Southwest Michigan Field Crops Updates
August 15, 2022

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.

Final Call to Register for MSU Extension On-Farm Research Field Day August 22

The final call to pre-register for the MSU Extension On-Farm Research Field Day in St. Joseph County is TODAY, Aug. 15, so we can get our final head count to the caterer. We may be able to make additions in the next couple of days, and we can even take walk-ins, but lunch is only guaranteed for those who pre-register.

The field day will be held near Parkville on Parkville Rd (GPS 42.012231, -85.547951) on Aug. 22 from 8 a.m. to 1 p.m. including lunch. The event is open to all those involved and interested in the agricultural community in the region. The cost is FREE thanks to the generous support of the Michigan Soybean Committee. The event begins at 8 a.m. with check-in and a light breakfast, and the first presentation will begin at 8:30 a.m. The morning will conclude with a taco bar lunch and a short presentation about Land Conservancy. Continuing education credits will be available - two RUP, four CCA and MAEAP Phase I.

Agenda

- Welcome, Michigan Soybean Committee Update - Eric Anderson, Mark Seamon
- Reducing Soybean Harvest Losses - Mike Staton
- Irrigation Uniformity & USDA NRCS Irrigation Project Update - Younsuk Dong, Lyndon Kelley
- Weeds Are Bad, Crops Are Good - Erin Burns and Juliano Sulzback
- Break
- 2022 Disease Management Update and Questions - Marty Chilvers
- Managing Vole Damage in Soybean - Eric Anderson

- Cover Crop Experiences, Soil Health and Rainfall Simulator - Brook Wilke, Henry and Ricardo Miller
- Lunch & Land Conservancy Considerations - Henry Miller

REGISTER NOW to reserve your seat and lunch. If you are not able to register online, you can call the St. Joseph County Extension office at 269-467-5511 and the office staff will assist you.

Soil Health Institute Announces Recommended Measurements for Evaluating Soil Health

The Soil Health Institute (SHI) announced last week its recommended measurements for assessing soil health. These recommendations answer the No. 1 question about soil health that farmers, ranchers, and their advisers have been asking since the soil health movement began.

With support from the Foundation for Food & Agriculture Research, The Samuel Roberts Noble Foundation, and General Mills, SHI led a 3-year, $6.5-million project to identify effective measurements for soil health across North America. SHI partnered with over 100 scientists at 124 long-term agricultural research sites in the U.S., Canada, and Mexico where conventional management systems were compared with soil health-improving systems.

“This allowed us to evaluate over 30 soil health measurements at each site where they had the appropriate experimental design to allow us to come to the appropriate statistical conclusion about the effectiveness of each measurement,” said Dr. Wayne Honeycutt, President and CEO of the Soil Health Institute. “Evaluating each measurement across such a wide range of climates, soils, cropping systems, and management practices also provided the scientific rigor we needed to identify which measurements could be widely used.”

The concept of soil health is basically about how well a soil is functioning. Such functions include cycling water, carbon, and nutrients. Whether a heavy rain infiltrates into the soil or runs off the soil reflects how well that soil is functioning. Soil health can be improved through management, but farmers need practical, effective measurements for assessing the current status of their soil and evaluating progress at improving its health.

The SHI found that many measurements are effective for assessing soil health from a research perspective. “While this is good news for the science, we also wanted to identify a minimum suite of measurements that is practical and affordable for all land managers,” said Dr. Cristine Morgan, Chief Scientific Officer of SHI, “so we also evaluated these measurements through the lens of cost, practicality, availability, redundancy, and other filters.”

Based on these results, SHI recommends a minimal suite of three measurements to be widely applied across North America (and likely beyond). Those measurements include: **1) soil organic carbon concentration, 2) carbon mineralization potential, and 3) aggregate stability**.
Soil organic carbon is a key component of a soil’s organic matter that influences available water holding capacity, nutrients, biodiversity, structure, and other important soil properties. Carbon mineralization potential reflects the size and structure of microbial communities in soil, thereby influencing nutrient availability, soil aggregation, and resilience to changing climatic conditions.

Aggregate stability describes how strongly soil particles group together. This influences whether a heavy rainfall will infiltrate into a soil or run off a landscape, taking with it valuable nutrients that become detrimental to water quality. Soil aggregates also influence erosion, aeration, root growth and, therefore, nutrient uptake by plants.

While these three metrics provide a minimum suite of widely applicable measurements for assessing soil health, additional measurements may be included depending on the landowner's or researcher's objectives. "We have found that adding soil texture to this list of measurements allows us to calculate a soil's available water holding capacity," said Dr. Dianna Bagnall, Research Soil Scientist with SHI. "We can then show a farmer how much more water they can store by increasing their organic carbon and improving soil health." Because management does not change soil texture (sand, silt, and clay), it only needs to be measured once.

To facilitate use of these measurements, details on SHI's recommended protocols for sampling and analyzing soils are described on its website. Specific details on the underlying research and data analyses are described in several peer-reviewed publications and interpretive summaries. Additional manuscripts are currently in peer-review.

Your Input Needed on Managing Crop Yield Risk

Researchers from MSU are recruiting farmers for in-person interviews. The research study is about how Michigan farmers think about weather risk and how they plan to manage it in the future. Your farm is one of a small number being invited to represent Michigan corn and soybean farms. The researchers want to learn from farmers who operate on different ground and have different management strategies.

We anticipate the interview process will take approximately 1.5 hours. If you agree to participate, the researchers will pay you $50, and you will also have a chance to win additional money in one study activity. Your individual views will be kept completely confidential, and your privacy will be protected to the maximum extent permitted by law. You may refuse to answer certain questions, and you are free to stop participating at any point.

Interviewees should be: the decision maker on their farm, have at least 10 years' worth of experience, will be decision makers on their farm for at least the next 10 years, farm at least 300 acres of corn for grain, and must be 18 years old or older.

This study is based at MSU and the research is funded by the U.S. National Science Foundation. If you have any follow-up questions about the research, feel free to contact Scott Swinton, the professor in charge of this research. at (517) 353-7218 or swintons@msu.edu. You can also contact the study manager, Natalie Loduca, at (209) 712-7516 or loducana@msu.edu.

2022 Michigan Farm Real Estate Values and Cash Rents

The 2022 average Michigan farm real estate value, including land and buildings, averaged $5,850 per acre, up 10.4 percent from 2021. Michigan's cropland value increased 12.8 percent from the previous year to $5,300 per acre. Michigan's pasture value was $2,900 per acre, up 5.8 percent from 2021.

Michigan's cropland cash rent was $144.00 per acre in 2022, up $6.00 from the previous year. Pasture cash rents in the Lake States region remained steady at $30.00 per acre.

Updated Fungicide Efficacy for Control of Wheat Diseases

New data has been released reviewing the efficacy of several of the most widely marketed fungicide products for the control of foliar wheat disease. Developed by The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184), efficacy ratings have been determined through vigorously testing multiple products over several years and locations. These ratings are based on direct comparisons of various products applied at the optimal time and overall disease in the field at the time of application. You can access the full report, Fungicide Efficacy for Control of Wheat Diseases, from the Crop Protection Network.

Are you using fungicides that do not appear to be working like they used to? It could be that the particular pathogens are acquiring resistance to the active ingredient. Due to the inherent genetic diversity within a given species (fungi, insects, plants, etc.), resistant strains are already present in a given population. As a particular active ingredient is applied to that population repeatedly over time, you are effectively selecting for the resistant individuals within the population. Over time, the resistant strains increase and replace the sensitive strains and you end up with a resistant population. Consider applying more than one effective mode of action to control a fungal pathogen, either within a given cropping season preferably or from one season to the next.

Updated Fungicide Efficacy for Control of Wheat Diseases

New data has been released reviewing the efficacy of several of the most widely marketed fungicide products for the control of foliar wheat disease. Developed by The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184), efficacy ratings have been determined through vigorously testing multiple products over several years and locations. These ratings are based on direct comparisons of various products applied at the optimal time and overall disease in the field at the time of application. You can access the full report, Fungicide Efficacy for Control of Wheat Diseases, from the Crop Protection Network.

Are you using fungicides that do not appear to be working like they used to? It could be that the particular pathogens are acquiring resistance to the active ingredient. Due to the inherent genetic diversity within a given species (fungi, insects, plants, etc.), resistant strains are already present in a given population. As a particular active ingredient is applied to that population repeatedly over time, you are effectively selecting for the resistant individuals within the population. Over time, the resistant strains increase and replace the sensitive strains and you end up with a resistant population. Consider applying more than one effective mode of action to control a fungal pathogen, either within a given cropping season preferably or from one season to the next.

Conventional and Organic Enterprise Net Returns

The following is an excerpt from a recent article, "Conventional and Organic Enterprise Net Returns," by Purdue ag economist Michael Langemeier.

Due to continued increases in demand for certified organic grains, crop farmers that have transitioned from conventional to certified organic grains report higher net returns per acre. Despite this, certified organic land accounts for less than 2 percent of U.S. farmland. Information pertaining to the relative profitability of conventional and organic production is often lacking.

This article uses FINBIN data from 2017 to 2021 to update comparisons of crop yields, gross revenue, total expense, and net returns for conventional and organic alfalfa, corn, oats, soybeans, and winter wheat. The organic enterprise data represents farms that have already transitioned to organic production, and thus do not include information pertaining to the transition phase.

This article compared crop yields, gross revenue, total expense, and net returns for conventional and organic corn and soybeans. FINBIN data were used to make the comparisons in this article. Consistent with previous work, organic corn and soybean enterprises had lower crop yields, higher crop prices and gross revenue, and higher net returns. However, there was a much wider difference in enterprise net returns among organic corn and soybean enterprises than there was among conventional corn and soybean enterprises. It is also important to note that the difference in net return to land for alfalfa and oats were relatively small, and that conventional winter wheat exhibited a higher net return to land than organic winter wheat.

This article summarized net returns for conventional and organic crop enterprises. It did not examine net returns during the transition period nor account for the fact that unlike many conventional rotations, organic crop rotations tend to include small grains and/or forages. Thus, it is very important to not just compare net returns for corn and soybeans grown conventionally and organically.

CRP TIP Notice of Funding Opportunity Webinar

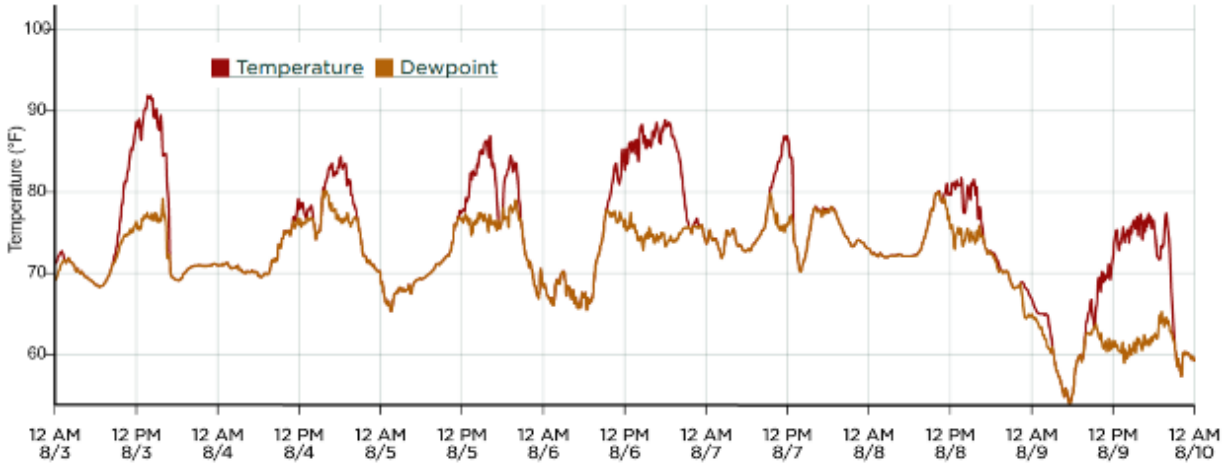
FSA is making available up to $4.5 million in funding and expects to award 15 to 20 partner and stakeholder organizations up to $300,000 for outreach and technical assistance to promote awareness and understanding among agricultural communities, particularly those who are military veterans, new to farming and historically underserved. An informational webinar will be held on Thursday, August 18, 2022, at 4pm EDT. Interested stakeholders may register at https://www.zoomgov.com/webinar/register/WN_nXryLvn_QxuambigPG2XHg

Weather and Crop Update

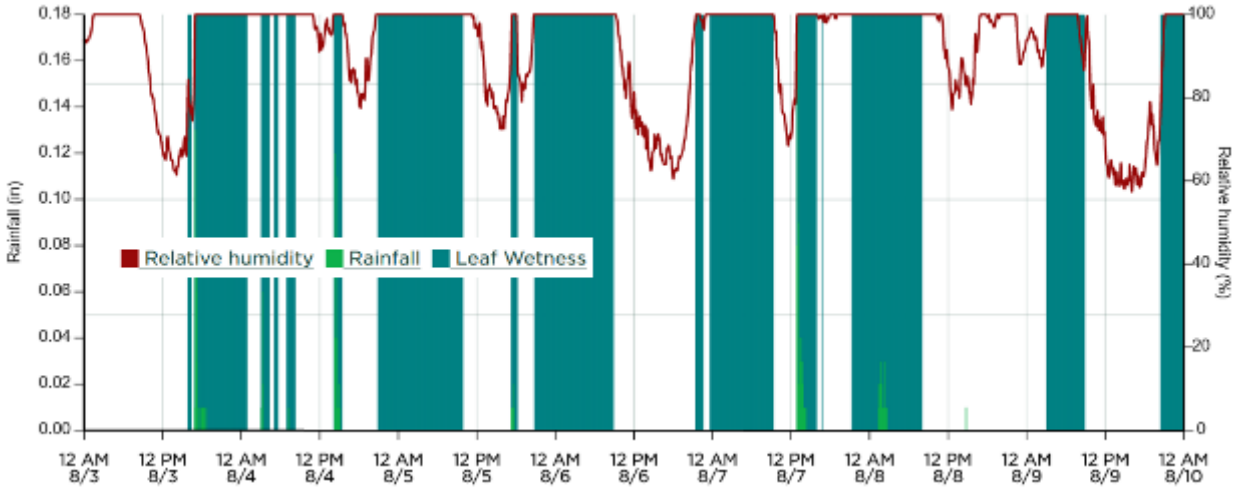
Weather

Temperatures during the last week of July were 4-6 degrees above normal in south-central and southwest Michigan. Much of that deviation was due to very warm nights and the high humidity. MSU Extension ag climatologist Jeff Andresen says dew points during the first week of August were upwards of 70 degrees which is very unusual for this part of the country, and that caused humidity to be

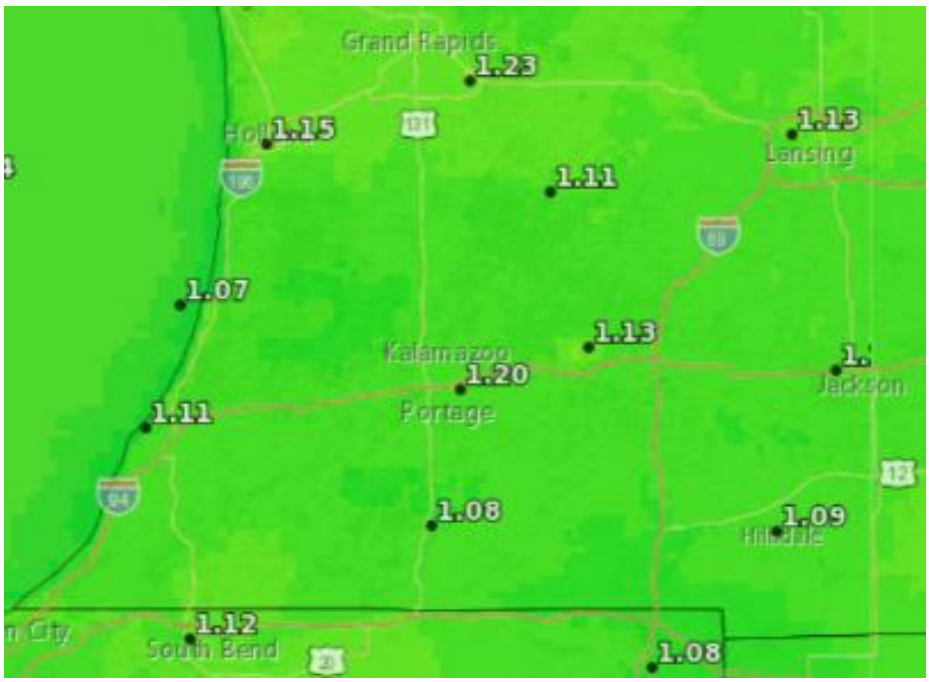
uncomfortably high. We picked up only 170 growing degree days (GDD, base 40 for alfalfa) or 103 GDD_{50} (for corn and soybean) last week due to cool temps over the weekend. The forecasted reference evapotranspiration (FRET) rate is 1.1-1.2 inches for the week ending August 21. The forecast predicts the addition of another 200 GDD_{40} or 130 GDD_{50} in the coming week. Both the 6-10 day and 8-14 day outlooks call for normal to above-normal temperatures during the last week of August.



Temperature and dew point for August 3-10 in Kalamazoo. The closer the two lines are, the higher the humidity, and dew points above 70 degrees result in uncomfortably humid conditions.

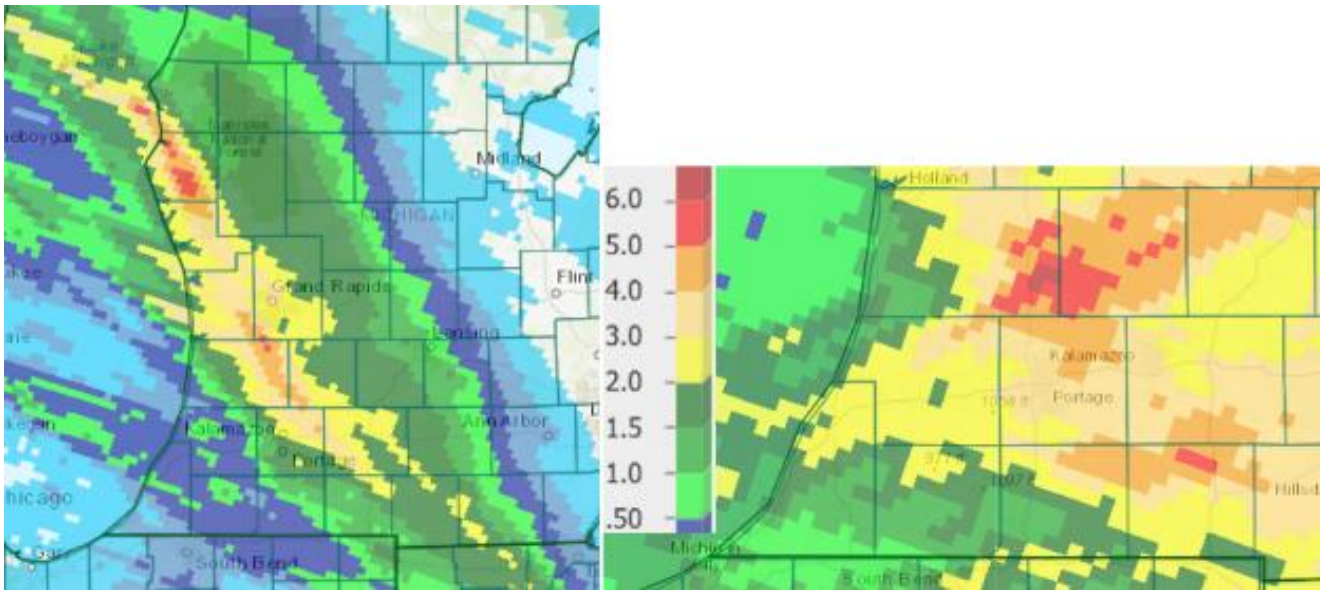


Relative humidity, rainfall and hours of leaf wetness in Kalamazoo from August 3-10. Seven hours of leaf wetness is considered the threshold for increased risk of foliar diseases such as tar spot.

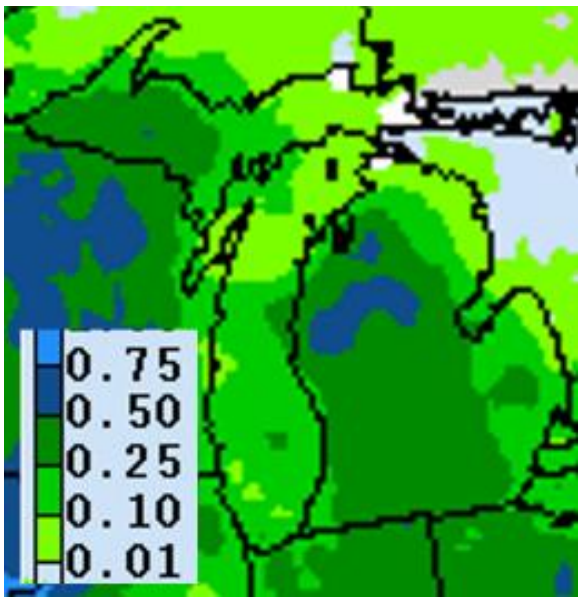


Weekly forecasted reference evapotranspiration rate for the week ending August 21.

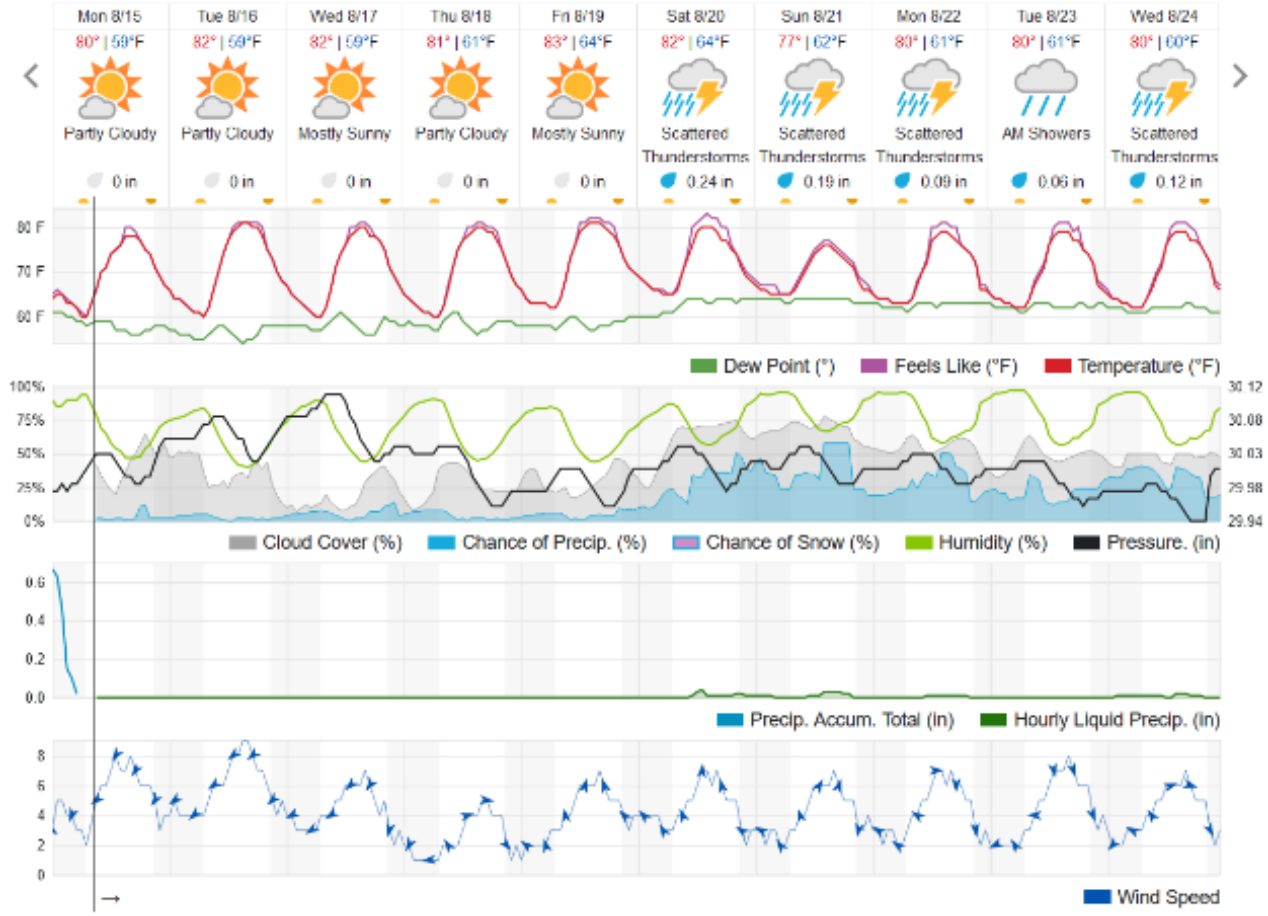
Precipitation was highly variable during the first half of August throughout the region with some areas receiving less than half of normal rainfall in the extreme southwest corner while other areas received more than three times the normal amount for this time of year - a spread of 5 inches or more. For those of us weather geeks who watched the storm track over the weekend, it was very interesting to watch the front move along the direction of the front…creates plenty of have's and have-not's. The medium-range outlooks call for average to slightly above-average chances of precipitation during the last week of August.



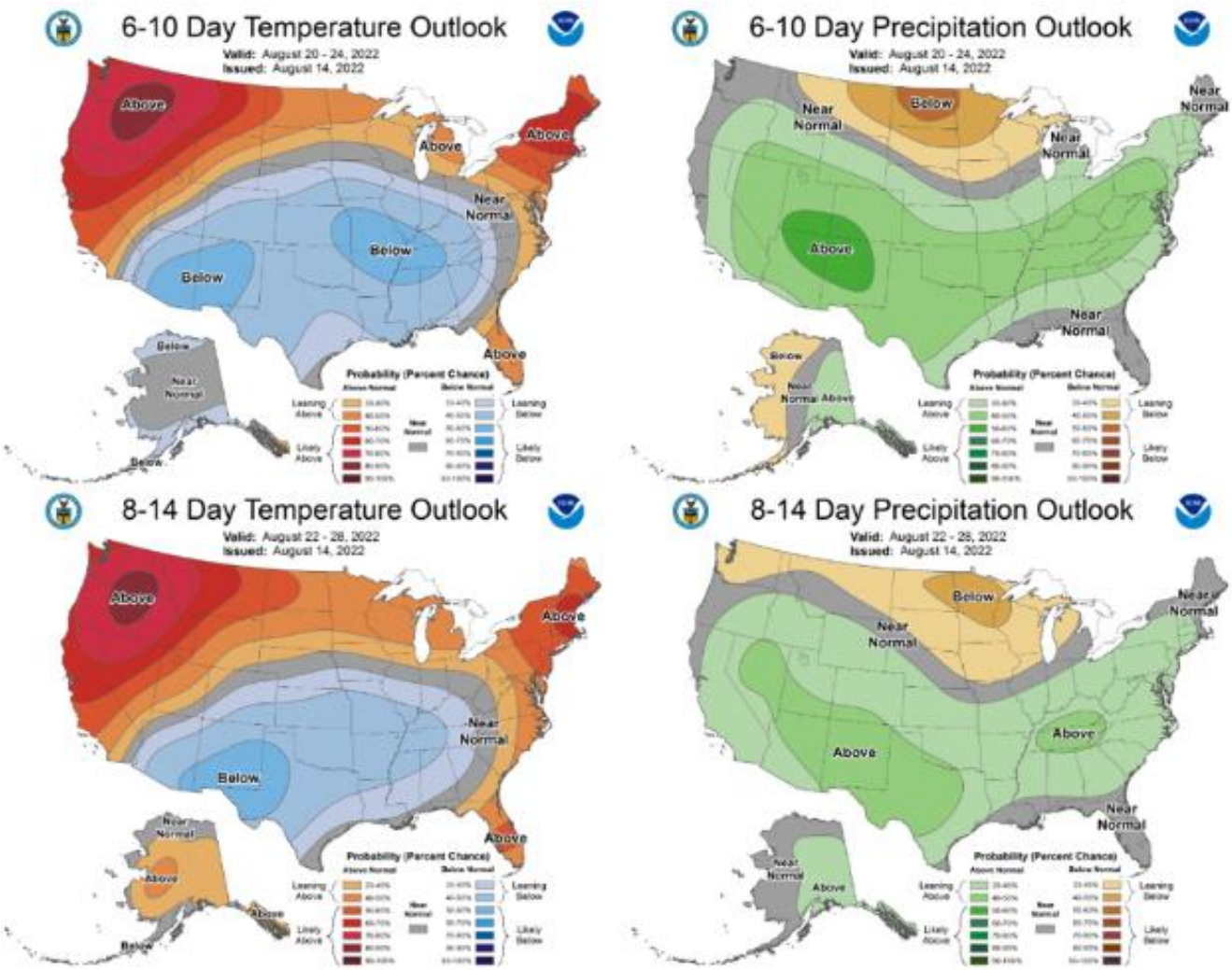
Precipitation totals from the weekend (left) and the past 14 days (right) as of August 15.



Precipitation forecast for August 15-22.



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



The 6-10 day (Aug 20-24, top) and 8-14 day (Aug 22-28, bottom) outlooks for temperature (left) and precipitation (right).

Crops and Pests

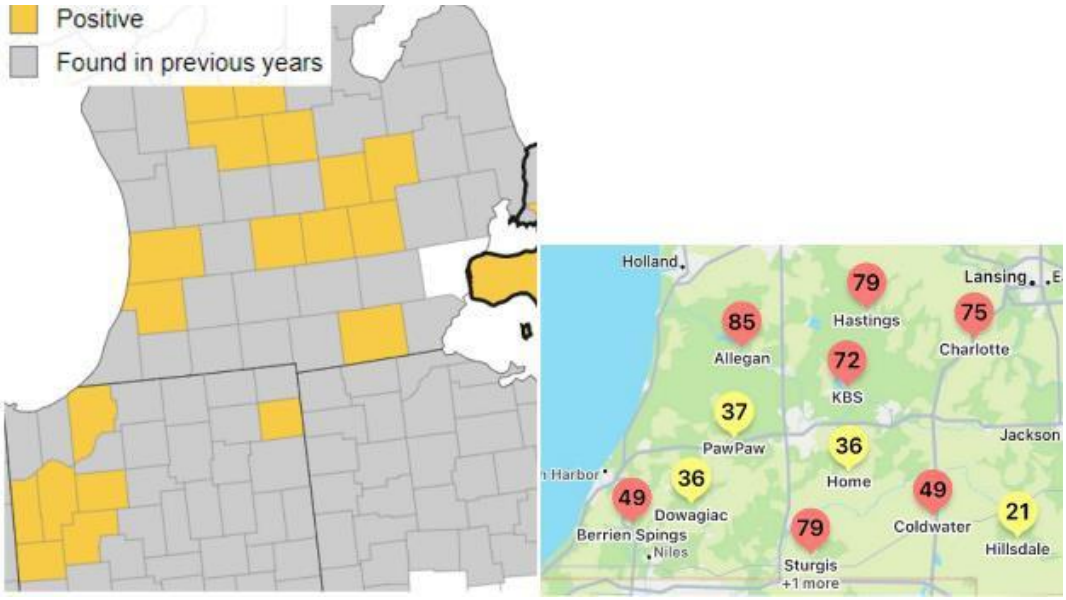
I was out of state last week, so the crop update will be slim this time around. FYI, if you are not already signed up to receive the MSU Extension Field Crops weekly news digest, you may want to consider signing up for this free email. You can sign up for one or more digests depending on content of interest. I have been writing a weekly crop, pest and weather update for that digest when possible.

Corn and **soybean** are past the initial reproductive stages and are at peak water usage.

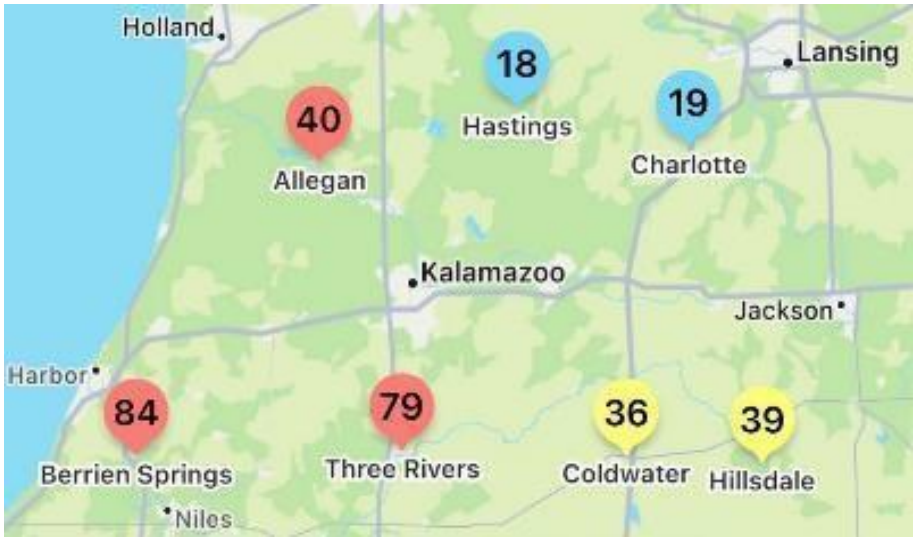
Diseases. Incidence of tar spot has increased in Michigan, and according to MSU Extension field crop pathologist Marty Chilvers, that is likely to increase in the coming week as there is a lag between a rain event and a visible increase in lesions. The dry week predicted this week and dew points as low as upper 40's and lower 50's should keep the disease from "exploding" in the near-term. Having said that, the current risk of tar spot infection is currently medium to high throughout the region. Chilvers says that fungicide applications in late August can protect yield if the disease severity is increasing.

The risk of white mold in soybean is variable depending on location, row spacing and use of irrigation. On the map below generated using the Sporecaster app, all fields input into the app were on 15-inch

row spacing and had flowers present. Only the Three Rivers and Berrien Springs locations were input as being irrigated. You can download the app for free and enter your fields using your parameters which will alter the risk rating. For example, choosing 30-inch irrigated soybean near Three Rivers with near-canopy closure had a risk level of half that of the Three Rivers location.



Confirmed tar spot locations in 2022 (left) and current risk of tar spot infection according to the Tarspotter app as of Aug. 15.



Risk of white mold in 15-inch soybean row spacing according to the Sporecaster app as of Aug. 15.

Irrigation. Corn at reproductive stages through beginning dent has a Kc of 1.2 and will require 1.3-1.4 inches this week. Soybeans from R3 (beginning pod) through R6 (full seed) also have a Kc of 1.2.

Dealing with excess water in a changing climate was the topic of last week's MSU Extension Field Crops Virtual Breakfast with drainage specialist Ehsan Ghane. To adapt a drainage system to handle heavy rainfall events, first make sure there are no known under-performance issues. Another key is to improve the health of the soil which will improve soil organic matter and the soil's ability to hold more water, and improve soil structure which will improve infiltration and percolation rates. Regenerative

agricultural practices include minimum or no soil disturbance, continuous crop coverage, and diverse crop rotations.

Another key step is to improve the existing drainage system. One example is installation of mole drains in addition to more traditional tile drainage. Ghane described what a mole drain is and how to install and maintain them. Another method is to utilize existing or created slope in conjunction with tile drainage to avoid ponding and erosion while sending excess water toward shallow ditches and grassed alleyways. A final method described is installation of new tile drainage, including shallow (28-30 inches) drainage which can increase the rate of drainage over deeper tiles.

The MSU water management group runs a drainage school each year in March to help farmers and tile layers learn how to design the ideal system. There is also a Tile Drainage Field Day coming up on Aug. 25 in Hillsdale County for those who would like to learn more about improving soil health and see a demonstration of installing a drainage control structure (see details in the calendar below).

If you were not able to join the session, the recordings will be closed-captioned and available at the Field Crops Virtual Breakfast webpage and the MSU Extension Field Crops Team social media platforms: Facebook, Spotify, YouTube, Apple Podcasts, and Twitter.

Calendar

Titles are clickable links to online content when highlighted and underlined

Aug 18 **Virtual Breakfast – Carbon Market Update with Matthew Gammans.** 7-8am. This hour-long broadcast from the MSU Extension Field Crops Team will run throughout the cropping season and feature a brief weather forecast and a presentation from a MSU specialist or educator on a timely topic. One RUP and one CCA credit will be available with each session. Cost is free. Register to receive the link that will be used throughout the season.

Aug 22 **MSU Extension On-Farm Research Field Day**. 8:30am-1:00pm. Near 54060 Parkville Rd, Three Rivers, MI 49093 (GPS 42.012231, -85.547951) Credits available: 2 RUP, 4 CCA and MAEAP Phase I. Register by Aug. 15 to secure your seat and lunch, but walk-ins will also be welcome (lunch not guaranteed).

Aug 25 **Virtual Breakfast – Hot Topic Q&A session .** 7-8am. Register online once for the entire series.

Aug 25 **2022 MSU Tile Drainage Field Day**. 9am-3:30pm. 13000 Bird Lake Rd Camden, MI. Field demonstrations and speakers addressing demo of a water-gate valve, installation of a water control structure, nutrient placement, cover crops, saturated buffers, and more. Cost is free, lunch is provided, register online.

Aug 26 **Prairie Strips and Soil Health Field Day**. 1-3PM. Edward Lowe Foundation, 58220 Decatur Rd, Cassopolis, MI. Learn about the benefits of prairie strips on soil health within agricultural settings. The event is free and open to the whole family and will include a soil pit demonstration, optional wagon tour of prairie strips and refreshments. For more information about this event, click here.

Sept 1 **Virtual Breakfast - Nematode Management Updates in Field Crops with Marisol Quintanilla.** 7-8am. Register online once for the entire series.

Sept 8 **Virtual Breakfast – Reducing Soybean Harvest Losses with Mike Staton.** 7-8am. Register online once for the entire series.

Sept 9 **MSU Mechanical Weed Control Field Day**. 8:30-4:00. Southwest Michigan Research and Extension Center, 1791 Hillandale Road Benton Harbor, MI. In-field demonstrations of cultivation tools for vegetables and row crops. Registration is $40 through Aug. 15, $50 through Sept 8, includes breakfast and lunch.

Sept 15 **Virtual Breakfast – Herbicide Resistance? Now is the Time to Check! with Erin Hill.** 7-8am. Register online once for the entire series.

Sept 22 **Virtual Breakfast – Fall Weed Control with Christy Sprague.** 7-8am. Register online once for the entire series.

MSU Extension Digest Briefs

MECHANICAL WEED CONTROL FIELD DAY COMING TO SOUTHWEST MICHIGAN

PUBLISHED ON AUGUST 9, 2022

Join us Sept. 14, 2022, for a full day of weeding tool demonstrations and exhibits for both vegetables and row crops.

MANAGING TAR SPOT OF CORN MID-SEASON UPDATE

PUBLISHED ON AUGUST 5, 2022

With tar spot on everyone's mind, let's review management strategies and address frequently asked questions collected from farmers.

Eric Anderson
Michigan State University Extension
Field Crops Educator - St. Joseph County
612 E. Main St., Centreville, MI 49032
(269) 359-0565 (Home Office)
(269) 467-5511 (Extension Office)
eander32@msu.edu