USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

NRCS
Natural Resources Conservation Service

Wisconsin State Climatology Office
Nelson Institute for Environmental Studies

Extension
University of Wisconsin-Madison

Wisconsin Ag Climate Outlook

Week of October 7, 2024

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Key Points

Navigate to select slides by clicking on the links below.

1) The dry fall that has been going on continued last week, with minimal precip for most of the state.
2) Drought coverage continues to expand in the state with the lack of rainfall, with D2 coverage now in the NE.
3) The remainder of October is looking warmer and drier than normal, with harvest making large strides.

- *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.*

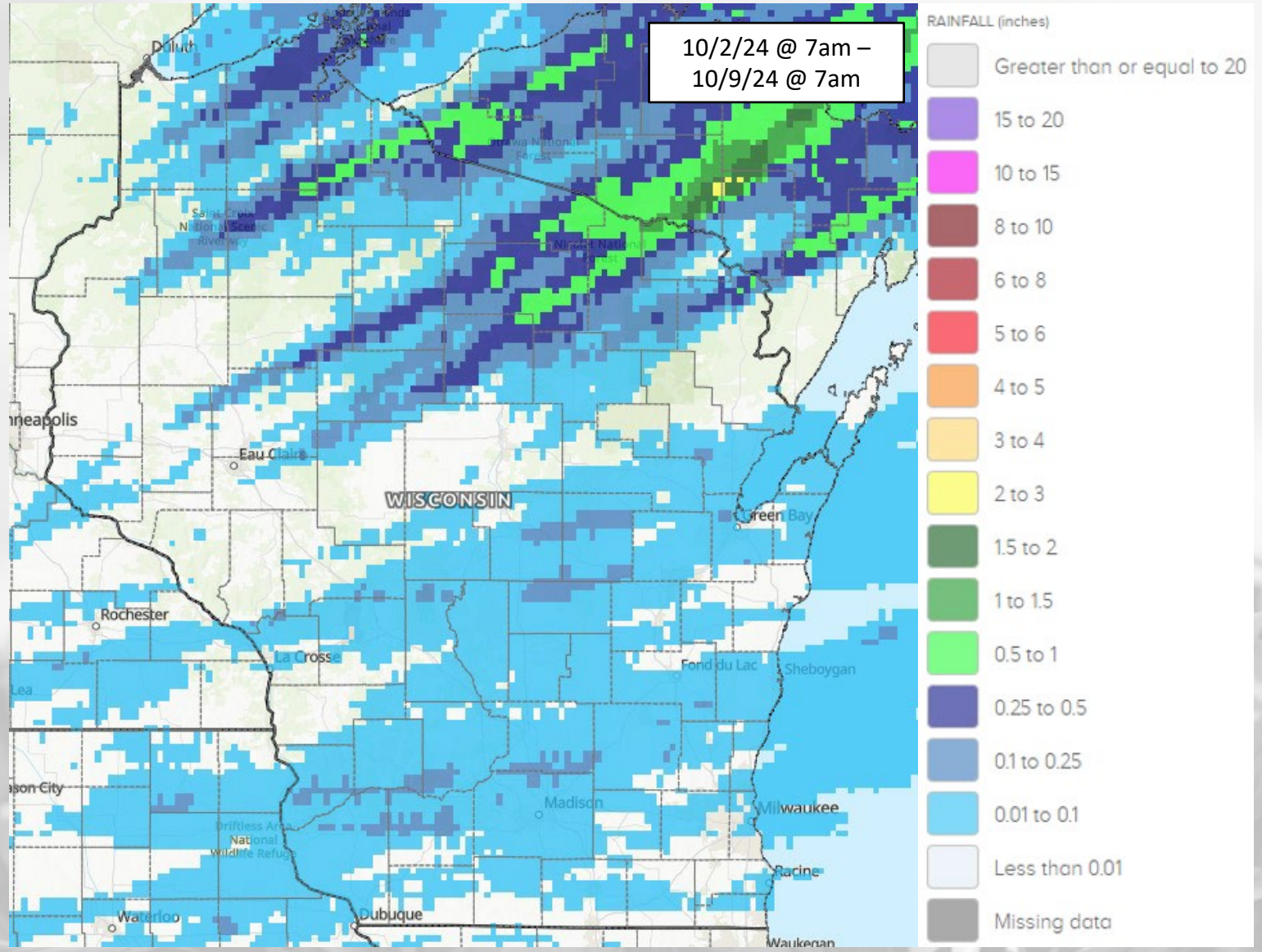
Conditions remain bone dry

Climate Division	Avg. Days >1” (8/1 – 10/8)	Avg. Days >0.5” (8/1 – 10/8)	Avg. Days <0.1” (8/1 – 10/8)
WI01	1.5	4.4	57.5
WI02	1.2	3.2	56.6
WI03	0.5	2.1	59.7
WI04	2.3	4.8	59.1
WI05	1.9	5.4	57.8
WI06	1.5	3.5	58.8
WI07	2.0	3.4	61.1
WI08	1.8	4.3	59.2
WI09	2.0	4.2	59.0

Data represents the average number of days across stations within a climate division.
There are 69 total days in this period, for reference.

https://scacis.rcc-acis.org/

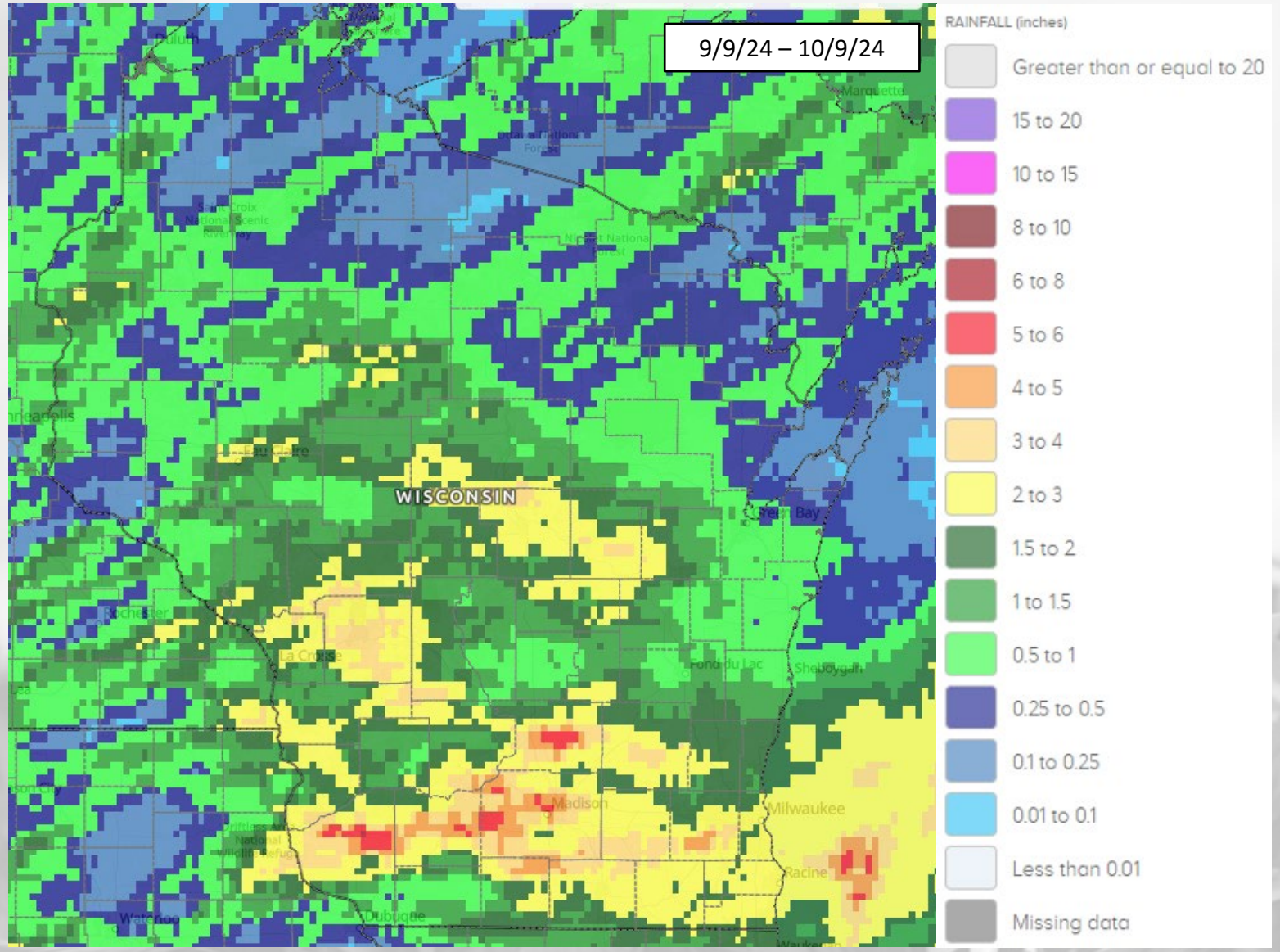
7 Day Precip



- Most of the state saw **<0.25”** of additional precip last week.
- Areas in the Northwoods saw a **half inch or more**.
- Southern 2/3 of the state received **less than 0.1”** at most locations.

https://water.noaa.gov/

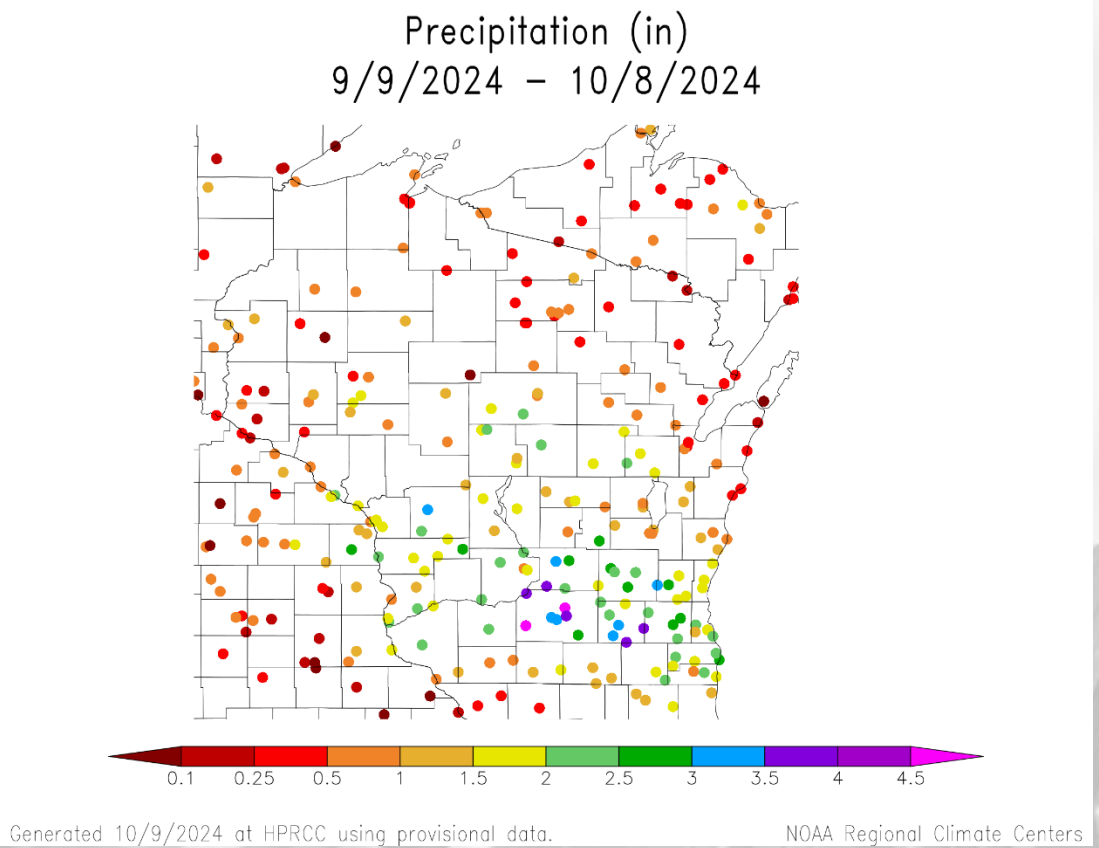
30 Day Precip

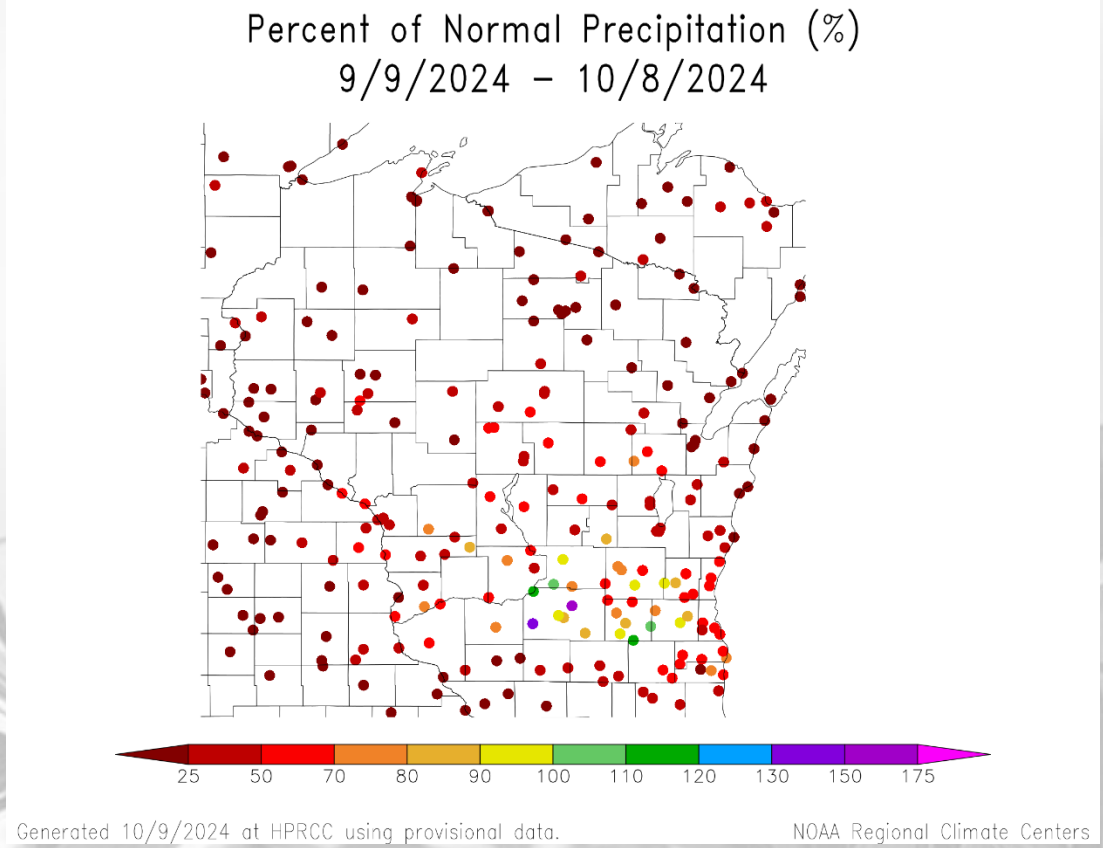


- The majority of the state saw **<2” of precip since Sept. 1**. Lowest totals in the north.
- **2-4”** common east of La Crosse, in the Central Sands, and in the south.
- Estimates of 3+” in the south, which was **received between Sept. 19-22**.

https://water.noaa.gov/

30 Day Precip Total/% Avg.

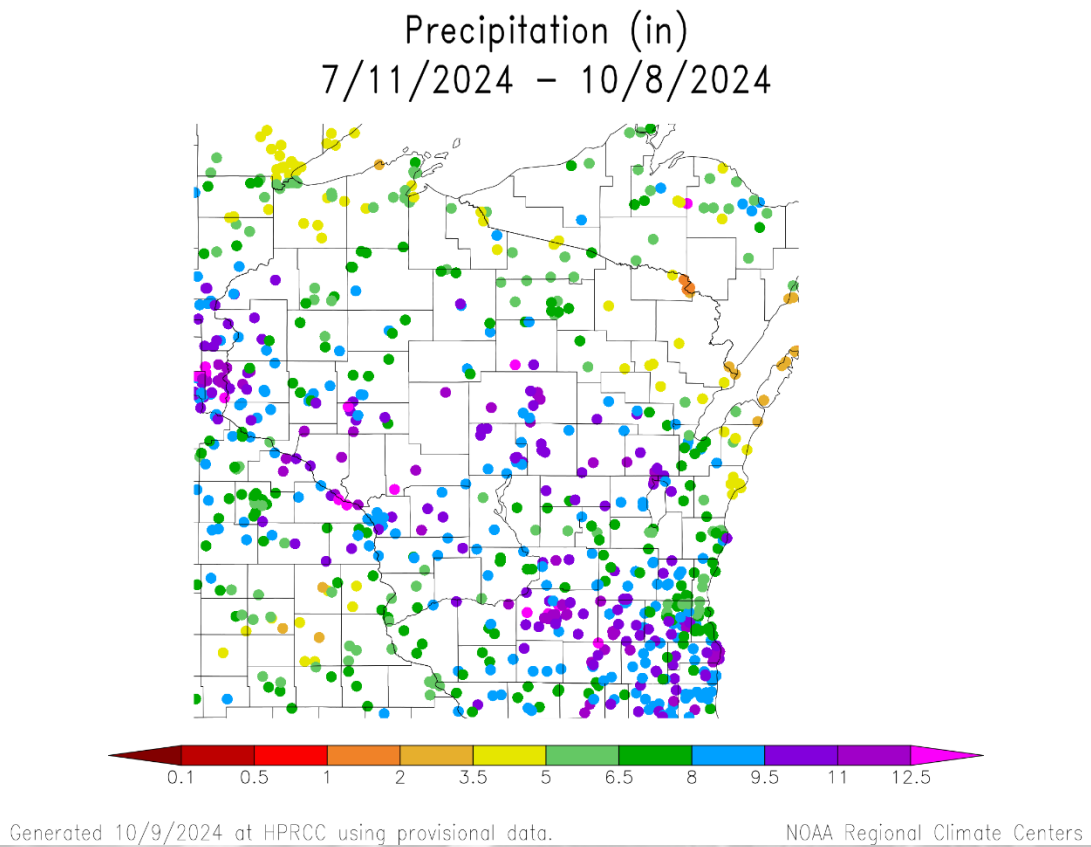


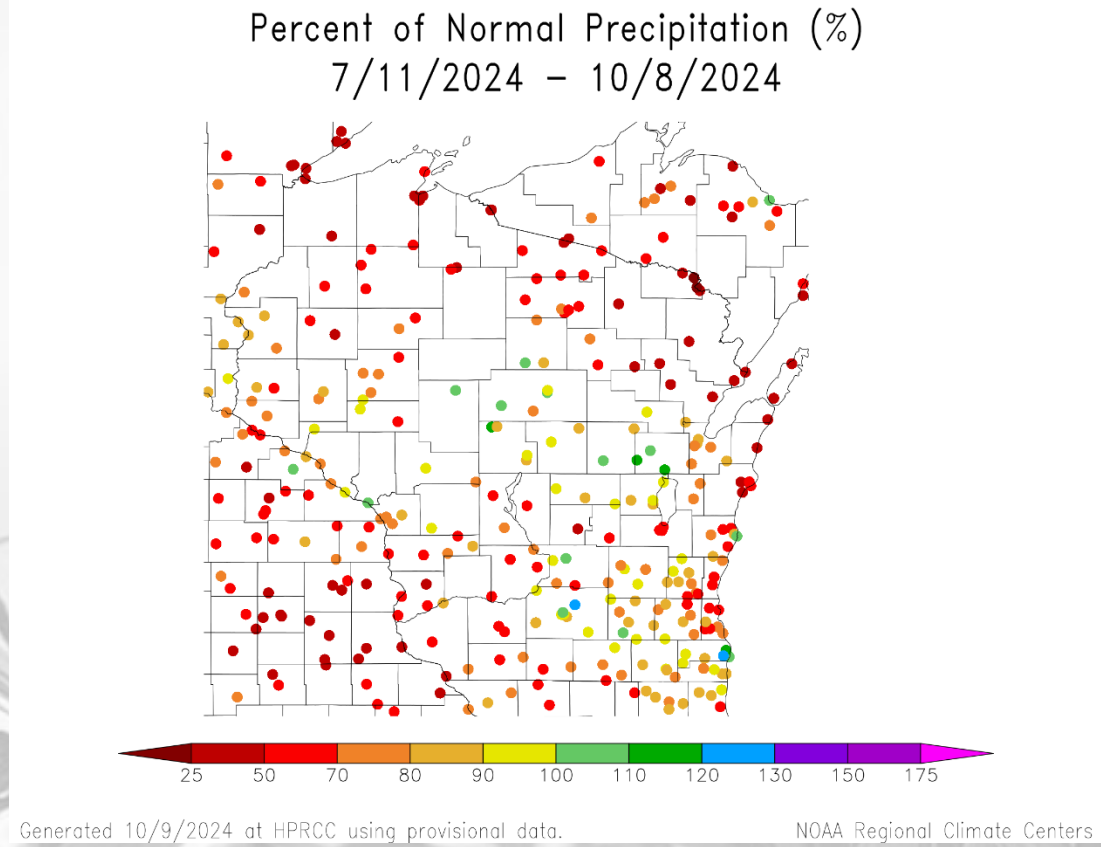


- Rainfall over the last 30 days was **very concentrated in the SC/SE region** versus elsewhere in WI.
  - Dane County & vicinity → **3" or more** common across stations; **at or above** climatological average.
  - Elsewhere → **<2"** very common, which was **<70%** of the climatological average (in some cases, **<25%**)

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

90 Day Precip Total/% Avg.

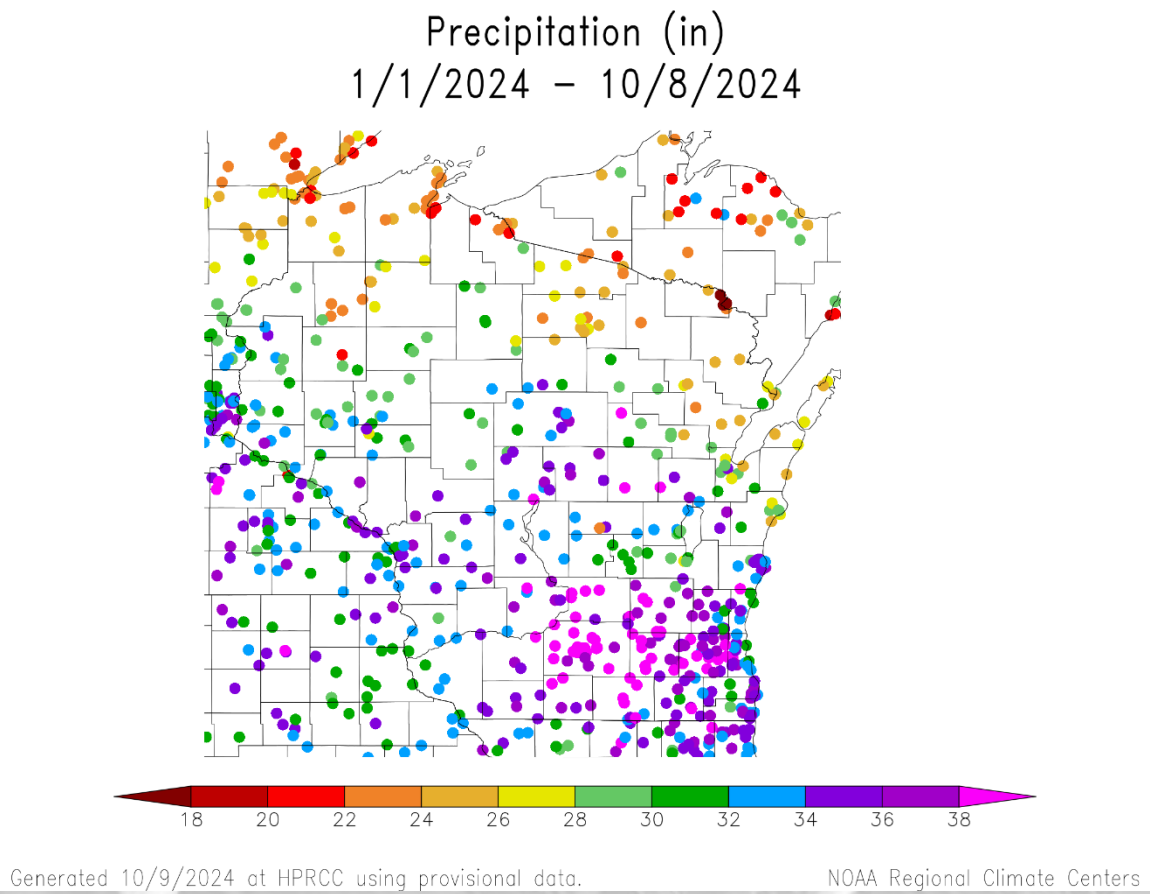


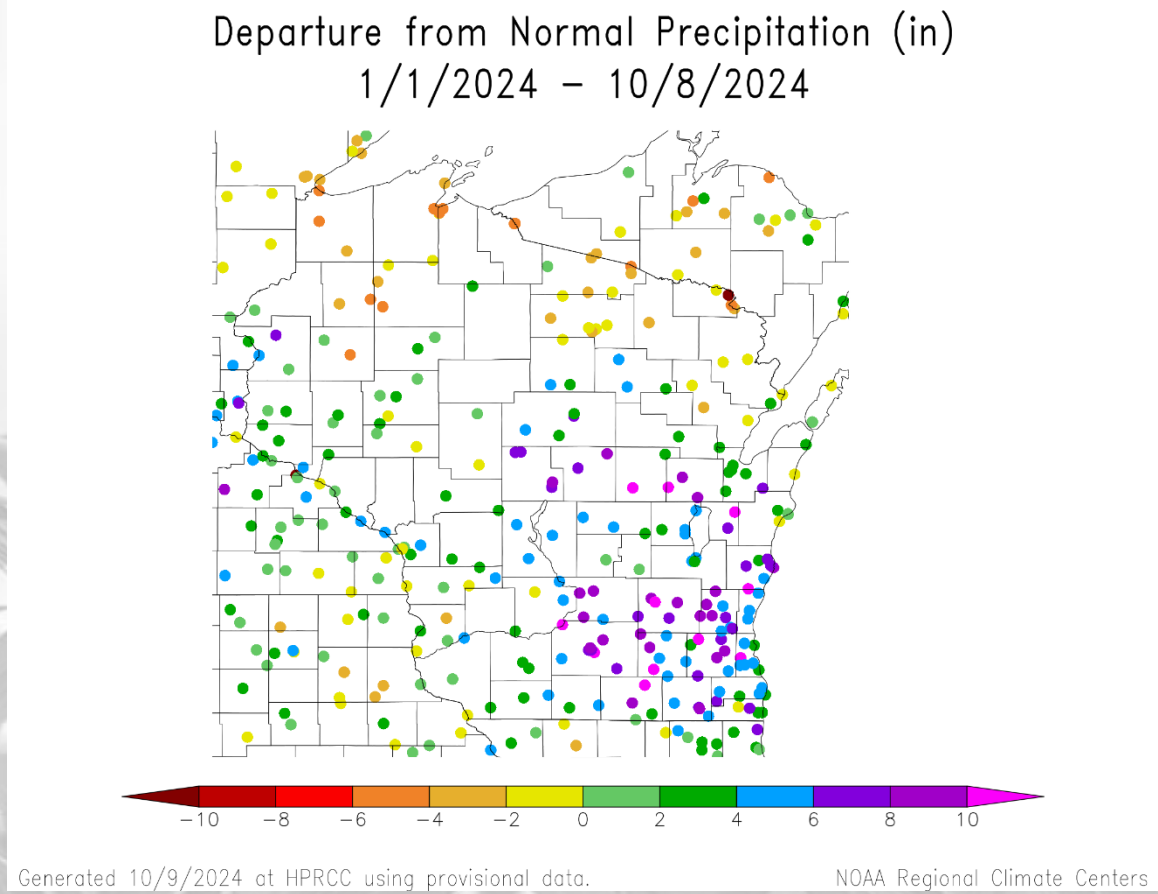


- **>8" of precip** across a large part of the state → these stations are at or above climatological average.
- Lower totals to the north and east
  - **3.5-6.5"** common → **70% or less** of climatological average

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

2024 Precipitation (so far)





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

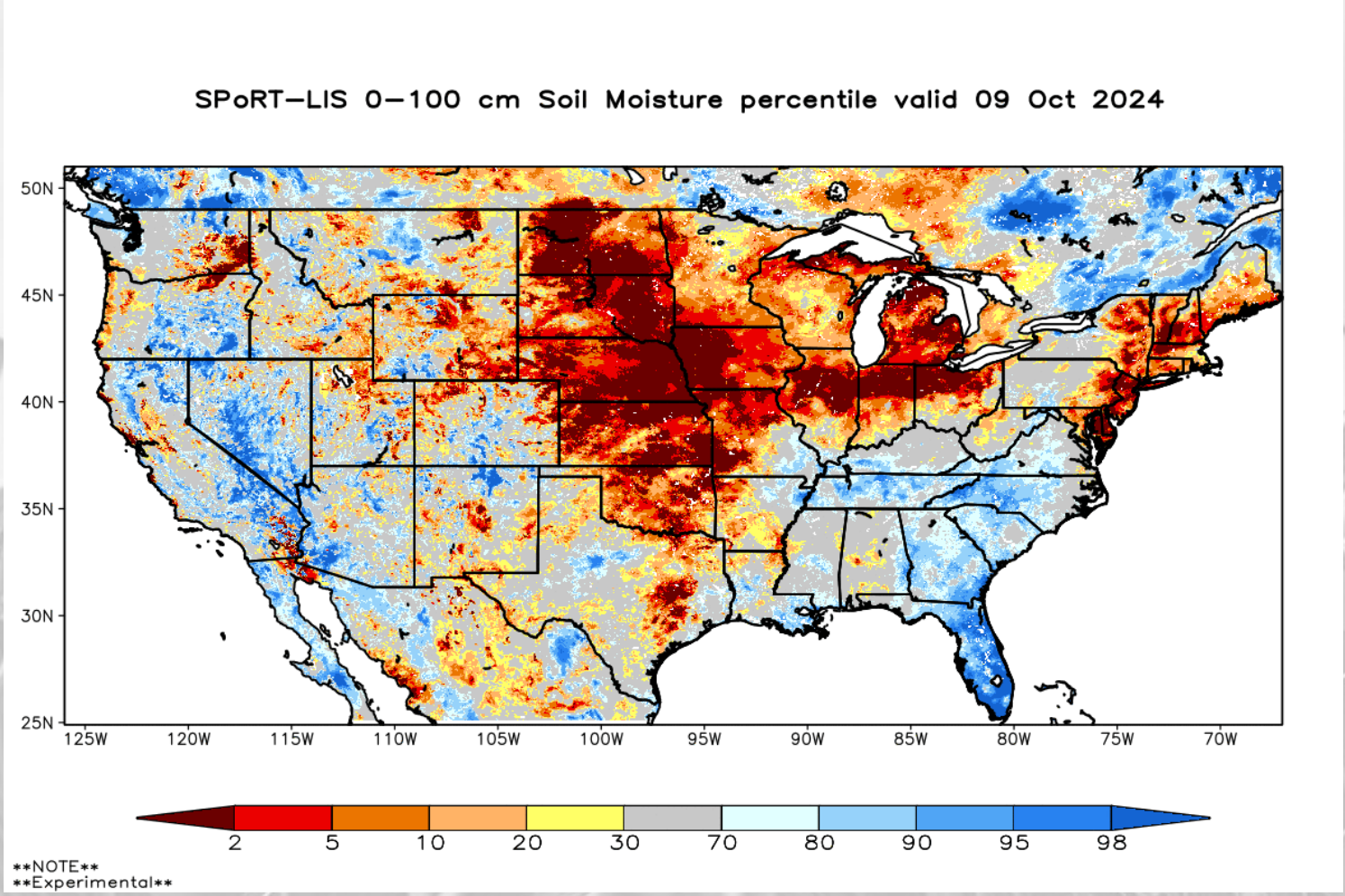
Soil Moisture Models

- **30th percentile or lower** for soil moisture conditions covering most of the state.
- **10th percentile or lower** in Door/Kewaunee Counties, and in the far NW.
- **Wettest conditions** in the central sands, but the area of normal soil moisture is shrinking compared to past weeks.

Model Notes:
Red areas = top 5 driest in 100 years.
Dark red areas = top 2 driest in 100 years.
Blue areas = top 2 wettest in 100 years.

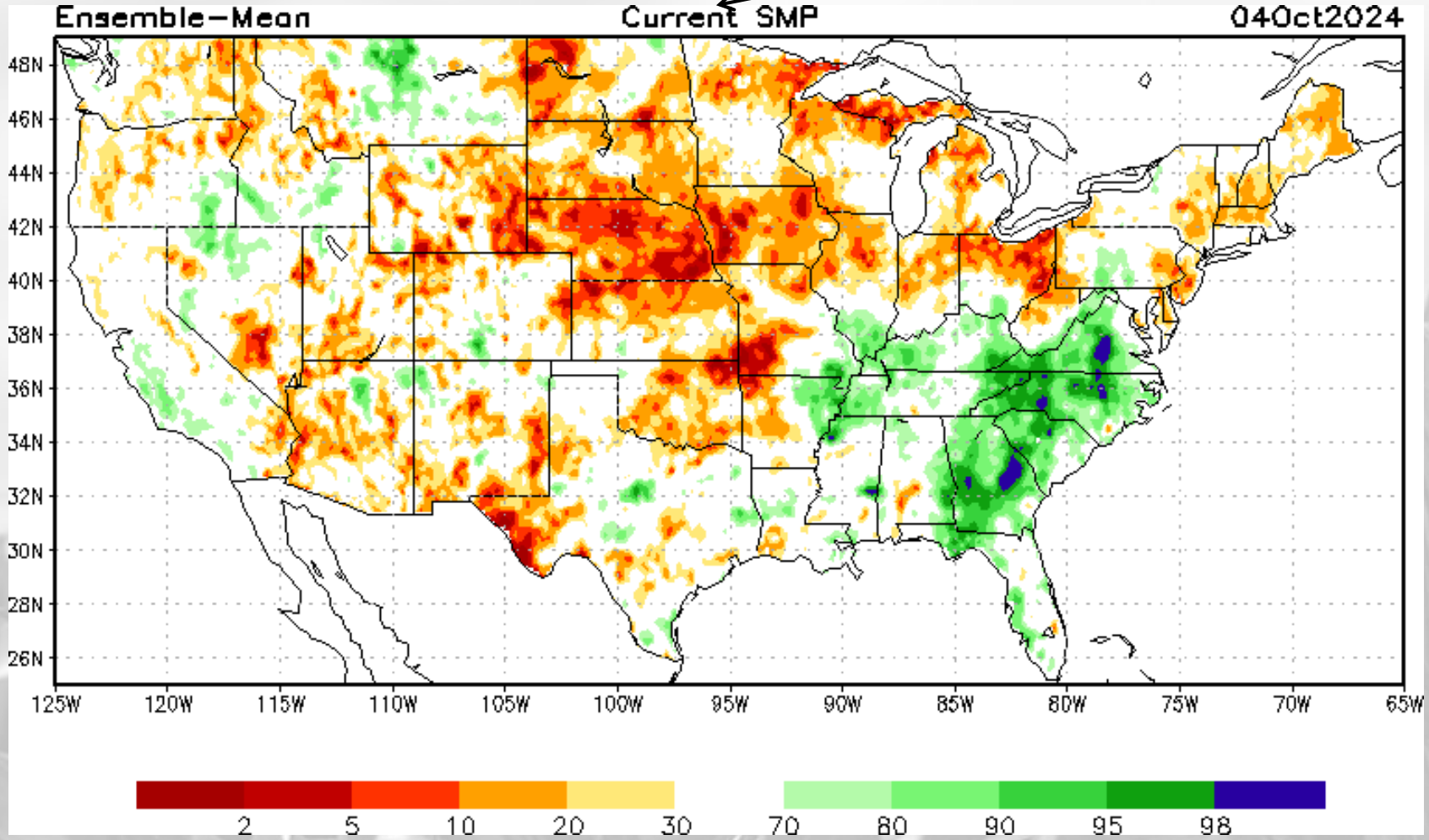
It's worth noting that each soil moisture model has their own characteristics and input variables, so there tends to be variation between models. Thus, it's worthwhile to look at multiple models opposed to just one.

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



Soil Moisture Models

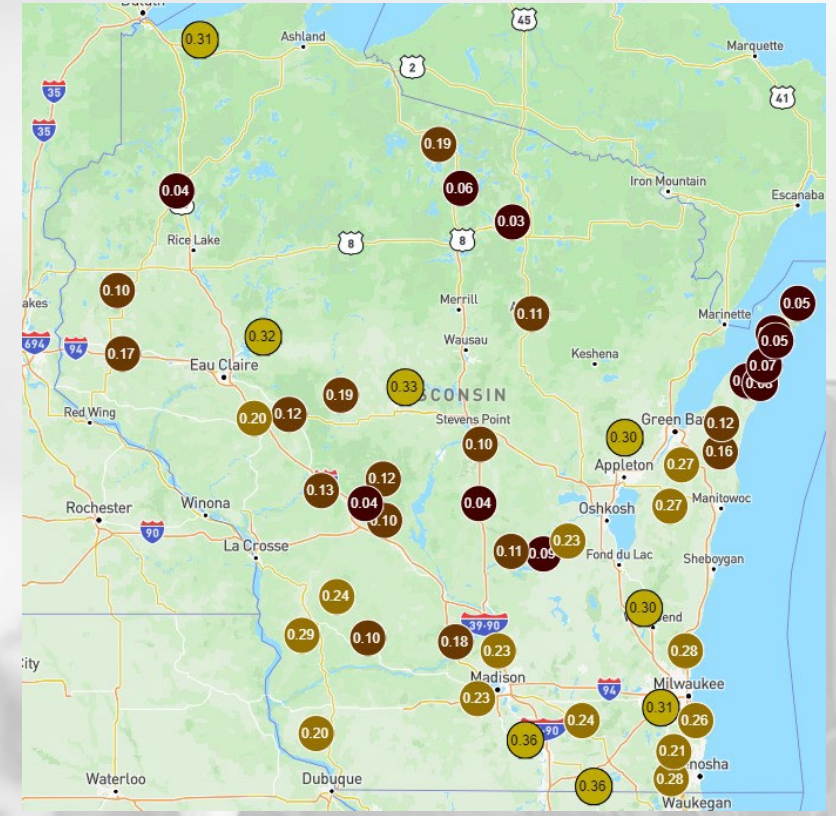
NOTE: this map displays the soil moisture percentile for Oct. 4. It was the most recent update on Oct. 9.



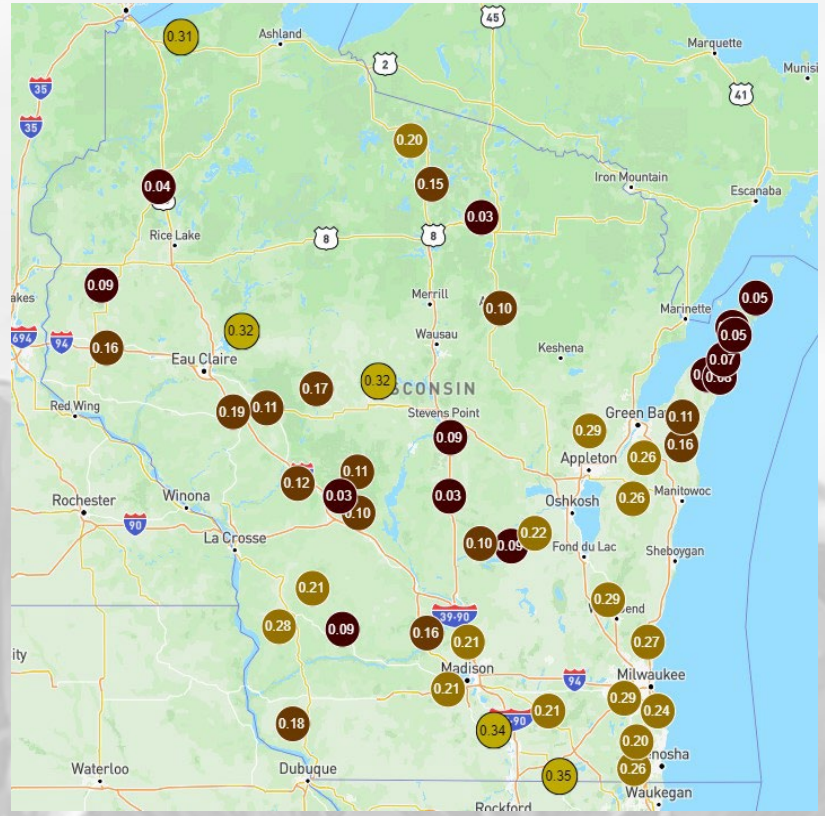
https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp_new.shtml

Wisconet Soil Moisture (4” Depth)

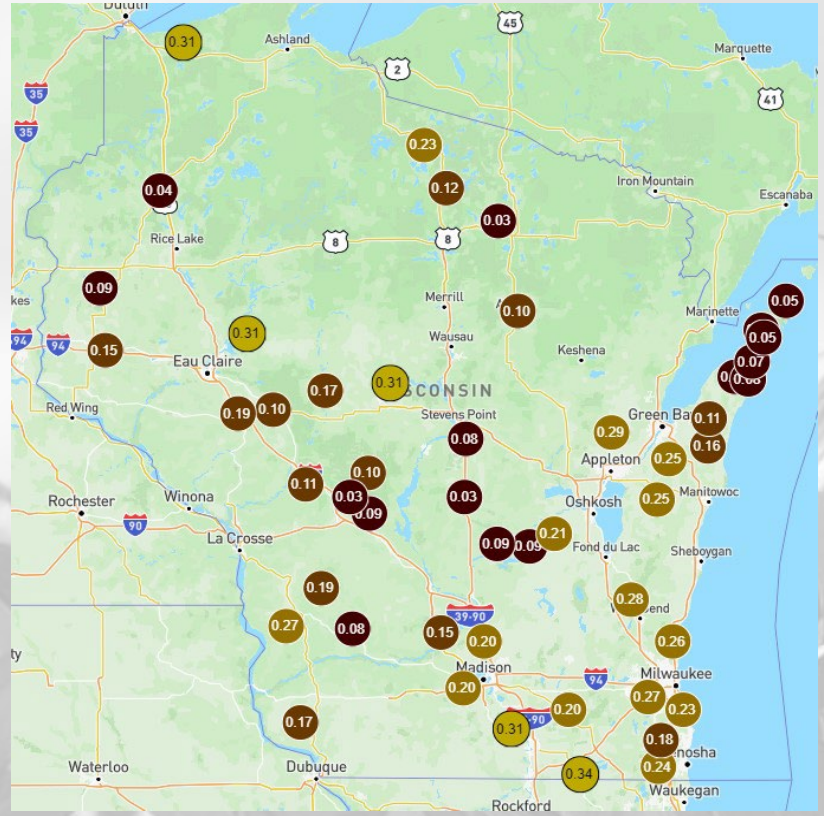
Friday Oct. 4th @ Midday



Sunday Oct. 6th @ Midday

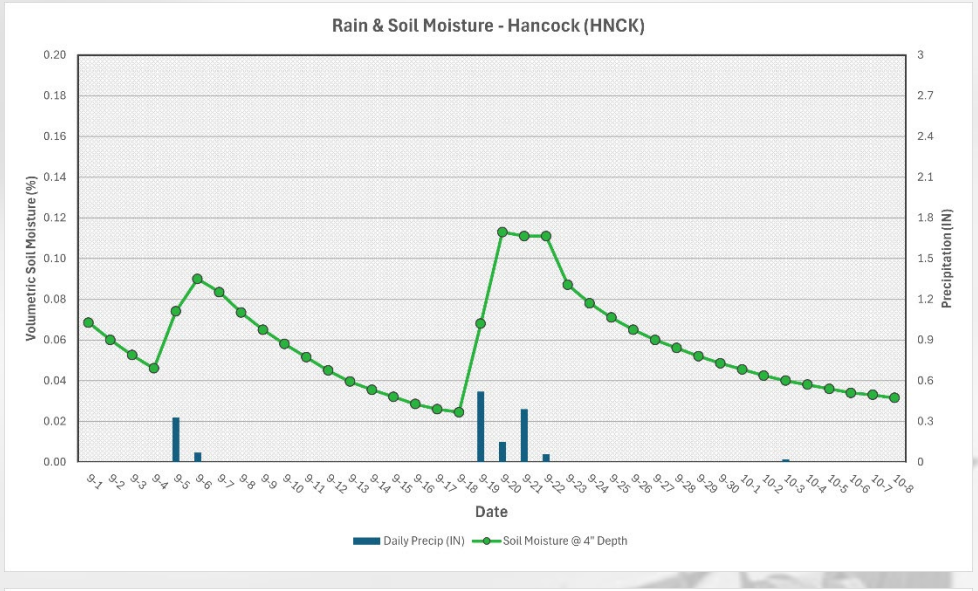


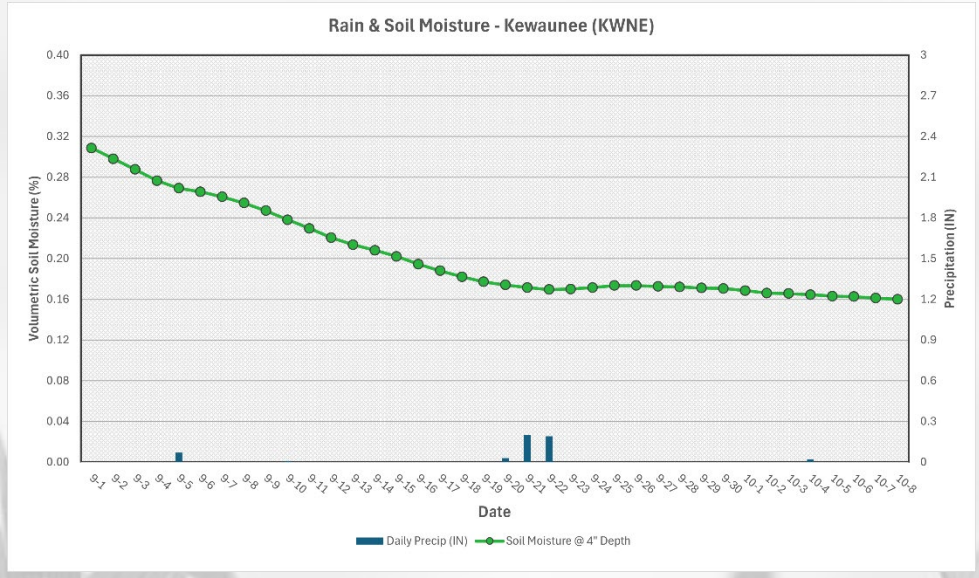
Tuesday Oct. 8th @ Midday

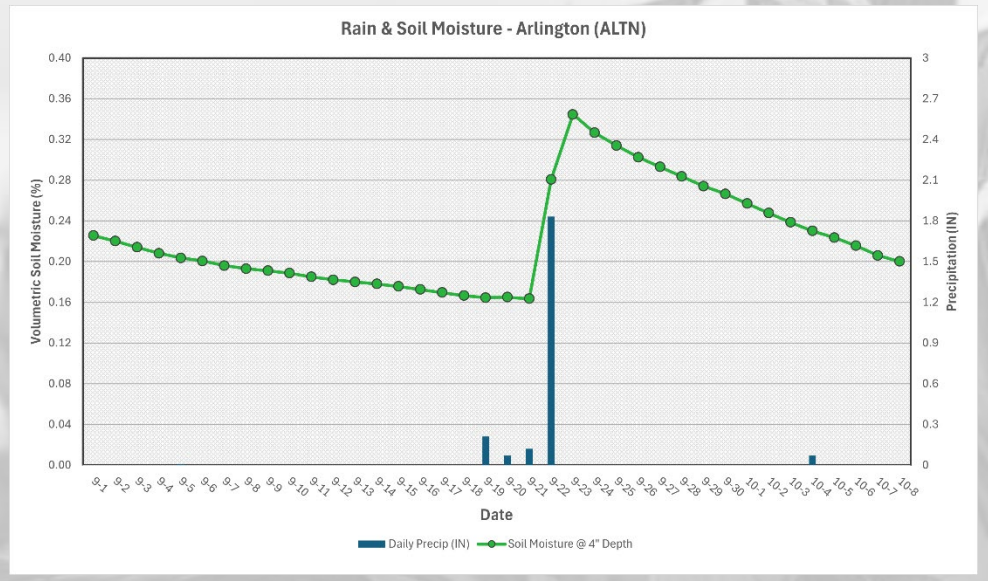


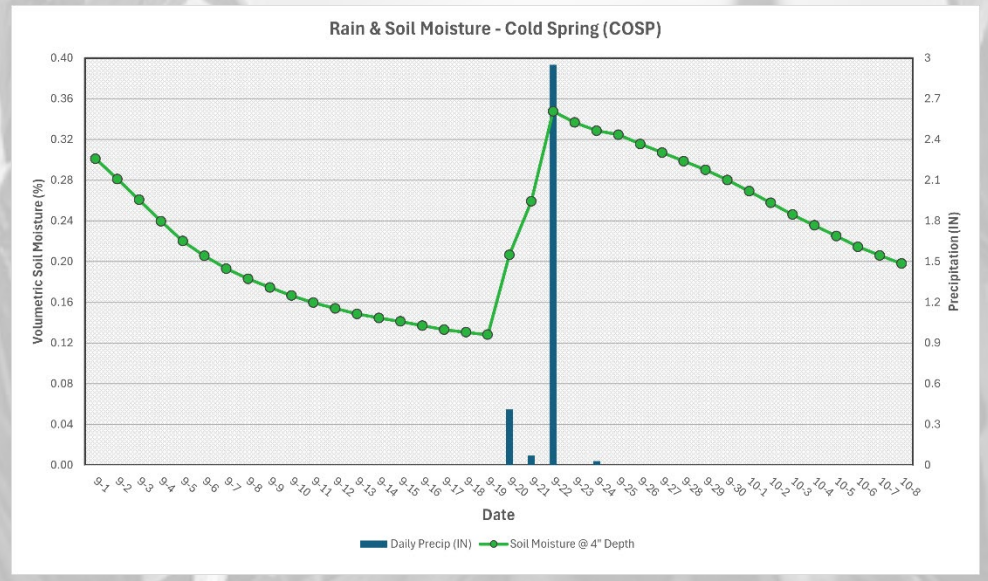
https://wisconet.wisc.edu/

Wisconet Soil Moisture – 4” Depth







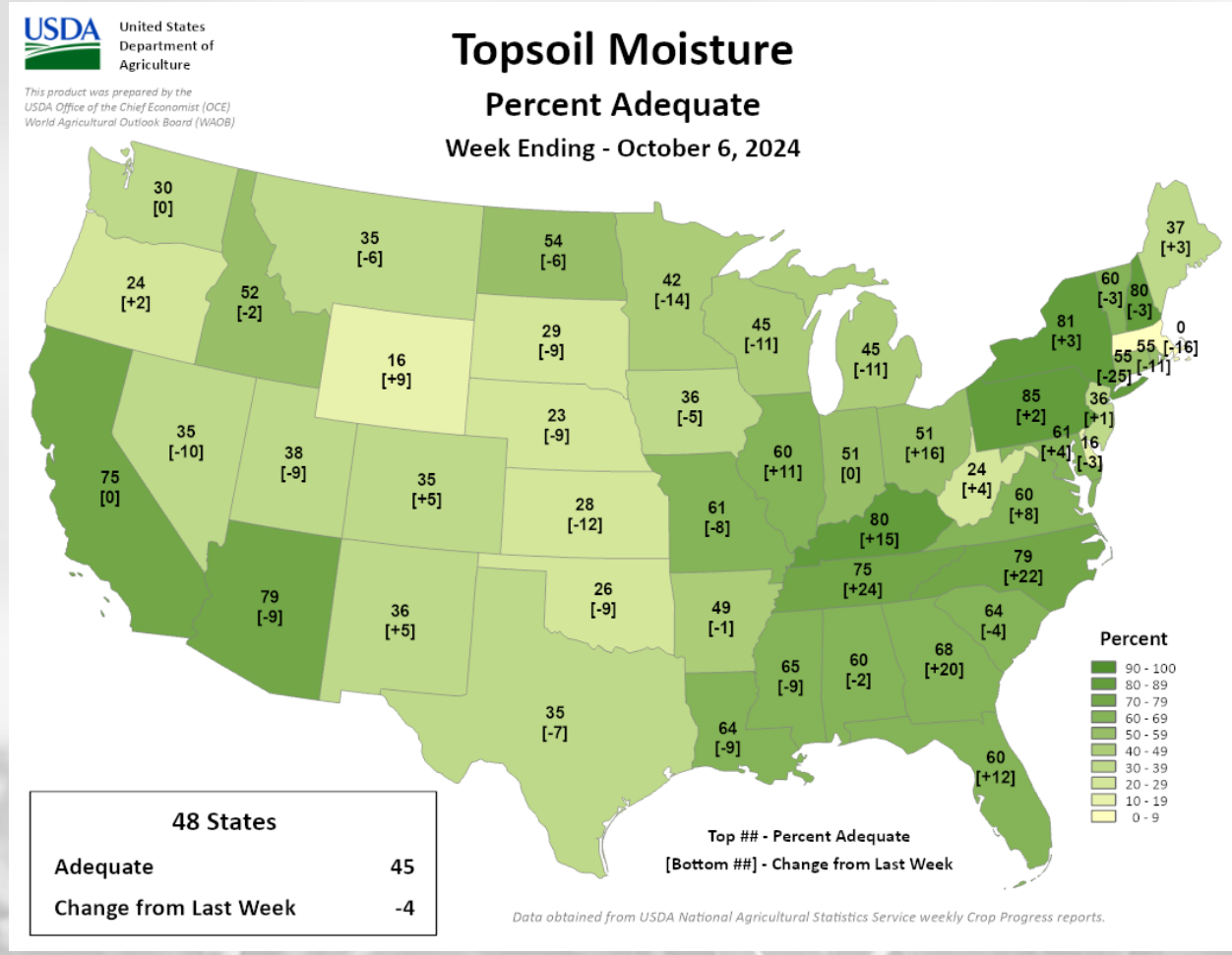


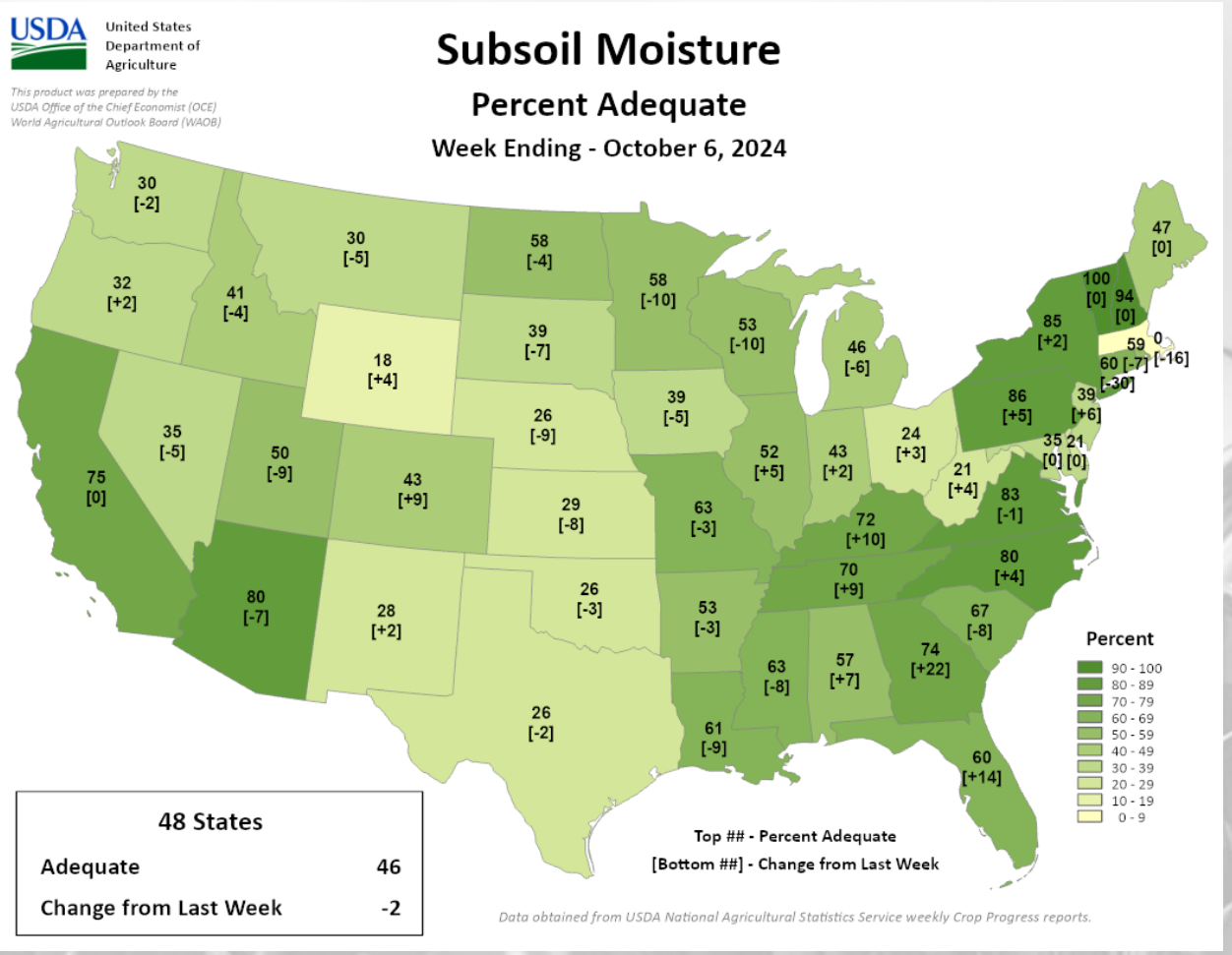
Trend in soil moisture (4”) & precip since September 1

Soil moisture has been in decline since the last notable rainfall events across these stations.

https://wisconet.wisc.edu/

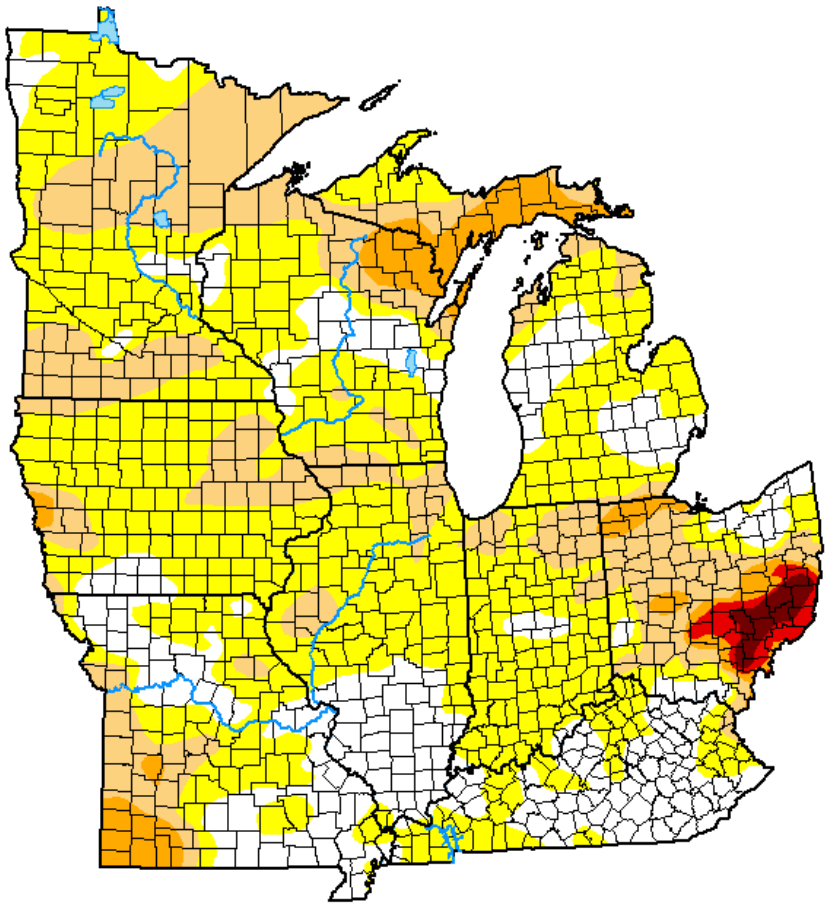
NASS Topsoil & Subsoil Moisture





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

US Drought Monitor



U.S. Drought Monitor

Midwest

October 1, 2024

(Released Thursday, Oct. 3, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	21.78	78.22	28.15	6.40	1.46	0.66
Last Week *09-24-2024*	20.61	79.39	31.51	9.38	3.27	1.04
3 Months Ago *07-02-2024*	75.12	24.88	5.61	0.00	0.00	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 *10-03-2023*	14.48	85.52	55.96	22.83	6.40	0.35

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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:

Richard Tinker

CPC/NOAA/NWS/NCEP

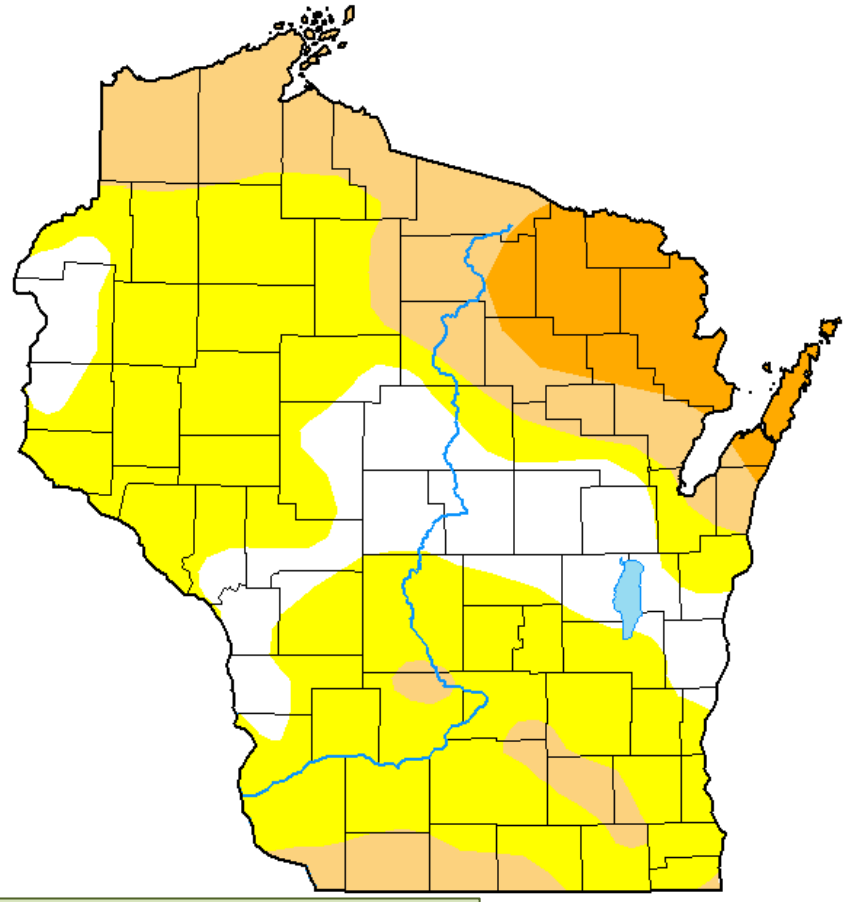
droughtmonitor.unl.edu

- Compared to last week:
  - **Decreases in D2-D4 drought coverage** in southern OH due to rainfall from the remnants of Helene.
  - **Improvements** in southern IN and IL as well.
  - **Conditions getting drier** in the northern extent of the Midwest, with the **addition of D2 drought coverage** in the UP and NE WI.

Note: D0 is not considered drought.

http://droughtmonitor.unl.edu/

US Drought Monitor



October 1, 2024
(Released Thursday, Oct. 3, 2024)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.68	81.32	29.83	8.45	0.00	0.00
Last Week *09-24-2024*	46.45	53.55	16.00	0.00	0.00	0.00
3 Months Ago *07-02-2024*	100.00	0.00	0.00	0.00	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 *10-03-2023*	2.04	97.96	75.07	33.18	6.77	0.00

Intensity:

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

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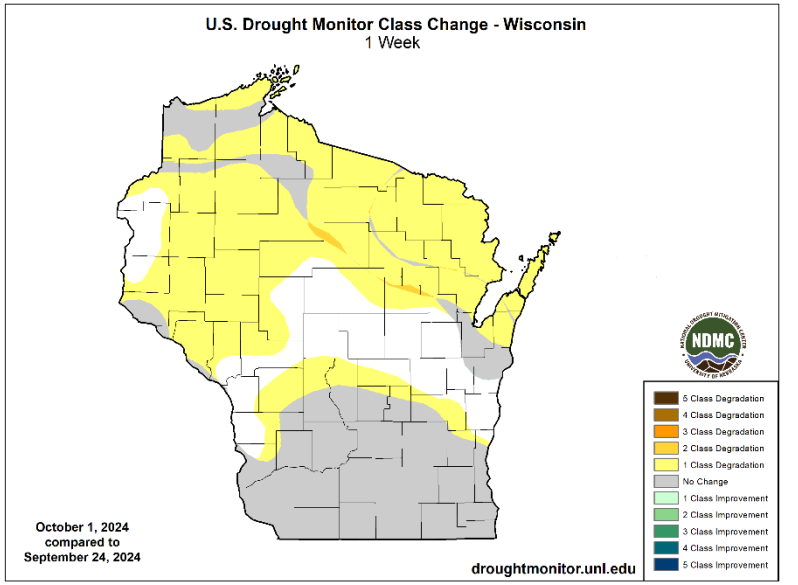
droughtmonitor.unl.edu

http://droughtmonitor.unl.edu/

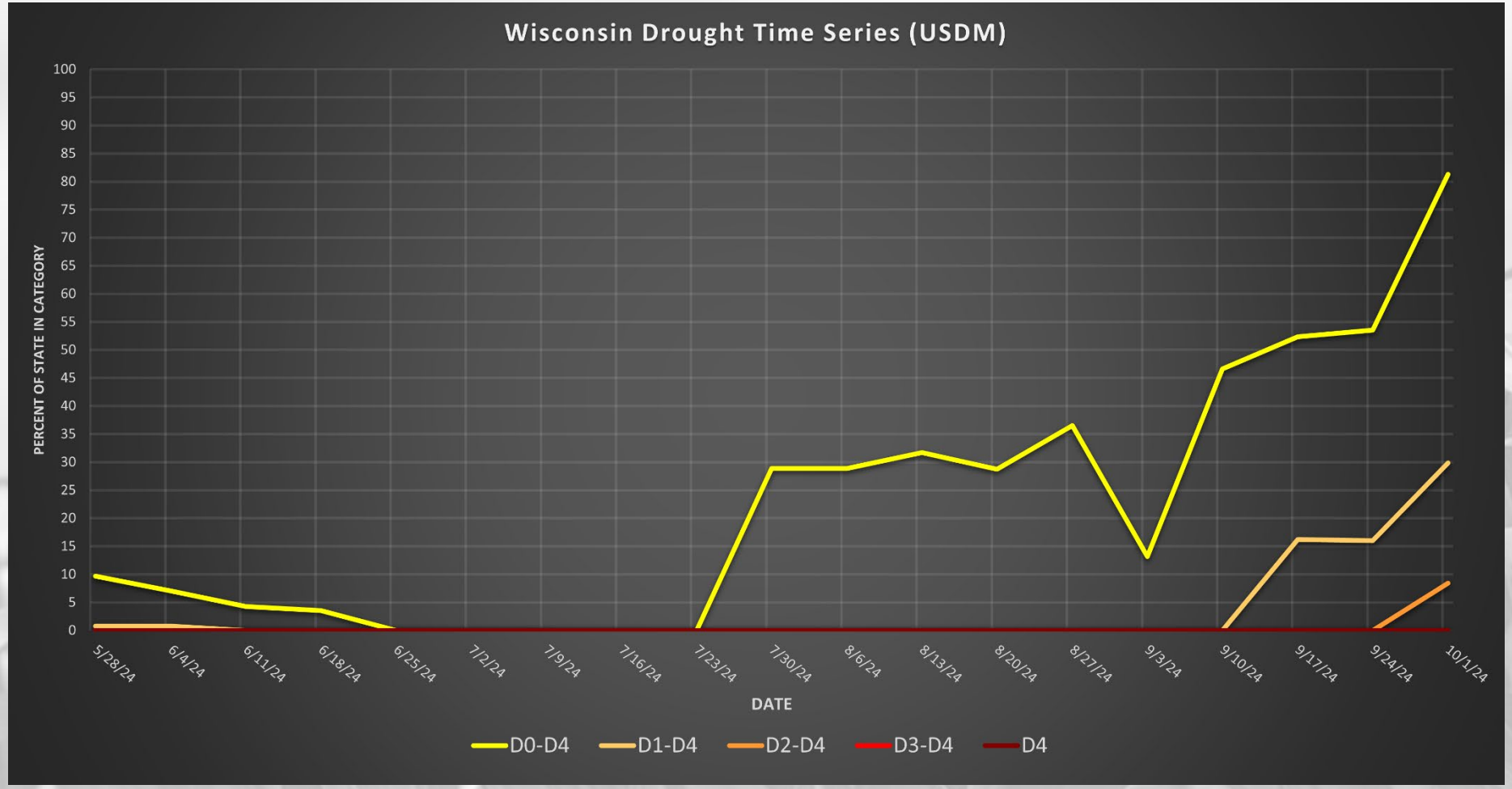
Amount of state in:

- D1-D4 – 29.8% ↑
- D2-D4 – 8.5% ↑
- 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.

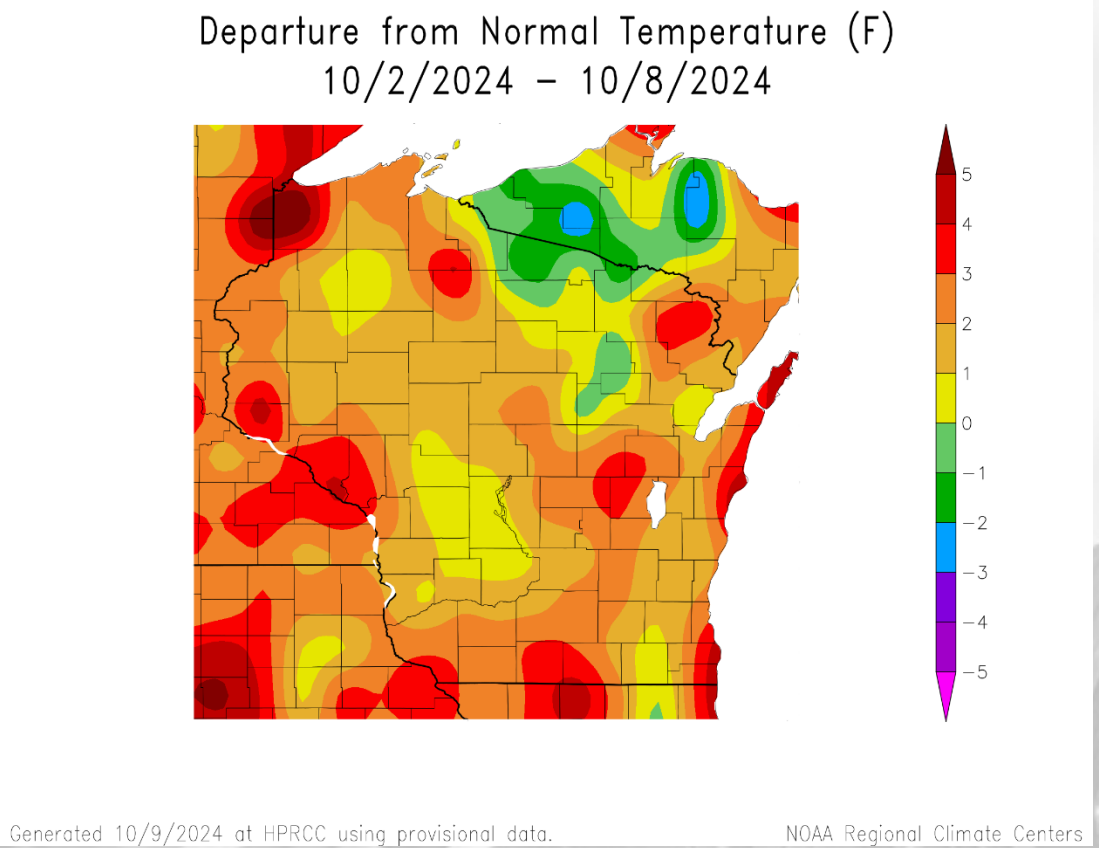


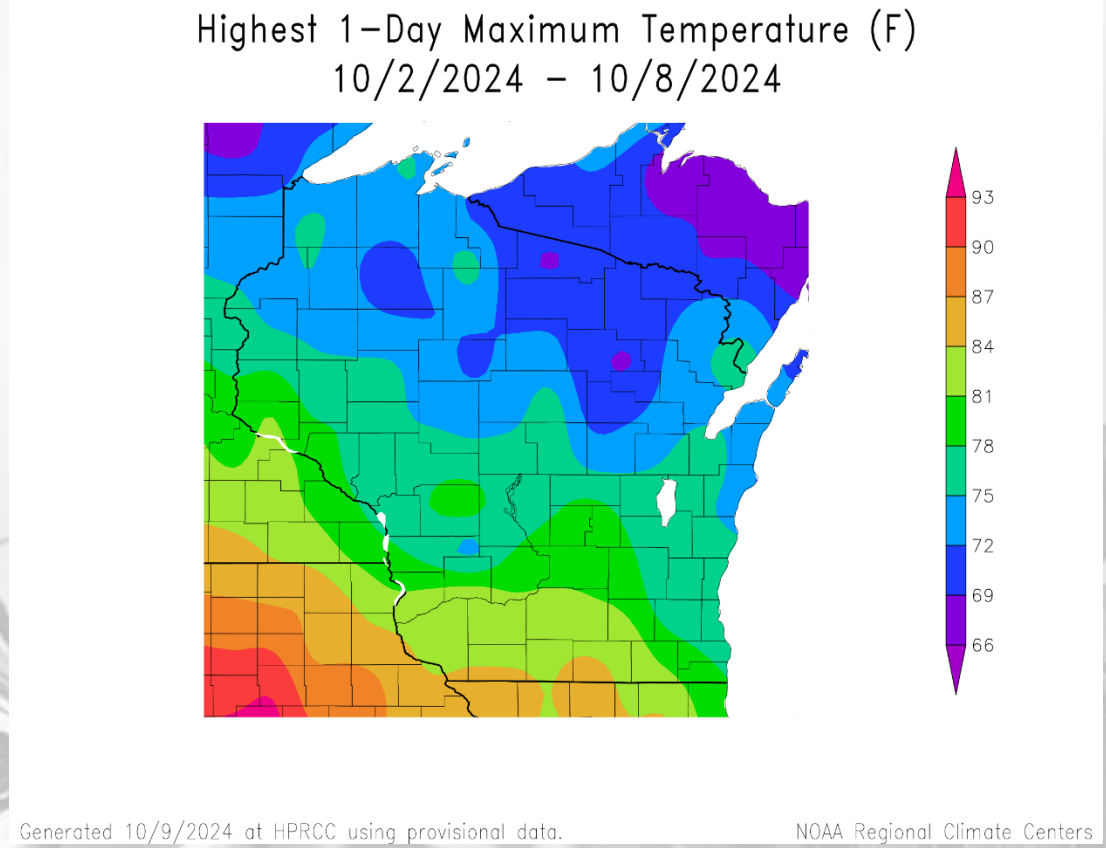
USDM Time Series



http://droughtmonitor.unl.edu/

7 Day Temperatures



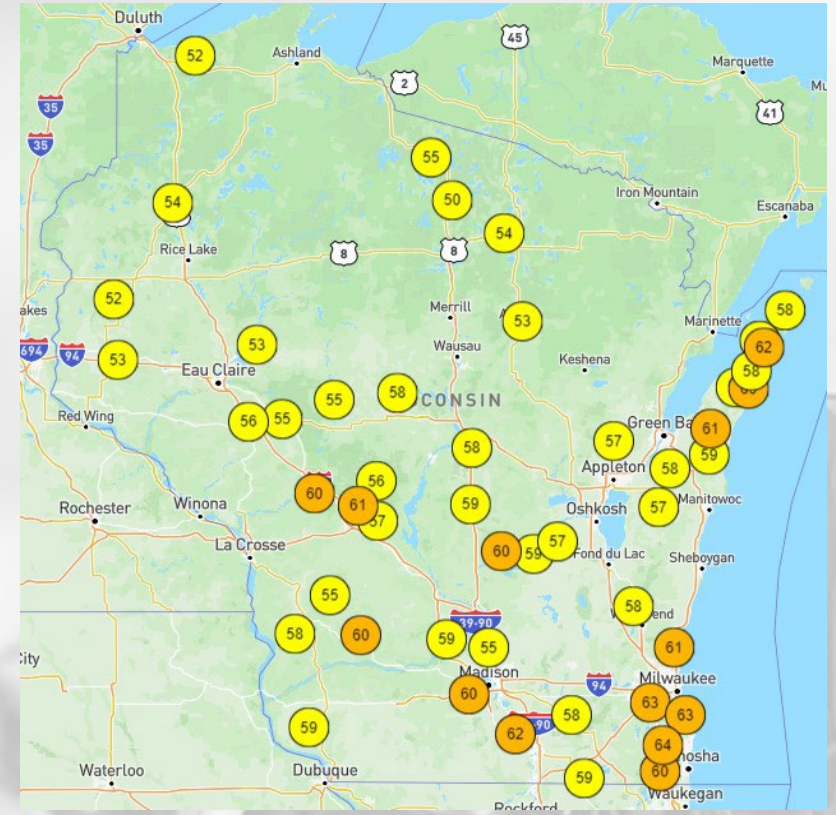


- It was a **warm week** for many last week; with most **1-3°F above climatological normal**.
  - **>3°F above** climatological average in pockets across the state. **Closer to normal** in the far NC.
- Weekly maximums in the **upper 70s to low 80s** in the W/S; **70-75°F** in the north.

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

Wisconet Soil Temp (4” Depth)

Friday Oct. 4th @ Midday



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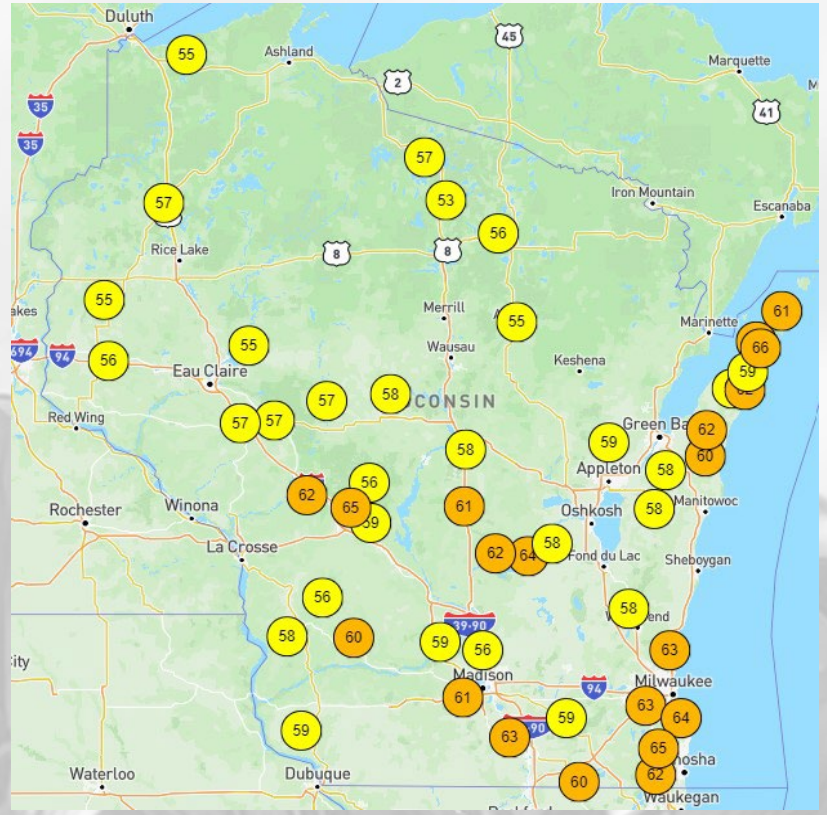

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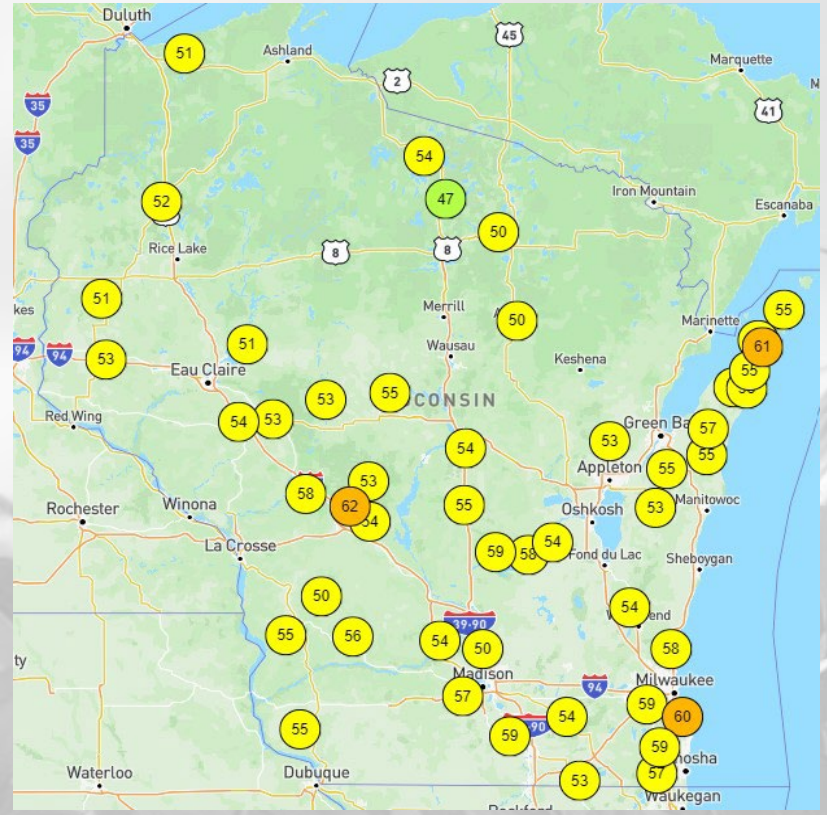
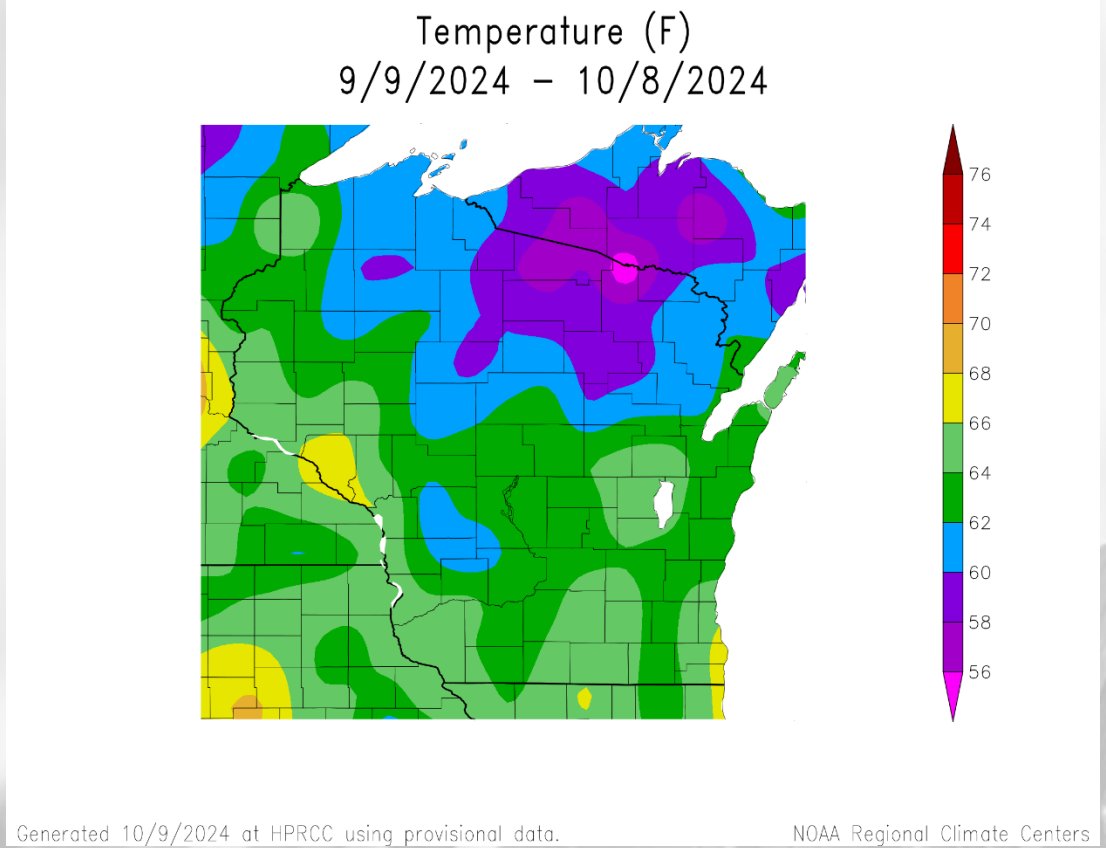
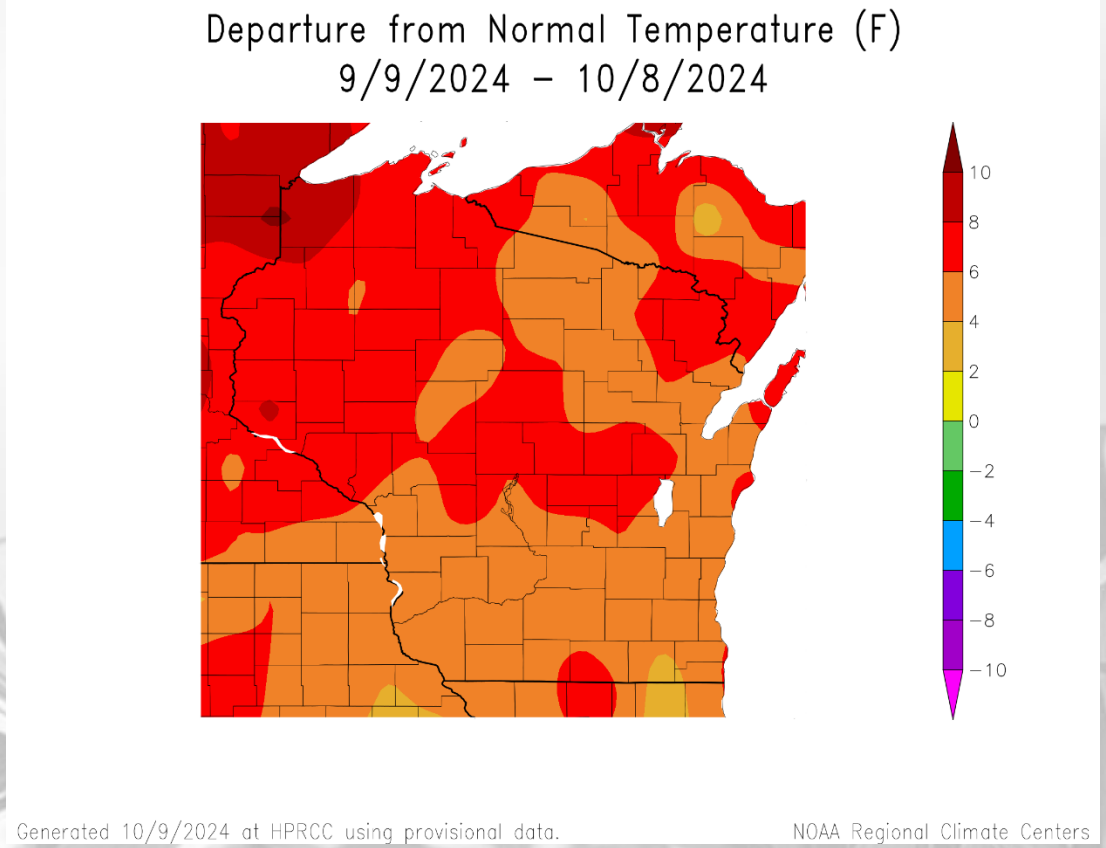


https://wisconet.wisc.edu/

30 Day Temperatures

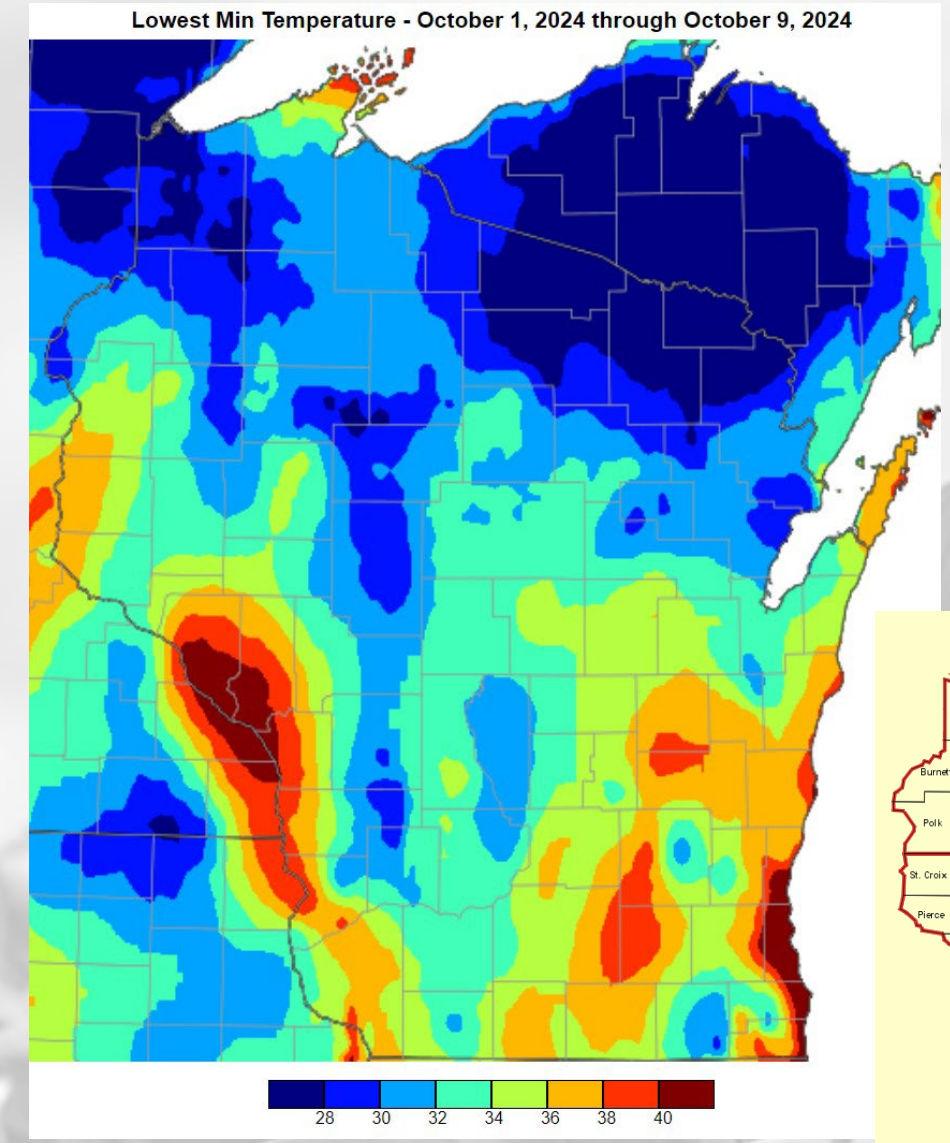




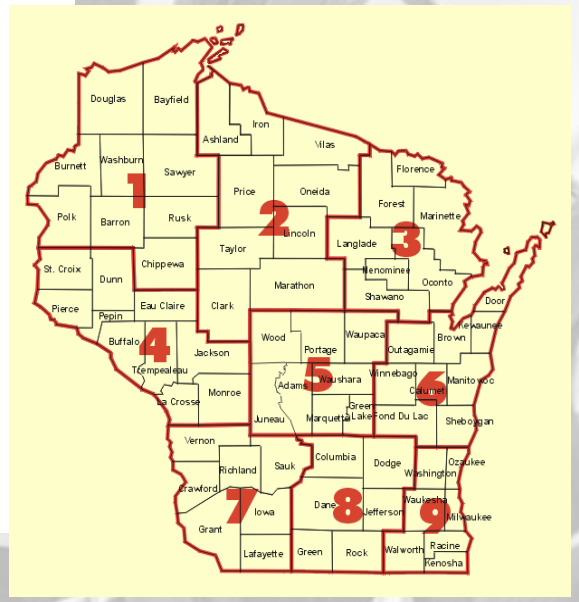
- Temperatures for the past month ranged from **62-64°F** in the S & W to **56-60°F** in the far NC.
  - **4-8°F above normal** for most of the state compared to climatological (1991-2020) average.
  - Temps more above the climatological average in the NW compared to the south and east.

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

Below freezing nights



Coldest minimum temperature measured between October 1-9

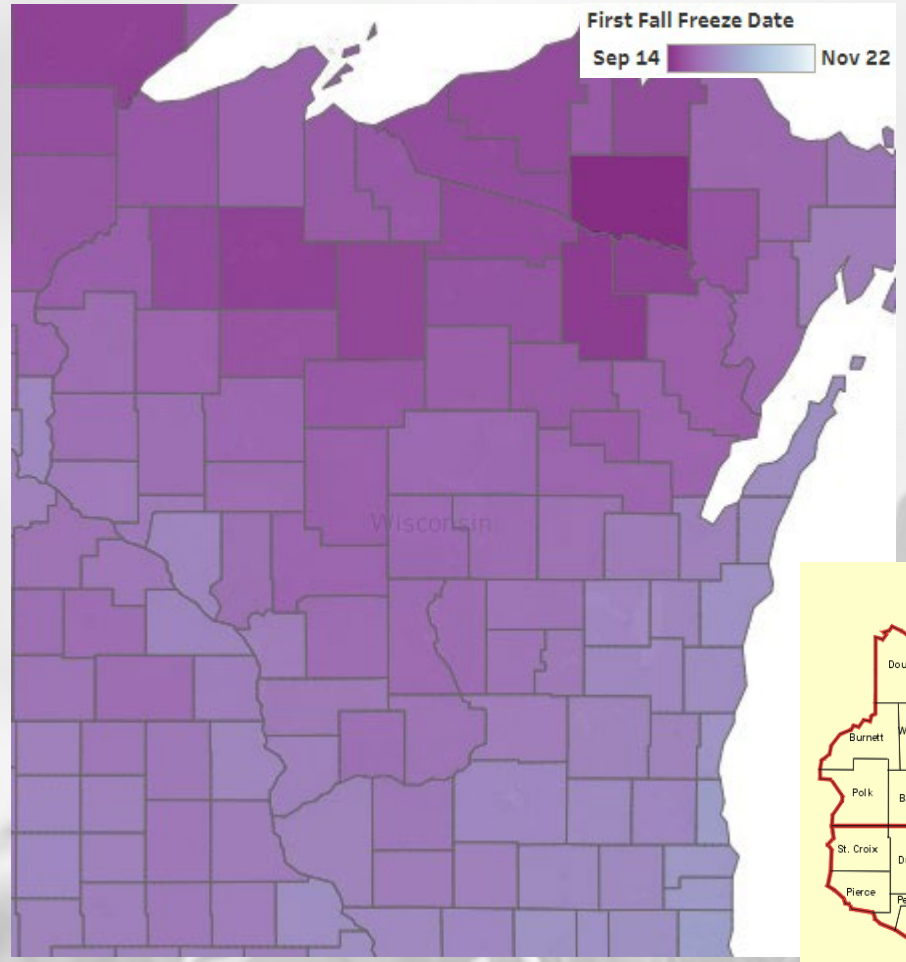


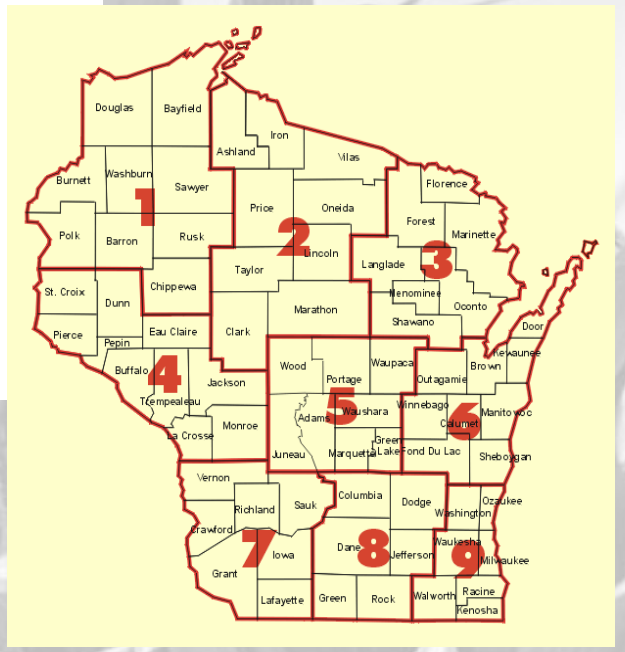
Climate Division	No. of Stations w/a low ≤32°F (10/1 – 10/9)
WI01	5
WI02	13
WI03	9
WI04	3
WI05	4
WI06	2
WI07	5
WI08	2
WI09	1

Data in the table represents the number of stations in the climate division that measured an overnight low that was at or below 32°F.

https://mrcc.purdue.edu/freeze/freezedatetool

Fall freeze climatology



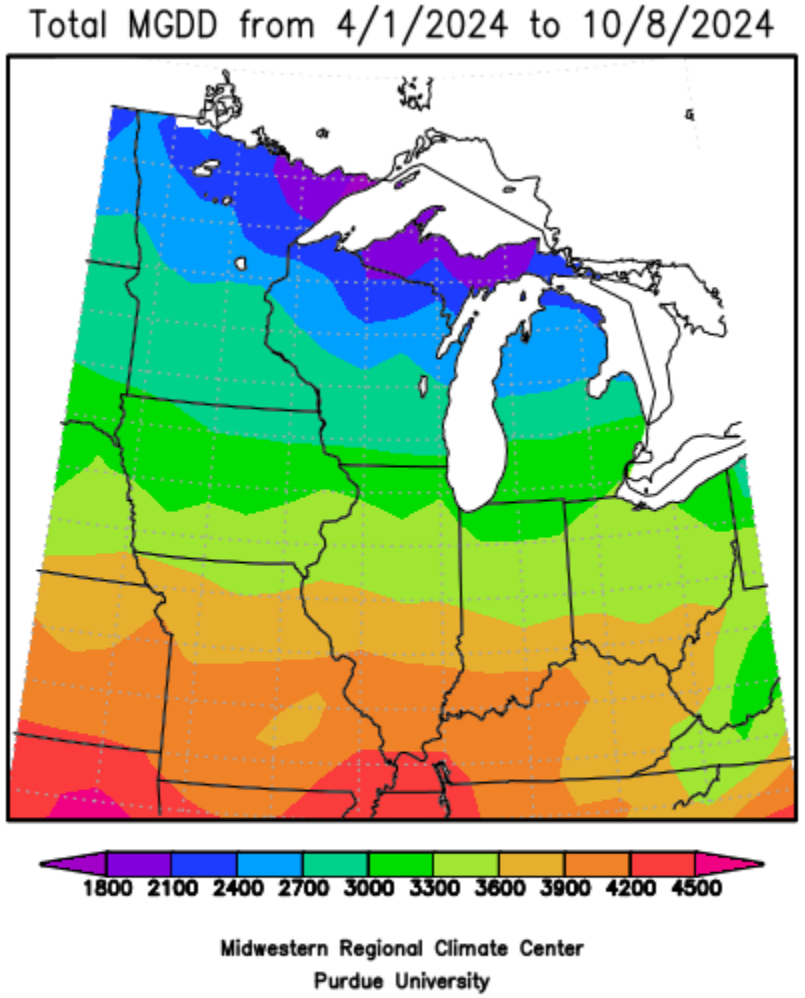


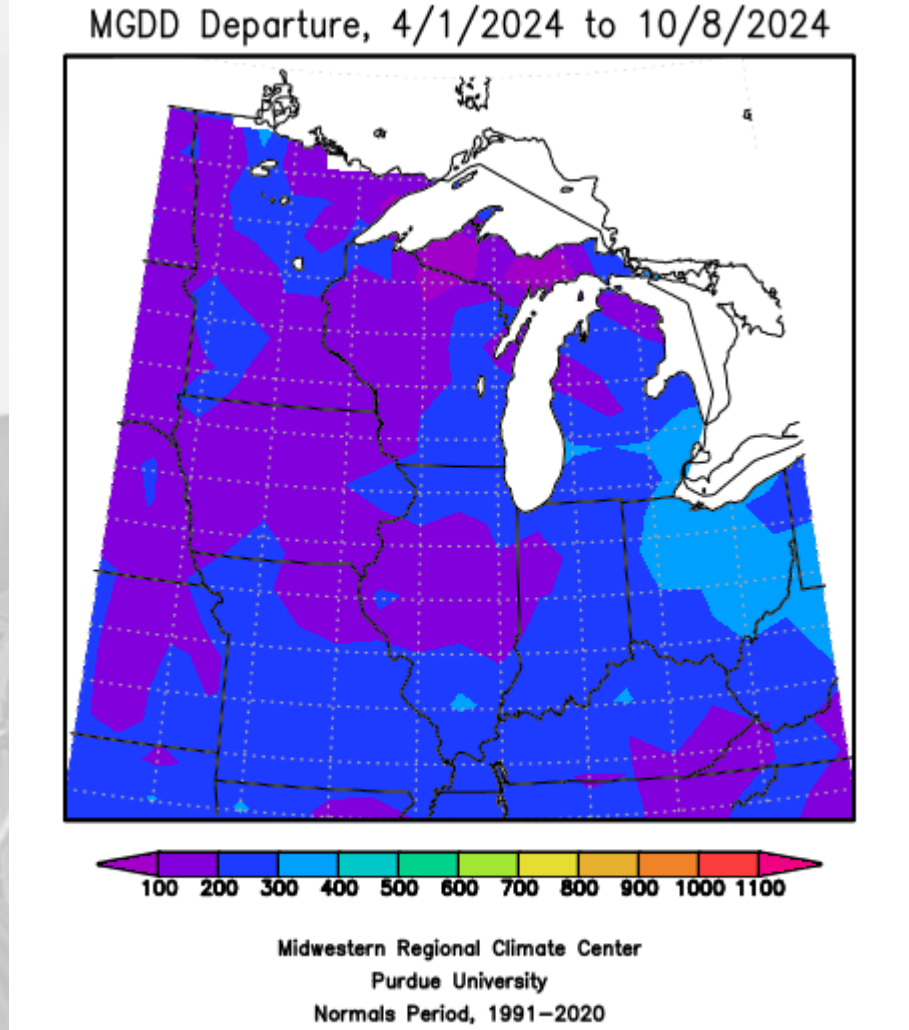
Climate Division	Average First Fall Freeze Date (1950-2023)
WI01	September 25
WI02	September 24
WI03	September 23
WI04	October 2
WI05	October 1
WI06	October 8
WI07	October 11
WI08	October 7
WI09	October 4

Data represents the average first fall freeze date (overnight low at or below 32°F) across counties within a given climate division.
County-level data can be explored using the MRCC Freeze Date Tool.

https://mrcc.purdue.edu/freeze/freezedatetool

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





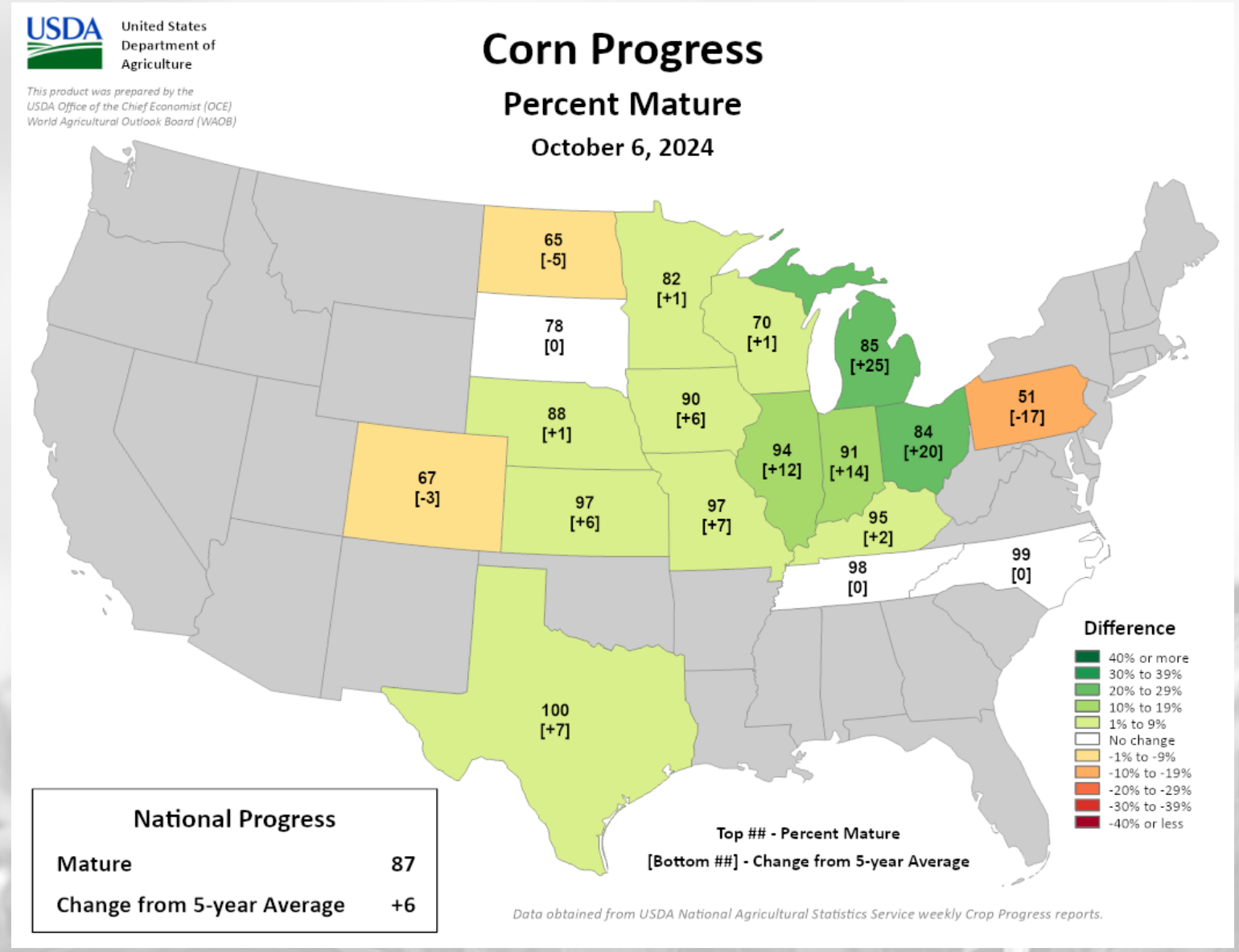
- **3000-3300** GDD in the far S to **2100-2700** GDD in the N.
- With the warm fall that we've had, GDD accumulation is running **≥100 GDD ahead of normal pace**.

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/climatewatch

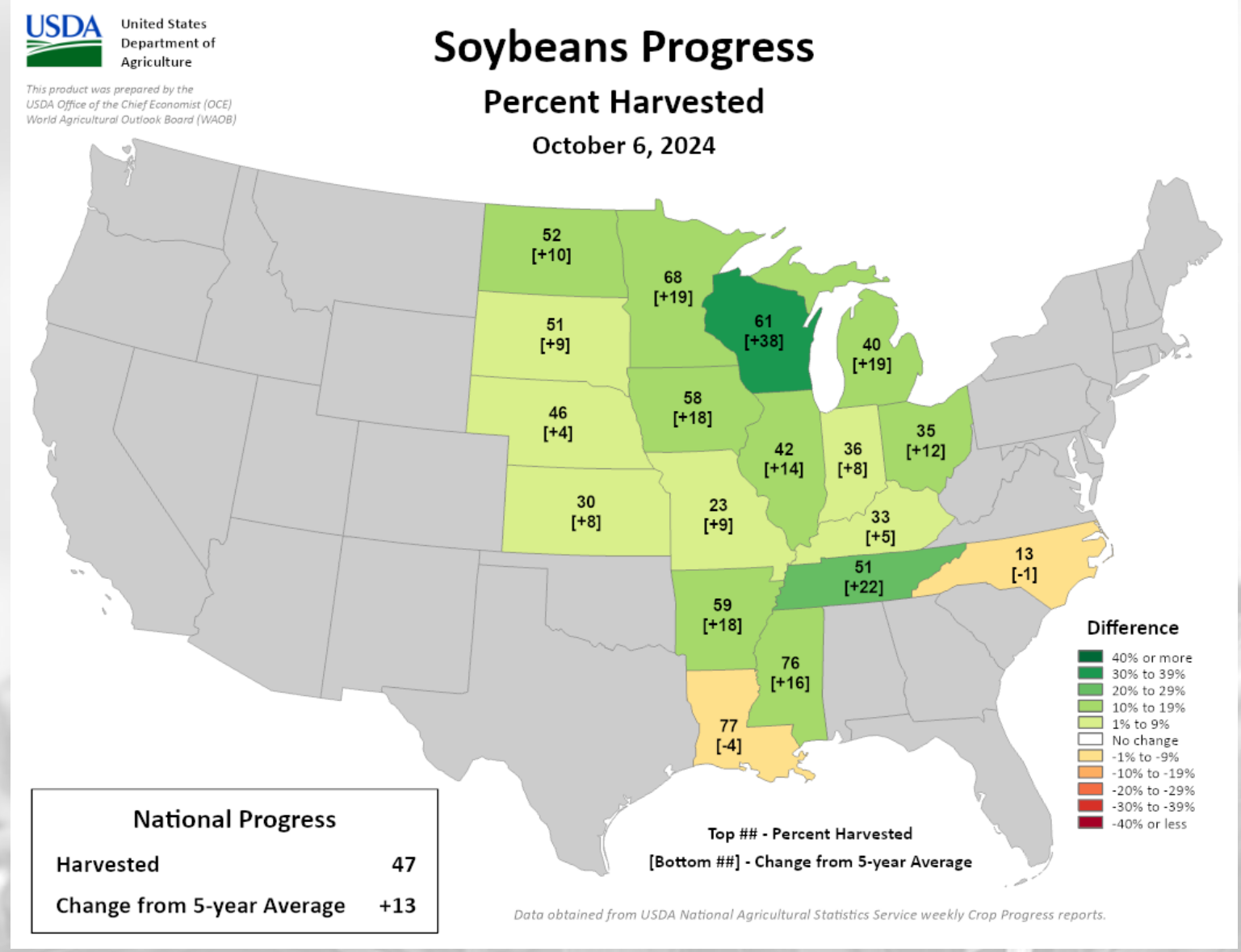
NASS Crop Progress – Corn



- The corn in WI fields is **over 50% mature**. Denting is almost complete. Progress is **estimated at complete**.
  - In WI, maturity is **70% complete.** 1% ahead of the 5-year average pace & up **15%** from last week.
  - Harvested → **10% complete**

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

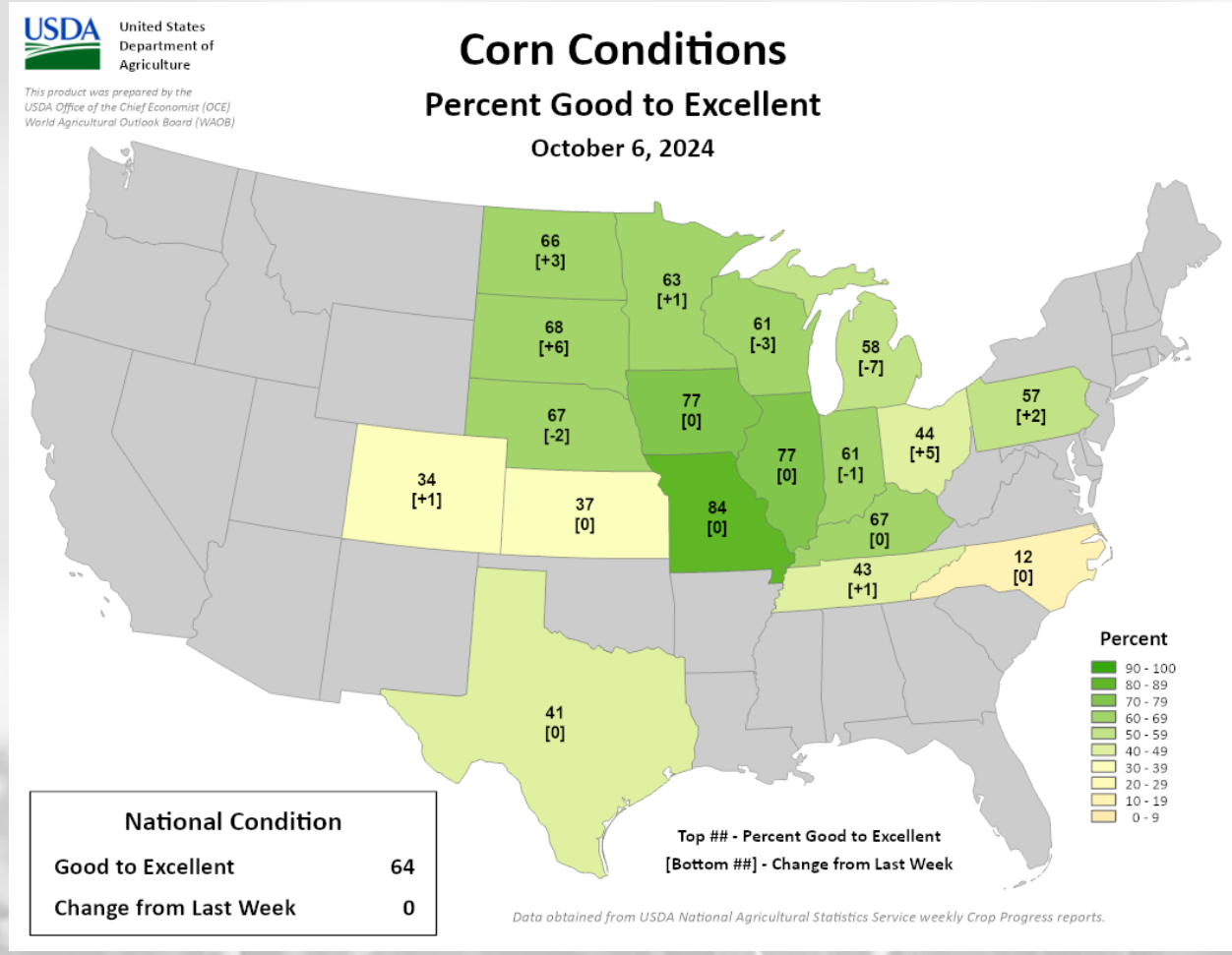
NASS Crop Progress – Soybean

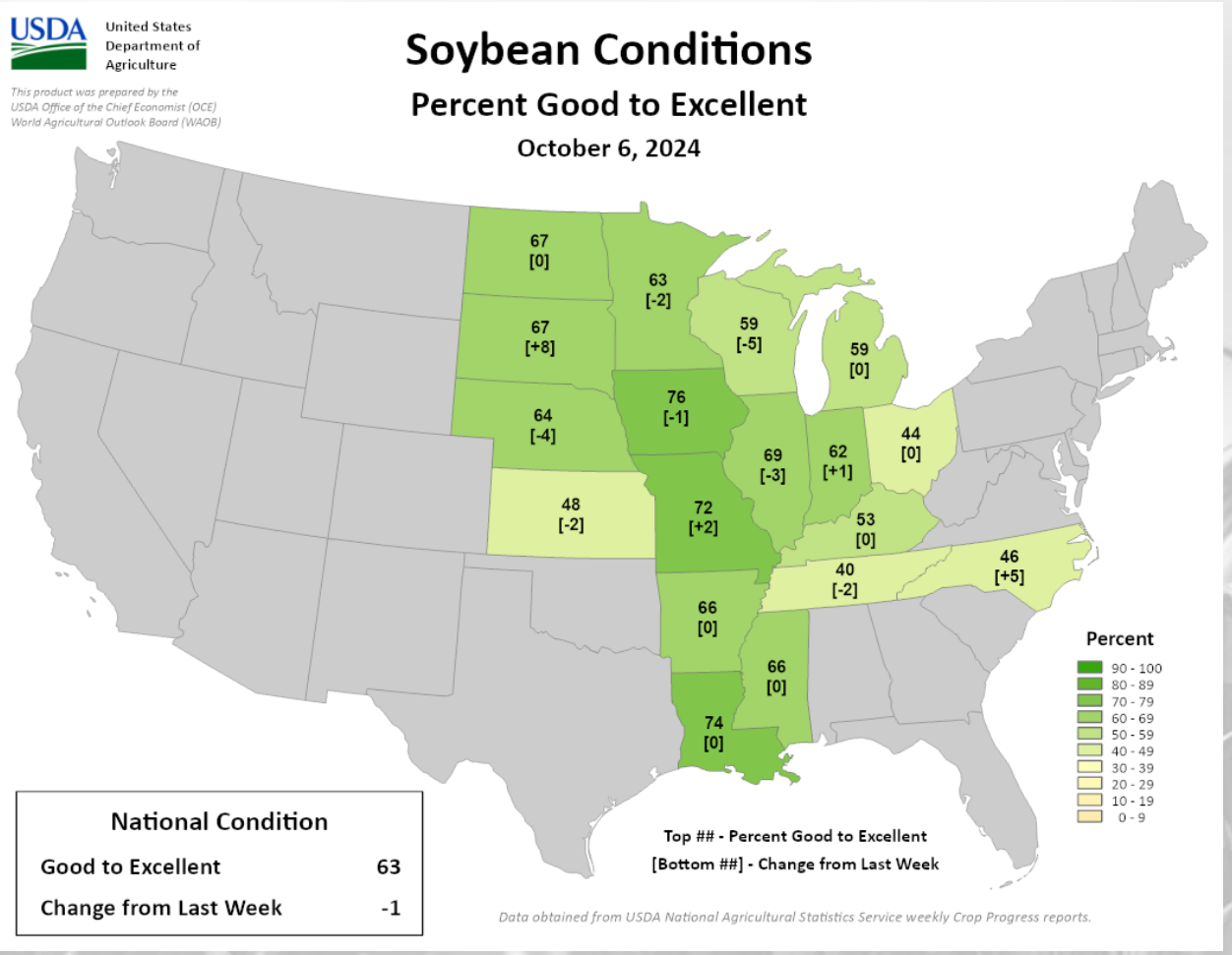


- Soybean leaf drop is **nearly complete**. Harvest is running **well ahead of normal pace** in WI and in the larger Corn Belt.
  - In WI, harvest is **61% complete.** 38% ahead of the 5-year average pace & up **31%** from last week.
  - Leaf drop → **90% complete**

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

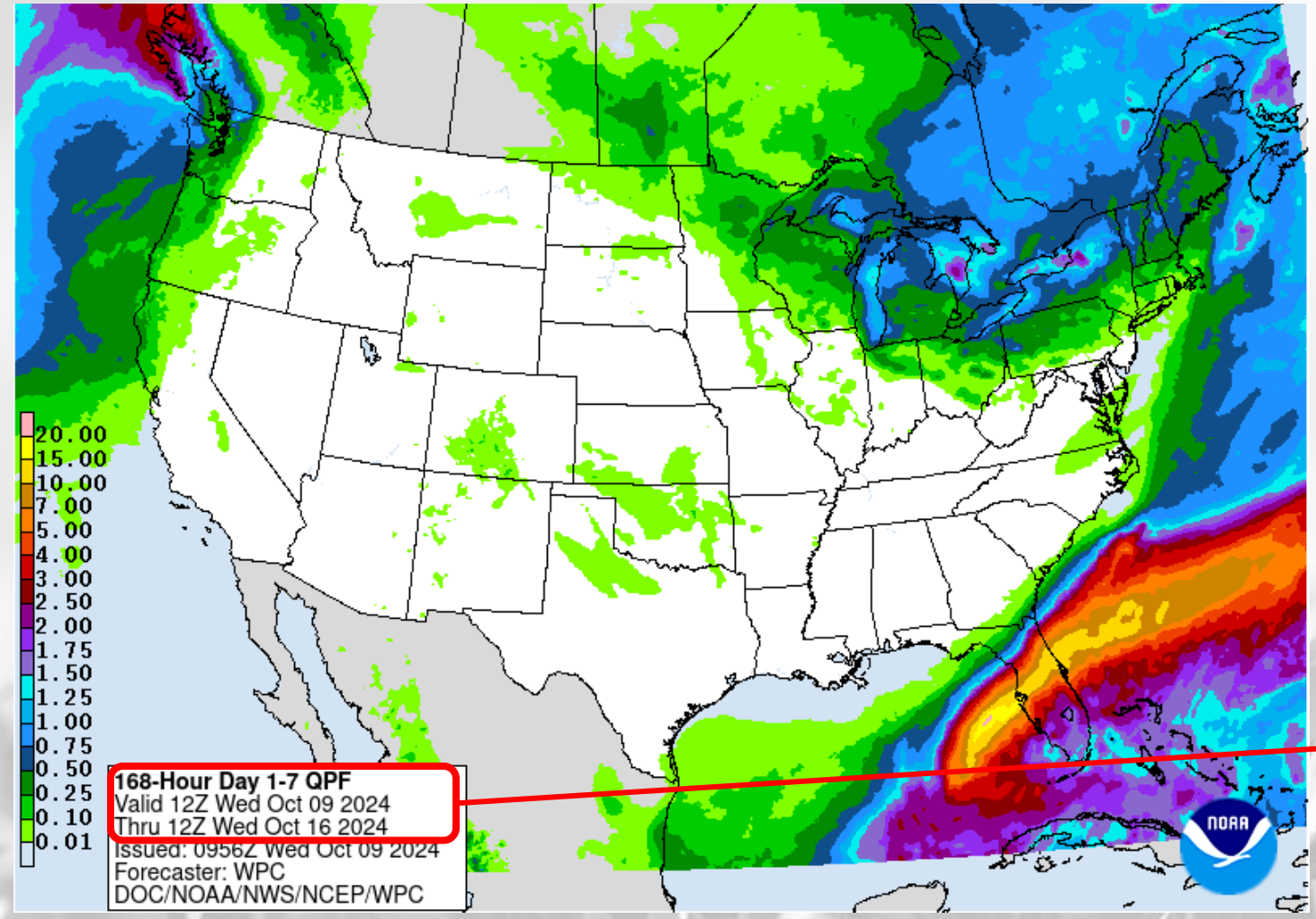
NASS Crop Condition





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

7 Day Precip Forecast

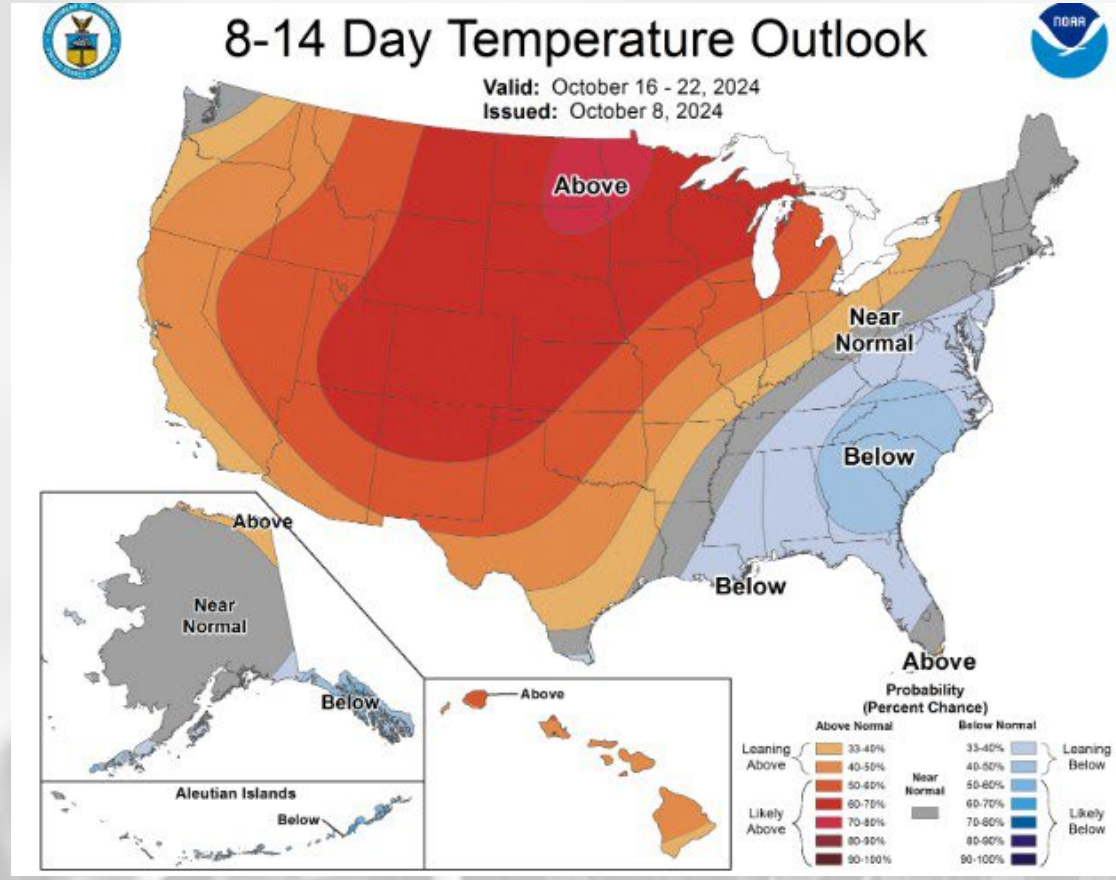


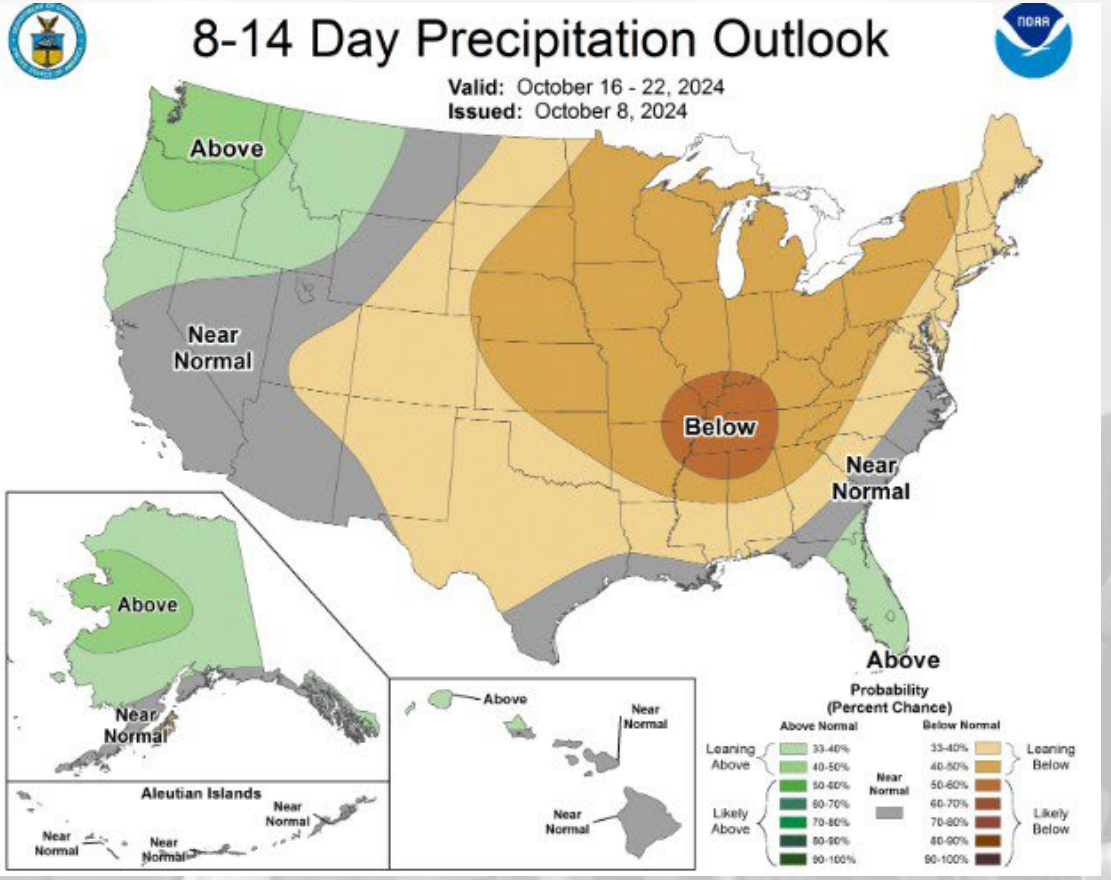
- **Statewide chances** for rain this next week.
  - Totals are forecasted to be **<0.5”** for most.
  - Highest rain chances in the **N/NE**.
  - Best chances for rain **overnight Saturday thru Sunday**.

Forecast for 10/9/24 thru 10/16/24
(Begins at 7pm CDT)

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

8-14 Day Temp & Precip Outlook

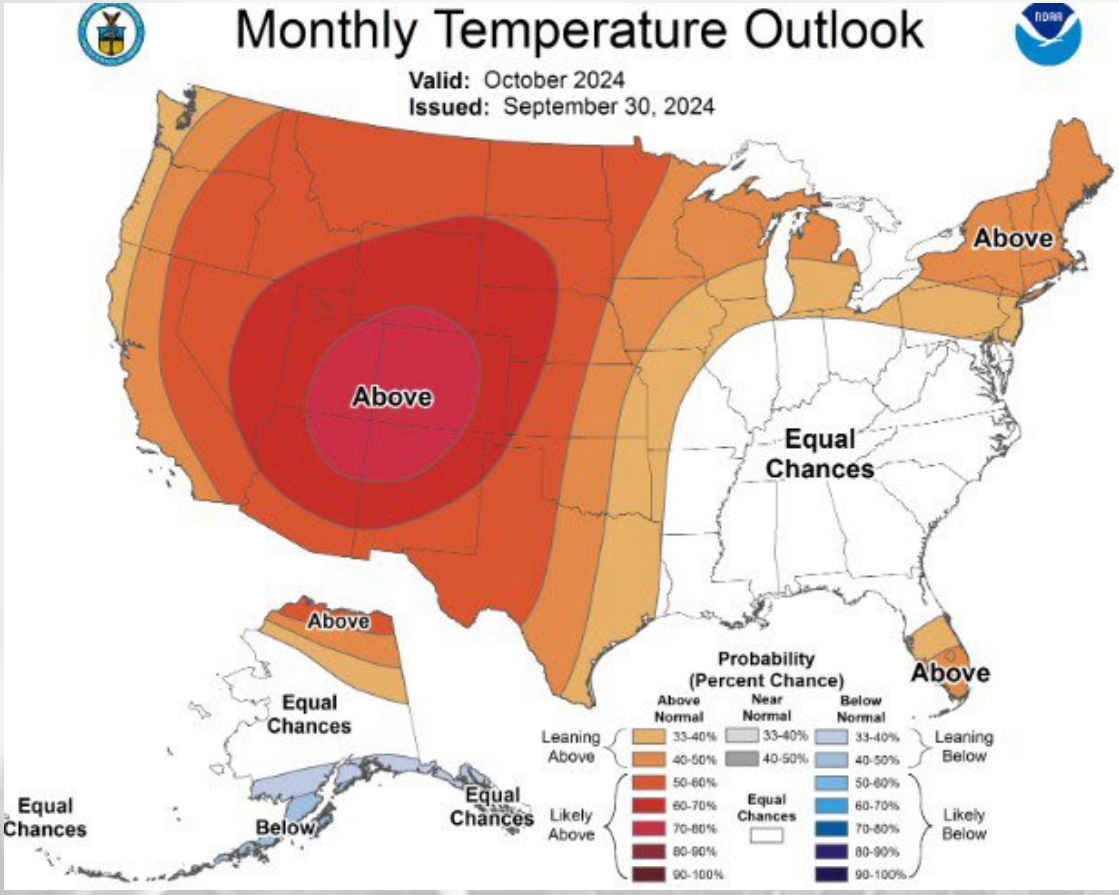


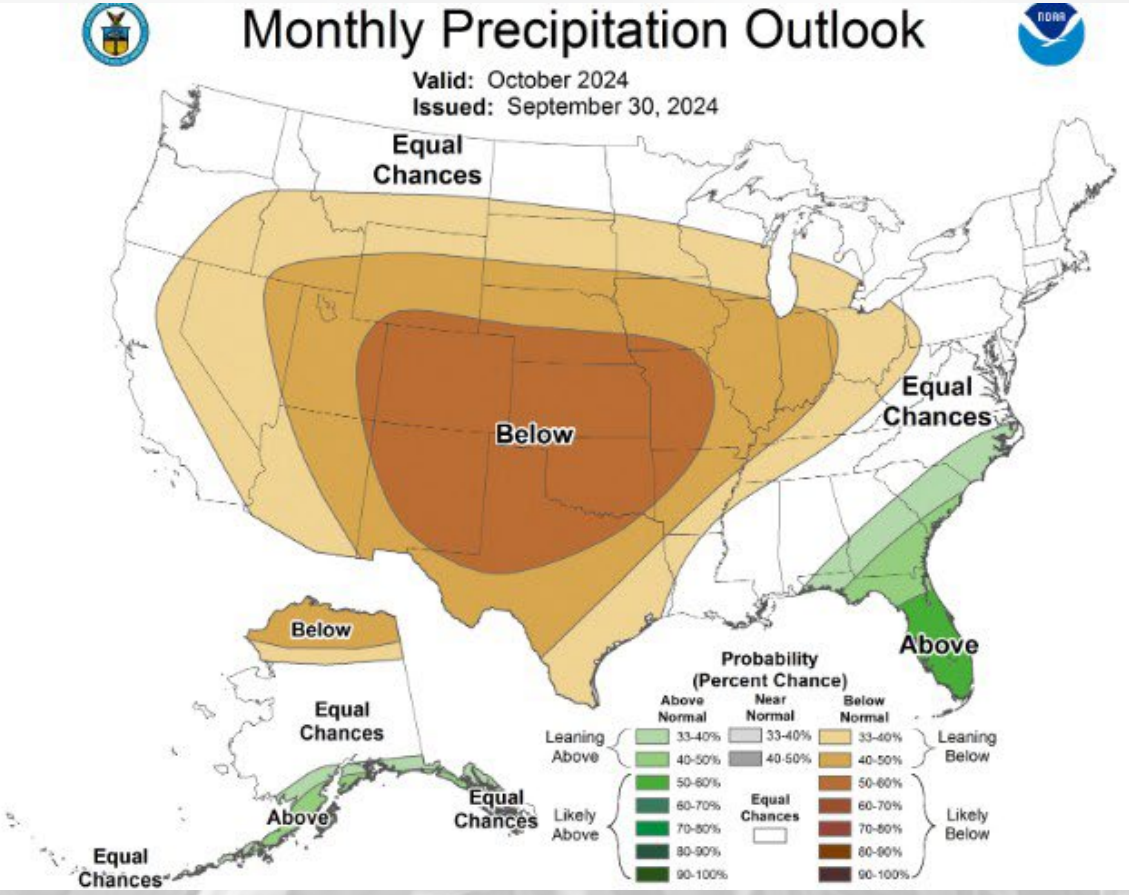


Middle of October: Temperatures likely to be above normal, with precipitation likely to be below normal.

http://www.cpc.ncep.noaa.gov/

30 Day Temp & Precip Outlook

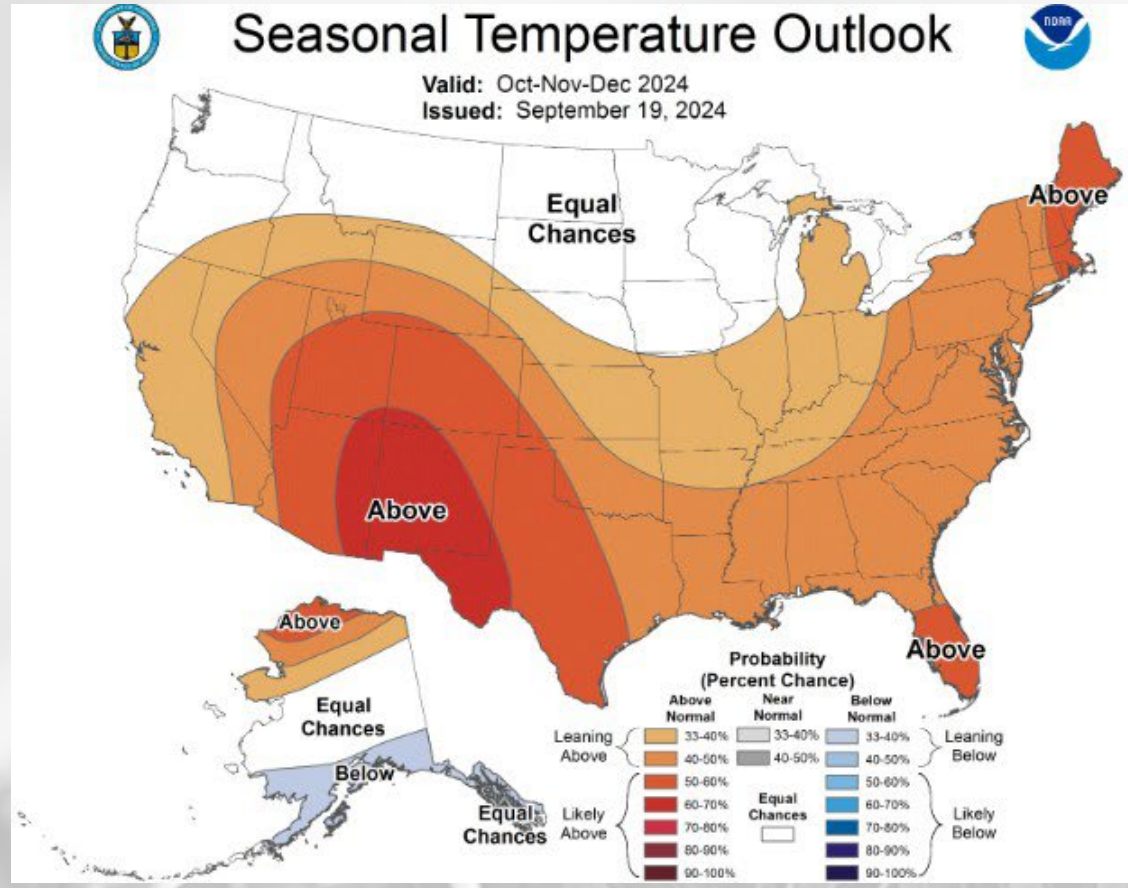


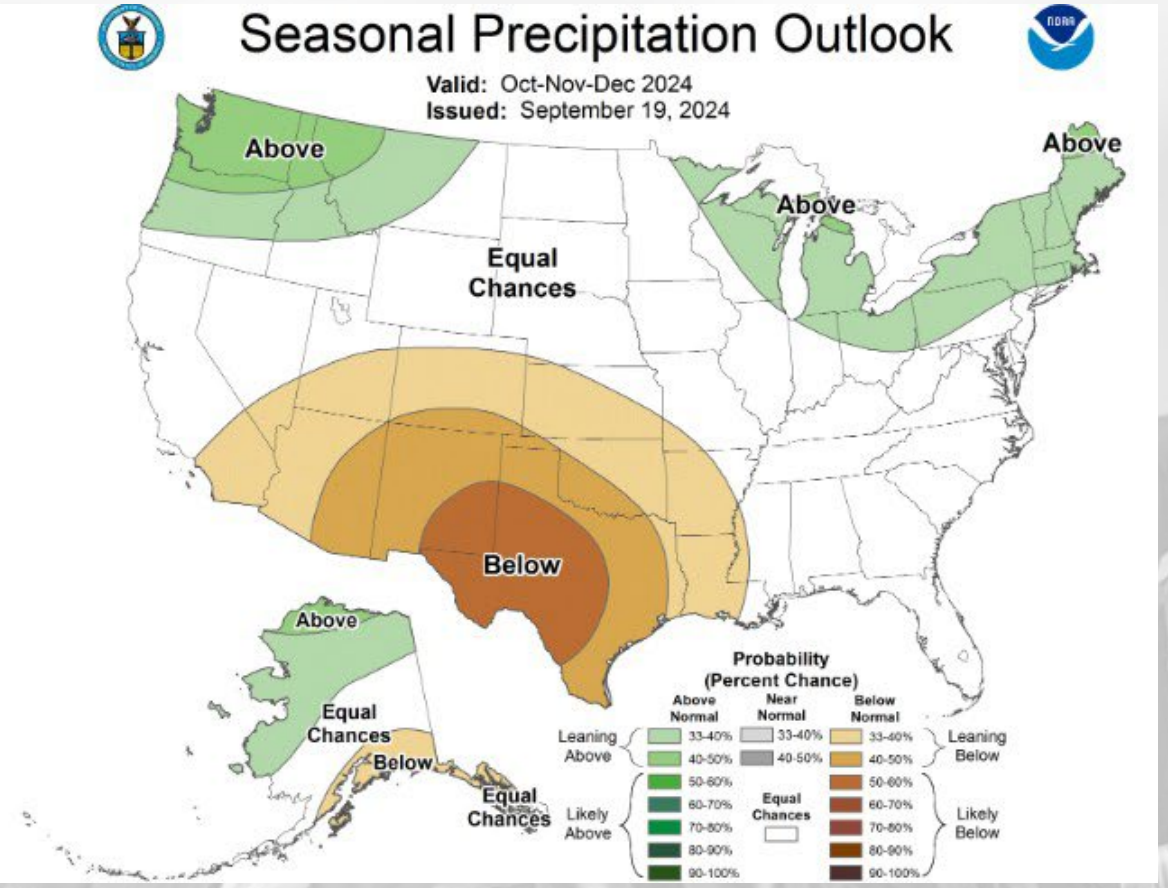


Month of October: Temperatures leaning towards above normal, with precipitation leaning towards below normal.

http://www.cpc.ncep.noaa.gov/

90 Day Temp & Precip Outlook





Fall into Early Winter: Temperatures showing equal chances. Precipitation uncertainty with equal chances in the west, leaning above normal in the E/N.

http://www.cpc.ncep.noaa.gov/

Take-Home Points

Current Conditions:

- The dry fall that we have been having **continued last week**, with only a few localized areas in the far N receiving a half inch or more. Days with little to no rain **have been very common** since August 1.
- Temperatures remain **unseasonably warm** for early October, with many station reporting average temps that are **several degrees above** the climatological average.

Impact:

- Nearly all of WI is now experiencing **dry soil moisture percentiles** (compared to normal for early October).
  - D0-D1 drought coverage expanded in WI on the latest USDM map, with the NE now categorized in D2 drought.
- **Corn** maturity is reported as **70% complete**, with harvest now at **10% complete**.
- **Soybean** progress is running **well ahead of normal pace**, with harvest jumping up 31% to **61% complete**.
- GDDs are approaching **3300 (2700) units** in the southern (northern) counties.

Outlook:

- **Statewide chances** for precip next week, but totals are forecasted to be **minimal for most**.
- Mid-October has a higher probability to be **warmer and drier than normal**, with a lean towards these conditions **remaining in place** for the rest of October.
- The remainder of fall is more **uncertain** for temperatures, with some lean towards **above normal** precip totals.
  - **La Niña** is favored to be in place by September-November (according to the CPC)

Agronomic Considerations

Crop Development

- Monitor moisture in crops closely as the lack of precipitation and mid-season disease pressure has led to some crops drying out earlier than usual.
- Evaluate soil temperatures and moisture for the opportunity for cover crops after crops come off.
- Be aware that nitrogen is still mobile as soil temperatures are still above 50F in most places.
- As crops come off, consider diverse cover crop mixes to help mitigate any compaction that may have occurred this spring and protect soil heading into fall. Tools available here for cover crop selection and their use in a forage rotation.

Manure Applications

- Runoff risk is low throughout 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.
- As silage comes off, consider the relationship between manure and cover crops, learn more here.

Forage Management

- Look out for herbicide carryover, volunteers in late summer seeding of alfalfa into wheat. Read more.
- **Corn Silage Harvest** - look for local opportunities for stalk chopping to gauge moisture content, scout fields to understand which may be ready first. For varying planting dates, plan for a segregated, longer season harvest to optimize forage quality. More info here.
- Fall alfalfa cutting can affect persistence, read more and use our new tool to make informed decisions.

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

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