

Pest&Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant

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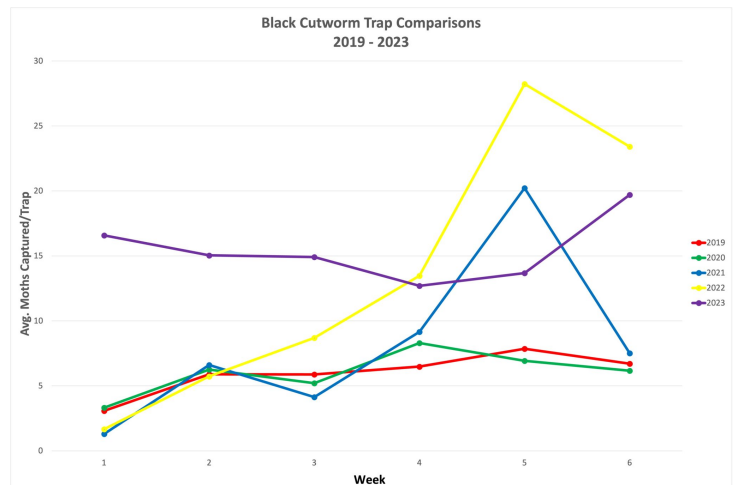
Black Cutworm Moth Trap Captures Compared: Look at 2023's Early Start

(John Obermeyer) & (Christian Krupke)

Every spring, volunteers throughout the state put forth considerable effort in trapping for the arrival and intensity of black cutworm moths. We are indebted to these faithful bug counters, hoping you also appreciate their efforts as reported in the "Black Cutworm Adult Pheromone Trap Report." If you recognize a name or two on this list of volunteers, by county, please thank them for their efforts! Heck...buy them a cup of coffee!

Not since 2012 have we seen such an early flush of black cutworm moths! As described in a [Pest&Crop #3 article](#), an intense storm causing lives and destruction on April 1, also brought massive numbers of moths from the Southwestern States. In addition, we've not had widespread freezes since then. Because of that, we set that date as biofix, and began accumulating heat units for cutworm development, that also tracks very closely to corn development. This is all explained in last week's Pest&Crop [here](#). If you view the "Growing Degree Day (50F/86F) Accumulation," April 1 - May 10, 2023, in this week's "Weather Update," you'll see that cutting of black cutworm is possible about three-quarters the way up the state. No surprise that this week's heat has accelerated the cutworm's development. This is a friendly reminder to SCOUT those high-risk emerging corn fields!

Consider, that April 1 was only the beginning of a significant moth arrival, the graph clearly shows that moths have continued to arrive in meaningful numbers. This potentially spreads out this risk to corn just planted, not those already emerged. Happy scouting!!!



2023 Black Cutworm Pheromone Trap Report

(John Obermeyer)

County	Cooperator	BCW Trapped					
		Wk 1 4/1/23	Wk 2 4/6/23- 4/12/23	Wk 3 4/13/23	Wk 4 4/20/23	Wk 5 4/27/23	Wk 6 5/4/23- 5/10/23
Adams	Roe/Mercer	3	9*	5	22*	14	10
Allen	Landmark/Decatur	0	1	0	8		9
Allen	Anderson/Indigoag/Churubus co	1	2	3	3	3	8
Allen	Gynn/Southwind Farms/Ft. Wayne	61*	50*	26*	43*	15	29*
Allen	Kneubuhler/G&K Concepts/Harlan						
Bartholome w	Bush/Top Crop Alliance/Columbus	0	0	4	8	27*	5

County	Cooperator	BCW Trapped					
		Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6
		4/1/23	4/6/23-4/12/23	4/13/23	4/20/23	4/27/23	5/4/23-5/10/23
		4/5/23	3	4/19/23	4/26/23	5/3/23	3
Benton	Nally/Dairyland Seeds/Remington	1	11	21*	31*	22*	32*
Clay	Mace/Ceres Solutions/Brazil	4	1	0	1		0
Clay	Fritz/Ceres Solutions/Clay City	5	0	3	11*	9	0
Clinton	Emanuel/Frankfort	19*	11	12	6	40*	68*
Daviess	Brackney/Daviess Co. CES/Montgomery	1	0	0	5	14*	2
Dubois	Eck/Dubois Co. CES/Jasper	14	21*	12	6	13	4
Elkhart	Kauffman/Crop Tech/Millersburg	5	30*	8	8	4	4
Fountain	Mroczkiewicz/Syngenta/Attica	39*	21*	47*	38*	32*	68*
Hamilton	Campbell/Beck's Hybrids	54*	37*	22*	13	21*	20*
Hendricks	Nicholson/Nicholson Consulting/Danville		5	10	24*	92*	63*
Hendricks	Tucker/Bayer/Brownsburg			21*			
Howard	Shanks/Clinton Co. CES/Kokomo	0	2	5	3	5	8
Jasper	Overstreet/Jasper Co. CES/Rensselaer	65*	3	4	0	0	3
Jasper	Ritter/Dairyland Seeds/McCoysburg	0	9	10	11		
Jay	Boyer/Davis PAC/Powers	2	2	10	8	18*	17
Jay	Shrack/Ran-Del Co. Alliance/Parker City	37*	21*	37*	27*	31*	41*
Jennings	Bauerle/SEPAC/Butlerville	42*	8	5	2	19	11
Knox	Clinkenbeard/Ceres Solutions/Edwardsport	0	5	8	37*	7	1
Knox	Edwards/Ceres Solutions/Fritchton	1	4	3	6	5	0
Kosciusko	Jenkins/Ceres Solutions/Mentone	13	24*	24*	8	12	9
Lake	Kleine/Rose Acre Farms/Cedar Lake	151*	94*	52*	16	20*	87*
Lake	Moyer/Dekalb Hybrids/Shelby	5	16	19*	6	8	5
Lake	Moyer/Dekalb Hybrids/Schneider	0	1	9	7	10	14
LaPorte	Rocke/Agri-Mgmt. Solutions/Wanatah	26*	27*	27*	6	16	43*
Miami	Early/Pioneer Hybrids/Macy	0	7	1	1		0
Montgomery	Delp/Nicholson Consulting/Waynetown	13		19*	36*	30*	28*
Newton	Moyer/Dekalb Hybrids/Lake Village	2	4	6	2	1	11
Perry	Lorenz/Lorenz Farms/Rome	1	6	1	0	0	
Perry	Lorenz/Lorenz Farms/Rome	2	0	0	0	0	
Porter	Boyer/PPAC/Wanatah	16*	39*	27*	17	6	26*
Porter	Freyenberger/Dairyland Seeds/Kouts			0	1		
Posey	Schmitz/Purdue CCS/Blairsville	0	4	10	5	12	8
Posey	Schmitz/Posey Co. CES/Cynthiana	0	1	0	0	0	6
Pulaski	Leman/Ceres Solutions/Francesville		44*	28*	42*	17	
Putnam	Nicholson/Nicholson Consulting/Greencastle	15*	5	19*	18*	20*	37*
Randolph	Boyer/DPAC/Farmland	5	9	18*	16	11	29*
Rush	Schelle/Falmouth Farm Supply/Carthage		0	5	2	4	2
Scott	Tom Springstun/Scott Co. CES/Scottsburg	0	1	5	5	5	6
Shelby	Fisher/Shelby County Coop/Shelbyville		0	3		8	
St. Joseph	Carbiener/Breman	0	25*	42*			
Sullivan	McCullough/Ceres Solutions/Farmersburg	2	3	7	1	5	7
Sullivan	McCullough/Ceres Solutions/Dugger		0	5	3	10	1
Tippecanoe	Bower/Ceres Solutions/Lafayette	33*	53*	28*	26*	20	45*
Tippecanoe	Nagel/Ceres Solutions/W. Lafayette	17*	36*	42*	29*	35*	74*
Tippecanoe	Obermeyer/Purdue Entomology/ACRE	19*	31	55*	26*	14	19
Tippecanoe	Westerfeld/Bayer Research Farm/W. Lafayette	15*	6	20*	9	7	21*
Tipton	Campbell/Beck's Hybrids	2	1	9	14	3	7
Vigo	Lynch/Ceres Solutions/Clinton	2	1	0	2	9	4
Whitley	Emley/NEPAC/Schrader	74*	76*	58*	11	17*	26
Whitley	Emley/NEPAC/Kyler	32*	15	5	13	6	8

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

Armyworm Pheromone Trap Report – 2023

(John Obermeyer)

County/Cooperator	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Dubois/SIPAC Ag Center	0	80	56	14	25	48					
Jennings/SEPAC Ag Center	21	20	39	8	12	11					
Knox/SWPAC Ag Center	37	242	46	26	16	6					
LaPorte/Pinney Ag Center	60	296	216	54	56	401					
Lawrence/Feldun Ag Center	159	99	197	70	41	119					
Randolph/Davis Ag Center	57	0	0	2	5	414					
Tippecanoe/Meigs	36	56	51	8	6	39					
Whitley/NEPAC Ag Center	0	259	179	13	39	323					

Wk 1 = 4/1/23-4/5/23; Wk 2 = 4/6/23-4/12/23; Wk 3 = 4/13/23-4/19/23; Wk 4 = 4/20/23-4/26/23; Wk 5 = 4/27/23-5/3/23; Wk 6 = 5/4/23-5/10/23; Wk 7 = 5/11/23-5/17/23; Wk 8 = 5/18/23 - 5/24/23; Wk 9 = 5/25/23-5/31/23; Wk 10 = 6/1/23-6/7/23; Wk 11 = 6/8/23-6/14/23

Improving Hay Drying Rates with Mower-Conditioner Adjustments

(Keith Johnson)



Mechanical conditioning the crop with rubber rollers (shown in picture) or steel rollers reduces hay drying time

Harvest of cool-season perennial grasses and perennial legumes is beginning soon. Getting a standing forage crop that measures 75 percent moisture or more to a safe baling moisture of 18 to 20 percent moisture is “easier said than done”. Changing weather fronts pass through every third or fourth day making it a challenge to quickly dry hay. Research has shown that properly conditioning forage crops is the single most effective way to reduce curing time. Making the proper settings on your mower-conditioner will ensure the best economic return.

When conditioning a forage crop, the goal should be to have 90 percent of the crop's stems show some signs of a cracking or limpness. No more than 5 percent of the leaves should show signs of bruising or blackening from the conditioning process — this is especially important with legumes.

Remember, over conditioning forage crops will cause excessive leaf loss during the drying process and reduce the crop's overall yield and

quality. At the same time, under conditioning the crop will make it more susceptible to rainfall as it will take longer to dry the crop and requires more mechanical manipulation to dry the hay.

When making the settings to your mower-conditioner, make sure to:

- Alter the conditioning roll gap properly by using the shims located on the roll stops. Refer to your owner's manual.
- Adjust the conditioning roll pressure to ensure proper conditioning.
- Check conditioning with **every** cutting or crop change. Variables such as yield, relative forage species composition, and stem diameter change from one crop to the next, or one field to the next.
- Keep the sickle bar and disk mower blades in good cutting.
- Adjust the reel position and speed for adverse conditions, such as a lodged or tangled crop.
- Alter the swath width for drying conditions. Set it wide if the soil is dry and good drying conditions are expected. Create a narrow windrow if the soil is wet. This allows the soil to dry between the windrows. Then, ted the narrow windrows onto the dry parts of the field.

Measuring Conditioning Roll Clearance

Generally, the mower-condition's roll clearance should range from 1/16 inch to 3/32 inch. If the clearance is less than this range, excessive leaf loss and roll wear can occur. If the clearance is significantly more than this range, then the crop will not be conditioned as effectively, and slower drying rates can be expected. Most mower-conditioner owner's manuals will indicate the proper clearance level and the correct procedure for making adjustments.

The following procedure can be used to determine the average roll clearance on most roll-type mower-conditioners. To conduct this procedure safely you must:

- Shut off the tractor engine.
- Disconnect the mower-conditioner power take-off (PTO) from the tractor on mechanically driven units.
- Disconnect the mower-conditioner PTO hydraulic pump from the tractor on hydraulically driven units.
- Lower the cutting platform.

The procedure's steps are:

1. Cut three pieces of typical household aluminum foil. Each piece should be 18 inches long and at least 12 inches wide.
2. Form three separate rolls from the foil strips by wrapping each one around a length of rod, pipe, or dowel that is 3/8 inch in diameter. Slide the foil roll off the rod, taking care not to crush the foil roll.
3. Place one foil roll in the approximate center of the conditioning rolls. Place the other foil rolls about 1 foot from each end of the conditioning rolls. Place the foil rolls so that they are perpendicular to the roll's longitudinal axis.
4. **Make sure the cutting platform is fully lowered.** This is the only safe way to make this measurement. Furthermore, raising the platform on some mower-conditioners will open and separate the rolls, preventing an accurate measure of the minimum roll clearance.
5. Turn the conditioning rolls by hand until the foil rolls come through completely.
6. The conditioning rolls will crush the foil. Use a digital or dial

caliper to measure the thickness of the crushed foil roll to determine the minimum roll clearance. Take several thickness measurements along the length of each foil roll and determine an overall average. Take the measurement where the "crimp," or smallest clearance, occurs. The crimped foil thickness should range from 1/16 inch to 3/32 inch.

Doing this "measuring the gap" procedure should result in improved drying rates.

From: Purdue Forage Field Guide, Third Edition. ID-317.

Photo source: Keith Johnson, Purdue Extension Forage Specialist

Pleasant Conditions have Arrived, but Below-Normal Temperatures and Precipitation Expected

(Austin Pearson)

The weather has been absolutely beautiful over the past few days. Temperatures have finally rebounded, vegetation is green again, and agricultural crops are beginning to emerge from the freshly planted fields. Despite the warming temperatures, we still have not dug ourselves out of the below-normal start to May. Through the first ten days of the month, Indiana averaged 0.7°F below normal (Figure 1). The largest departures occurred in climate divisions 6 and 9, which were 1.6°F and 1.9°F below normal, respectively. Angola, located in Steuben County, was the coldest location with an average temperature of 50.9°F (4.0°F below normal). Evansville was the warmest with an average temperature of 63.4°F, which was 2.0°F below normal. Accumulated Modified Growing Degree Days (April 1 – May 10) continued to run within 60 MGDDs of normal throughout the state (Figure 2). Statewide, MGDDs have accumulated between 160 and 420 units since April 1.

Four-inch soil temperature showed diurnal swings, but temperatures have trended upward since May 4. At 9:30 AM EDT on May 11, all Purdue Mesonet station four-inch temperatures were above 55°F (Figure 3, left). Time series for the Pinney and Davis Purdue Agricultural Centers show that the four-inch soil temperatures are fluctuating more than 10°F each day as low air temperatures drop into the low to mid 50s (Figure 3, right). Four-inch soil temperatures have not been below 50°F since May 4.

Through the first ten days of May, precipitation totals have been highly variable as a result of the recent convective storms. Statewide, though, precipitation ran slightly above normal (103 percent of normal). Climate divisions 2, 3, and 4 all received more than 120 percent of normal precipitation (Figure 1). Over the last 30 days (April 12-May 11), the heaviest precipitation was measured in southwestern, central and northeastern Indiana (Figure 4, left). Totals were 25-75 percent of normal across most of the state (Figure 4, right). The May 9 US Drought Monitor had abnormal dryness (D0) in a couple of locations in the state that include portions of Vermillion, Warren, Fountain counties and Lake, Porter, Jasper, LaPorte, and Starke counties (Figure 5).

For the forecast, temperatures look to remain warm through this weekend. Scattered, convective precipitation is also expected with clearing conditions by mid-week. The Weather Prediction Center's precipitation forecast indicates rain totals between 0.25-1.25 inches over the next seven days (Figure 6). Longer-range models are hinting at low temperatures in the upper 30s and low 40s next weekend, followed by a rebound to more seasonable temperatures. A light frost may not

be out of the question. The Climate Prediction Center’s temperature and precipitation outlooks expect higher chances for below-normal temperatures and below-normal precipitation over the next fourteen days (Figure 7 and Figure 8).

Climate Division Data by State between Two Dates
From Midwestern Regional Climate Center

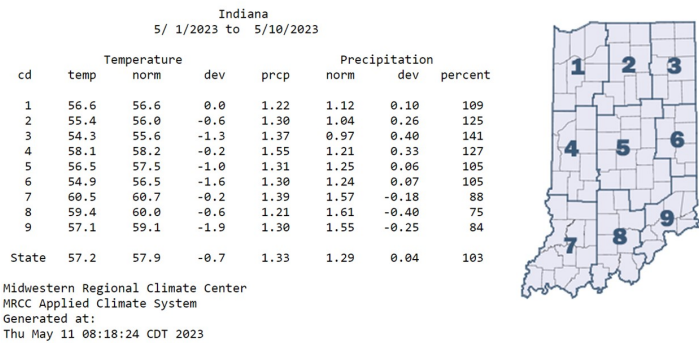


Figure 1: Indiana climate division and state temperature, normal temperature, temperature departure from normal, precipitation, normal precipitation, precipitation departure from normal, and percent of mean precipitation for May 1-10, 2023.

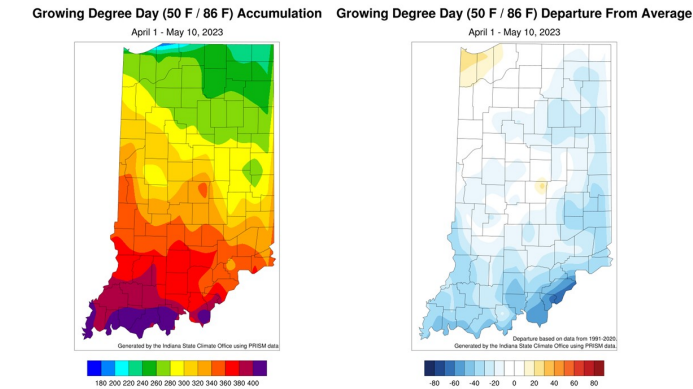


Figure 2: Total Accumulated Indiana Modified Growing Degree Days (MGDDs) April 1-May 10, 2023 (left) and Total Accumulated MGDDs represented as the departure from the 1991-2020 climatological normal (right).

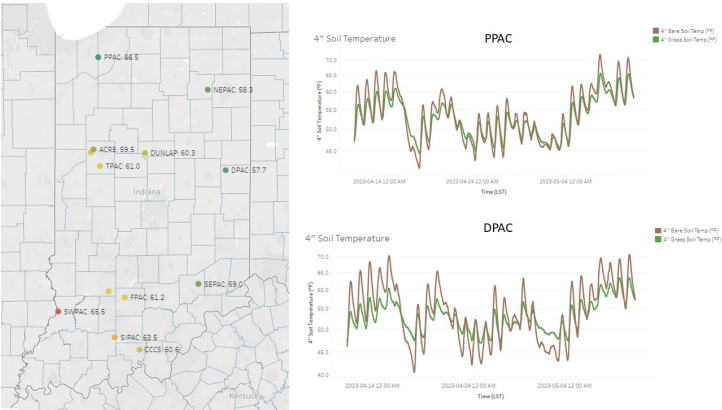


Figure 3: Four-inch soil temperatures at 9:30 AM EDT, May 11, 2023 (left) and four-inch (right) soil temperature graphs for Pinney Purdue Agricultural Center (PPAC) and Davis Purdue Agricultural Center (DPAC), which can be found on the Purdue Mesonet Data Hub.

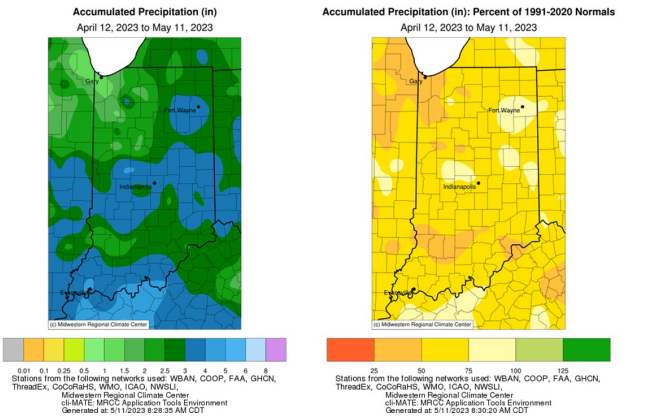


Figure 4: Interpolated map displaying accumulated precipitation for April 12-May 11, 2023 (left). Interpolated map displaying accumulated precipitation as a percent of the 1991-2020 climatological normal (right).

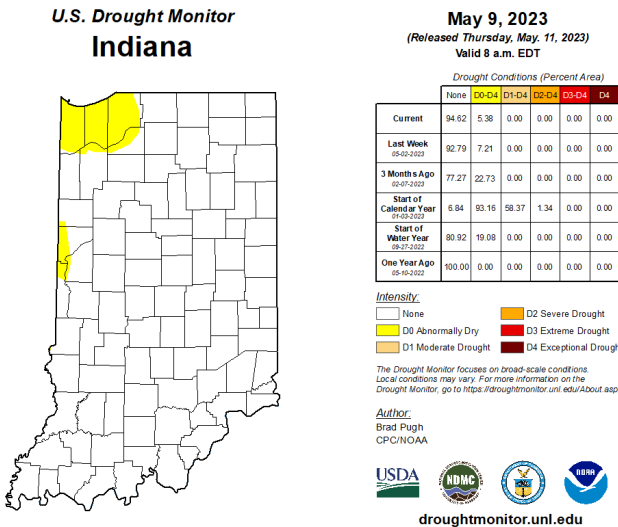


Figure 5: May 9, 2023, US Drought Monitor. The US Drought Monitor is released every Thursday morning by 8:30 AM.

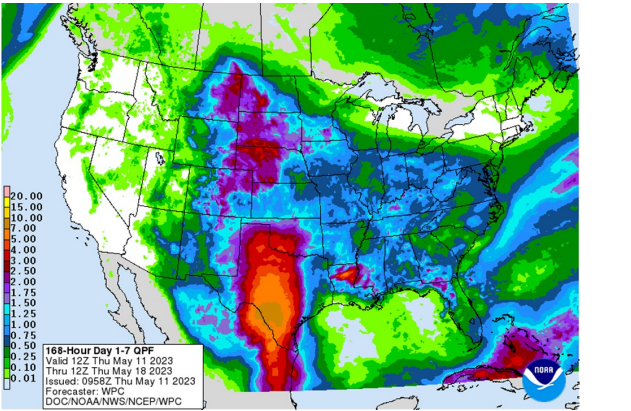


Figure 6: NWS Weather Prediction Center 7-day quantitative precipitation forecast for the continental United States, valid May 11-May 18, 2023.

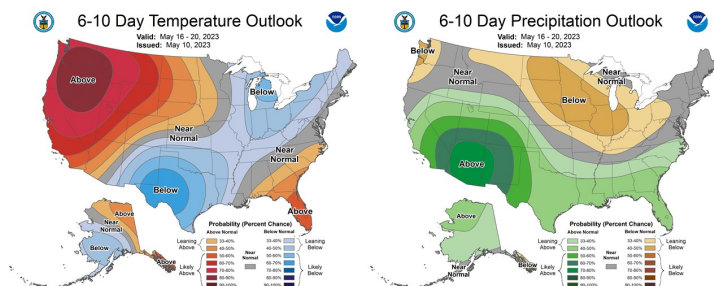


Figure 7: The CPC's 6-10-day temperature and precipitation outlooks, valid for May 16-20, 2023.

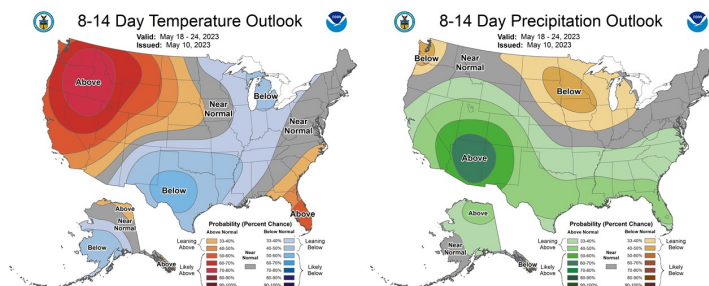


Figure 8: The CPC's 8-14-day temperature and precipitation outlooks, valid for May 18-24, 2023.

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