

Wisconsin Ag Climate Outlook

Week of July 8, 2024

Natasha Paris

Crops Educator – Adams, Green Lake,
Marquette, Waushara Cos.

natasha.paris@wisc.edu

Kristin Foehringer

NRCS State Working Lands Climate
Smart Specialist

kristin.foehringer@usda.gov

Dennis Todey

Director, Midwest Climate Hub

dennis.todey@usda.gov

Josh Bendorf

Ag Climatologist, Midwest Climate Hub

joshua.bendorf@usda.gov

Steve Vavrus

State Climatologist of Wisconsin

svavrus@wisc.edu

Bridgette Mason

Assistant State Climatologist of
Wisconsin

bmmason2@wisc.edu

Key Points

Navigate to select slides by clicking on the [links](#) below.

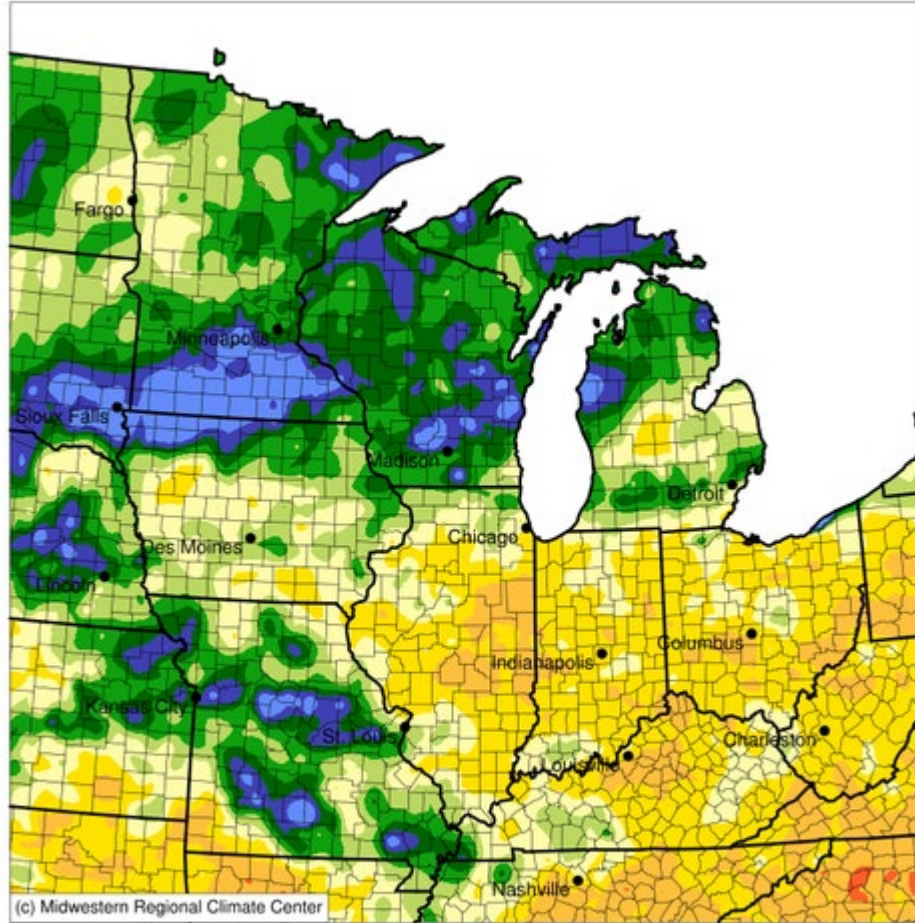
- 1) Another [2+”](#) of rain fell across southern WI last week, but a drier [upcoming week](#) is forecasted.
- 2) Soil moisture levels remain in [high percentiles](#), running near [50% adequate](#). [Flooding](#) has been an issue in WI.
- 3) Temps were a bit [cooler than normal](#) last week, but the latter half of July is leaning towards being [warmer than normal](#).

- *For this week’s agronomic recommendations from UW Extension, click [here](#).*
- *For the latest GDD accumulation maps, click [here](#).*
- *For NASS crop progress & condition maps, click [here](#).*

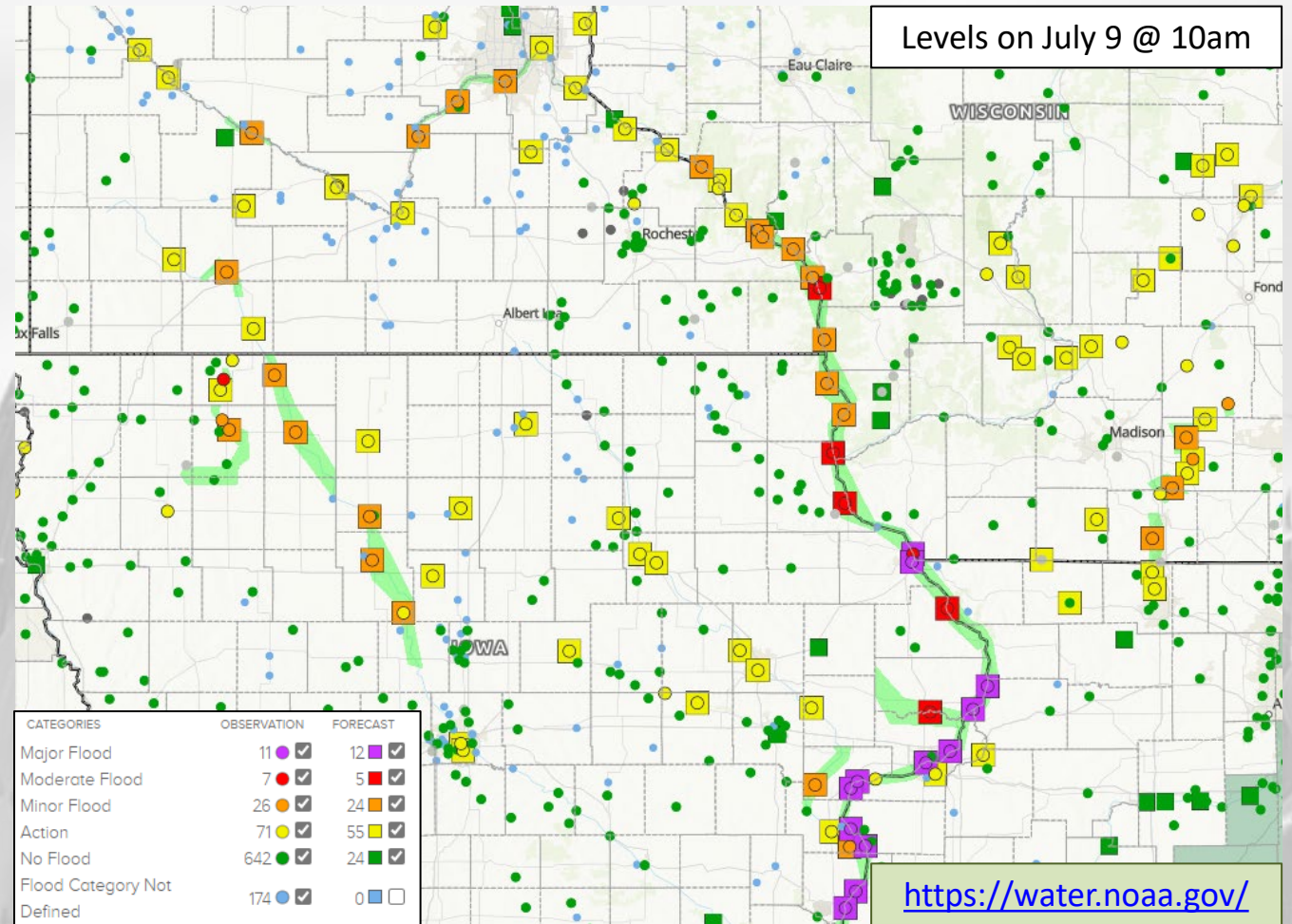
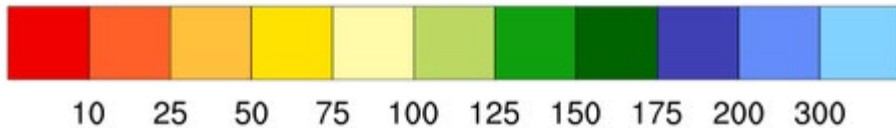
Regional Precip & River Levels

Accumulated Precipitation (in): Percent of 1991-2020 Normals

June 01, 2024 to July 08, 2024

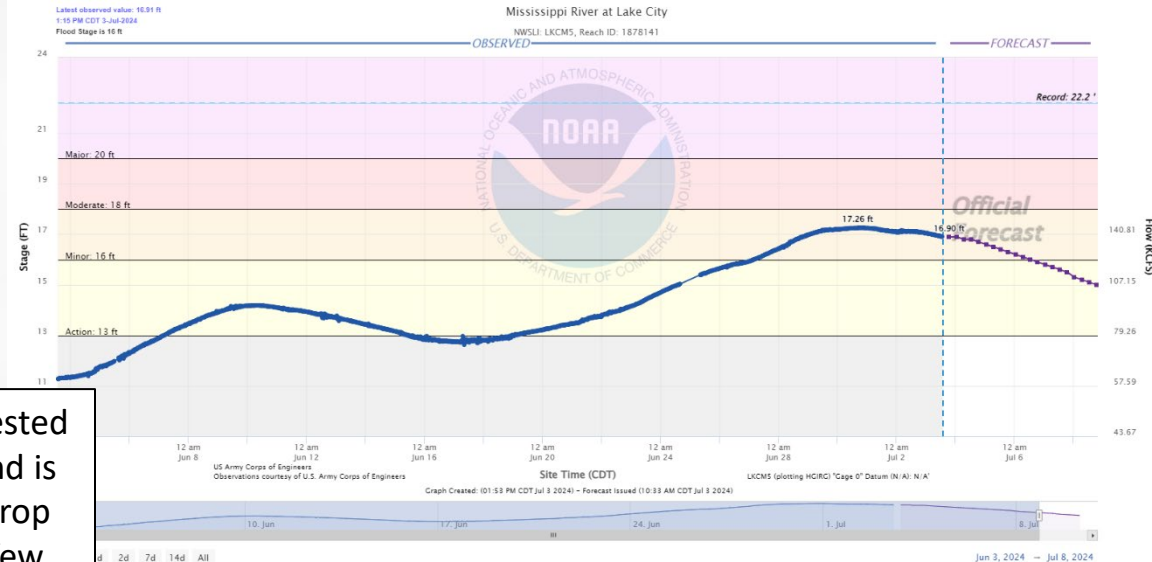
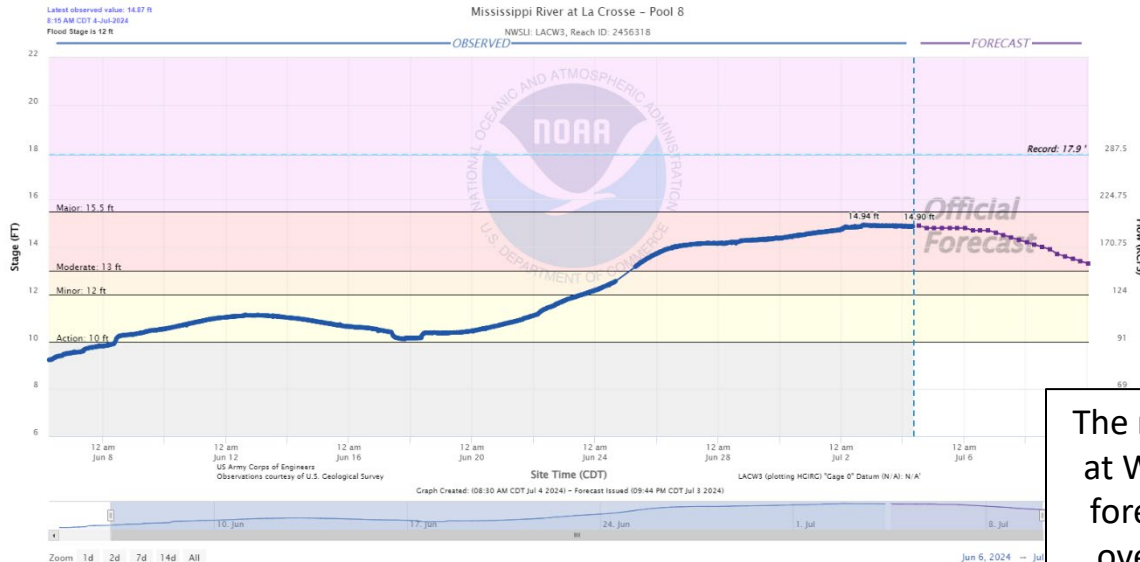


(c) Midwestern Regional Climate Center

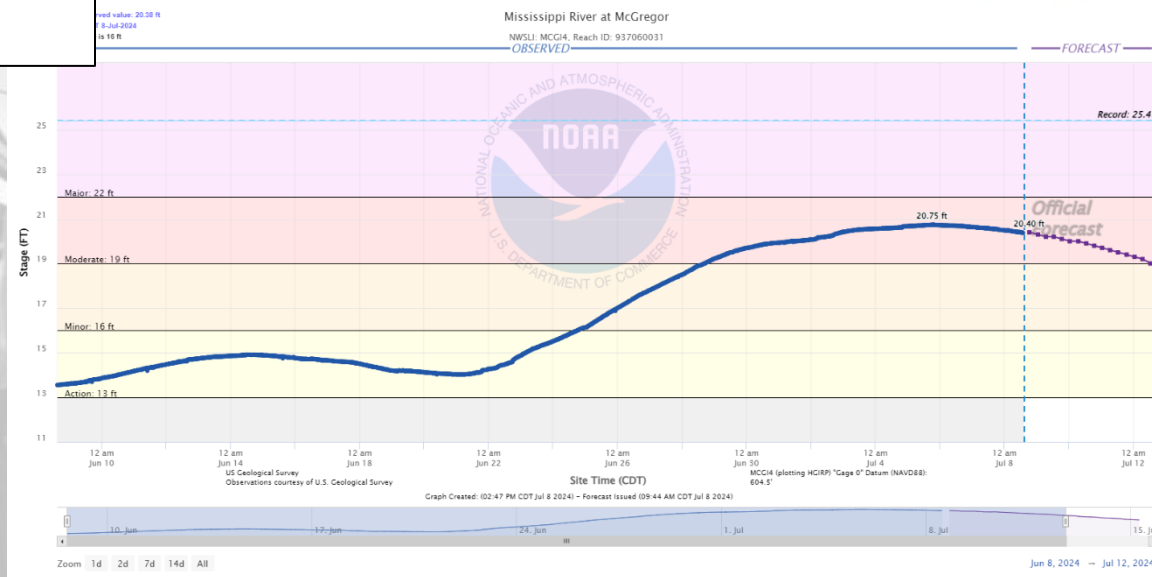
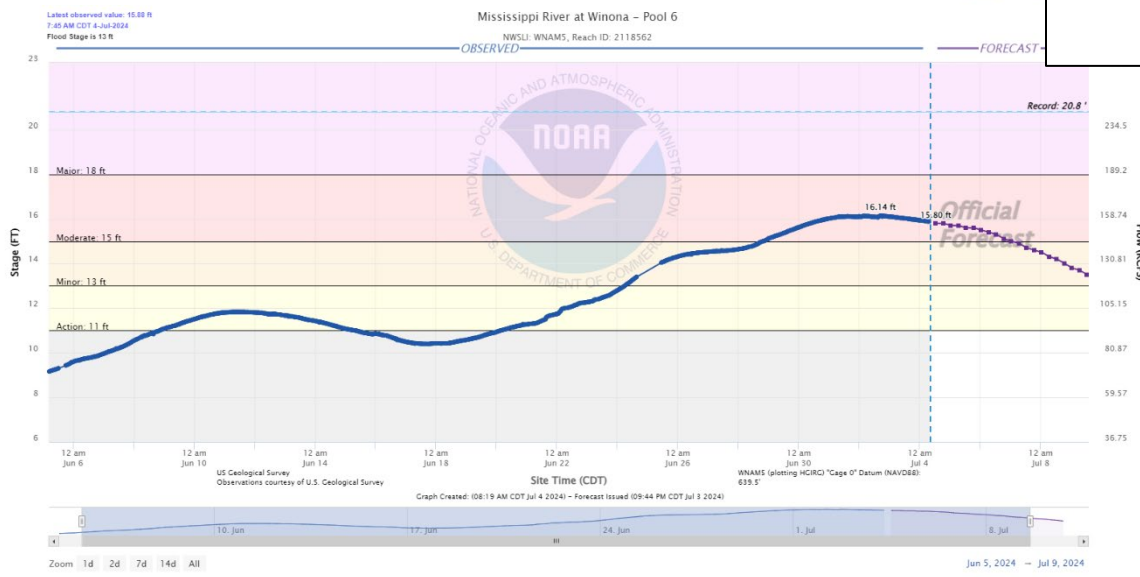


- Regional flooding along the Mississippi River from above-normal precipitation totals (>200% of normal for some) in MN and WI since June 1.
- Minor to moderate flooding along the western border of WI.

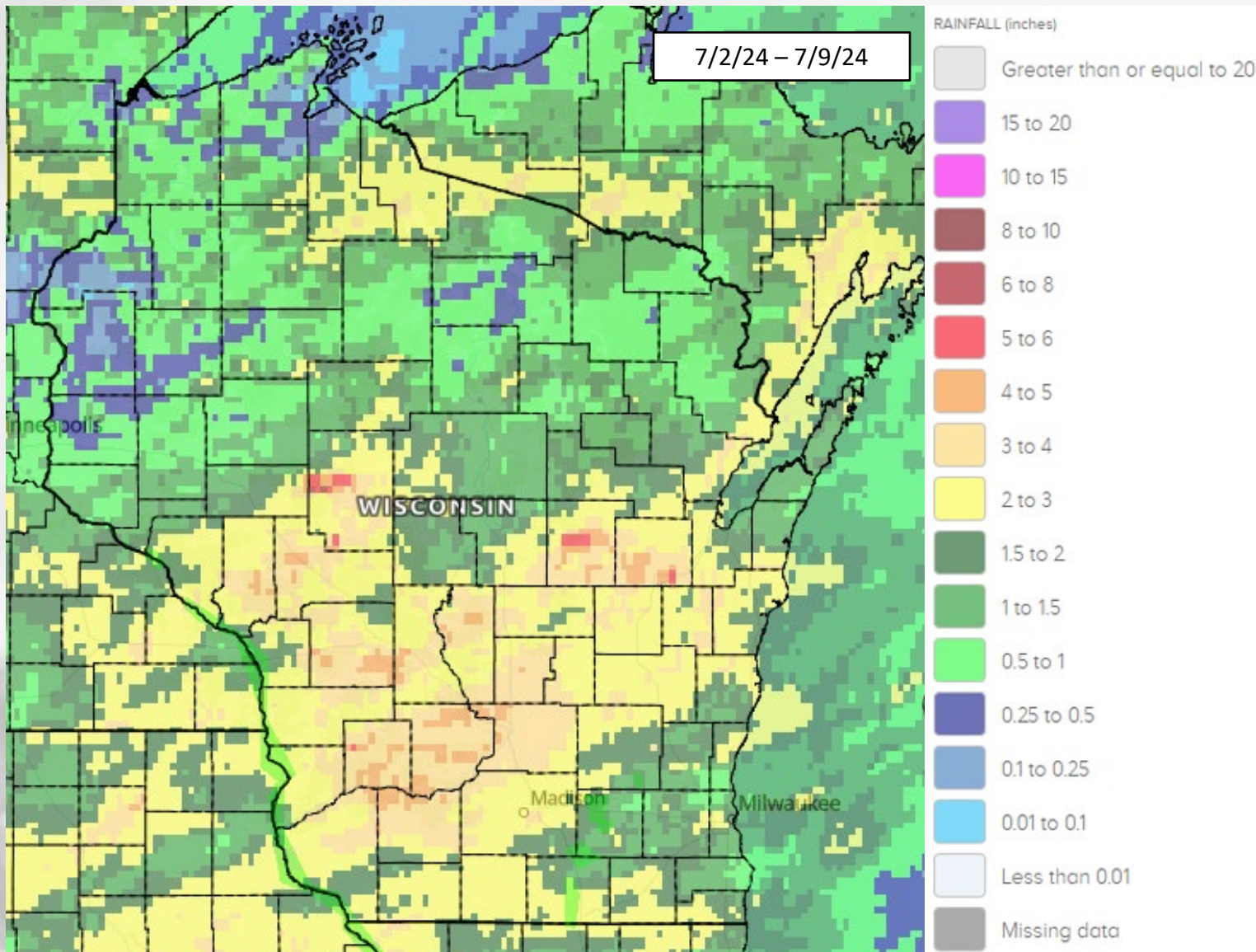
Mississippi River Levels



The river has crested at WI gauges and is forecasted to drop over the next few days.

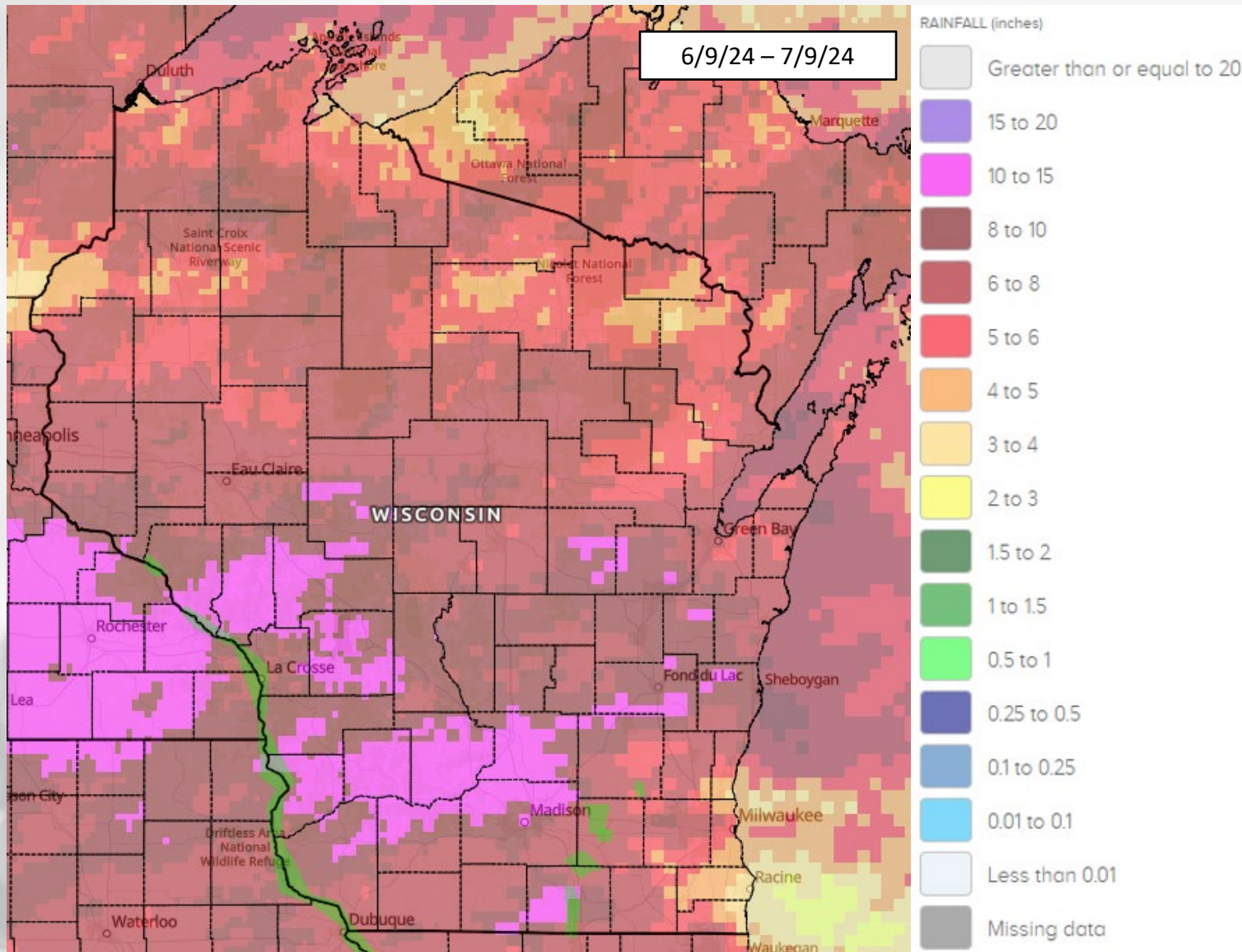


7 Day Precip



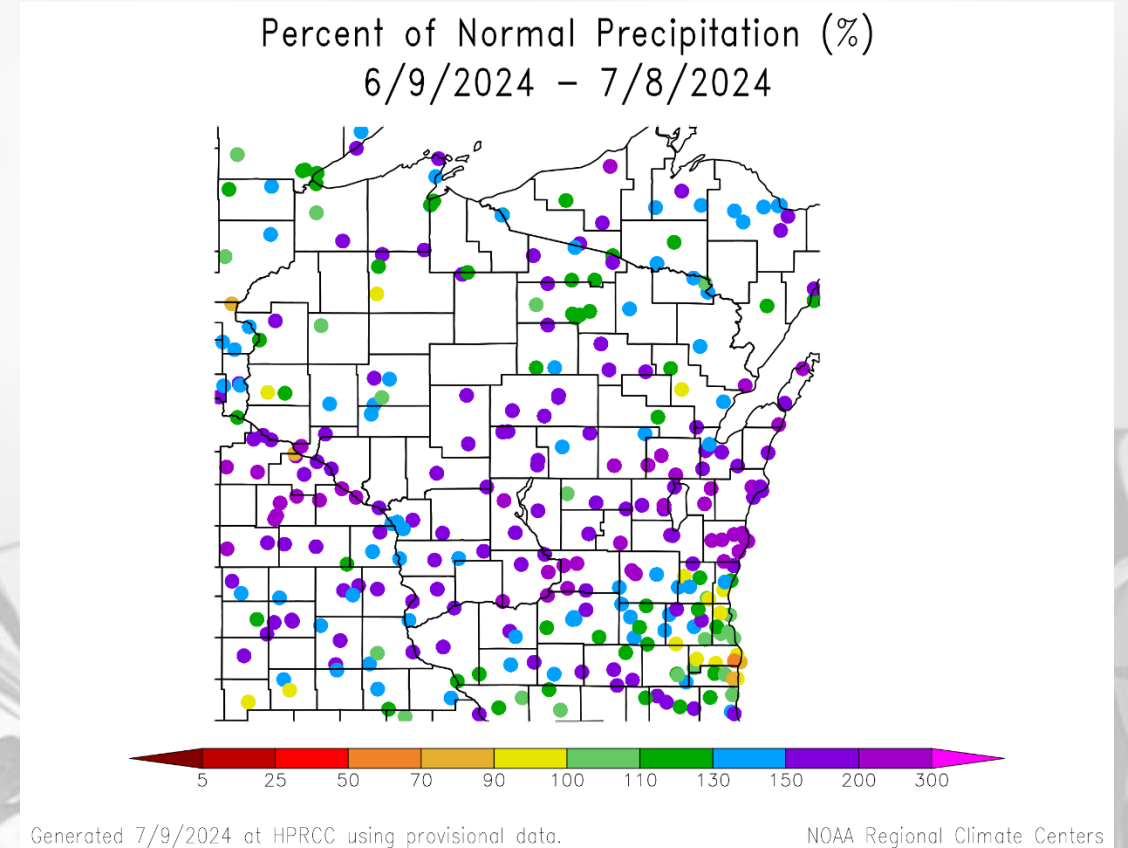
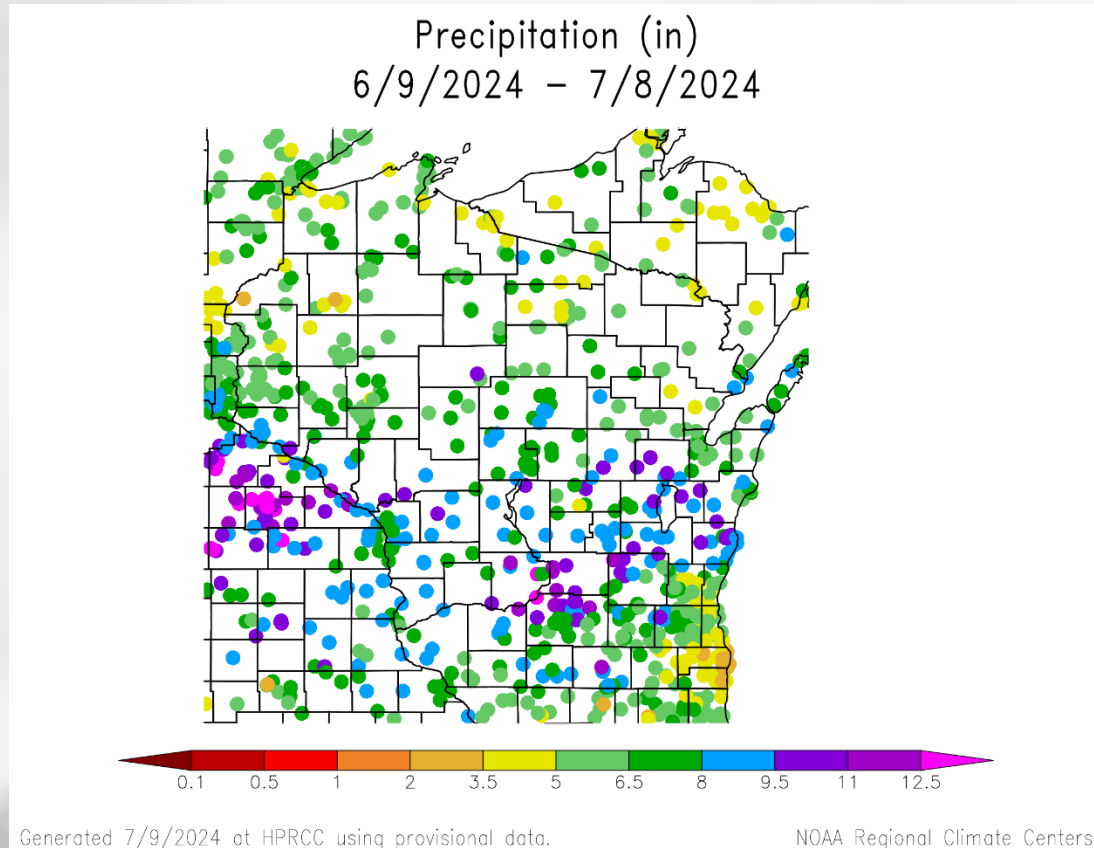
- Rainfall totals of **1" or more** were common statewide, with the exception the NW region.
- **2" or more** were common in the southern half of the state.
- **>4"** in parts of the Driftless Region as well as near Appleton.
 - **Manawa dam breach:**
<https://www.wpr.org/news/evacuations-underway-in-waupaca-county-after-imminent-dam-failure>

30 Day Precip



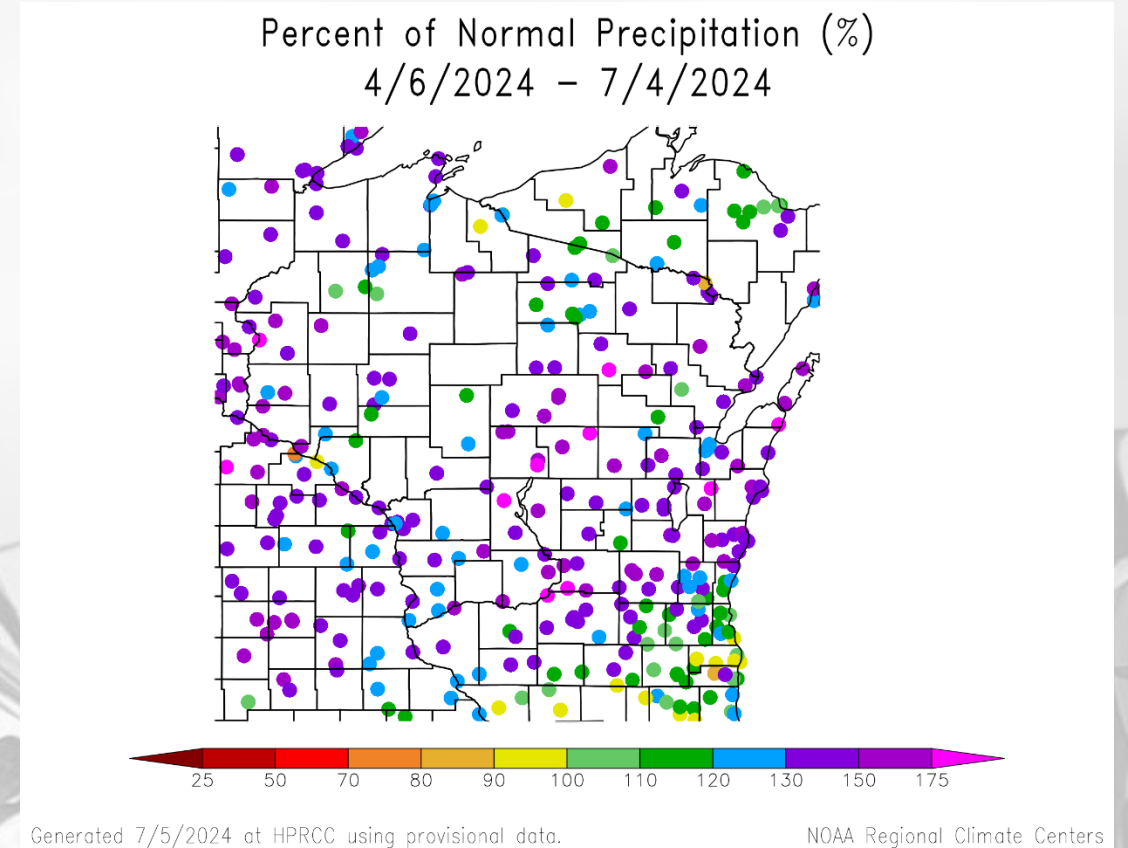
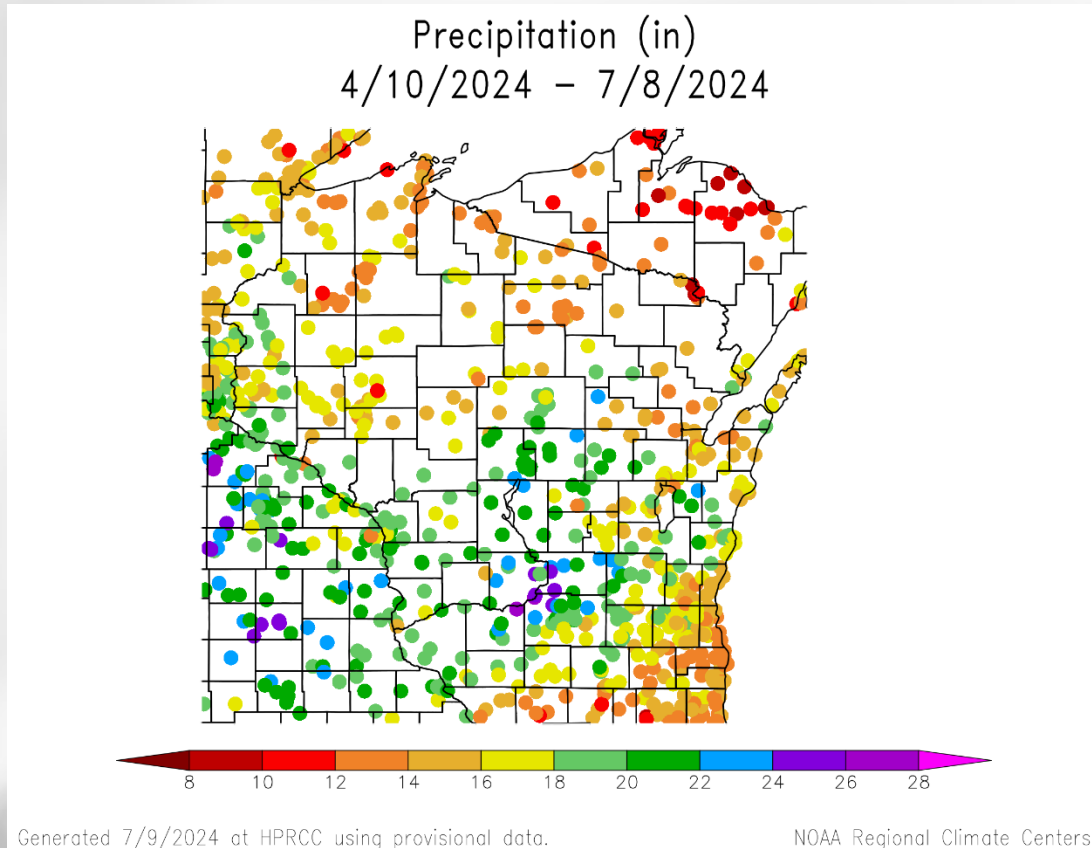
- **6-10"** of monthly precip common across the southern half of the state (dark red/purple shading).
- Driest the far SE counties and portions of the Northwoods → **4" or less**
- **>10"** common from Madison to La Crosse.

30 Day Precip Total/% Avg.



- Highest monthly totals on a line from Spring Green to Fond du Lac → **9.5" to over a foot**
- Totals of **8" or more** were common in the central and southern counties, with totals of **5" or less** common in the far SE and north.
- Most stations are running at **130% or more** of the climatological average (1991-2020).

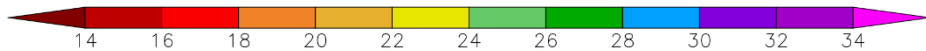
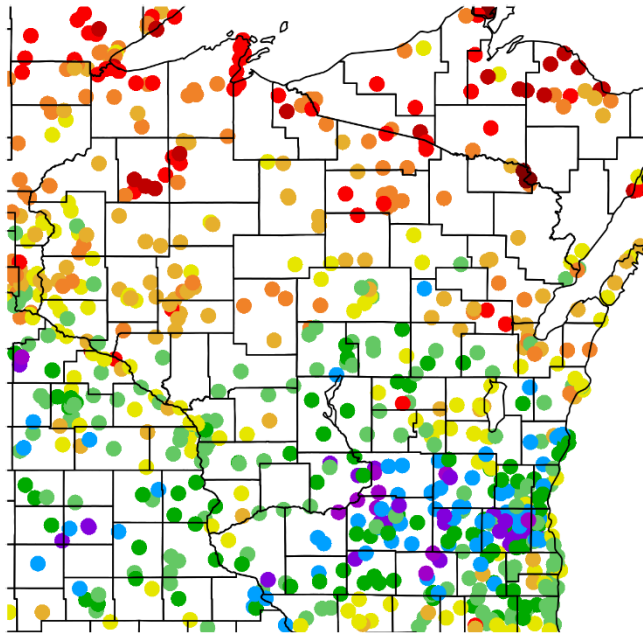
90 Day Precip Total/% Avg.



- **Over 2 feet** of precip accumulated just north of Madison, with **18+”** common in the W, C, and S counties.
- Lowest totals in the Milwaukee area and far northern counties → **<14”** common.
- Majority of stations are at **130% or more** of normal; closer to **100%** near Milwaukee and far north.

2024 Precipitation (so far)

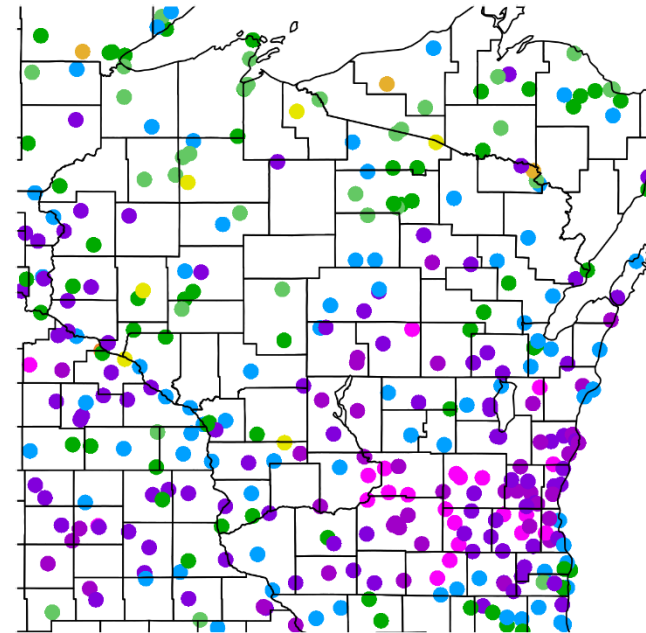
Precipitation (in)
1/1/2024 - 7/8/2024



Generated 7/9/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)
1/1/2024 - 7/5/2024



Generated 7/6/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>

Soil Moisture Models

- **80th percentile or greater** for soil moisture conditions across the state with most receiving higher-than-normal rainfall since early June.
- **95th-98th percentile** for many in the southern 2/3rd of the state, having received **150-300+%** of normal precip over the past 7 days.

Model Notes:

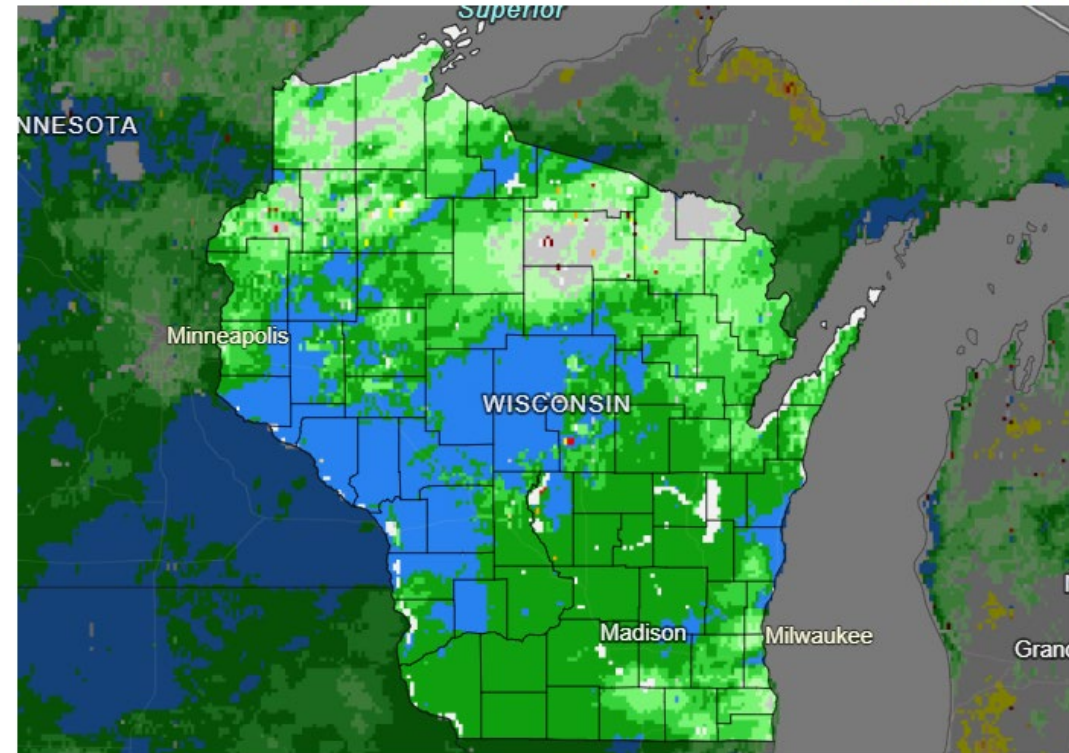
Red areas = top 5 driest in 100 years.

Dark red areas = top 2 driest in 100 years.

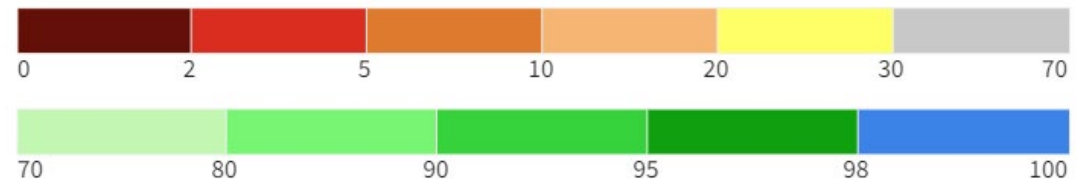
It's worth noting that each soil moisture model has their own characteristics and input variables, so there tends to be variation between models. Thus, it's worthwhile to look at multiple models opposed to just one.

https://weather.msfc.nasa.gov/sport/case_studies/lis_CONUS.html
<https://www.drought.gov/states/wisconsin>

0-100 cm Soil Moisture Percentile



0-100 cm Soil Moisture Percentile

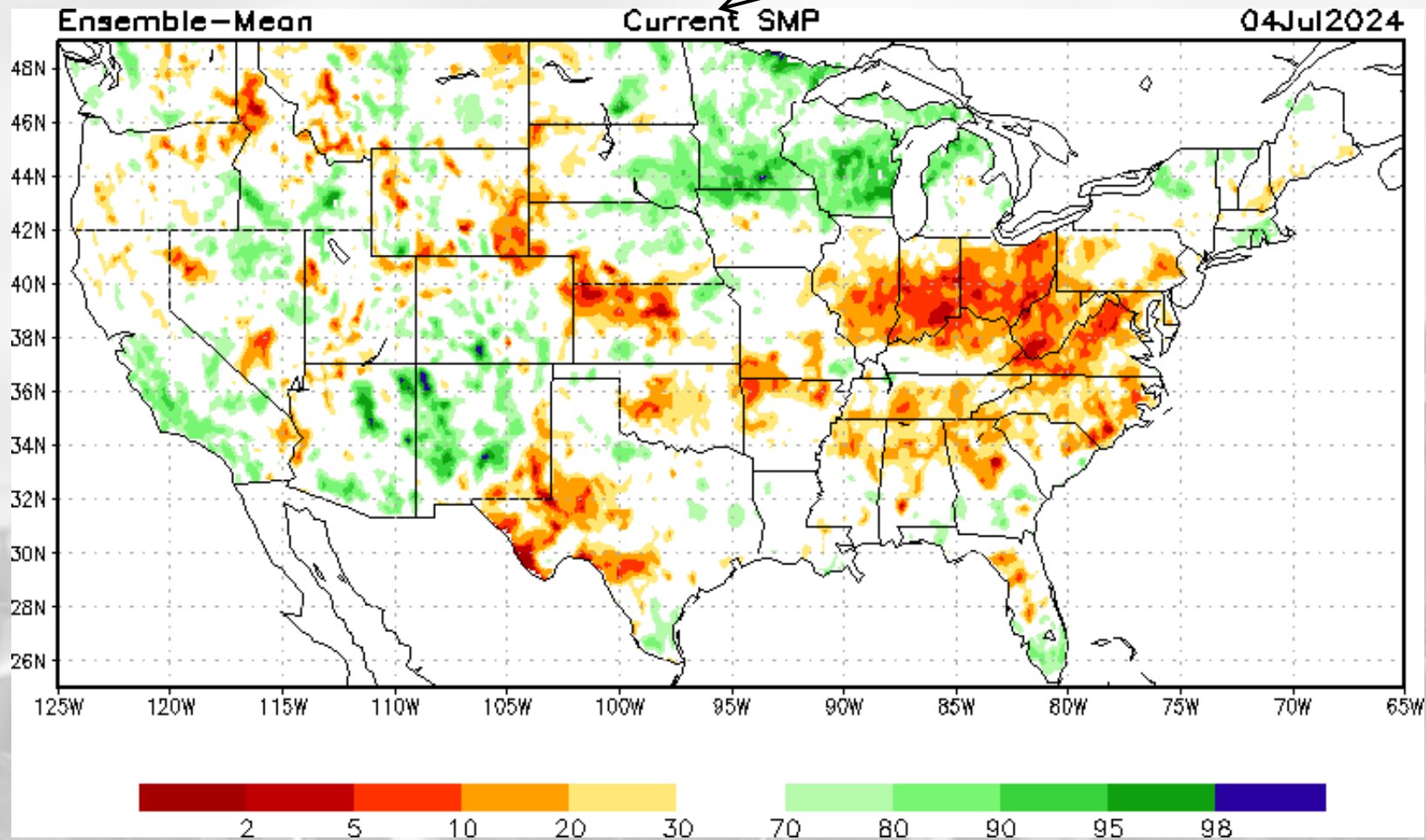


Source(s): NASA
Data Valid: 07/09/24

Drought.gov

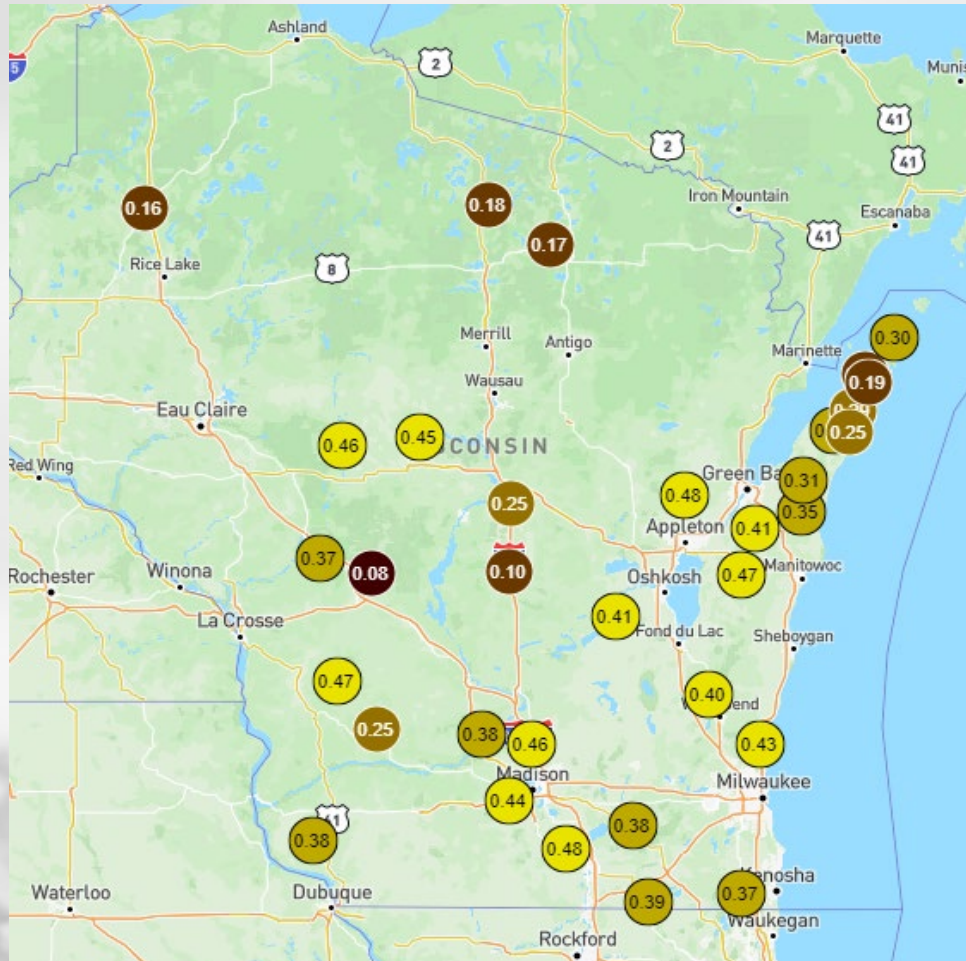
Soil Moisture Models

NOTE: this map displays the soil moisture percentile for July 4. It was the most recent update on July 9.

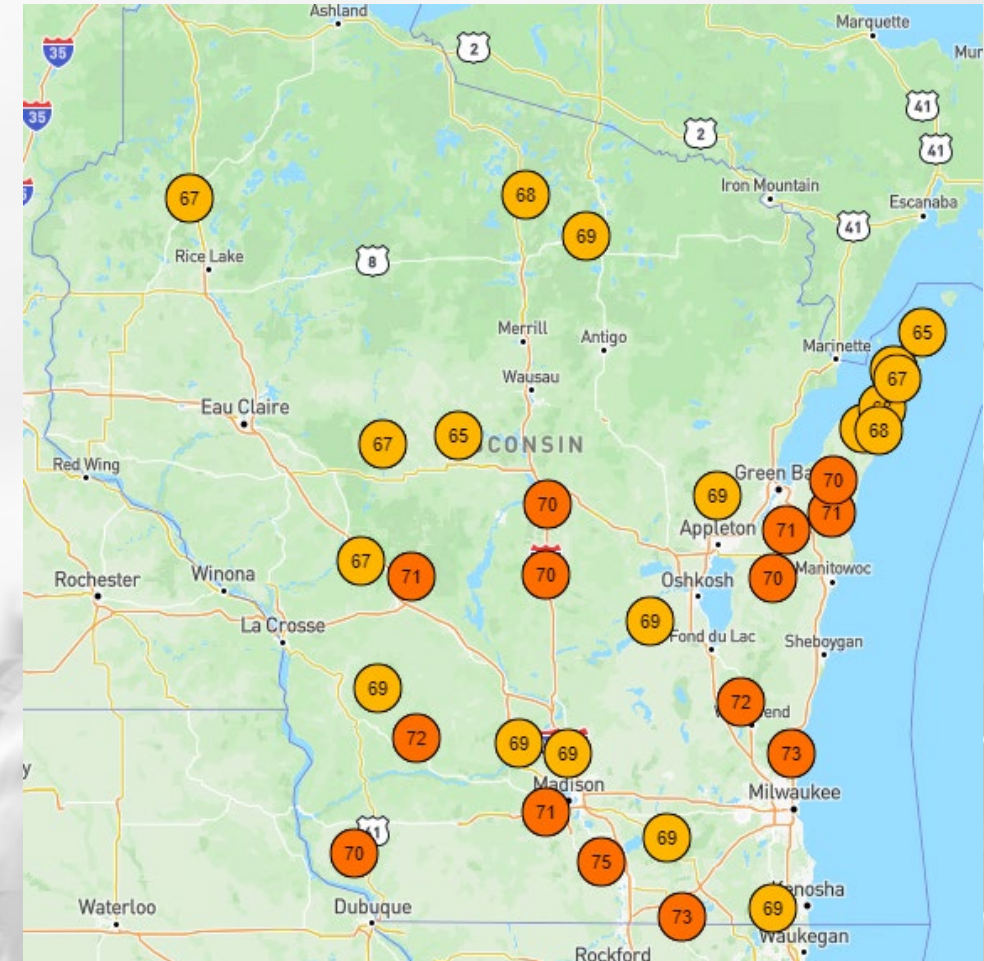


https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp_new.shtml

Wisconet Soil Moisture & Temp (4" Depth)

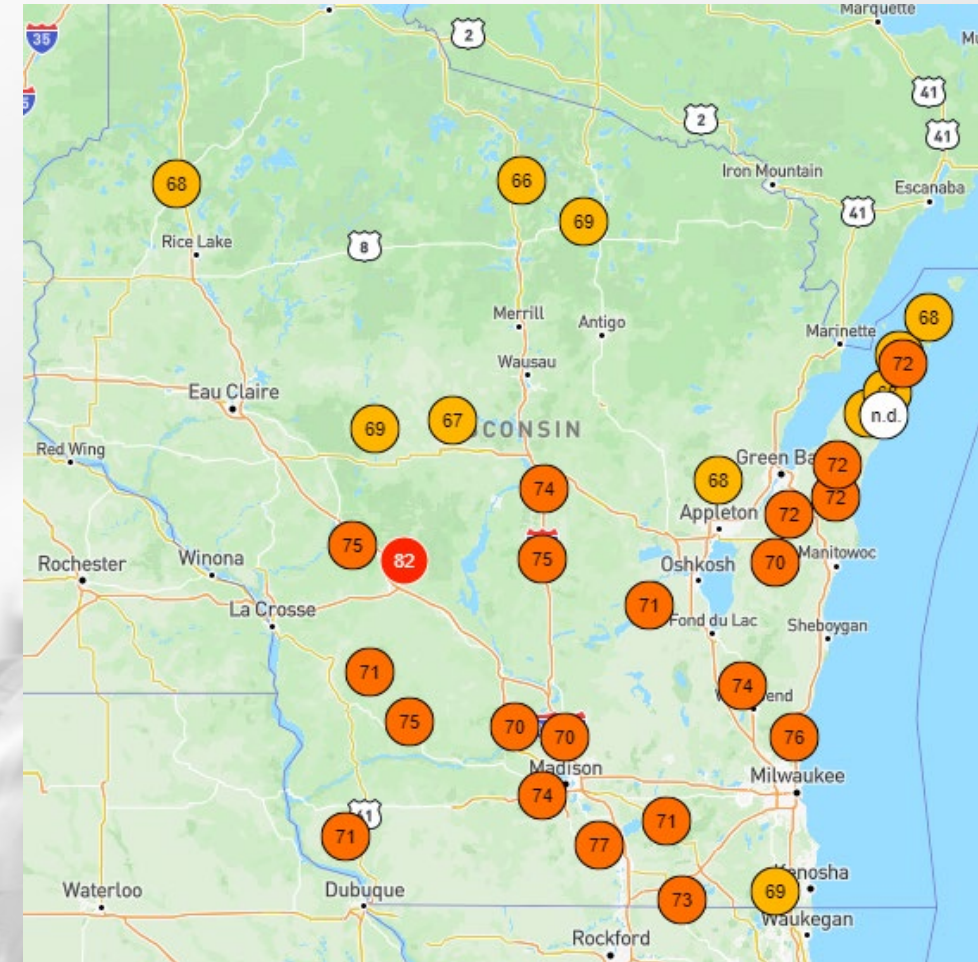
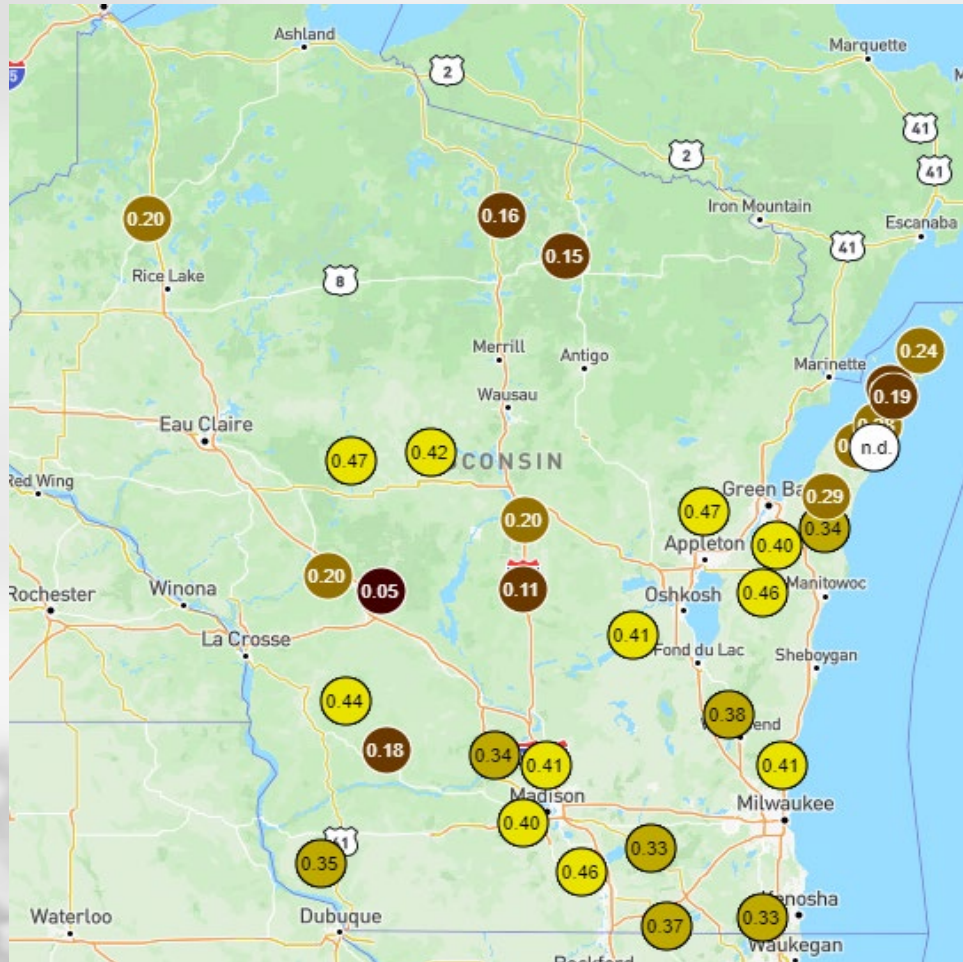


Friday, July 5th @ Midday



Wisconet Soil Moisture & Temp (4" Depth)

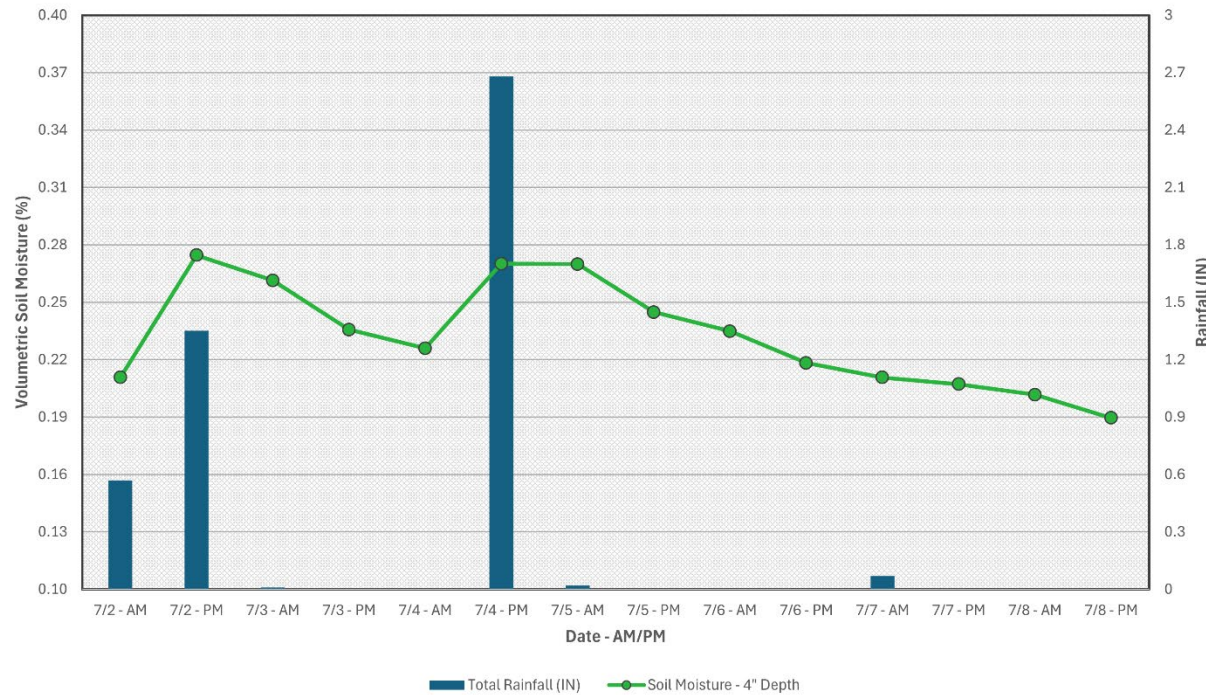
Tuesday, July 9th @ Midday



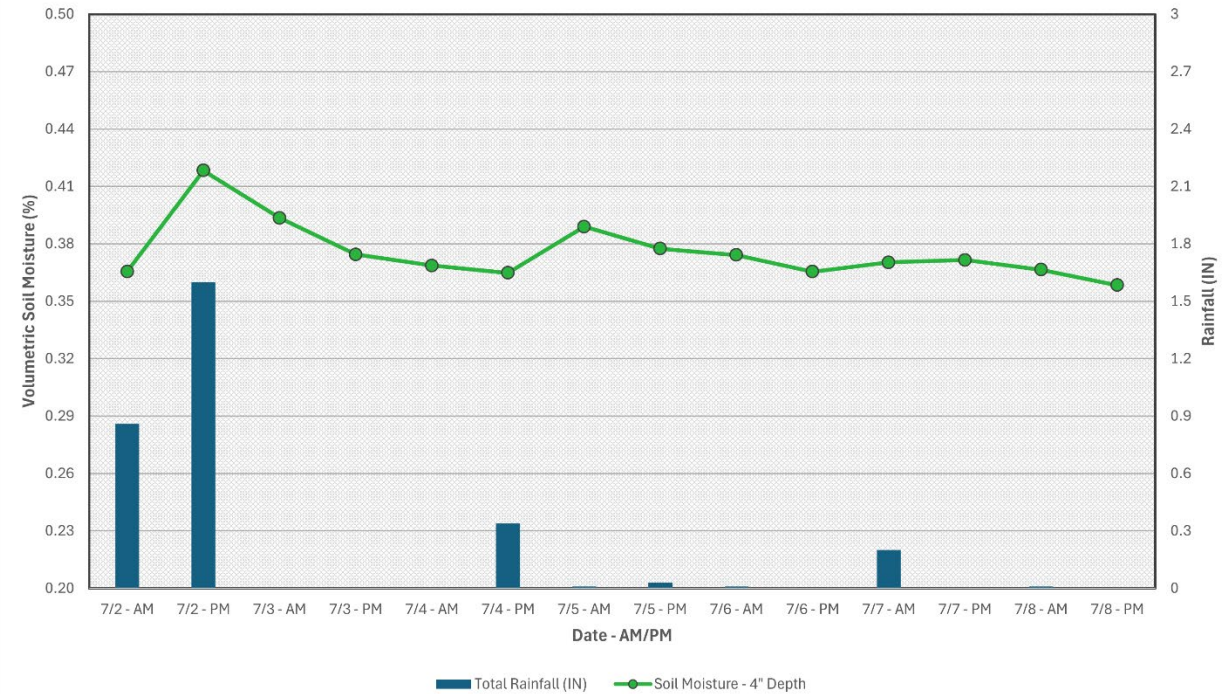
Wisconet Soil Moisture – 4" Depth

Soil moisture time series at select Wisconet stations

Rain & Soil Moisture - Richland Center, WI (RCHD)

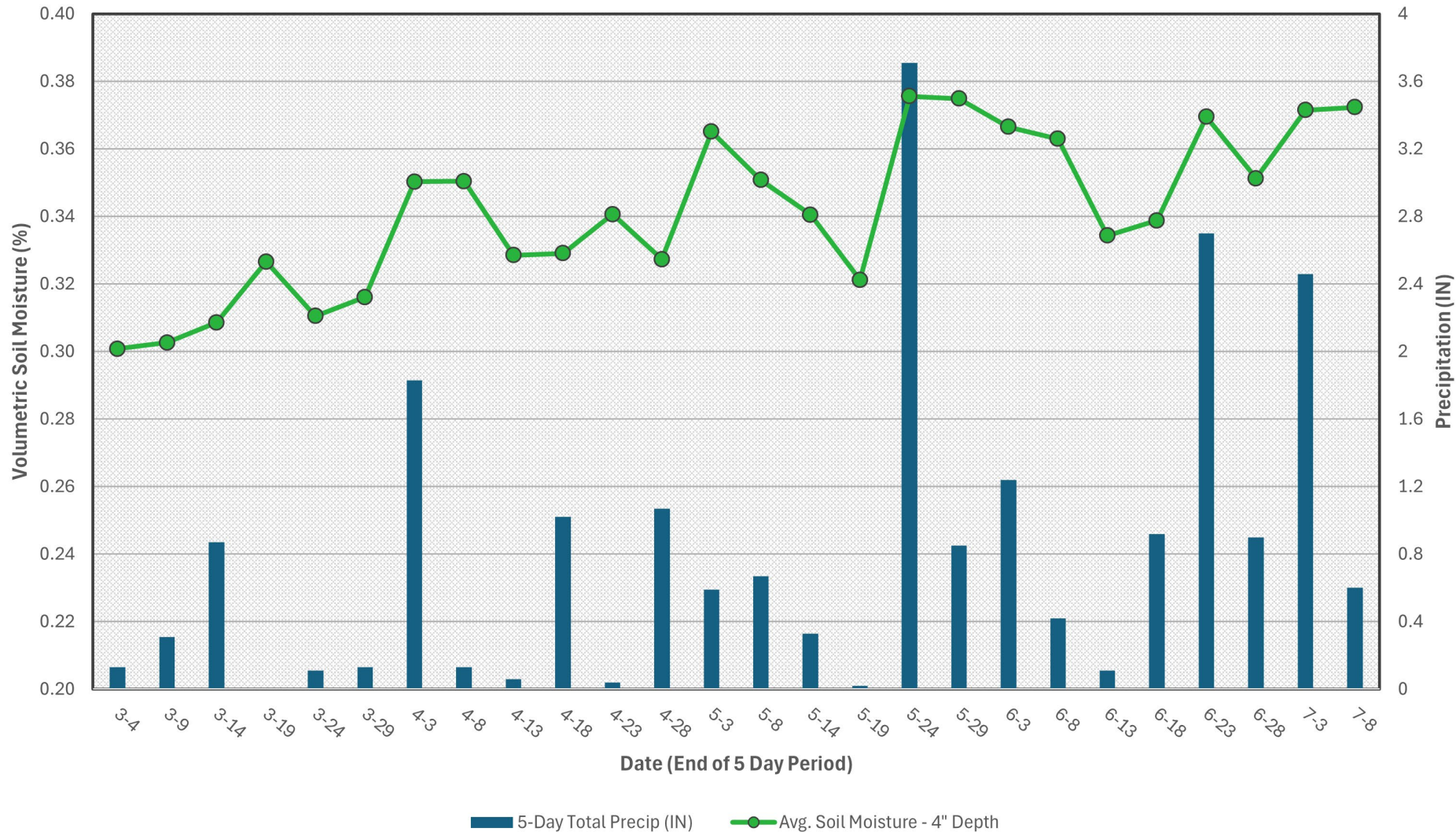


Rain & Soil Moisture - Lancaster, WI (LNCT)



Long-Term Rain/Soil Moisture Trend

Rain & Soil Moisture - Lancaster, WI (LNCT)



This chart displays the 5-day average soil moisture and total precipitation since early spring for the Lancaster Wisconet station.

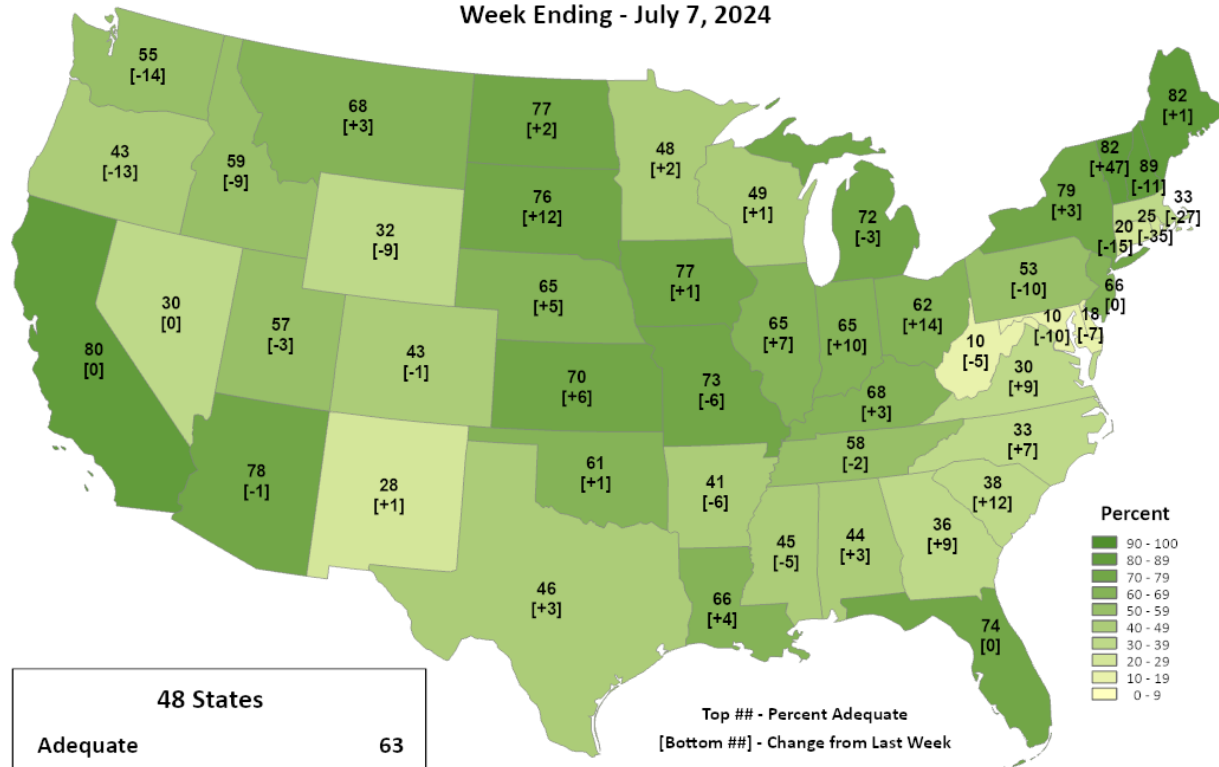
NOTE: There has been a **statistically significant increase** in 4" soil moisture at Lancaster since early March.

NASS Topsoil & Subsoil Moisture



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Topsoil Moisture Percent Adequate Week Ending - July 7, 2024



| | |
|------------------------------|-----------|
| 48 States | |
| Adequate | 63 |
| Change from Last Week | +3 |

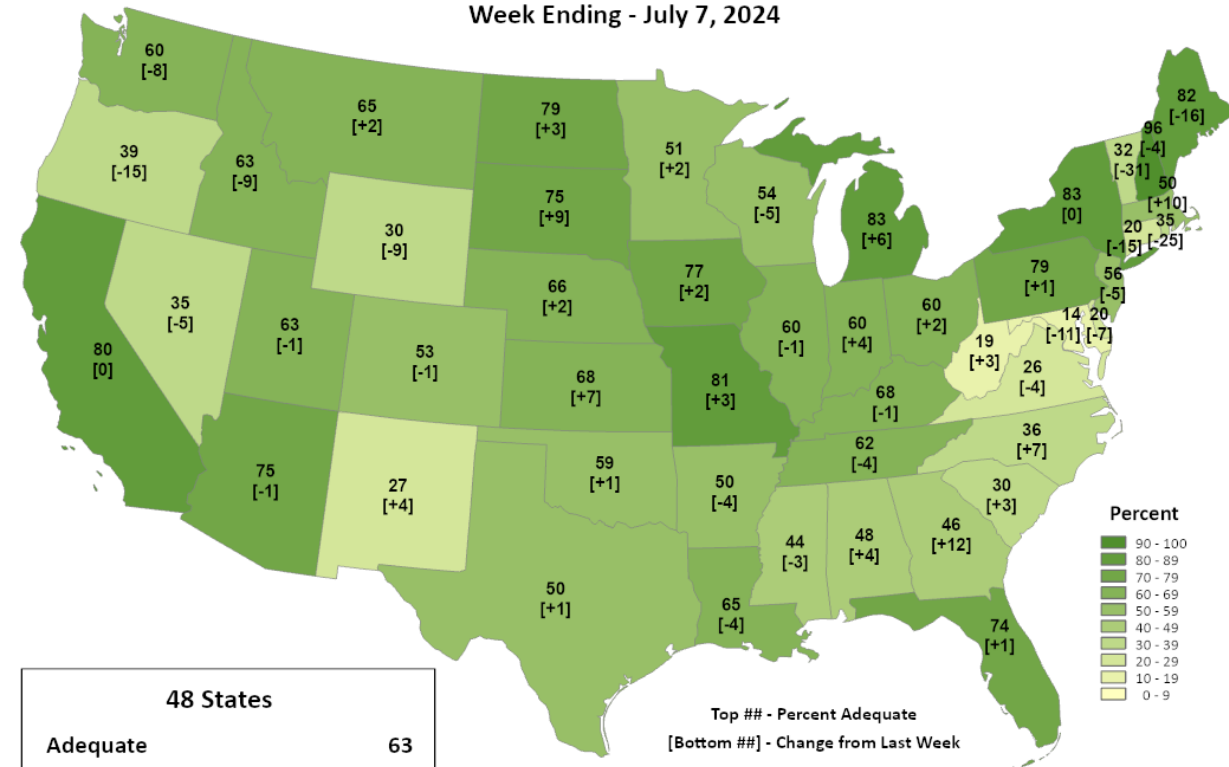
Top ## - Percent Adequate
[Bottom ##] - Change from Last Week

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Subsoil Moisture Percent Adequate Week Ending - July 7, 2024



| | |
|------------------------------|-----------|
| 48 States | |
| Adequate | 63 |
| Change from Last Week | +2 |

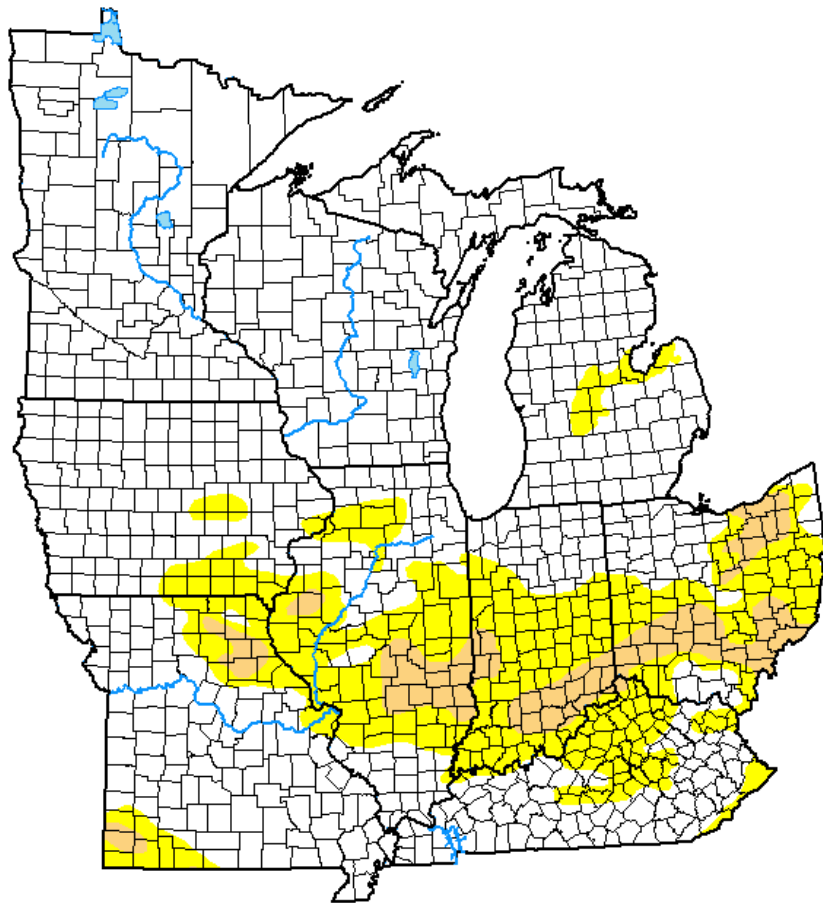
Top ## - Percent Adequate
[Bottom ##] - Change from Last Week

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

<https://agindrought.unl.edu/Other.aspx>

US Drought Monitor

U.S. Drought Monitor Midwest



July 2, 2024

(Released Wednesday, Jul. 3, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|-------|-------|-------|-------|-------|------|
| Current | 75.12 | 24.88 | 5.61 | 0.00 | 0.00 | 0.00 |
| Last Week 06-25-2024 | 72.88 | 27.12 | 3.86 | 0.00 | 0.00 | 0.00 |
| 3 Months Ago 04-02-2024 | 37.95 | 62.05 | 27.97 | 7.12 | 1.30 | 0.00 |
| Start of Calendar Year 01-02-2024 | 22.92 | 77.08 | 50.25 | 20.76 | 4.20 | 0.00 |
| Start of Water Year 09-26-2023 | 16.82 | 83.18 | 54.98 | 23.81 | 6.21 | 0.13 |
| One Year Ago 07-04-2023 | 12.20 | 87.80 | 63.54 | 24.88 | 4.27 | 0.00 |

Intensity:

| | |
|---------------------|------------------------|
| None | D2 Severe Drought |
| D0 Abnormally Dry | D3 Extreme Drought |
| D1 Moderate Drought | D4 Exceptional Drought |

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Adam Hartman
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

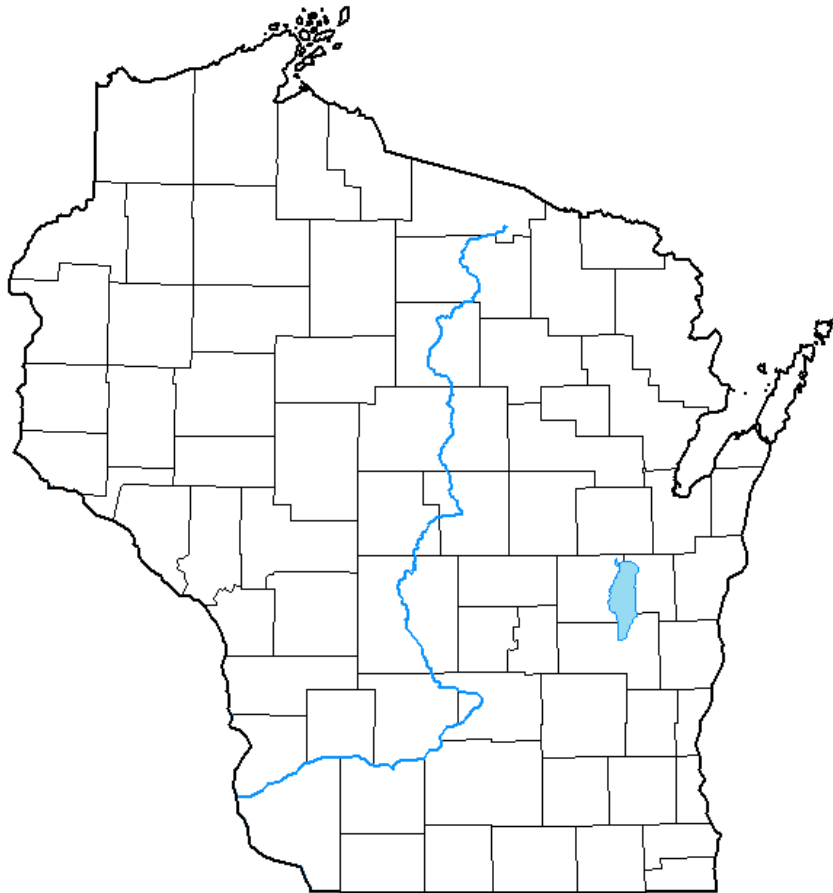
- Compared to last week:
 - Slight increases in D1 coverage area from NE MO across central IL to the Ohio Valley.
- **5.6%** of the Midwest is categorized in D1 (moderate) drought.
- **25%** of the Midwest is in D0 (abnormally dry) conditions, down from **27%** last week.

Note: D0 is not considered drought.

<http://droughtmonitor.unl.edu/>

US Drought Monitor

U.S. Drought Monitor Wisconsin



July 2, 2024

(Released Wednesday, Jul. 3, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|--------|--------|-------|-------|-------|------|
| Current | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Last Week 06-25-2024 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 Months Ago 04-02-2024 | 13.90 | 86.10 | 31.55 | 5.99 | 0.00 | 0.00 |
| Start of Calendar Year 01-02-2024 | 33.04 | 66.96 | 37.34 | 16.80 | 0.26 | 0.00 |
| Start of Water Year 09-26-2023 | 2.04 | 97.96 | 80.86 | 37.74 | 6.77 | 0.00 |
| One Year Ago 07-04-2023 | 0.00 | 100.00 | 92.75 | 27.36 | 2.74 | 0.00 |

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Adam Hartman
NOAA/NWS/NCEP/CPC



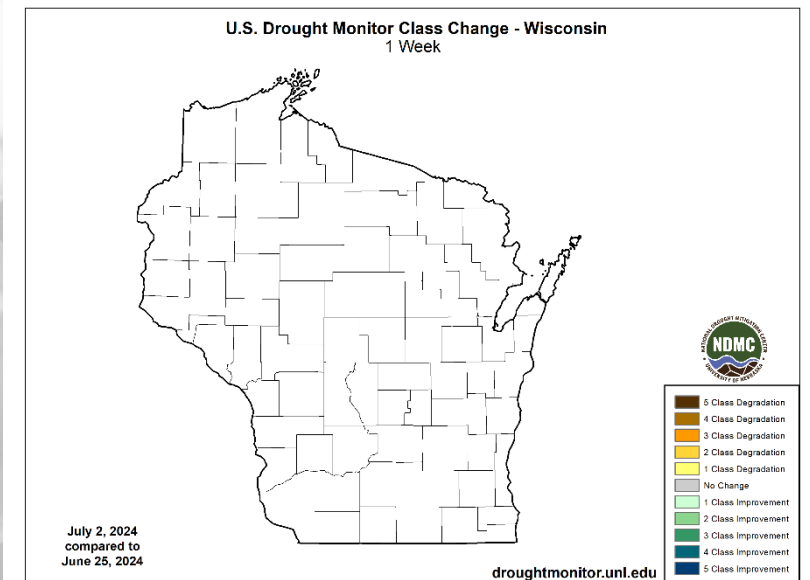
droughtmonitor.unl.edu

<http://droughtmonitor.unl.edu/>

Amount of state in:

- D1-D4 – 0.0% --
- D2-D4 – 0.0% --
- D3-D4 – 0.0% --
- D4 – 0.0% --

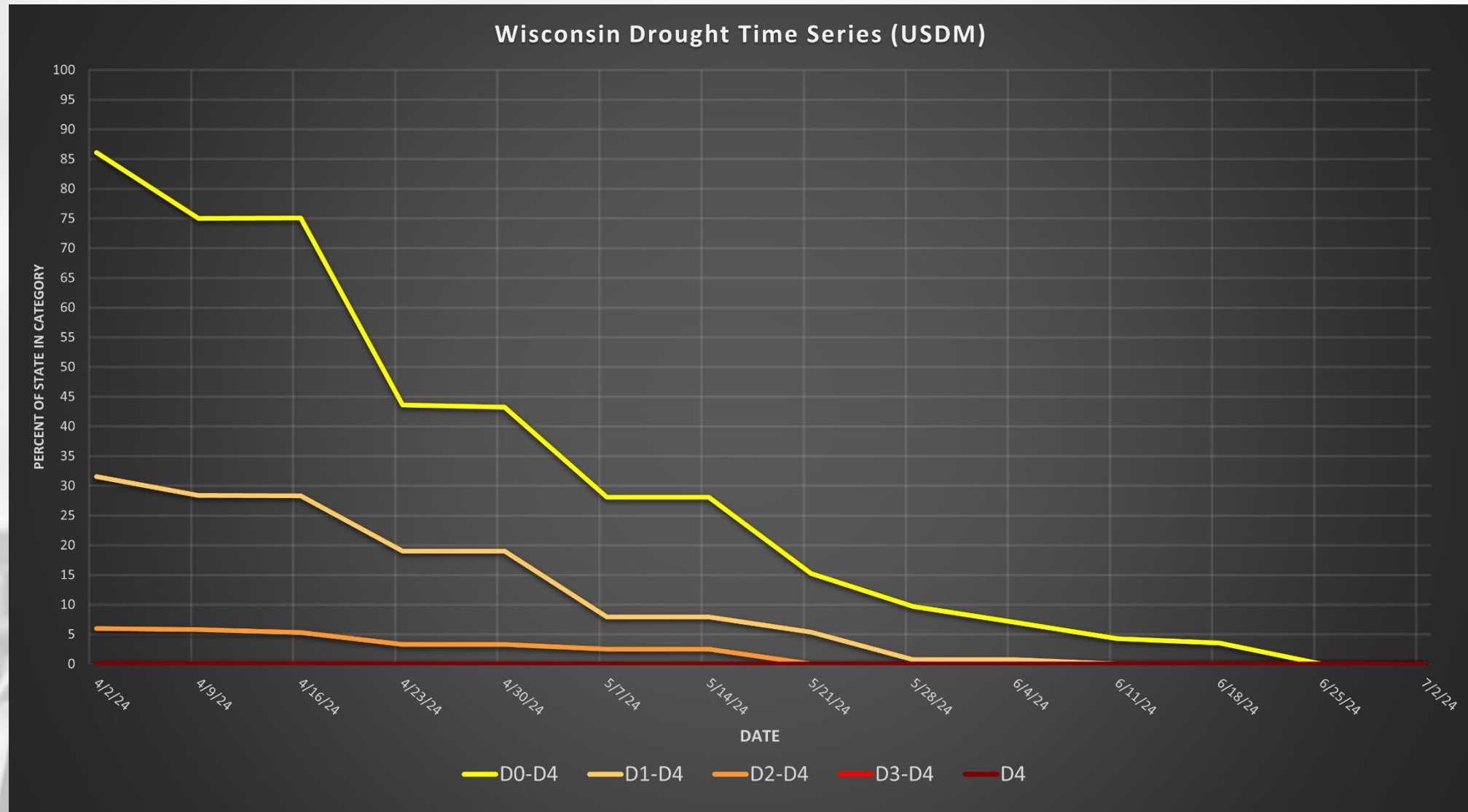
Note: ↑↓ indicate change from last week. Red up arrows indicate increase in drought area; vice-versa for green arrows.



July 2, 2024
compared to
June 25, 2024

droughtmonitor.unl.edu

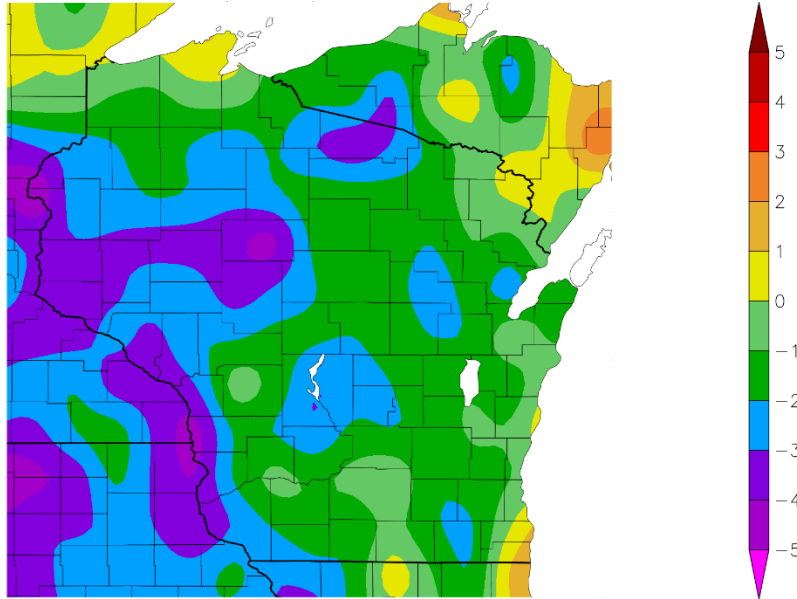
USDM Time Series



<http://droughtmonitor.unl.edu/>

7 Day Temperatures

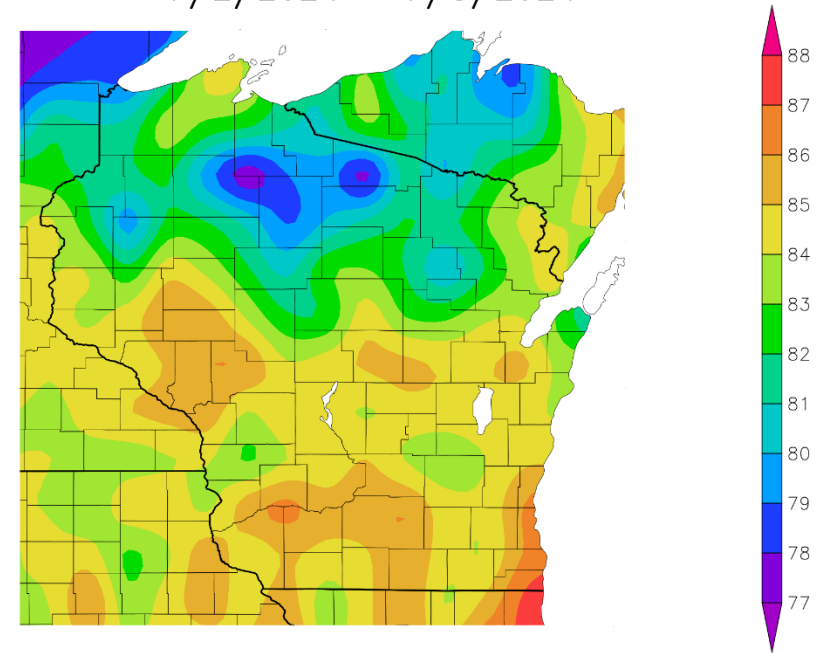
Departure from Normal Temperature (F)
7/2/2024 – 7/8/2024



Generated 7/9/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Highest 1-Day Maximum Temperature (F)
7/2/2024 – 7/8/2024



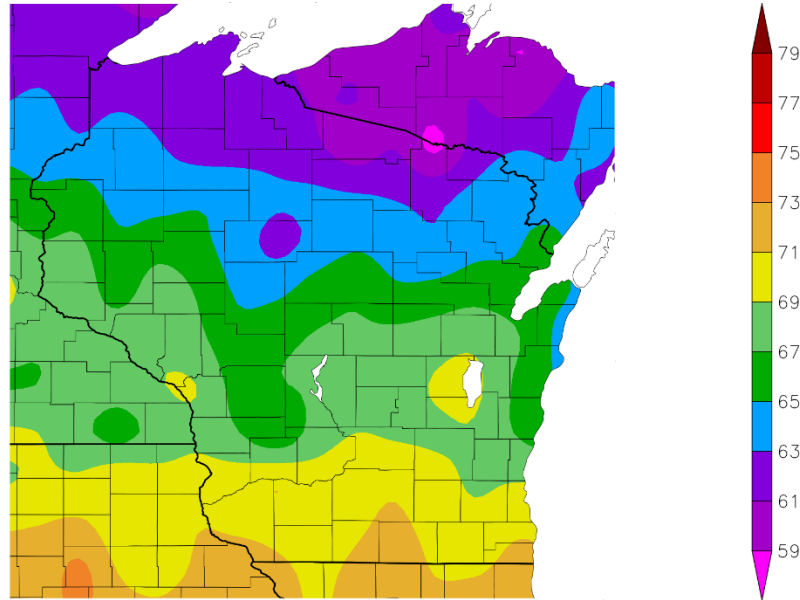
Generated 7/9/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

- Last week was cooler than average across the state, with many being **1-3°F below normal**.
- Coolest in the west and northwest → **3-5°F below normal**.
- Weekly maximum temps reached the **mid to upper 80's** for the southern 2/3rd of WI.

30 Day Temperatures

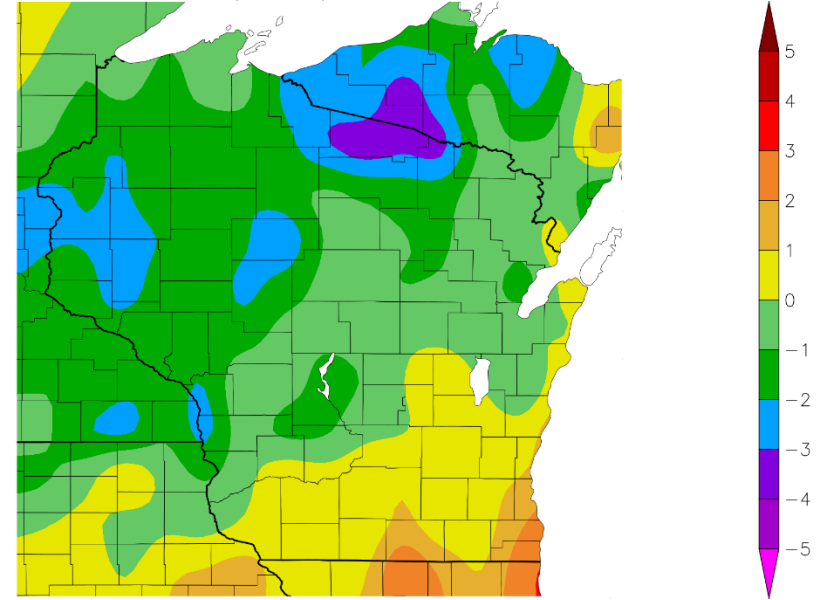
Temperature (F)
6/9/2024 – 7/8/2024



Generated 7/9/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Temperature (F)
6/9/2024 – 7/8/2024



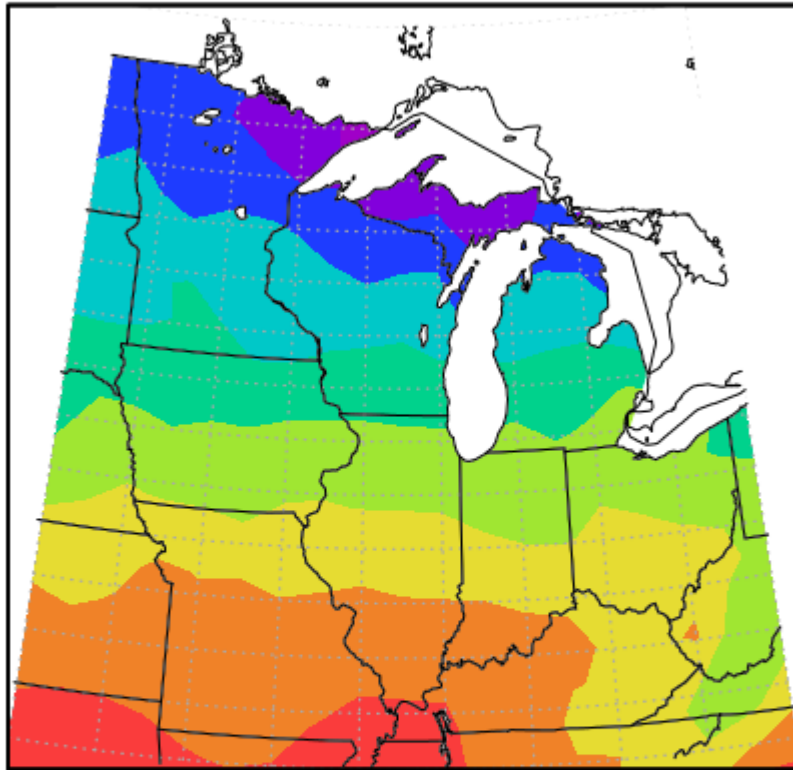
Generated 7/9/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

- Temperatures for the past month ranged from **69-73°F** in the S & W to **59-63°F** in the far N.
 - **1-3°F** below the climatological average was common across the Mississippi River, NW, and far north.
 - **Slightly above normal** in the S and E; **1-3°F** above normal in the SE counties closer to IL.

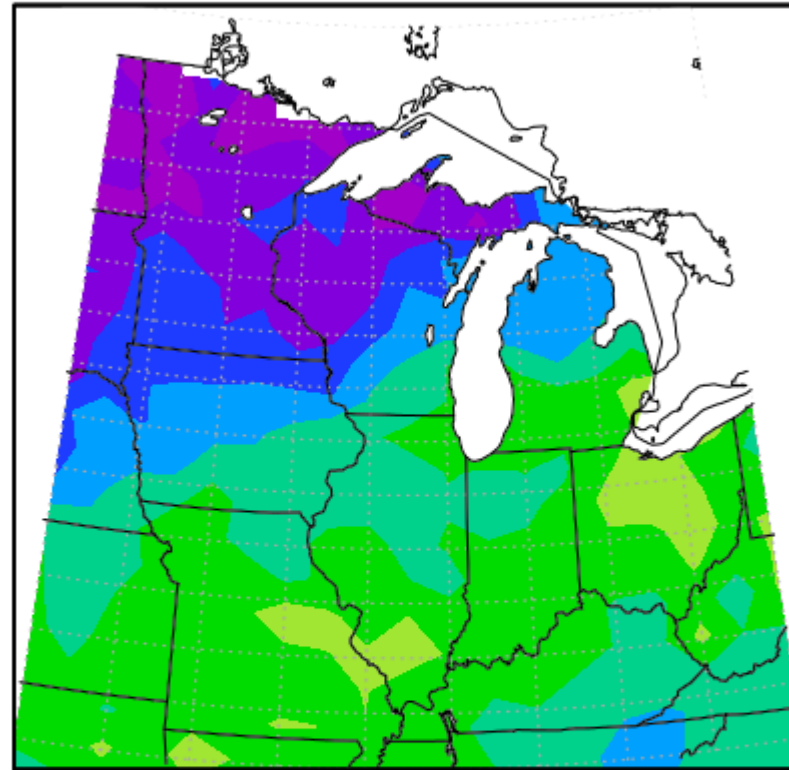
Growing Degree Days (Base = 50°F; Since April 1)

Total MGDD from 4/1/2024 to 7/8/2024



Midwestern Regional Climate Center
Purdue University

MGDD Departure, 4/1/2024 to 7/8/2024



Midwestern Regional Climate Center
Purdue University
Normals Period, 1991-2020

- **1200-1400** GDD in the S to **800-1000** GDD in the N.
- SE WI is 100-150 GDD further **ahead of the average**; within ± 50 of average in the W/NW and far north.

To calculate GDD for your corn variety and planting date, use this [tool](#).

To see specific degree models for pests in your location, use the [Vegetable Disease & Insect Forecasting Network](#).

https://mrcc.purdue.edu/climate_watch

NASS Crop Progress – Corn

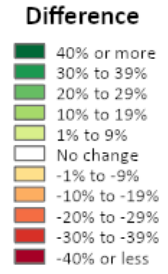
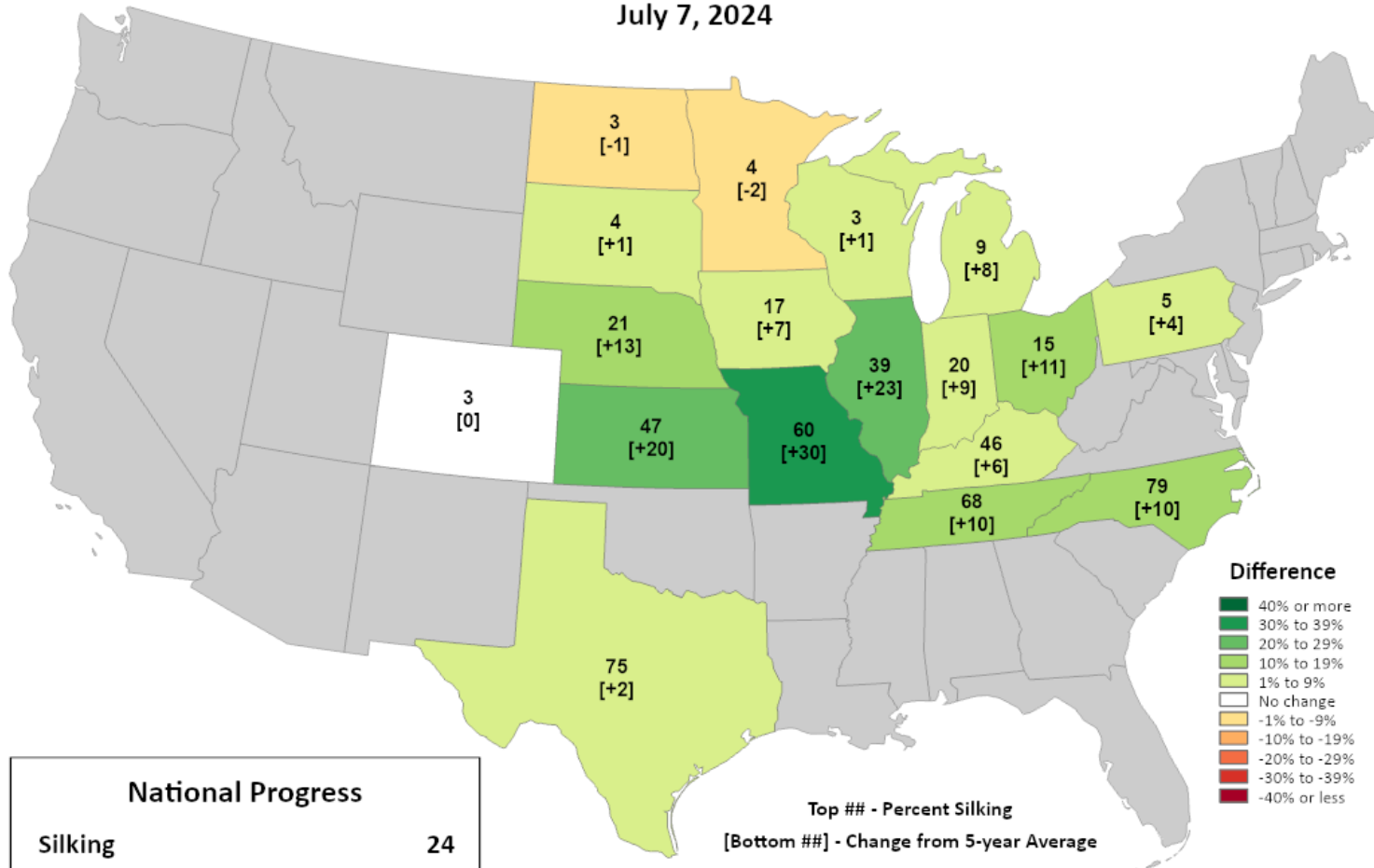


This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Corn Progress

Percent Silking

July 7, 2024



| National Progress | |
|----------------------------|-----|
| Silking | 24 |
| Change from 5-year Average | +10 |

Top ## - Percent Silking
[Bottom ##] - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

- Silking has been reported in some fields in WI this week. Silking is **ahead of normal pace** in states to the south.
- In WI, silking is **3% complete**. 1% ahead of the 5-year average pace.

NASS Crop Progress – Soybean

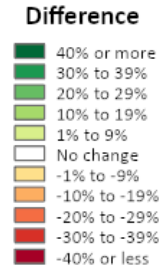
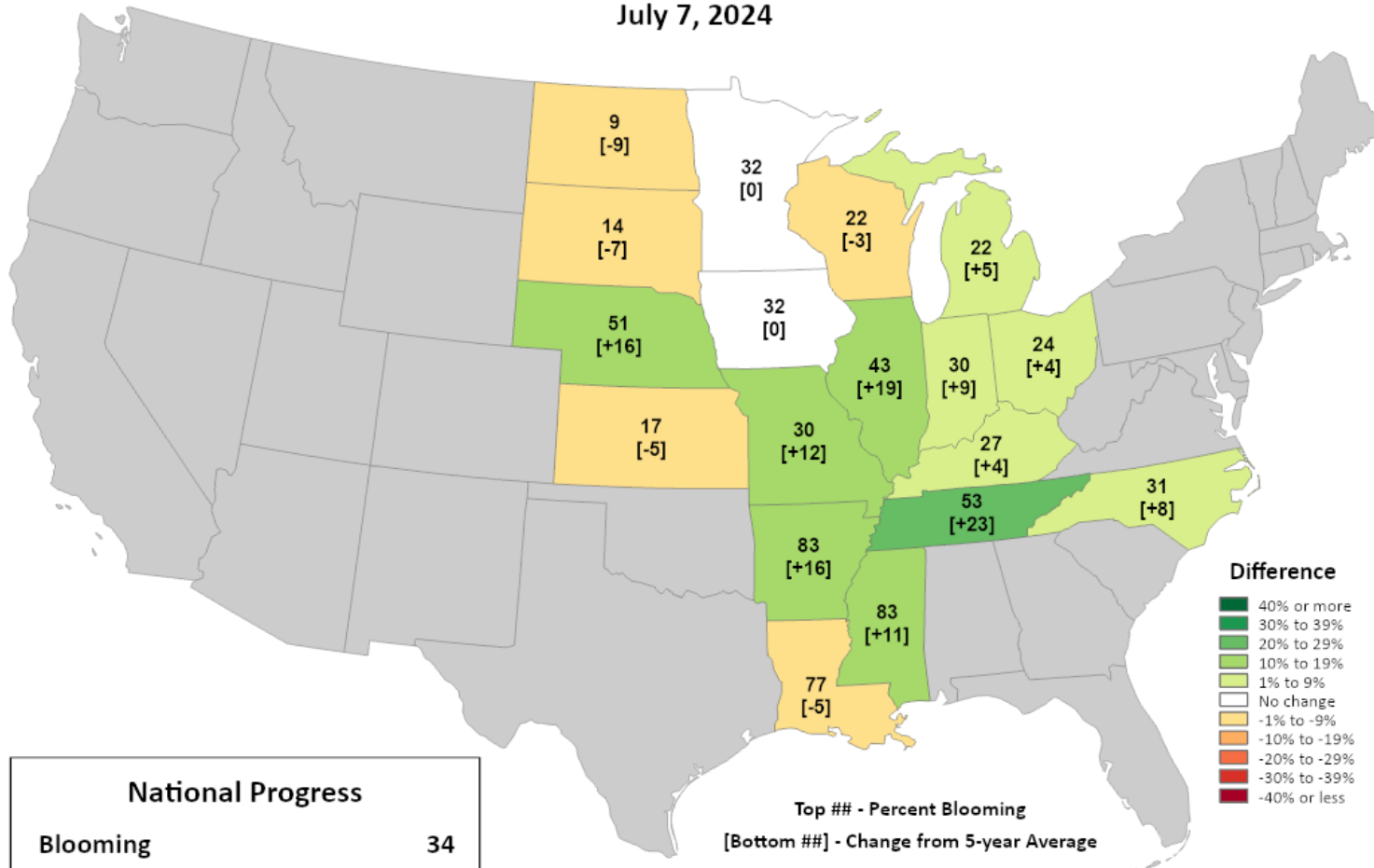


This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Soybeans Progress

Percent Blooming

July 7, 2024



| National Progress | |
|----------------------------|----|
| Blooming | 34 |
| Change from 5-year Average | +6 |

Top ## - Percent Blooming
[Bottom ##] - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

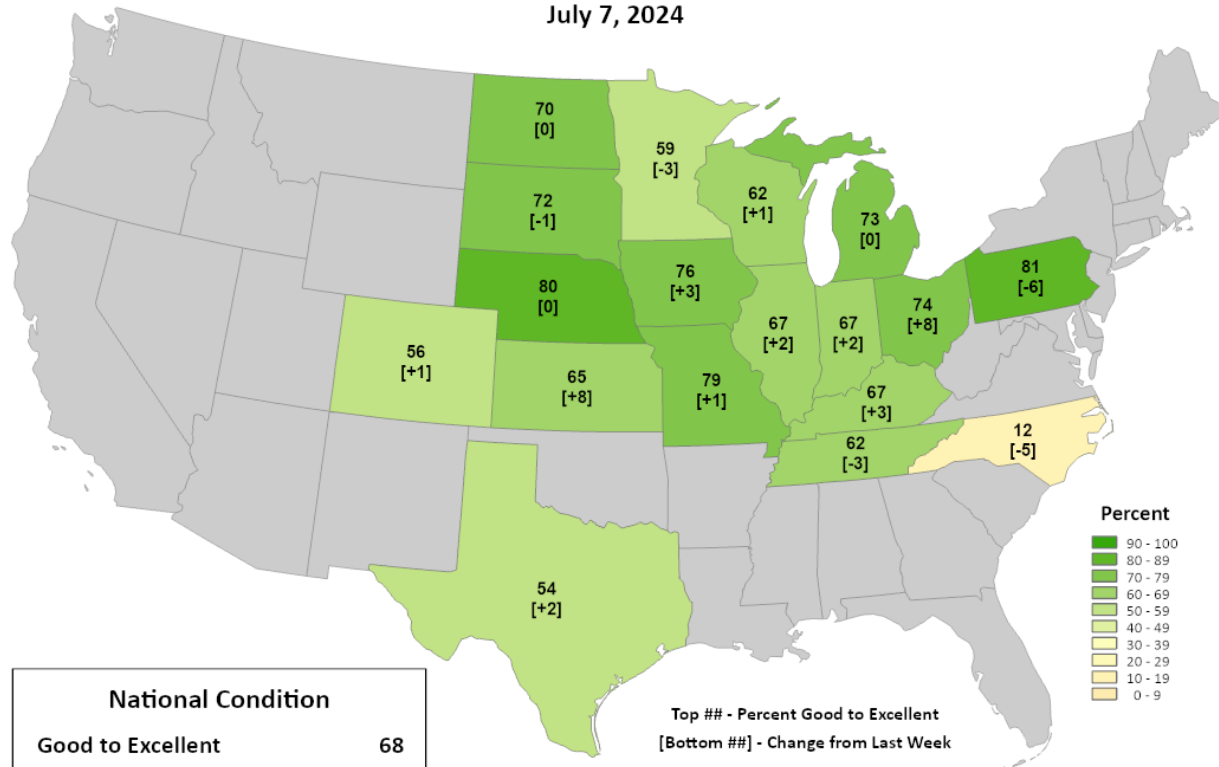
- Soybeans have begun to bloom across the Midwest. Blooming is running **ahead of normal** the to S and E of WI.
 - In WI, blooming is **22% complete**. 3% behind of the 5-year average pace & **11% increase** from last week.

NASS Crop Condition



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Corn Conditions Percent Good to Excellent July 7, 2024



| National Condition | |
|-----------------------|----|
| Good to Excellent | 68 |
| Change from Last Week | +1 |

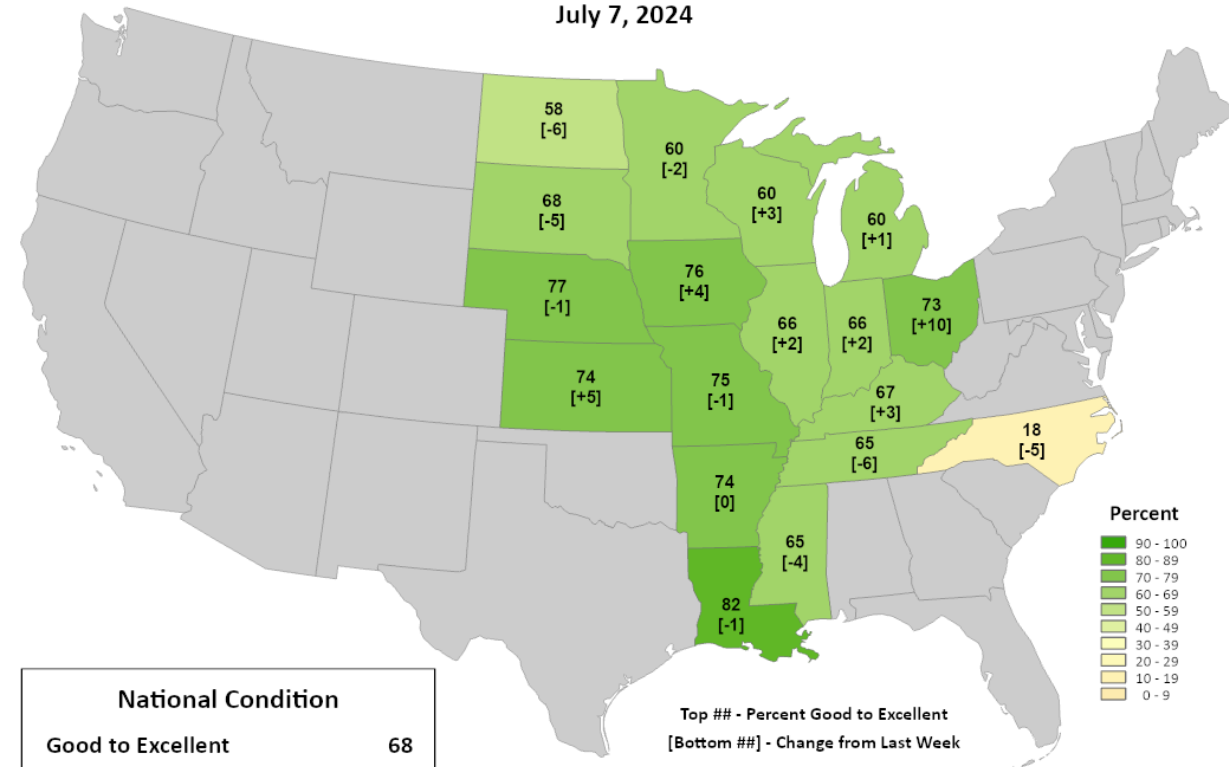
Top ## - Percent Good to Excellent
[Bottom ##] - Change from Last Week

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Soybean Conditions Percent Good to Excellent July 7, 2024



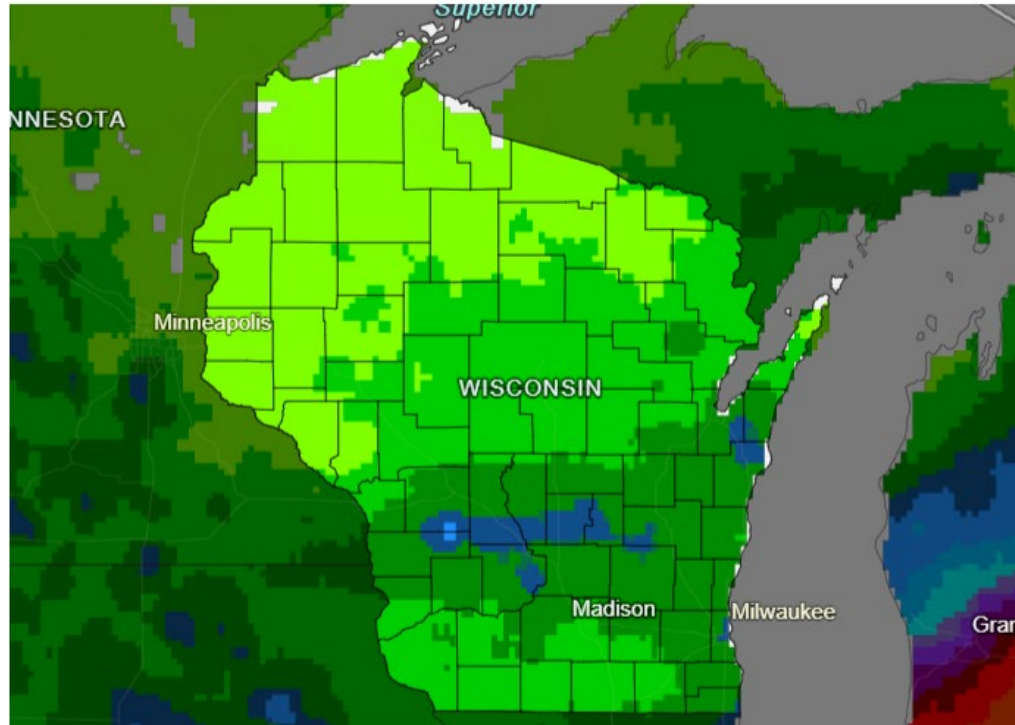
| National Condition | |
|-----------------------|----|
| Good to Excellent | 68 |
| Change from Last Week | +1 |

Top ## - Percent Good to Excellent
[Bottom ##] - Change from Last Week

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

7 Day Precip Forecast

7-Day Quantitative Precipitation Forecast for July 9-16
2024



Predicted Inches of Precipitation



Source(s): National Weather Service Weather Prediction Center
Last Updated: 07/09/24

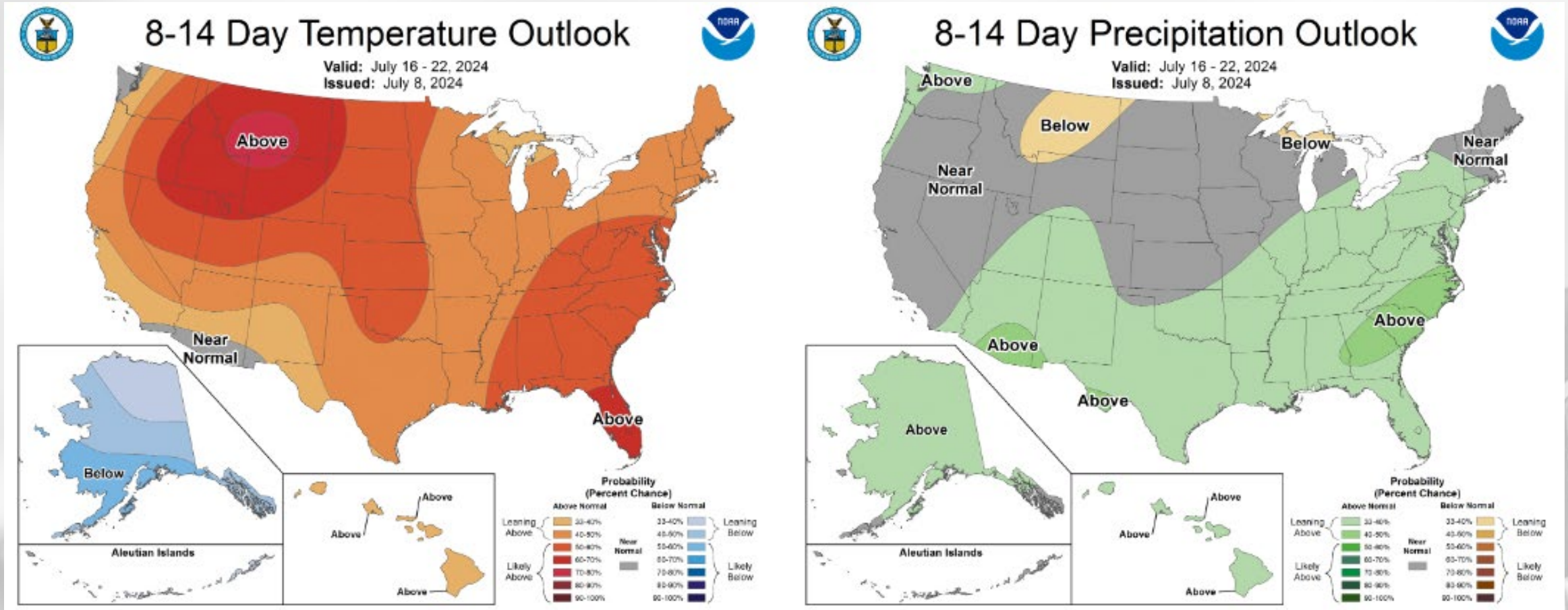
Drought.gov

- A quieter week of rainfall is forecasted for Wisconsin, with most forecasted to receive **<1"**.
- Some in the Driftless and Central Sands could exceed **0.5"** of new rainfall over the next 7 days.

Forecast for 7/9/24 thru 7/16/24
(Begins at 7am CDT)

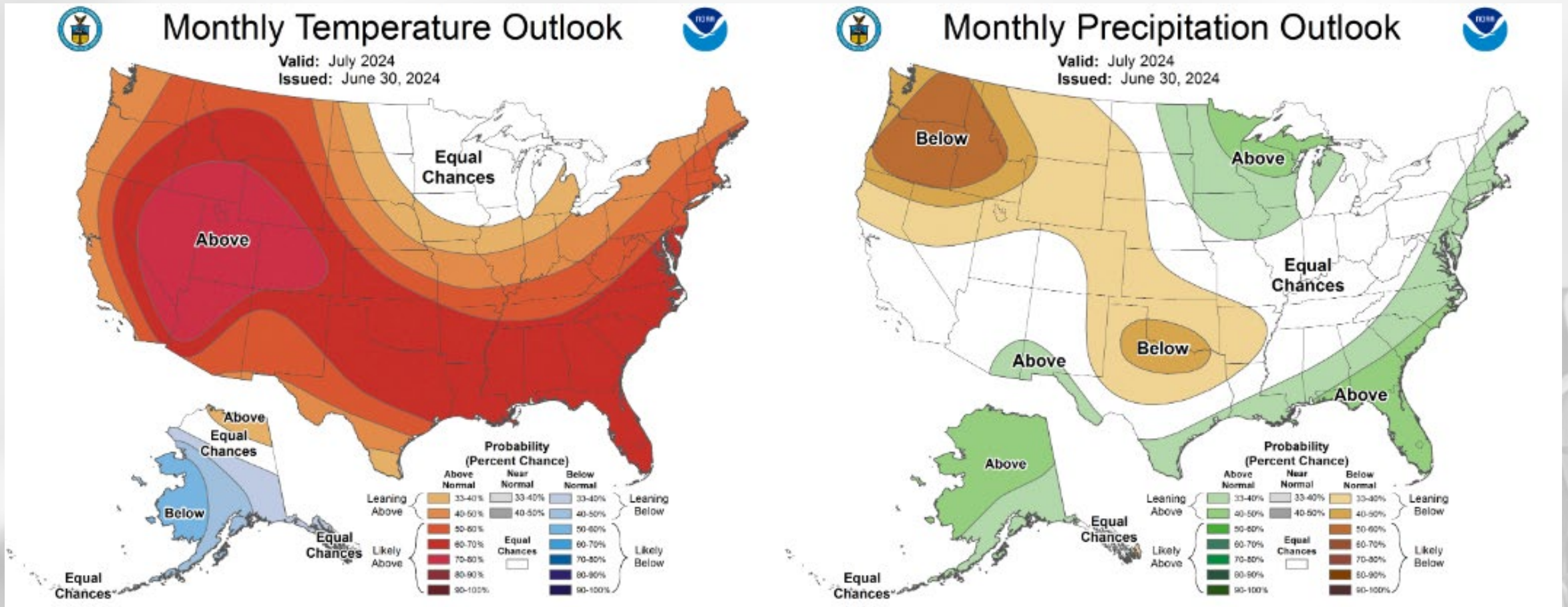
<https://www.wpc.ncep.noaa.gov/qpf/p168i.gif>
<https://www.drought.gov/states/wisconsin>

8-14 Day Temp & Precip Outlook



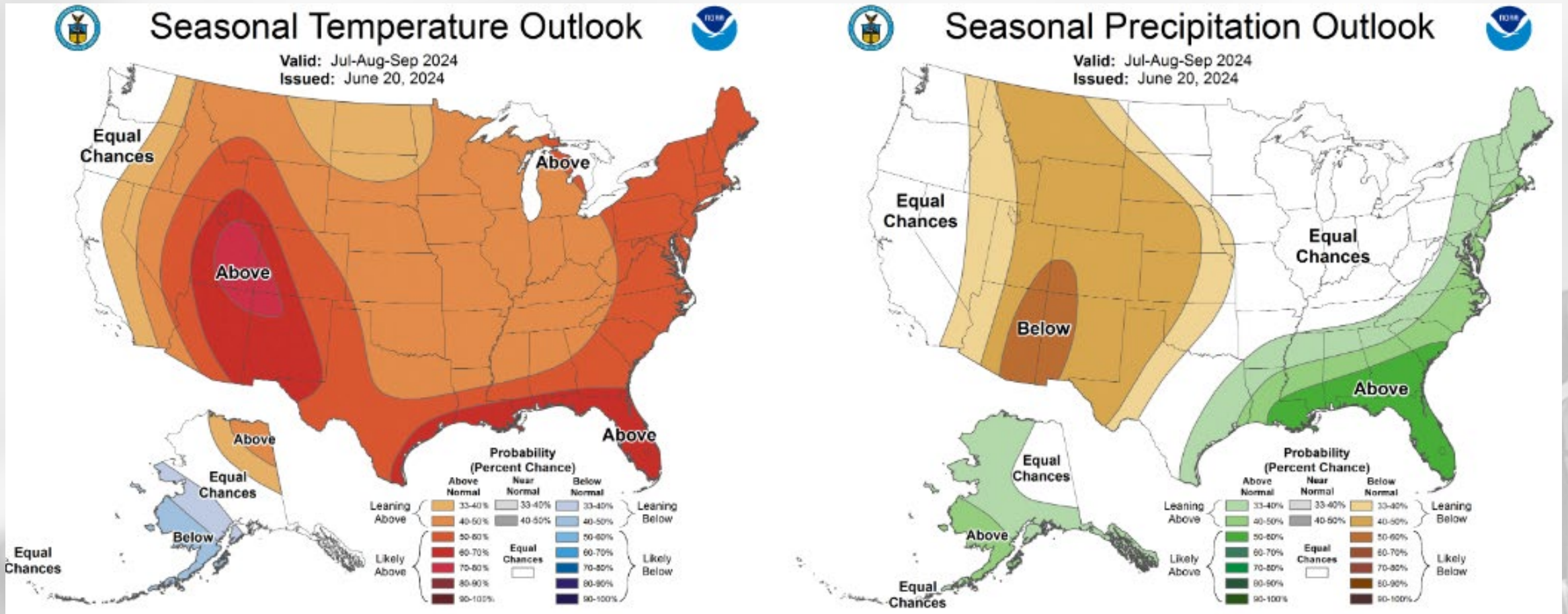
Middle to Late July: Temperatures leaning above normal. Precipitation leaning near normal.

30 Day Temp & Precip Outlook



Month of July: Uncertainty for temperature with equal chances. Precipitation is leaning above normal.

90 Day Temp & Precip Outlook



Remainder of summer: Temperatures leaning towards above normal. Precipitation uncertainty with equal chances.

Take-Home Points

Current conditions:

- An additional **2” or more** of rainfall was observed across southern WI last week, adding to yearly totals that are now **several inches** above normal.
- Temperatures were **cooler than normal** for most last week, especially along the Mississippi up into the NW counties.

Impact:

- Soil moisture levels remain in high percentiles with continued rainfall, with **area rivers in flood stage**.
- There is **no drought** in the state currently, according to the USDM.
- Growing degree days are approaching **1400 (1000)** units in the southern (northern) counties.
- Corn (soybeans) are now **silking (in bloom)**, with slight increases in the amount rated good to excellent for both crops.

Outlook:

- A drier week (**0.5” or less** of precip) is forecasted for most of WI over the next 7 days.
- Higher likelihood to stay **warmer-than-normal** heading into the latter half July, with near-normal precip.
- The warmer-than-normal conditions have a higher probability to **continue** through the summer into early fall with a La Niña pattern taking shape.

Agronomic Considerations

Crop Development

- Soil moisture is adequate or even high in most places. Be cautious about trafficking fields during muddy conditions to avoid rutting. Remember, compaction occurs when soil water content is at, or slightly above, field capacity!
- As we near the end of planting season, consult your crop insurance agent before making decisions regarding prevent plant or replant
 - Cover crops(non-corn) on prevent plant acres may now be harvested as forage at any time during the season
 - See info on [alternative forages](#) and [cover crops](#)
- Hot days mean accumulations of 20+ GDUs per day. Keep on top of your growth stages to time other applications. Growth stages are highly variable around the state so focus on where your crop is at as opposed to blanket time of year recommendations.

Nutrient & Herbicide Applications

- Consider doing tissue testing and pre-sidedress nitrate testing after crop has emerged to assess fertilizer need.
- Consider splitting nutrient applications if possible.
- Consider using urease and nitrification inhibitors to minimize leaching or denitrification.

Manure Applications

- Runoff risk is lower in parts of the state in the next week. Be mindful of the possibility of runoff and plan manure applications accordingly. Check the DATCP runoff risk advisory forecast [here](#).

Pest Management

- Start to monitor for potato leafhopper pressure in alfalfa, additional information on management [here](#).
- Japanese beetle emergence is underway, see [here](#) for management information.
- Take fusarium and DON risk into account when harvesting wheat, more information [here](#).
- As crops near reproductive stages, assess risk of tar spot and white mold, information available [here](#).
- If soybeans have been stressed from moisture, monitor extra closely for disease and insect pressure.

Forage Management

- The wet spring has meant mixed results for new alfalfa seedings. Read more [here](#).
- Ensure wide swaths when mowing alfalfa to increase rate of drying and harvest sooner, reducing risk of rain damage.

User Survey

Are you a regular user of the Wisconsin Ag Climate Outlook (WACO)? Or maybe you are viewing these slides for the first time this week? Either way, we want to hear **your** feedback on this new resource! Please take a few minutes and fill out this survey:

[LINK TO SURVEY](#)

Your feedback will help us better serve your ag-climate data needs through WACO.

If you have any trouble accessing or filling out the survey, please email Josh Bendorf at Joshua.Bendorf@usda.gov.

Thank you!!

-The WACO Team

Citizen Science Opportunity

CoCoRaHS – Community Collaborative Rain, Hail, & Snow Network

The Mission

(From cocorahs.org)

- Provide accurate high-quality precipitation data for end-users;
- Increasing the density of precipitation data available throughout the country;
- Encouraging citizens to have fun participating in meteorological science and heightening their awareness about weather;
- Providing weather education opportunities.



Sign Up Here:

<https://cocorahs.org/Content.aspx?page=application>

Contact Info

Photo Credit: USDA



Natasha Paris

Crops Educator – Adams, Green Lake,
Marquette, Waushara Cos.

natasha.paris@wisc.edu

Kristin Foehringer

NRCS State Working Lands Climate Smart
Specialist

kristin.foehringer@usda.gov

Dennis Todey

Director, Midwest Climate Hub

dennis.todey@usda.gov

Josh Bendorf

Ag Climatologist Fellow, Midwest Climate Hub

joshua.bendorf@usda.gov

Steve Vavrus

State Climatologist of Wisconsin

sjvavrus@wisc.edu

Bridgette Mason

Assistant State Climatologist of Wisconsin

bmmason2@wisc.edu