

## Southwest Michigan Field Crops Updates May 31, 2019

Here are updates from the MSU Extension Field Crops team in Southwest Michigan. 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.

### Delayed Planting vs Prevented Planting - Part 2

The Field Crops Virtual Breakfast session this week featured MSU farm management educator Roger Betz talking about prevented planting considerations, a timely topic for this spring. Roger talked through a tool produced by the [University of Illinois's farmdoc group](#) available as a free downloadable Excel spreadsheet that allows you to put in your own numbers to see which option is the most profitable—see below for a few screenshots. He worked through an example from his own farm with both corn and soybean and showed that corn prevented planting was more valuable than soybean. The first dates for late planting under prevented planting rules are June 5th for corn and June 15th for soybean in Michigan, and the last late planting dates are June 25th for corn and July 10th for soybean. The revenue guarantee is reduced by 1% per day. He also ran through profitability scenarios for corn and beans to show whether prevented planting would be better, and he shared a couple of very useful tables to show when prevented planting is more profitable given yields and prices for each crop. Roger discussed several other factors to keep in mind when considering your options, but he urged farmers to talk with their crop insurance agent as things can get complex pretty quickly.

Also be sure to contact your FSA office to report any prevented planting. Here is a note from FSA: “Producers should report crop acreage they intended to plant, but due to natural disaster, were prevented from planting. Prevented planting acreage must be reported on [form CCC-576, Notice of Loss \(instructions for filling out the form\)](#), no later than 15 calendar days after the final planting date as established by FSA and Risk Management Agency (RMA). To receive prevented plant credit, producers must demonstrate an intent to plant the acreage by providing documentation of field preparation, seed purchases, and any other information necessary to prove intent.”

MICHIGAN STATE UNIVERSITY Extension		
Prevented Planting Comparison Tool		
Budget Year:	2019P	
State:	Michigan	
County:	Eaton	
		
Net returns from prevented planting		
	Corn	Soybeans
COMBO plan	RP	RP
Coverage level	80%	80%
APH yield (bu. per acre)	160	50
Projected price (\$ per bu.)	\$4.00	\$9.54
Prevented planting factor	55%	60%
Final planting date	6/5	6/15
Prevented planting payment	\$282	\$229
Weed control costs	25	25
Crop insurance premium	18	15
<b>Net returns (\$ per acre)</b>	<b>\$239</b>	<b>\$189</b>

Sample net return from prevented planting calculations using farmdoc's [Planting Decision Model tool](#). Slides courtesy of Roger Betz, MSU Extension farm management educator.

MICHIGAN STATE UNIVERSITY Extension			MICHIGAN STATE UNIVERSITY Extension		
<b>Net returns on plant corn or soybeans</b>			<b>Direct costs (\$ per acre)</b>		
	<b>Corn</b>	<b>Soybeans</b>	Fertilizers	80	0
Planting date	6/10	6/20	Pesticides	35	25
Insurance guarantee	517	380	Seed	100	55
Maximum yield (bu. / acre)	180	55	Drying	18	1
Percent of max	65%	79%	Storage	15	8
Expected yield	117	43	Crop insurance	18	15
Expected harvest price	\$4.25	\$10.00	<b>Power costs (\$ per acre)</b>		
Basis	-\$0.25	-\$0.50	Machine hire	13	14
Expected cash price (\$ /bu.)	\$4.00	\$9.50	Field cultivate	9	9
Crop revenue	\$468	\$413	Plant	12	12
Crop insurance payment	20	0	Spray	3	3
2019 MFP payment	1	1	Combine	35	30
			Trucking	12	6
<b>Revenue (\$ per acre)</b>	<b>\$489</b>	<b>\$414</b>	<b>Costs yet to be incurred</b>	<b>\$350</b>	<b>\$178</b>
			<b>Expected net returns (\$ per acre)</b>	<b>\$139</b>	<b>\$236</b>

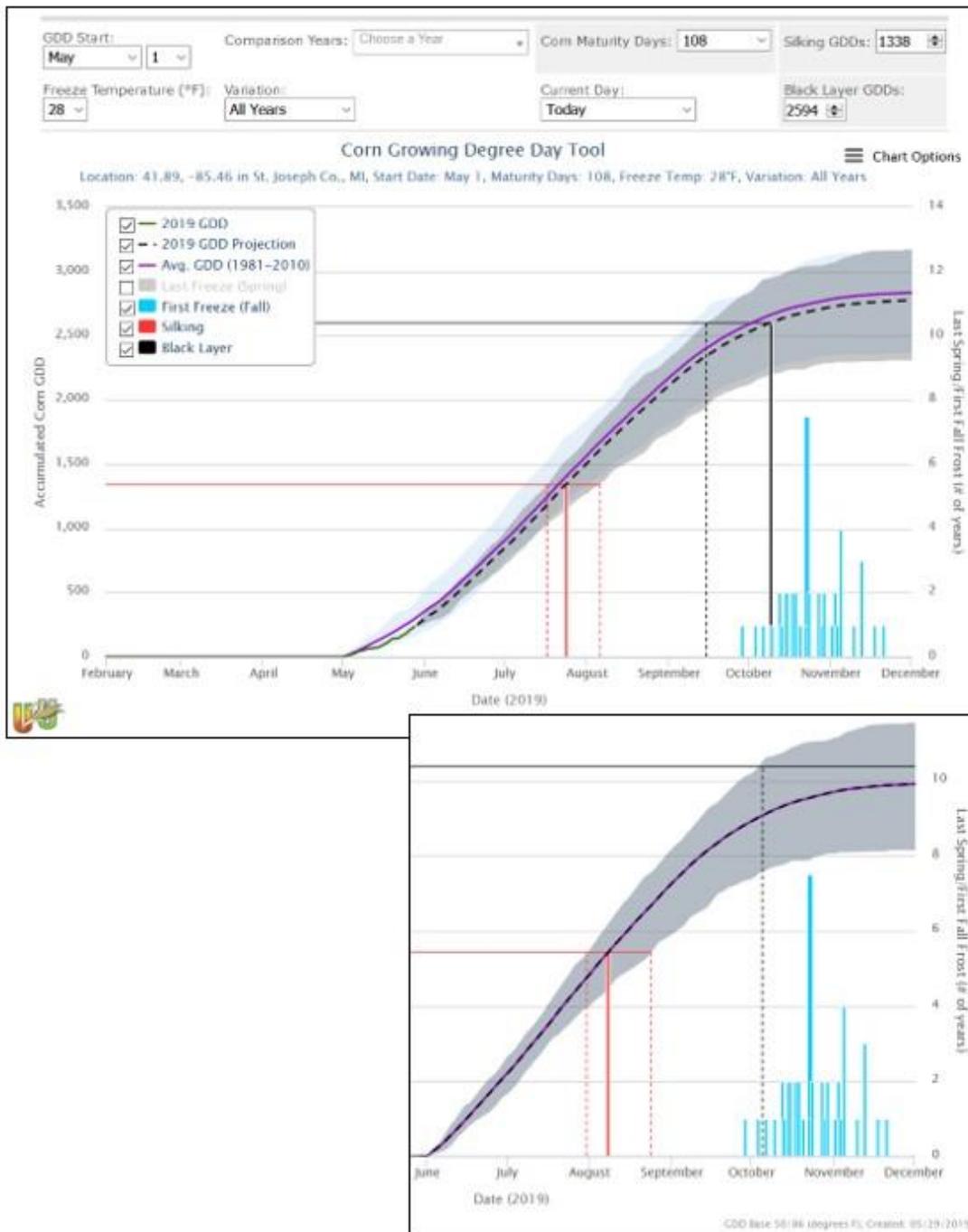
Sample net returns calculations using farmdoc's [Planting Decision Model tool](#). Slides courtesy of Roger Betz, MSU Extension farm management educator.

MICHIGAN STATE UNIVERSITY Extension			MICHIGAN STATE UNIVERSITY Extension																
<b>Net Returns from Planting Corn for Different Yields and Prices</b>						<b>Net Returns from Planting Soybeans for Different Yields and Prices</b>													
Harvest Price	Cash Price	Actual Yield								Harvest Price	Cash Price	Actual Yield							
		100	110	120	130	140	150	160	170			25	30	35	40	45	50	55	60
\$ / bu.	\$ / bu.	\$ per acre								\$ / bu.	\$ / bu.	\$ per acre							
3.50	3.25	112	110	107	105	106	139	171	204	8.00	7.70	173	171	168	166	163	198	236	273
3.75	3.50	112	110	107	106	141	176	211	246	8.50	8.20	173	171	168	166	183	223	263	303
4.00	3.75	112	110	107	139	176	214	251	289	9.00	8.70	173	171	168	166	206	248	291	333
4.25	4.00	143	140	138	171	211	251	291	331	9.50	9.20	173	171	168	183	228	273	318	363
4.50	4.25	173	171	168	204	246	289	331	374	10.00	9.70	191	188	186	203	251	298	346	393
4.75	4.50	204	201	199	236	281	326	371	416	10.50	10.20	210	207	205	223	273	323	373	423
5.00	4.75	234	232	229	269	316	364	411	459	11.00	10.70	229	226	224	243	296	348	401	453
Numbers in red are above net return for prevented planting.									Numbers in red are above net return for prevented planting.										

Net returns from planting corn (left) and soybean (right) based on different yields and prices. Slides courtesy of Roger Betz, MSU Extension farm management educator.

# Corn Emergence Timing

As we (hopefully) get caught up on planting in the coming week, it is helpful to know the timing of when we can expect emergence and key growth stages in corn. I have highlighted the [U2U: Useful to Usable Corn GDD tool](#) in the past. The screenshots below show the expected progress for a 108-day corn hybrid planted May 1 compared with June 1 this year.

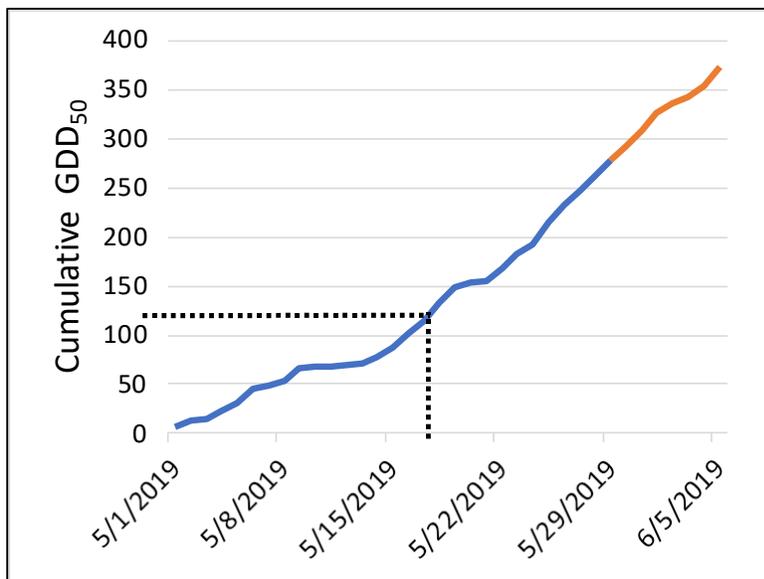


Expected timing of growth stages for 108-day corn planted May 1 (top) and June 1 (bottom) in 2019. From U2U: Useful to Usable Corn GDD. <https://mrcc.illinois.edu/U2U/gdd>

Corn typically requires from 100 to 120 GDD (growing degree days) to emerge, but there are several factors besides heat units that play a role. See the table below taken from [“Growing Degree Units and Corn Emergence”](#), University of Nebraska-Lincoln. For simplicity, we will consider only air temperature. [According to Purdue’s Bob Nielsen](#), under warm soil conditions, the calendar time from planting to emergence can be as little as 5 to 7 days, but under cold soil conditions, emergence can easily take up to four weeks. In the following graph, cumulative GDD<sub>50</sub> is plotted over time beginning May 1, 2019 in St. Joseph County.

Management/ Environment	Specifics	GDU Adjustment
Residue	% In-row Residue Cover	5 to 50 GDU
Soil texture	Fine	Add 30-60 GDU
	Coarse	Subtract 30-60 GDU
Planting date	Before April	Add 10-25 GDU
	After May 15	Subtract 50-70 GDU
Seed-zone soil moisture	Below optimum	Add 30 GDU
Seed-bed condition	Soil crusting or massive clods	Add 30 GDU
Seeding depth	For each inch below 2 inches ...	Add 15 GDU
Severe drought or heat stress	Corn will not germinate until it absorbs 30% to 35% of its weight in water.	

Potential impact of various management and environments that may alter corn emergence rates. Selected from [“Growing Degree Units and Corn Emergence”](#), University of Nebraska-Lincoln



Cumulative growing degree days (base 50F) since May 1, 2019 as of May 29 (orange line includes forecast) for Mendon Enviroweather station. Dashed line indicates the date at which emergence would occur on average (120 GDD<sub>50</sub>).

This estimate lined up pretty well with what I saw this year for those fields planted right around May 1. From VE to V10, about 82 GDD<sub>50</sub> are required per stage and from V10 to the final leaf, leaf collar emergence occurs approximately every 50 GDD<sub>50</sub> according to Nielsen. According to this estimate, corn planted on May 1 should reach V3 by June 5<sup>th</sup>. Using Enviroweather data for the nearest station, you can do a similar calculation for various growth stages for your planting date—essentially what U2U is doing.

# MSU's Industrial Hemp Resources Now Available

As I mentioned earlier this spring, MSU Extension specialists and educators have been working on a bulletin and FAQ regarding industrial hemp production in Michigan. That bulletin is now available as a free download at [MSU's Hemp Production website](#). That site will be updated periodically with articles and research results as the season progresses.

## AW and BCW Counts

Black cutworm counts continue to weaken, although I received a report from central MI that they have had significant catches this past week. I will continue to trap for a couple more weeks at least until the majority of our planting is completed in the region. Armyworm counts in Indiana are still impressive whereas this week's numbers from MI tapered significantly at most sites. The following [comments by Purdue's John Obermeyer](#) are from Purdue's Pest and Crop Newsletter last week.

Corn that has been no-tilled into, or growing adjacent to, a grass cover crop (especially cereal rye) should be inspected immediately for armyworm feeding. Hatched larvae will move from the dying grasses to emerging/emerged corn. Armyworm feeding, done at night, gives corn a ragged appearance, with feeding extending from the leaf margin toward the midrib. When larvae are numerous and/or large, damage may be so extensive that most of the plant, with the exception of the midrib and stalk, is consumed. A highly damaged plant may recover if the growing point has not been destroyed. If more than 50% of the plants show armyworm feeding, and live larvae less than 1-1/4 inches long are numerous in the field, control may be necessary. Larvae greater than 1-1/4 inches consume a large amount of leaf tissue and are more difficult to control. If armyworm are detected migrating from border areas or waterways within fields, spot treatments in these areas are possible if the problem is identified early enough. Seed-applied insecticides provide no protection from this pest, and some Bt-corn may suppress small larvae, but not once the worms are "marching."

Examine [wheat] plants in different areas of a field, especially where plant growth is dense. Look for flag leaf feeding, clipped heads, and armyworm droppings on the ground. If counts average approximately 5 or more per linear foot of row, the worms are less than 1-1/4 inches long, and leaf feeding is evident, control may be justified. If larvae are present and they are destroying the flag leaves or the heads, treat immediately.

		10- Apr	17- Apr	24- Apr	3- May	10- May	17- May	24- May	31- May
<b>AW</b>	Wheat				64	98	17	25	5
	Wheat				8	11	4	3	1
	Grass pasture				-	16	3	7	1
	Grass pasture				-	27	16	33	31
	LaPorte/Pinney Ag Center	0	127	312	52	51	39	186	
	Whitley/NEPAC Ag Center	4	191	384	392	1222	739	1349	

<b>BCW</b>									
	Alfalfa				0	0	3	0	0
	Grass/alfalfa mix				4	15	6	0	6
	Pasture w/ dandelion				1	2	4	0	0
	Alfalfa				1	0	3	3	0

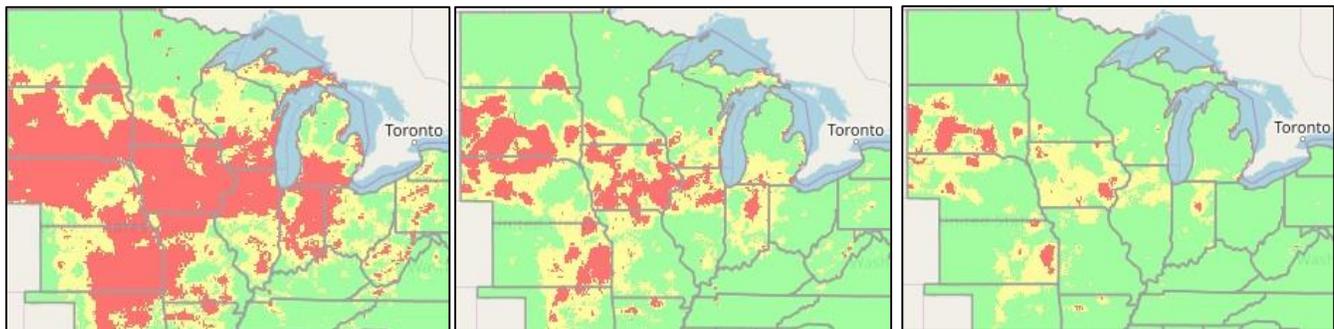
Moth trap counts for true armyworm (AW) and black cutworm (BCW). Results from Purdue's northern locations for AW are also included—their weekly reporting frame doesn't line up exactly with mine, but it's close.

# Weather and Crop Update

**Wheat:** The USDA Crop Progress stats from May 26 report that 1% of wheat has headed in MI (13% behind average) and only 8% is rated excellent (additional 31% and 34% rated good and fair, respectively). Fields I have visited are at Feekes 10.5 (heading complete) but have not reached flowering/anthesis yet (Feekes 10.5.1). Those earlier fields are within days of the ideal time for a headscab fungicide application (Caramba, Prosaro, and Miravis Ace are recommended) if warranted. Ideal timing is anthesis or 7-10 days following. The [Fusarium Risk Assessment Tool](#) is a weather-based model that will give growers a sense of the level of risk (see screenshots below). I did not see any signs of foliar feeding, even though one field is adjacent to the AW moth trap at the top of the table above, and only minor disease symptoms on lower leaves. No disease was detected in any UW-Madison wheat plots either, although they have not yet headed.



Fully headed wheat field in St. Joseph County. I only found one head where any anthers were exposed.



Head scab risk as of May 30 with similar results for the next 72 hours for a susceptible (left), moderately susceptible (center) and moderately resistant (right) winter wheat variety according to the [Fusarium Head Blight Prediction Center](#).

**Corn:** According to the latest crop progress report, Michigan was 33% planted as of May 26. We are reportedly 7% emerged as of last week, and I suspect most of that is here in the south. Stands look good and are mostly at V2.

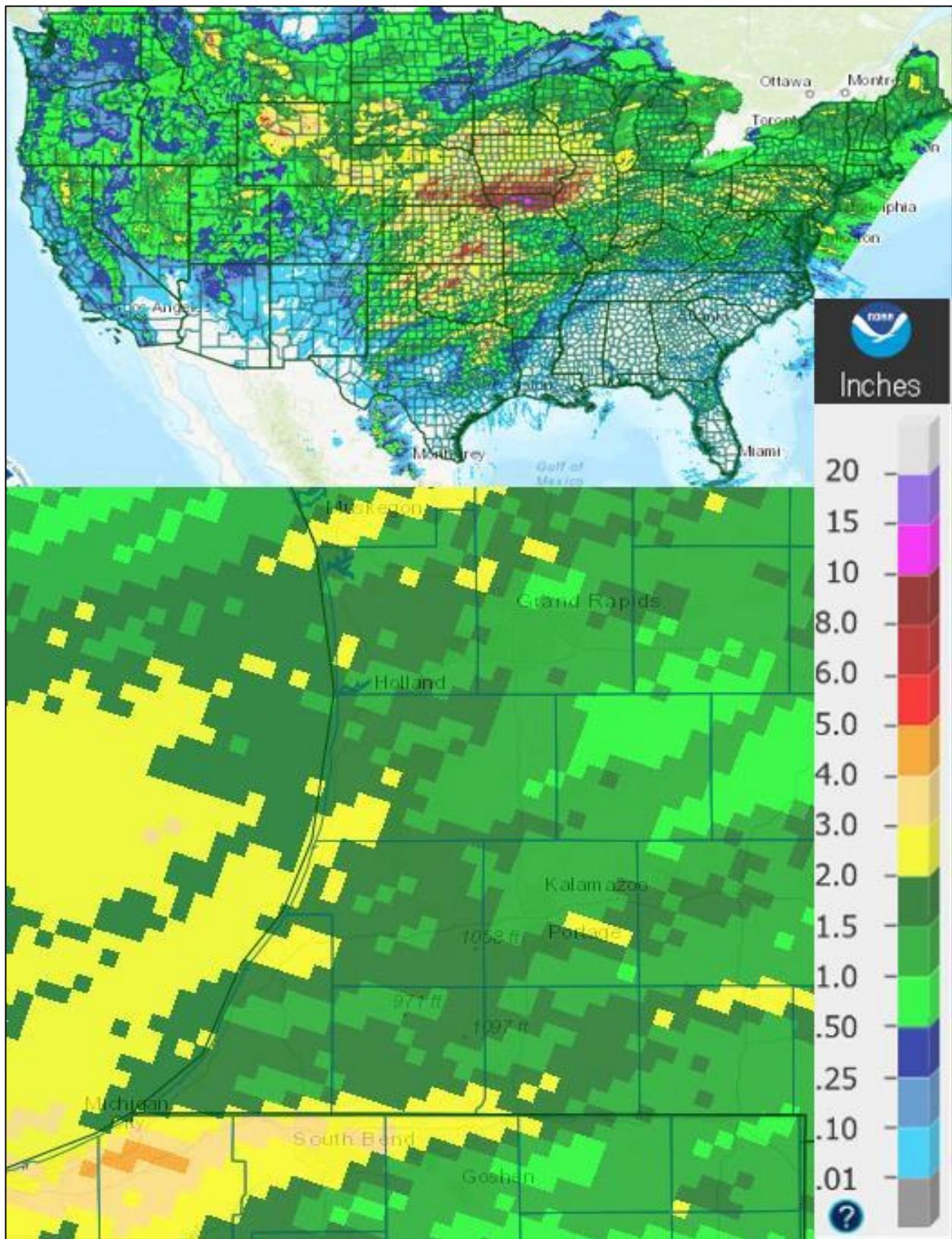
**Soybean:** According to the latest crop progress report, Michigan was 23% planted as of last week and 5% emerged as of last week. No-till beans planted May 21 in my inoculation study show less than ideal emergence, and those that are up are at VC.

**Alfalfa:** We have accumulated 717 growing degree days (base 41F) on average since March 1, 2019 across the south-central and southwest Michigan region (ranging from 567 in the north to 808 near the Indiana border). With optimal cutting to begin at 680 or 750 GDD<sub>41</sub> depending on silage storage, first cutting is expected as soon as fields are dry enough to enter. The challenge will be getting the forages off before quality declines significantly or getting crops planted. Thomas Kilcer from Cornell says to prioritize the hay crop above getting silage corn planted for those with that particular decision to make.

**Weather:** We received another 1.5 inches of rain on average in our area this past week—exact same story as last week. We caught up on heat units and are now only a few days behind. I heard reports of soil temps dropping into the mid-40's north of Lansing this past week, but our minimum soil temps have held steady in the lower-60's, so crops that get planted should emerge fairly quickly. The jet stream pattern we have had for the last several weeks that has brought repeated rain cycles is predicted to change around midweek next week which should bring dryer weather to Michigan. That pattern has resulted in 200 more tornadoes so far in 2019 than we typically see in an entire year in the U.S. The front that should be making its way through Michigan Saturday morning will bring scattered showers with ¼ to ½ inch of rain but will be followed by a few days of cool and dry conditions. The next chance of rain won't be until midweek next week. The 8-14 day outlook calls for cooler and dryer than normal weather, so we have a good chance of making up lost ground in the first two weeks of June.

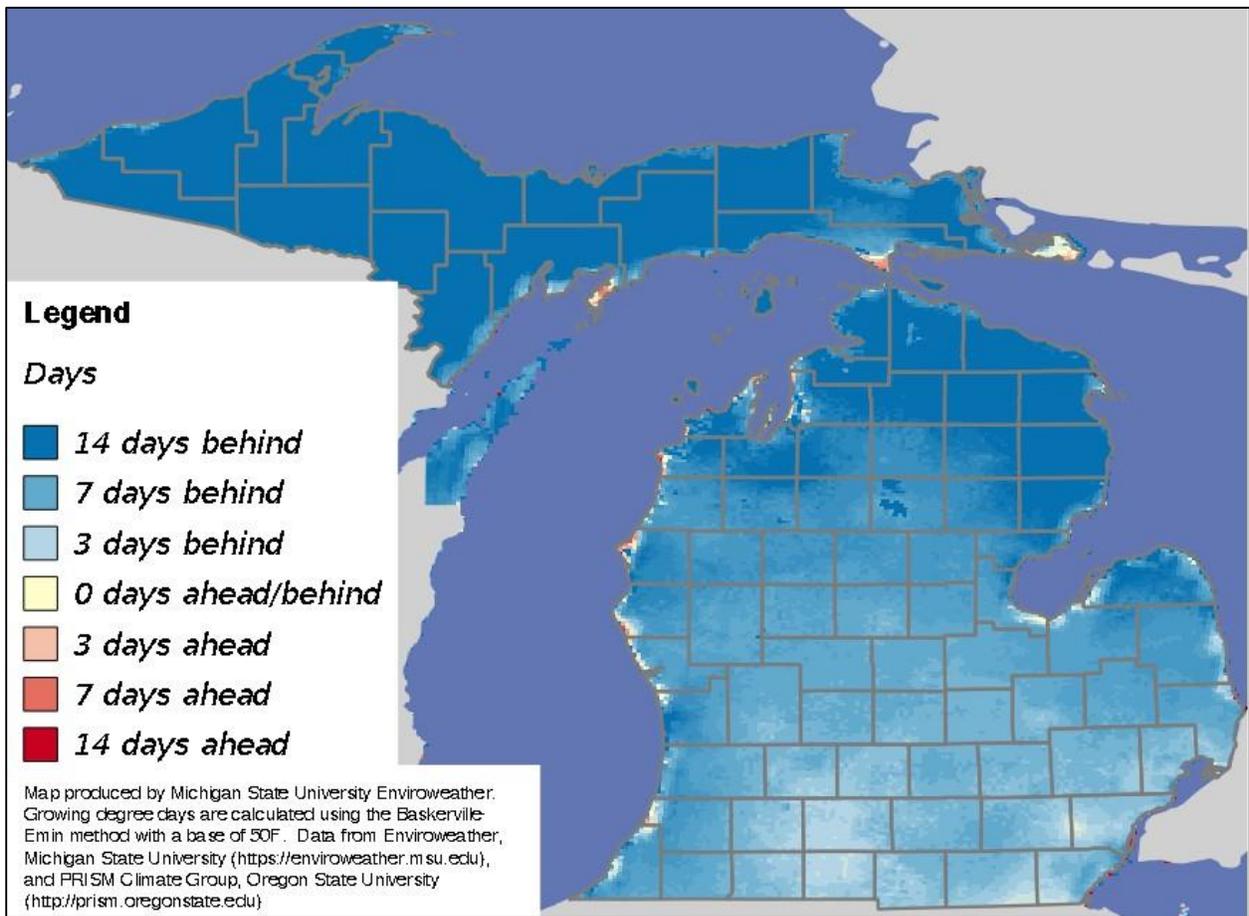


Noteworthy: you're probably wondering where I found clear skies in southwest Michigan this past week...hopefully more to come in the next two weeks.

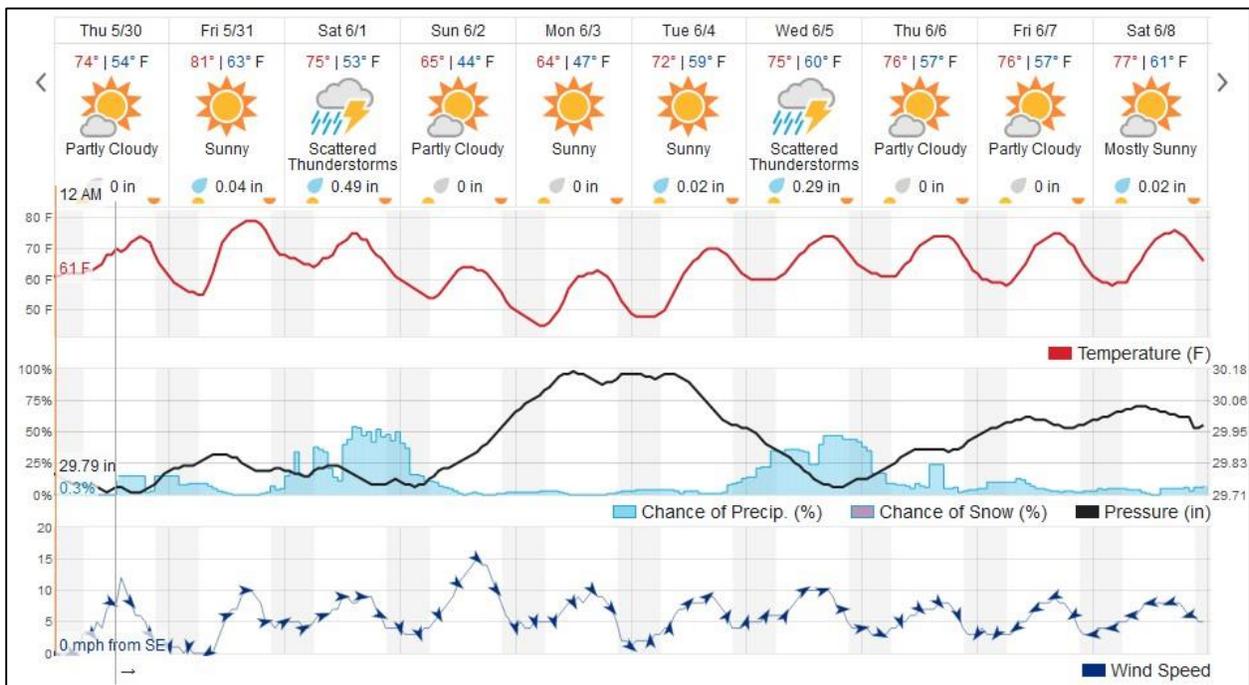


Precipitation totals for week ending May 29, 2019. Rainfall totals ranged from 0.75-2.2 inches in the region with an average of 1.5 inches.

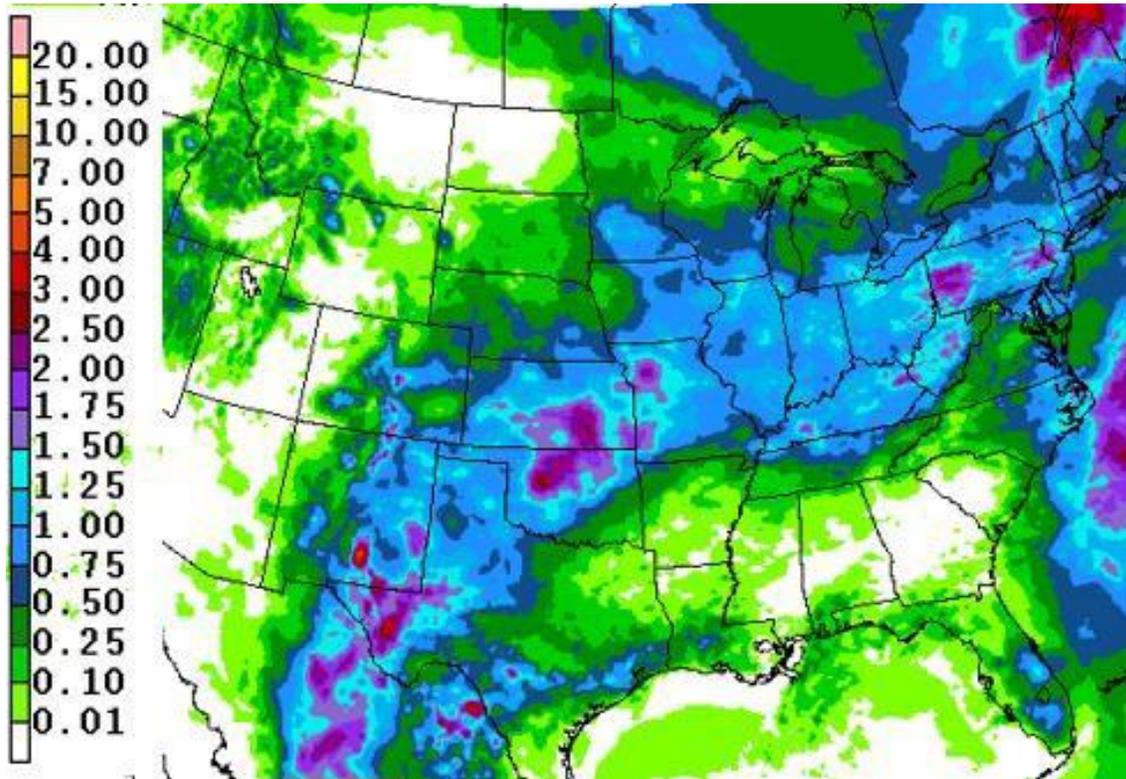
# Heat accumulation compared with normal (in days): March 1 – May 29, 2019



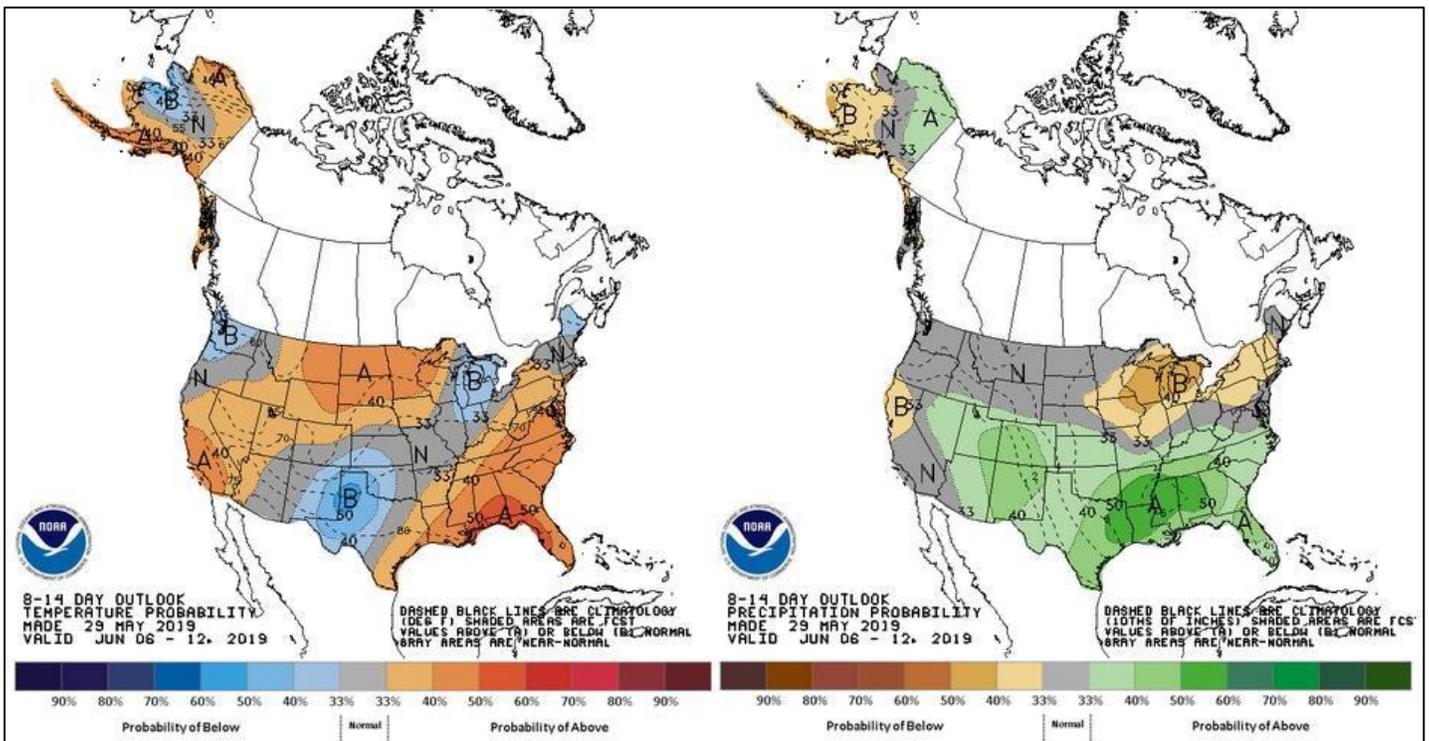
Growing degree day accumulation compared with normal, March 1 through May 29, 2019. We are slowly catching up and are now less than a week behind. Minimum soil temps are now in the 60's...we just need them to dry up a bit.



The 10-day forecast for Centreville according to wunderground.com.



Forecast for precipitation totals for the week of May 30-June 6, 2019. Totals for our region are predicted to be 0.5-1.0 inches.



National Weather Service 8-14 day outlook (June 6-12) for temperature (left) and precipitation (right)—the 6-10 day outlook is similar. The 6-10 day outlook is similar for temperature but precip is normal.

# Calendar

Titles are clickable links to online content when highlighted and underlined

- June 6** [Field Crops Virtual Breakfast Free Webinar](#). Thursdays 7:00-7:30 AM. This week: “Late Season Weed Control” with Erin Burns. Join via computer or mobile device (audio and video, <https://msu.zoom.us/j/552324349>) or by phone (audio only, **669-900-6833** and enter meeting ID **552-324-349**). To receive a weekly reminder of the Virtual Breakfast, sign up at <http://eepurl.com/gm-PIv>
- June 12** [Wheat Field Day](#). 8:15am-4:00pm. MSU Plant Pathology Research Center, 3735 College Rd., Lansing, MI. Registration online, cost is free, lunch included.
- June 20** [Malting Barley Field Days - Kellogg Biological Station](#). 9 a.m.-1 p.m. Kellogg Biological Station, 9702 N 40th Street Hickory Corners, MI. Opportunities to view and learn about malting barley research and interact with industry professionals. Registration encouraged.
- June 26** [MSU Weeds Day](#). 8:30am-12:00pm. 4450 Beaumont Rd, Lansing, MI. Registration information will be available soon.
- July 15** [Deadline for FSA Acreage Reporting](#). Deadline for 2019 acreage reporting for spring seeded crops. Contact your local FSA office for details.
- July 26** [Ag Innovation Day](#). 8:30am-5:00pm, MSU Research Farm, East Lansing, MI. Day will be split into morning and afternoon tours with a free lunch. Attendees are asked to register beforehand (coming soon) to help with logistics and food ordering.
- August 20-21** [2019 Bridging the Experience Gap](#). Saginaw Valley Research and Extension Center, 3775 S Reese Rd, Frankenmuth, MI. This program provides a platform for professionals to gain experience, network with their peers and ask questions from knowledgeable instructors without fear of rejection or criticism. Cost is \$350, supplies and lunches included, register online.

## MSU Extension Digest Briefs

- [Thin soybean stands can produce surprisingly high yields](#) - Published on May 29, 2019  
Consider this information when making soybean replant decisions.
- [Barley field day series scheduled in two Michigan regions this June](#) - Published on May 29, 2019  
Two opportunities to learn about malting barley research and interact with industry professionals are scheduled during June 2019.
- [MSU Cover Crop Team Webinar Series: Planting green – Cereal rye and soybean](#) - Published on May 28, 2019  
The third webinar in this series highlights research at MSU on interseeding soybean into standing cereal rye cover crops.
- [USDA offers cost share dollars for organic certification](#) - Published on May 28, 2019  
Producers and handlers are eligible for 75% of organic certification cost
- [Handy Bt Trait Table for U.S. corn production updated for 2019](#) - Published on May 28, 2019  
Corn growers can use the 2019 BT Trait Table to keep track of Bt corn traits, efficacy and refuge requirements.

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