

In This Issue

- Seeding Cover Crops Following Residual Herbicides in a Dry Year
- VIDEO: Physoderma Brown Spot

- 2018 Western Bean Cutworm Pheromone Trap Report
- Timing the Last Irrigation Application
- Total Precipitation August 2-8, 2018
- Average Temperature Departure from Mean August 1-7, 2018

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

## Seeding Cover Crops Following Residual Herbicides in a Dry Year

### Authors: Joe Ikley and Bill Johnson

Even with some recent rainfalls across the state, many areas across Indiana are still experiencing a drier than normal planting season (Figure 1). While the primary concern is receiving enough rain this month to have a good finish for our cash crops, many cover croppers have reason for concern about establishing cover crops. We are only a few weeks away from the primary establishment period for cover crops across the state, so we wanted to post a reminder about some herbicide/cover crop combinations that can be problematic. Here is a summary of research conducted at Purdue and other Midwest Universities about cover establishment following corn and soybean residual herbicides:

- $\circ$  Corn herbicides
  - Pyroxasulfone (Zidua) and metolachlor (Dual, etc) can hinder annual ryegrass establishment.
  - Atrazine or simazine at > 1 lb/A will be problematic for legumes and mustards unless lots of rainfall occurs after application.
    - < 0.75 lb/A may allow for good establishment of most legume cover crops, mustards, and annual ryegrass.
    - Atrazine < 1 lb/A can allow cereal grain establishment. We have observed cereal rye survival with atrazine rates as high as 1.5 lb ai/A if we have near normal precipitation patterns.
  - Mesotrione (Callisto, Lumax, Lexar etc.), flumetsulam (Python) and clopyralid (Stinger, Hornet, SureStart) can be problematic for legumes and mustards like canola and forage radish.
- Soybean herbicides
- Chlorimuron (Classic, Canopy, Cloak, etc.), imazethapyr (Pursuit), and fomesafen (Reflex, etc.) could be a problem for fall seeded legume or mustard covers including radish. However, establishment of cereal grains should be OK.

As a general rule of thumb, the later an application is made, and the higher rate of herbicide applied will lead to more establishment issues. These problems become worse when we do not receive much rainfall after application. If any of the herbicides listed above were used postemergence, we would expect more herbicide to still be available in the soil and hinder cover crop establishment.

If you have questions about specific situations, one way to address the residual herbicide left in a field is to do a bioassay. Simply collect soil from the area you would like to seed the cover crop into and an area with a similar soil type, but no herbicide residue, and plant seed from the cover crop you would like to use. Observe growth for 3 weeks and if

the plants look the same in the untreated and treated soil, you should be safe to plant to desired crop. Another consideration if you do not have time to do a bioassay is to plant a cover crop mixture. Cover crop establishment may be more reliable when mixtures of grass and broadleaf species are purchased and planted. Residual herbicides may interfere with establishment of some species in the mix, but have no effect on other species. The use of mixtures may allow one more protection from complete failure due to excessive residues in the soil. It would be important however to be sure that at least one or two of the species in the mixture is tolerant to the herbicides used in a specific field.

For a more detailed explanation of residual herbicides and cover crops, please see our earlier article that covered this issue (https://extension.entm.purdue.edu/newsletters/pestandcrop/article/resi dual-herbicides-and-fall-cover-crop-establishment/).

Accumulated Precipitation (in): Departure from Mean May 1, 2018 to August 1, 2018



cli-MATE: MRCC Application Tools Environment Generated at: 8/6/2018 9:40:00 AM CDT

Figure 1. Rainfall across Indiana from May 1 until August 1 2018. In general, the yellow areas have received less precipitation than normal, while the green areas have received more precipitation than normal.

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

# VIDEO: Physoderma Brown Spot

### Author: Darcy Telenko

Physoderma brown spot is caused by *Physoderma maydis*, the only class of fungi that produce zoospores, spores that have a tail (flagellum), and swim free in water. *P. maydis* can survive in soil and crop debris for 2 to 7 years. The pathogen can be dispersed by the wind or splashed into the whorls of the developing corn. Corn is most susceptible to infection between growth stages V5 to V9. Therefore, even though we are seeing symptoms now as corn is into R-stages, infection occurred in standing water in the whorl. Dark purplish to black oval spots along the midrib of the leaf and on the stalk, leaf sheath and

husks are distinguishing characteristic symptoms of Physoderma brown spot. In addition, infected leaves have numerous very small round or oval spots that are yellowish to brown and occur in bands across the leaf. Management options for Physoderma are limited, there are a few fungicides that are labeled for Physoderma control, but there is limited information if a fungicide application would be economical in Indiana. Rotation and tillage both can help manage residue where the pathogen will survive year to year – most susceptible sites are those in no-till and continuous corn.

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

### 2018 Western Bean Cutworm Pheromone Trap Report

		WBC Tra Wk 1	apped Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7
_		6/21/18	-6/28/18	-7/5/18-	7/12/18	-7/19/18	-7/26/18	-8/1/18-
County	Cooperator	6/27/18	7/4/18	7/11/18	7/18/18	7/25/18	8/1/18	8/8/18
Adams	Roe/Mercer Landmark	0	0	0	4	0	0	0
Allen	Anderson/Syngenta	0	0	9	12	0	0	2
Allen	Gynn/Southwind Farms	0	0	5	8	9	2	1
Allen	Kneubunier/G&K Concepts	0	0	9	4	0	0	1
Bartholomev	VBush/Pioneer Hybrids	0	T	0	0	0	0	0
Clay	City	0	1	0	0			
Clay	Solutions/Bowling Green	0	0	0	0			
Clay	Solutions/Brazil	0	0	0	1			
Clinton	Emanuel/Boone Co. CES	3	0	0	1	1	1	0
Clinton	Foster/Rossville		10	0	1	0	0	0
Daviess	Venard/Venard Agri- Consulting/Washington	0	0	0	0	0	0	0
Daviess	Venard/Venard Agri-	0	0	0	0	0	0	0
	Consulting/Elnora		-			~	-	
DeKalb	Hoffman/ATA Solutions	0	1	11	27	23	6	4
Dubois	Eck/Dubois Co. CES	0	0	0	2	2	0	2
Elkhart	Kauffman/Crop Tech Inc.	6	3	58	39	5		5
Fayette	Schelle/Falmouth Farm Supply Inc.	0	1	0	0	0		
Fountain	Mroczkiewicz/Syngenta	12	196	18	1	1	2	0
Fulton	Jenkins/Ceres	3	0	26	12	3	4	0
i uicon	Solutions/Talma	5	0	20	12	5	7	0
Fulton	Randstead/Ceres Solutions	0	34	61	16	4		
Greene	Venard/Venard Agri-	0	0	0	0	0	0	0
Hamilton	Campboll/Bock's Hybrids	0	0	2	2	5	5	1
nannicon	Nicholson/Nicholson	0	0	2	5	5	5	T
Hendricks	Consulting	0	7	2	0	0	1	0
Jasper	Overstreet/Jasper Co. CES	0	0	4	9	50	34	22
Jasper	Ritter/Brodbeck Seeds	10	69	72	17	6	4	
Jay	Boyer/Davis PAC	1	0	0	0	1	2	1
Jay	Shrack/Ran-Del Agri	0	1	0	0	0	0	6
lav	Temple/lay Co. CES/Redkey	0	0	0	0			
	Temple/Jay Co.		0	0	0	-		
Jay	CES/Pennville	0	0	0	0	2		
Jennings	Bauerle/SEPAC	0	0	0	0	0	0	0
Knox	Bower/Ceres	0	0	0	0			
	Solutions/Freelandville							
Knox	Bower/Ceres	0	0	0	0			
Kassiuska	Solutions/Vincennes	F	1	4.4	10		c	-
Lako	Kiulz/Ellid Green	5	1	44	10	10	4	10
LdKe	Neille Mover/Dekalb	2	T	U	/	TÜ	4	τZ
Lake	Hybrids/Shelby	0	4	52	20	11	2	0
Lake	Moyer/Dekalb Hybrids/Scheider	5	23	207	112	58	10	15
LaPorte	Rocke/Agri-Mgmt. Solutions/Wanatah	1	3	22	8	8	7	1
LaPorte	Smith/Co-Alliance,	0	7	96	59	17	11	2
Laione	LLP/South Center	0	'	50		±′	**	-
LaPorte	Smith/Co-Alliance, LLP/Lacrosse	4	8	106	88	22	5	11
LaPorte	Smith/Co-Alliance,	8	17	204	335	45	9	5

Mauria II	Harrell/Harrell Ag	0	10	26	10	65	10	2
Marshall	Services/Plymouth	0	12	36	18	65	10	2
Marshall	Harrell/Harrell Ag Services/Bremen	0	4	24	12	45	5	0
Marshall	Klotz/Nappanee	6	11	278	77		8	5
Marshall	Miller/Ceres Solutions/Plymouth	2	85	80	64			
Marshall	Smith/Co-Alliance, LLP/Argos	7	32	273	113	28	5	1
Miami	Early/Pioneer Hybrids	4	26	116	39	5	0	0
Montgomery	Delp/Nicholson Consulting	0	0	3	3	5	0	3
Newton	Moyer/Dekalb Hybrids/Lake Village	1	5	75	20	17	0	2
Porter	Tragesser/PPAC	2	11	61	41	11	4	6
Posey	Schmitz/Posey Co. CES/Cynthiana	0	0	0	0	1	0	0
Posey	Schmitz/Posey Co. CES/St. Phillips W	0	0	1	0	0	7	6
Pulaski	Capouch/M&R Ag Services	7	42	345	114	32	22	10
Pulaski	Leman/Ceres Solutions	5	3	14	3			
Putnam	Nicholson/Nicholson	0	1	0	0	1	2	0
Randolph	Bover/DPAC	1	3	0	0	5	4	2
Rush	Schelle/Falmouth Farm	0	0	0	5	0		
Shelby	Fisher/Shelby County Co-on	0	0	0	0	3	2	0
Shelby	Simpson/Simpson Farms	1	1	0	5	3	2	0
St. Joseph	Barry/Helena	1	5	46	68	41	29	12
St. Joseph	Battles/Mishawaka	0	0	28	4	0	1	0
St. Joseph	Carbiener/Breman	0	0	10	5	0	0	0
St. Joseph	Smith/Co-Alliance, LLP/Granger	3	53	196	76	108	25	16
St. Joseph	Smith/Co-Alliance, LLP/New Carlisle	1	3	11	52	4	0	26
Starke	Capouch/Medaryville	2	11	2	1	5	1	1
Starke	Smith/Co-Alliance, LLP/Hamlet	9	34	233	215	22	11	15
Sullivan	Bower/Ceres Solutions/Farmersburg	0	0	0	0			
Sullivan	Bower/Ceres Solutions/Sullivan	0	3	0	0			
Tippecanoe	Bower/Ceres Solutions/Lafavette	4	56	20	5			
Tippecanoe	Nagel/Ceres Solutions	0	4	15	0	6	0	0
Tippecanoe	Obermeyer/Purdue Entomology	0	0	0	0	0	0	0
Tippecanoe	Westerfeld/Monsanto	6	10	6	3	2	1	1
Tinton	Campbell/Beck's Hybrids	0	0	0	4	1	1	0
Vermillion	Bower/Ceres	0	0	0	0	-	-	
Wabach	Solutions/Clinton	0	0	2	1	0		
vvaDdSII	Rover	0	0	2	1	0		
Whitley	Richards/NEPAC/Schrader	3	3	31	19	13	9	4
Whitley	Boyer, Richards/NEPAC/Kyler	0	0	16	4	4	0	0

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

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

# Timing the Last Irrigation Application

#### Author: Lyndon Kelley, Irrigation Educator - MSU Extension/Purdue Extension

Deck: Maximizing profit and returns on resources invested can be dependent on the last irrigation application.

Late August and early September often bring the question, "When can I stop irrigating?" The factors that enter into making this decision are fuel costs which have been sliding higher, and grain and forage values that have had recent lows. Turning off the irrigation water to soon could lower yields or reduce test weight. Irrigating beyond the crop's need wastes resources: time, energy, and money.



A field of corn being irrigated.

Late August and early September weather conditions usually alleviate the late season irrigation application questions. The typical crop water use drops just as the average rainfall increases. Often, late season irrigation is not needed. However, many of the area's late planted crops will have substantial water needs well into September, signaling the need for some type of irrigation scheduling or crop monitoring.

Late season water use, termed evapotranspiration (E.T.) lowers significantly as the plants move towards maturity. Soybean plants showing their first yellow pod will have E.T. of one tenth of an inch per day for days that highs reach into the mid 80 degree temperatures. Corn at dent stage will have an E.T. of 0.14"/day for a day that daytime highs reach the mid 80's. Daily temperatures that are ten degrees higher or lower than the mid 80's will have an E.T. 0.02" higher or lower than the norm, respectively.

The goal of the soybean irrigator should be to maintain at least 50% of the available soil water holding capacity for soybeans until most pods yellow. Corn producers trying to maintain test weight in dry late summer conditions should maintain at least 50% of the available soil water holding capacity until the crop reaches black layer. In most situations, minimal amounts of water are needed to achieve these goals. In the last few weeks of the season, soybeans will use less than 0.04" per day and corn less than 0.06" per day, allowing a half inch of rain or irrigation to last a week or more.

Avoid relying on what the neighboring irrigators are doing as a guide to when your crop will no longer need irrigation. The huge variability in planting dates and variety of crops irrigated can result in mature fields no longer in need of irrigation, and neighboring fields that are just entering their peak need for water. Each crop and field will differ with respect to rainfall/irrigation history and crop water removal, which can change the need for irrigation at the end of the season greatly.

One simple irrigation scheduling method used to aid in late season decisions is to monitor soil moisture. A soil auger probe from 12 inches below the surface in the root zone should still have moisture present as indicated by a loose ball formed from the sandy loam soil. Soils that form a tight ball show an even higher soil moisture level that could carry a crop for a few more days.

Avoid waiting for physical signs of crop stress as a indicator to add water. Corn and soybean plants earlier in the development will cut their water use by rolling leaves in corn or tipping/cupping soybean leaves, which are telltale signs they need more water. As the plants are nearing maturity, these signs are less prevalent. Waiting for them to appear will not allow producers to avoid low test weight in corn and smaller bean size in soybeans.

Factsheets and bulletins on estimating soil moisture by feel and irrigation scheduling are available from the following website: https://www.canr.msu.edu/irrigation/.

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

### Total Precipitation August 2-8, 2018



It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

# Average Temperature Departure from Mean August 1-7, 2018

Average Temperature (°F): Departure from Mean August 1, 2018 to August 7, 2018



Indiana State Climate Office www.iclimate.org Purdue University, West Lafayette, Indiana email: iclimate@purdue.edu