

Southwest Michigan Field Crops Updates July 15, 2021

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.

Irrigation Webinar Series

The irrigation work team at MSU has developed a 6-part webinar series addressing many topics critical to growers who have irrigation capabilities. The series is held every other Wednesday from July 7 through September 15 at noon. Cost is free but registration is required (see the Events Calendar below for link). One RUP credit will be available for each session. Contact Lyndon Kelley (kelleyl@msu.edu) for more information. Recordings will be available for those who cannot make every meeting.



Irrigation Webinar Series

Let's Talk Irrigation!

Topics that will be covered each week:

- Past and forecasted crop water usage compared to rainfall for the last week and next week. (5 minutes)
- Ways to improve irrigation management and efficiency –Irrigation Specialist from MSU and Purdue (15 minutes)
- New and expanding irrigation considerations – Lyndon Kelley (15 minutes)
- Updates on irrigation topics related to field crops, vegetable, fruit and ornamental crops by MSU and Purdue specialists and extension educators (15 minutes)
- Open Irrigation question and answer period (from chat or pre program e-mail questions). Please feel free to email irrigation related questions to Betsy Braid at braidbet@msu.edu before the programs.



Dates: July 7 & 21
August 4 & 18
September 1 & 15

Time: 12:00 -1:00 PM

Where: Zoom

Cost: Free

To register visit:

<https://events.anr.msu.edu/irrigation21/>

RUP credits will be available for these sessions.



TOPIC AGENDA

July 7 Recording available at:

<https://www.canr.msu.edu/videos/irrigation-webinar-july-7>

- Checkbook Irrigation scheduling concepts and tools – Dr. Younsuk Dong, MSU BAE-Irrigation Specialist.
- Checklist for Planning Irrigation Systems– Lyndon Kelley, MSU/Purdue Extension-Irrigation Educator.
- Opportunity to produce Annual Forage crop under irrigation in 2021? –Dr. Kim Cassida
- Irrigated Crop nitrogen management in a year with too much and too little water-Dr. James Camberato, Purdue University Soil Fertility Specialist

July 21

- Irrigating scheduling with the aid of soil moisture monitoring–Dr. Younsuk Dong, MSU BAE-Irrigation Specialist. -
- Where what and why do we irrigate in Michigan and Indiana– Lyndon Kelley, MSU/Purdue Extension- Irrigation Educator.
- Irrigating corn to minimize infection period for Tar Spot – Marty Chilvers, MSU Pathologist
- Cover Crops in Irrigated Fields – Dean Baas, MSU Cover Crops Specialist

August 4

- Monitoring leaf wetness duration to predict disease infection period– Dr. Younsuk Dong, MSU BAE-Irrigation Specialist.
- Irrigation water supply-how much water do I need?– Lyndon Kelley, MSU/Purdue Extension- Irrigation Educator.
- Irrigation of blueberries and other small fruit –Mark Longstroth, MSU Fruit Educator Emeritus

August 18

- Irrigation management and efficiency – Dr. Younsuk Dong, MSU BAE-Irrigation Specialist. Topic
- Irrigating fresh market vegetables for top quality – Dr. Ron Goldy, MSU Vegetable Educator Emeritus
- Irrigating Tree Fruit – Nikki Rothwell, MSU Tree Fruit Educator, Northwest Horticulture Experiment Station
- Irrigation for Ornamental Horticulture –Dr. Tom Fernandez

September 1

- Timing the last irrigation– Dr. Younsuk Dong, MSU BAE-Irrigation Specialist..
- Timing and designing your project for minimized cost– Lyndon Kelley, MSU/Purdue Extension- Irrigation Educator.
- Considering growing cereals under irrigation – Opportunity to provide change in rotation, produce second crop soybeans or snaps, annual forage and better manage fertility and weeds -- Dennis Pennington, MSU Wheat Production Specialist

September 15

- Maximizing Irrigation energy efficiency- how much energy did I use compared to the average. Younsuk Dong
- Water Use Registration and Reporting– Lyndon Kelley, MSU/Purdue Extension- Irrigation Educator.
- Michigan Site Specific Review options and the alternatives for registration. Andy Lebaron MI- Egel

Field Day Planned for August in St. Joseph County



The MSU Extension SW MI On-Farm Research Field Day is set for Tuesday, Aug. 17th from 8am-1pm. The main focus of the event is to highlight on-farm research projects being conducted in SW MI and provide any early data. However, we will also take this opportunity to present other timely information from MSU Extension educators and specialists.

The event will be held at the Covered Bridge Farm County Park building just north of Centreville...by the bridge, with the cover on it. Cost is free due to generous funding from the Michigan Soybean Promotion Committee, but pre-registration is required by Friday, Aug. 13 to reserve a meal. Walk-ins will be accepted but no lunch is guaranteed. I will be applying for RUP and CCA credits and Mike Censke, the St. Joseph-Branch MAEAP tech, will be requesting Phase I credit. See the Events Calendar below for the registration link.

- 8:00 Check-in and coffee/doughnuts
- 8:20 Welcome and Intro
- 8:30 Weather Effects on 2021 Soybeans and Lessons Learned – Mike Staton
- 9:00 Soybean Agronomic Management – Manni Singh
- 9:30 All Your Disease Questions Answered – Marty Chilvers
- 10:00 On-Farm Hemp Research – Eric Anderson
- 10:30 Break
- 10:45 In-field Sensor Monitoring to Improve Irrigation Water Use Efficiency – Younsuk Dong
- 11:15 End-of-Season Irrigation Considerations – Lyndon Kelley
- 11:45 MAEAP - Key Points – Mike Censke
- 12:00 Credits, Lunch and Adjourn

Have I Lost My N?

Purdue's new corn agronomist, Dann Quinn (the new Bob Nielsen) [wrote a good article in the current Pest and Crop Newsletter](#) explaining the basics of nitrogen (N) mobility and how/when it can be lost from a corn system. With the heavy rains that fell across much of southern MI over the past month, many fields with heavier soils had standing water for more than a few days, and many are wondering how much N has been lost due to leaching or denitrification. I am including a few thoughts from Dan below, but you can click on the above link to read the entire article (5-10 minute read).

Determining the total amount of nitrogen that was lost and if and what amount of supplemental nitrogen is needed to help preserve corn yield is often a difficult question to answer because of the multiple factors that influence this decision. Factors that influence the amount of nitrogen lost include: 1) the timing, placement, rate and source of nitrogen fertilizer applied, 2) the amount of nitrate-nitrogen in the soil at the time of excess rainfall which also depends on time, temperature, moisture, and soil properties, 3) the use of a nitrification inhibitor which can delay

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conversion of ammonium to nitrate, 4) the duration of saturated soil conditions, and 5) the growth stage of the corn plant and the amount of nitrogen the plant has already taken up.

The two main mechanisms for nitrogen loss following heavy rainfall and flooding is from leaching of soil nitrate below the rooting zone and denitrification. Nitrogen in the form of nitrate in the soil is negatively charged and has the ability to be physically moved or leach with soil drainage following significant rainfall events. This is typically common in more coarse-texture, or sandier soil types. In soils which are much fine-textured, poorly drained, and heavier, or low-lying areas of fields where ponding occurs, the most common cause of nitrogen loss is from denitrification. Denitrification occurs when soil nitrate is converted to nitrogen gas by soil bacteria as a result of the depletion of oxygen caused by saturated soil conditions. Two to three days of soil saturation is typically required for soil bacteria to begin the denitrification process (Lee et. al., 2007).

At soil temperature greater than 65 degrees Fahrenheit, approximately 4 to 5% of the soil nitrate is lost per day under saturated conditions. Also, it takes approximately 1 to 2 days for a saturated soil to reach anaerobic conditions. Therefore, if a sidedress application of 28% UAN was made 3 weeks ago at a rate of 150 lbs N/acre, then using Table 1 would suggest 100% of the UAN has been converted to nitrate since application. Thus, if the soil remained saturated for 6 days at a soil temperature greater than 65 degrees, then it would be expected that a total of 20% [5% per day X 4 days (subtracted 2 days for the lag time until a saturated soil reaches anaerobic conditions)] of the 150 lbs N/acre was denitrified or lost (approximately 30 lbs N/acre). It is also important to note that these calculations are strictly estimates and may not reflect actual N losses because so many factors affect conversion to nitrate and loss from the soil. In addition, corn that is submerged or ponded for 3 to 4 days may also experience significant physical damage which may limit the benefit of a supplemental nitrogen application.

Table 1. Approximate time until fertilizer nitrogen is in the nitrate form (Havlin et.al., 1999).

Fertilizer Source	Approximate Time Until Ammonium	Approximate Tim Until Nitrate
Ammonium sulfate, 10-34-0, MAP, DAP	0 weeks	1 to 2 weeks
Anhydrous ammonia		3 to 8 weeks
Urea	2 to 4 days	1.25 to 2.5 weeks
UAN	50% from urea in 2 to 4 days 25% is ammonium, 0 weeks	50% in 1.25 to 2.5 weeks 25% in 1 to 2 weeks 25% is nitrate, 0 weeks

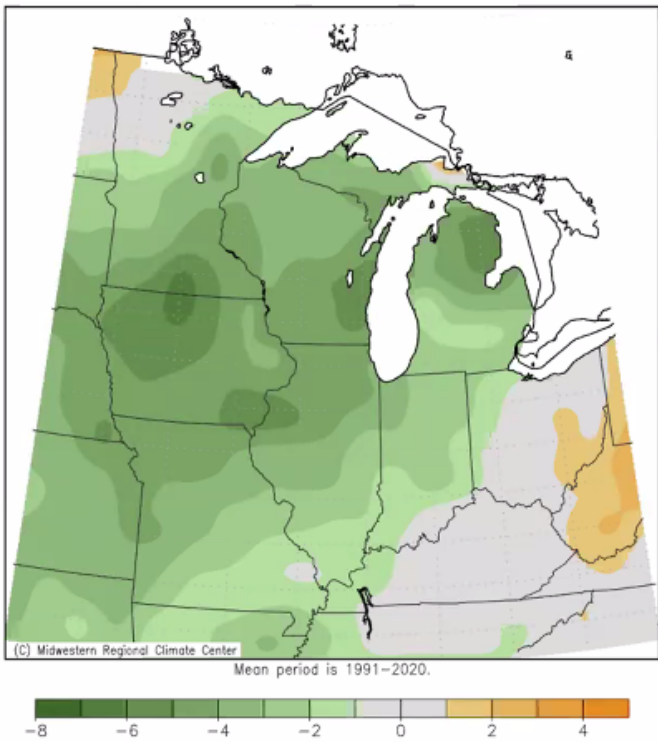
Weather and Crop/Pest Update

Weather

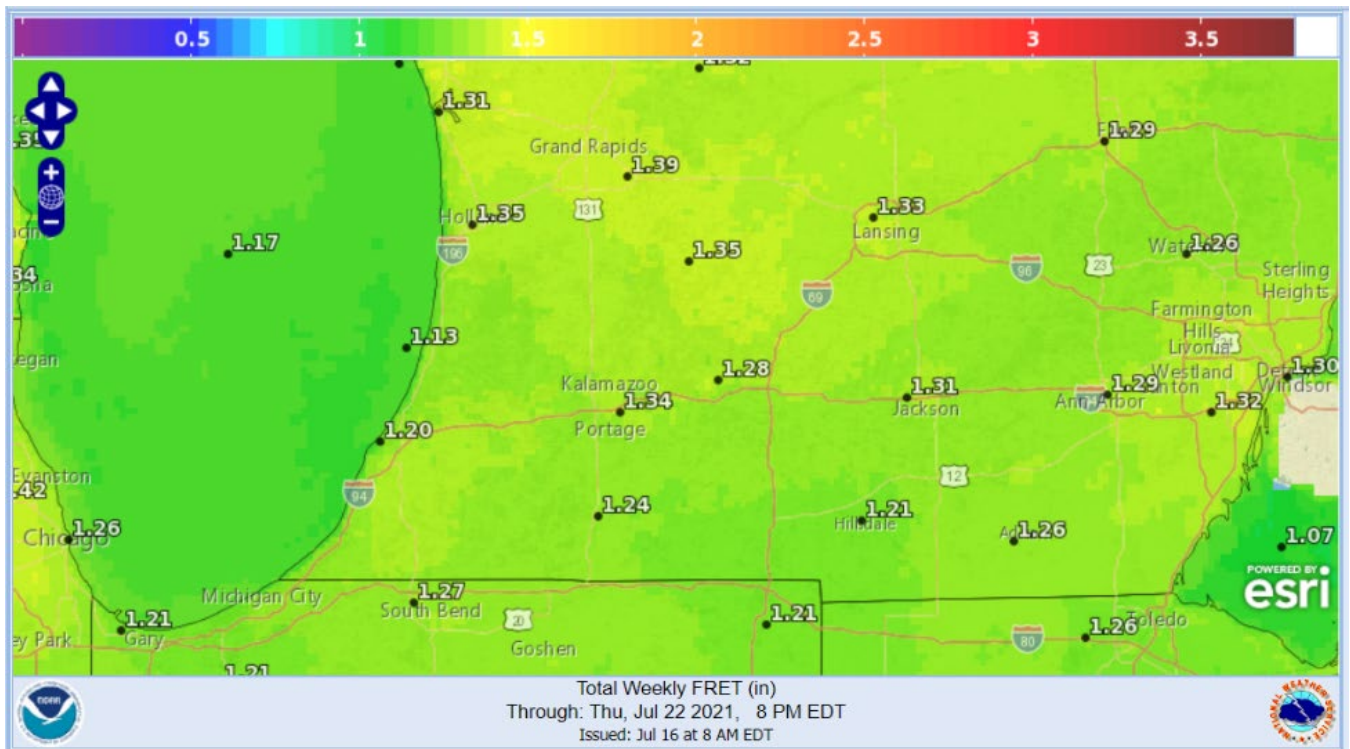
Temperatures in the region this past week were a few degrees cooler than normal. We are still 50-100 growing degree days (base 50) ahead of normal which equates to roughly one week ahead. The forecasted reference evapotranspiration (FRET) is around 1.3 inches in the coming week. The forecast is for cooler-than-normal temps through this weekend turning to near normal to warmer-than-normal by Sunday. According to MSU Extension agricultural climatologist Jeff Andresen, an upper air ridge pattern with associated high pressure will bring warm and dry weather in the coming week, and that trend will likely stay with us through most of the rest of July.

Precipitation totals for the past week are depicted below and ranged from less than a quarter inch to over 2 inches with a definite SW-NE gradient that followed storm tracks. The forecast for the coming week ranges from a quarter inch north of Grand Rapids to 1.5 inches to the east along the Indiana border. All of that is expected to fall between Thursday and Saturday this week with no predicted chances of rain after that. The 8-14 day outlook calls for below-normal rainfall for the entire Midwest.

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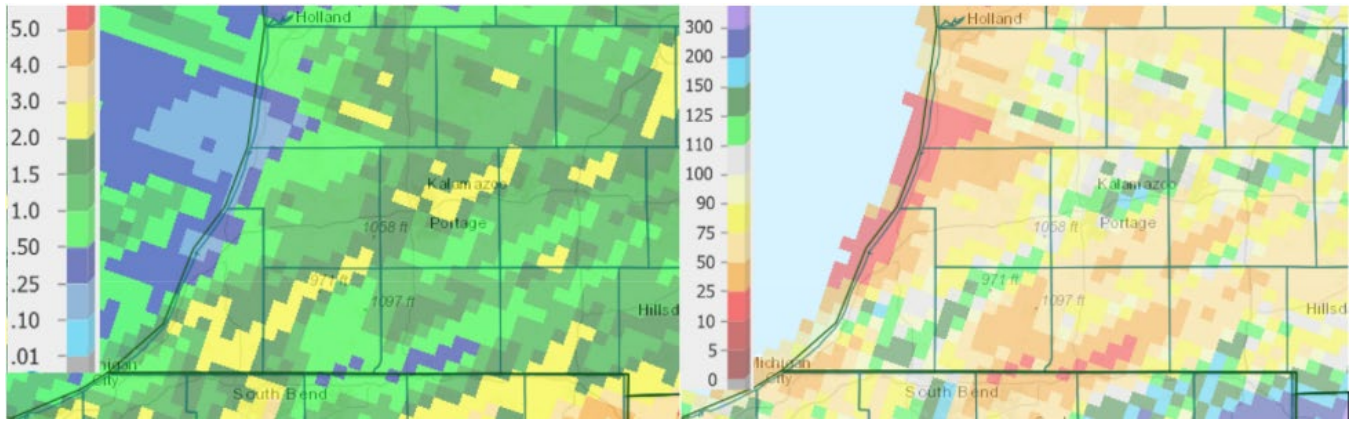


Average temperature departure from normal for July 7-13. Even with cooler-than-normal temps this past week, we are still 50-100 growing degree days (base 50) ahead of normal as measured since May 1.

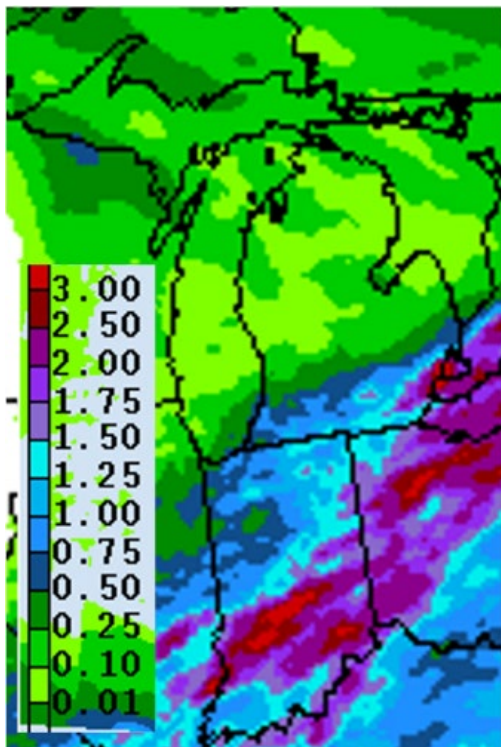


Total weekly forecasted reference evapotranspiration (FRET) July 16-22.

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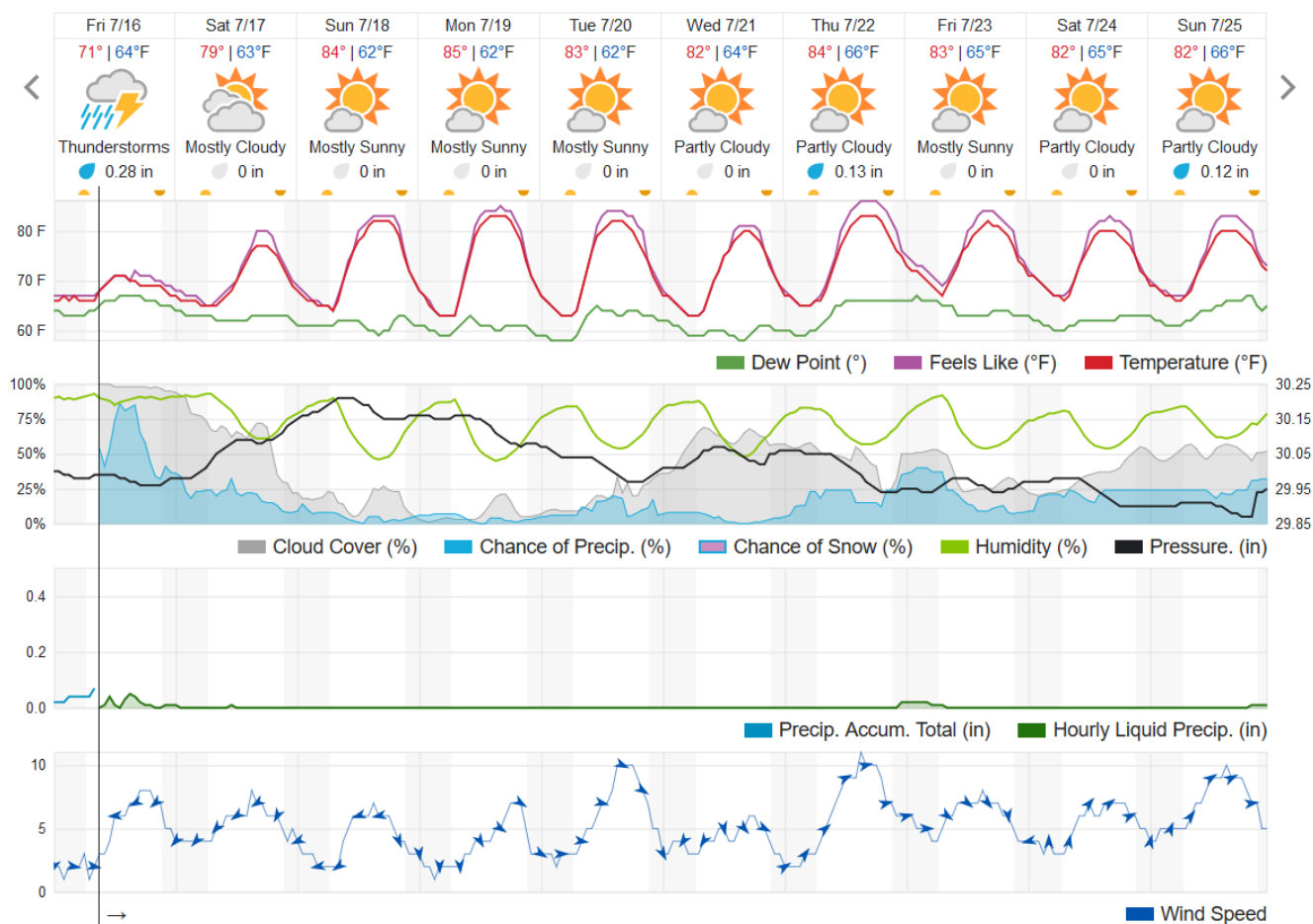


Precipitation totals (left) and percent of normal (right) for the past 14 days as of July 15.

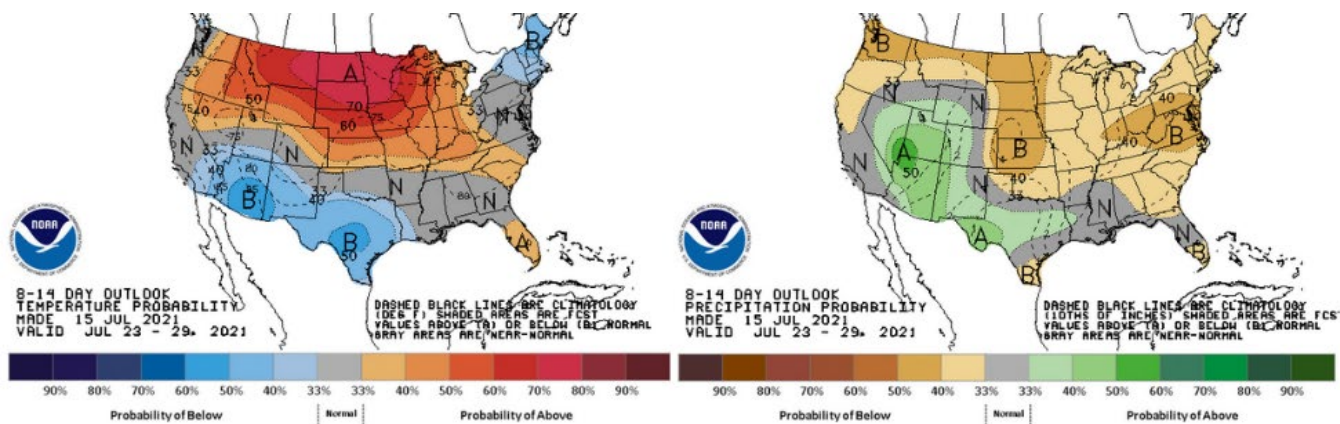


Precipitation forecast for July 16-23.

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



The 8-14 day outlook (July 23-29) for temperature (left) and precipitation (right). The 6-10 day outlook is similar.

Crops and Pests

Corn in many fields in the region has reached the tassel stage (VT). Early-planted **soybean** has reached beginning pod (R3) while most fields are still in the flowering stages. As we likely head into dry conditions for the rest of the month, remember that corn will be at peak water use from V16 through beginning dent stage while soybean’s peak water use begins at R3 (beginning pod) and goes through full seed (R6). Both crops in these advanced stages will require roughly 1.6 inches of water this coming week.

Western bean cutworm (WBC) moth flight increased significantly in the region and the greater Great Lakes region this past week. Charles Scoville with Golden Harvest reported seeing his first egg mass of the year this

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past week. Generally speaking, peak WBC flight occurs between now and the first week of August. The following comes from MSU Extension field crops entomologist Chris DiFonzo in her Fast Fonz Facts release:

Moths prefer to lay eggs in pre-tassel and just-tasseling fields. Fields which are out of sync with the surrounding landscape (planted early and well ahead of neighboring fields) may be infested first and heavily (likewise fields planted very late). These sorts of fields are worth a visit to be sure they aren't acting as a trap crop for egg laying by all the moths in the neighborhood. In southern and central Michigan, I would target scouting for egg masses in the last week of July. If moth flight is heavy, continue every 7 days into August.

What should you scout? Most hybrids, even Bt hybrids, can be infested by WBC larvae because only the VIP Bt trait has efficacy against WBC, so most fields are at risk. For Bt and non-Bt hybrids, the cumulative threshold is 5% of plants with egg masses. This low threshold is not really about yield loss but more about quality. Larvae usually cause minimal loss in grain yield because they often feed only in the ear tip on small undeveloped kernels. Instead, our main concern is damage which opens up the ear to molds which in turn increase the risk of mycotoxins. The elevated WBC flights this season appear to be lining up with increased risk of ear mold infection.

A long awaited [article on the overuse of seed treatments \(STs\) was published this week in DTN/Progressive Farmer](#). This thorough news article discusses seed treatment use and regulation, the increasing data on economic returns (or lack thereof) in the Midwest, the widespread detection and environmental impacts of ST pesticides in the landscape and in organisms, and the sketchy fate of treated seed that isn't sold. The article author, Emily Unglesbee, previously covered the mishandling of leftover treated seed at an ethanol plant in Meade, Nebraska which resulted in an expensive cleanup. Emily was sparked to research and write this broader article because of the many questions she had as she covered the Meade story.

	6-Jul	13-Jul
A	2	29
B	6	20
C	10	25
D	7	22
E	19	21
F	0	9
G	7	22
H	13	53



Western bean cutworm moth trap counts (left) and locations (center) in the region and relative count depiction in the greater Great Lakes region (right).

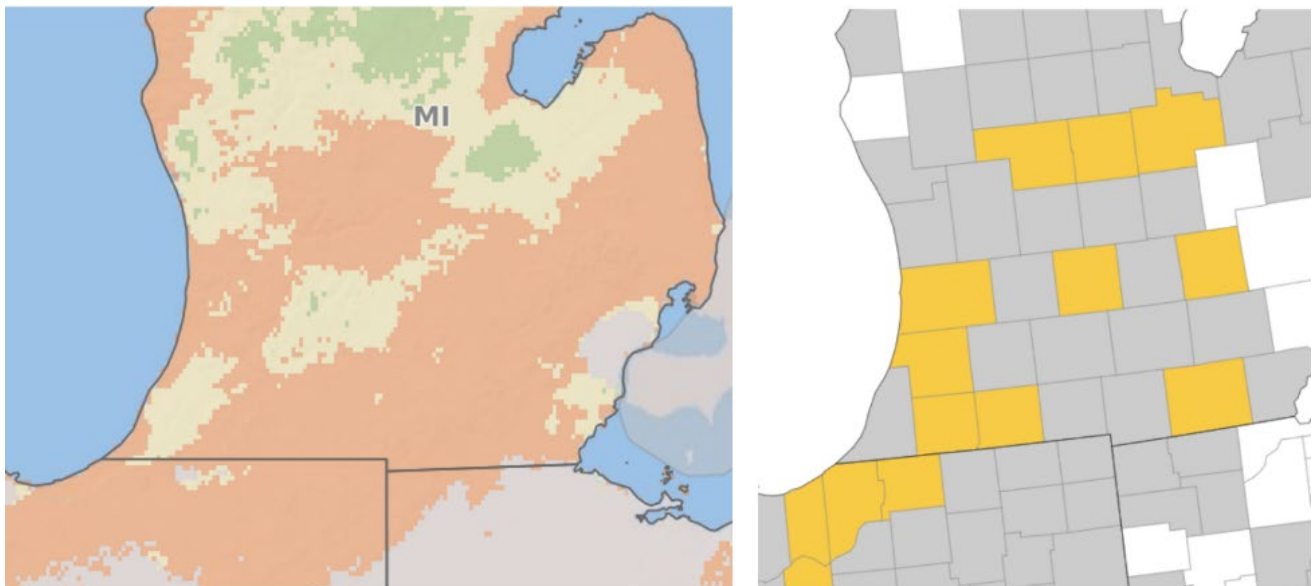
Diseases MSU Extension field crops pathologist Marty Chilvers provides us with the following update on corn diseases to watch for:

Ear molds of corn, and in particular Gibberella/Fusarium ear mold, can cause significant issues with grain quality. Weather conditions around silking are critical to ear mold establishment as the Fusarium species that cause Gibberella ear rot and Fusarium ear rot require free moisture for spore germination and ear infection via silk channels. The recent and current wet conditions have been favorable for the Fusarium pathogen to infect through the silks; hopefully we will catch a break over the next couple of weeks with drier conditions while silking occurs. The [Fusarium Risk Tool](#) for wheat demonstrated low risk of wheat head scab during the critical wheat flowering

period. Although the tool has not been validated on corn, it is reasonable to assume that it will provide an indication of ear mold risk. **This tool is currently (as of July 14) showing HIGH RISK of favorable conditions for ear mold infection in many parts of the state.** In the map below, Green is low risk, yellow is medium risk, and orange is high risk.

Fungicides labelled (or with 2ee labels) for ear mold suppression include Proline, Caramba and Miravis Neo. However, just as with wheat head scab management, fungicide timing is critical. Research from Ontario has demonstrated that fungicides must be applied during silking to have the greatest benefit in suppressing ear molds. And just as in wheat, do not expect miracles—fungicides will certainly aid in reducing ear mold and mycotoxins, but if the hybrid is susceptible and weather conditions are conducive, there will still be significant disease and mycotoxin accumulation. The VT/R1 timing is also now the recommended timing for western bean cutworm management if present above threshold, so it may be possible to tank mix fungicide and insecticide when appropriate.

Given the last few weeks of wet weather across the state, **tar spot** of corn is easy to find in fields that have had a history of the disease. Tar spot can develop quickly under favorable conditions which includes 7 hours of leaf wetness. The pathogen takes about 2 weeks to go through a disease cycle, so if wet weather continues, disease pressure can build in a short amount of time. When disease pressure builds to high levels, we have seen a 30-50 bu/acre protection from a fungicide applied at the R1 growth stage. Ideal fungicide timing for tar spot will depend on when the disease develops in a field. There have been situations (heavy disease pressure, susceptible hybrid and favorable weather conditions) where an application in mid-August has protected 20 bu/acre. Rainfall events and leaf wetness periods in July and August will determine how severe tar spot is this season. Don't forget to scout for other corn disease such as gray leaf spot and northern leaf blight. These diseases are best managed with resistant hybrids but can benefit from a fungicide application if disease pressure is present. If you have any questions feel free to contact me via email at chilvers@msu.edu or via Twitter at @MartinChilvers1.



Fusarium risk (left) and counties in Michigan where tar spot has been identified thus far in 2021 (right).

Calendar

Titles are clickable links to online content when highlighted and underlined

July 21 [Irrigation Webinar Series](#). 12-1pm. Every other Wednesday through Sept. 15. This six session series focuses on irrigation topics such as irrigation management, irrigation efficiency, new and expanding irrigation projects and a weather and crop update. Cost is free, register online.

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- July 22** [Field Crops Virtual Breakfast](#). 7-8am. Tar Spot and White Mold with Marty Chilvers. One RUP and one CCA credit available for each live session. No cost to you, register online once for whole season.
- July 29** [Field Crops Virtual Breakfast](#). 7-8am. Pricing Corn, Soybeans and Wheat with Matt Gammons. One RUP and one CCA credit available for each live session. No cost to you, register online once for whole season.
- August 4** [Irrigation Webinar Series](#). 12-1pm. Every other Wednesday through Sept. 15. This six session series focuses on irrigation topics such as irrigation management, irrigation efficiency, new and expanding irrigation projects and a weather and crop update. Cost is free, register online.
- August 5** [Field Crops Virtual Breakfast](#). 7-8am. Insect Update with Chris DiFonzo. One RUP and one CCA credit available for each live session. No cost to you, register online once for whole season.
- August 5** [MSU Potato Field Day 2021](#). 9am – 1:30pm. Montcalm Research Center, 4629 W. McBrides Rd, Lakeview, MI. Hosted by MSU and the Michigan Potato Industry Commission. The field day will consist of three one-hour sessions that will repeat, followed by a catered lunch. Register online.
- August 11** [Tri-State Precision Agriculture Conference](#). 8am-3:30pm. Northwest State Community College, 22600 OH-34, Archbold, OH 43502. Cost is \$20 is pre-registering, register online.
- August 12** [Field Crops Virtual Breakfast](#). 7-8am. Late Season Alfalfa Harvest with Kim Cassida. One RUP and one CCA credit available for each live session. No cost to you, register online once for whole season.
- August 17** [On-Farm Research in SW MI Field Day](#). 8am-1pm. Covered Bridge Farm County Park, 56705 Covered Bridge Rd, Three Rivers, MI. Program will include updates about corn, soybean and irrigation research topics and recommendations. Cost is free, but online pre-registration is required to reserve lunch.
- August 18** [Irrigation Webinar Series](#). 12-1pm. Every other Wednesday through Sept. 15. This six session series focuses on irrigation topics such as irrigation management, irrigation efficiency, new and expanding irrigation projects and a weather and crop update. Cost is free, register online.
- August 20** [Conservation Reserve Program Grasslands Signup](#). Agricultural producers and landowners in Michigan can apply for the Conservation Reserve Program (CRP) Grasslands signup until August 20. To enroll, contact your local USDA [Service Center](#).
- August 24** [Drainage Tools Virtual Workshop](#). 9am-3pm. Learn the basics of using tools to make informed decisions about drainage for crop production and water-quality protection. Cost is free, register online.

MSU Extension Digest Briefs

PUBLISHED ON JULY 15, 2021

- [DETERMINING R3 GROWTH STAGE IN SOYBEAN](#) - Correctly identifying R3 growth stage in a soybean field is critical for various management decisions.
- [MICHIGAN WHEAT HARVEST UPDATE – JULY 15, 2021](#) - Wheat producers are facing challenges during wheat harvest.
- [FIELD CROPS VIRTUAL BREAKFAST ON JULY 22 TO FOCUS ON TAR SPOT IN CORN AND WHITE MOLD IN SOYBEANS](#) - Will the recent wet weather impact the chances of your corn and soybeans getting tar spot or white mold? Marty Chilvers will present his predictions based on the expected weather conditions.

PUBLISHED ON JULY 14, 2021

- [MANAGING SOYBEAN DISEASES WITH FOLIAR FUNGICIDE APPLICATIONS](#) - The cool, wet weather increased interest in applying foliar fungicides to soybeans. Learn how to maximize fungicide performance and return on investment.

PUBLISHED ON JULY 13, 2021

- [BULLETIN E-3415: INTRODUCTION TO CROP INSURANCE FOR FIELD CROPS RELEASED](#) - A new resource from the Beginning Farmers DEMaND series
- [WHEAT WATCHERS REPORT – JULY 13, 2021](#) - The wheat harvesting and yield situation varies across Michigan.

PUBLISHED ON JULY 12, 2021

- [BULLETIN E-3415 INTRODUCTION TO CROP INSURANCE FOR FIELD CROPS](#) - An introductory bulletin for beginning farmers on insurance policies available for field crops.

PUBLISHED ON JULY 8, 2021

- [MID-YEAR FINANCIAL HEALTH CHECK-UP...HOW HEALTHY IS YOUR FARM?](#) - Now is a good time to start checking the pulse of your farm's financial health.
- [LARGEST AGRICULTURE TRAINING PROGRAM FOR MILITARY SERVICE MEMBERS IN U.S. CONTINUES EXPANSION](#) - Heroes to Hives announces state partnerships to bring beekeeping education to more veterans.

PUBLISHED ON JULY 7, 2021

- [CROP BUDGET ESTIMATOR FACTSHEET](#) - The factsheet helps to explain the key concepts and uses of the Crop Budget Estimator Tool.

PUBLISHED ON JULY 6, 2021

- [POTATO FIELD DAY TO BE HELD AUG. 5 AT MONTCALM RESEARCH CENTER](#) - Michigan State University and the Michigan Potato Industry Commission are hosting a potato field day at the Montcalm Research Center in Lakeview, Michigan, on Thursday, Aug. 5 from 9 a.m. to 1:30 p.m.

PUBLISHED ON JULY 1, 2021

- [A NEW SOYBEAN IN-SEASON MANAGEMENT GUIDE IS AVAILABLE](#) - Soybean producers will be receiving a new publication in the mail that will help them make important in-season management decisions. You can also access it for free online.
- [MICHIGAN SOYBEAN ON-FARM RESEARCH IN-SEASON MANAGEMENT GUIDE](#) - This guide will help producers make important in-season management decisions.

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