



Evaluating Corn Production in Changing Climate

Badger Crop and Soils Update Meetings,
Dec 2024



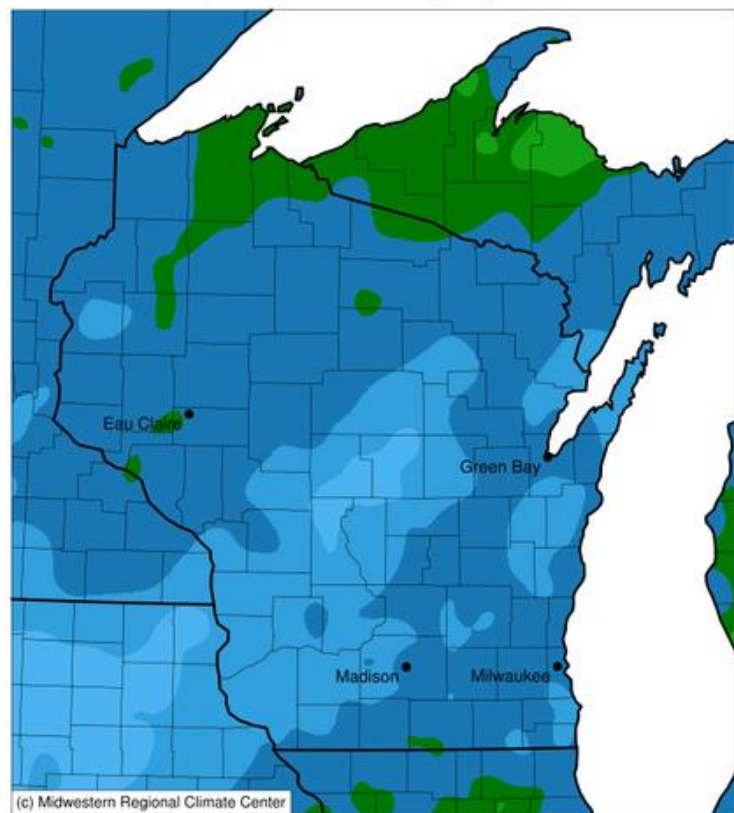
Harkirat Kaur, Assistant Professor and Extension Specialist, Plant and Agroecosystem Sciences and Division of Extension, UW-Madison

Corn Production Season in 2024

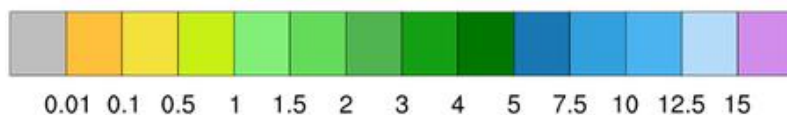


Accumulated Precipitation (in)

April 20, 2024 to May 31, 2024

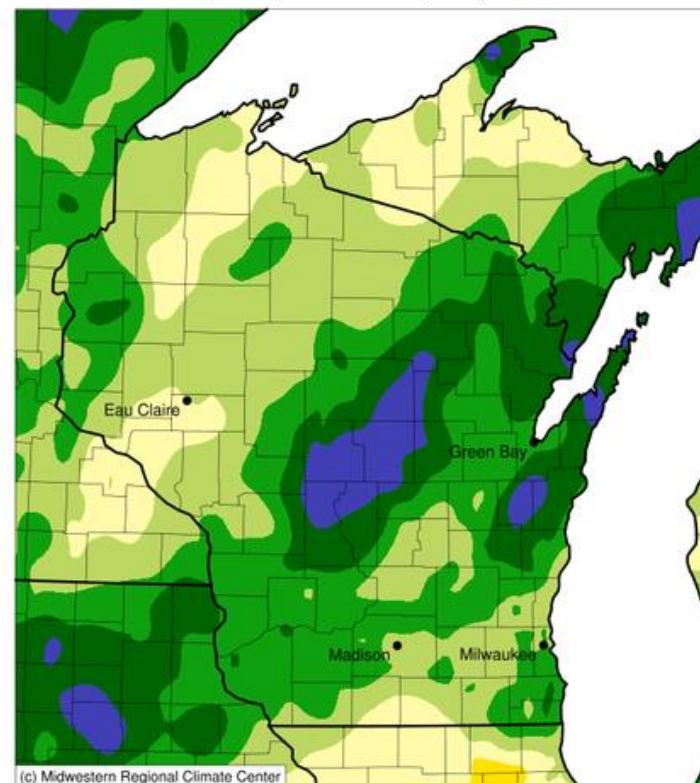


(c) Midwestern Regional Climate Center

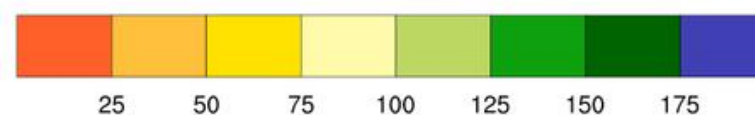


Accumulated Precipitation (in): Percent of 1991-2020 Normals

April 20, 2024 to May 31, 2024



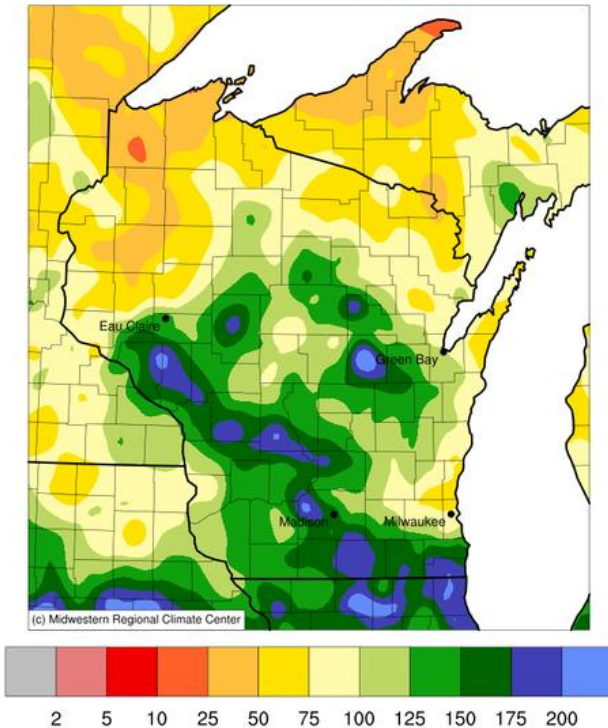
(c) Midwestern Regional Climate Center



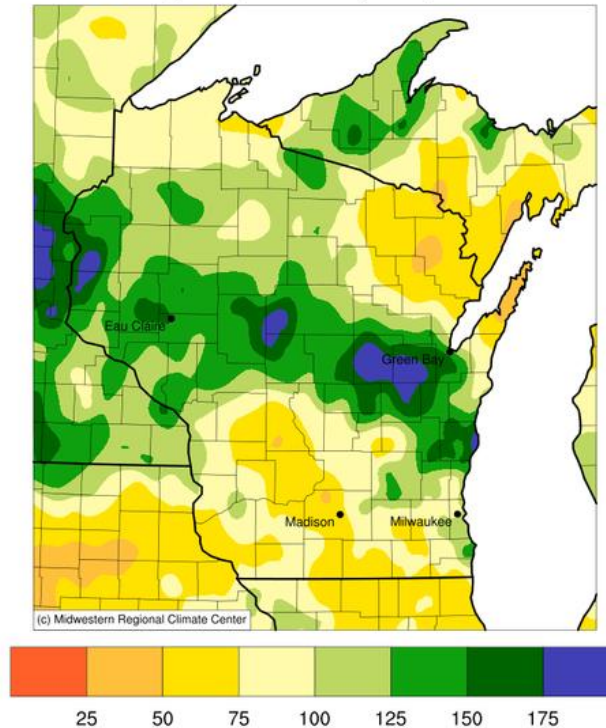
Maps created using [cli-MATE: MRCC Application Tools Environment](#)

Corn Production Season in 2024

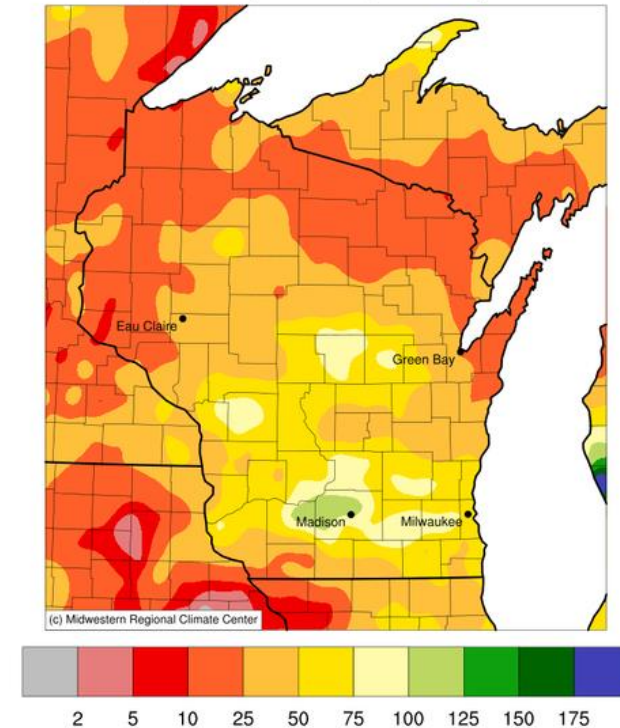
Accumulated Precipitation (in): Percent of 1991-2020 Normals
July 01, 2024 to July 31, 2024



Accumulated Precipitation (in): Percent of 1991-2020 Normals
August 01, 2024 to August 31, 2024

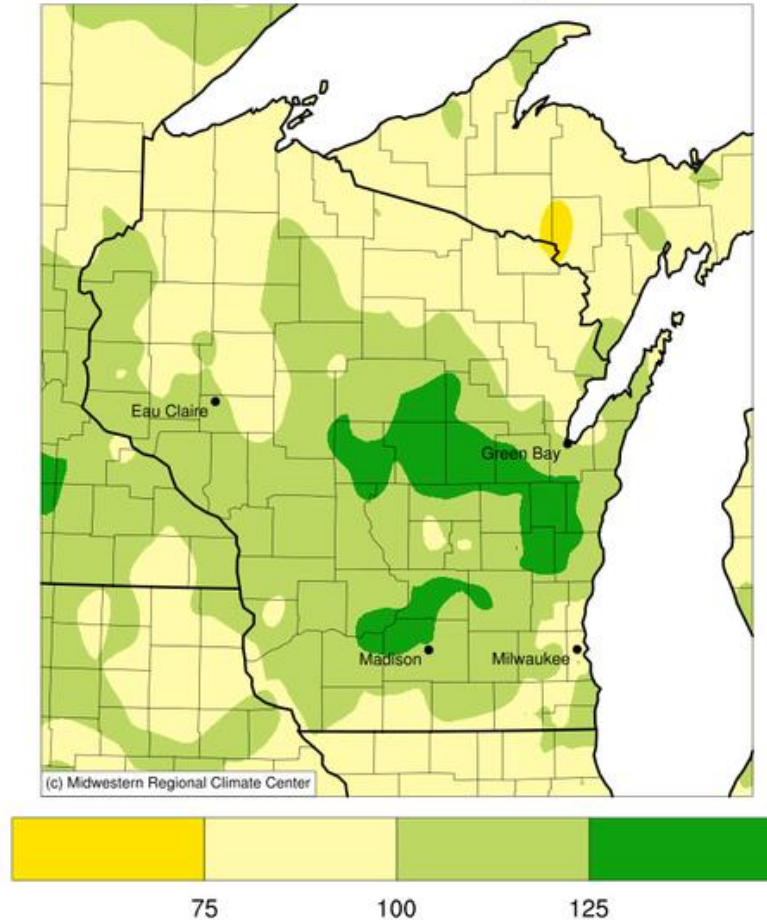


Accumulated Precipitation (in): Percent of 1991-2020 Normals
September 01, 2024 to September 30, 2024



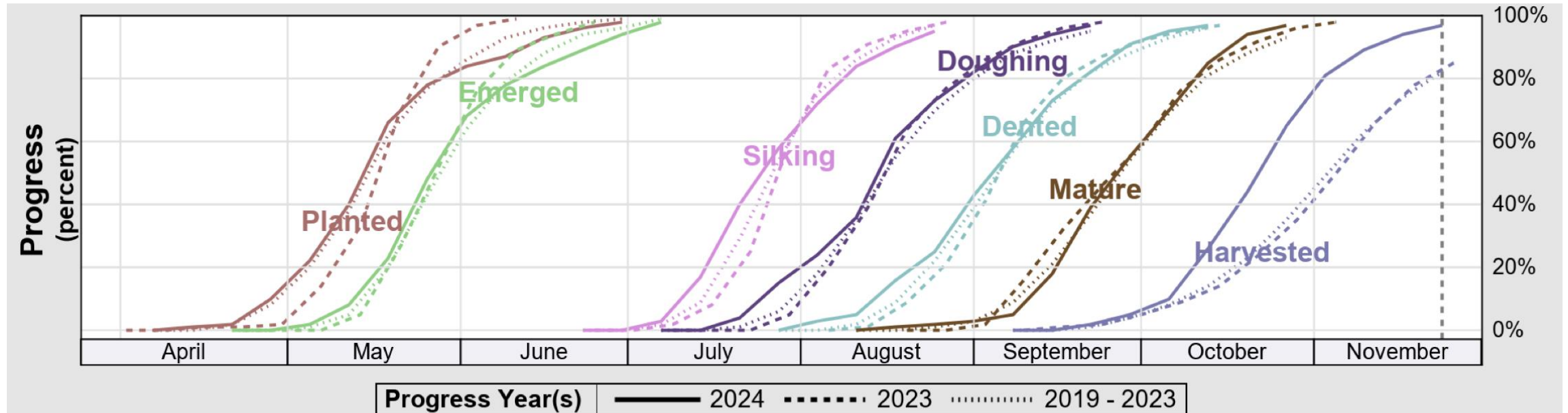
Corn Production Season in 2024

Accumulated Precipitation (in): Percent of 1991-2020 Normals
April 20, 2024 to October 31, 2024



Maps created using [cli-MATE: MRCC Application Tools Environment](#)

Corn Production in 2024



Source: National Agricultural Statistics Service (NASS), Crop Progress Report

- Slow start to season
- Early spring heavy rainfalls
- A dry and warm spell from late June to September (quick progress)
- Ended being ahead of the five-year average

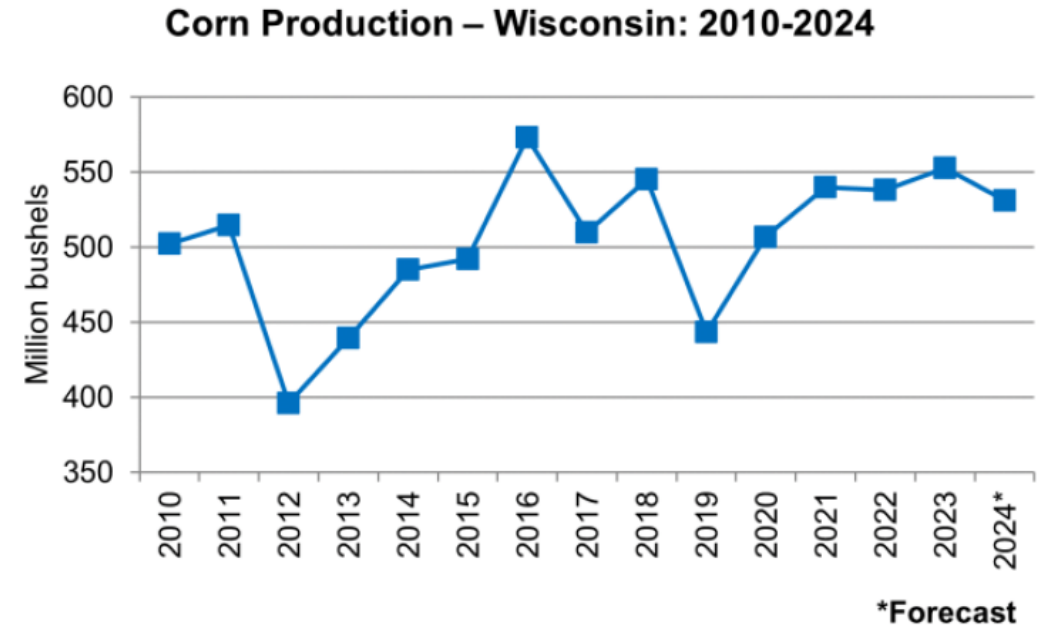


Corn Production in 2024



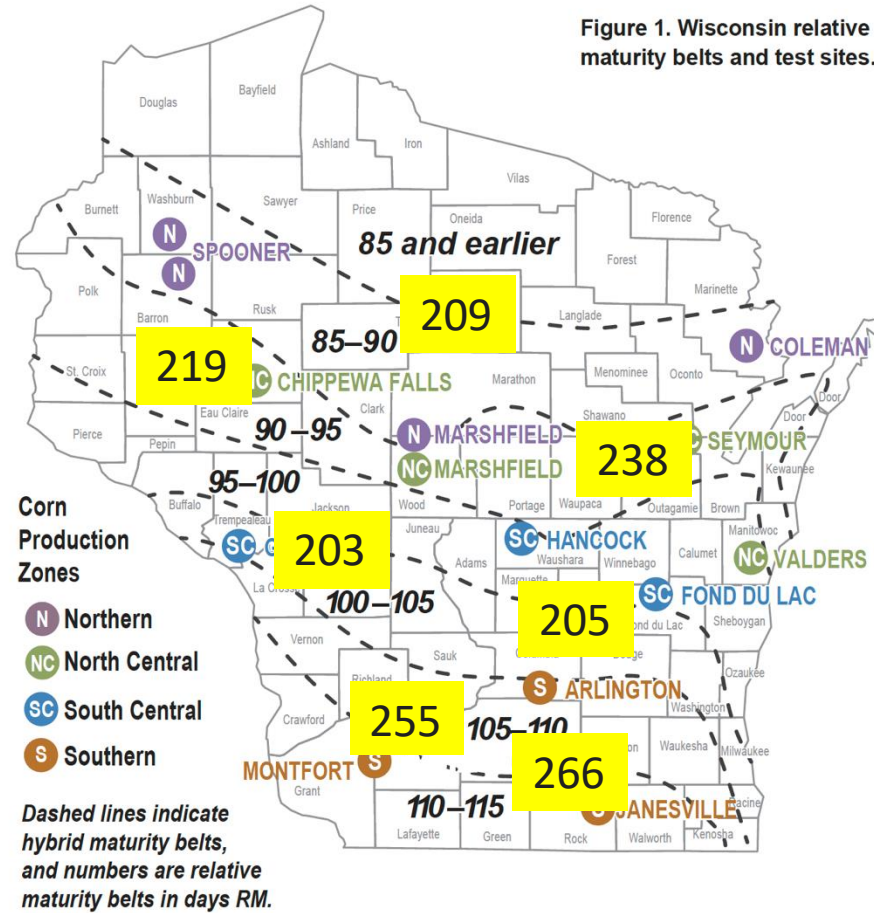
State Estimates

- 3.75 million acres total
- 2.94 million acres for grain
- 535 million bushels in grain corn (↓)
- Yield 182 bushels per acre (↑)



Source: NASS

Corn Production in 2024

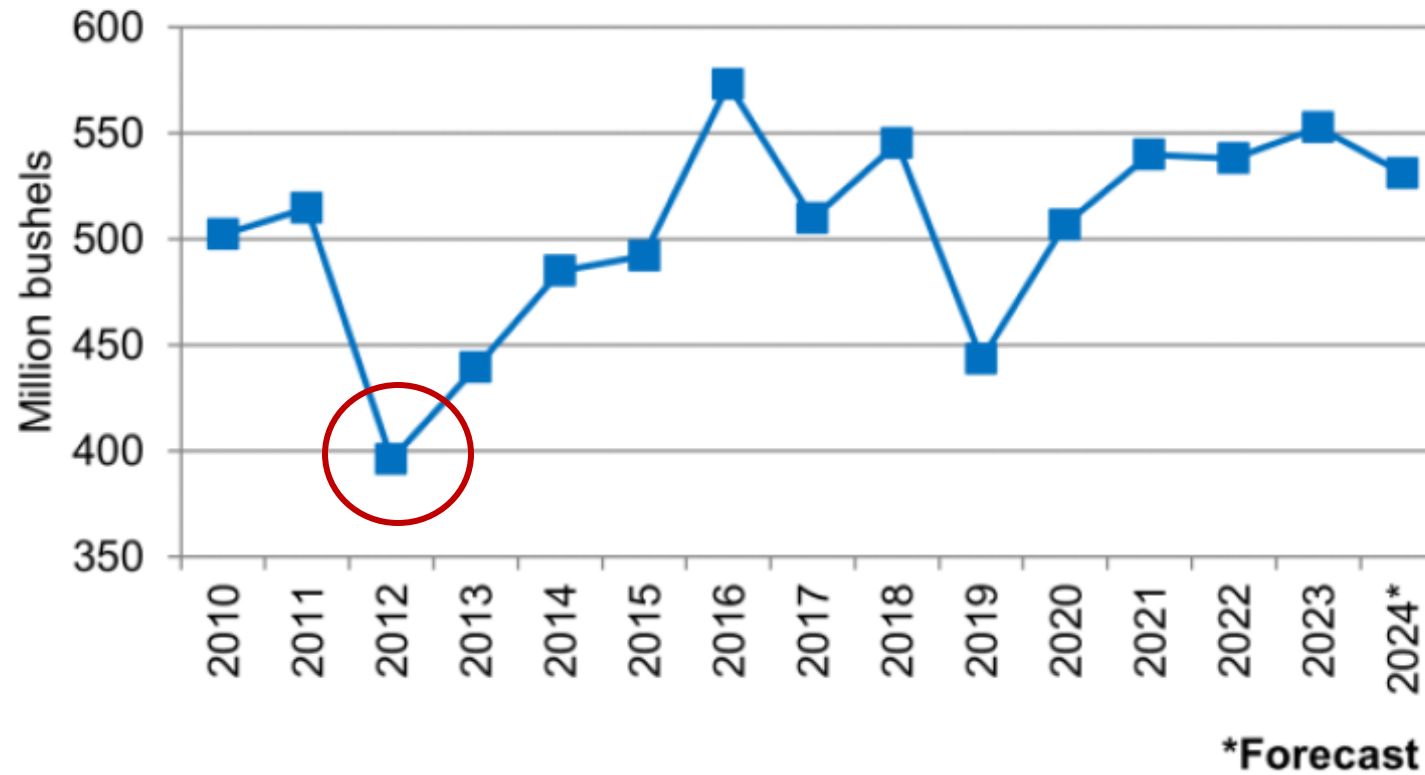


Corn Hybrid Performance Evaluation Trials

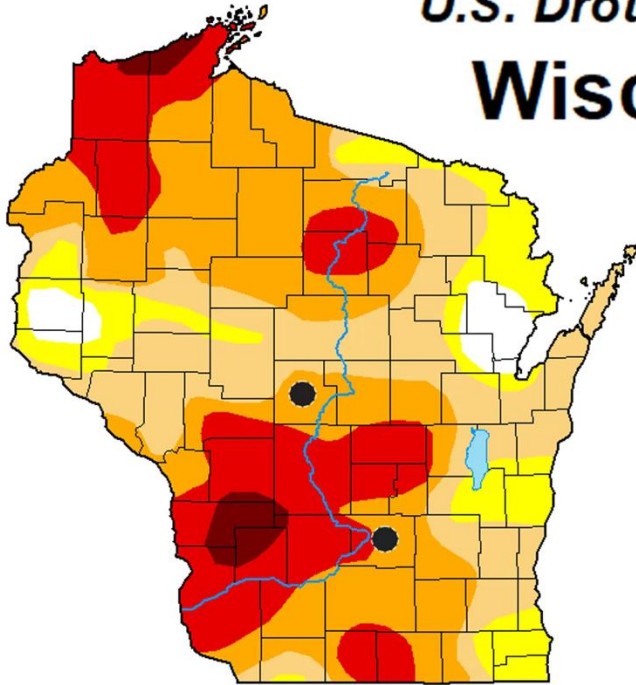


Production Trends: 2010s to now

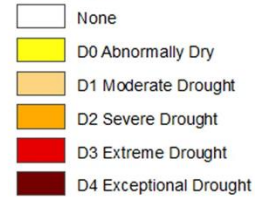
Corn Production – Wisconsin: 2010-2024



U.S. Drought Monitor Wisconsin



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:

Richard Tinker
CPC/NOAA/NWS/NCEP



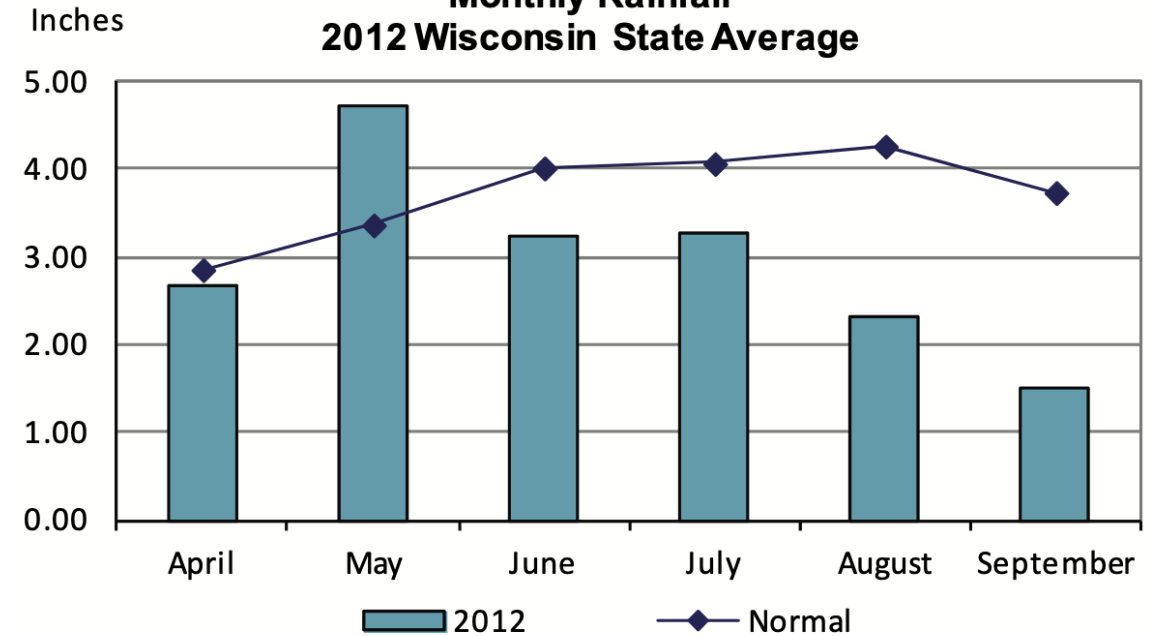
droughtmonitor.unl.edu

➤ Severe Drought

- Issues during silking
- Failed pollinations
- Changing harvest plans

➤ 16.7% reduction in overall corn production from 2011

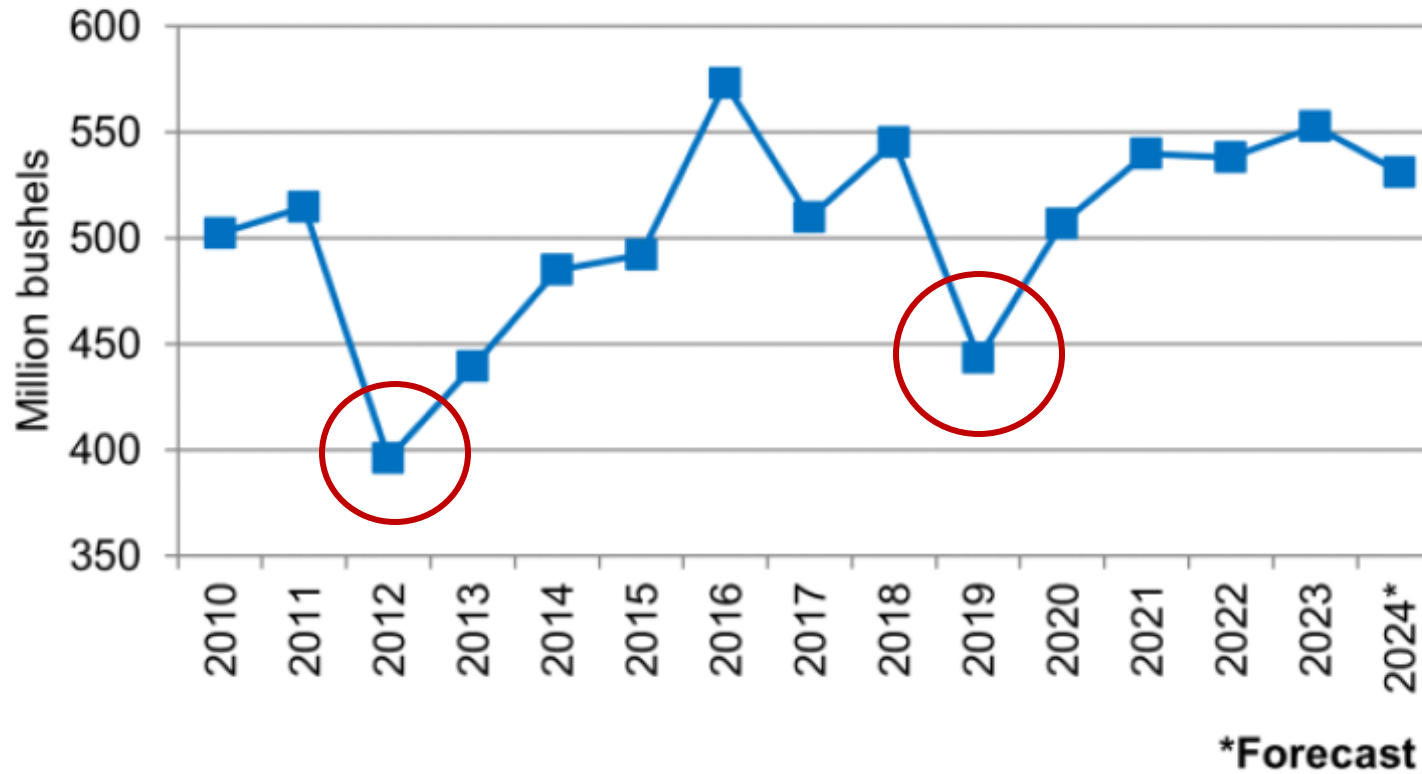
Monthly Rainfall 2012 Wisconsin State Average





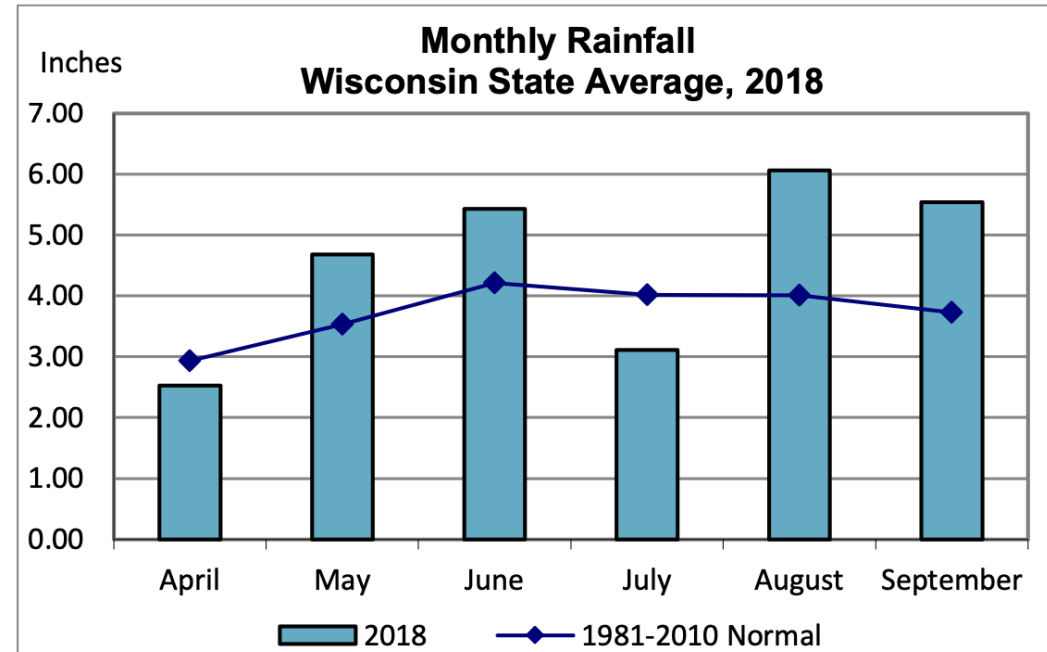
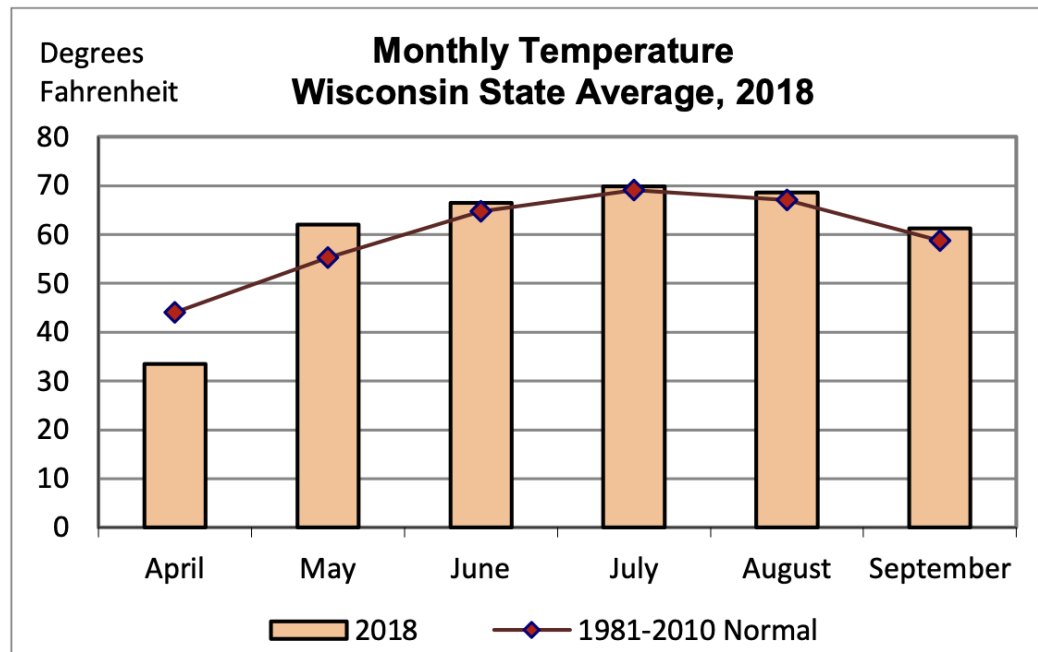
Production Trends: 2010s to now

Corn Production – Wisconsin: 2010-2024





Slow start followed by patchy rain

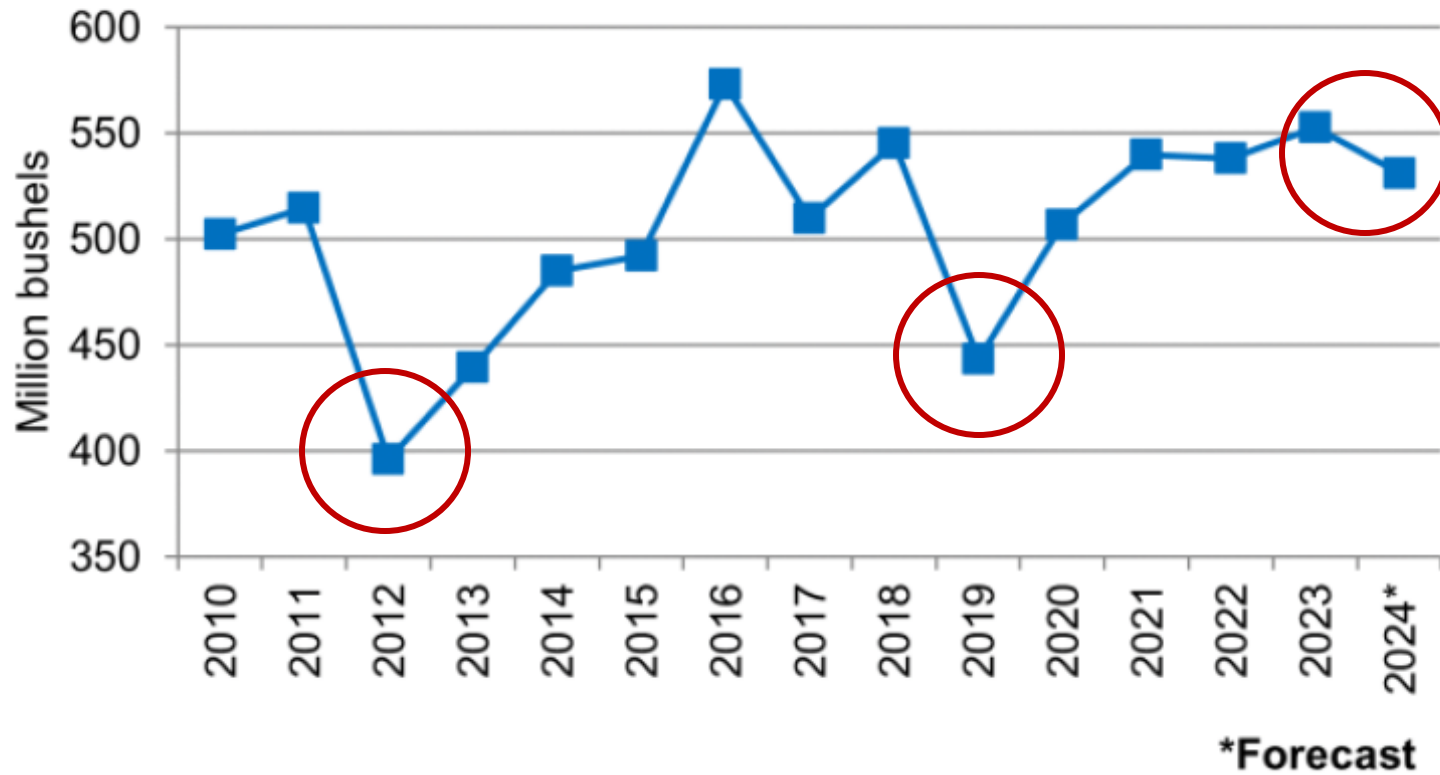


- Freezing temperatures and not enough rain
- Delayed plantings
- Overall production was lower by 18% than 2017

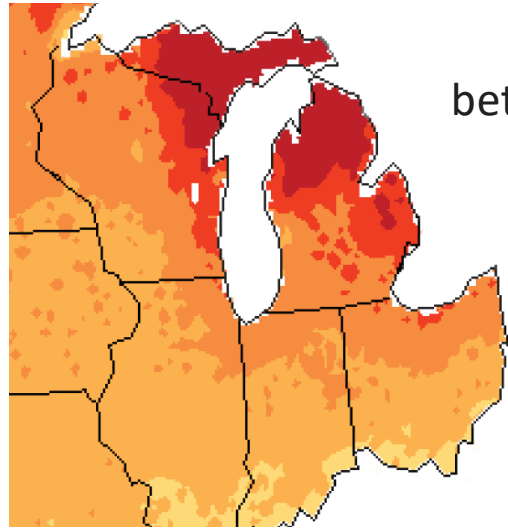


Production Trends: 2010s to now

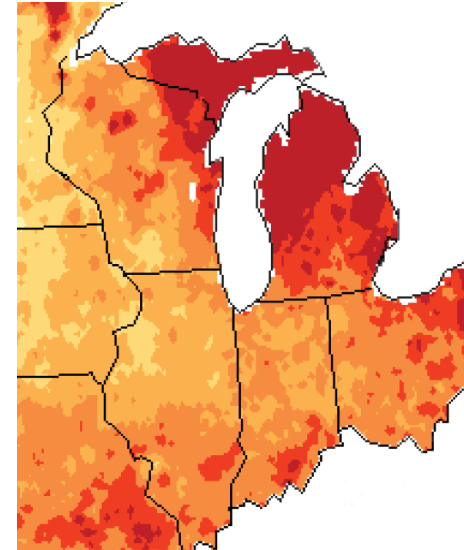
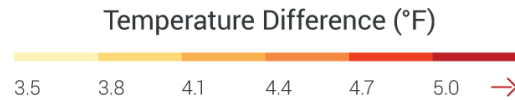
Corn Production – Wisconsin: 2010-2024



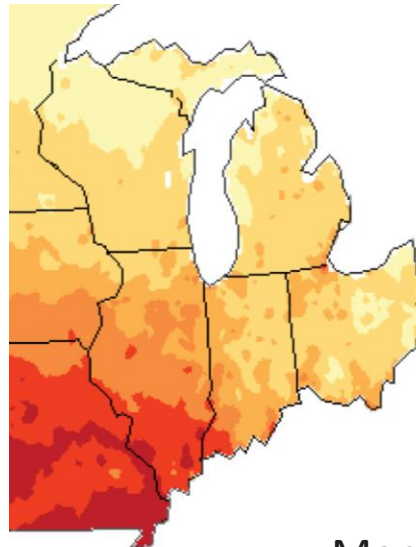
What does the future hold?



Temperature difference
between mid 20th and mid 21st
century



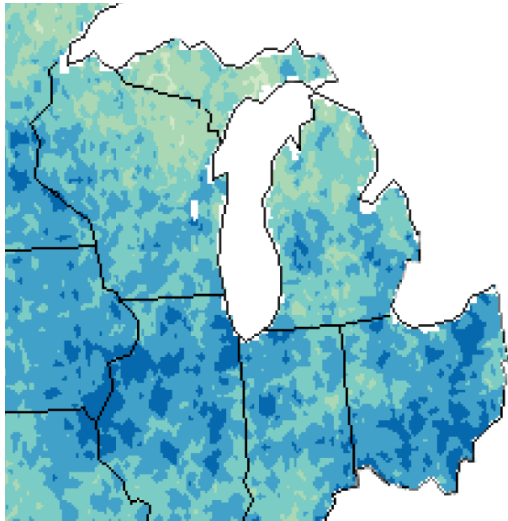
Increase in number of frost-free
days



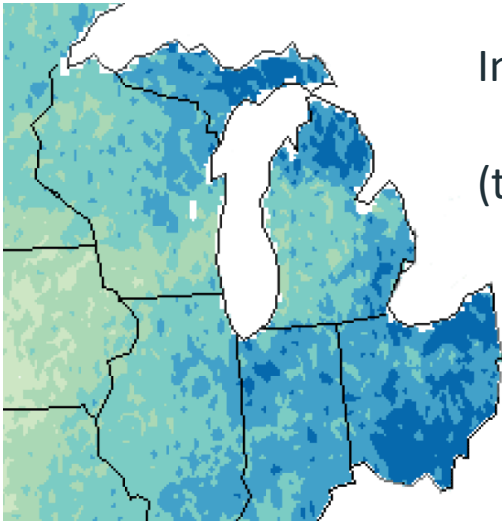
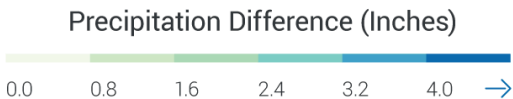
Increase in number of days
with temp > 95 F



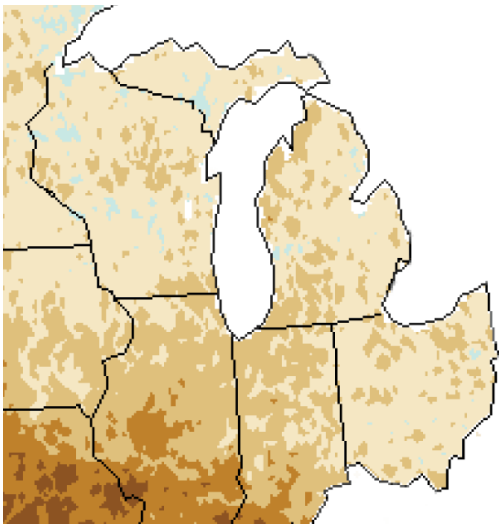
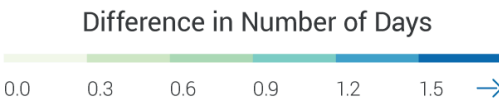
What does the future hold?



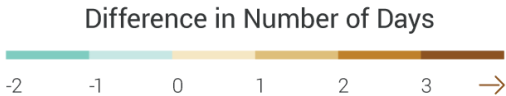
Changes in total annual average precipitation from mid 20th to mid 21st century



Increase in number of days with very heavy rain (top 2% of all rainfalls each year)



Change in consecutive dry days (<0.01 inches of rain)



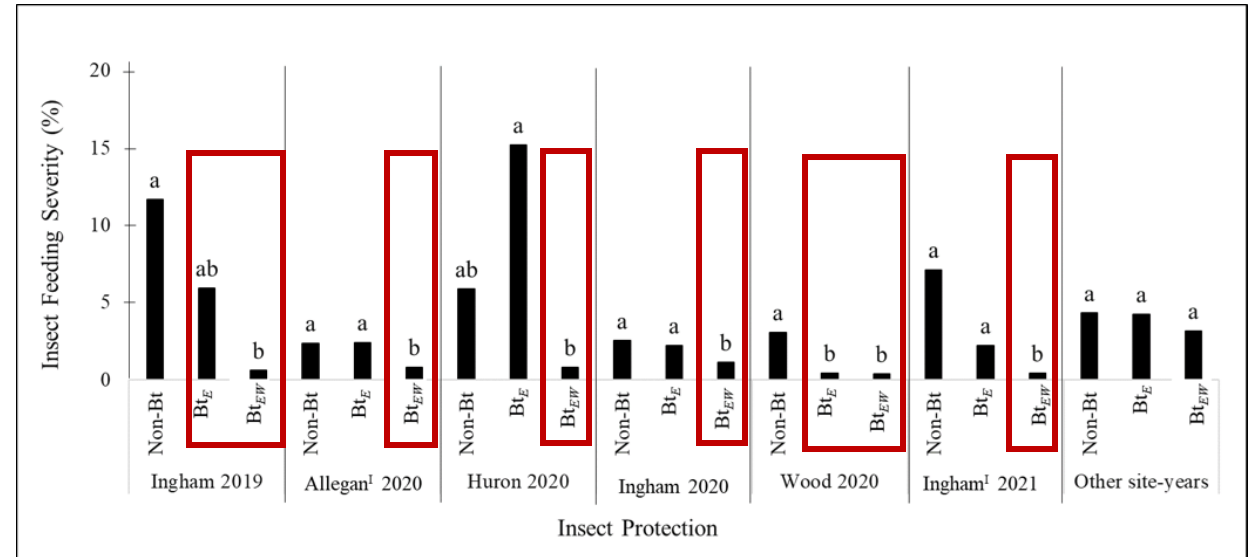
What does it mean for us?

- May be longer growing season
 - Early plantings and longer relative maturities
- Frequent drought phases followed by flooding
 - Stunted growth
 - Susceptibility to lodging
 - Seedling rotting and root rotting etc.
- Increased incidence of insect infestation and disease occurrence etc.
- Crop Quality



How do we manage it?

- Identifying patterns
- Integrating management strategies
- Invest in genetic resistance
 - Insect
 - Disease
 - Drought
- Finding the most suitable planting window and planting population
- May be short corn



Corn Management Survey for Wisconsin

- Focused on current issues and future interests
- Identifying the knowledge gaps going forward
- Bringing the research, you need **to you!!**



https://uwmadison.co1.qualtrics.com/jfe/form/SV_6sPjOEZf79akBbo



Thank you!!

- Dr. Shawn Conley
- Dr. Damon Smith
- Kent Kohn
- Thierno Diallo
- John Gaska



PLANT AND AGROECOSYSTEM SCIENCES
COLLEGE OF AGRICULTURAL & LIFE SCIENCES



Extension
University of Wisconsin-Madison



Questions??



Find me at:

hkaur35@wisc.edu

510-356-7133

X: WiscBadger_Corn

<https://cropsandsoils.extension.wisc.edu/corn-agronomy/>



