MICHIGAN STATE UNIVERSITY | Extension

Southwest Michigan Field Crops Updates
June 1, 2023

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.

Tillage Field Day and Tillage In-Service on August 8 in Mason

MSU Extension will be hosting a Tillage Field Day to provide knowledge about tillage implements and their impacts on soil health and their effectiveness in incorporating crop residue (wheat stubble). Tillage equipment will include a chisel plow, high-speed disc, vertical till, and strip-till units. Presentations about soil health, farm safety and mental health will also be given. The Field Day will take place from 9 a.m. - 12 p.m. at MSU's Mason Research Farm with light refreshments and registration starting at 8:30 a.m.

The Tillage In-Service will begin at 12:15 p.m. for agency staff only, including MAEAP technicians, Conservation District and MSU Extension staff. The in-service will further address the effects of the different tillage implements, statewide research of soil health, and farm stress resources available through MSU Extension. Lunch will be provided at 12 p.m. for agency staff staying to participate in the in-service. The afternoon in-service has a registration fee of $10.

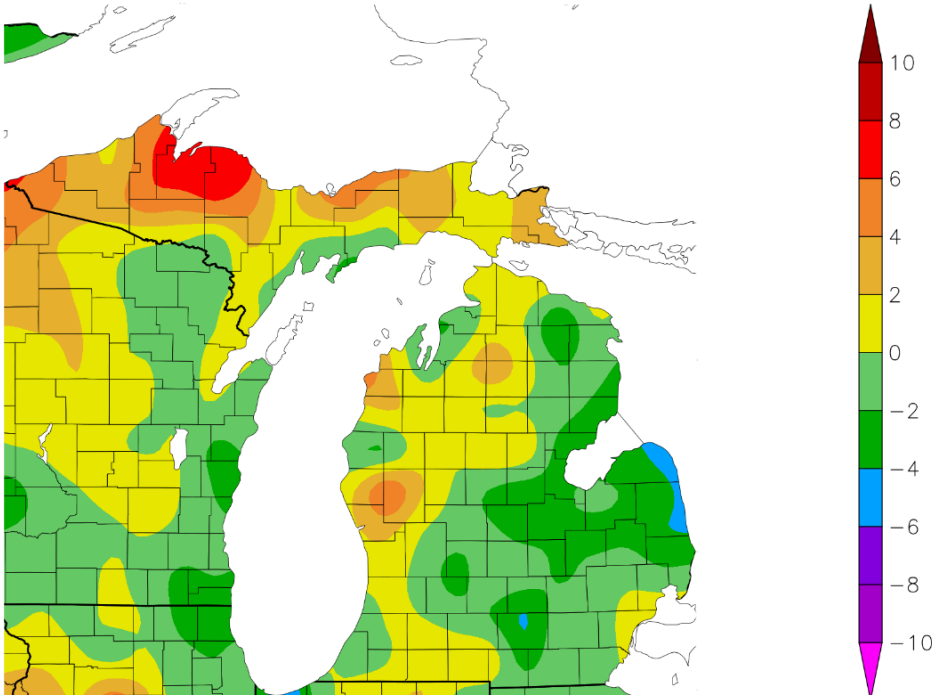
Continuing Education Units (CEU's) will be available for Certified Crop Advisors. Morning participants will be eligible to receive 3 CEU's (2.5 SW, 0.5 PD) and afternoon attendees will be eligible for an additional 3 credits (same categories).

Contact Eric Anderson (eander32@msu.edu) with questions.

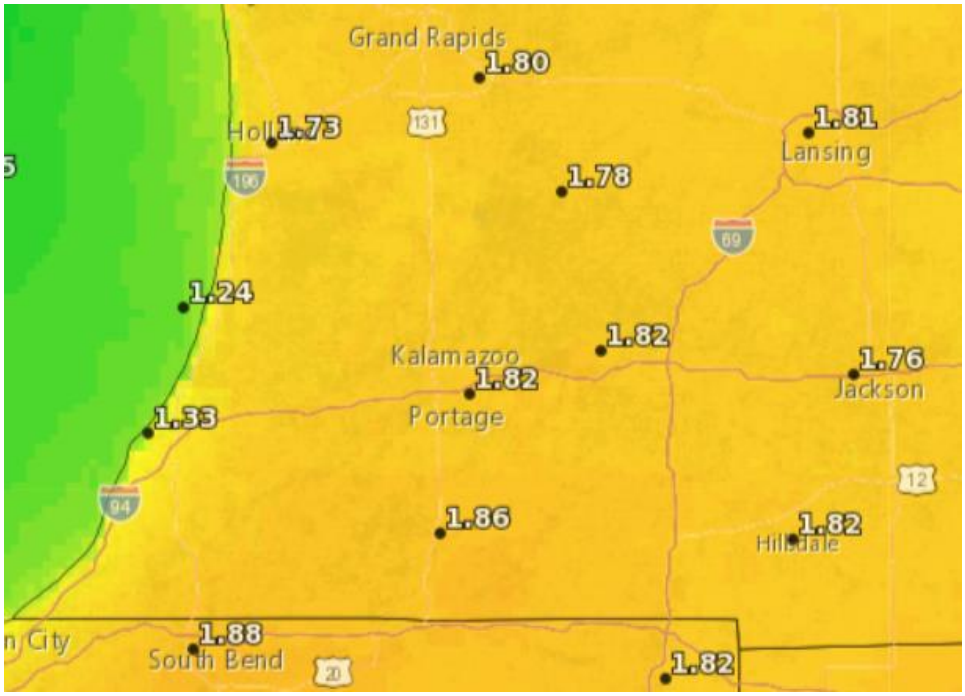
Weather and Crop Update

Weather

Temperatures this past week started out cooler than normal but have warmed significantly over the past few days, so we are close to normal on average. Michigan State University Extension climatologist Jeff Andresen says that the upper-air ridge that has brought the hot and dry weather recently is likely to migrate to the west next week bringing slightly cooler temperatures - probably closer to normal. We should pick up an additional 148 growing degree days (GDD base 50 degrees) this coming week, so those able to irrigate should see emergence in less than a week. The forecasted reference evapotranspiration rate (FRET) is roughly 1.82 inches in the southwest for the week ending June 7 - again very high even for mid-summer. Both the 6-10 and 8-14 day outlooks call for warmer than normal weather through the second week of June although the confidence level has decreased.

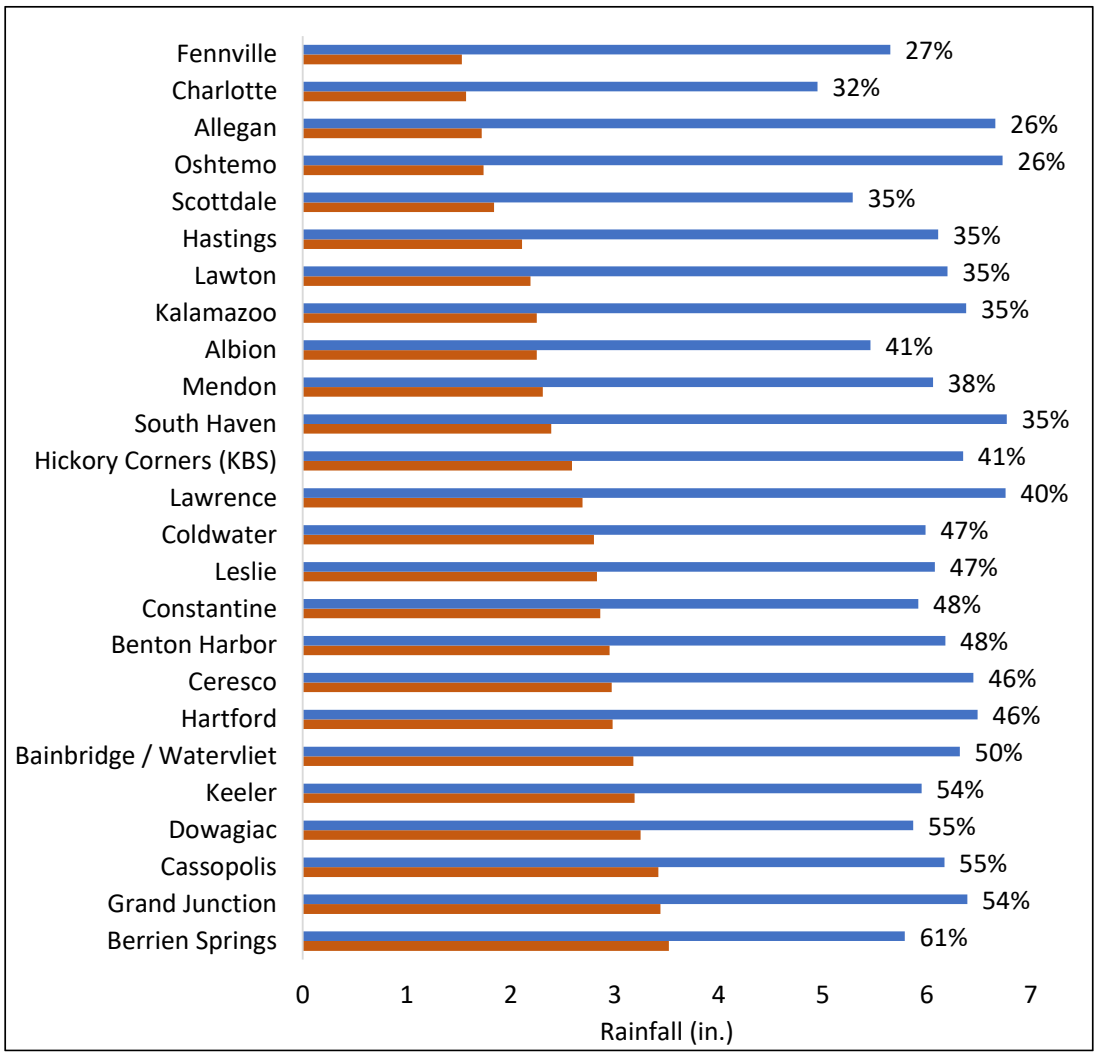


Temperature departure from normal for the past 7 days as of May 31.

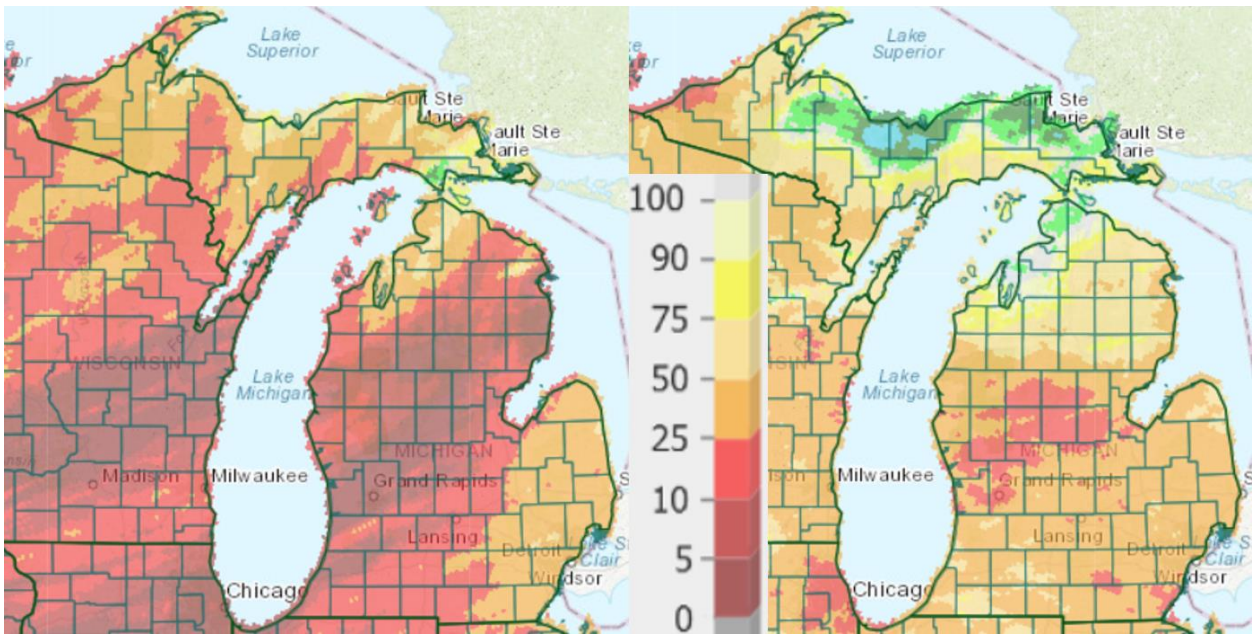


Total weekly forecasted reference evapotranspiration rate (FRET) for the week ending June 7.

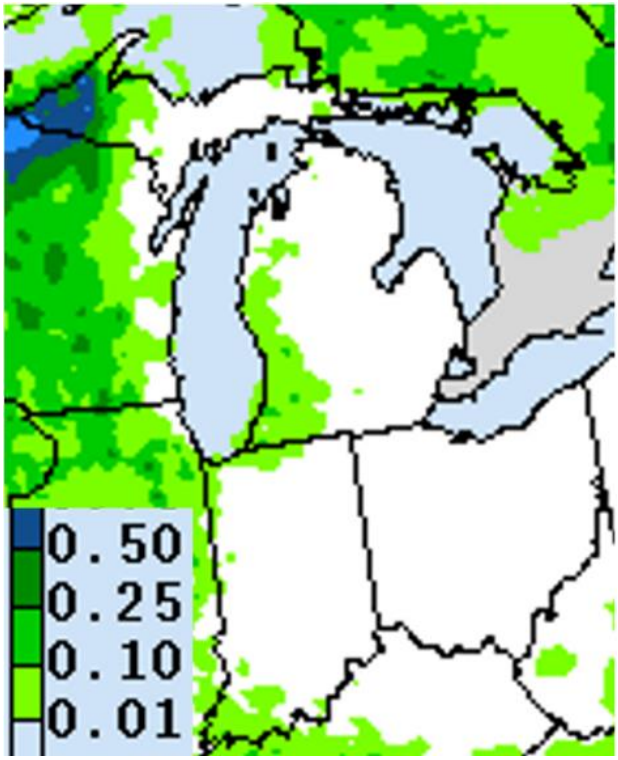
With no rain this past week, we continue to fall well behind with rainfall totals for this time of year causing some to begin comparing to drought years of the past. In particular, the drought of 1988 began equally dry in April and May, although we had much higher winter recharge rates this winter than in ’88. Unfortunately the pattern of dry weather is not expected to change in the next 7-10 days. Less than one-tenth of an inch could fall today (although that seems unlikely) and no further rain is forecasted through next Wednesday. Wunderground.com shows no chances of rain above 20% until next Saturday. The current 6-10 day outlook predicts below-normal chances of precipitation with a shift to near-normal chances of rain in the 8-14 day outlook for the second week of June.



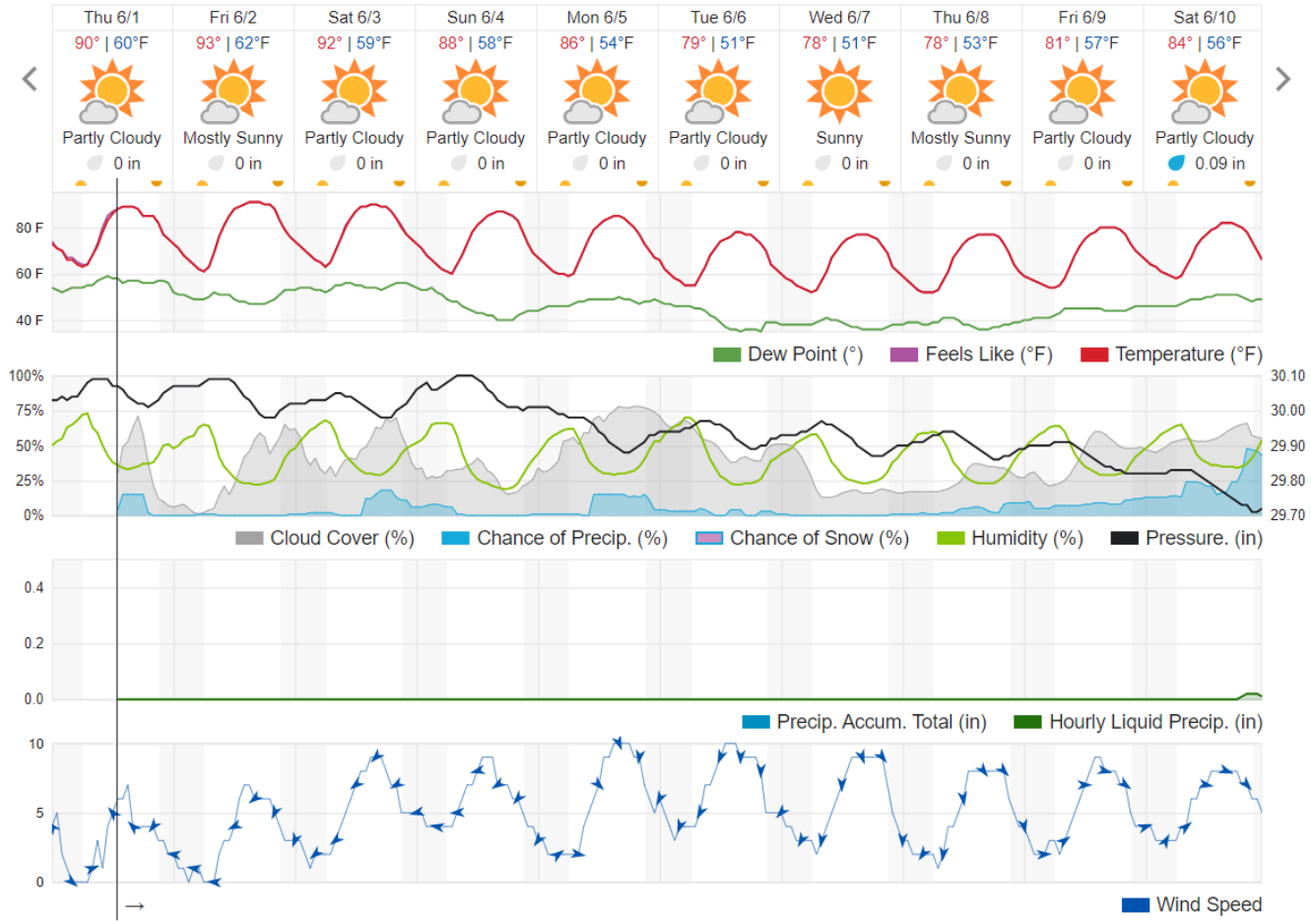
Rainfall received at Enviroweather stations in southwest and south-central Michigan April 15 - May 31. Brown bars = 2023, Blue bars = 5-year average, Data label = percent of normal rain received in 2023.



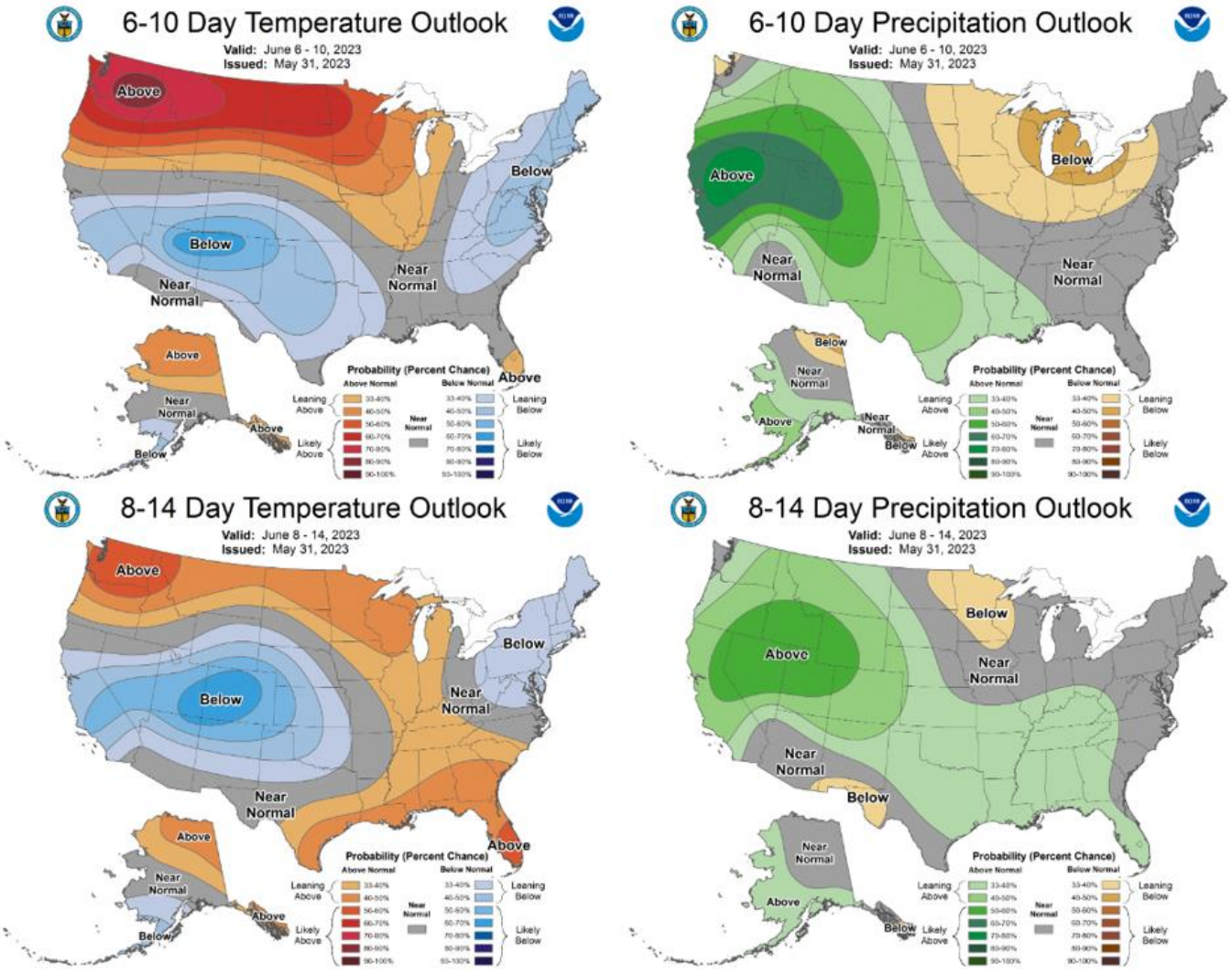
Precipitation percent of normal for the past 14 days (left) and 30 days (right) as of May 31.



Precipitation forecast for June 1-8.



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



The 6-10 day (June 6-10, top) and 8-14 day (June 8-14, bottom) outlooks for temperature (left) and precipitation (right).

Crops and Pests

Corn and soybean planting progress are both well ahead of the 5-year average as of May 28 with 80% of both crops planted in Michigan according to the latest USDA Crop Report. Corn was 43% emerged while soybean was 37% emerged. Planting dry obviously continues to be a concern where irrigation is not an option. As MSU Extension soybean senior educator Mike Staton pointed out in a recent article, planting shallow into dry soil may be a good strategy rather than planting too deep to try to get to moisture. However, if we were to receive a 1-2-tenths inch rainfall, that may be enough to germinate the seed and then leave the little guys hanging with not enough water for survival.

Corn approaching V3 (above) and soybean at early V1 (below). Photos courtesy of Eric Anderson.

Some discoloration of soybean cotyledons was observed this week. This is a characteristic symptom of injury from the fungicide seed treatment ILeVO (fluopyram). The fungicide is moderately systemic in plants and so it travels to "sinks" within the plant such as roots and the tips of leaves. In soybean trials last year with this seed treatment, the plants tended to be stunted by about half of a developmental stage compared with the non-treated, but yields were not impacted. Similar cotyledon necrotic symptoms can occur with certain residual herbicides such as Group 5 (e.g. metribuzin) and Group 14 (e.g. Sharpen), especially with cold, wet soils or when rainfall splashes the herbicide up onto the plant - neither of which have been issues recently.


Soybean with damaged cotyledons at early V1. Photo courtesy of Eric Anderson.

Winter wheat ratings in Michigan took another hit according to the current USDA Crop Report, likely due to continued dry conditions, with 57% rated as good or excellent and an additional 35% rated as fair. Wheat in all but one field visited earlier this week had reached flowering (Feekes 10.5.1), some had nearly completed flowering, but one field was still at head extension. Between beginning flowering and 7 days after flowering is the optimal time to apply a fungicide to protect against head scab and other late foliar diseases according to MSU Extension field crop pathologist Marty Chilvers. Pay attention to the pre-harvest interval (PHI) as most products have a PHI of 30 days. Although the risk of head scab is low for even very susceptible varieties, those who irrigate could have an increased risk. With high temperatures, low humidity and little if any rain in the forecast for at least the next 10 days, this may be a year where many farmers will choose not to make a fungicide application. Hot and dry weather favors some diseases such as powdery mildew, but very little has been found during scouting trips thus far.

An extreme example of wheat that has not received rainfall or irrigation recently that is beginning to show signs of drought stress as upper leaves curl and lower leaves die back. Photo courtesy of Eric Anderson.

Wheat reached flowering in most fields in southwest Michigan earlier this week. Photos courtesy of Eric Anderson.

Powdery mildew, which favors hot and dry conditions, was found in one wheat field in St. Joseph County this week. Photo courtesy of Eric Anderson.

Forages. We are still getting reports of alfalfa weevil heavy feeding from some farmers, even on new growth following first cutting. According to Enviroweather, pupation is predicted to begin on June 3 based on GDD_{48} accumulation, but major feeding is expected to continue for another 224 GDD_{48} beyond that. According to Wunderground.com, we will accumulate 142 GDD_{48} between June 4-10, so we can expect continued weevil feeding through the middle of June. A rough estimate for assessing whether the weevil population has surpassed the action threshold is if you see 40% of plants with feeding. Penn State's John Tooker has produced a more exhaustive method including actual larval counts, alfalfa plant height, and costs for insecticide applications. Those with fields that have reached the action threshold should consider making an insecticide application as feeding is likely to increase, especially in irrigated fields, as the population progresses toward pupation.

Weeds. Weed control has been another topic of concern for farmers with these hot and dry conditions. Preemergence herbicides (PRE's) need to be incorporated into the soil for them to be effective, and 0.50-0.75 inch of rain or irrigation is generally required to get the active ingredient moved into the root zone. It may be advisable to make a PRE application now even though it will not have an immediate effect, particularly on large-seeded weeds that have emerged from depths where soil moisture is still available. Most PRE formulations will not be impacted by photodegradation on the soil surface, and microbial and chemical/hydrolytic breakdown will be decreased under dry conditions. A PRE applied now will sit on the soil surface and be ineffective now, but it will already be in place once rain does come and a flush of weed germination occurs. Of course, for those who can irrigate, using irrigation to water in a residual herbicide is a good use of that tool.

Weeds that have already emerged could be difficult to control, especially if they are drought-stressed. Some species (e.g. common lambsquarters) will produce a thick waxy cuticle on leaves as a survival tactic that will hinder herbicide penetration. MSU Extension weed specialists Erin Burns and Christy Sprague say stressed weeds also will not translocate or metabolize the herbicide (e.g. glyphosate) as if they were actively growing, so efficacy will be reduced. Under hot conditions, contact herbicides like PPO's could lead to increased crop injury. Waiting for rains to "freshen" weeds may not be a good option as taller weeds are more difficult to control, and the crop may advance beyond the stage for safe herbicide application. Spraying in the morning when weeds are less stressed may be more effective than spraying in the heat of the day. Unfortunately, there are no easy, one-size-

fits-all answers. For more information on weed control in dry conditions, refer to the MSU Extension articles, "Dry forecast: How will that impact weed control?" and "Dry conditions will impact early season weed control."

Irrigation. Most emerged corn is between V2-V4 which has a crop water use coefficient (K_c) of 0.20. Most emerged soybean has reached or is approaching V1 (K_c=0.30) while soybean still at the VC stage has a K_c=0.20. With a weekly FRET of 1.82 inches for the region, corn and soybean will potentially use 0.35 inch and 0.55 inch of water this week, respectively. Wheat at this stage has a K_c of 1.05, so that crop will require 1.9 inches of water.

How deep will 1 inch of irrigation wet if you have already used or lost the plant available soil moisture? The answer is very soil dependent - for example, about 13 inches in Spinks loamy sand and about 8 inches in Oshtemo sandy loam. The table below shows how to use data from your county's soil survey to calculate your soil's available water holding capacity. These calculations are based on the situation that all the available water holding capacity (AWHC) has been used. If you don't want to go through the calculations, another method would be to apply a given amount of water (use a rain gauge to verify) and then dig down to measure how deep the wetting front moved. Be sure to probe within the rooting area of a plant as oftentimes plant uptake will affect the depth of wetting.

Available water holding capacity for three of the most frequently irrigated soils in southwest Michigan at varying depths.

Soil Name	Depth Inches	Available water holding capacity	Average Available water holding capacity	Ave. Available water holding capacity (6 in.)	Ave. Available water holding capacity (12 in.)	Ave. Available water holding capacity (24 in.)	Ave. Available water holding capacity (36 in.)
Oshtemo sandy loam	0 - 14 14 - 35 35 - 60	0.10 - 0.15 0.12 - 0.19 0.06 - 0.10	0.125 0.155 0.08	6" x 0.125 = 0.75 = 0.75	12" x 0.125 = 1.5 = 1.5	14" x 0.125 = 1.75 10" x 0.155 = 1.55 = 3.3	14" x 0.125 = 1.75 21" x 0.155 = 3.26 1" x 0.08 = 0.08 = 5.09
Spinks loamy sand	0 - 10 10 - 26 26 - 60	0.08 - 0.10 0.08 - 0.10 0.04 - 0.08	0.09 0.09 0.06	6" x 0.09 = 0.54 = 0.54	10" x 0.09 = 0.90 2" x 0.09= 0.18 = 1.08	10" x 0.09 = 0.90 14" x 0.09 = 1.26 = 2.16	10" x 0.09 = 0.90 16" x 0.09 = 1.26 8" x 0.06 = 0.48 = 2.64
Kalamazoo loam	0 - 12 12 - 28 28 - 76	0.16 - 0.22 0.10 - 0.18 0.02 - 0.08	0.19 0.14 0.05	6" x 0.19 = 1.14 = 1.14	12" x 0.19 = 2.28 = 2.28	12" x 0.19 = 2.28 12" x 0.14 = 1.68 = 3.96	12" x 0.19 = 2.28 16" x 0.14 = 2.24 8" x 0.05 = 0.40 = 4.92

Insects. No true armyworm (TAW) and only a couple black cutworm (BCW) moths were captured in southwest Michigan this past week (ending 5/29). Purdue TAW catches tapered off at their two northern research stations. Purdue crop entomologist John Obermeyer wrote about TAW impact on newly-emerged corn and other crops in the latest Pest and Crop Newsletter from 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, except for 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 armyworms are detected migrating from border areas or waterways within fields, spot treatments in these areas are possible if the problem is identified early enough. Don't rely on Bt-corn for protection, as traits won't stop the armyworm assault."

Moth captures from traps set in southwest Michigan for the week ending on the given date.

		17-Apr	24-Apr	1-May	8-May	15-May	22-May	29-May
Armyworm	TAW 1	69	1	1	1	0	0	0
	TAW 2	1	11	11	7	8	0	0
	TAW 3	2	1	0	5	1	0	0
	TAW 4	0	13	1	9	5	2	0
Black cutworm	BCW 1	0	0	0	0	0	0	0
	BCW 2	0	0	0	1	1	0	2
	BCW 3	1	3	1	0	0	0	2
	BCW 4	2	0	0	0	0	0	0

Wildlife management was the topic of this week's MSU Extension Field Crops Virtual Breakfast with MSU's James DeDecker. Wildlife impact on crops is not as cut-and-dried as it is for, say, weeds, insects and diseases - no one is advocating for crop diseases whereas many stakeholders (hunters, wildlife enthusiasts, animal rights activists) have a vested interest in protecting different wildlife species. The same farmer may want to see many whitetail deer on his property on November 15 but not on June 15. It is also challenging to accurately measure crop loss due to wildlife damage since, as DeDecker pointed out, "differences often exist between perceived and real losses due to wildlife damage."

Responses to a MSU grower survey conducted in 2019 revealed that over 50% of field crop acres managed by survey takers were impacted by wildlife damage, and most respondents reported damage from deer and birds among several other species. DeDecker stressed that, just as farmers need to take an integrated pest management (IPM) approach to manage weeds, diseases, and other pests, an IPM approach should be taken for wildlife management as well. This can be accomplished by applying knowledge of pest ecology, anticipating, preventing and monitoring damage, implementing pest management thresholds, and combining multiple control tactics including non-lethal and lethal options. Non-lethal methods include habitat modification, improving predator habitat, use of scare tactics, physical exclusion, and chemical repellents.

Although lethal control strategies exist, different governmental agencies are responsible for different wildlife species. For example, Michigan Department of Natural Resources oversees hunting and depredation licenses for game species such as deer whereas federal agencies like U.S. Fish and Wildlife Service oversee migratory birds such as sandhill crane. Refer to this MSU Extension article that goes into detail on what permits are required for various species. Several bulletins and videos are available on many species commonly associated with crop damage including deer, sandhill crane, turkeys and voles on the MSU Extension Wildlife Management website.

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

(Note: Titles are clickable links to online content when highlighted and underlined)

Jun 8 **Virtual Breakfast – Q & A "Hot Topics".** 7-8am. Register online once for the entire series.

Jun 14 **Van Buren Conservation District Grazing Workshop.** 8:30 AM - 12:30 PM. Windshadow Farm, 24681 County Road 681 Bangor MI. Register by June 7 by calling 269-657-4030 x5 or visiting the website.

Jun 15 **Virtual Breakfast – Equipping Operating Sprayers in Soybeans with Mike Staton.** NOTE CHANGE from earlier schedules. 7-8am. Register online once for the entire series.

Jun 22 **Virtual Breakfast – White Mold Management in Soybean with Marty Chilvers.** 7-8am. Register online once for the entire series.

Jun 28 **MSU Weeds Day**. 8:30am-1pm. MSU Agronomy Farm, 4450 Beaumont Rd, Lansing, MI. Optional afternoon tours available. Register online at $30/person, onsite for $40.

Jun 29 **Virtual Breakfast – Cercospora Leaf Spot Management in Sugar Beets with Daniel Bublitz.** 7-8am. Register online once for the entire series.

Aug 8 **Tillage Field Day**. 8:30am-12pm. MSU Mason Research Farm, 1614 Okemos Rd, Mason, MI. Focus on different tillage implements and their impact on the soil. Open to the public, cost is free but registration is required.

Aug 8 **Tillage In-Service**. 12:15-4pm. MSU Mason Research Farm, 1614 Okemos Rd, Mason, MI. More in-depth discussions on tillage and soil health. Open to MAEAP technicians, Conservation District staff, and MSU Extension staff. Cost is $10, includes lunch, register online.

MSU Extension Digest Briefs

NEW $1.95M USDA GRANT TO SUPPORT TRAINING OF DIVERSE AGRICULTURE PROFESSIONALS IN SOIL ORGANIC CARBON ASSESSMENT
PUBLISHED ON JUNE 1, 2023
The grant is funded through USDA's Natural Resources Conservation Service.

TILLAGE FIELD DAY AND IN-SERVICE ON AUGUST 8
PUBLISHED ON JUNE 1, 2023
A morning field day at MSU's Mason Research Farm focused on tillage and soil health will be open to the public. An afternoon in-service diving deeper into these topics will be open to agency staff.

DRY FORECAST: HOW WILL THAT IMPACT WEED CONTROL?
PUBLISHED ON JUNE 1, 2023
Weeds under environmental stress are hard to control.

SACKETT VS. ENVIRONMENTAL PROTECTION AGENCY, THE CLEAN WATER ACT, AND THE VALUE OF WETLANDS AND PROPERTY RIGHTS
PUBLISHED ON MAY 31, 2023
A discussion of some research on the public value of wetlands and the private value of property rights.

FOUR MICHIGAN PRODUCERS AWARDED NCR-SARE 2023 FARMER RANCHER GRANTS
PUBLISHED ON MAY 31, 2023
More than $65,000 was awarded to Michigan producers in 2023 through a competitive grant focused on exploring sustainable solutions in agriculture through on-farm research and education.

OPEN Q & A WITH MSU SPECIALISTS ON JUNE 8 FIELD CROPS VIRTUAL BREAKFAST SERIES
PUBLISHED ON MAY 30, 2023
The June 8 Field Crops Virtual Breakfast Series will allow attendees to ask questions with our specialists in a more open format.

MSU EXTENSION WELCOMES A NEW FIELD CROPS EDUCATOR IN SOUTHWEST MICHIGAN
PUBLISHED ON MAY 26, 2023
Christine Charles joins Michigan State University Extension as a field crops educator with a focus on regenerative agriculture.

MSU EXTENSION REQUESTS FARMER ASSISTANCE IN COMPLETING QUICKBOOKS SURVEY
PUBLISHED ON MAY 25, 2023
Help MSU Extension build QuickBooks resources that will help you optimize your financial records.

SOYBEAN PLANT STANDS: IS REPLANTING NECESSARY?
PUBLISHED ON MAY 25, 2023
This fact sheet addresses some commonly asked questions to consider prior to replanting a soybean field.

MSU EXTENSION EDUCATORS VISIT WASHINGTON D.C.
PUBLISHED ON MAY 24, 2023
Local Extension educators visited Congressional offices to share about their work with Michigan agricultural producers as well as the impact our food safety programs have on volunteers and professionals.

PROVIDING TIMELY & RELEVANT INFORMATION TO PRODUCERS & AGRONOMISTS
PUBLISHED ON MAY 23, 2023
The MSU Extension field crops team has a long history of providing research-based knowledge to address the needs of field crop producers and agronomists across Michigan.

ATTEND THE 2023 MONTCALM COUNTY FIELD DAY
PUBLISHED ON MAY 22, 2023
MSU Extension and Michigan Potato Industry Commission will host the 2023 Montcalm County Field Day at the Montcalm Research Center in Lakeview on Aug. 3.

CONSIDERATIONS FOR IRRIGATING WHEAT
PUBLISHED ON MAY 22, 2023
Irrigating winter wheat or rye is a tool to help double crop growers.

PLANTING DATES AND CORN YIELD IN MICHIGAN
PUBLISHED ON MAY 18, 2023
When do planting delays hurt yield? Exploring USDA data and field trial results.

SOYBEAN PLANTING DEPTH CONSIDERATIONS WHEN PLANTING INTO DRY SOIL CONDITIONS
PUBLISHED ON MAY 18, 2023
How to identify and achieve the optimum planting depth if you are faced with dry soil conditions.

USDA PANDEMIC ASSISTANCE REVENUE PROGRAMS ARE STILL AVAILABLE TO PRODUCERS FOR A LIMITED TIME
PUBLISHED ON MAY 16, 2023
Applications for programs for losses from 2020 and/or 2021 are available until June 2.

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