corn and/or larvae that may have hatched and crawled to the whorl and begun to feed. Usually the newest, vertical leaf is the best place to look for egg masses. **If 5% of plants have egg masses, the treatment threshold has been reached.**

Young larvae need pollen to survive, and female moths are most attracted to cornfields that are just about to pollinate, although moths will lay eggs on whorl stage corn when pre-tassel/pollinating corn is not available. Larvae may initially be found in leaf axils, feeding on pollen that has accumulated there and can still be controlled with insecticides that trickle down into these areas, but only for a short time. After this they move into the developing ear via the silks and are invulnerable to foliar sprays.



Newly hatched larva feeding on pollen within the leaf axil. (Photo Credit: John Obermeyer)

Remember that this pest is resistant to the Cry1F insecticidal trait – found in the vast majority of “traited corn” planted in the state. So scouting and timely insecticide applications where needed are a must for most producers in WBC’s zone of infestation, primarily the northern tier of counties in Indiana.

**VIDEO:** Western Bean Cutworm Egg Masses & Young Larvae

**VIDEO:** Scouting Western Bean Cutworm Post-Whorl Corn

## 2023 Western Bean Cutworm Pheromone Trap Report

(John Obermeyer)

County	Cooperator	WBC Trapped						
		Wk 1 6/15/23-6/22/23 6/21/23	Wk 2 6/22/23-6/28/23 6/28/23	Wk 3 6/29/23-7/5/23 7/5/23	Wk 4 7/6/23-7/12/23 7/12/23	Wk 5 7/13/23-7/20/23 7/19/23	Wk 6 7/20/23-7/26/23 7/26/23	Wk 7 7/27/23-8/2/23 8/2/23
Adams	Roe/Mercer Landmark, Decatur	0	0	1	0	0		
Allen	Anderson/Blue River Organics, Churubusco	2	1	0	0	25		
Allen	Gynn/Southwind Farms, Ft. Wayne	2	0	0	2	65		
Allen	Kneubuhler/G&K Concepts, Harlan	0	1	0	0	1		
Bartholomew	Bush/Pioneer Hybrids, Columbus	0	0	0	0	0		
Benton	Vickrey/Advanced Agrilytics, Trap 1	0	3	0	0	2		
Benton	Vickrey/Advanced Agrilytics, Trap 2	0	0	0	2	0		
Benton	Vickrey/Advanced Agrilytics, Trap 3	1	0	0	3	0		
Benton	Vickrey/Advanced Agrilytics, Trap 4	4	0	0	2	0		
Benton	Vickrey/Advanced Agrilytics, Trap 5	1	0	1	3	0		
Benton	Vickrey/Advanced Agrilytics, Trap 6	2	0	1	5	2		
Benton	Vickrey/Advanced Agrilytics, Trap 7	2	0	1	5	7		
Benton	Vickrey/Advanced Agrilytics, Trap 8	0	0	2	6	7		
Blackford	Thurman/Ceres Solutions, Warren	0	0	0	0	0		
Clay	Mace/Ceres Solutions, Brazil	0	0	0	0	0		
Clay	Fritz/Ceres Solutions, Clay City	0	0	0	0	0		
Daviess	Brackney/Purdue CES	0	0	0	0			
Dubois	Eck/Dubois Co. CES, Jasper	0	0	0	0	0		
Elkhart	Kauffman/Crop Tech Inc., Millersburg	0	0	0	4	10		
Fountain	Mroczkiewicz/Syngenta, Attica	4	5	13	23	4		
Hamilton	Campbell/Beck's Hybrids	0	0	0	0	4		
Hendricks	Nicholson/Nicholson Consulting, Danville	0	0	0	0	0		
Howard	Shanks/Clinton Co. CES, Kokomo	0	0	0	0	0		
Jasper	Overstreet/Jasper Co. CCSI, Wheatfield	1	8	16	42	118		
Jasper	Ritter/Dairyland Seeds, McCoysburg		0	1	40			
Jay	Boyer/Davis PAC, Powers	0	2	2	0	0		
Jay	Shrack/Ran-Del Co-Alliance, Parker City	0	0		2			
Jennings	Bauerle/SEPAC, Butlerville	0	0	0	0	0		
Knox	Clinkenbeard/Ceres Solutions, Edwardsport	0	3	0	0	0		
Knox	Edwards/Ceres Solutions, Fritchton	0	0	0	0	0		
Kosciusko	Jenkins/Ceres Solutions, Mentone	0	0		35	116		
Lake	Kleine/Rose Acre Farms, Cedar Lake	0	0	1	1	3		
Lake	Moyer/Dekalb Hybrids/Shelby	3	1	5	15	61		
Lake	Moyer/Dekalb Hybrids/Schneider	1	1	10	26	227		
LaPorte	Rocke/Agri-Mgmt. Solutions, Wanatah	1	0	14	75	118		
Miami	Early/Pioneer Hybrids, Macy	0	2	4	33	92		
Montgomery	Delp/Nicholson Consulting, Waynetown	0	0	0	0	1		

County	Cooperator	WBC Trapped						
		Wk 1 6/15/23-6/22/23 6/21/23	Wk 2 6/22/23-6/28/23	Wk 3 6/29/23-7/5/23	Wk 4 7/6/23-7/12/23	Wk 5 7/13/23-7/20/23	Wk 6 7/20/23-7/27/23	Wk 7 7/27/23-8/2/23
Newton	Moyer/Dekalb Hybrids, Lake Village	0	0	2	17	92		
Perry	Lorenz/Lorenz Farms, Rome 1	0	0	0	0	0		
Perry	Lorenz/Lorenz Farms, Rome 2	0	0	0	0	0		
Porter	Boyer/PPAC, Wanatah	0			6	5		
Posey	Schmitz/Purdue CCSI, Blairsville	0	0	0	0	0		
Posey	Schmitz/Purdue CCSI, Cynthiana	0	0	0	0	0		
Pulaski	Capouch Chaffins/M&R Ag Services, Medaryville	0	0	3	21	11		
Pulaski	Leman/Ceres Solutions, Francesville	0	0	0	46			
Pulaski	Nagel/Ceres Solutions, Francesville	0	0	0	134	431		
Putnam	Nicholson/Nicholson Consulting, Greencastle	1	0	1	0			
Randolph	Boyer/DPAC, Farmland	0	2	1	0	0		
Rush	Schelle/Falmouth Farm Supply Inc., Carthage	0	0	0	0	0		
Scott	Tom Springstun/Scott Co. CES, Scottsburg	0	1	0	0	0		
Shelby	Fisher/Shelby County Coop, Shelbyville	0	0	0	0	0		
St. Joseph	Carbiener, Bremen	0			32			
Starke	Capouch Chaffins/M&R Ag Services, Monterey	0	0		47	46		
Starke	Capouch Chaffins/M&R Ag Services, San Pierre	0	0			73		
Sullivan	McCullough/Ceres Solutions, Farmersburg	0	0	0	0	0		
Sullivan	McCullough/Ceres Solutions, Dugger	0	0	0	0	0		
Tippecanoe	Bower/Ceres Solutions, Lafayette	10	48	42	36	3		
Tippecanoe	Obermeyer/Purdue Entomology, ACRE	0	0	0	2	2		
Tippecanoe	Vickrey/Advanced Agrilytics, Trap 1	1	1	0	6	5		
Tippecanoe	Vickrey/Advanced Agrilytics, Trap 2	0	0	0	1	0		
Tippecanoe	Westerfeld/Bayer Research, W. Lafayette	0	0	0	2	1		
Tipton	Campbell/Beck's Hybrids	0	0	0	0	3		
Vigo	Lynch/Ceres Solutions, Clinton	0	1	0	0	0		
Whitley	Emley/NEPAC/Schrader	0	0	2	1	9		
Whitley	Emley/NEPAC/Kyler	0	0	1	0	3		

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

## Prepare To Stockpile Forage For Late-fall And Early-Winter Grazing

(Keith Johnson) & (Ron Lemenager)

What does the word “stockpile” mean to you? Our understanding of the meaning is to “store away for future use.” A few years ago, because of Covid-19, some families were stockpiling toilet paper. Some may have thought that the most-right word was hoarding! *Within forage-livestock agriculture, the word stockpiling refers to growing forage in the pasture that can be used at a later time.*



Rotational grazing a pasture permits stockpiling forage for grazing in the late fall and early winter. (Photo Credit: Keith Johnson)

A properly managed rotational stocking system allows this to happen. Approximately, one-fourth of the acreage can be restricted from the livestock so forage can grow to be grazed in the late fall and possibly the early winter; As forage growth occurs in these paddocks (sometimes called cells), other forage in the remaining paddocks is being grazed in the late summer and early fall. Addition of around 50 pounds of actual nitrogen per acre in late August can stimulate much cool-season grass growth, especially tall fescue, if rainfall occurs. If it fits the rotation, use paddocks with the most contribution from tall fescue to stockpile growth. Pastures with at least 30 percent of the dry matter yield being legumes will not receive as much benefit from the addition of nitrogen and is probably not an advised expense. If a soil test has recently been done or is done pronto, other recommended nutrients can be blended with the nitrogen and applied, too.



Late August is an excellent time to apply nitrogen for stockpiling forage growth. A blended fertilizer can be applied if recommended by soil test. (Photo Credit: Keith Johnson)

## The Forage Producer's Toolkit

(Keith Johnson)

Many professions requiring investing in tools specific to their trade to be



successful. Besides the typical tools of wrenches, screwdrivers, chisels and hammers, what other items or gadgets would be helpful to be a successful forage producer?



Standard tools are necessary on the farm, but other “tools” are necessary investments, too. (Photo Credit: Keith Johnson)

#### ○ **People**

- Find professionals that are knowledgeable, responsive, and have a passion for forages – Advisors should provide value
- Build good working relationships BEFORE a problem occurs
- Your county’s Purdue Agricultural and Natural Resources Extension Educator and Natural Resources Conservation Service office are valuable resources

#### ○ **Join organizations that emphasize forages as a learning opportunity**

- Excellent considerations would be the Indiana Forage Council ([indianaforage.org](http://indianaforage.org)) and your livestock interest association(s)
- Provides an opportunity to network with people of like interests

#### ○ **Resource materials that emphasize forages**

- Forage magazines, websites, podcasts, apps, and publications
- Many forage/livestock information can be found at [edustore.purdue.edu](http://edustore.purdue.edu).

#### ○ **Purdue Plant & Pest Diagnostic Lab**

(<https://ag.purdue.edu/btny/ppdl/Pages/default.aspx>)

- A resource for helping identify issues in the field
- Can help diagnose disease, insects, unknown plants, toxins, and more by utilizing expertise of Purdue specialists

#### ○ **Calendar**

- Document important items on a calendar or in a work diary

- When did seeding, fertilization, pesticide

applications, machine harvest and rotation to another paddock occur?

- What was found when scouting fields? What was done to take care of the concerns?

#### ■ **Web Soil Survey**

(<https://websoilsurvey.nrcs.usda.gov/>)

- Useful in sampling soil by soil type, forage species selection, and best location for building sites

#### ■ **Soil probe**

- Be consistent in timing of each sampling year if comparisons are made among years
- Sample every three years or when big changes occur
- Use soil test results to put a fertilizer management plan in action

#### ■ **Insect sweep net**

- Great resource for capturing aphids, potato leafhopper, and beneficial insects and to determine if there is an economic threshold

#### ■ **Hay probe**

- Test forages for nutritional value
- Aids in formulating rations
- Can test forage that may contain molds or other poisonous substances
- Many different hay probe options – See <https://www.foragetesting.org/>

#### ■ **Moisture and temperature hay bale probe**

- Accurate testing of moisture and temperature determines whether hay in storage may become a concern.

- Too dry – less than 15 percent – Dry matter and quality loss
- Too wet

- Heating – Unavailable crude protein, mold and spontaneous combustion

- Test moisture before harvest; test moisture and temperature often after baling for 3 – 4 weeks
- Know your “danger zones”

- >20 % moisture in small square

bales without an organic acid preservative; > 18 % with large round bales

- > 125 °F: Begin monitoring temperature often

- **Three-Sieve Particle Separator**

- Check chop length from a representative field sample and adjust forage harvester as needed
- Correct chop length allows for best silo packing, lactic acid formation, and proper rumen function

- **Unmanned Aerial Vehicle Worthy of Consideration**

- Grazing pressure
- Species composition
- Plant disease concerns
- Soil fertility problems
- Insect pressure
- Check on water tank function
- Livestock well being

To be a successful forage/livestock producer it is important to invest resources in items that can help with forage production and harvest. From the items noted above, what will be your first of many investments that can improve your business? Buy a birthday gift for yourself!

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## Rain Brings Drought Improvement, But For How Long?

(Beth Hall)

After another week of decent rains across the state (Figure 1), abnormally dry and drought conditions continue to improve according to the latest U.S. Drought Monitor (Figure 2). This has been promising news for both water supplies and agricultural production across the state. As we wonder how long this good fortune might last, we need to think in terms of both temperature and precipitation. Certainly, regular rain events help to keep the environment from getting too dry. However, excessively warm temperatures can increase the rate of dryness even if rain events pass through the area. Did you know we are in the heart of the climatological warmest weeks of the year? This isn't true everywhere in the U.S. Figure 3 shows the average date when the warmest temperatures occurred from 1991-2020. In Indiana, this has typically occurred in the last half of July into early August. If this year mimics this climatological average, then the evapotranspiration rates should start to decrease. Unfortunately, climate outlooks for July 25<sup>th</sup> through August 2<sup>nd</sup> are heavily favoring above-normal temperatures

with near normal precipitation amounts. Near the end of that period, there is a slight chance for above-normal precipitation over Indiana, but will that be too little, too late? It is quite possible that Indiana may experience drought conditions worsening slightly for a few weeks before conditions start to return to near normal or more favorable patterns. The monthly outlook for August (released July 20<sup>th</sup>) provides no guidance regarding temperature, but with probabilities slightly favoring above-normal precipitation in southern counties. The seasonal outlook for August through October is slightly favoring above-normal temperature with relatively weak probabilities for southern Indiana.

Temperature over the past 30 days has remained near normal across Indiana. This has led to accumulated modified growing degree days to run about 60 to 180 units behind the 1991-2020 average for this time of year (see Figures 4 and 5).

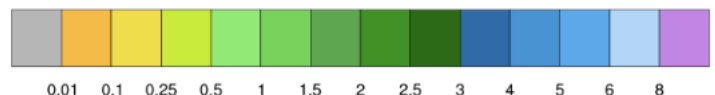
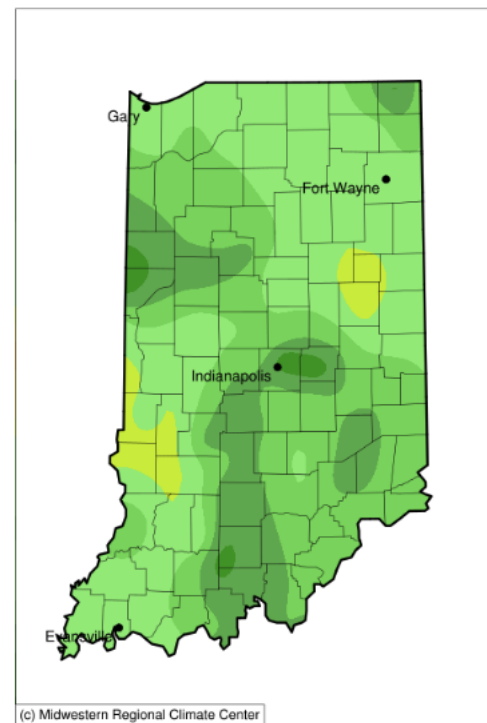
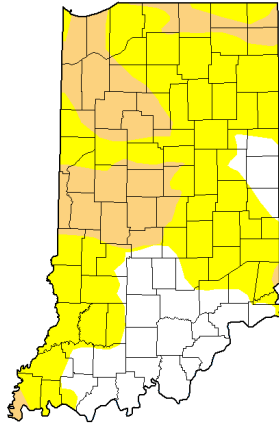


Figure 1. Total precipitation (inches) from July 13-19, 2023.

**U.S. Drought Monitor**  
**Indiana**



**July 18, 2023**  
(Released Thursday, Jul. 20, 2023)  
Valid 8 a.m. EDT

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	23.40	76.60	23.98	0.00	0.00	0.00
Last Week 07-11-2023	18.77	81.23	42.95	18.75	0.00	0.00
3 Months Ago 04-18-2023	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2023	6.84	93.16	58.37	1.34	0.00	0.00
Start of Water Year 09-01-2022	80.92	19.08	0.00	0.00	0.00	0.00
One Year Ago 07-19-2022	31.19	68.81	17.95	0.00	0.00	0.00

**Intensity:**  
None D0 Abnormally Dry D1 Moderate Drought D2 Severe Drought D3 Extreme Drought D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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**Logos:** USDA, NDRC, NOAA, NWS, NCEP

**Website:** [droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Figure 2. U.S. Drought Monitor status for Indiana based upon conditions through Tuesday, July 18, 2023.

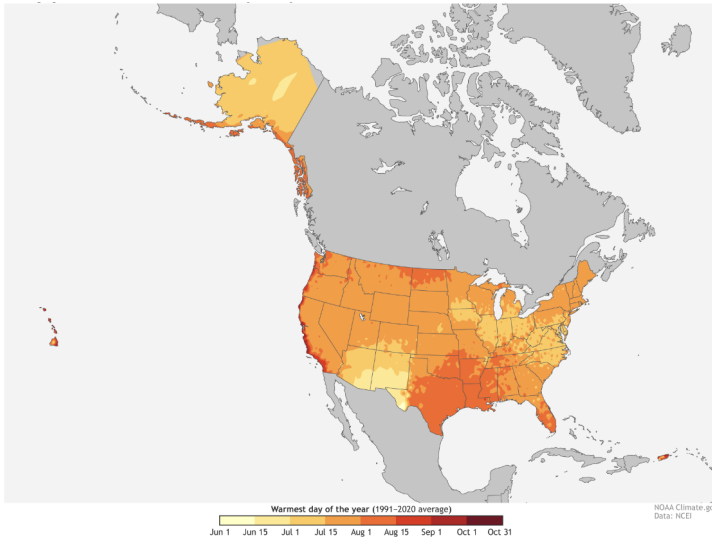
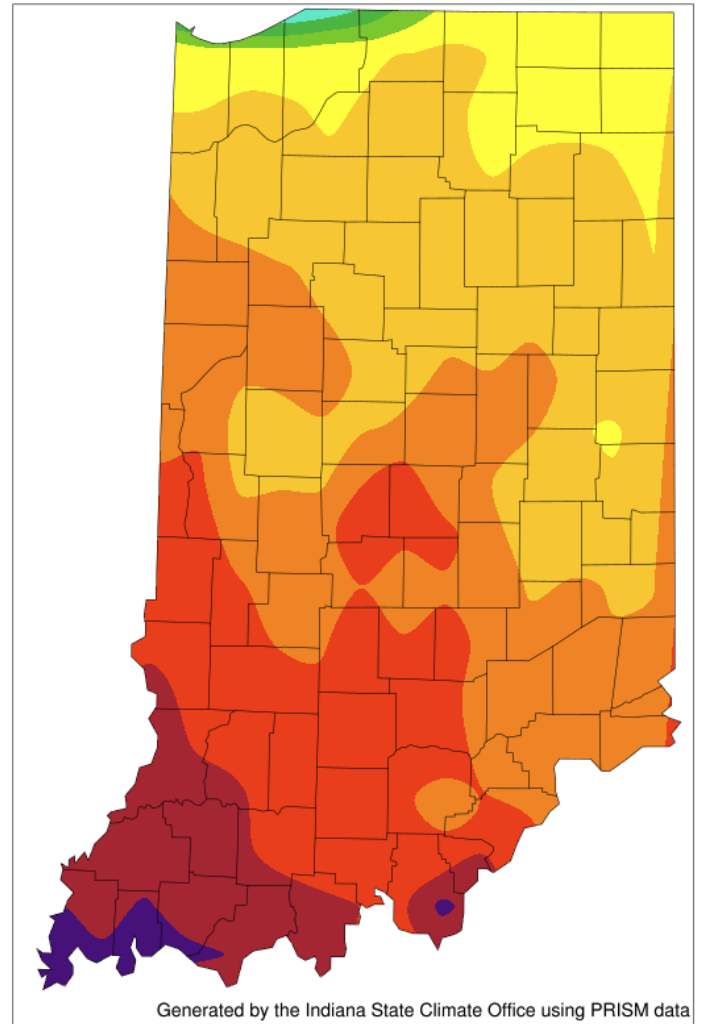


Figure 3. Warmest day of the year based upon data from 1991-2020.

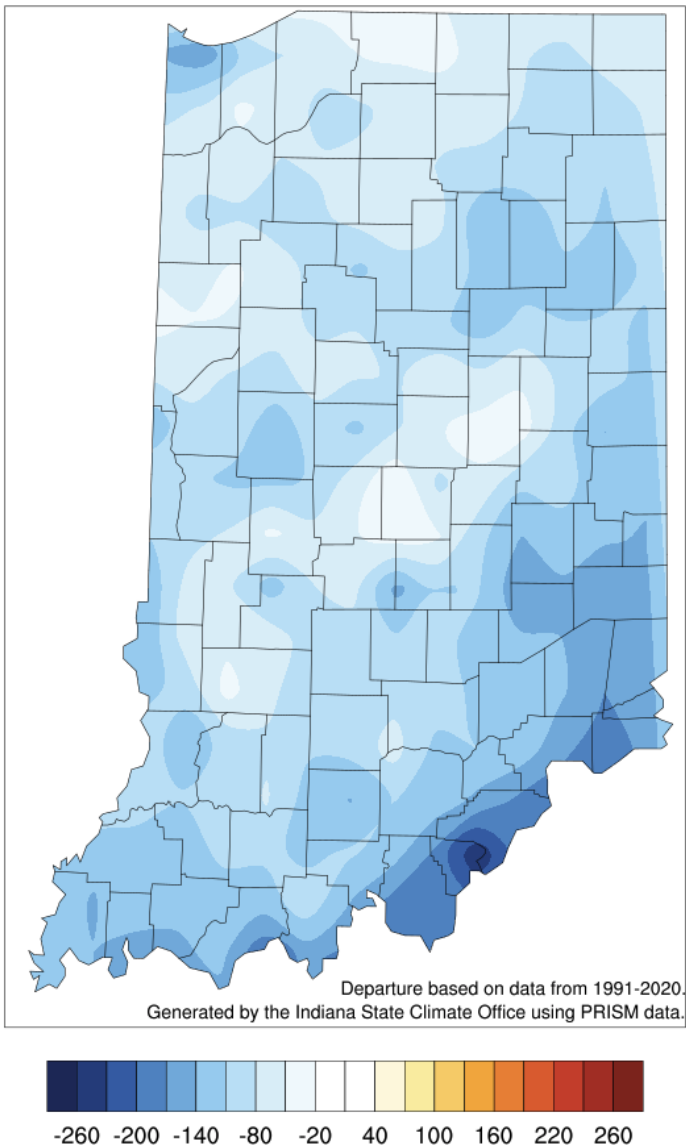


Generated by the Indiana State Climate Office using PRISM data

1000 1200 1400 1600 1800

Figure 4. Modified growing degree day (50°F / 86°F) accumulation from April 15-July 19, 2023.

Figure 5. Modified growing degree day (50°F / 86°F) accumulation from April 15-July 19, 2023, represented as the departure from the 1991-2020 climatological average.



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