

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.

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Wet And Cool For Arriving Black Cutworm Moths

(Christian Krupke) & (John Obermeyer)

The “Black Cutworm Adult Pheromone Trap Report,” below, features moth captures that are mostly low, with a few surprises. It is not unusual at this time of year to have a few high catches mixed in with mostly zeroes, one of the reasons we want many cooperators all over the state – the weather fluctuations that are typical at this time of year are responsible for these ups and downs. Typically, we will receive freezing temperatures following these early spring flushes. Since the black cutworm isn’t particularly cold hardy, e.g., spending the winter in Southwestern States and Mexico, many sadly perish during these cold spells. But they will keep filtering in over the coming weeks, and there are certain to be sufficient moths to lay eggs in the many winter-annual weeds (particularly broad-leaf weeds) and cover crops. We use these trap counts only as a timing mechanism or presence/absence gauge, to help determine when to start looking for them. A large number of moths DOES NOT equate to a disaster in the making and vice versa for small numbers of moths. In the near future, we will publish color-coded maps with their anticipated development to help you to time your scouting trips. As a reminder, the cutworm threat will be greatest when there is a “green bridge” for them – shifting from weeds and cover crops to seedling corn as it emerges. They cannot go long without feeding, so a period with no host plant material is hard on them.

The following animated weather map, that occurred last week (credit: Wunderground), shows the potential for black moths to be “sucked up” in the Gulf States and redistributed throughout the Midwest.

https://extension.entm.purdue.edu/newsletters/pestandcrop/wp-content/uploads/sites/2/2022/04/SpringStormGulf_Canada_6sec.mp4

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										
Jennings/SEPAC Ag Center	0										
Knox/SWPAC Ag Center	0										
LaPorte/Pinney Ag Center	0										
Lawrence/Feldun Ag Center	4										
Randolph/Davis Ag Center	0										
Tippecanoe/Meigs	0										
Whitley/NEPAC Ag Center	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	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6
		4/1/22	4/7/22-	4/14/22	4/21/22	4/28/22	5/5/22-
		-	4/13/2	-	-	-	5/11/2
County	Cooperator	4/6/22	2	4/20/22	4/27/22	5/4/22	2
Adams	Roe/Mercer	7					
Allen	Landmark/Decatur						
	Anderson/Blue River						
Allen	Organics/Churubusco						
	Gynn/Southwind Farms/Ft. Wayne	0					
Allen	Kneubuhler/G&K						
	Concepts/Harlen						
Bartholome	Bush/Pioneer	2					
w	Hybrids/Columbus						
Clay	Mace/Ceres Solutions/Brazil	1					
Clay	Fritz/Ceres Solutions/Clay	0					
Clinton	City						
	Emanuel/Frankfort	9					
Davies	Brackney/Davies Co.						
	CES/Washington						
Dubois	Eck/Dubois Co. CES/Jasper	0					
Elkhart	Kauffman/Crop						
	Tech/Millersburg	0					
Fayette	Schelle/Falmouth Farm	7					
	Supply/Falmouth						
Fountain	Mroczkiewicz/Syngenta/Attica	0					
Hamilton	Campbell/Beck's Hybrids	0					
	Gordon/Koppert	15*					
Hancock	Biologicals/Greenfield						
	Nicholson/Nicholson	0					
Hendricks	Consulting/Danville						
	Tucker/Bayer/Brownsburg						
Howard	Shanks/Clinton Co.	0					
	CES/Kokomo						
Jasper	Overstreet/Jasper Co.	1					
	CES/Rensselaer						
Jasper	Ritter/Dairyland	0					
	Seeds/McCoysburg						

County	Cooperator	BCW Trapped					
		Wk 1 4/1/22	Wk 2 4/7/22- 4/13/22	Wk 3 4/14/22	Wk 4 4/21/22	Wk 5 4/28/22	Wk 6 5/5/22- 5/11/22
Jay	Boyer/Davis PAC/Powers	17*					
Jay	Liechty/G&K						
Jay	Concepts/Berne						
Jay	Shrack/Ran-Del Co-	0					
Jennings	Alliance/Parker City						
Knox	Bauerle/SEPAC/Butlerville	0					
Knox	Clinkenbeard/Ceres	0					
Knox	Solutions/Edwardsport						
Knox	Edwards/Ceres	1					
Knox	Solutions/Fritchton						
Kosciusko	Jenkins/Ceres	0					
Kosciusko	Solutions/Mentone						
Lake	Kleine/Rose Acre	1					
Lake	Farms/Cedar Lake						
Lake	Moyer/Dekalb	0					
Lake	Hybrids/Shelby						
Lake	Moyer/Dekalb	0					
Lake	Hybrids/Schneider						
LaPorte	Deutscher/Helena	0					
LaPorte	Agri/Hudson Lake						
LaPorte	Rocke/Agri-Mgmt.	0					
LaPorte	Solutions/Wanatah						
Marshall	Harrell/Harrell Ag	0					
Marshall	Services/Plymouth						
Miami	Early/Pioneer Hybrids/Macy	0					
Montgomery	Delp/Nicholson						
Montgomery	Consulting/Waynetown	0					
Newton	Moyer/Dekalb Hybrids/Lake	0					
Newton	Village						
Perry	Lorenz/Lorenz Farms/Rome	0					
Perry	1						
Perry	Lorenz/Lorenz Farms/Rome	0					
Perry	2						
Porter	Tragesser/PPAC/Wanatah	0					
Posey	Schmitz/Posey Co. CES/Mt.						
Posey	Vernon						
Pulaski	Capouch & Chaffins/M&R						
Pulaski	Ag Services/Medaryville						
Pulaski	Leman/Ceres	0					
Pulaski	Solutions/Francesville						
Putnam	Nicholson/Nicholson	1					
Putnam	Consulting/Greencastle						
Randolph	Boyer/DPAC/Farmland	3					
Randolph	Schelle/Falmouth Farm						
Rush	Supply/Carthage	0					
Scott	Tom Springstun/Scott Co.	0					
Scott	CES/Scottsburg						
Shelby	Fisher/Shelby County	0					
Shelby	Coop/Shelbyville						
St. Joseph	Carbiener/Breman	0					
St. Joseph	Deutscher/Helena/New	0					
St. Joseph	Carlisle						
Stark	Capouch & Chaffins/M&R						
Stark	Ag Services/NW						
Stark	Capouch & Chaffins/M&R						
Stark	Ag Services/SE						
Sullivan	McCullough/Ceres	0					
Sullivan	Solutions/Farmersburg						
Sullivan	McCullough/Ceres						
Sullivan	Solutions/Dugger						
Tippecanoe	Bower/Ceres	4					
Tippecanoe	Solutions/Lafayette						
Tippecanoe	Nagel/Ceres Solutions/W.	7					
Tippecanoe	Lafayette						
Tippecanoe	Obermeyer/Purdue	4					
Tippecanoe	Entomology/ACRE						
Tippecanoe	Westerfeld/Bayer Research	0					
Tippecanoe	Farm/W. Lafayette						
Tipton	Campbell/Beck's Hybrids	1					
Tipton	Lynch/Ceres						
Vermillion	Solutions/Clinton	0					
White	Foley/ConAgra/Brookston	0					
Whitley	Boyer/NEPAC/Schrader	0					
Whitley	Boyer/NEPAC/Kyler	0					

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

Adjust Nitrogen Rate to Maximize Profit in Corn

(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.

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 varying costs per ton of product for four fertilizer sources of N commonly used in Indiana.

Anhydrous	N cost/lb	28% N UAN	N cost/lb	32% N UAN	N cost/lb	Urea	N cost/lb
\$1,050	\$0.64	\$550	\$0.98	\$625	\$0.98	\$550	\$0.60
\$1,100	\$0.67	\$575	\$1.03	\$650	\$1.02	\$600	\$0.65
\$1,150	\$0.70	\$600	\$1.07	\$675	\$1.05	\$650	\$0.71
\$1,200	\$0.73	\$625	\$1.12	\$700	\$1.09	\$700	\$0.76
\$1,250	\$0.76	\$650	\$1.16	\$725	\$1.13	\$750	\$0.82
\$1,300	\$0.79	\$675	\$1.21	\$750	\$1.17	\$800	\$0.87
\$1,350	\$0.82	\$700	\$1.25	\$775	\$1.21	\$850	\$0.92
\$1,400	\$0.85	\$725	\$1.29	\$800	\$1.25	\$900	\$0.98
\$1,450	\$0.88	\$750	\$1.34	\$825	\$1.29	\$950	\$1.03
\$1,500	\$0.91	\$775	\$1.38	\$850	\$1.33	\$1,000	\$1.09
\$1,550	\$0.95	\$800	\$1.43	\$875	\$1.37	\$1,050	\$1.14
\$1,600	\$0.98	\$825	\$1.47	\$900	\$1.41	\$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	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
\$0.90	171	178	184	188	192	195	197

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	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
\$1.00	165	172	178	183	1887	191	194
\$1.10	158	166	173	179	183	186	190
\$1.20	151	160	167	173	178	182	186
\$1.30	144	154	162	168	174	178	182
\$1.40	138	148	156	163	169	174	178
\$1.50	131	142	151	158	165	170	174
\$1.60	124	136	146	154	160	166	170

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	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
\$0.90	188	195	201	206	210	213	216
\$1.00	181	189	195	201	205	209	212
\$1.10	173	182	189	195	200	204	208
\$1.20	166	176	184	190	195	200	204
\$1.30	158	169	178	185	190	195	200
\$1.40	151	163	172	179	185	191	195
\$1.50	144	156	166	174	181	186	191
\$1.60	136	149	160	168	176	182	187

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	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
\$0.90	152	159	164	168	172	175	177
\$1.00	145	153	159	163	167	171	174
\$1.10	139	147	153	159	163	167	170
\$1.20	132	141	148	154	159	163	166
\$1.30	126	135	143	149	154	159	162
\$1.40	119	129	138	144	150	155	159
\$1.50	113	124	132	139	145	150	155
\$1.60	106	118	127	135	141	146	151

When Is The Best Time To Plant Corn?

(Dan Quinn)

As spring approaches and farmers and agronomists begin to get anxious as corn planting approaches, the question that often arrives each year is when is the best time to begin planting? This question is often argued between farmers and agronomists, with farmers often wanting to plant earlier and agronomists often advising them to wait. This argument is often followed by an "I told you so" by one or the other at the end of the year, depending on growing season conditions and harvest results.

In Indiana, the optimum planting "window" for maximum corn yield potential occurs between April 20 and May 10 of each year. For the southern counties in the state, this "window" may be shifted one week earlier and for the northern counties in the state, this "window" may be shifted one week later. Overall, when examining previous year planting progress for Indiana from USDA-NASS crop reports, planting progress typically begins to increase around the 20th of April, with the majority of planting finishing toward the end of May. Previous research has shown that corn yield potential begins to decrease approximately 0.3% per day once planting is delayed beyond May 1st and approximately 1% per day if corn planting is delayed until the end of May. These decreases in corn yield potential are often contributed to a shortened growing season, elevated pest pressure, and increased potential for high heat and dry conditions during pollination. However, it is important to understand that delayed planting may only impact potential yield and not actual yield in a specific year. Just because corn was planted late, doesn't mean high yields won't be achieved. Many different factors and conditions beyond planting date can impact actual corn yield throughout the season and in certain instances, late-planted corn can out yield early-planted corn due to exposure to various conditions throughout the season. It is important to remember that chasing a calendar date to get corn planted is often not the smartest decision. For example, chasing a calendar date can result in corn being planted in less-than-ideal soil conditions causing issues such as compaction, poor root growth, uneven emergence, and seedling disease which ultimately result in lower yield.

Soil temperature is also always a hot topic each year as planting approaches. Pictures of digital thermometers placed in the soil are often shared as everyone waits for the infamous 50°F to be achieved to begin planting. However, it is important to remember that corn typically needs 115 growing degree days to emerge and if the soil temperature is at 50°F and continues to average only 50°F for a length of time, corn can take upwards of 35 days to emerge. Whereas, if corn is planted into a soil with a daily average temperature of 65°F, emergence can occur in 7 days or less. The overall goal is to achieve rapid emergence of corn plants to shorten the period an emerging plant is exposed to certain stresses, limit the potential for uneven emergence, and also achieve more stress tolerant plants. The bottom line is that when corn planting season is approached, it is more important to pay attention to specific soil conditions and the upcoming weather forecast, rather than chasing a specific calendar date or a specific soil temperature of 50°F when choosing to make the decision to start planting.

Purdue Crop Chat Episode 31, Planting For

A Profit In 2022

(Shaun Casteel) & (Dan Quinn)

From Commodity classic in New Orleans, the new Purdue Crop Chat podcast comes from the trade show floor with host Eric Pfeiffer and Purdue Extension soybean specialist Dr. Shaun Casteel and Extension Corn Specialist Dr. Dan Quinn. On this episode, Shaun and Dan welcome Dr. Chad Lee, Extension grain crops agronomist from the University of Kentucky and Indiana farmer Mike Beard from Frankfort. Planting season is close and the specialists answer Mike's questions and take a look at whether you can make a profit growing corn with those rising input prices this year.

Purdue Crop Chat is presented by the Indiana Corn Marketing Council and Indiana Soybean Alliance. Your Indiana corn and soybean checkoff investments yesterday are paying off today. New research, new uses, demand creation — bringing dollars back to the farm. Check it out at YourCheckoff.org.

[Hear the full podcast.](#)

Webinar Series On Integrated Pest Management In Hemp

(Marguerite Bolt, mbolt@purdue.edu)

Please join us for a six-part webinar series focused on integrated pest management in hemp! These talks will focus on insects, diseases, and weeds that are found in hemp production, as well as pesticide use. Our final webinar will focus on open discussion and provide an opportunity to network. All webinars will take place from **12:00-12:30PM Eastern Standard Time (EST)**.

Please register [here](#)

- April 19th Ariana Torres—Integrated Pest Management in Hemp Production: Findings from the Purdue Hemp Survey
- April 21st Zachary Serber & Dr. Elizabeth Long—Updates on Insect Communities Observed in CBD Hemp in Indiana
- April 26th Sarah Caffery—Pesticide Use in Hemp, Office of Indiana State Chemist
- April 28th Marguerite Bolt—Hemp Disease Identification and Management
- May 3rd Stephen Meyers—Weed Management in Hemp
- May 5th Breakout Session/Social Hour—Opportunity to interact with presenters and other participants



Adult corn earworm on CBD hemp.

Take Time To Calibrate Your Seeder Before Seeding Forages

(Keith Johnson)

Have you ever seeded a pasture or hay field and still have seed in the back of your pickup truck or trailer that was meant to be in the soil upon completion of the seeding? How about getting 85 percent of the field sown and there was no seed left in the back of the pickup truck or in the trailer to complete the task? These problems can be avoided with proper calibration of the seeder.



Remember to calibrate your seeder! (Photo Credit: Keith Johnson)

Your seeder likely came with instructions on how to calibrate it. If the instructions cannot be found, or you would like to try an approach to calibration that works well, note the following steps.

Calibrating a Drill for Seeding Rate

- Determine from a reputable source the desired Pure Live Seed pounds delivered per acre.
- Determine the Pure Live Seed percentage of the desired seed from the seed tag. ($\% \text{ Purity} \times \% \text{ Germination} / 100 = \% \text{ Pure Live Seed}$)
- Determine the bulk seed per acre seeding rate.
- Attach plastic bags to several detached seed tubes.
- Drive at seeding speed a determined marked distance (at least 100 feet.) and collect seed in the bags.
- Weigh the collected seed to the nearest gram. Inexpensive gram scales are available.
- Determine the seeding rate with algebraic equations.
- Adjust flow of seed to meet the desired target weight.

Example

- 15 pounds pure live seed alfalfa per acre
- 90 percent Pure Live Seed
- 15 pounds pure live seed per acre / .90 = 16.7 pounds bulk seed per acre is the target
- Collected seed from four tubes on a drill that has 7 inch row spacing.
- 4 rows x 7 inches per row = 28 inches / 12 inches per foot = 2.33 feet
- 33 feet x 100 feet driving distance = 3300 square feet / 43560 square feet per acre = 0.00757 acre

- 00535 acre x 16.7 pounds per acre = 0.0893 pound seed target collected.
- 0893 pound seed x 454 grams / pound = Target of 41 grams target to be collected

Calibrating a Broadcaster or Cultipacker Seeders for Seeding Rate

- Determine from a reputable source the desired Pure Live Seed pounds delivered per acre.
- Determine the Pure Live Seed percentage of the desired seed from the seed tag. (% Purity x % Germination /100 = % Pure Live Seed)
- Determine the bulk seed per acre seeding rate.
- Multiply the bulk seed per acre seeding rate by the number of seed per pound (from [2017-Section-2.4-or-Table-2A.pdf](#) (analyzeseeds.com) Or better, determine seed per pound by weighing a gram (suggested) and counting to get seed per acre.
- Divide number of seed per acre by 43560 square feet per acre to determine the number of seed per square foot.
- Drive the tractor at seeding speed with seeder attached on a

surface of contrasting color for several yards so the number of seed per square foot can be counted. Take several readings and average the numbers to get a value.

- Adjust flow of seed to meet the desired number of seed per square foot.

Example

- 15 pounds of pure live seed alfalfa per acre
- 90 percent Pure Live Seed
- 15 pounds of Pure Live Seed per acre / .90 = 16.7 pounds bulk seed per acre is the target
- 227,000 seed per pound x 16.7 pounds bulk seed per acre = 3,790,900 seed per acre
- 3,790,900 seed per acre / 43,560 square feet per acre = Target of 87 seed per square foot

Avoid the frustration of seeding too little or too much seed. Take time to calibrate your seeder so the desired amount of seed is sown. It is a “best management practice” that needs to be done. It is worth the time!

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