PURDUE UNIVERSITY Extension - Entomology

Issue: 2022.15
July 1, 2022

Pest&Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant
This work is supported in part by Extension Implementation Grant 2017-70006-27140/ IND011460G4-1013877 from the USDA National Institute of Food and Agriculture.

In This Issue

Stink Bug Whorl Damage In Corn

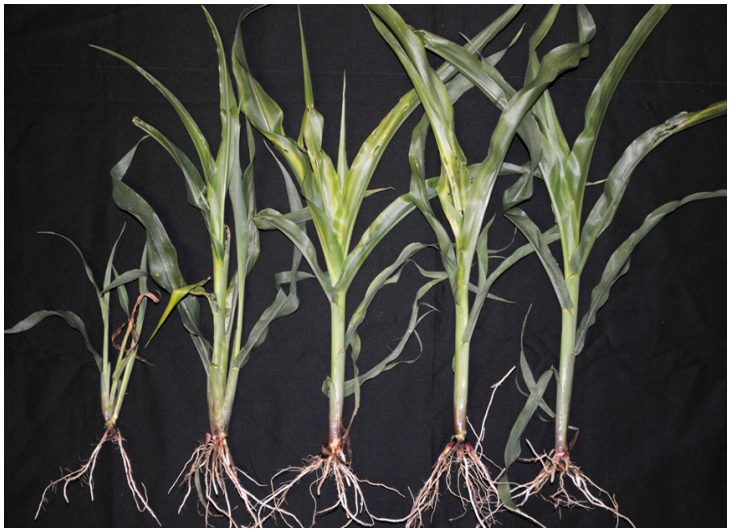
(John Obermeyer)

Reports from those checking cornfields indicate that brown stink bugs had been busy earlier feeding on seedlings and currently within whorls. Damaged plants, stunted and/or leaves with holes and yellow striping, are quite obvious during the whorl stage. The stink bug problems are worse in heavy-residue fields where corn was planted into soils not suitable for good seed-slot closure.

Leaf symptoms from stink bug feeding while leaves were still rolled within the whorl. (*Photo Credit: John Obermeyer*)

Stink bugs feed on corn by inserting their straw-like beak into the stalk or whorled-leaves while injecting an enzyme, which helps digest plant tissue. They prefer to feed on new growth. When seed slots are not properly closed during planting, stink bugs often feed on, or near, the growing point. It is important to remember that seedling corn plants are most vulnerable to attack and damage. By the time obvious feeding symptoms appear, the damage has been done. Symptoms vary, ranging from linear holes with a yellowish edge in the leaves, twisted or deformed stalks, plant suckering, and occasionally plant death. The damage can often be confused with other causes, e.g., herbicide injury, mechanical damage, etc. Brown stink bugs may currently be seen in the corn whorls, but their feeding damage on leaves in the whorl is of little concern.

Brown stink bug nymph down in whorl of damaged plant. (*Photo Credit: John Obermeyer*)



Range of damage from stink bug feeding. The two on left were damaged early and have suckered, becoming “weeds”. (*Photo Credit: John Obermeyer*)

Brown stink bug adult showing straw-like mouth piercing a grass stem. (Photo Credit: John Obermeyer)

Sampling for stink bugs at corn emergence is difficult and time-consuming, as one must crawl on the ground and inspect at the stalk/soil interface. Their early damage is not noticeable for weeks, too late to protect the gnarled corn. Stink bugs feeding in the whorls can be treated, but doing so is only revenge, as the unsightly leaf damage has not been attributed to yield loss. Timely planting, with ideal soil conditions, was a challenge this spring, especially those with heavy residues/covers. The amount of stink bug damage being found now is a reminder of those wet conditions a couple months ago. Happy scouting!

2022 Western Bean Cutworm Pheromone Trap Report

(John Obermeyer)

		WBC Trapped						
		Wk 1 6/16/22-6/22/22	Wk 2 6/23/22-6/29/22	Wk 3 6/30/22-7/6/22	Wk 4 7/7/22-7/13/22	Wk 5 7/14/22-7/20/22	Wk 6 7/21/22-7/27/22	Wk 7 7/28/22-8/3/22
County	**Cooperator**							
Adams	Roe/Mercer Landmark, Decatur	0	0					
Allen	Anderson/Blue River Organics, Churubusco	0	0					
Allen	Gynn/Southwind Farms, Ft. Wayne	0	0					
Allen	Kneubuhler/G&K Concepts, Harlan	0	0					
Bartholomew	Bush/Pioneer Hybrids, Columbus	0	0					
Clay	Mace/Ceres Solutions, Brazil	0	0					
Clay	Fritz/Ceres Solutions, Clay City	0	0					
Clinton	Emanuel, Frankfort	0	0					
Daviess	Brackney/Daviess Co. CES, Montgomery							
Dubois	Eck/Dubois Co. CES, Jasper	0	0					
Elkhart	Kauffman/Crop Tech Inc., Millersburg							
Fayette	Schelle/Falmouth Farm Supply Inc., Falmouth	0	0					
Fountain	Mroczkiewicz/Syngenta, Attica	3	0					
Hamilton	Campbell/Beck's Hybrids	0						
Hancock	Gordon/Koppert Biologicals, Greenfield							
Hendricks	Nicholson/Nicholson Consulting, Danville							
Hendricks	Tucker/Bayer, Brownsburg	0	0					
Howard	Shanks/Clinton Co. CES, Kokomo	0						
Jasper	Overstreet/Jasper Co. CES, Wheatfield	0	0					
Jasper	Ritter/Dairyland Seeds, McCoysburg	1						
Jay	Boyer/Davis PAC, Powers	0	0					
Jay	Shrack/Ran-Del Co-Alliance, Parker City	0						
Jennings	Bauerle/SEPAC, Butlerville	1	0					
Knox	Clinkenbeard/Ceres Solutions, Edwardsport	0	0					
Knox	Edwards/Ceres Solutions, Fritchton	0	0					
Kosciusko	Jenkins/Ceres Solutions/Mentone	0	2					
Lake	Kleine/Rose Acre Farms, Cedar Lake	0	1					
Lake	Moyer/Dekalb Hybrids/Shelby	0	0					
Lake	Moyer/Dekalb Hybrids/Scheider	0	0					
LaPorte	Deutscher/Helena Agri, Hudson Lake	0						
LaPorte	Rocke/Agri-Mgmt. Solutions, Wanatah	0	1					
Marshall	Harrell/Harrell Ag Services, Plymouth	1	1					
Miami	Early/Pioneer Hybrids, Macy	0	1					
Montgomery	Delp/Nicholson Consulting, Waynetown	0	0					
Newton	Moyer/Dekalb Hybrids, Lake Village	1	1					
Perry	Lorenz/Lorenz Farms, Rome 1	0	0					
Perry	Lorenz/Lorenz Farms, Rome 2	0	0					
Porter	Tragesser/PPAC, Wanatah	0	4					
Posey	Schmitz/Posey Co. CES, Blairsville							
Pulaski	Capouch/M&R Ag Services, Medaryville	0						
Pulaski	Leman/Ceres Solutions, Francesville	0						
Putnam	Nicholson/Nicholson Consulting, Greencastle	0	0					
Randolph	Boyer/DPAC, Farmland	0	0					
Rush	Schelle/Falmouth Farm Supply Inc., Carthage	1	0					
Scott	Tom Springstun/Scott Co. CES, Scottsburg	0	0					
Shelby	Fisher/Shelby County Coop, Shelbyville	0	0					
St. Joseph	Carbiener, Breman	0	1					
St. Joseph	Deutscher/Helena , New Carlisle	0						
Starke	Capouch Chaffins/M&R Ag Services, Monterey	0						
Starke	Capouch Chaffins/M&R Ag Services, San Pierre	0						
Sullivan	McCullough/Ceres Solutions, Farmersburg	0	0					
Sullivan	McCullough/Ceres Solutions, Dugger	0	0					
Tippecanoe	Bower/Ceres Solutions, Lafayette	0	2					
Tippecanoe	Nagel/Ceres Solutions, W. Lafayette	0	0					
Tippecanoe	Obermeyer/Purdue Entomology, ACRE	0	0					
Tippecanoe	Westerfeld/Bayer Research, W. Lafayette	0	0					
Tipton	Campbell/Beck's Hybrids	0						
Vigo	Lynch/Ceres Solutions, Clinton	0	0					
White	Foley/ConAgra, Brookston	0	0					
Whitley	Boyer/NEPAC/Schrader	0						
Whitley	Boyer/NEPAC/Kyler	5						

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

Take Time To Evaluate Yield, Quality, Resistance, Persistence When Selecting Forage Varieties

(Keith Johnson)

Many times I get frustrated when I go to the grocery store. The task seems simple enough; purchase a can of beans. The problem for me as I stare up and down the bean shelf is there are too many darn bean choices. Some are no spice, low spice, medium spice, or hot spice. Some are white beans, red beans, black beans or brown beans. Beans are labeled Company A through Company G. Some are higher price, moderate price or lower price. The beans are canned, in glass, or in a plastic bag. After complete evaluation, I make my decision on what bean type I am going to buy after ten minutes have passed. And then, I need to move up the aisle and do the same thing with corn and carrots.

Spend more time evaluating the right forage variety for purchase than the right bean on the grocery shelf. (*Photo Credit: Keith Johnson*)

I hope you take more time evaluating what forage species and variety of that species should be purchased than the time taken to buy a vegetable type and brand at the grocery store. I perceive that way too often a producer walks into a business that sells seed and purchases an inferior forage variety because they don't start the evaluation process soon enough and the top varieties have already been sold, they are novices and don't realize that there are variety choices within a forage species, or the employee is not fully informed on the differences among species and varieties.

I encourage you to contact seed dealers now if you have perennial forages to seed in August and early September. For those of you planning on seeding cover crops this fall and forages next spring, begin the species and variety selection process sooner than later.

What considerations should be made when selecting a forage variety?

- Select a seed company that has personnel that understands the product they have to sell and can give specific information about forage species and varieties within a species.
- Select a named variety and not one with "Variety Not Stated" or "VNS" on the seedtag. You do not know the genetic attributes

of the seed when the variety is not stated.

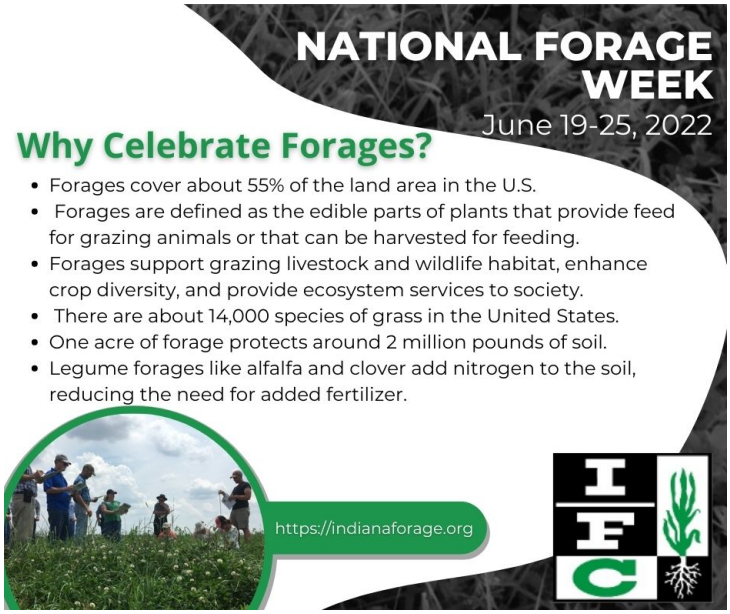
- Yield – See if yield data is available for performance comparisons among varieties.
- Quality – Always review the seedtag for purity, germination, hard seed amount if a legume, presence of weed seed, testing date, and other attributes listed. A publication regarding seedtag labels can be found at https://extension.purdue.edu/extmedia/AY/AY-375-W.pdf. Also consider forage quality when selecting a variety. Consider selecting a sorghum-sudangrass or pearl millet with the brown midrib trait for improved digestibility. Less lignin alfalfa varieties are now available, too. Tall fescue variety choice should be a novel endophyte or low-endophyte variety.
- Resistance – Diseases that are problematic in your area should be considered when selecting varieties. Genetic resistance to diseases is an important step in reducing damage caused by pathogens. Potato leafhopper resistant alfalfa varieties are available to reduce damage caused by this sap-sucking insect. Orchardgrass leaf diseases can be reduced by selecting varieties with high resistance.
- Persistence – If purchasing a perennial forage, select a species and variety that has proven ability to withstand weather extremes such as very cold winters and drought.
- Maturity of mixtures – If cool-season grasses and legumes are to be sown as a mixture, select a cool-season grass variety that has similar maturity as the legume, especially if the forage is to be harvested as hay or silage.

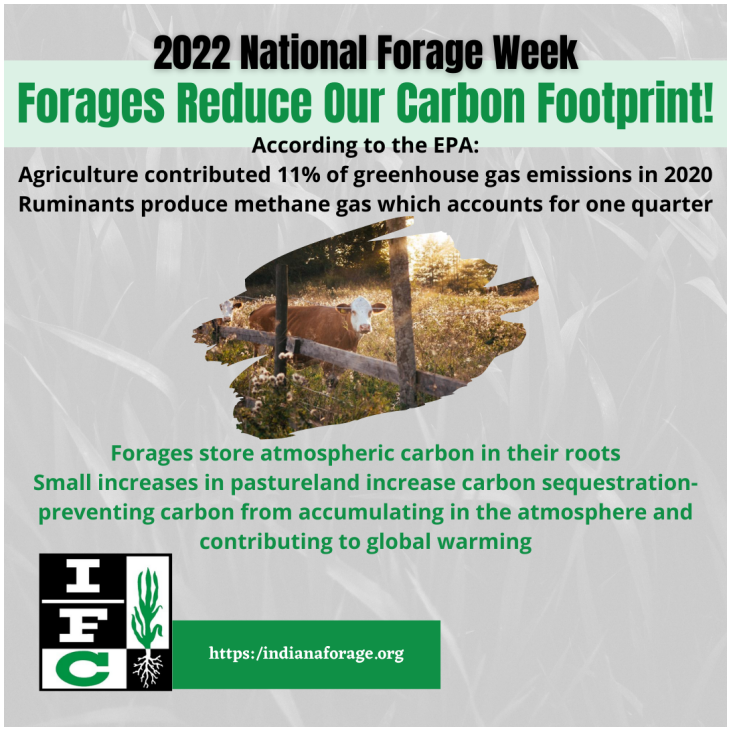
Taking time to select the right forage species and variety is critical to the success of the forage enterprise.

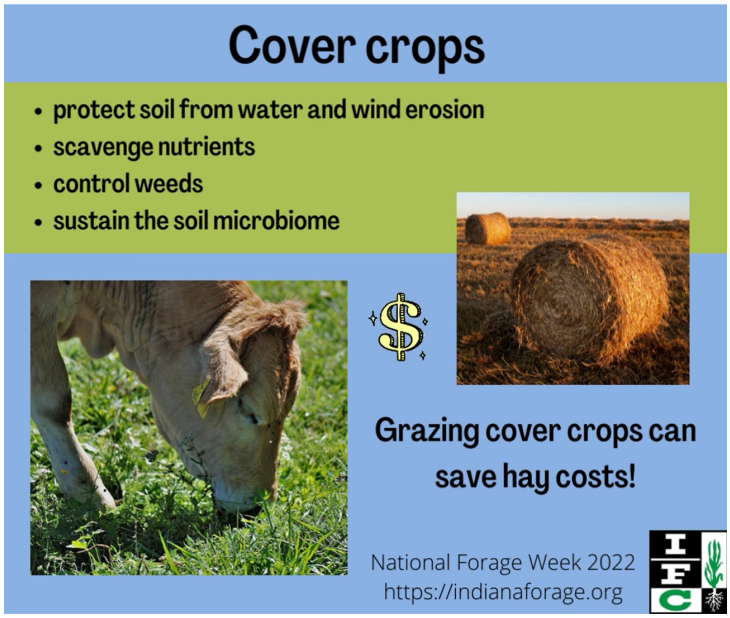
National Forage Week – A Time To Celebrate Forages

(Elysia Rodgers, Dekalb County ANR Educator), (Grace Hannan, Indiana Forage Council Intern), (Levi Spurgeon, Indiana Forage Council Intern) & (Keith Johnson)

National Forage Week was last week (June 19 – 25). The leadership team of the Indiana Forage Council, a not-for- profit organization, decided it was appropriate to share on the council's Facebook page the contributions forage crops provide the world. If you did not see the daily posts, they follow.







An interview with the "Indiana Forage Producer of the Year", Ronnie Boehm, was done with the help of "Hoosier Ag Today" personnel. The interview begins at 50 seconds at the following link. Ronnie custom grazes cows and their calves on well managed pastures in Spencer County.

National Forage Week Interview with Hoosier Ag Today

Celebrate every day with an appreciation for all that forages do for the world. Have some ice cream. It's a great indirect way to eat forages!

Sequester Carbon For Hire: Carbon Markets

(Melissa Widhalm), (Hans Schmitz) & *(Austin Pearson)*

The concept of "carbon farming"—or paying farmers to store carbon in the soil—has become a popular topic as business leaders, politicians, environmentalists, and individual citizens look for ways to slow down

climate change.

The idea is relatively simple. Companies that cannot or choose not to reduce carbon emissions instead pay a farmer to store carbon in the soil, with the goal that more carbon is getting stored than is being emitted. Certain farming practices, such as no-till and using cover crops, naturally sequester or pull carbon from the air and store it in the soil. Over time, carbon dioxide is reduced in the atmosphere while organic matter is increased in the soil. Farmers receive payments for storing carbon while also reaping the benefits of improved soil health.

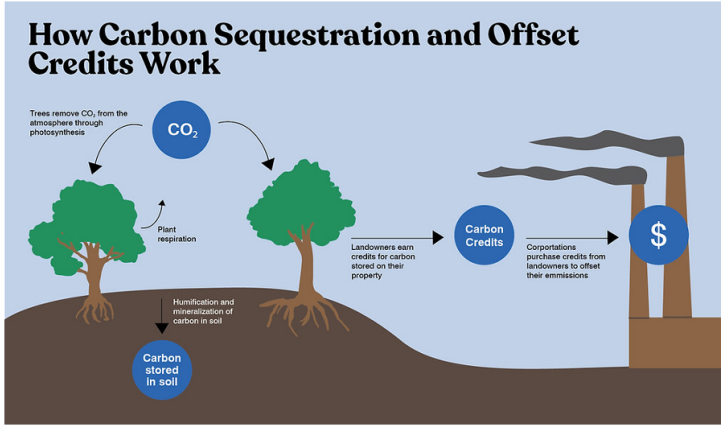
However, the devil is in the details. How do we know how much carbon is getting stored? How much is it worth? Who is verifying practices and managing payments? Well, carbon markets are new and evolving, participation is voluntary and limited, and standards for verification are still being developed. Some might say it is the Wild West when it comes to carbon markets.

A myriad of options exists, but each company has its own requirements. Some want to reward recent/past practice adoption, while others expect practice adoption while actively under contract. Most require extensive recordkeeping and reporting to assist in the measurement of carbon sequestration. At least one company allows the farmer to set the price of their carbon, while most have a uniform price structure based on the practice(s) implemented. Some programs limit payments to cover crop and no-till adoption, while others are expanding to a variety of other practices with more or less scientific rigor behind their sequestration abilities.

Purdue's Carson Reeling and Nathanael Thompson have been keeping up with the trends in carbon markets. In a recent article titled "Opportunities And Challenges Associated With "Carbon Farming" For U.S. Row-Crop Producers" they note the sheer amount of payment offered is often not enough to cover the initial cost of realizing practice adoption and changing farm management accordingly. However, significant potential exists for farmers who want to gain soil organic matter to use the markets as a way to lessen the blow of any learning experiences acquired on the way toward conservation cropping systems.

In addition to commercial row crop production, livestock sectors are looking at ways to adopt carbon neutral practices. In one example, the dairy industry is looking to achieve greenhouse gas neutrality by 2050 (https://www.usdairy.com/sustainability/environmental-sustainability). However, the private carbon markets have not at this point found a good incentive structure for most livestock production practices. At this point in time, livestock producers miss out on the markets.

There is still much to learn concerning carbon markets and how producers can get involved. The option may not fully offset greenhouse gas emissions, but will certainly help account for a piece of the puzzle. For more information, visit the USDA Carbon website.



The figure illustrates how carbon offset credits work. Source: Jonathan Zhou's article titled "A deep delve into Biden's environmental policies".

Farming for a Better Climate is written in collaboration by the Purdue Extension, the Indiana State Climate Office, and the Purdue Climate Change Research Center. If you have questions about this series, please contact in-sco@purdue.edu.

Is Indiana Experiencing A Flash Drought?

(Beth Hall)

The most recent U.S. Drought Monitor now has over 87 percent of Indiana in some level of dryness and/or drought (Figure 1). The rate this coverage has both expanded and intensified is impressive. Since at least 2012, drought specialists and climatologists have been studying "flash drought" including how to define it and therefore identify it. The original idea was based upon "flash floods" where flash drought develops quickly, rapidly intensifies compared to other droughts, and then tends to back off (i.e., weaken) relatively quickly. If you are ever in the mood to witness some rather animated – yet dry – debates about this, hang out with these climate scientists. Aside from the entertainment value, it is quite enlightening the many nuances associated with drought. A few highlights to the debate include: How fast is a "rapid onset" defined (e.g., 1 week, 1 month)? How is rapid intensification defined (e.g., 2-category change in the U.S. Drought Monitor within two weeks, 4-inch soil moisture depletion below a certain threshold within a defined period of time, rate of browning lawns?)? How do we define when a flash drought is over, even if long-term drought continues? Some consensus is developing, but there is a long way to go. For example, there is consensus that a rapid intensification of drought could occur amid an ongoing, long-term drought. Indicators used to determine a rapid intensification may differ throughout the U.S. Given how quickly the U.S. Drought Monitor's drought levels have expanded and increased over the past few weeks across Indiana, there is good justification to say that the state is experiencing a rapid intensification of drought. Whether it is called a "flash drought" is yet to be determined.

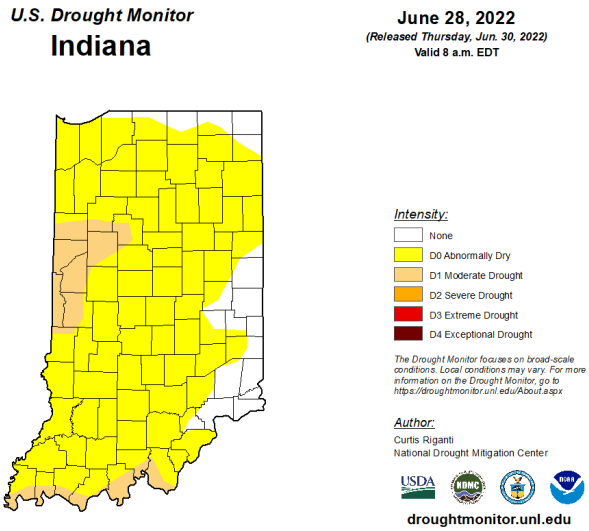


Figure 1. U.S. Drought Monitor for Indiana as of June 28, 2022.

Figure 2 illustrates how dry it has been in June. Thanks to the many weather stations and volunteer CoCoRaHS (cocorahs.org) observers across the state, the map shows where sub-county locations received less than 25 per cent of normal amounts for that period. Only far northeastern Indiana received above-normal precipitation for the month. The average temperature for June was near normal to slightly above normal (Figure 3). This may seem surprising given the extreme heat that was felt for several weeks. However, the important word in that sentence is "felt", since it was the unusually high dew-point temperatures that make the apparent temperature – or heat index – so much higher.

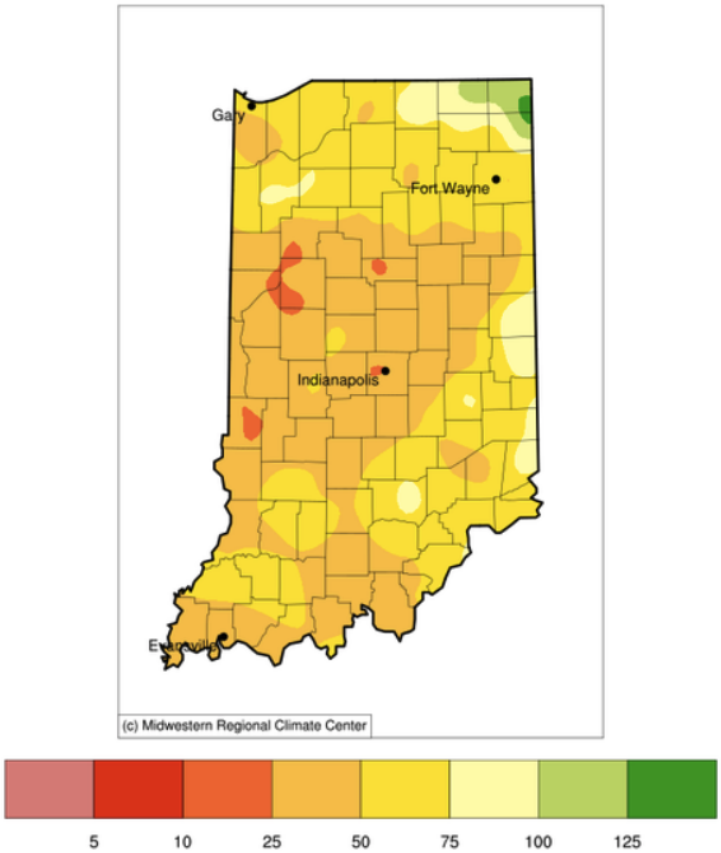


Figure 2. Precipitation from June 1-30, 2022 represented as the percent of what normally fell during that same period from 1991-2020.

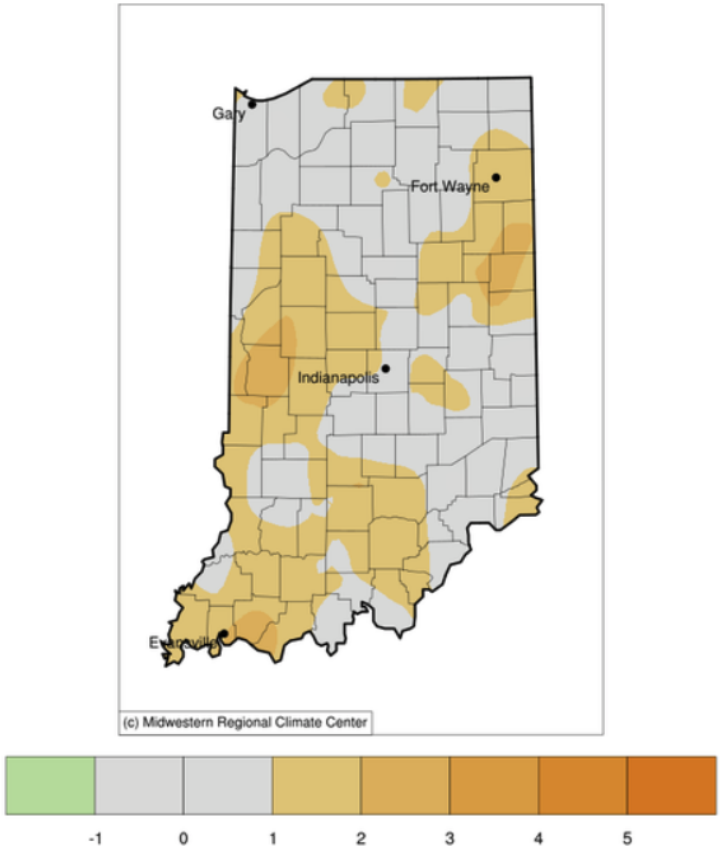


Figure 3. June temperature represented as the departure (in degrees Fahrenheit) from the 1991-2020 June average.

There is some good news in both the forecasts and the climate outlook. The National Weather Service is predicting around 0.5-1.5 inches of precipitation across the state through next Thursday, July 7, 2022 (Figure 4). There appears to be a bit of uncertainty and therefore confidence on when, where, and if this will happen, but if it does, it should provide some relief to these current conditions. The 8-to-14-day climate outlook (July 7-13, 2022) is favoring above-normal temperature with slight probabilities for above-normal precipitation. Finally, the climate outlook for July (released June 30, 2022) is continuing to favor above-normal temperatures with too much uncertainty about precipitation.

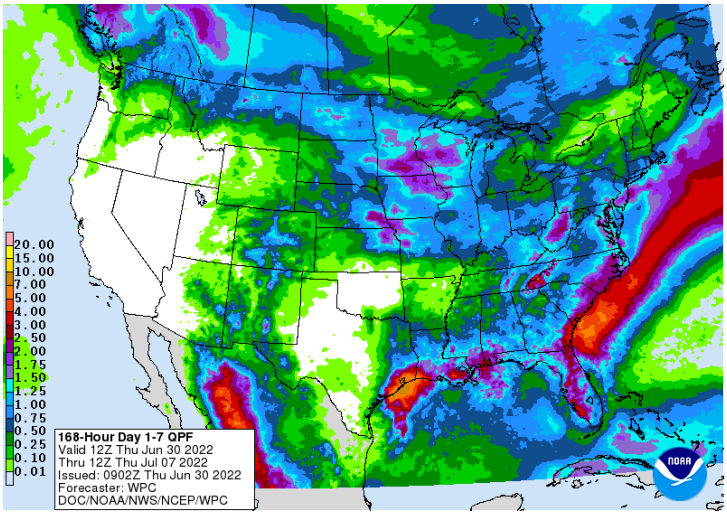


Figure 4. Forecasted precipitation amounts (inches) for June 30, 2022 through July 7, 2022.

Accumulated modified growing degree days, thanks to the higher-than-normal maximum daily temperatures experience in June, are 30 to 90 units above the climatological average in the southern two-thirds of Indiana with northern counties very near normal (Figures 5 and 6).

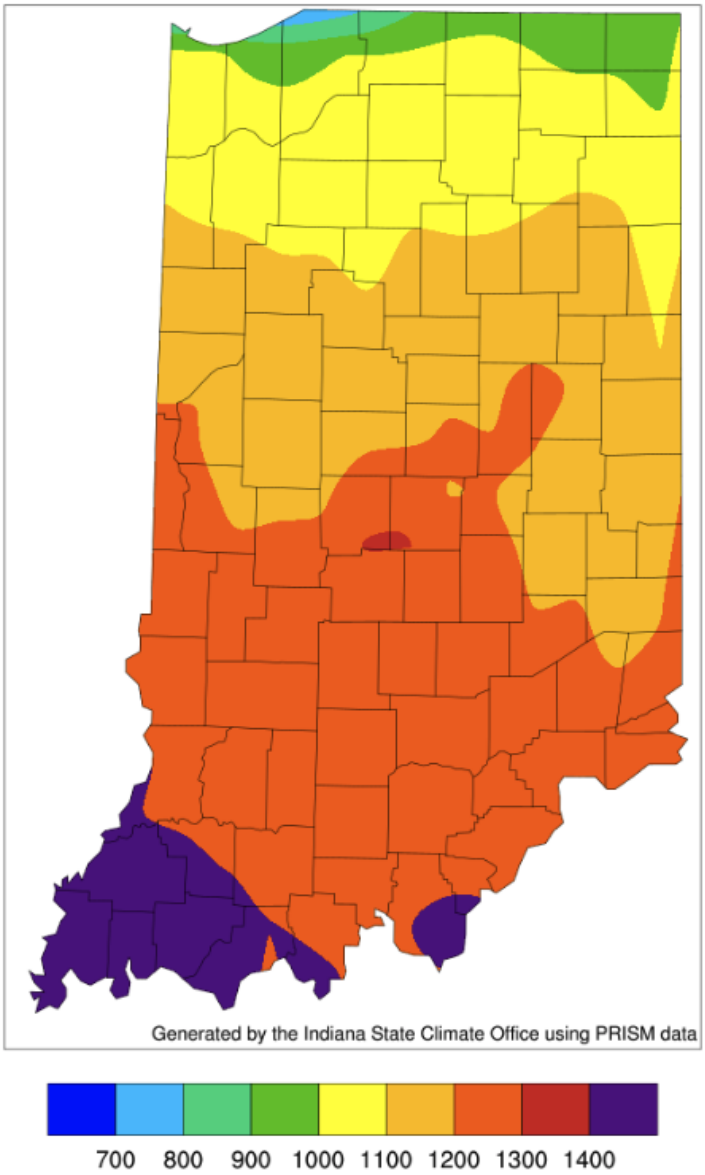


Figure 5. Modified growing degree day (50°F / 86°F) accumulation from April 15-June 29, 2022.

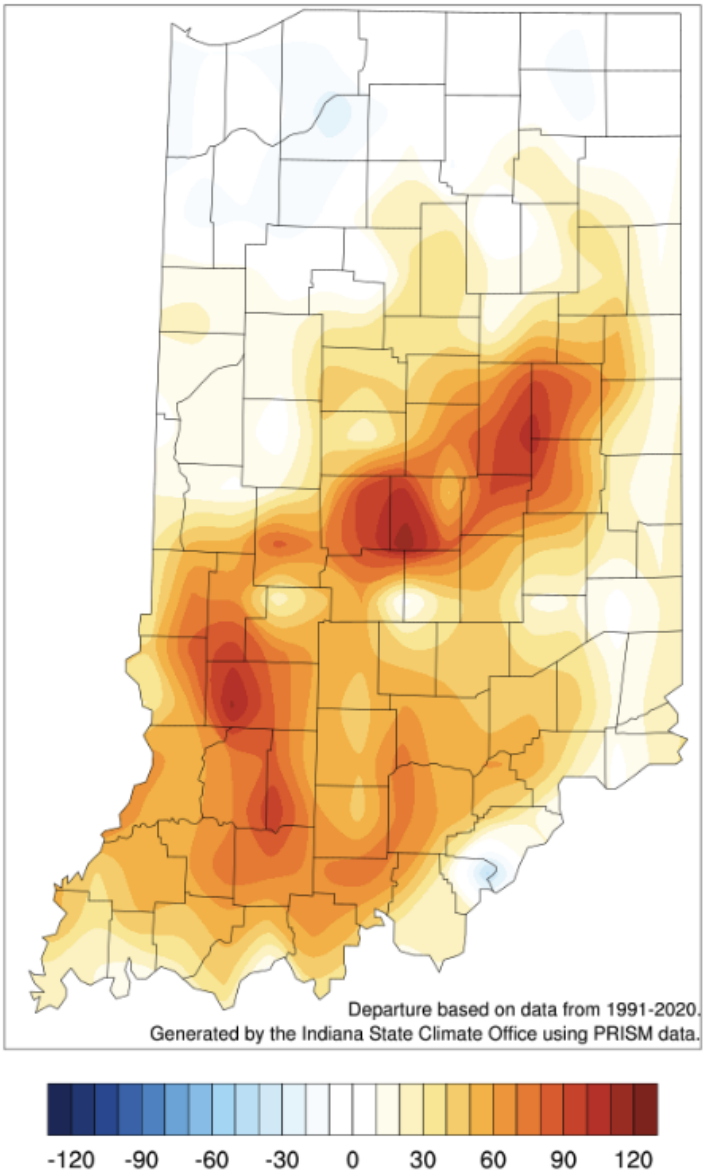


Figure 6. Modified growing degree day (50°F / 86°F) accumulation from April 15-June 29, 2022, represented as the departure from the 1991-2020 climatological average.

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