

Southwest Michigan Field Crops Updates March 2019

Here are updates from the MSU Extension Field Crops team in Southwest Michigan. This is the last monthly newsletter before we go weekly in May. If you have any items you would like me to include in future email updates - whether events you want others to know about or topics you would like to have addressed - please send me an email or call the office.

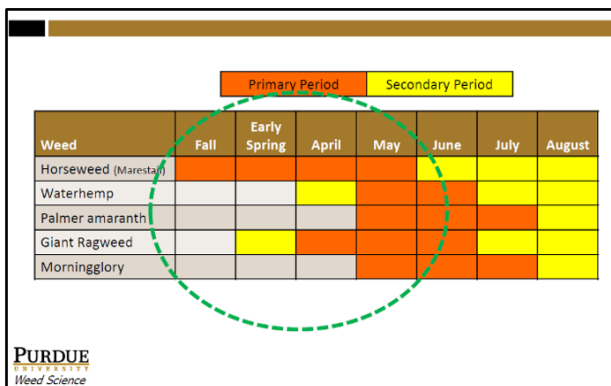
On Farm Research Opportunities

MSU Extension field crops educator Paul Gross makes a compelling case in [his article this past month](#) for why every farmer should be doing on-farm research of some sort every year. If you are even a little interested in any of the following projects, please contact me.

- **Variable rate seeding in corn and soybean**, Dr. Manni Singh
- **Soybean inoculation**, Eric Anderson
- **Corn stalk nitrate and soil health sampling**, Eric Anderson
- **Drone data collection**, Eric Anderson
- **Tar spot on corn**, Dr. Marty Chilvers
- **Waterhemp or Palmer amaranth in alfalfa**, Dr. Erin Burns

Early Season Weed Control in Soybean

Easily one of the biggest agronomic concerns on Michigan farms this year will be controlling challenging and resistant weeds. Horseweed (aka marestalk) is prevalent throughout our region, and a growing number of farmers are reporting waterhemp in their fields. Both of these weeds have populations somewhere in the U.S. with resistance to at least 5 sites of action. Here in MI, it is assumed that they are resistant to Group 2 (ALS inhibitors) and Group 9 (glyphosate) herbicides. As you can see from the chart below, pigweed species like waterhemp and Palmer amaranth require warmer temperatures, but marestalk can seemingly germinate “anytime the ground is not frozen.”



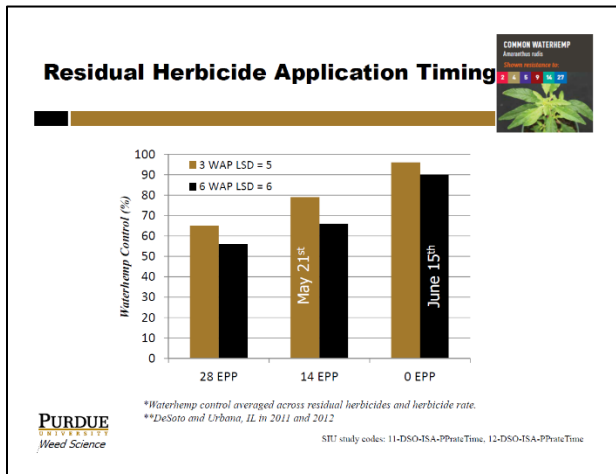
Weed emergence patterns for some problematic weeds. Chart courtesy of Dr. Brian Young, Purdue University.

In a recent presentation, Purdue’s weed specialist Brian Young said that since marestalk has such a long period of germination in the spring, a 2-pass system is required for good control. An early-spring application won’t have enough residual to get through until a POST application, and weeds will be too large to manage with a single late-spring application. He also showed a revealing picture highlighting the fact that “tillage” and “effective tillage” are not the same thing—a farmer had gone over the headlands one extra pass (three total) compared with the rest of the field, and the difference in marestalk growth at the boundary was dramatic.

There are a few key principles to consider for managing these challenging weeds this season.

1. Choose effective herbicides against your weeds. The charts below from Young’s presentation and MSU’s 2019 Weed Guide both highlight PRE and POST herbicides that have varying levels of efficacy against marestalk and waterhemp. Know what herbicides your weed populations are resistant to as this will reduce your effective options.
2. Overlap residuals. For season-long control, include herbicides with residual activity in your PRE and POST applications, don’t rely only on POST herbicides.

- Strategically time your applications. You want to kill weeds when they're small enough to easily control, especially when using glufosinate or when temperatures are not ideal. Timing can also impact the duration of the control after planting as is shown in the chart below.
- Use the full labeled rate. Many farmers can attest that gone are the days when a “micro” rate of herbicides like glyphosate will control these weed species.



Efficacy of a burndown application when applied 0, 2 and 4 weeks before planting to control common waterhemp as measured 3 and 6 weeks after planting. Chart courtesy of Dr. Brian Young, Purdue University.

Soybean Herbicide Options

Weed / SOA	Primary Period			Secondary Period			
	Fall	Early Spring	April	May	June	July	August
Horseweed							
9-EPSPS	Glyphosate						
4-Auxin	2,4-D, Dicamba, Halauxifen		2,4-D				
1-ALS	Chlorimuron		Chlorimuron Clorasulam				
14-PP0	Saflufenacil	Saflufenacil Flumioxazin					
5-PSII	Metribuzin						
10-GSI				Glufosinate			
22-PSI	Paraquat						

Planting Date

Soybean Herbicide Options

Weed / SOA	Primary Period			Secondary Period			
	Fall	Early Spring	April	May	June	July	August
Waterhemp							
15-LCFAI			Metolachlor, acetochlor, dimethenamid, pyroxasulfone				
14-PP0			Flumioxazin Sulfentrazone Fomesafen		Fomesafen Lactofen Acifluorfen		
5-PSII		Not Effective	Metribuzin				
3-Microtubule		Not Effective	Pendimethalin				
10-GSI				Glufosinate			
22-PSI			Paraquat				
9-EPSPS					Glufosinate		

Planting Date

Soybean herbicide options listed by site of action for marestalk (left) and waterhemp (right). Charts courtesy of Dr. Brian Young, Purdue University.

TABLE 2A - Weed Response to Soil-Applied Herbicides in Soybean*

Soil Applied	SITE OF ACTION	SOYBEAN TOLERANCE**	ANNUAL BROADLEAVES										ANNUAL GRASSES					PERENNIALS									
			COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	NIGHTSHADE (E. BLACK)	PALMER AMARANTH	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVETLEAF	WATERHEMP	WILLY WILLY	HORSEWEED (MARESTAIL) ^c	CRABGRASS	GIANT FOXTAIL	GREEN FOXTAIL	YELLOW FOXTAIL	FALL PANICUM	WITCHGRASS	SANDBUR	BINDWEED (FIELD & HEDGE)	CANADA THISTLE	QUACKGRASS	YELLOW NUTSEDGE	
COMMAND 3ME	13	1	F	F	G	P	P	P	G	P	G	P	P	-	F	F	F	G	G	G	F	N	N	N	N		
DUAL MAGNUM, OTHERS	15	1	N	N	P	F	F	G	G	P	N	P	N	G	F	F	F	F	F	P	P	N	N	N	F		
FIRSTRATE	2	2	G	G	G	P	N ^b	F	F	G	F	G	N ^b	G	F	F	F	F	F	P	P	N	N	N	P		
LOROX/LINEX	7	2	P	P	G	F	P	G	G	F	G	F	P	P	F	F	F	F	F	F	P	N	N	N	N		
METRIBUZIN	5	2	F	F	G	N	F	E	G	F	E	G	F	G	F	G	G	G	F	F	P	N	N	N	N		
OUTLOOK	15	1	N	N	P	G	F	G	P	N	P	N	F	N	F	F	F	F	G	G	P	N	N	N	F		
PROWL H2O/PROWL	3	2	N	N	G	P	P	F	P	N	P	F	P	P	G	G	G	G	G	G	G	N	N	N	N		
PURSUIT	2	1	F	F	G	E	N ^b	E	F	F	G	G	N ^b	G	F	G	G	G	P	P	P	P	N	N	F		
PYTHON	2	1	F	F	E	G	N ^b	E	F	F	G	G	N ^b	G	P	F	P	P	P	P	P	N	N	N	N		
SONALAN (PPI ONLY)	3	1	N	N	G	F	F	G	P	N	P	N	F	-	F	F	F	F	F	F	G	N	N	N	N		
SPARTAN	14	2	P	P	E	E	G	E	F	P	F	F	G	F	N	P	P	P	N	N	N	N	N	N	G		
TRIFLURALIN (PPI ONLY)	3	1	N	N	G	F	F	G	P	N	P	N	F	-	F	F	F	F	F	F	G	N	N	N	N		
VALOR/ VALOR EZ	14	2	P	F	G	G	G	G	F	F	F	F	G	G	N	P	P	P	N	N	N	N	N	N	P		
WARRANT	15	1	P	N	F	G	F	G	G	F	N	P	P	G	P	F	F	F	F	F	F	N	N	N	F		
ZIDUA	15	1	P	F	F	G	G	E	F	N	F	F	G	P	F	F	F	F	F	F	G	N	N	N	F		
Premixes																											
AFFORIA	2/2/14	2	P	F	G	G	G	G	G	F	F	F	G	G	G	N	P	P	P	N	N	N	N	N	N	P	
ANTHEM MAXX	14/15	1	P	F	F	G	G	E	F	N	F	F	G	P	F	F	F	F	F	P	P	P	P	N	N	G	
AUTHORITY ASSIST	2/14	2	F	F	E	E	G	E	F	F	G	G	G	F	F	F	F	E	G	G	G	P	N	N	N	G	
AUTHORITY ELITE/BROADAXE XC	14/15	2	P	P	E	E	G	E	F	P	F	F	G	P	F	F	F	F	F	P	P	P	N	N	N	G	
AUTHORITY FIRST/SONIC	2/14	2	G	G	G	G	E	E	G	G	G	G	G	G	P	P	F	P	P	P	P	P	N	N	N	G	
AUTHORITY MAXX	2/14	2	P	F	E	E	G	E	F	P	F	F	G	G	F	F	F	F	F	P	P	P	N	N	N	F	
AUTHORITY MTZ	5/14	2	F	F	E	E	G	E	G	F	E	G	G	E	F	F	F	F	F	F	F	F	N	N	N	G	
AUTHORITY SUPREME	14/15	2	P	F	E	E	G	E	F	P	F	F	G	F	F	F	F	F	F	P	P	P	P	N	N	F	
AUTHORITY XL	2/14	2	F	F	E	G	G	E	G	F	G	G	G	E	F	F	F	F	F	F	F	F	N	N	N	F	
BOUNDARY	5/15	2	F	F	G	F	F	G	E	G	F	E	G	P	F	F	F	F	F	F	F	P	P	N	N	P	
CANOPY/ CANOPY BLEND	2/5	2	G	G	E	N	P	E	G	G	E	G	N ^b	G	P	P	F	F	F	P	P	P	P	N	N	P	
CANOPY EX ^a	2/2	1	G	G	G	N	N ^b	G	G	F	G	G	N ^b	G	F	F	F	F	F	F	F	P	P	N	N	F	
ENVIVE	2/2/14	2	G	G	E	G	G	E	E	F	E	G	G	E	F	F	F	F	F	F	F	P	N	N	N	F	
FIERCE	14/15	3	P	F	G	G	G	E	G	F	F	F	G	E	G	F	F	F	F	F	F	P	P	N	N	F	
FIERCE XLT	2/14/15	3	G	G	E	G	G	E	E	G	F	E	G	E	F	N	N	N	N	N	N	N	N	N	N	N	
FLEXSTAR GT 3.5	9/14	2	P	P	G	E	P	E	G	F	G	P	G	G	F	F	F	F	F	F	F	P	N	N	N	F	
MOCCASIN MTZ+	5/15	2	F	F	G	F	F	G	E	F	F	G	G	P	F	F	F	G	G	G	P	P	P	N	N	F	
OPTILL	2/14	1	F	F	G	E	F	E	F	F	G	G	F	F	F	G	G	G	G	F	F	N	P	N	N	F	
OPTILL PRO	2/14/15	1	F	F	G	E	F	E	F	F	G	G	F	F	F	F	F	F	F	F	F	P	N	N	N	P	
PREFIX	14/15	2	P	P	G	E	G	E	G	F	G	P	G	F	N	N	P	P	P	N	N	N	N	N	N	F	
SPARTAN CHARGE	14/14	2	P	P	E	E	G	E	F	P	F	F	G	F	N	N	P	P	P	N	N	N	N	N	N	P	
SURVEIL	2/14	2	G	G	G	G	G	E	E	G	E	G	G	G	F	F	F	F	F	F	F	P	P	N	N	F	
SYNCHRONY XP	2/2	2	G	G	E	N	N ^b	E	G	F	E	G	N ^b	F	F	G	G	G	G	G	G	G	N	N	N	N	
TRIPZIN ZC	3/5	2	F	F	G	P	F	E	G	F	E	G	F	F	F	F	F	F	F	F	F	P	P	N	N	P	
TRIVENCE	2/5/14	2	G	G	E	G	G	E	G	F	E	G	G	G	F	F	F	F	F	F	F	P	P	N	N	F	
VALOR XLT	2/14	2	G	G	E	G	E	G	F	E	G	G	G	F	F	P	P	P	P	P	P	N	N	N	N	N	
VERDICT	14/15	1	P	P	P	P	P	P	P	P	P	P	F	P	F	F	F	F	F	F	F	F	N	N	N	F	
WARRANT ULTRA	14/15	2	P	P	G	E	G	E	G	F	G	F	G	F	F	F	F	F	F	F	F	F	N	N	N	F	
ZIDUA PRO	2/14/15	2	F	F	G	E	G	E	F	F	G	G	G	F	F	F	F	F	F	F	F	G	P	N	N	F	

(Continued on next page)

TABLE 2B - Weed Response to Postemergence Herbicides in Soybean*

Postemergence	SITE OF ACTION	SOYBEAN TOLERANCE**	ANNUAL BROADLEAVES										ANNUAL GRASSES					PERENNIALS											
			COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	NIGHTSHADE (E. BLACK)	PALMER AMARANTH	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVET FAF	WATERHEMP	WILD BIRDSTAMM	HORSEWEED (MARESTAIL) ^c	BANISTERGRASS	CRABGRASS	GIANT FORTAIL	GREEN FORTAIL	YELLOW FORTAIL	FALL PANICUM	WITCHGRASS	SANDBUR	BINDWEED (FIELD & HEDGE)	CANADA THISTLE	QUACKGRASS	YELLOW NUTSEDGE		
ANTHEM MAXX	14/15	2	P	G	F	G	P	G	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N		
ASSURE II/TARGA	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	G	G	E	E	G	E	E	E	E	E	E	N		
BASAGRAN/BROADLOOM	6	2	E	G	G	P	N	P	F	F	E	C	N	E	F	N	N	N	N	N	N	N	N	N	G	N	F		
CADET	14	2	P	G	F	F	P	G	P	P	P	E	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N		
CLASSIC	2	2	E	G	N	N	N ^a	E	G	G	E	C	N ^a	E	G	N	N	P	P	P	N	N	N	N	F	N	E		
COBRA	14	3	G	G	P	G	G	E	E	E	P	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N		
FIRSTRATE	2	1	E	E	N	N	N	P	E	E	E	C	N	G	E	N	N	N	N	N	N	N	N	N	N	N	N		
FLEXSTAR	14	2	F	G	F	G	G	E	E	E	G	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N		
FUSILADE DX	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	E	G	E	E	E	E	E	E	E	N	N	G	N	
FUSION	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	G	G	E	E	E	E	G	G	E	N	N	G	N	
HARMONY SG	2	3	F	F	G	N	N ^a	E	P	P	E	C	N ^a	E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
MARVEL	14/14	3	F	F	F	G	F	E	G	F	F	E	F	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
PHOENIX	14	2	G	G	P	G	F	E	E	E	P	F	F	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
POAST/POAST PLUS	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	E	G	E	E	E	E	E	E	E	N	N	F	N	
PREFIX	14/15	2	P	F	P	G	G	E	G	G	P	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
PURSUIT	2	2	E	F	P	E	N ^a	E	F	G	G	C	N ^a	E	C	P	F	F	G	G	G	F	F	P	P	N	F		
RAPTOR	2	2	G	G	G	E	N ^a	E	F	G	G	C	N ^a	-	F	F	E	G	G	F	F	N	P	F	N	P	P		
REFLEX	14	1	P	F	P	G	G	E	G	G	P	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
RESOURCE	14	2	P	P	F	P	P	P	P	P	E	P	F	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
SELECT MAX/ ARROW/SELECT	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	E	G	E	E	E	E	E	E	E	N	N	G	N	
SYNCHRONY XP	2/2	2	E	G	G	N ^a	E	G	G	E	C	N ^a	E	G	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
ULTRA BLAZER	14	2	F	G	P	G	F	E	E	F	G	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
WARRANT ULTRA	14/15	2	P	F	P	G	G	E	G	G	P	F	G	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N	
GLYPHOSATE-RESISTANT SOYBEAN																													
GLYPHOSATE	9	1	E	E	G	G	N ^b	E	G	G	G	C	N ^b	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	F
EXTREME	2/9	2	E	E	G	E	N ^b	E	G	G	G	C	N ^b	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	F
FLEXSTAR GT 3.5	9/14	2	E	E	G	E	N ^b	E	G	G	G	C	N ^b	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	F
SEQUENCE	9/15	2	E	E	G	G	N ^b	E	G	G	G	C	N ^b	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	F
WARRANT + GLYPHOSATE	9/15	2	E	E	G	G	N ^b	E	G	G	G	C	N ^b	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	F
LIBERTYLINK (GLUFOSINATE-RESISTANT) SOYBEAN																													
LIBERTY/CHEETAH/INTERLINE	10	1	E	E	G	G	G	G	E	G	G	C	G	E	G	F	G	G	G	F	G	F	F	P	P	P	P	P	
CHEETAH MAX	10/14	2	E	E	G	G	G	E	E	E	G	C	G	E	G	F	G	G	G	F	G	F	F	P	P	P	P	P	
ROUNDUP READY 2 XTEND (DICAMBA-RESISTANT) SOYBEAN																													
ENGENIA	4	1	G	G	G	G	G	G	E	E	E	F	G	G	G	N	N	N	N	N	N	N	N	N	N	G	F	N	N
XTENDIMAX/FEXAPAN	4	1	G	G	G	G	G	G	E	E	E	F	G	G	G	N	N	N	N	N	N	N	N	N	N	G	F	N	N

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TABLE 2J – Maximum Broadleaf Weed Heights for Postemergence Control in Soybean*

Herbicide	RATE/A	WEED HEIGHT ^d (inches)												
		COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	NIGHTSHADE (E. BLACK)	PALMER AMARANTH ^d	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVETLEAF	WATERHEMP ^d	WILD MUSTARD	HORSEWEED (MARESTAIL)
Anthem MAXX	3 oz	-	2	2	2 ^c	-	2 ^c	-	-	2 ^c	36	2	-	-
Basagran/Broadloom	1.5 pt (4L) or 1.2 pt (5L)	6	6	1.5 ^c	-	-	-	-	-	6	2	-	4	-
	2 pt (4L) or 1.6 pt (5L)	10	10	2 ^c	-	-	-	3	6	10	6	-	8	-
Cadet	0.6 oz	-	2	2	2	-	2	-	-	-	36	2	-	-
	0.9 oz	-	2	2	2	-	4	-	-	-	36	2	-	-
Classic	0.5 oz	6	4	-	-	-	4	4	6	4	6	-	4	3
	0.75 oz	12	6	-	-	-	4	4	6	4	6	-	6	6
Cobra ^b	8 oz	3	3	-	4	-	3	-	-	-	-	-	-	-
	10 oz	4	4	-	4	2	4	2	-	-	-	2	-	-
	12.5 oz	4	4	-	5	3	4	4	2	-	-	3	-	-
FirstRate	0.3 oz	10	4	-	-	-	-	8	10	6	6	-	4	6
Flexstar ^b	0.75 pt	2L	4L	-	2L	2L	2L	-	-	-	-	-	4L	-
	1 pt	4L	6L	-	4L	4L	4L	4L	4L	4L	-	2L	6L	-
Harmony SG	0.12 oz	-	-	4	-	-	12	-	-	6	6	-	4	-
Marvel	7.25 oz	-	4	4	4	3	4	3	-	4	36	4	4	-
Phoenix	10 oz	-	2	-	2	-	4	4	5	-	-	2	2	-
	12.5 oz	2	4	-	3	2	4	6	4	-	-	3	4	-
Prefix ^b	2 pt	-	4L	-	2L	4L	2L	4L	-	4L	-	2L	4L	-
Pursuit	4 oz	8	3	<1 ^c	2	-	6	2 ^c	3 ^c	3	2	-	3	-
Raptor	5 oz	8	6	3	3	-	6	3	4	4	4	-	3	-
Reflex ^b	0.75 pt	-	2L	-	2L	-	2L	2L	-	2L	-	-	2L	-
	1 pt	-	4L	-	2L	4L	2L	4L	-	4L	-	2L	4L	-
Resource	6 oz	-	-	3L ^c	-	-	3L ^c	4L ^c	-	-	6L	-	-	-
Synchrony XP	0.5 oz	8	5	4	-	-	8	4	4	8	8	-	5	5
Ultra Blazer	1 pt	-	4	-	<2	4	<4	2	<2	4	-	4	<4	-
	1.5 pt	2	6	2 ^c	2	4	4	3	3	6	-	4	4	-
Warrant Ultra ^b	3 pt	-	4L	-	2L	4L	2L	4L	-	4L	-	2L	4L	-
GLYPHOSATE-RESISTANT SOYBEAN														
Glyphosate	1.13 lb a.e.	6	6	6	6	-	6	6	6	6	6	-	6	6
Extreme	3 pt	18	6	8	12	-	18	9	9	6	5	-	18	12
Flexstar GT 3.5	3.5 pt	4	4	4	4	1	4	4	4	4	4	2	6	-
Sequence	2.5 pt	12	12	6	6	-	12	12	12	6	6	-	18	12
LIBERTYLINK SOYBEAN														
Liberty/Cheetah/Interline	32 oz	14	10	6	8	4	4	10	12	14	4	5	6	6-12
Cheetah Max	1 qt	14	10	6	8	4	4	10	12	14	4	5	6	6
ROUNDUP READY 2 XTEND (DICAMBA-RESISTANT) SOYBEAN														
Engenia	12.8 oz	4	4	4	4	4	4	4	4	4	4	4	4	4
XtendiMax/FeXapan	22 oz	4	4	4	4	4	4	4	4	4	4	4	4	4

Soybean management tables from the MSU 2019 Weed Guide. The Guide is available to purchase from the [MSU Extension Bookstore](#) (\$12), and the free online version will be available soon on the [Field Crops Weed Science website](#).

Fusarium Head Blight (Head Scab) in Wheat – Part 1

This past month the American Society of Agronomy offered two free webinars on fusarium head blight (FHB), also known as head scab, in wheat. I am going to share a very abbreviated version of the first presentation focused on the disease itself, and next month I will summarize the second presentation on management with fungicides. If you have further questions however, feel free to contact me.

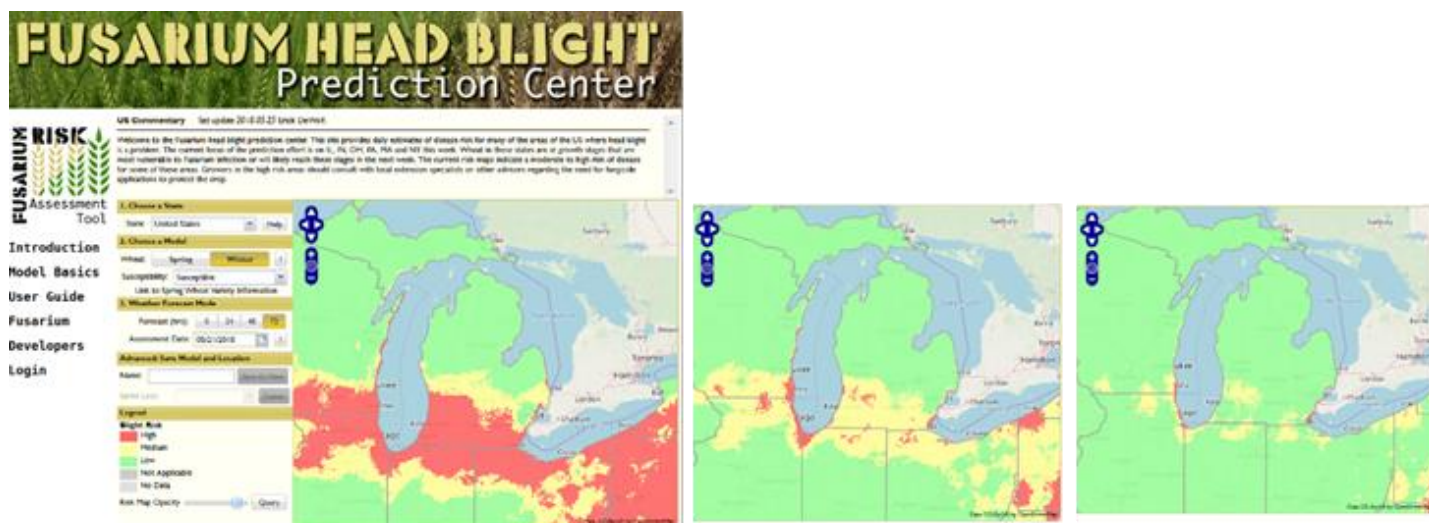
The causal pathogen of FHB is *Fusarium graminearum*. For those who know their fungi, *F. graminearum* is also known as *Gibberella zeae*—the two are what are known as anamorphs, in other words, they are the same organism but have distinctly different ways of reproducing. This pathogen also causes other diseases such as Gibberella stalk and ear rot in corn. Reproductive structures (perithecia) overwinter in corn stubble and spores (apothecia) are released as temperatures warm up. Spores are carried by wind or rain and infect wheat flowers.

Adequate heat (58-85 °F) and rain in the two weeks before flowering creates ideal conditions for a FHB epidemic. Flowering is typically a 7-10 day window, so protecting wheat over this period is critical. Bleached heads are the typical signature of FHB, and these would be clearly visible by 18-21 days after flowering. The kernels in these bleached heads have low test weight and are high in DON (aka, vomitoxin) and sometimes other toxins.



Burying corn stubble with a moldboard plow can help reduce disease severity but not always. Disease severity increased when wheat followed corn compared with soybean by roughly 1.5x in one study (Dill-Macky and Jones, 2000), although planting after corn may be advantageous to allow for an earlier planting date for wheat. Integration of other disease management strategies including variety selection, timely preventative fungicide application, combine blower setting adjustment, and seed cleaning is important in managing this disease.

The FHB forecasting system is weather-based (largely by relative humidity) and can be helpful in determining the level of risk of a FHB epidemic and thus the need for a preventative fungicide application. The FHB Prediction Center forecasting model can be accessed at www.wheatscab.psu.edu. Choosing the relative susceptibility of your variety and the expected date of flowering affects the outcome of the model. Another useful site is the [ScabSmart Management website](#) where different variety trial sources are linked (including three for soft red winter wheat for MI). Articles on the MSU Extension website include [Managing Fusarium head blight on wheat](#), [Managing wheat leaf diseases and Fusarium head blight \(head scab\)](#), and [Help in predicting risk levels for fusarium head blight in your fields](#).



These images show the risk of Fusarium head blight in Michigan on May 21, 2018 for susceptible (left), moderately susceptible (center) and moderately resistant (right) wheat varieties.

Calendar

Titles are clickable links to online content when highlighted and underlined

- March 4** [Field Crops Webinar Series Continues](#). Mondays 7-8pm through April 1st. This week's topic: Herbicide Efficacy Under Weather Stress with Dr. Erin Burns. Register online, \$20 for the series, or \$5 for each session. Recordings are available for each session in the 7-week series. Participants in the live sessions are eligible to earn 1 RUP credit per week.
- March 5** [Michiana Irrigated Corn and Soybean Production Workshop 2019](#). 8:30 am - 3:00 pm, Blue Gate Restaurant, Shipshewana, IN. To register, send a completed registration form with a check for \$15 to Purdue Extension by Feb. 28. To register, call the Purdue Extension office in LaGrange County at 260-499-6334.
- March 5** [2019 Great Lakes Forage & Grazing Conference](#). 9 a.m.-4 p.m. 3055 W M-21, St. Johns, MI. This program is designed to help producers learn about new and innovative ideas, approaches, and solutions to challenges in the Great Lakes Regions' forage based agriculture systems. \$45 for Michigan Forage Council members, \$60 for non-members. Register online by Mar. 1 to avoid \$10 additional fee and to ensure lunch availability.
- March 6-8** [Farm Women's Symposium](#). Hilton Garden Inn, Benton Harbor, MI. This event is an excellent opportunity for women involved in agriculture to learn, develop valuable networks, renew friendships and provide inspiration for another year in the farming world. For more information or to register, visit the website at the link above.
- March 11** [Tools to Navigate a Challenging Farm Economy](#). 8:30 am - 12:00 pm. First Church of God, 21083 Spencer Rd, Cassopolis, MI. This MSUE meeting will provide farmers with some answers and food for thought to address pressing economic challenges. There is no cost to attend, but registration is required as seating is limited. Call the Cass County Extension office (269-445-4438) to reserve your seat. Contact Jon LaPorte (laportej@msu.edu) or Eric Anderson for more information.
- March 12** [Calhoun RUP Training and Testing](#). Calhoun County MSU Extension Office, County Building 315, West Green St., Marshall, MI. A review of the Core Pesticide Applicators Manual to prepare for the MDARD Pesticide Applicators Certification Exam. Register online, cost is \$20. Those taking the exam will need to sign up on [MDARD's website](#) and bring a separate check.
- March 14** [Soil Fertility Workshop](#). 11:00 A.M-3:00 P.M, Mosier Well Drilling, 21867 M-60, Cassopolis, MI. The Cass County Conservation District and the MAEAP program are offering a Soil Fertility Workshop, given by A&L Great Lakes Laboratories. Contact Erez Brandvain (269-228-7084, Erez.Brandvain@macd.org) to register or for more information.
- March 14-15** [Precision Ag and UAV Seminar for Row Crops](#). MSU Agronomy Farm, 4450 Beaumont Rd, Lansing, MI. Seminar offered by Dr. Bruno Basso's Precision Agriculture Research Lab as part of Project GREEN. Register by contacting Rich Price (pricer1@msu.edu, 989-213-1112). Seminar is free, includes lunch. Space is limited. The same seminar is scheduled to be offered April 25-26.
- March 18** [National Climate Assessment: Great Lakes Overview](#). 1:00 PM EST. Experts will discuss the key findings of the [Fourth National Climate Assessment Vol. II](#) To register for this free broadcast, follow the title link.
- March 20** [Farming for the Future](#). 8:30am-3:30pm. Van Buren Conference Center, 490 S. Paw Paw St., Lawrence MI. Registration is required and lunch is included for this free event. There are 6 RUPs and MAEAP Phase 1 available.
- April 5** [Branch RUP Training and Testing](#). 8:15am-12:15pm. Branch County MSU Extension Office, 570 Marshall St., Suite C, Coldwater, MI. A review of the Core Pesticide Applicators Manual to prepare for the MDARD Pesticide Applicators Certification Exam. Register online, cost is \$20. Those taking the exam will need to sign up on [MDARD's website](#) and bring a separate check.

April 8 **Cass Annual Spring Tree Sale.** Order online, orders are being accepted through April 8, 2019. For more information call 269-445-8641 x 5.

April 20 **St. Joseph Annual Spring Tree Sale.** Order online, orders are being accepted through April 20, 2019. For more information call (269) 467-6336 Ext. 5.

MSU Extension Digest Briefs

2018 Michigan Forage Variety Test Report now available

PUBLISHED ON FEBRUARY 27, 2019

Report helps producers in selecting varieties to optimize forage production.

Webinar focuses on herbicide efficacy under weather stress

PUBLISHED ON FEBRUARY 26, 2019

The March 4, 2019, webinar will feature Erin Burns of MSU and focus on how weather stress can affect herbicide activity.

Updated 2019 hop management guide available to Michigan hop growers

PUBLISHED ON FEBRUARY 22, 2019

Updated management reference available for Michigan hop growers through Michigan State University Extension.

Pollinator Health Meetings to provide update on Great Lakes Pollinator Health Project

PUBLISHED ON FEBRUARY 22, 2019

Three regional meetings will share how to support and build on local efforts to improve pollinator health based on MSU research and findings.

Selecting soybean varieties for 2019

PUBLISHED ON FEBRUARY 19, 2019

Maximize farm income by selecting high-yielding and pest-resistant soybean varieties.

Developing the leaders you need

PUBLISHED ON FEBRUARY 18, 2019

When farm owners extend their view of employee development farther, much farther, they develop their business as they develop their employees.

Winter weather impacts make manure storage monitoring critical

PUBLISHED ON FEBRUARY 15, 2019

Due to the cold harsh winter, recent heavy rains, and snow melt, livestock producers should keep a close watch on manure storage structures and pumping equipment.

Every farmer should be doing on-farm research

PUBLISHED ON FEBRUARY 15, 2019

Allocate acres to help answer questions and solve problems.

Learning and action outcomes of 2018 Integrated Crop and Pest Management Update

PUBLISHED ON FEBRUARY 14, 2019

Ninety-four percent of participants increased their knowledge and awareness of MSU crop and pest management recommendations, and 86 percent indicated they would implement these practices in 2019.

2019 Great Lakes Forage & Grazing Conference to focus on mixing forages for sustainability

PUBLISHED ON FEBRUARY 13, 2019

The March 5 conference will feature keynote speaker Ray Smith, University of Kentucky, and sessions on new and innovative ideas and solutions to challenges in forages and grazing crops.

Considerations to make as you prepare to purchase livestock

PUBLISHED ON FEBRUARY 13, 2019

Purchasing new livestock, whether simply adding to your herd or acquiring a new 4-H requires some pre-purchase considerations to evaluate animal health and to make sure your facilities are ready.

Plan to attend the Michiana Irrigated Corn and Soybean Production Program

PUBLISHED ON FEBRUARY 11, 2019

Educational program to address issues related to irrigated corn and soybean production will be held March 5, 2019, in Shipshewana, Indiana.

Water system food safety inspections

PUBLISHED ON FEBRUARY 11, 2019

There are several concerns regarding a water system inspection from a food safety perspective and compliance to the Food Safety Modernization Act Produce Safety Rule.

Navigating a challenging farm economy

PUBLISHED ON FEBRUARY 8, 2019

A meeting on March 11, 2019 in Cass County will focus on helping farmers identify farm management tools that can help them weather the current economic downturn in agriculture.

Learn about white mold management in dry beans and soybeans March 6 in Frankenmuth

PUBLISHED ON FEBRUARY 8, 2019

Upcoming program will highlight new information about managing white mold in dry beans and soybeans.

Keeping herbicides out of groundwater and surface water

PUBLISHED ON FEBRUARY 8, 2019

These six field practices can protect water quality from herbicide applications.

Statewide shining a light on agricultural solar energy development meetings

PUBLISHED ON FEBRUARY 6, 2019

Topics include understanding the nuances of solar leases, zoning considerations, and accompanying tax implications of solar projects.

Eric Anderson

Michigan State University Extension

Field Crops Educator - St. Joseph County

612 E. Main St., Centreville, MI 49032

(269) 467-5510 (Office)

(269) 467-5641 (Fax)

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