



Midwest Climate Hub  
U.S. DEPARTMENT OF AGRICULTURE



**Wisconsin State Climatology Office**  
Nelson Institute for Environmental Studies



Extension  
University of Wisconsin-Madison

# Wisconsin Ag Climate Outlook

*Week of November 5, 2024*

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# Key Points

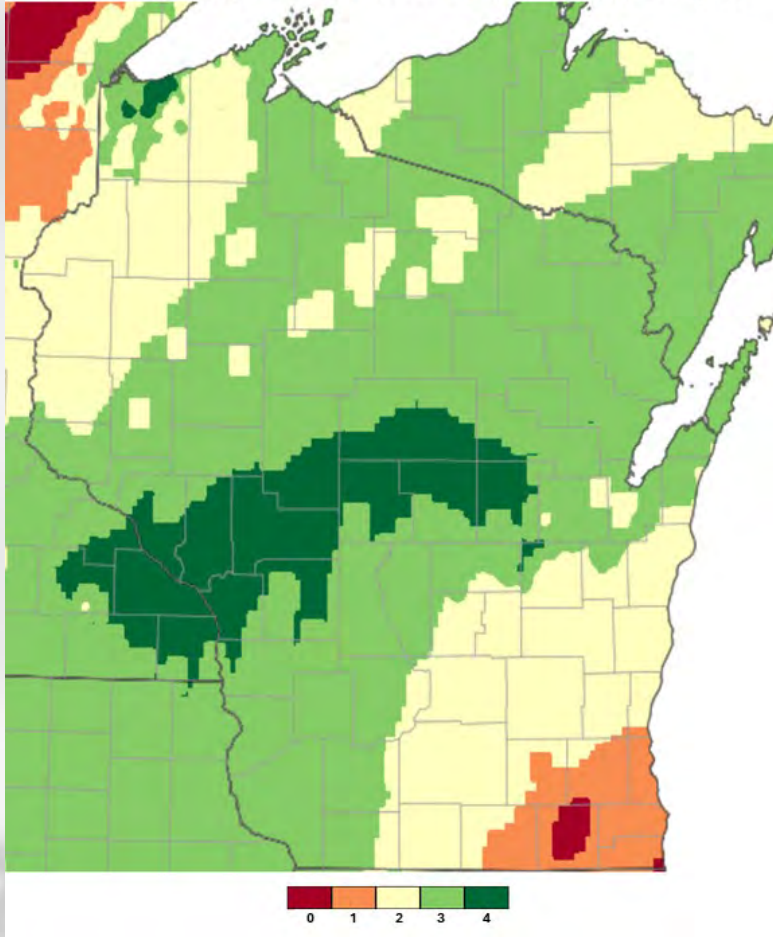
Navigate to select slides by clicking on the [links](#) below.

- 1) The [dry spell](#) was broken last week with [multiple inches of rainfall](#) to kick off November 2024!
- 2) [Temps last week](#) were once again above normal, a trend that is looking to continue into [mid-November](#).
- 3) [Warm](#) & [dry](#) conditions have allowed for a [rapid harvest pace](#), but the rainfall last week helped to [replenish the dry soils](#).

- 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](#).

# Bring on the rain!

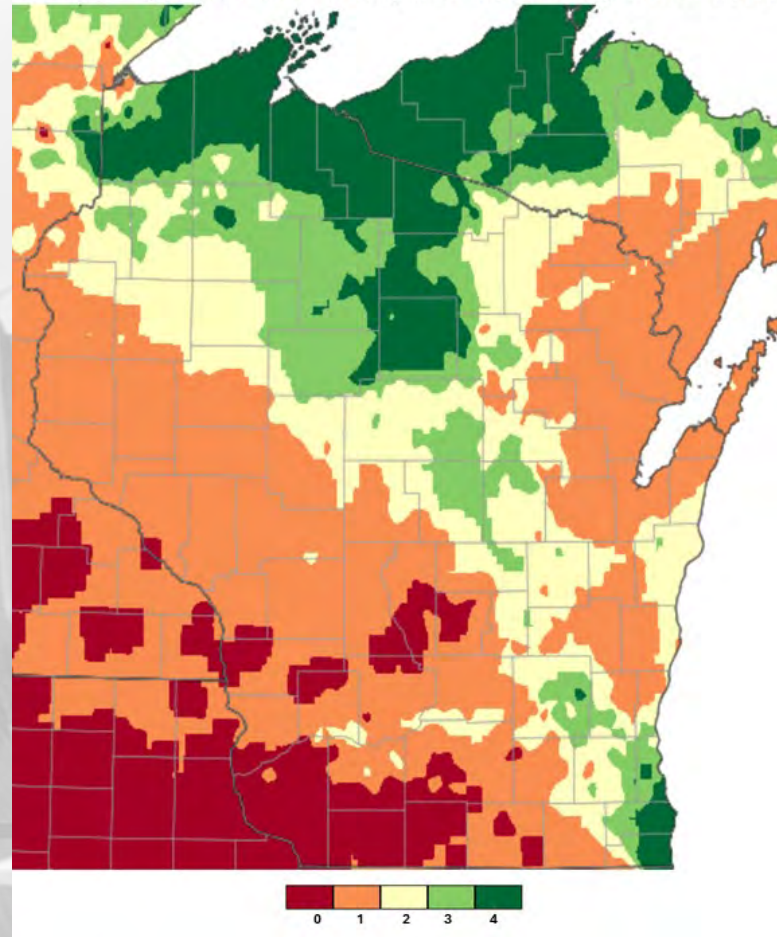
Number of Days Precipitation  $\geq$  0.1 - October 29, 2024 through November 4, 2024



Days with rainfall of 0.1" or more between October 29 & November 4, compared to...

...the same variable for the 30 days prior to October 29.

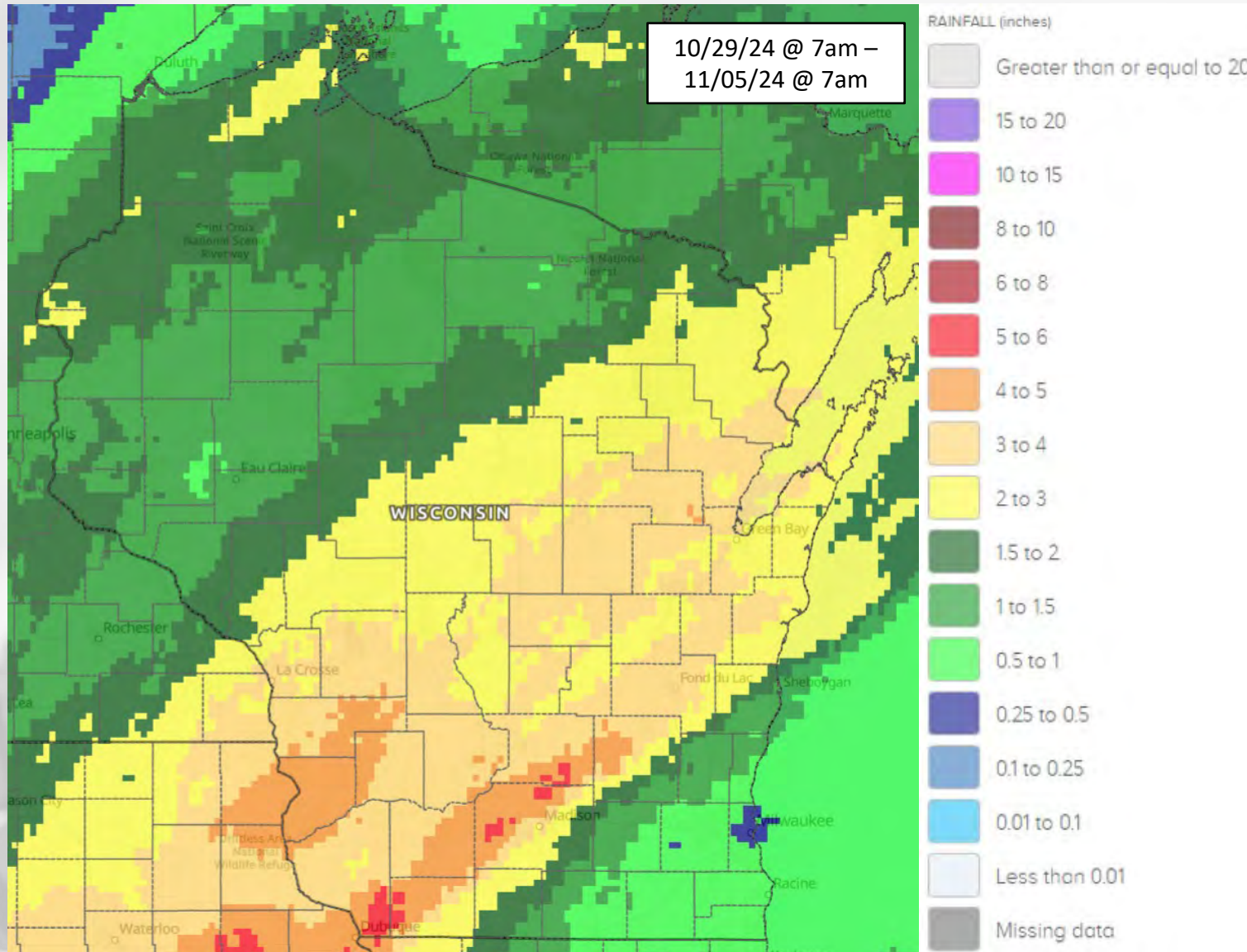
Number of Days Precipitation  $\geq$  0.1 - September 29, 2024 through October 28, 2024



Station (County)	Total Rainfall (10/29 – 11/4)
CUBA CITY (Lafayette)	5.99
DARLINGTON 6.1 NNW (Lafayette)	5.69
BENTON 0.2 E (Lafayette)	5.48
DODGEVILLE 6.2 NNE (Iowa)	5.45
PLATTEVILLE 1.1 NE (Grant)	5.43
DODGEVILLE 2.7 NE (Iowa)	5.17
BENTON 0.3 WNW (Lafayette)	5.12
MOUNT HOREB 3.6 SSW (Dane)	4.87
MINERAL POINT 7.3 ENE (Iowa)	4.85
MT. HOREB WWTP (Dane)	4.69

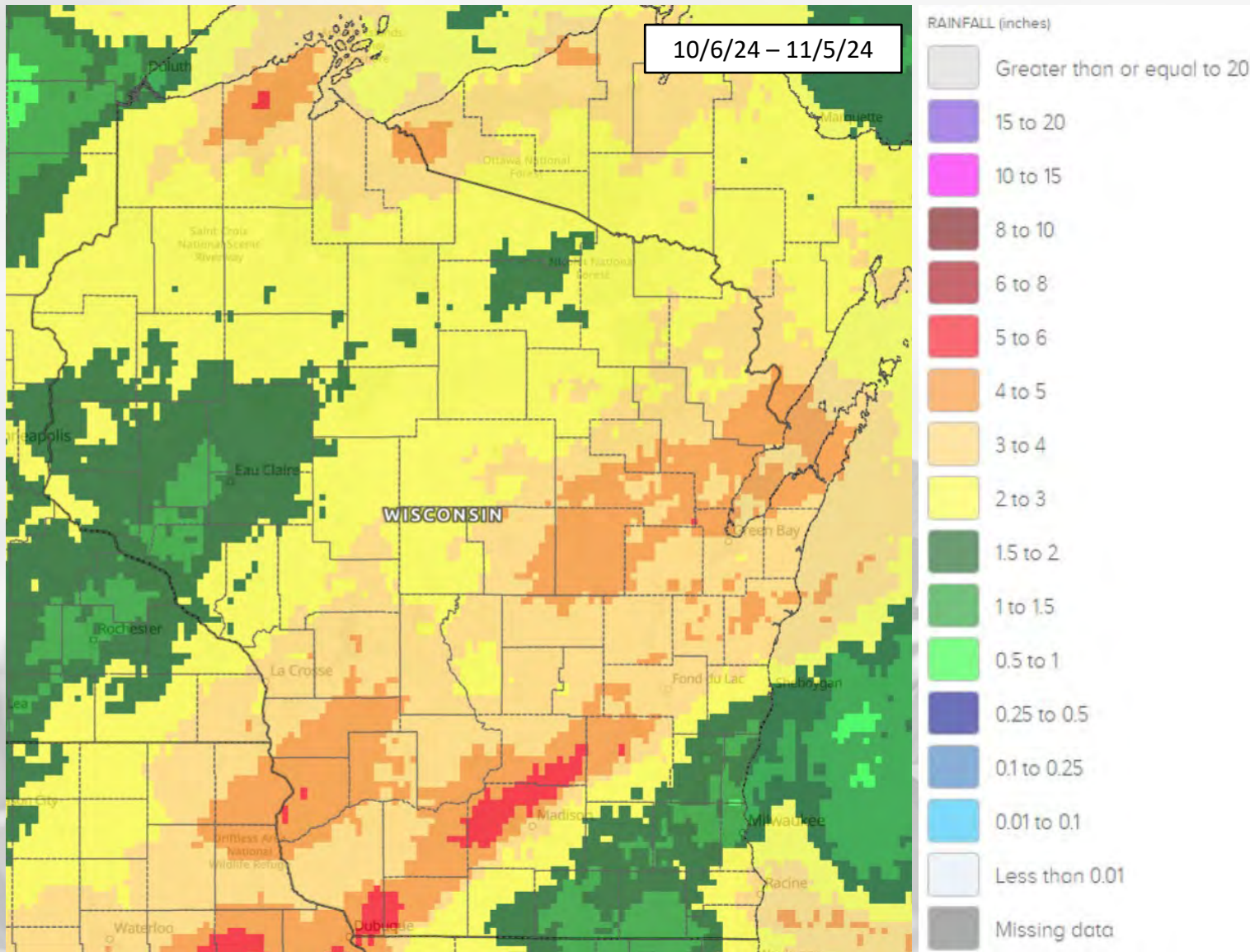
Data in the table represents the measuring stations with the highest total rainfall measured between October 29 & November 4, 2024. (Source: ACIS)

# 7 Day Precip



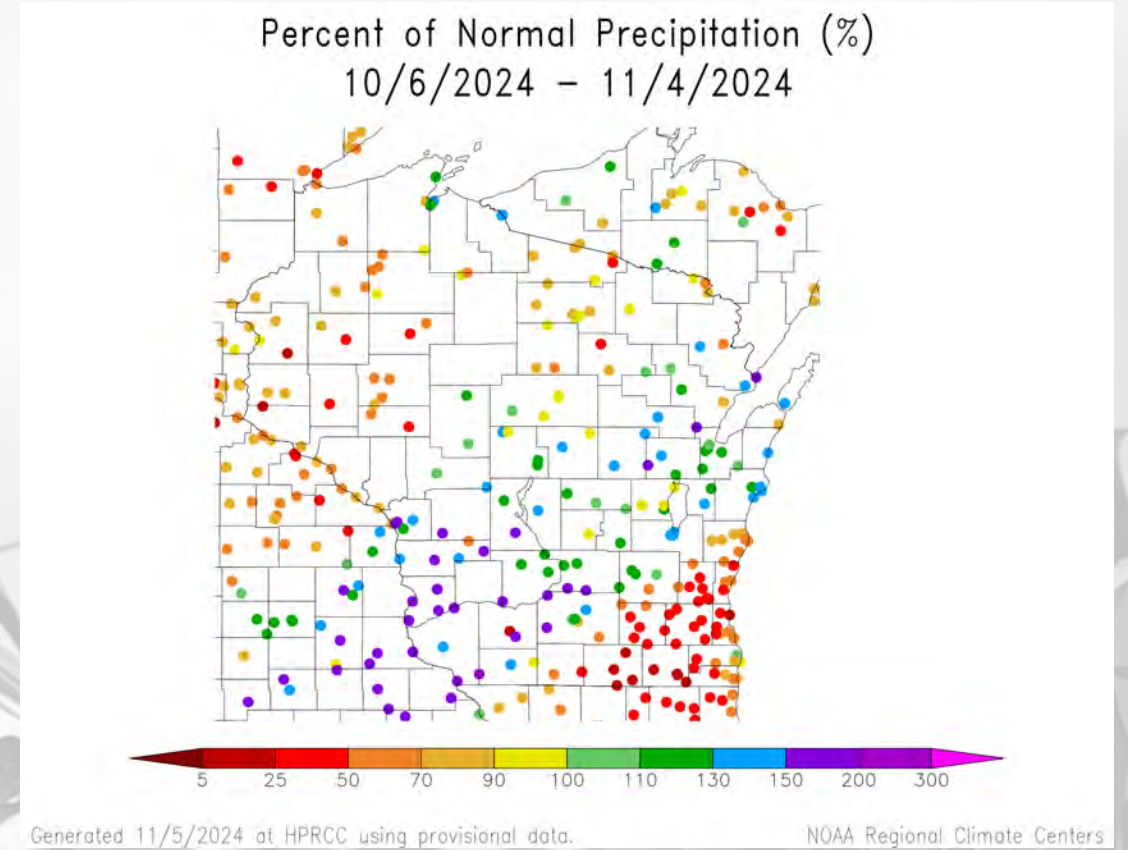
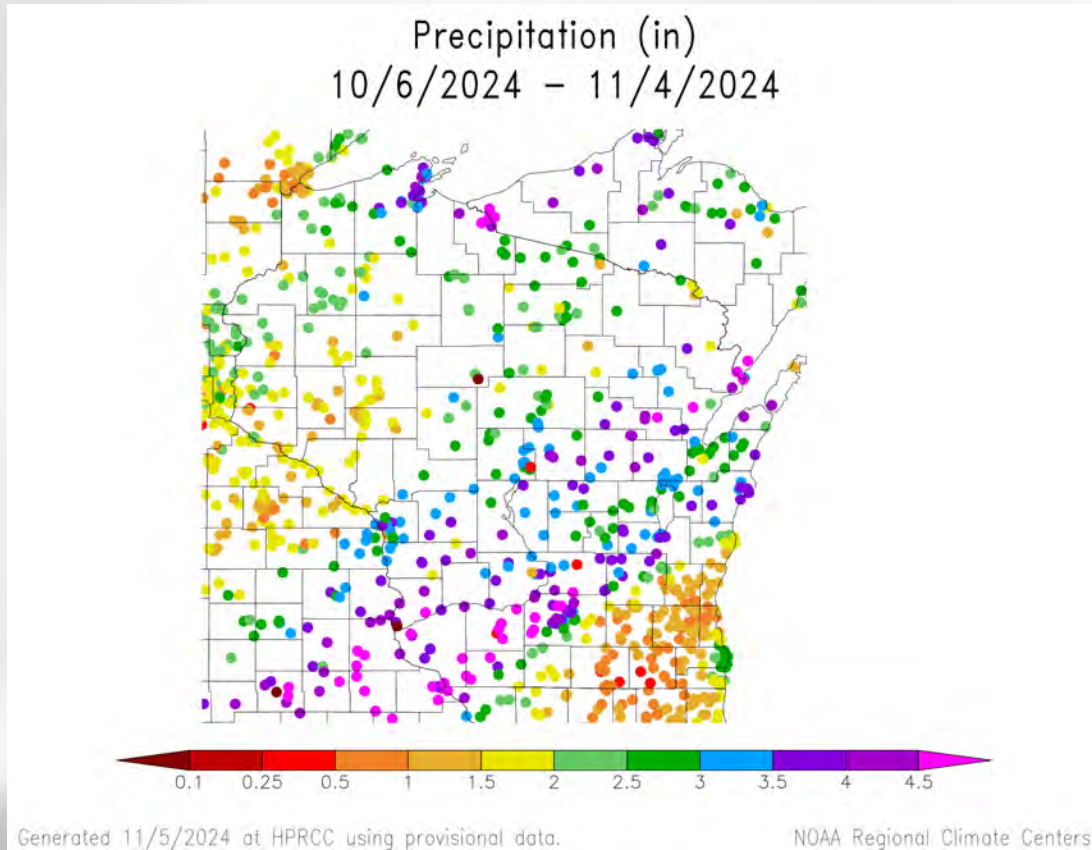
- A large band of 2+” of rainfall was observed from the SW corner up through the Green Bay area.
- 4+” was observed in a band from Dubuque to Madison, as well as in/around Crawford County.
- 1-2” for the N/NW, and <1” in the SE corner.

# 30 Day Precip



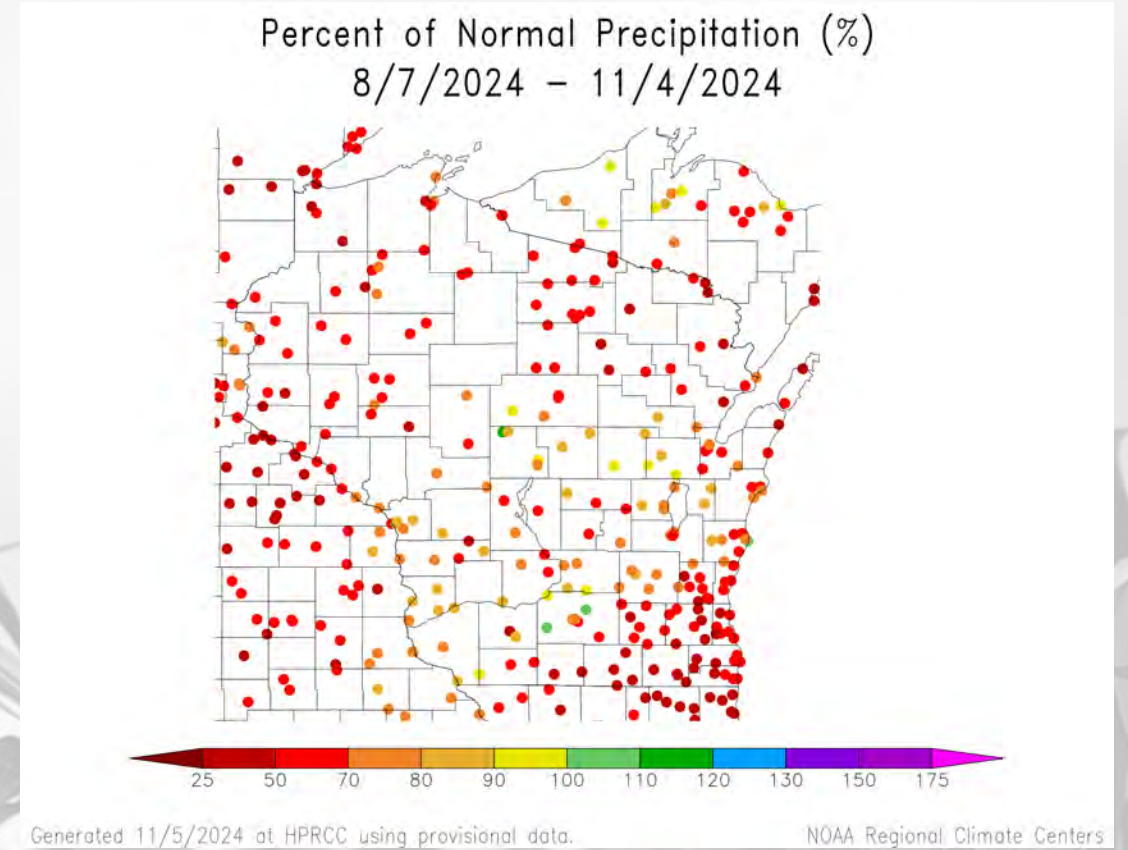
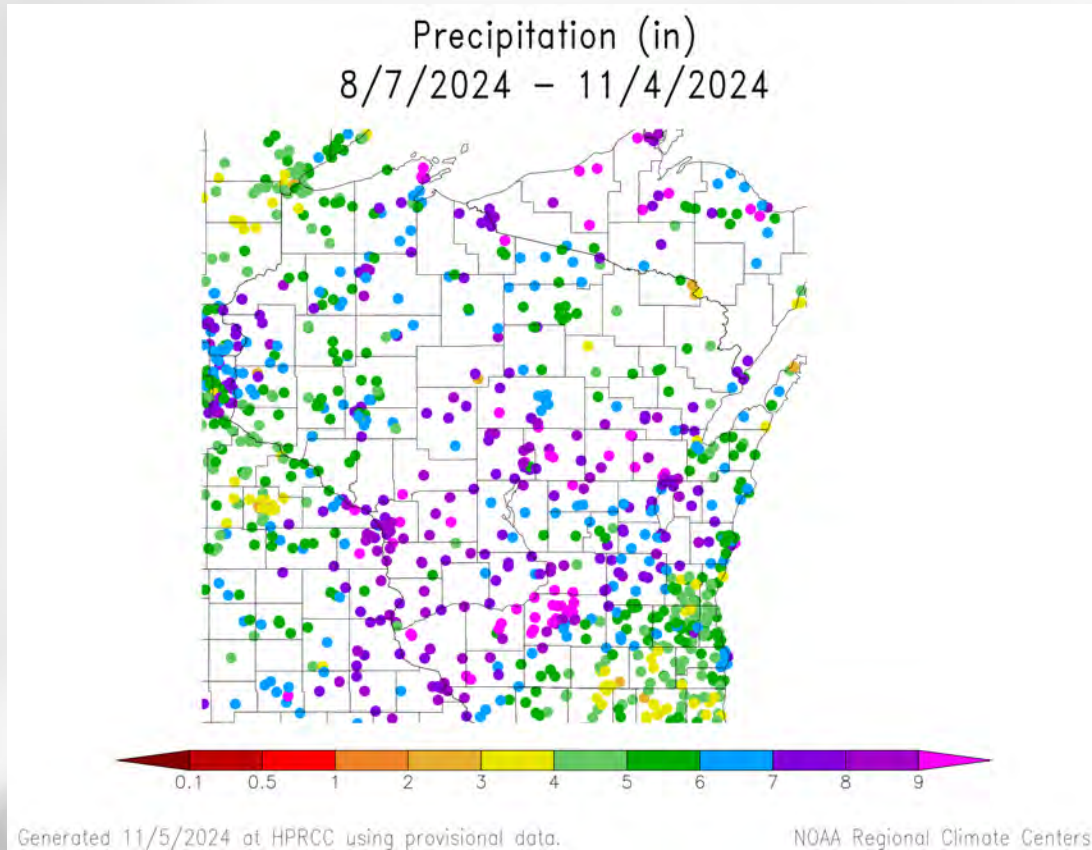
- Most of the 30-day precip total came during the **last 7 days**, except for the far SE and NW.
- **2-5"** for most in the state, with **instances of 5+"** in the SW/SC from last week's rain.
- 30-day totals across the SW-to-NE belt are **at or above** the 30-year **climatological average**.

# 30 Day Precip Total/% Avg.



- **Band of 3-4+”** from Prairie du Chien to Green Bay → monthly totals now at **110+% of 30-year normal**.
- **150+% of normal** in SW Wisconsin → some of the **driest stations in WI** this fall before last week!
- **2” or less** in the NW and SE → most stations are **below the 30-year normal**.

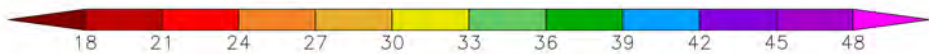
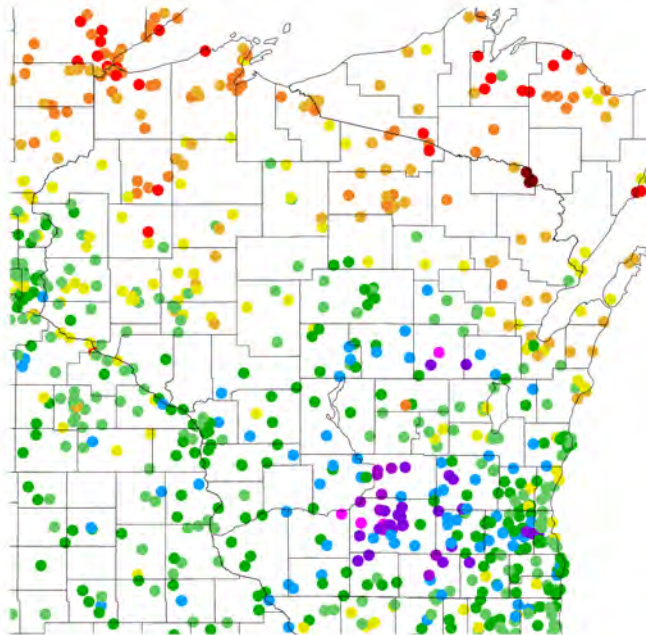
# 90 Day Precip Total/% Avg.



- **Band of 7-9+”** from Prairie du Chien to Green Bay & over to Wausau → a good portion of this **came last week**.
  - However, most of these stations are still **below the climatological average** but have made gains.
- **25-70% of normal** across most stations in the SE and N/NW where rains were lesser last week.

# 2024 Precipitation (so far)

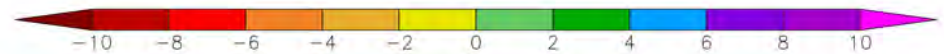
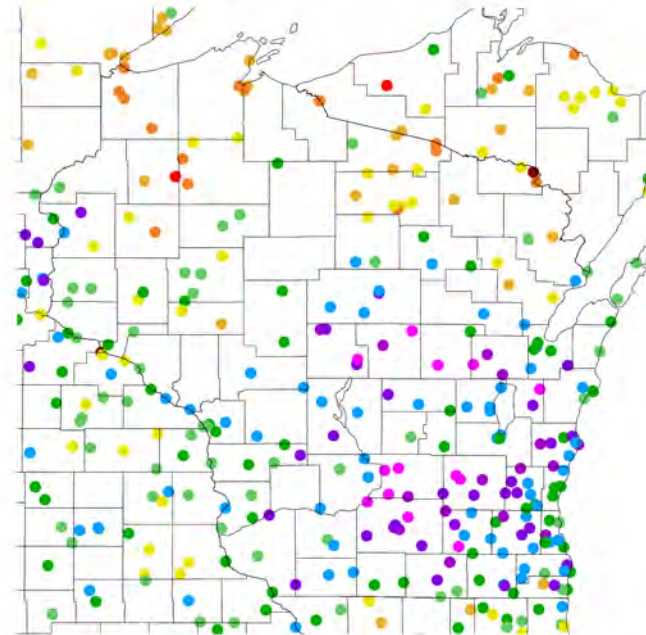
Precipitation (in)  
1/1/2024 - 11/4/2024



Generated 11/5/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)  
1/1/2024 - 11/4/2024



Generated 11/5/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

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



# Soil Moisture Models

- **Large improvements** in soil moisture percentiles from last week's rainfall!
- **10<sup>th</sup>-30<sup>th</sup> percentiles** still in place in the south and west, but areas in red have been **greatly diminished**.
- **Near-normal conditions** common in the central and northern counties
- The eastern shore is still **trending very dry**, but nonetheless did improve from last week.

## Model Notes:

*Red* areas = top 5 driest in 100 years.

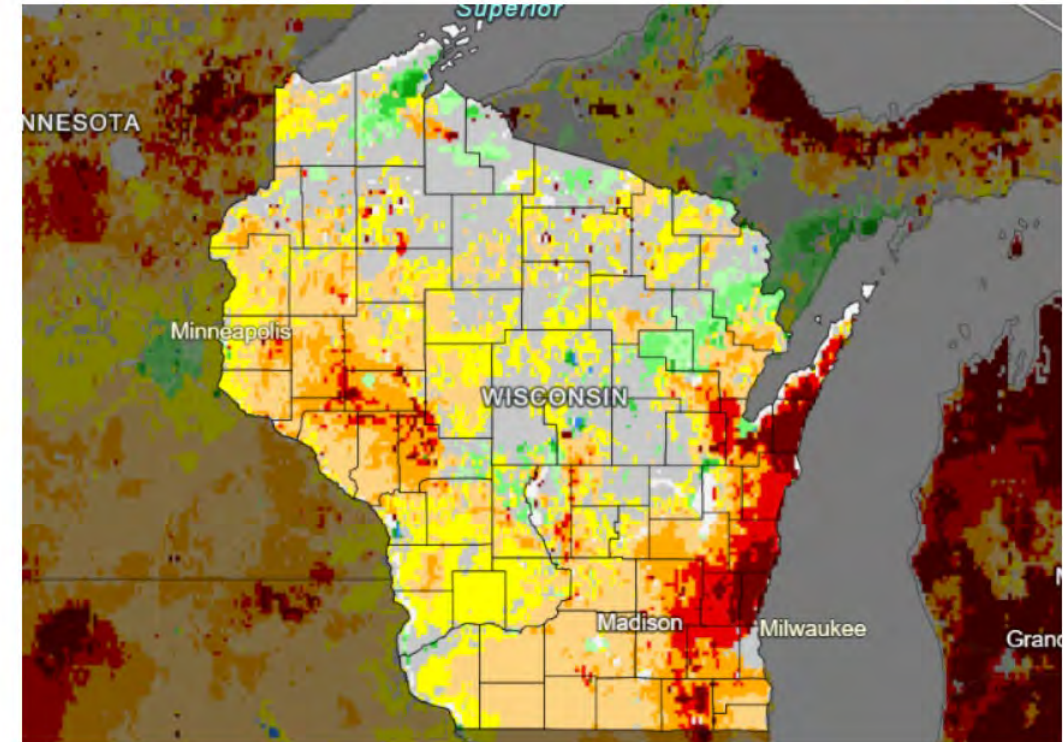
*Dark red* areas = top 2 driest in 100 years.

*Blue* areas = top 2 wettest in 100 years.

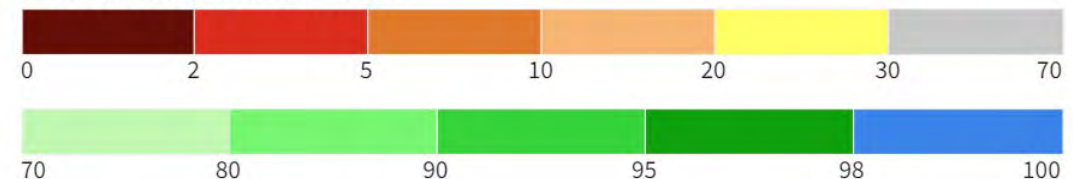
*It's worth noting that each soil moisture model has their own characteristics and input variables, so there tends to be variation between models. Thus, it's worthwhile to look at multiple models opposed to just one.*

[https://weather.msfc.nasa.gov/sport/case\\_studies/lis\\_CONUS.html](https://weather.msfc.nasa.gov/sport/case_studies/lis_CONUS.html)  
<https://www.drought.gov/states/wisconsin>

NASA SPoRT-LIS 0-100 cm Soil Moisture Percentile



0-100 cm Soil Moisture Percentile

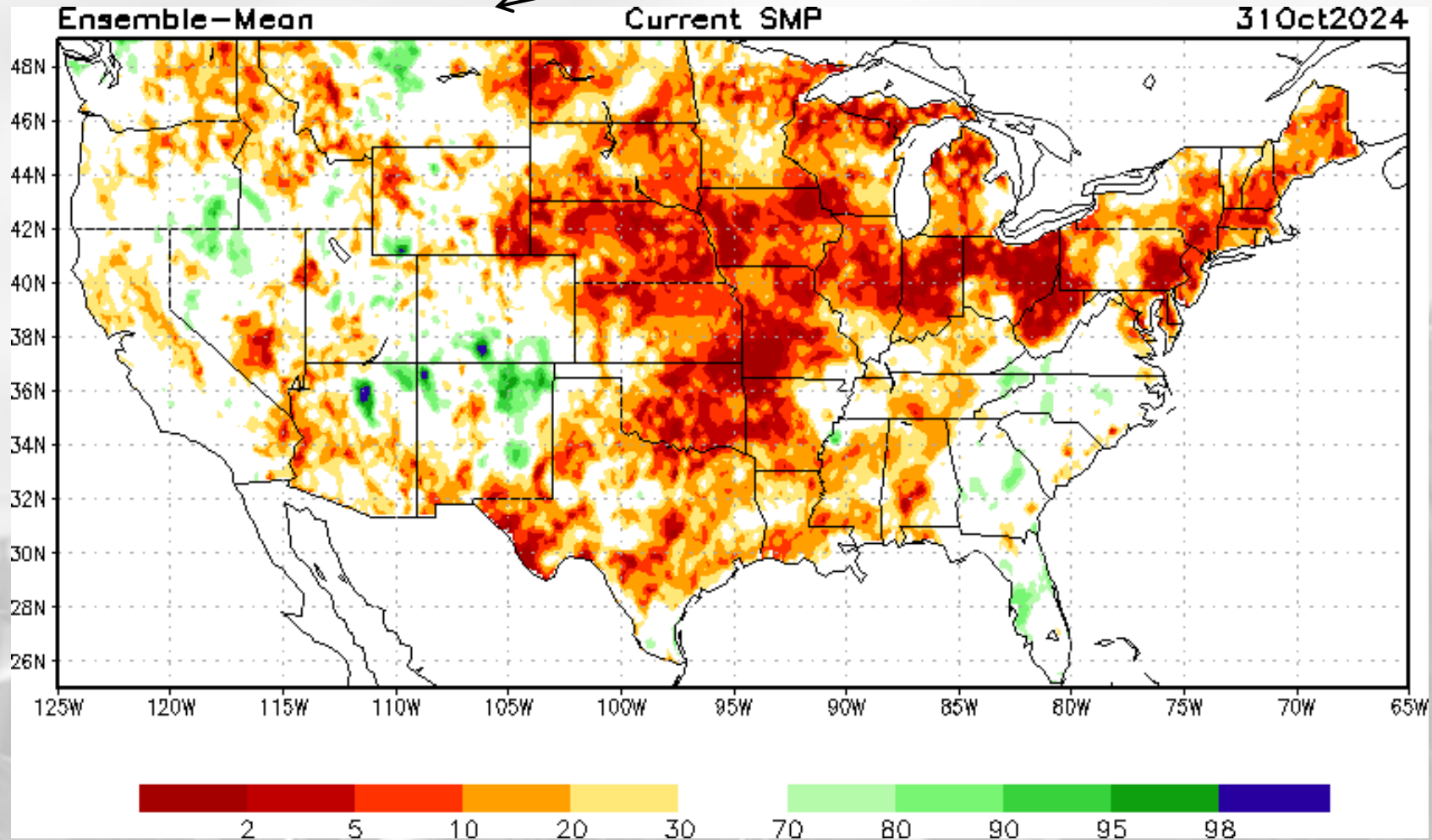


Source(s): NASA  
Data Valid: 11/05/24

**Drought.gov**

# Soil Moisture Models

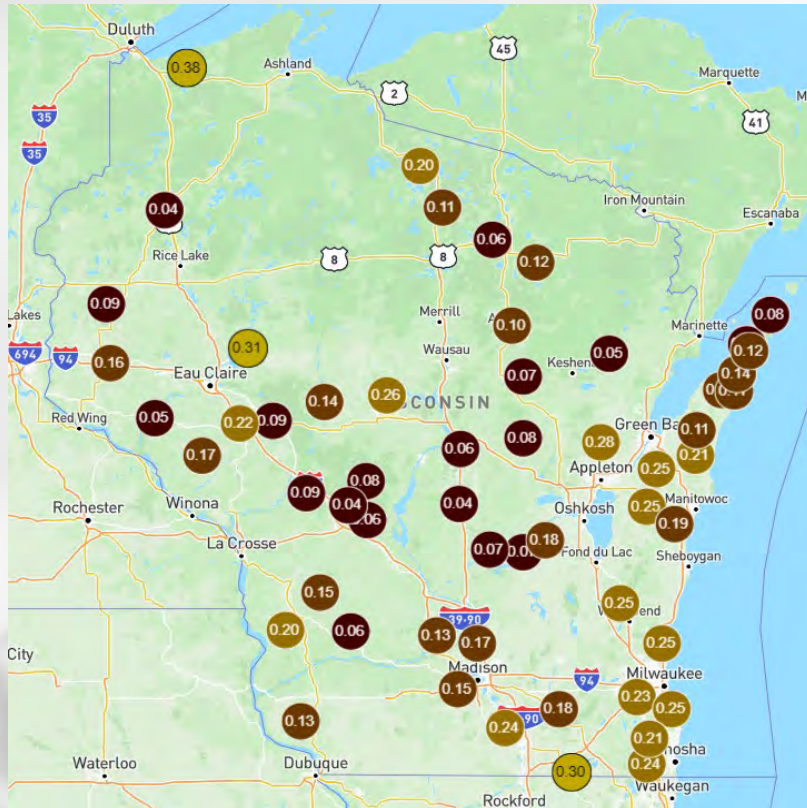
**NOTE:** this map displays the soil moisture percentile for Oct. 31 **prior to the bulk of last week's rainfall.** It was the most recent update on Nov. 5.



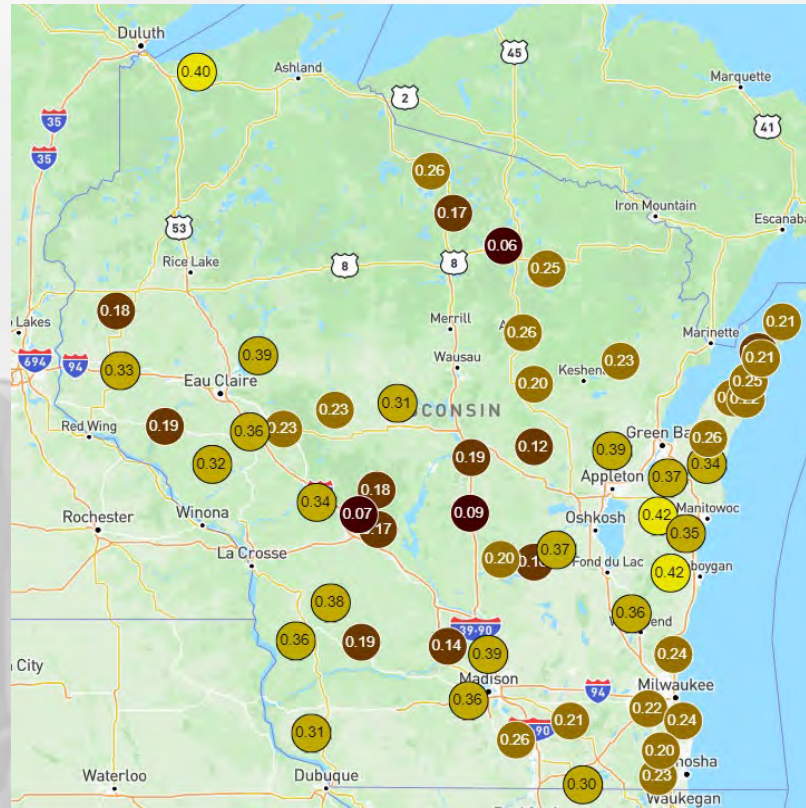
[https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp\\_new.shtml](https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp_new.shtml)

# Wisconet Soil Moisture (4" Depth)

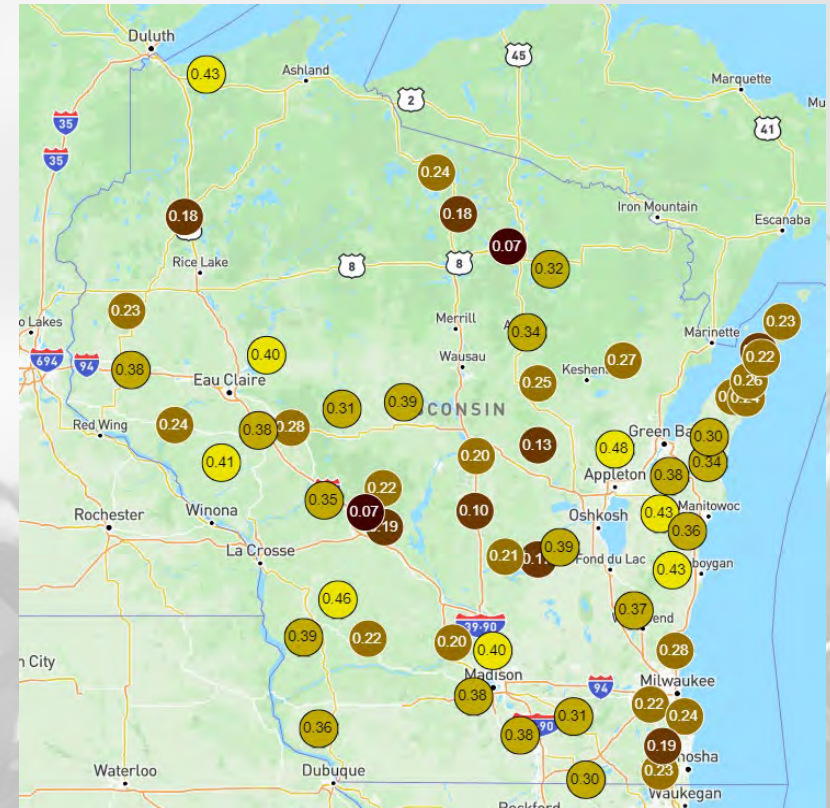
Wednesday Oct. 30<sup>th</sup> @ Middy



Friday Nov. 1<sup>st</sup> @ Middy

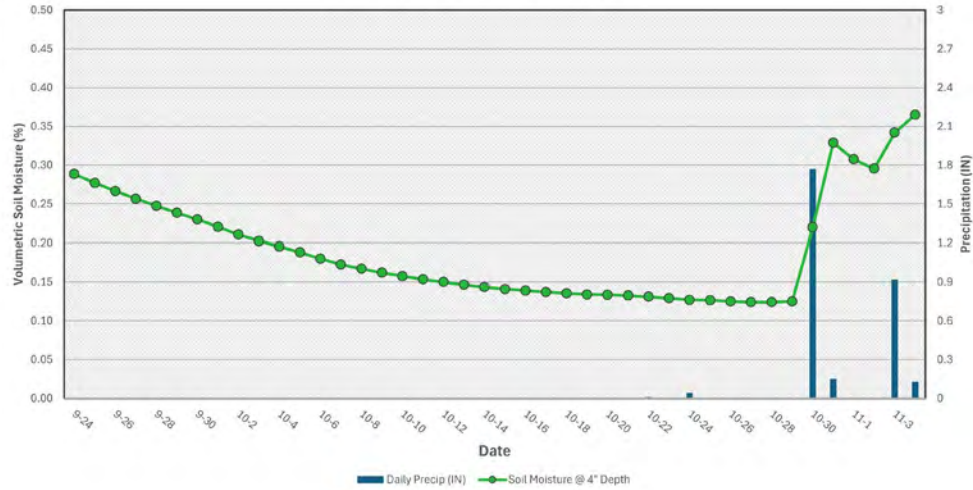


Monday Nov. 4<sup>th</sup> @ Middy

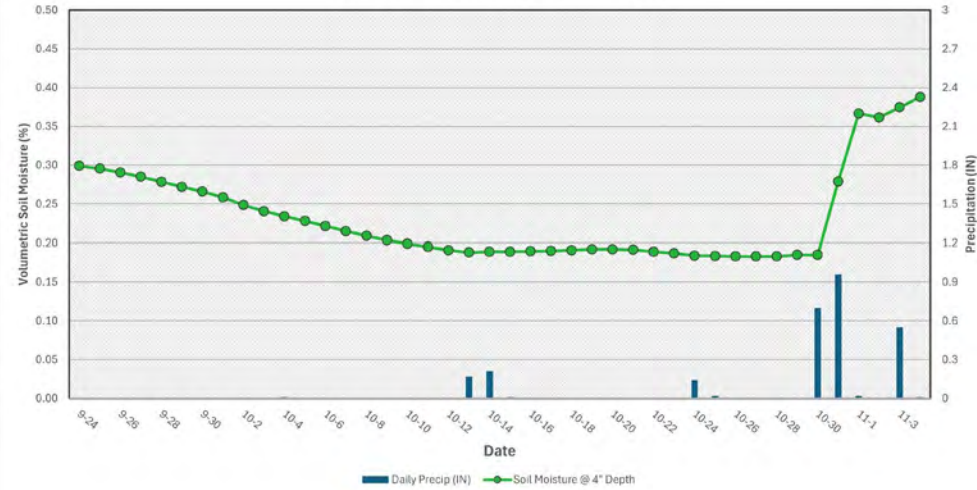


# Wisconet Soil Moisture – 4" Depth

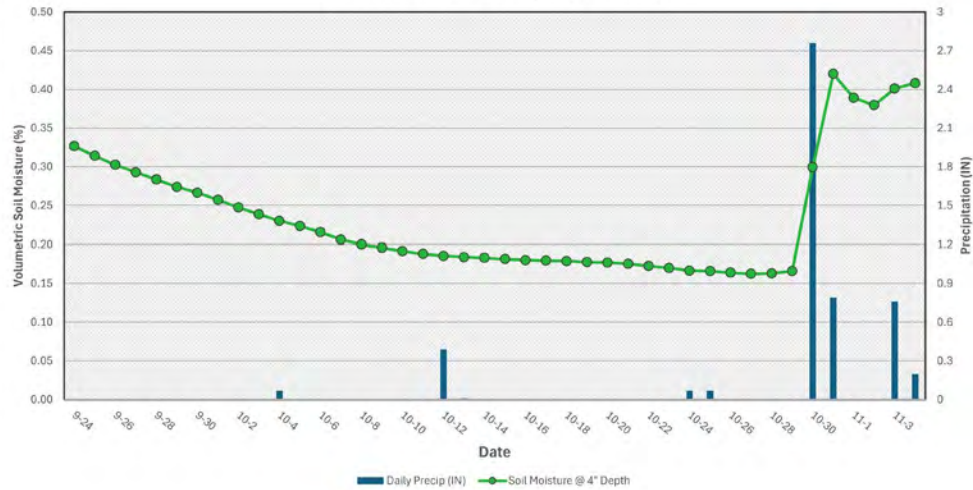
Rain & Soil Moisture - Lancaster (Grant)



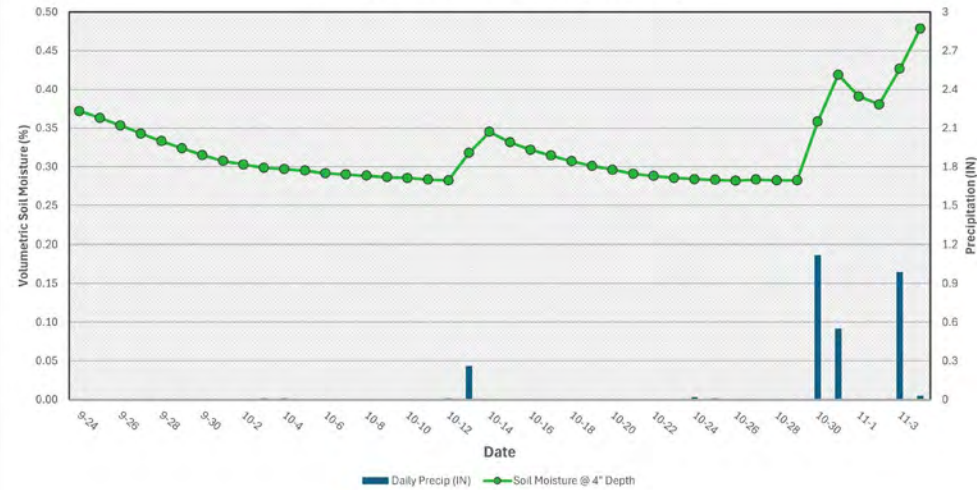
Rain & Soil Moisture - Ripon (Winnebago)



Rain & Soil Moisture - Arlington (Columbia)



Rain & Soil Moisture - Black Creek (Outagamie)



**6-week trend in soil moisture (4") & precip at Wisconet stations**

Major jumps in soil moisture after multiple inches of rainfall last week.

# NASS Topsoil & Subsoil Moisture

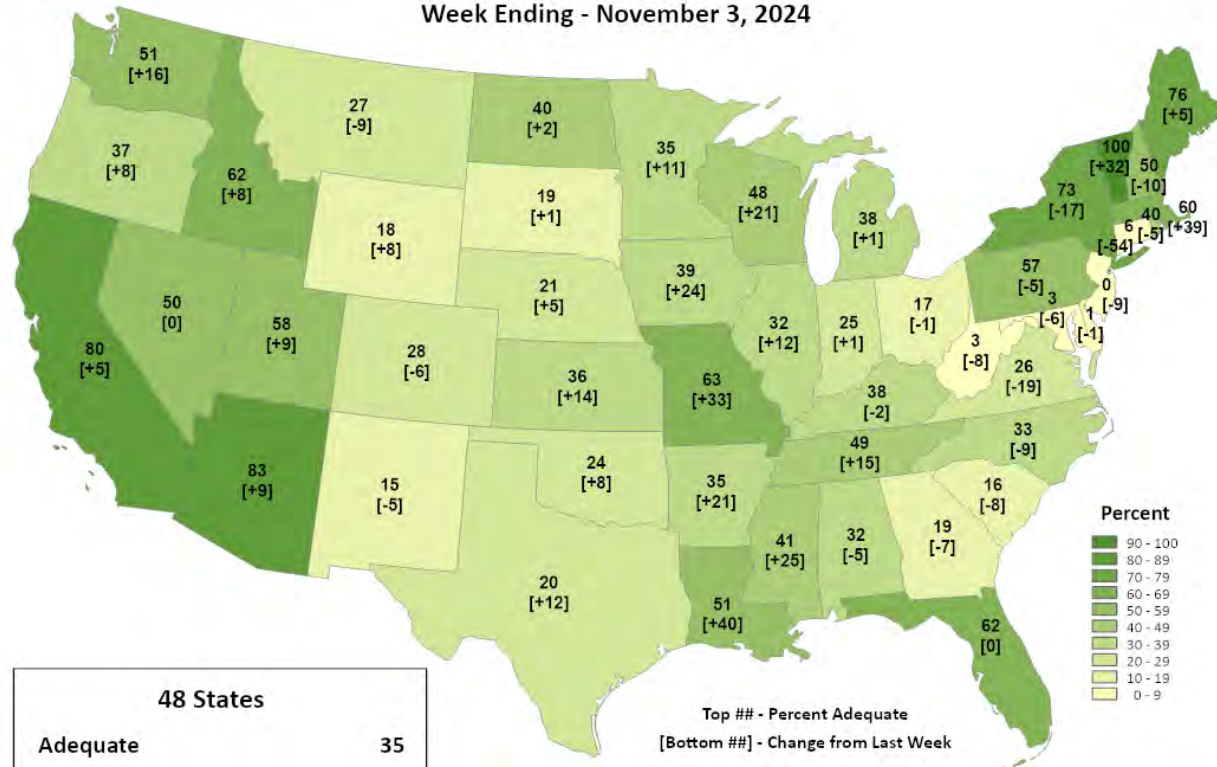


This product was prepared by the  
USDA Office of the Chief Economist (OCE)  
World Agricultural Outlook Board (WAOB)

## Topsoil Moisture

### Percent Adequate

Week Ending - November 3, 2024



<b>48 States</b>	
<b>Adequate</b>	<b>35</b>
<b>Change from Last Week</b>	<b>+8</b>

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

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

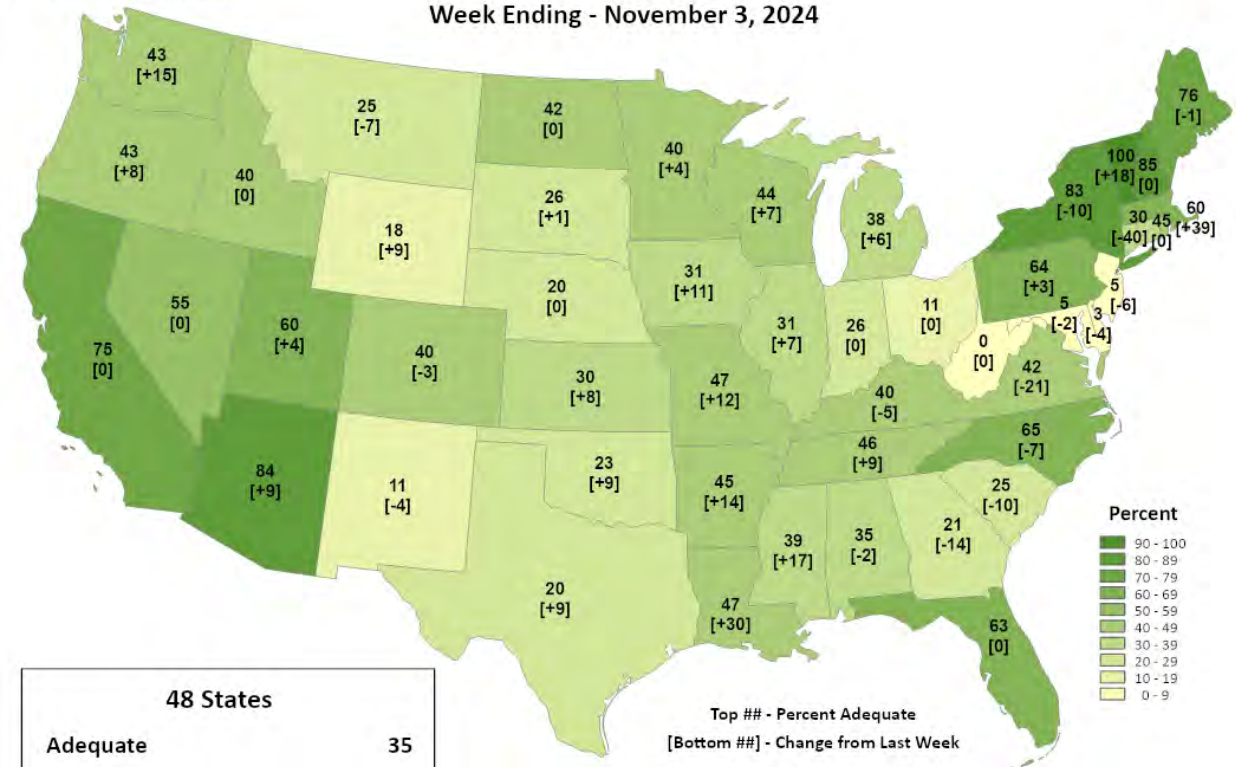


This product was prepared by the  
USDA Office of the Chief Economist (OCE)  
World Agricultural Outlook Board (WAOB)

## Subsoil Moisture

### Percent Adequate

Week Ending - November 3, 2024



<b>48 States</b>	
<b>Adequate</b>	<b>35</b>
<b>Change from Last Week</b>	<b>+4</b>

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

October 29, 2024

(Released Thursday, Oct. 31, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	3.46	96.54	74.51	37.89	4.14	0.66
Last Week 10-22-2024	11.85	88.15	65.96	24.06	2.45	0.66
3 Months Ago 07-30-2024	83.85	16.15	4.48	1.14	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 10-01-2024	21.78	78.22	28.15	6.40	1.46	0.66
One Year Ago 10-31-2023	35.30	64.70	32.66	13.79	3.00	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:

Brian Fuchs  
National Drought Mitigation Center



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

- Compared to last week:

- Increases in D1 & D2 drought coverage region-wide (up 8.5% & 14%, respectively) from last week. D1 expansion in central WI.

- Extreme to exceptional drought (D3-D4) remains in place over SE Ohio and in SW Missouri.

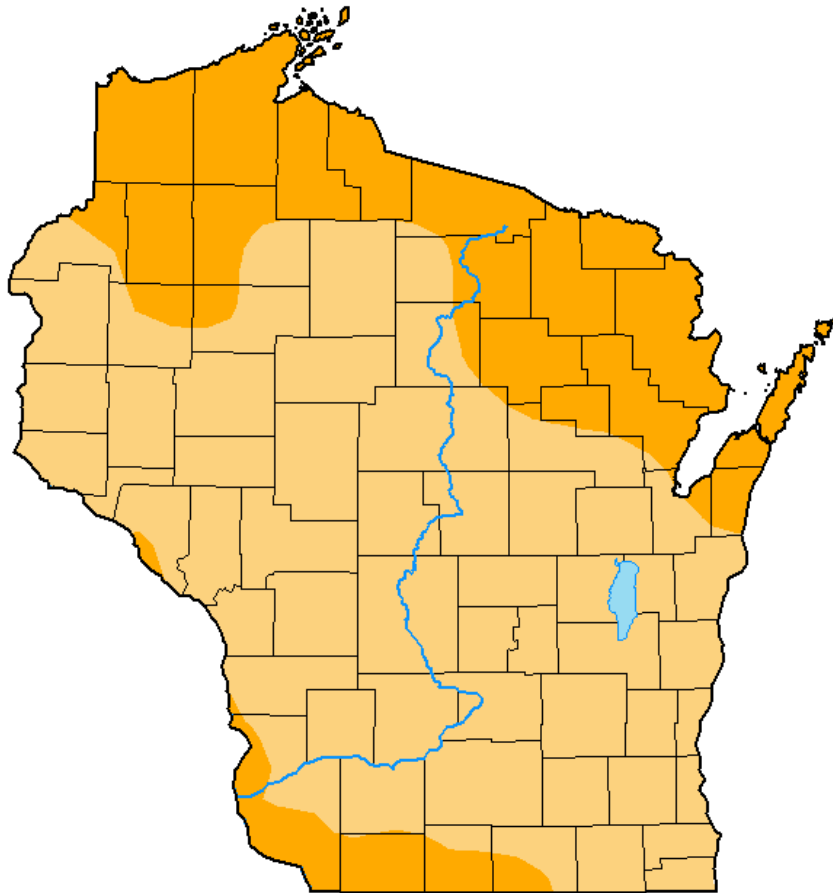
- **NOTE:** this map was updated prior to the rains received last week.

*Note: D0 is not considered drought.*

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

# US Drought Monitor

## U.S. Drought Monitor Wisconsin



**October 29, 2024**

(Released Thursday, Oct. 31, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	100.00	31.63	0.00	0.00
<b>Last Week</b> 10-22-2024	0.00	100.00	77.11	30.39	0.00	0.00
<b>3 Months Ago</b> 07-30-2024	71.12	28.88	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-02-2024	33.04	66.96	37.34	16.80	0.26	0.00
<b>Start of Water Year</b> 10-01-2024	18.68	81.32	29.83	8.45	0.00	0.00
<b>One Year Ago</b> 10-31-2023	33.64	66.36	33.99	15.95	0.26	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:

Brian Fuchs  
National Drought Mitigation Center



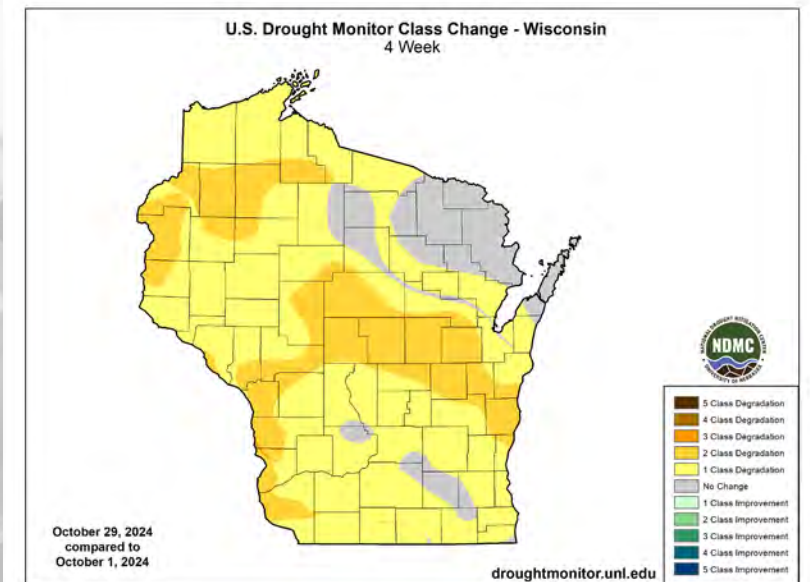
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

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

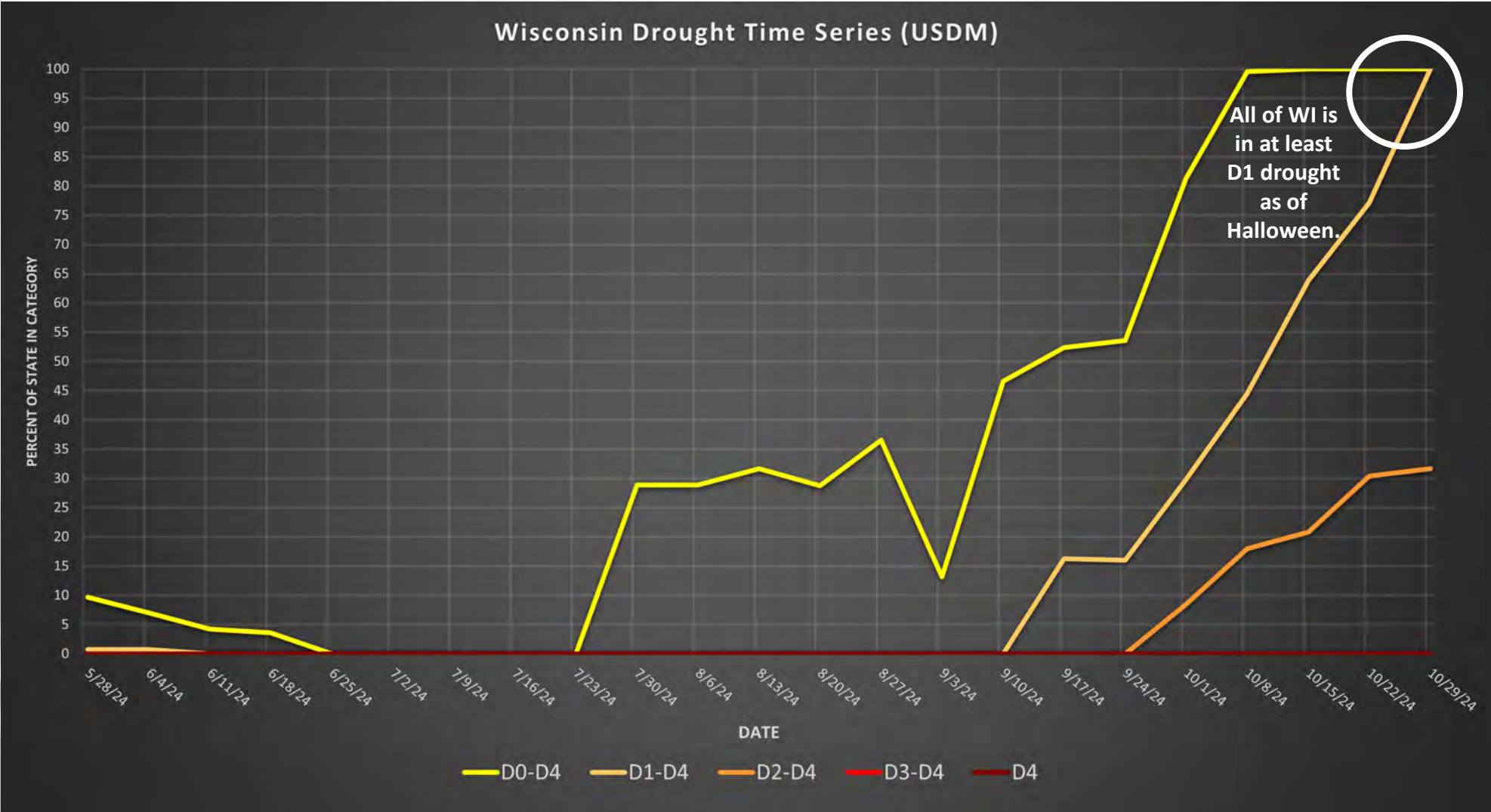
Amount of state in:

- D1-D4 – 100% ↑
- D2-D4 – 31.6% ↑
- 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.



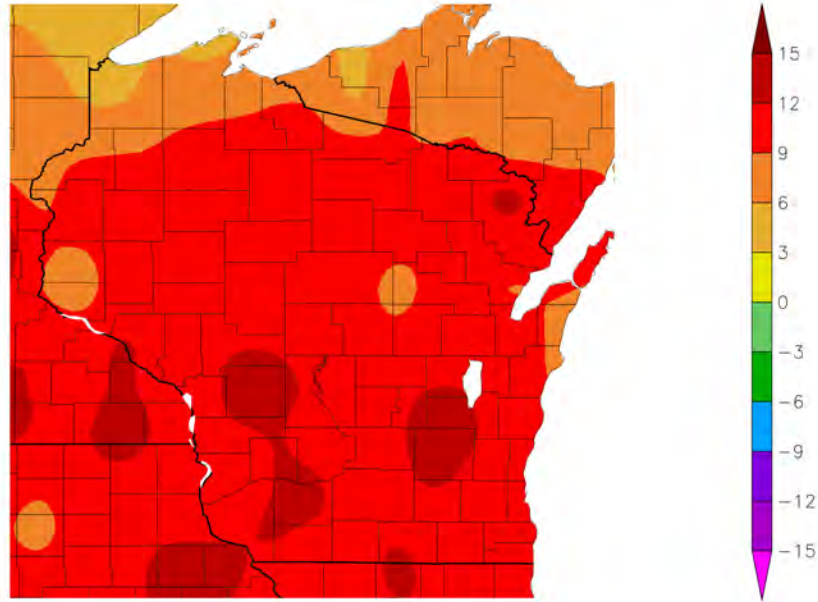
# USDM Time Series





# 7 Day Temperatures

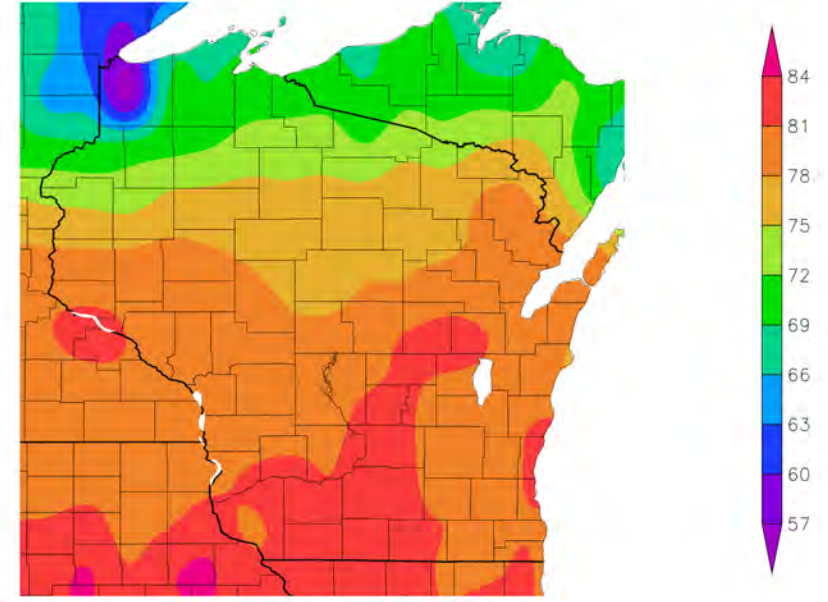
Departure from Normal Temperature (F)  
10/29/2024 – 11/4/2024



Generated 11/5/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Highest 1-Day Maximum Temperature (F)  
10/29/2024 – 11/4/2024



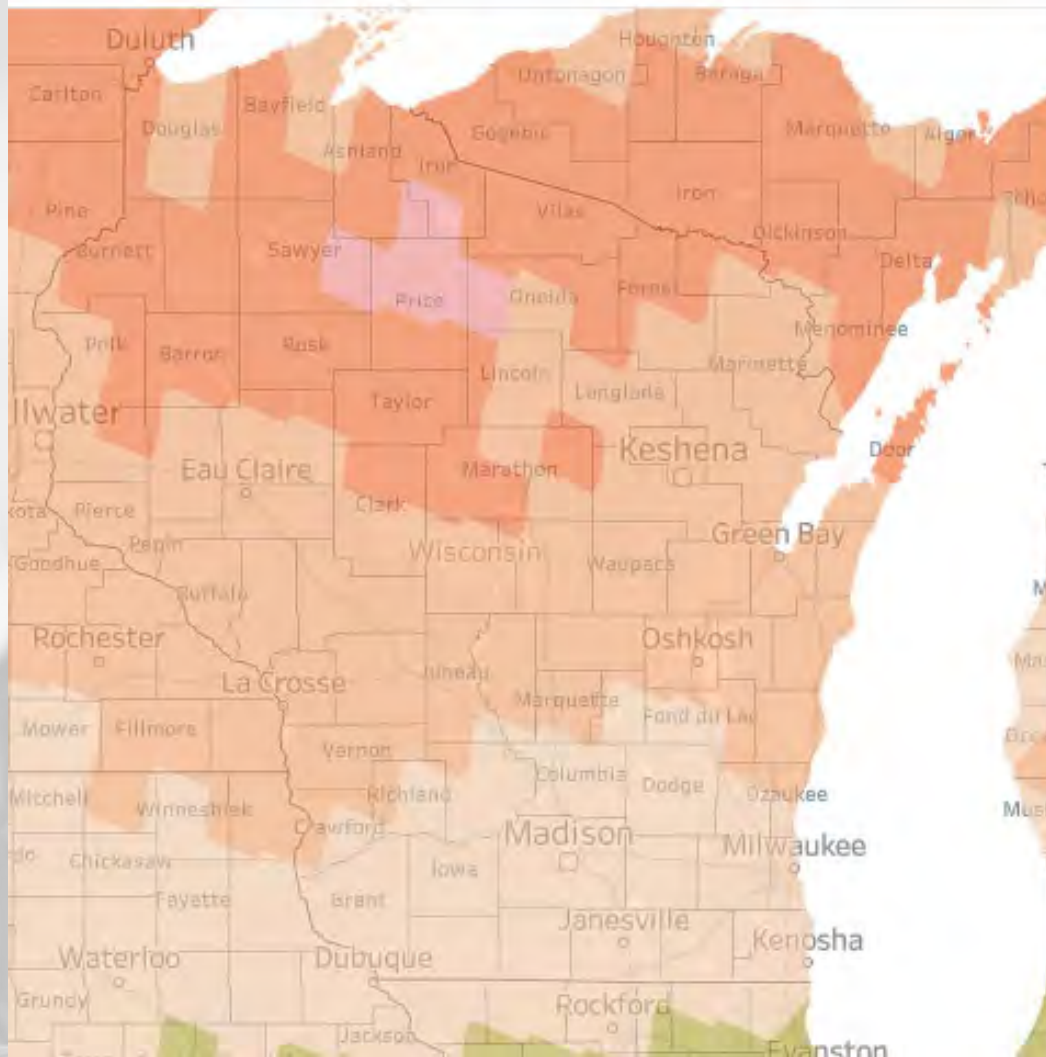
Generated 11/5/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

- The south was **9-12°F above** climatological normal virtually statewide, with isolated **12+°F**.
- **3-9°F above** normal in the far NW.
- Weekly maximums were **approaching/topping 80°F** in the southern 2/3 of the state last week.

# Soil Temp Climatology (4" Depth)

Date When 4" Soil Temperature Cools Below 50°F



Select Threshold (°F)

50

Average Date

- Sep 9 or Before
- Sep 10-19
- Sep 20-30
- Oct 1-9
- Oct 10-19
- Oct 20-31
- Nov 1-9
- Nov 10-19
- Nov 20-30
- Dec 1-9
- Dec 10-19
- Dec 20-31
- Jan 1-9
- Jan 10-19
- Jan 20-31
- Feb 1-9
- Feb 10-19
- Feb 20 or Later

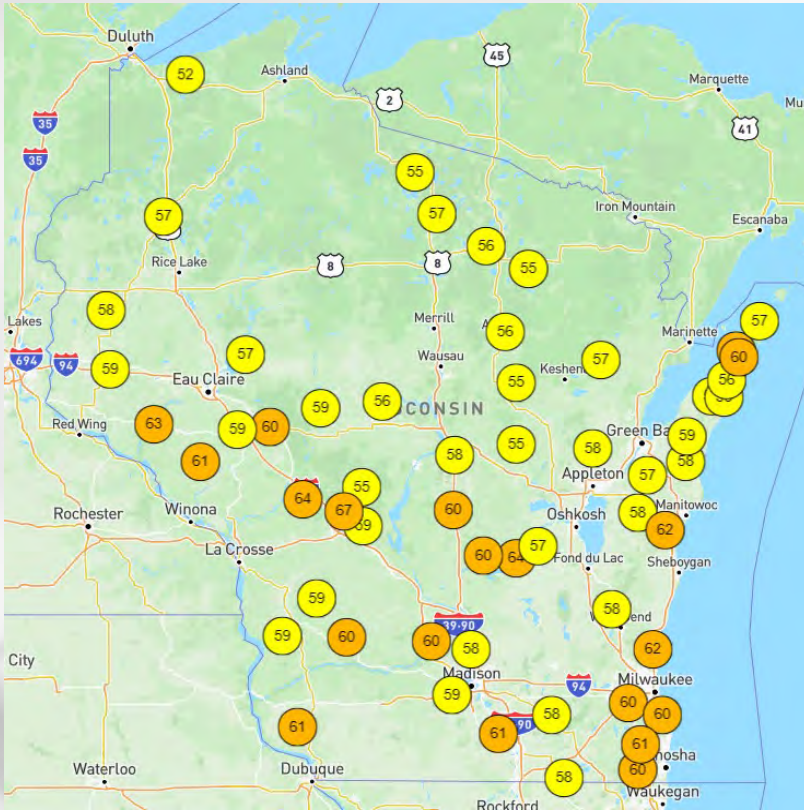
Climatology is based on 1991-2020 values at 4" depth. Map shows seven-day running average values. See About page for more information.

We are getting to the time of year where soil temps at 4", on average, **get to and stay below 50°F.**

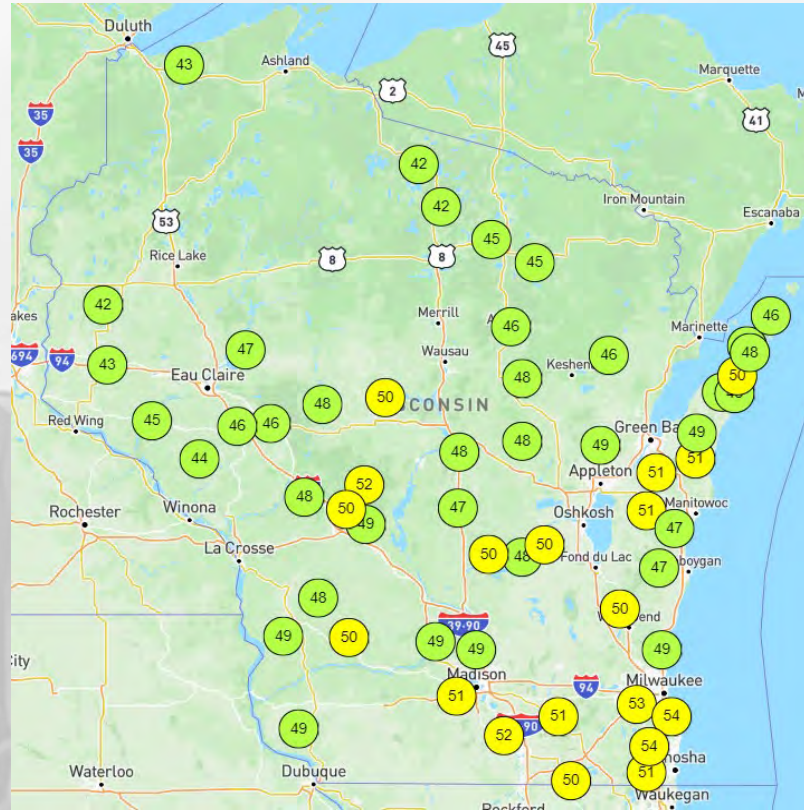
However, ***be sure to check Wisconet to determine real-time soil temps*** when make fall fertilizer decisions.

# Wisconet Soil Temp (4" Depth)

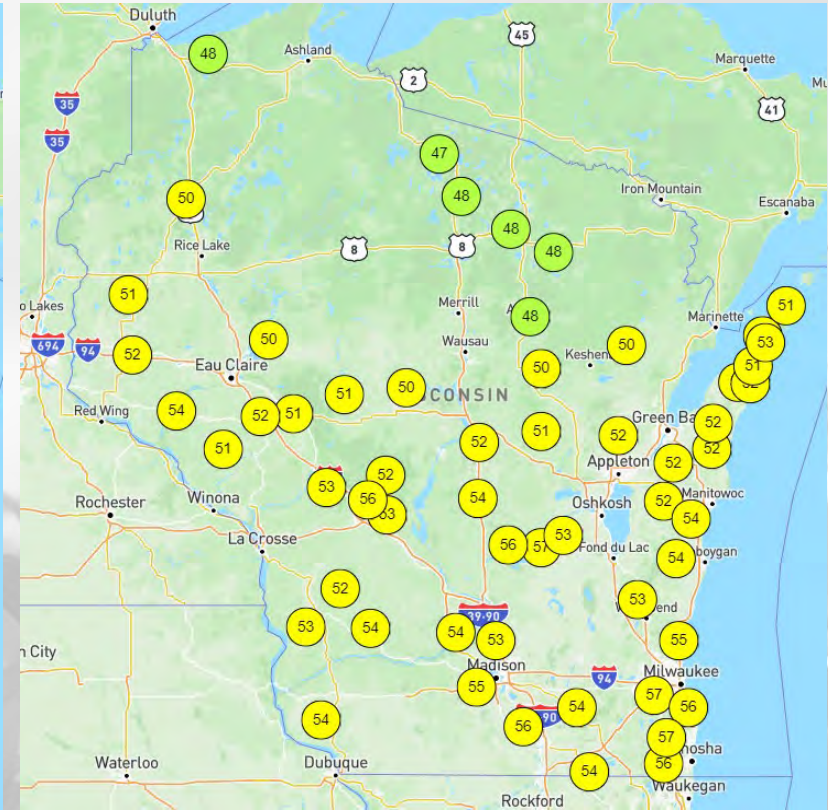
Wednesday Oct. 30<sup>th</sup> @ Middy



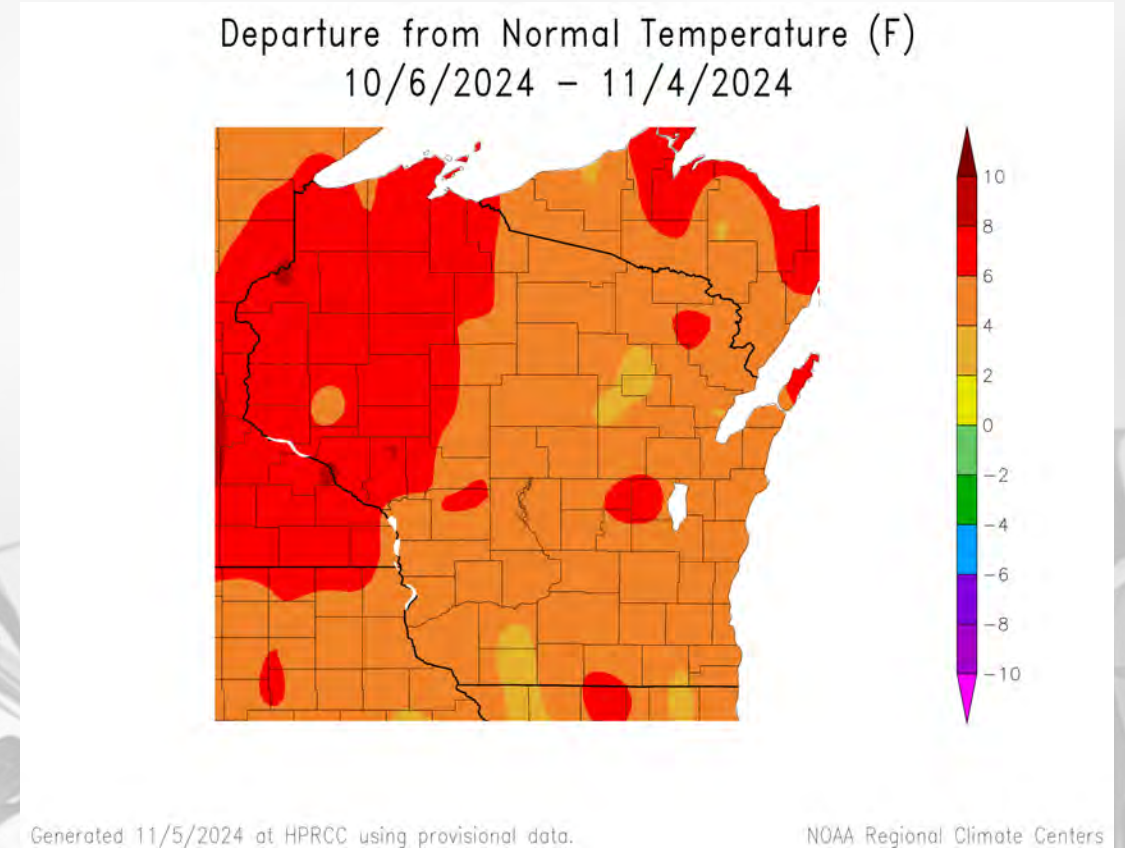
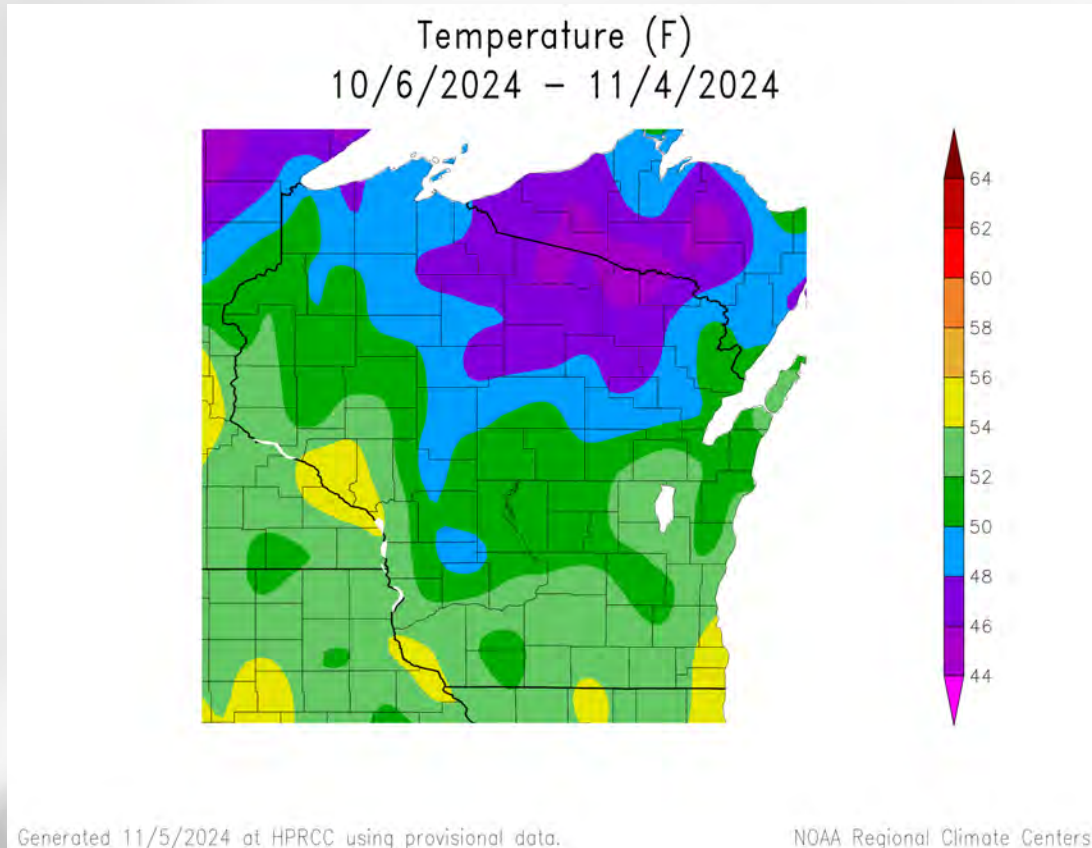
Friday Nov. 1<sup>st</sup> @ Middy



Monday Nov. 4<sup>th</sup> @ Middy



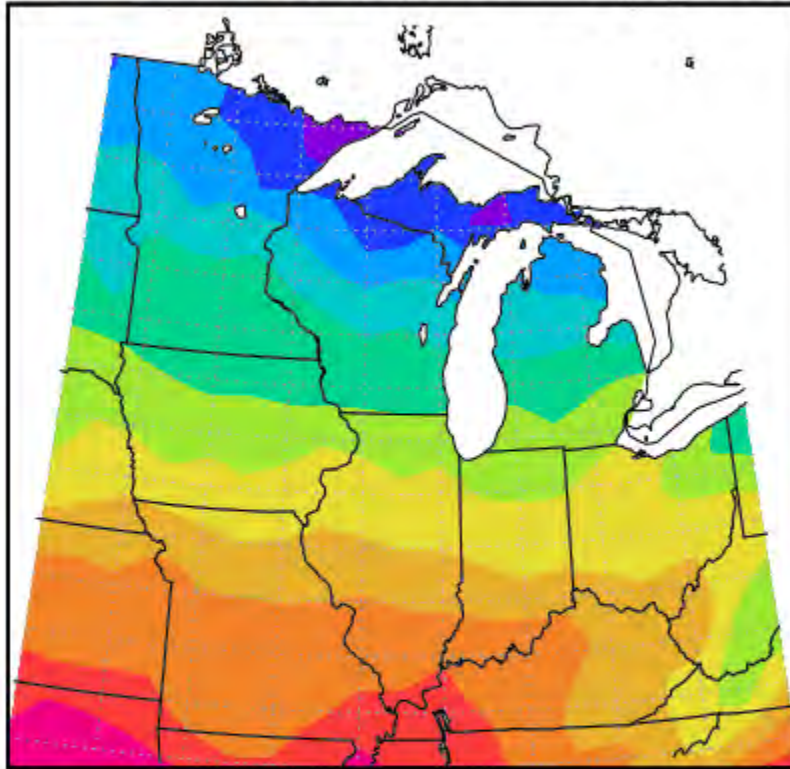
# 30 Day Temperatures



- Temperatures for the past month ranged from **50-54°F** in the S & W to **46-50°F** in the far NC.
  - **2-6°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.

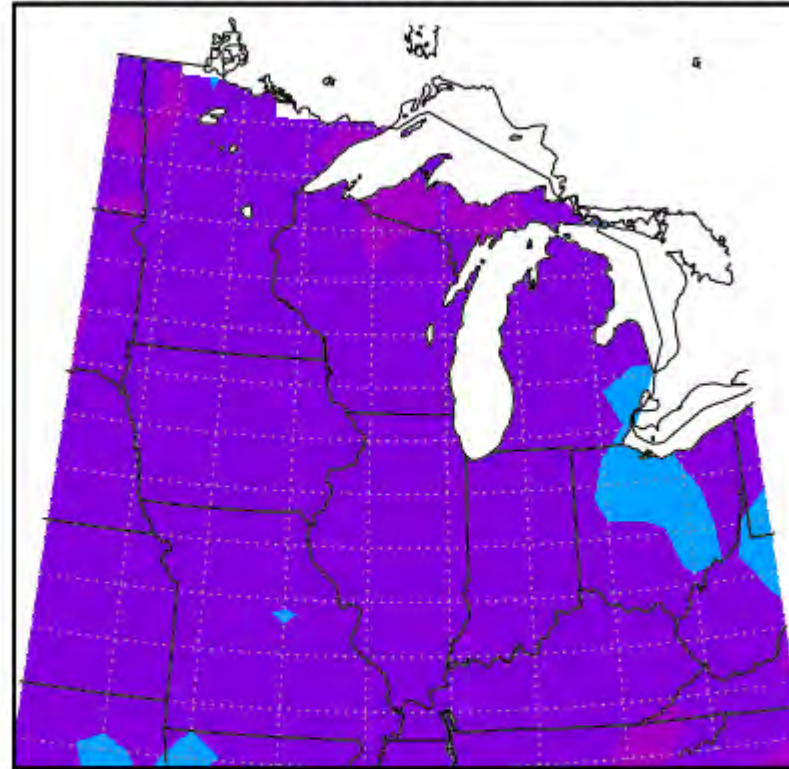
# Growing Degree Days (Base = 50°F; Since April 1)

Total MGDD from 4/1/2024 to 11/4/2024



Midwestern Regional Climate Center  
Purdue University

MGDD Departure, 4/1/2024 to 11/4/2024



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

- **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 **≥200 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](#).

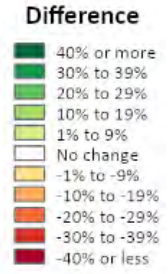
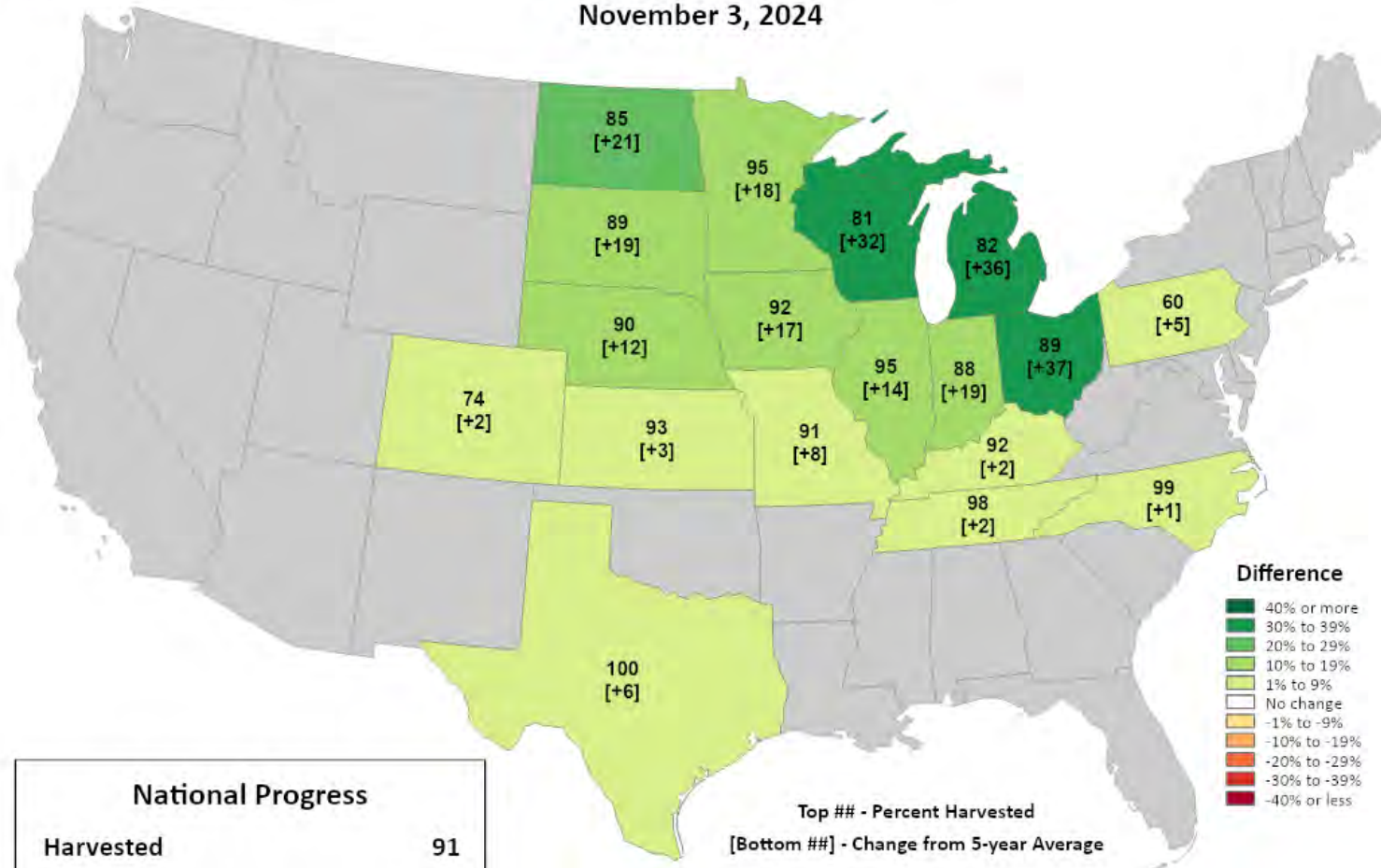
[https://mrcc.purdue.edu/climate\\_watch](https://mrcc.purdue.edu/climate_watch)

# 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 Harvested November 3, 2024



National Progress	
Harvested	91
Change from 5-year Average	+16

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

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

From the November 4 Wisconsin Crop Progress & Condition [Report](#):

- Corn for grain was **81% harvested**, 19 days ahead of last year and 20 days ahead of the 5-year average.

# NASS Crop Progress – Soybean

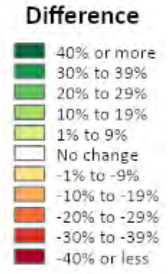
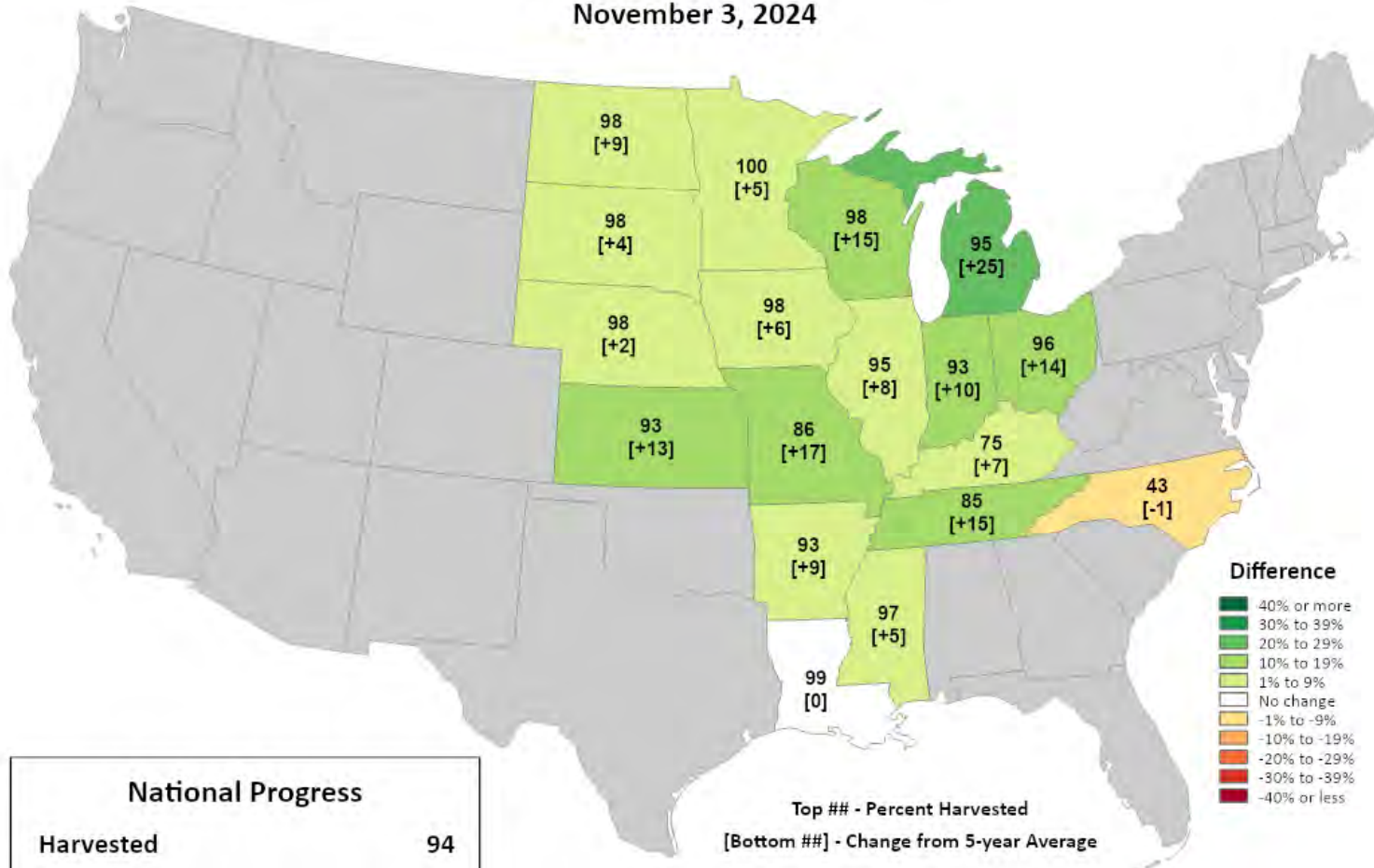


This product was prepared by the  
USDA Office of the Chief Economist (OCE)  
World Agricultural Outlook Board (WAOB)

## Soybeans Progress

### Percent Harvested

November 3, 2024



National Progress	
Harvested	94
Change from 5-year Average	+9

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

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

From the November 4 Wisconsin Crop Progress & Condition [Report](#):

- Soybean harvest was **nearly complete at 98%**.

# NASS Crop Progress – Wheat

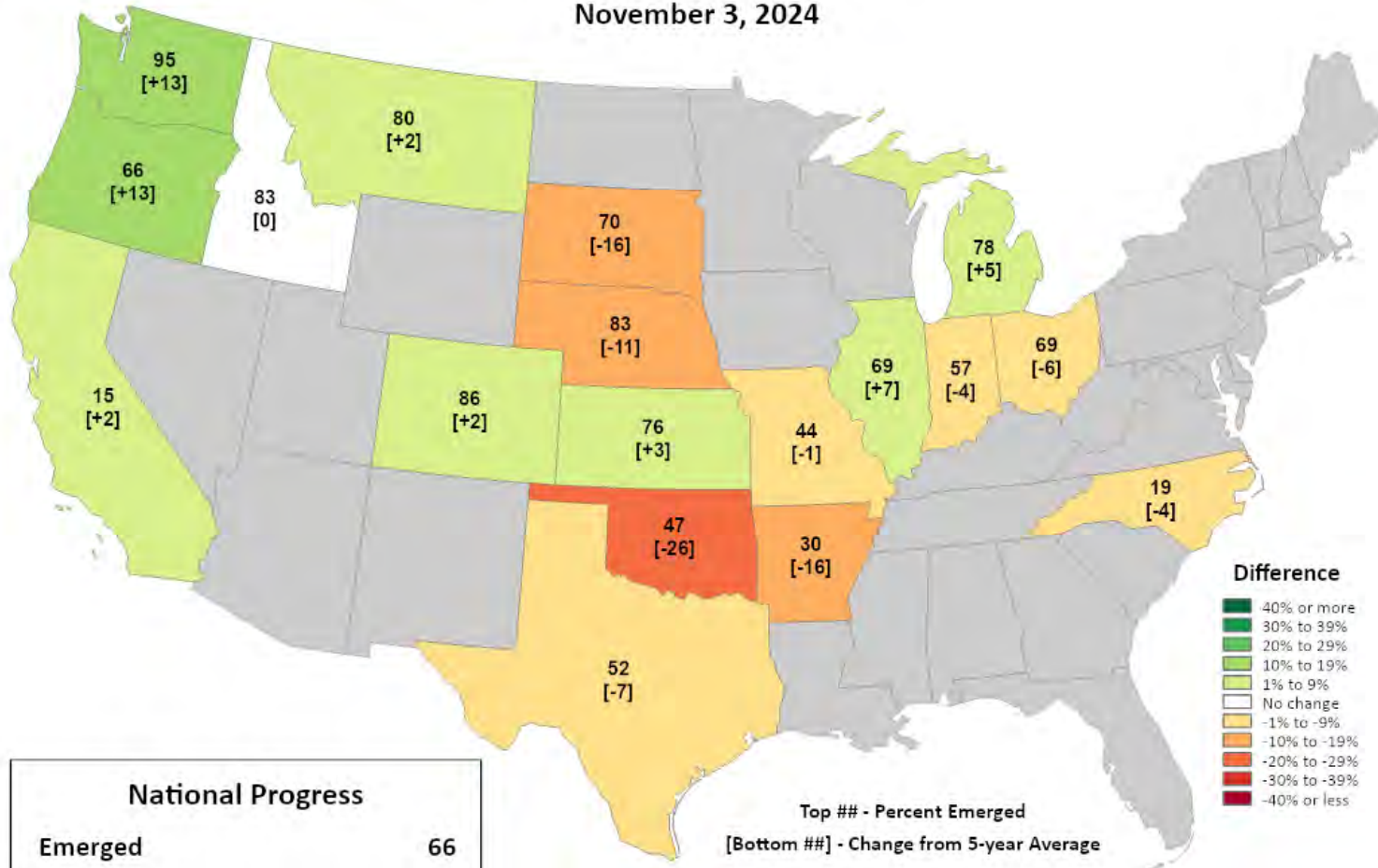


This product was prepared by the  
USDA Office of the Chief Economist (OCE)  
World Agricultural Outlook Board (WAOB)

## Winter Wheat Progress

### Percent Emerged

November 3, 2024



National Progress	
Emergded	66
Change from 5-year Average	-5

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

### From the November 4 Wisconsin Crop Progress & Condition Report:

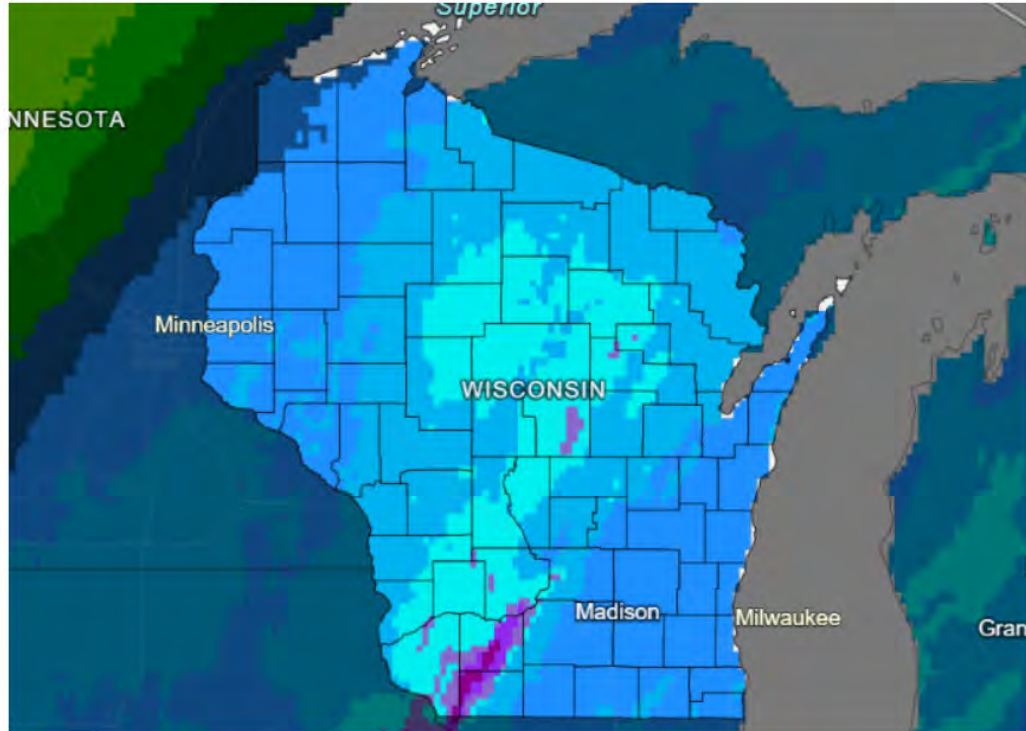
- The winter wheat crop is **82%** emerged, 3 days ahead of last year and **5 days ahead** of average.
- Winter wheat condition was rated **72% good to excellent**, an increase of **6 percentage points** from last week.

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

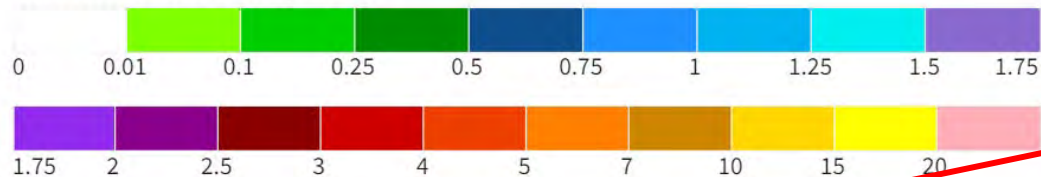


# 7 Day Precip Forecast

7-Day Quantitative Precipitation Forecast for  
November 5–12, 2024



Predicted Inches of Precipitation



Source(s): National Weather Service Weather Prediction Center  
Last Updated: 11/05/24

Drought.gov

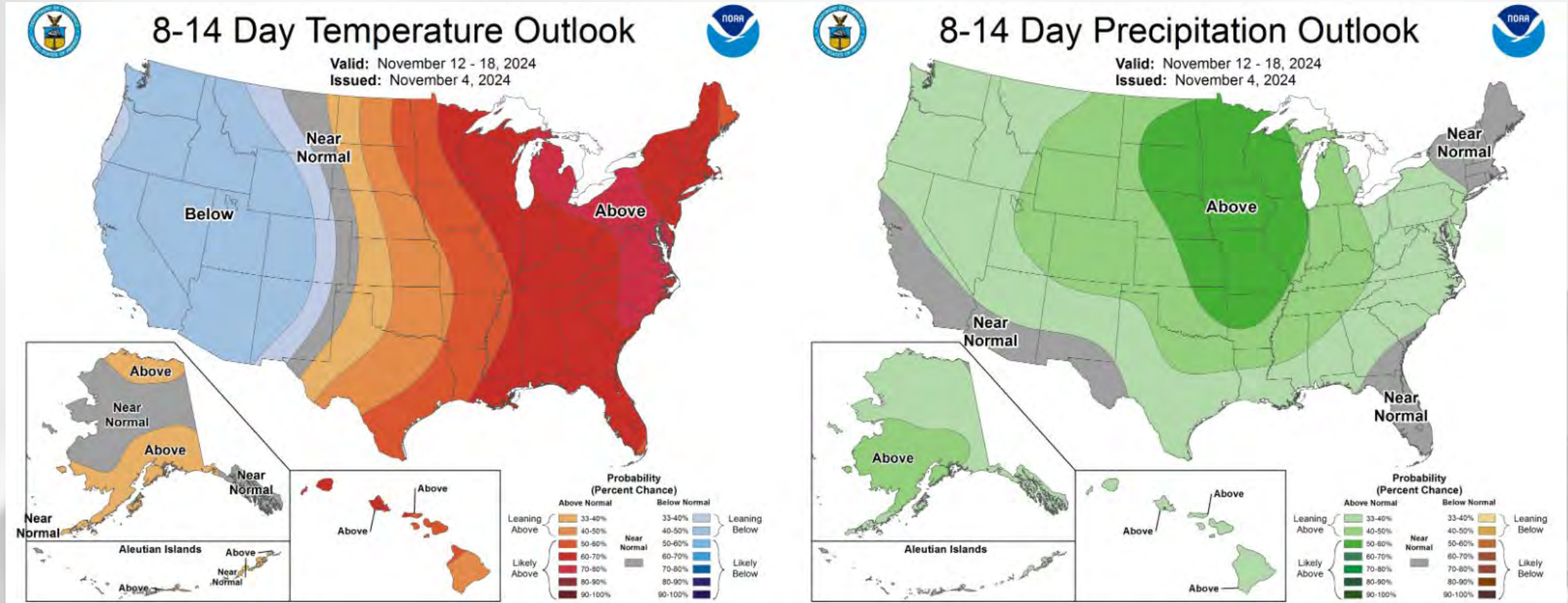
- **Statewide chances** for some above-normal precip during the next 7 days.

- Location: Best chances in the **SW**, extending up into the **Central Sands**.
- Timing: **Tuesday afternoon/evening** & again on **Saturday evening thru Sunday morning**.

Forecast for 11/5/24 thru 11/12/24  
(Begins at 6pm CST)

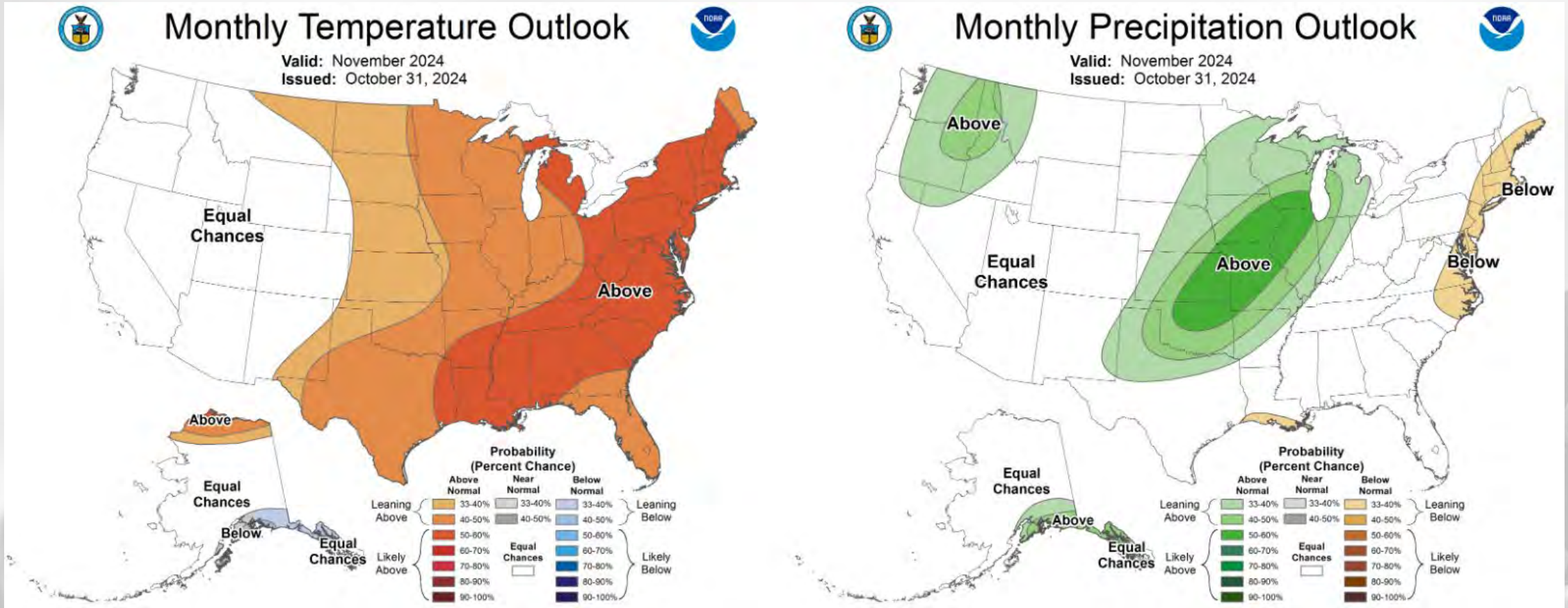
<https://www.wpc.ncep.noaa.gov/qpf/p168i.gif>  
<https://www.drought.gov/states/wisconsin>

# 8-14 Day Temp & Precip Outlook



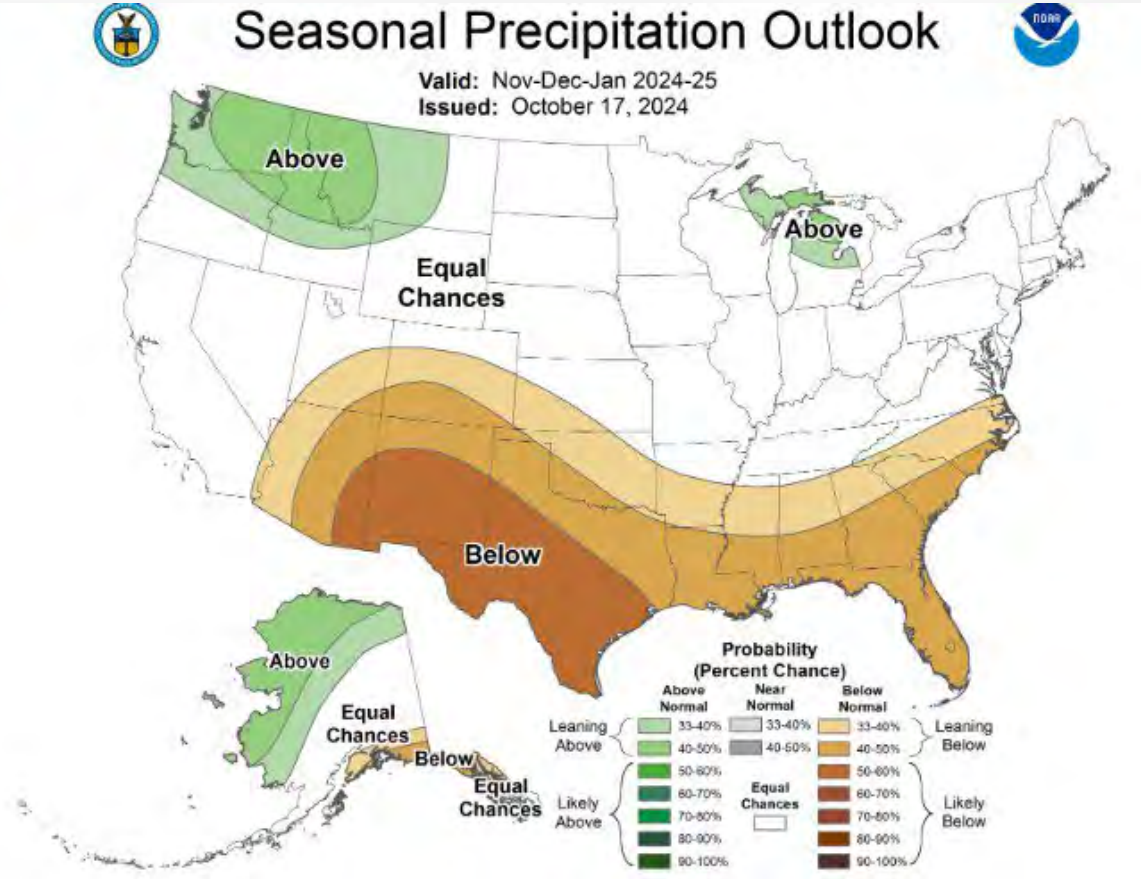
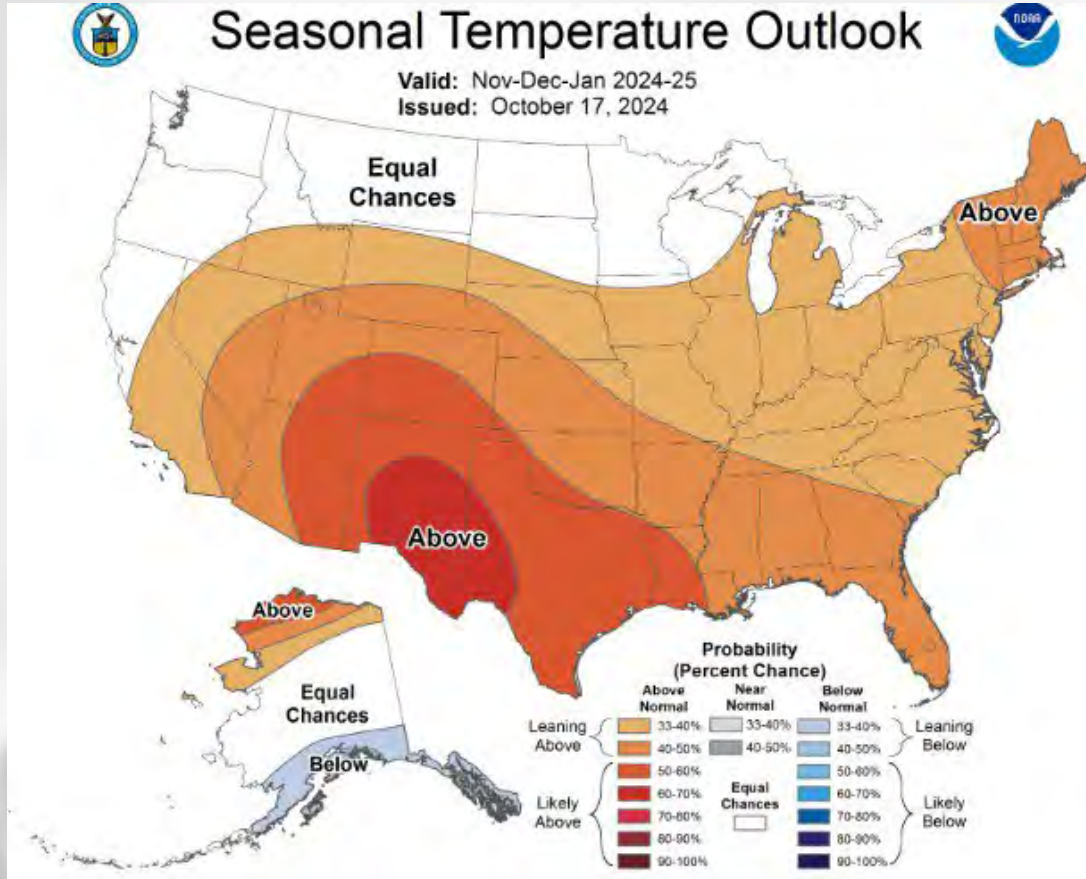
**Mid-November:** Temperatures likely to remain above normal, with precipitation likely to be above normal.

# 30 Day Temp & Precip Outlook



**Month of November:** Temperatures leaning towards above normal, with precipitation leaning towards above normal, especially in southern WI.

# 90 Day Temp & Precip Outlook



**Late Fall into Winter:** Temperatures showing equal chances in the north and leaning above normal in the south. Precipitation uncertainty with equal chances.

# Take-Home Points

## Current Conditions:

- The dry spell that we have experienced this fall was broken last week for many with **multiple inches of rainfall** to start November.
- Conditions remain **warmer-than-normal** for this time of year, with weekly high temps still reaching into the **upper 70s** for many in WI.

## Impact:

- The area of WI in **very dry soil moisture percentiles** was greatly reduced thanks in part to the rainfall.
  - USDM drought coverage area **expanded prior to the rains last week**.
- Corn harvest continues to run **well ahead of normal pace**, with soybean harvest **all but complete**.
- Winter wheat is **nearing complete emergence**, with **82%** of the crop emerged in WI fields.

## Outlook:

- **Statewide chances** for additional precip next week, **especially in the SW** once again.
- The warmth looks to continue with mid-November showing a higher probability to be **warmer-than-normal**, with a lean toward **near-normal precip**.
- Late fall into early 2025 is more **uncertain** for temperatures and precip.
  - **La Niña** is favored to be in place by September-November (according to the CPC); **less of a chance** for having a colder-than-normal winter.

# Agronomic Considerations

## Crop & Soil Management

- Soil is wet in many places, avoid working in wet fields when possible to reduce compaction issues.
- Be aware that nitrogen is still mobile as soil temperatures are still above 50F in most places.
- Tools available here for [cover crop selection](#) and their [use in a forage rotation](#).

## Manure Applications

- Runoff risk is **low to moderate** 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](#).
- Consider the relationship between manure and cover crops, learn more [here](#).

## Forage Management

- Be mindful of prussic acid concerns in fields with standing sorghums.



# 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](mailto: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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