PURDUE UNIVERSITY | Extension - Entomology

Pest&Crop newsletter

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Armyworm Pheromone Trap Report – 2022

(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	0									
Jennings/SEPAC Ag Center	0	0									
Knox/SWPAC Ag Center	0	5									
LaPorte/Pinney Ag Center	0	24									
Lawrence/Feldun Ag Center	4	31									
Randolph/Davis Ag Center	0	0									
Tippecanoe/Meigs	0	5									
Whitley/NEPAC Ag Center	0	0									

Wk 1 = 4/1/22-4/6/22; Wk 2 = 4/7/22-4/13/22; Wk 3 = 4/14/22-4/20/22; Wk 4 = 4/21/22-4/27/22; Wk 5 = 4/28/22-5/4/22; Wk 6 = 5/5/22-5/11/22; Wk 7 = 5/12/22-5/18/22; Wk 8 = 5/19/22 – 5/25/22; Wk 9 = 5/26/22-6/1/22; Wk 10 = 6/2/22-6/8/22; Wk 11 = 6/9/22-6/15/22

2022 Black Cutworm Pheromone Trap Report

(John Obermeyer)

		BCW Trapped					
		Wk 1 4/1/22 -	Wk 2 4/7/22-	Wk 3 4/14/22 -	Wk 4 4/21/22 -	Wk 5 4/28/22 -	Wk 6 5/5/22-
County	Cooperator	4/6/22	4/13/22	4/20/22	4/27/22	5/4/22	5/11/22
Adams	Roe/Mercer Landmark/Decatur	7	9				
Allen	Anderson/Blue River Organics/Churubusco	0	0				
Allen	Gynn/Southwind Farms/Ft. Wayne	0	0				
Allen	Kneubuhler/G&K Concepts/Harlen	9	29*				
Bartholomew	Bush/Pioneer Hybrids/Columbus	2	1				
Clay	Mace/Ceres Solutions/Brazil	1	1				
Clay	Fritz/Ceres Solutions/Clay City	0	2				
Clinton	Emanuel/Frankfort	9	19*				
Daviess	Brackney/Daviess Co. CES/Washington						
Dubois	Eck/Dubois Co. CES/Jasper	0	3				
Elkhart	Kauffman/Crop Tech/Millersburg	0	3				
Fayette	Schelle/Falmouth Farm Supply/Falmouth	7	4				
Fountain	Mroczkiewicz/Syngenta/Attica	0	1				
Hamilton	Campbell/Beck's Hybrids	0	10*				
Hancock	Gordon/Koppert Biologicals/Greenfield	15*	5				
Hendricks	Nicholson/Nicholson Consulting/Danville	0	1				
Hendricks	Tucker/Bayer/Brownsburg		4				
Howard	Shanks/Clinton Co. CES/Kokomo	0	1				
Jasper	Overstreet/Jasper Co. CES/Rensselaer	1					
Jasper	Ritter/Dairyland Seeds/McCoysburg	0	5				
Jay	Boyer/Davis PAC/Powers	17*	28*				
Jay	Liechty/G&K Concepts/Berne						
Jay	Shrack/Ran-Del Co-Alliance/Parker City	0	52*				
Jennings	Bauerle/SEPAC/Butlerville	0	16				
Knox	Clinkenbeard/Ceres Solutions/Edwardsport	0	0				
Knox	Edwards/Ceres Solutions/Fritchton	1	0				
Kosciusko	Jenkins/Ceres Solutions/Mentone	0	2				
Lake	Kleine/Rose Acre Farms/Cedar Lake	1	13				
Lake	Moyer/Dekalb Hybrids/Shelby	0	0				
Lake	Moyer/Dekalb Hybrids/Schneider	0	0				
LaPorte	Deutscher/Helena Agri/Hudson Lake	0					
LaPorte	Rocke/Agri-Mgmt. Solutions/Wanatah	0	22*				
Marshall	Harrell/Harrell Ag Services/Plymouth	0	0				
Miami	Early/Pioneer Hybrids/Macy	0	1				
Montgomery	Delp/Nicholson Consulting/Waynetown	0	0				
Newton	Moyer/Dekalb Hybrids/Lake Village	0	0				
Perry	Lorenz/Lorenz Farms/Rome 1	0	0				
Perry	Lorenz/Lorenz Farms/Rome 2	0	0				
Porter	Tragesser/PPAC/Wanatah	0	3				
Posey	Schmitz/Posey Co. CES/Mt. Vernon						
Pulaski	Capouch & Chaffins/M&R Ag Services/Medaryville						
Pulaski	Leman/Ceres Solutions/Francesville	0	0				
Putnam	Nicholson/Nicholson Consulting/Greencastle	1	3				
Randolph	Boyer/DPAC/Farmland	3	5				
Rush	Schelle/Falmouth Farm Supply/Carthage	0	0				
Scott	Tom Springstun/Scott Co. CES/Scottsburg	0	0				
Shelby	Fisher/Shelby County Coop/Shelbyville	0	0				
St. Joseph	Carbiener/Breman	0	0				
St. Joseph	Deutscher/Helena/New Carlisle	0					
Stark	Capouch & Chaffins/M&R Ag Services/NW						

		BCW Trapped					
		Wk 1 4/1/22 -	Wk 2 4/7/22- 4/13/2	Wk 3 4/14/22 -	Wk 4 4/21/22 -	Wk 5 4/28/22 -	Wk 6 5/5/22- 5/11/2
County	Cooperator	4/6/22	2	4/20/22	4/27/22	5/4/22	2
Stark	Capouch & Chaffins/M&R Ag Services/SE						
Sullivan	McCullough/Ceres Solutions/Farmersburg	0	1				
Sullivan	McCullough/Ceres Solutions/Dugger		0				
Tippecanoe	Bower/Ceres Solutions/Lafayette	4	10				
Tippecanoe	Nagel/Ceres Solutions/W. Lafayette	7	26*				
Tippecanoe	Obermeyer/Purdue Entomology/ACRE	4	4				
Tippecanoe	Westerfeld/Bayer Research Farm/W. Lafayette	0	0				
Tipton	Campbell/Beck's Hybrids	1	0				
Vermillion	Lynch/Ceres Solutions/Clinton	0	0				
White	Foley/ConAgra/Brookston	0	2				
Whitley	Boyer/NEPAC/Schrader	0	9				
Whitley	Boyer/NEPAC/Kyler	0	7				

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

Spring Soybean Cyst Nematode (SCN) Soil Testing For Indiana Growers

(Darcy Telenko)

Support from the SCN Coalition and National Soybean Board will continue to **provide FREE soybean cyst nematode (SCN) soil testing this spring to Indiana growers**. If you have trouble fields that you have not had a recent SCN test please consider sending in a soil sample to test for SCN.

This program will **support one sample per Indiana farm** to be submitted to the SCN Diagnostics at the University of Missouri. Please print off a form here https://ag.purdue.edu/btny/ppdl/Documents/PPDL-3-W%20SCN%20Survey-MO.pdf to include with your soil sample. Additional samples will cost $25/each.

Pack the samples in a box and cushion the samples with packing material so the bags don't break open during shipping.

Ship to: SCN Diagnostics
1054 East Campus Loop
University of Missouri
Columbia, MO 65211-5315

To soil sampling for SCN

The equipment you need for sampling soil for soybean cyst nematode (SCN) is the same equipment you use for taking a soil sample for soil nutrient analysis: a soil probe, a bucket, and a plastic soil bag.

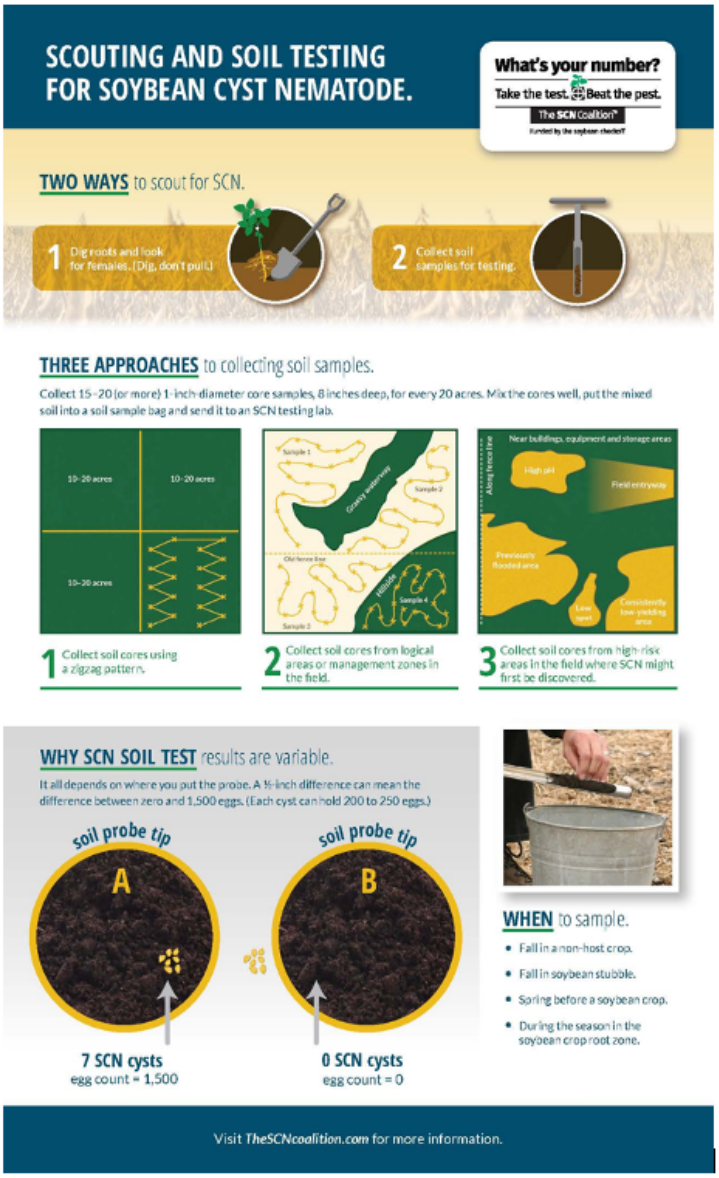
To collect soil samples for SCN diagnosis, we recommend you collect 10 to 20 of cores of soil, each with 1 inch-diameter and 6 to 8 inches-depth in a 20-acre area. If the field is larger, break the field into 20-acre units and take 10 to 20 cores per unit.

Take cores from within root zones and use a zig-zag or M-pattern to collect soil cores. In addition, you may also want to include samples from a high-risk area, such as near a field entrance, areas where the yield seems to be a little lower than the last time soybeans were grown, or along fence lines where wind-blown soil accumulates.

Bulk the cores in a container and mix thoroughly. Take the time to mix the sample. The better the sample is mixed the better it represents the whole field. Put ~ 500 cm^3 or 1 pint of the thoroughly-mixed soil in a plastic bag and label it with a permanent marker. Don't put a paper label inside the bag. The moist soil will make it unreadable by the time the sample reaches us.

Please keep the sample at room temperature or cooler and keep out of the sun or hot truck cab until you are ready to pack and ship it.

SCN Coalition: https://www.thescncoalition.com/



Field Crop Disease Monitoring Resources For Indiana

(Darcy Telenko)

There are a few resources available for monitoring field crop diseases here in Indiana. The Purdue Field Crop Pathology Team will be tracking

diseases across Indiana and will post updates here in Pest & Crop and on the Purdue Field Crop Pathology Extension site. You can also follow me on Twitter @DTelenko

National disease tracking and prediction programs are place to monitor for some the more economically important diseases in the Unites States, such as Fusarium head blight in wheat, wheat stripe rust, southern rust of corn, and tar spot. In addition, the Crop Protection Network site hosts unbiased, collaborative outputs on important issues affecting field crops in the United States and Canada; this site has numerous resources and fungicide efficacy tables for corn, soybean, and wheat.

General resources for all field crops:

Purdue Field Crop Pathology Extension site:
https://extension.purdue.edu/fieldcroppathology/

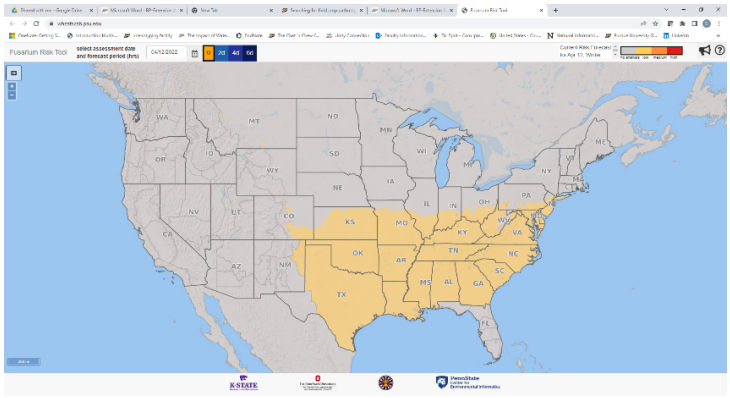
- Applied Research in Field Crop Pathology for Indiana
- Tar spot and southern rust in season maps
- In-season updates on diseases in Indiana

Crop Protection Network: https://cropprotectionnetwork.org/

- Fungicide efficacy tables can be found here for foliar corn, foliar and seedling diseases of soybean, and foliar diseases of wheat
- A new tar spot of corn web book
- Numerous crop protection resources

Disease prediction and/or tracking maps.

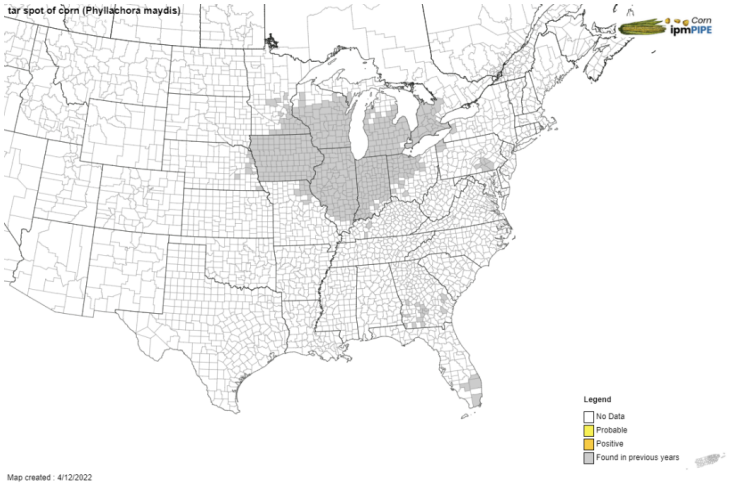
Wheat:



Fusarium head blight risk map: http://www.wheatscab.psu.edu/

National wheat stripe rust tracking: https://wheat.agpestmonitor.org/stripe-rust/

Corn:



National corn rust and tar spot tracking: https://corn.ipmpipe.org/tarspot/ and https://corn.ipmpipe.org/southerncornrust/

Soybean:

National soybean rust tracking: https://soybean.ipmpipe.org/

Take Time To Self-Evaluate Your Pasture Management

(Keith Johnson)

Perennial cool-season grass/legume pastures broke winter dormancy several weeks ago. Quick growth will soon occur. *Make a pledge that you will not overgraze pastures this year. The greatest curse to the yield and persistence of perennial forages is overgrazing.* Managing pasture properly requires much skill, just like any agronomic crop. Much skill is required to do it in an “A” grade fashion because there is a livestock component to the agricultural system, too. Proper pasture management is more than opening the gate to the pasture and letting livestock graze season long.

Having the desired outcome of excellent pasture yield, quality and persistence, like shown in the photo, requires dedicated effort. (*Photo Credit: Keith Johnson*)

The following table includes several statements that need to be followed as recommendations to have a successful pasture program.

Take the time to do a self-evaluation of how good a job **you** are doing with each statement given. Rankings “Strongly Disagree” or “Disagree” require some attention to have topnotch pasture for your livestock.

If you have not developed a team of resource people that can help you with your questions about forage management, a good starting point is to contact your county’s Purdue Extension Agriculture and Natural Resources Educator and Natural Resources Conservation Service (NRCS) personnel. These individuals have a network within their own organizations and know local-regional agribusinesses and producers that will be able to help you with your questions.

Excellent detailed information developed by NRCS employees about pasture assessment can be found at this link Guide to Pasture Condition Scoring | NRCS (usda.gov).

Developing excellent pasture management skills require much effort, but the wellbeing of your forages and livestock will improve because you do.

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I soil test at least every third year and apply lime and fertilize based on the test results.					
I know the major soil types of my farm by name and know their strengths and weaknesses.					
I can identify the major forages growing in my pasture and know their strengths and weaknesses.					
I remove livestock from a paddock when cool-season grass/legume forage growth is around 4 inches in height.					
I stockpile perennial pasture in the late summer and early fall.					
I evaluate pasture growth and potential concerns (overgrazing, weeds, insects, diseases) in the pasture weekly and take action if needed.					
I document when livestock are moved from paddock to paddock.					
Where possible and applicable, I graze crop residues and double crop forages to full potential on my farm.					
I analyze nutrient composition of my hay and use the information to balance rations.					
I have an agronomist on my list of professionals that has a passion for forage crops.					

Nitrogen Management Guidelines for Corn in Indiana

(Jim Camberato), (Bob Nielsen) & (Dan Quinn)

MULTI-YEAR SUMMARY OF CORN RESPONSE TO NITROGEN FERTILIZER

This report summarizes corn yield response to fertilizer nitrogen (N) rate in field-scale trials conducted around the state of Indiana since 2006. These results are applicable to N management programs that use efficient methods and timings of N fertilizer application.

The Agronomic Optimum N Rate (AONR) represents the total amount of fertilizer N (including starter N) required to maximize yield, but not necessarily profit. The AONR in these trials varied among regions of the state from about 211 to 254 lbs N / ac, depending partly on soil organic matter and soil drainage characteristics.

At five Purdue Ag. Centers where we conducted paired trials of corn following soybean (corn/soy) and corn following corn (corn/corn) from 2007 to 2010, the average AONR for corn/corn was 44 lbs greater than for corn/soy while average corn/corn yields were 18 bu / ac less than the corn/soy yields.

Economic Optimum N Rates (EONR) are defined as those that maximize dollar return from the nitrogen fertilizer investment. Because the yield benefits from additional N decrease as N rates approach the AONR, the EONR will almost always be less than the AONR. Region–specific EONR, calculated for various combinations of N fertilizer cost and grain price, are provided in the accompanying tables.

Click here to see the rest of the publication.

Adjust Nitrogen Rate to Maximize Profit in Corn (UPDATED)

(Jim Camberato) & (Bob Nielsen)

Corn yield response to increasing nitrogen (N) rate follows the Law of Diminishing Returns – as higher and higher increments of N are applied, the increase in grain yield becomes smaller and smaller (Figure 1). Eventually, maximum yield occurs and applying more N does not increase yield any further.

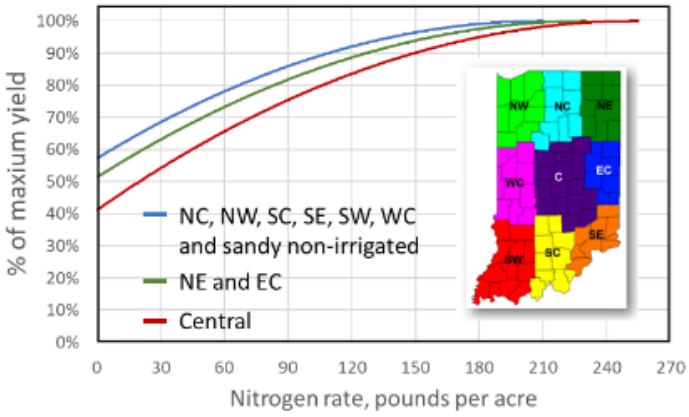


Figure 1. Percent of maximum corn grain yield produced with different nitrogen rates for three groupings of regions in Indiana; northcentral (NC), northwest (NW), southcentral (SC), southeast (SE), southwest (SW), westcentral (WC), and sandy non-irrigated soils, northeast (NE) and eastcentral (EC), and central (C).

Interestingly, maximum yield regarding N fertilization does not produce the maximum profit. Profit from N application is maximized when the value of additional grain produced is just greater than the cost of additional N. Beyond that rate of N, profit declines because the cost of N is more than the value of additional grain produced.

We recommend that farmers select the rate of N to be applied based on the cost of N and the expected value of grain. Currently, the cost of N is historically high, nearly $1 per pound of N from anhydrous ammonia to more than $1 per pound for liquid N. Use Table 1 to find your cost of N

per pound from the per ton cost. Grain prices are also relatively high and some expect them to increase in the future.

To obtain the profit–optimizing N rate recommendation for your N cost and expected grain price use the Table for the appropriate regional grouping. For example, assuming N at 1$ per pound and corn at $6.50 per bushel, the optimum profitable N rate for corn after soybeans for the three IN regional groupings would be 191, 209, and 171 pounds of N per acre for fine–textured soils in central (Table 2), northeast and eastcentral (Table 3), and the remainder of Indiana including sandy non–irrigated soils (Table 4). At these profit–optimizing rates the reduction in yield would only be 1–2%, compared to fertilizing for maximum yield.

For more information about how these recommendations were developed and other N management practices that can increase profit, download this online summary:
Jim Camberato, RL (Bob) Nielsen, and Dan Quinn. 2022. Nitrogen Management Guidelines for Corn in Indiana. Purdue University, Agronomy Dept., Applied Crop Research Update.
https://www.agry.purdue.edu/ext/corn/news/timeless/NitrogenMgmt.pdf
[URL accessed Mar 2022]

Table 1. Comparative costs per lb. of actual N for a range of costs per ton of product for four fertilizer sources of N commonly used in Indiana.

Anhydrous	N cost/lb	28% UAN	N cost/lb	32% UAN	N cost/lb	Urea	N cost/lb
$1,200	$0.73	$500	$0.89	$725	$1.13	$825	$0.90
$1,250	$0.76	$525	$0.94	$750	$1.17	$850	$0.92
$1,300	$0.79	$550	$0.98	$775	$1.21	$875	$0.95
$1,350	$0.82	$575	$1.03	$800	$1.25	$900	$0.98
$1,400	$0.85	$600	$1.07	$825	$1.29	$925	$1.01
$1,450	$0.88	$625	$1.12	$850	$1.33	$950	$1.03
$1,500	$0.91	$650	$1.16	$875	$1.37	$975	$1.06
$1,550	$0.95	$675	$1.21	$900	$1.41	$1000	$1.09
$1,600	$0.98	$700	$1.25	$925	$1.45	$1025	$1.11
$1,650	$1.01	$725	$1.29	$950	$1.48	$1,050	$1.14
$1,700	$1.04	$7570	$1.34	$975	$1.52	$1,075	$1.17
$1,750	$1.07	$775	$1.38	$1000	$1.56	$1,100	$1.20

Table 2. Range of economic optimum N rate (EONR) values (lbs applied N/ac) for corn following soybean in central Indiana on medium- and fine-textured soils as influenced by nitrogen cost per lb N (Table 1) and grain price per bushel. The underlying yield response data are from 23 field scale trials conducted from 2006 to date. The average agronomic optimum N rate for this region of Indiana is approximately 232 lbs N/ac. These rates assume N management practices that minimize the risk of N loss prior to plant uptake.
Central Indiana
Grain Price

N cost	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00	$7.50
$0.60	196	200	203	205	207	209	211
$0.75	187	192	195	198	201	203	205
$0.90	178	184	188	192	195	197	200
$1.05	169	175	181	185	189	192	194
$1.20	160	167	173	178	182	186	189
$1.35	151	159	166	171	176	180	184
$1.50	142	151	158	165	170	174	178
$1.65	133	143	151	158	164	168	173

Table 3. Range of economic optimum N rate (EONR) values (lbs applied N/ac) for corn following soybean in northeast and eastcentral Indiana on medium- and fine-textured soils as influenced by nitrogen cost per lb N (Table 1) and grain price per bushel. The underlying yield response data are from 37 field scale trials conducted from 2006 to date. The average agronomic optimum N rate for these regions of Indiana is approximately 254 lbs N/ac. These rates assume N management practices that minimize the risk of N loss prior to plant uptake.
Northeast & Eastcentral Indiana
Grain Price

N cost	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00	$7.50
$0.60	215	219	222	225	227	229	231
$0.75	205	210	214	217	220	223	225
$0.90	195	201	206	210	213	216	219
$1.05	185	192	198	203	207	210	213
$1.20	176	184	190	195	200	204	207
$1.35	166	175	182	188	193	197	201
$1.50	156	166	174	181	186	1891	195
$1.65	146	1557	166	173	179	185	189

Table 4. Range of economic optimum N rate (EONR) values (lbs applied N/ac) for corn following soybean in northcentral, northwest, southcentral, southeast, southwest, and westcentral Indiana on medium- and fine-textured soils, plus sandy non-irrigated areas throughout the state as influenced by nitrogen cost per lb N (Table 1) and grain price per bushel. The underlying yield response data are from 106 field scale trials conducted from 2006 to date. The average agronomic optimum N rate for these regions of Indiana is approximately 211 lbs N/ac. These rates assume N management practices that minimize the risk of N loss prior to plant uptake.
Northcentral, Northeast, Southcentral, Southeast, Southwest, Westcentral +Sandy Non-irrigated Areas of Indiana
Grain Price

N cost	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00	$7.50
$0.60	176	180	182	185	187	188	190
$0.75	167	172	1575	178	181	183	185
$0.90	159	164	168	172	175	177	180
$1.05	150	156	161	165	169	172	174
$1.20	141	148	154	159	163	166	169
$1.35	132	140	147	152	157	160	164
$1.50	124	132	139	145	150	155	159
$1.65	115	124	132	139	144	149	153

How Long Will These Rainy Conditions Last?

(Beth Hall)

Indiana adds one more week to its months-long streak of having no drought across the state. In fact, from March 1st through April 14th (45 days), 35 of those days (78%) had precipitation in South Bend (31 days), Indianapolis (26 days), and/or Evansville (25 days). That's not too many dry days to keep those patio cushions outside without them getting wet! Regardless of how many wet days Indiana has had lately, the total amount of precipitation from March 1 through April 15th has been relatively close to normal (Figure 1). The southeastern part of the state has been drier than normal, but otherwise, most of the state is within 75% to 125% of normal (where 100% would equal normal). In fact, for this time of year, Indiana averages around an inch of precipitation in any 7-day period. Will this end soon? Climatologically, June is the wettest month for the Indianapolis area, followed by May,

July, and then April. Therefore, if this year is close to normal, then there is still more precipitation to be expected. However, global climate patterns are still being influenced by La Niña and climate change has led to more heavier precipitation events than past decades – both factors suggesting above-normal precipitation. There is some potentially good news, though. The 6-to-10-day (April 20-24) climate outlook, as well as the 8-to-15-day (April 22-28) climate outlook, is favoring above-normal temperatures and below-normal precipitation for our area. Hopefully, this will bring some respite to this wet pattern and allow us time to enjoy the outdoors for a few days!

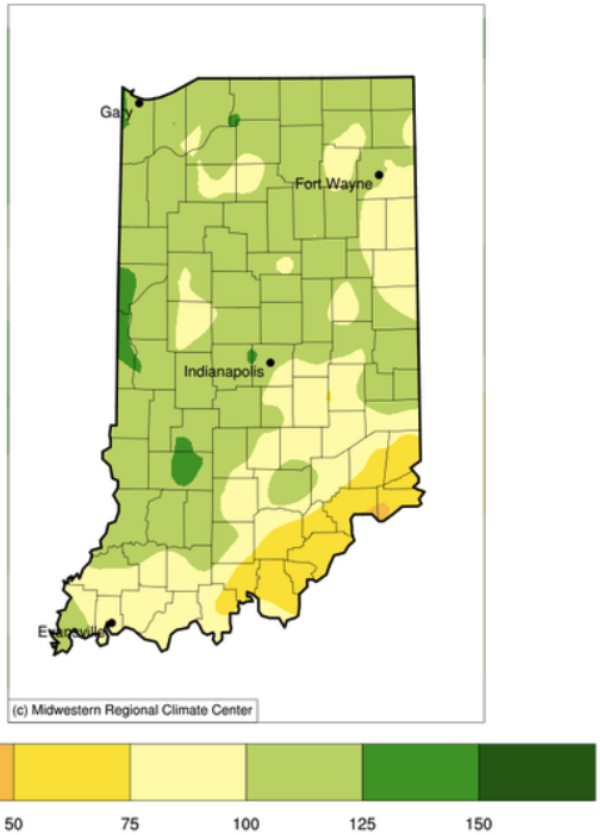


Figure 1. Accumulated Precipitation (in inches) represented as the percent of the 1991-2020 climatological normal period from March 1, 2022 through April 15, 2022.

Temperatures across our state have averaged near normal over the last 30 days with a few pockets of slightly cooler-than-normal conditions. There were a some warmer periods during this time, which has allowed growing degree days to start to accumulate (Figure 2), however, they are slightly behind what is normally expected for this time of year (Figure 3).

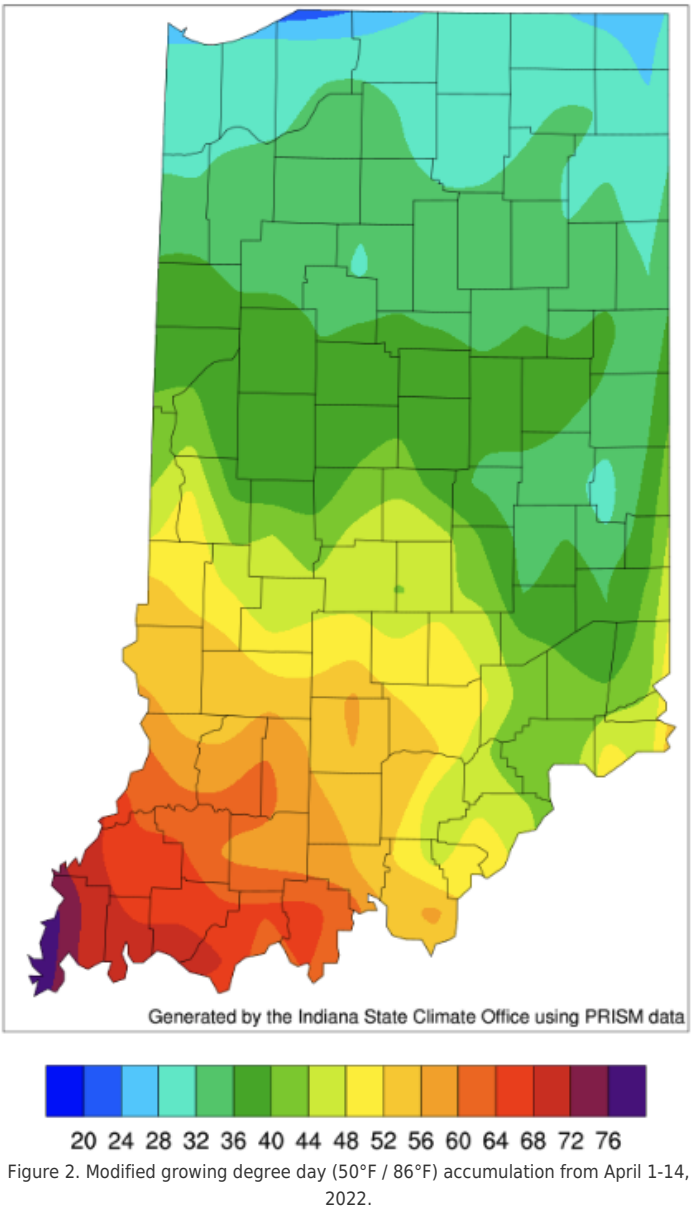


Figure 2. Modified growing degree day (50°F / 86°F) accumulation from April 1-14, 2022.

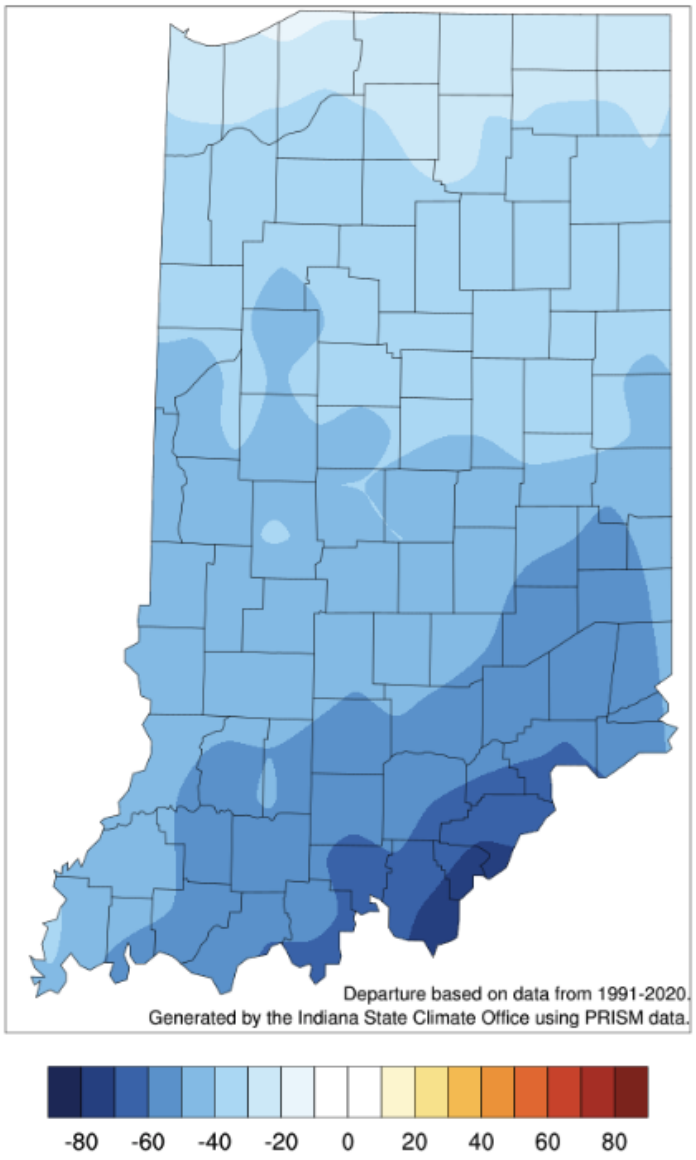


Figure 3. Modified growing degree day (50°F / 86°F) accumulation from April 1-14, 2022 represented as the departure from the 1991-2020 climatological average.

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