

The Impacts to Iowa Agriculture from the August 10th Derecho

Dr. Justin Glisan

State Climatologist of Iowa

Iowa Department of Agriculture and Land Stewardship

Climatology Bureau

Presentation Highlights

- Conditions Leading Up to the Derecho
- Derecho Path
- Row Crop Impacts
- On-Farm and Commercial Infrastructure Impacts
- Specialty Crop Impacts
- Summary

Conditions Leading Up to the Derecho

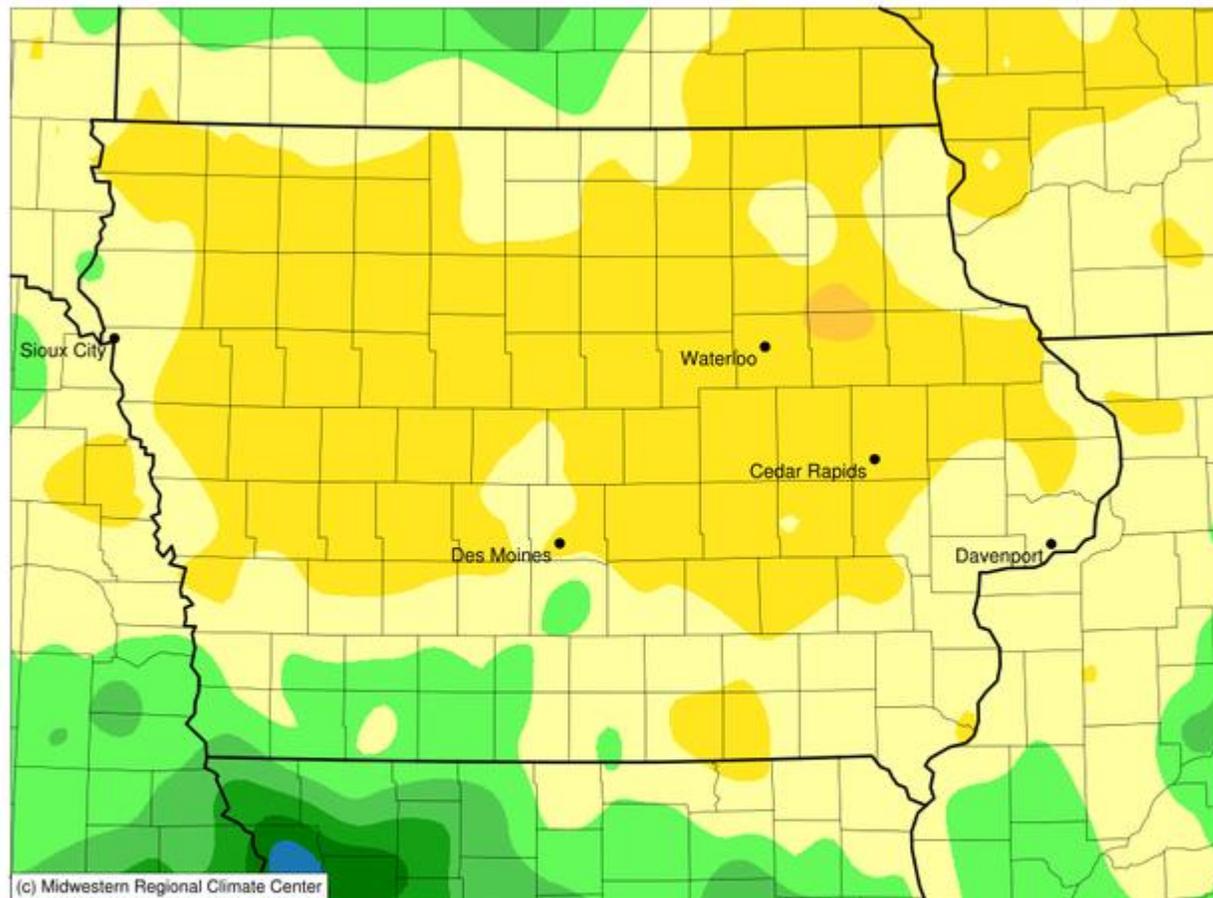
Precipitation deficits

Soil-moisture deficits

Expanding Drought

Accumulated Precipitation (in): Departure from 1981-2010 Normals

July 11, 2020 to August 10, 2020

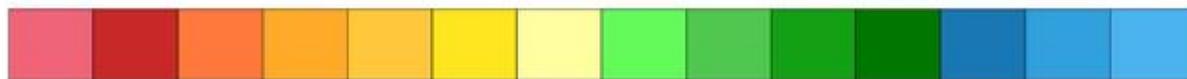
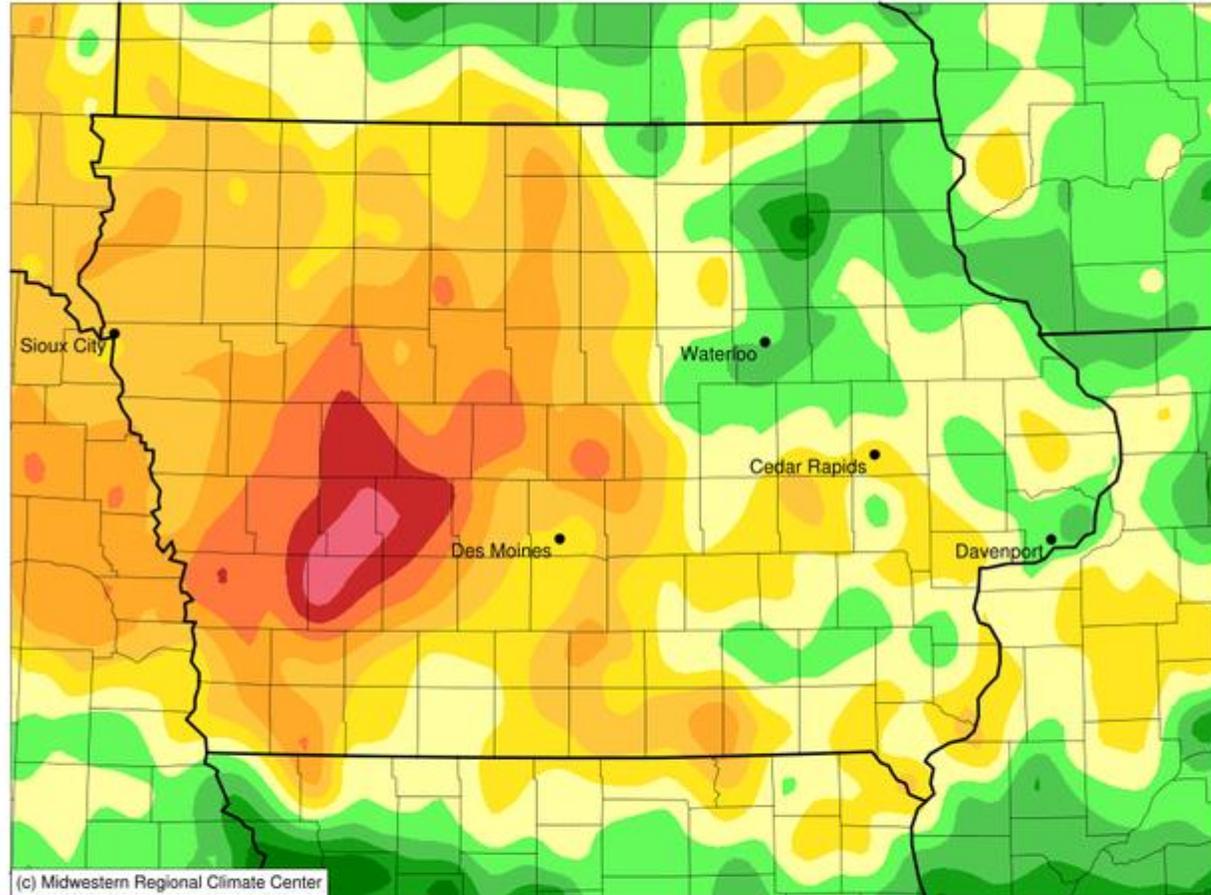


Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 9/2/2020 12:34:57 AM CDT

- 30-day precipitation deficits up to the event
- Generally 2.00"-4.00" below normal along the path of the derecho

Accumulated Precipitation (in): Departure from 1981-2010 Normals

January 01, 2020 to August 10, 2020



-12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12

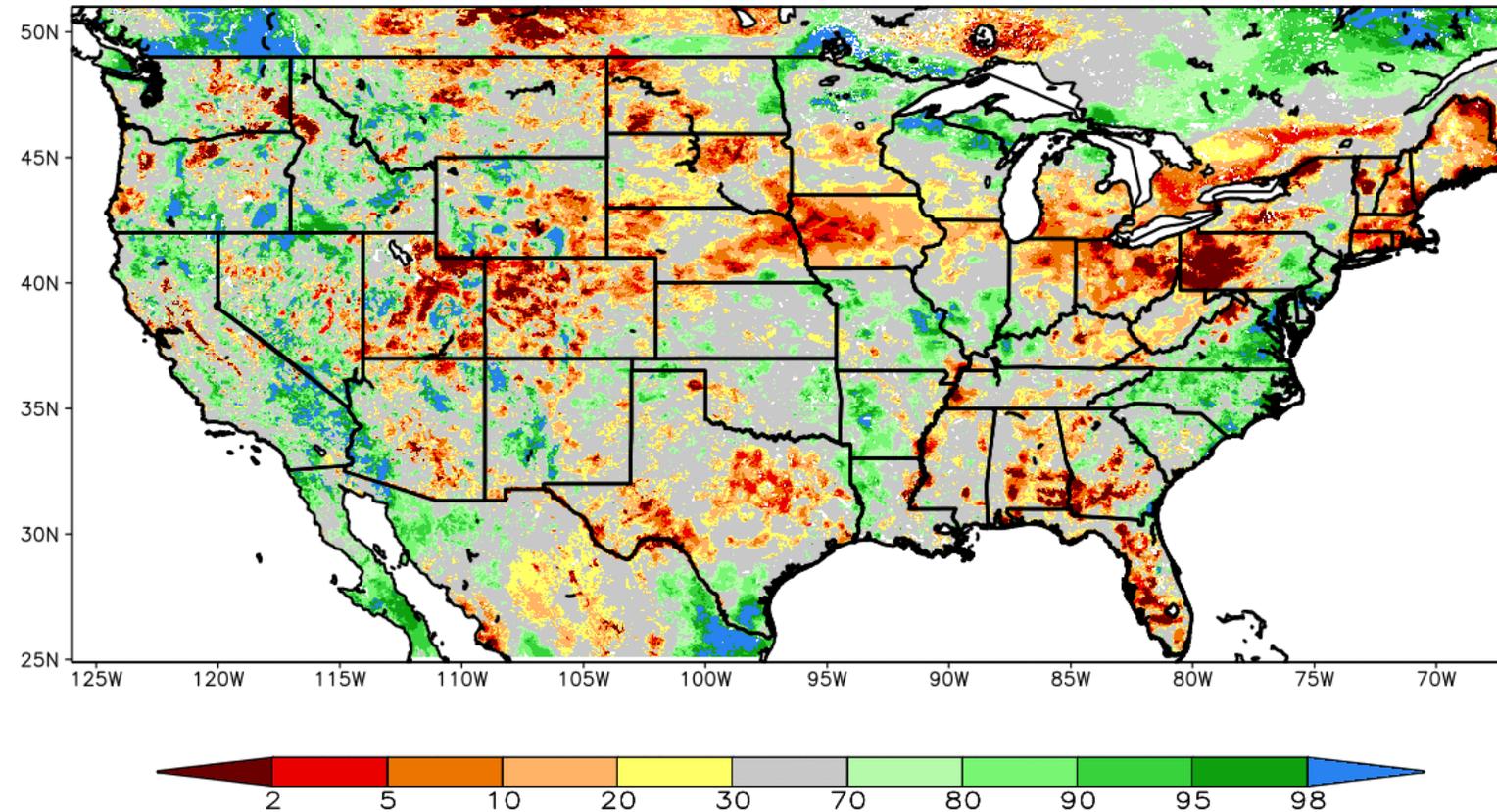
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Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 9/2/2020 12:38:42 AM CDT

- 2020 YTD precipitation deficits up to the event
- Western half of Iowa showing below average precipitation.
- West-central Iowa showing deficits from 8"-12"

Soil Moisture on August 10th

SPoRT-LIS 0–100 cm Soil Moisture percentile valid 10 Aug 2020



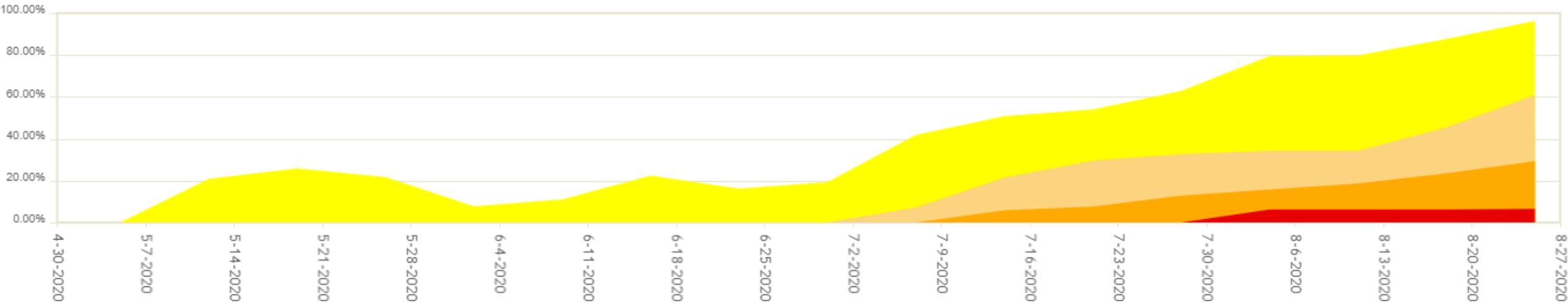
- Percentile plot showing soil moisture down to around 40”.
- Think of percentiles as capacity for the time of year
- <10th percentile across much of western lowa indicating near record dryness

What Does This Mean?

- Where longer term precipitation deficits are accumulating, corn and beans experiencing moisture stress
- Atmospheric conditions from mid-May into mid-June produced flash drought conditions in western Iowa
 - Hot, low RH, windy days
 - Atmospheric demand high = ET from surface
 - Exposed longer term precipitation deficits
- Pushed along larger-scale seasonal drought which continued to expand
- In physical terms, corn (and to some extent) beans were not as robust, given lack of moisture and summer conditions

Drought Time Series

Iowa Percent Area



- Abnormal dryness (D0) shows up in May and persists through June
- D1-D2 conditions develop through July
- D3 (Severe Drought) introduced in west-central Iowa at the end of July – right in the path of the August 10th derecho

U.S. Drought Monitor

Iowa

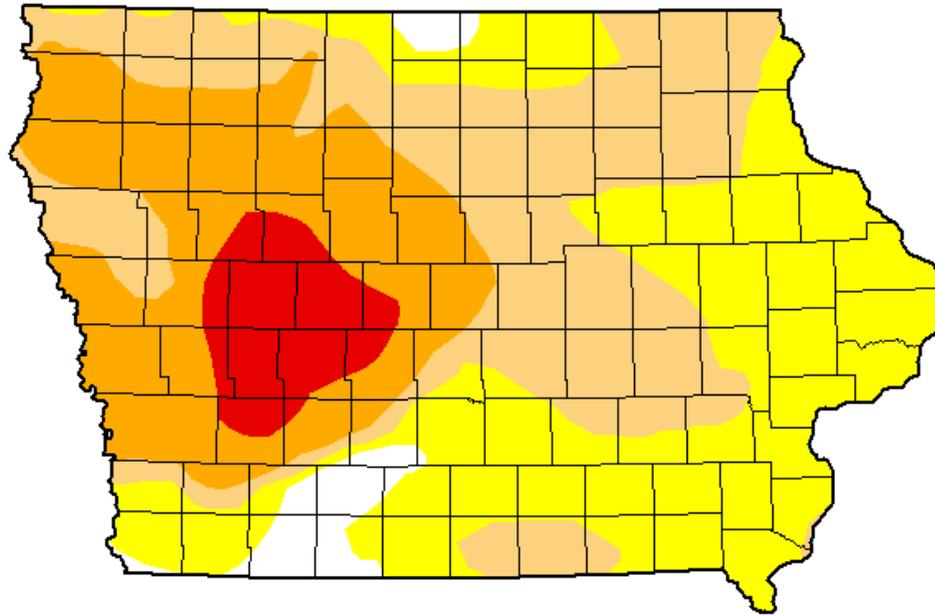
August 25, 2020

(Released Thursday, Aug. 27, 2020)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	3.69	35.44	31.57	22.78	6.52	0.00
Last Week <i>08-18-2020</i>	12.24	42.30	22.03	17.26	6.16	0.00
3 Months Ago <i>05-26-2020</i>	78.31	21.69	0.00	0.00	0.00	0.00
Start of Calendar Year <i>12-31-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year <i>10-01-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago <i>08-27-2019</i>	50.25	42.86	6.89	0.00	0.00	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>

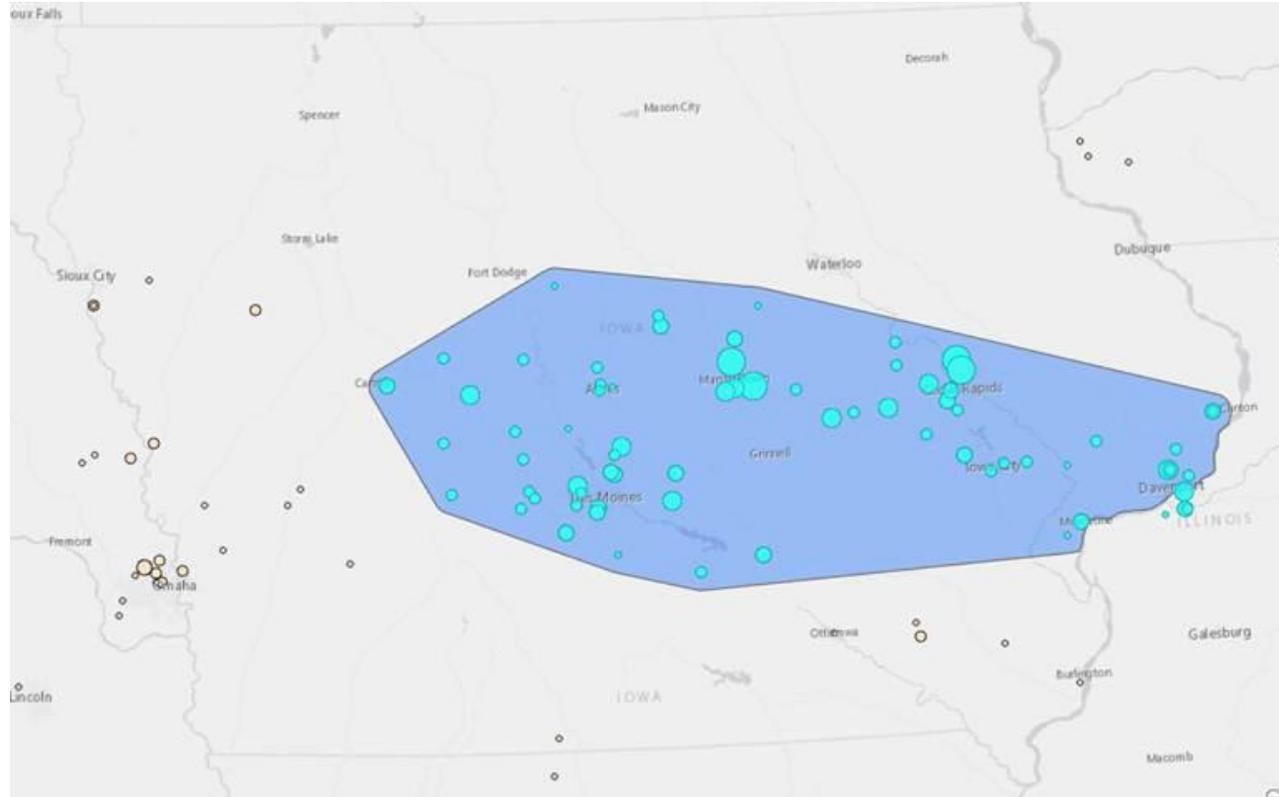
Author:

David Simeral
Western Regional Climate Center

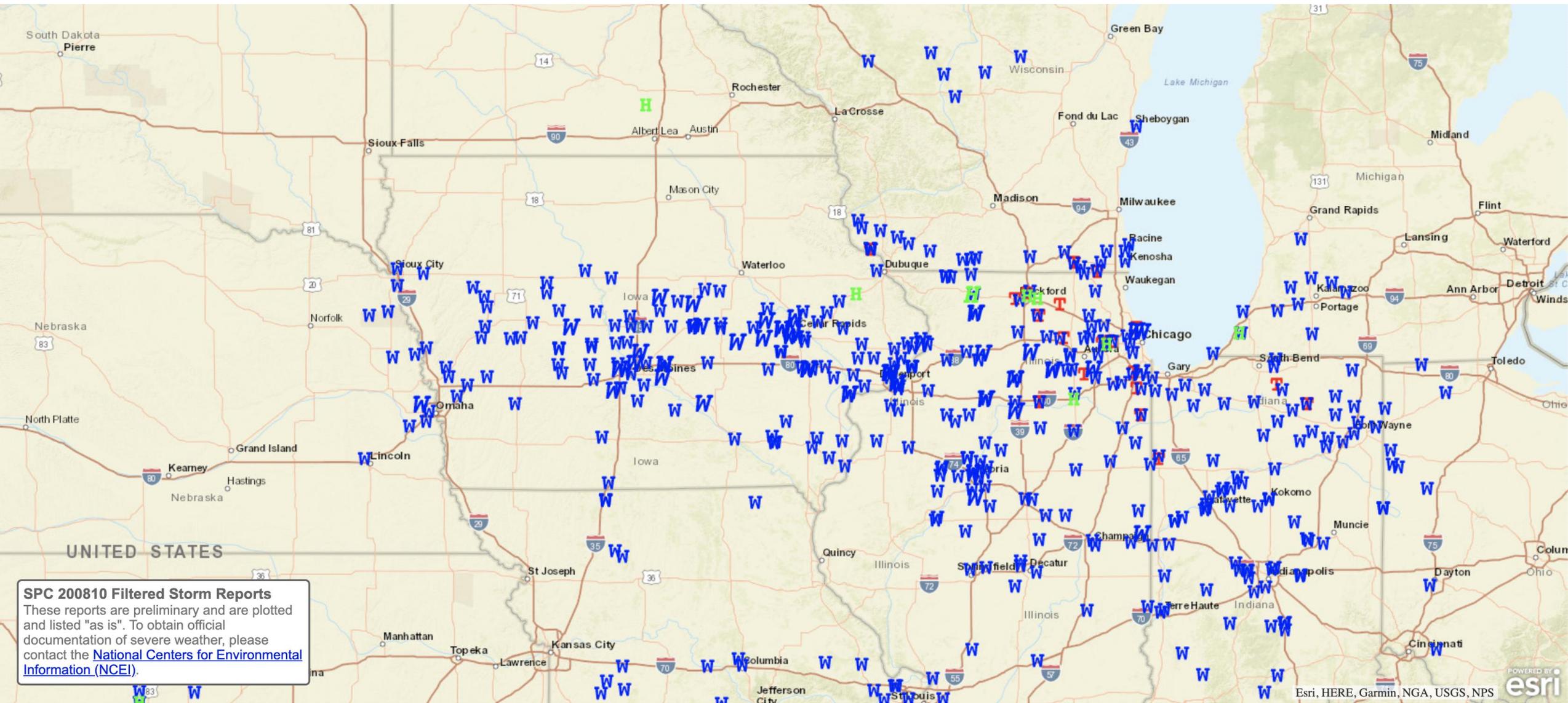


droughtmonitor.unl.edu

Preliminary Quick Response Crop Damage Estimate



- Plotted August 10 peak wind gusts available from the Storm Prediction Center
- Created a damage polygon using the MODIS satellite image as a bit of ground truthing.
- Potential damaged corn and soybean acres in Iowa:
 - 3.57 million acres of corn
 - 2.51 million acres of soybeans.



https://www.spc.noaa.gov/climo/gmf.php?rpt=200810_rpts_filtered

August 11, 2020 1-Day Observed Precipitation

Created on: August 13, 2020 - 15:28 UTC

Valid on: August 11, 2020 12:00 UTC

<https://water.weather.gov/precip/>

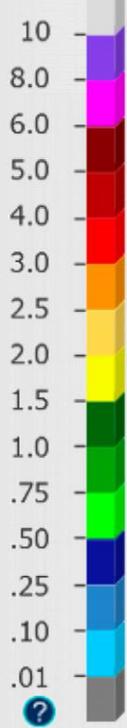
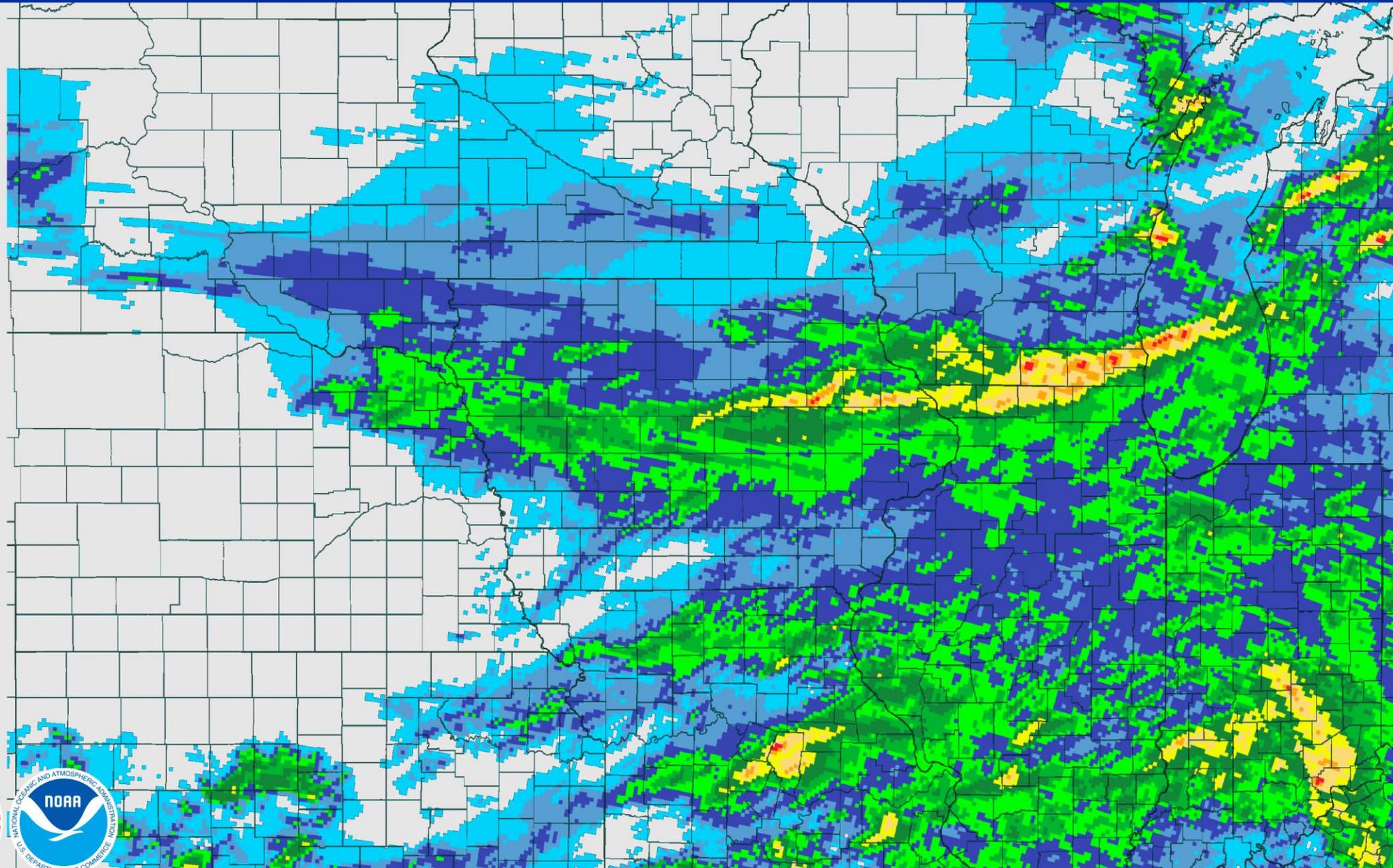






Photo Credit: Meaghan Anderson

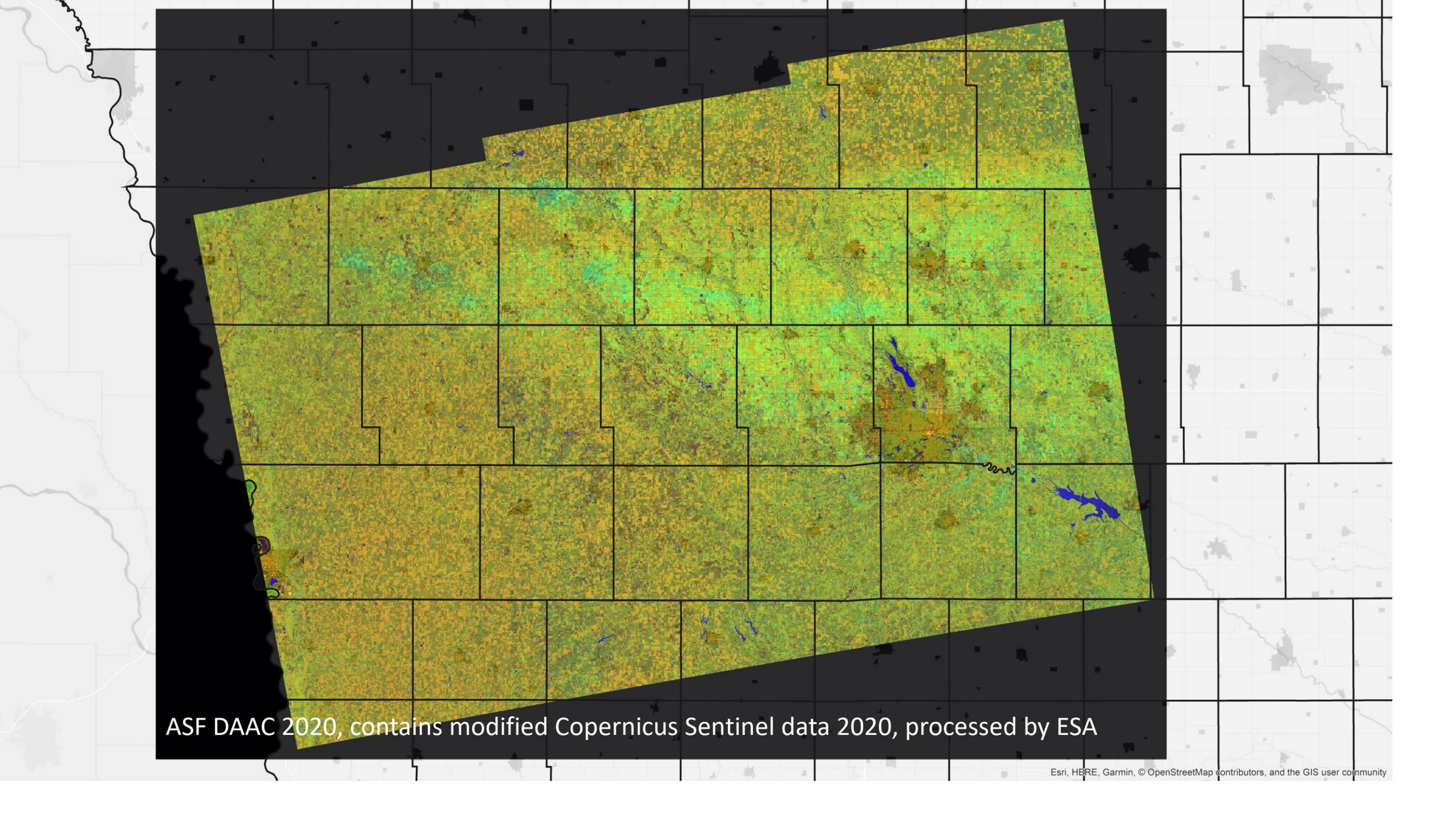




Photo Credit: Meaghan Anderson

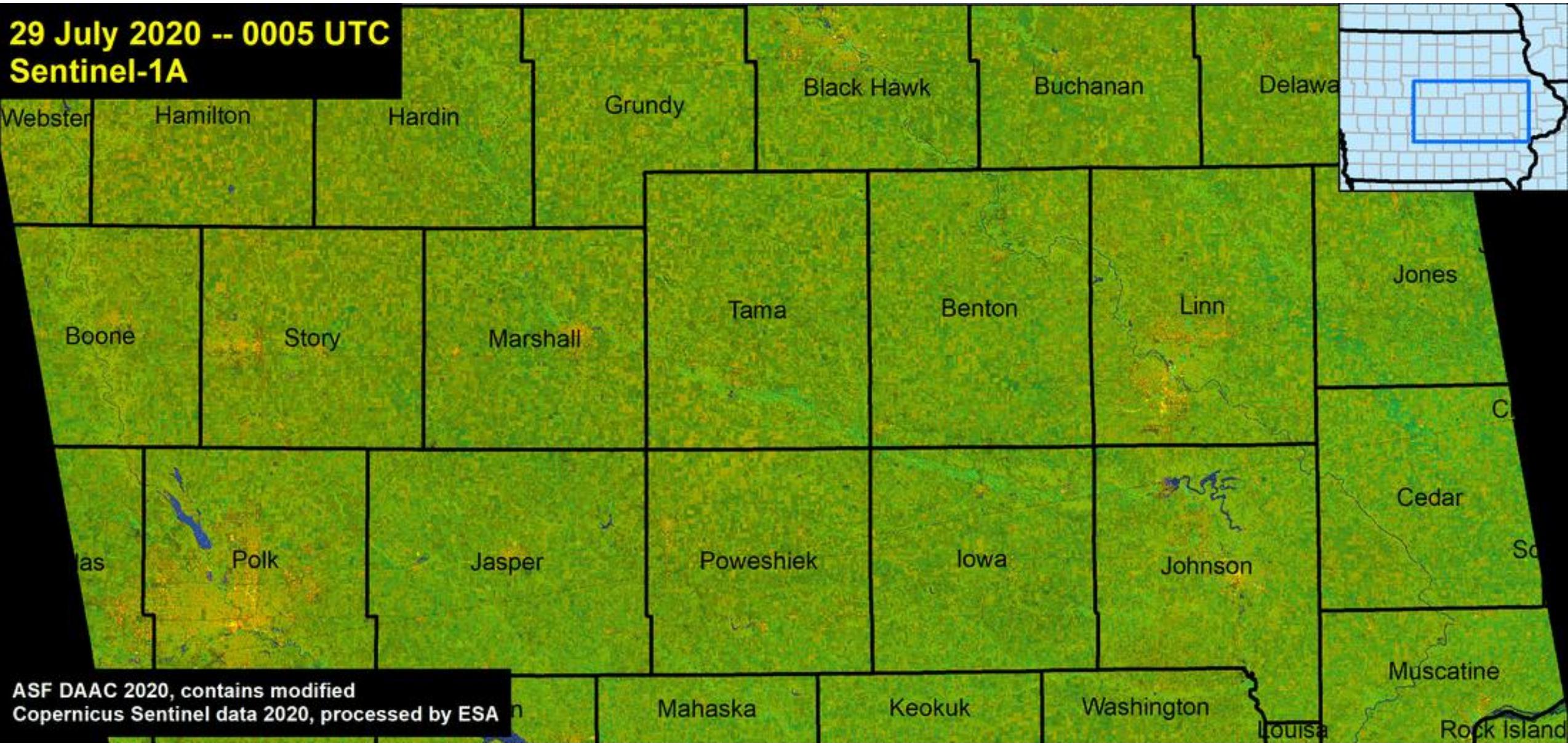


Photo Credit: Meaghan Anderson



ASF DAAC 2020, contains modified Copernicus Sentinel data 2020, processed by ESA

29 July 2020 -- 0005 UTC
Sentinel-1A



ASF DAAC 2020, contains modified
Copernicus Sentinel data 2020, processed by ESA

Crop Conditions Changes Post Derecho

Issued by USDA Nation Agricultural Statistics Service (NASS)
each Monday afternoon

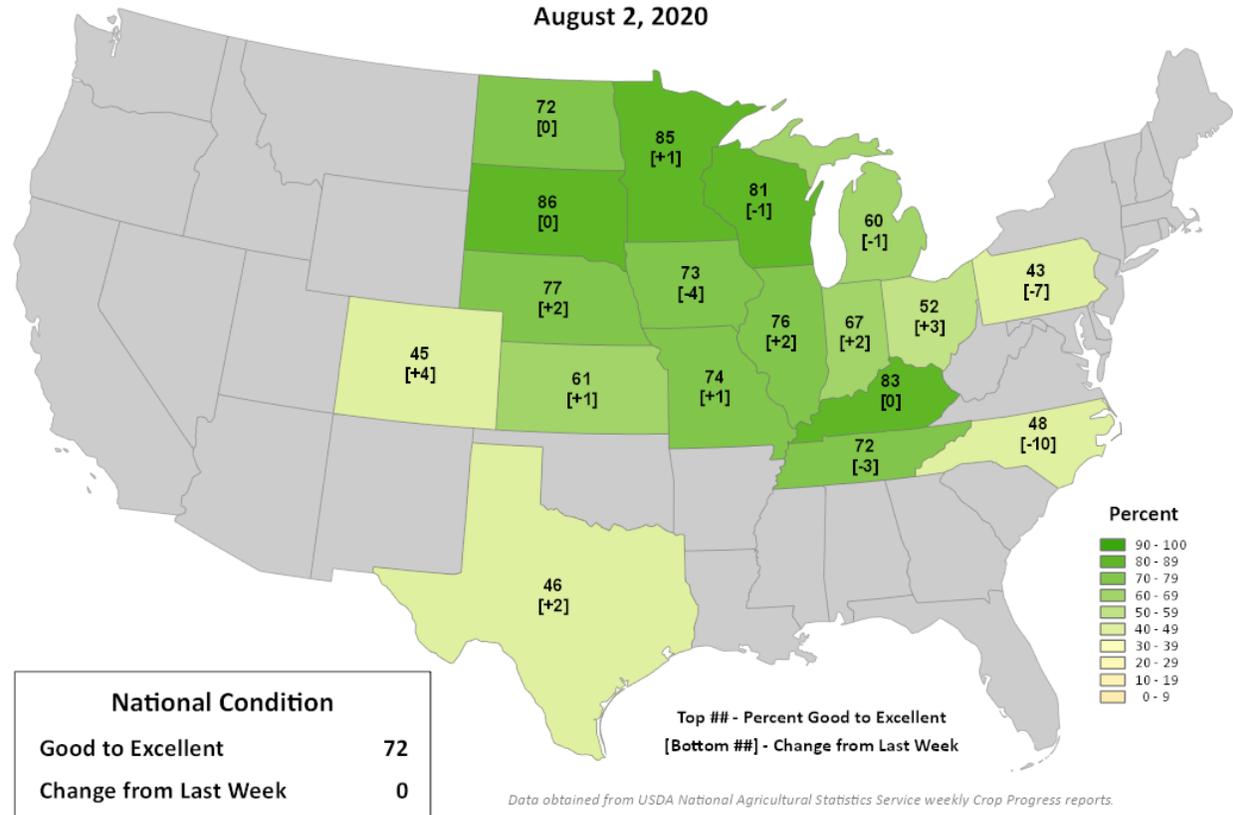
Weekly crop conditions status change from the prior week

USDA Crop Condition – August 2nd 2020



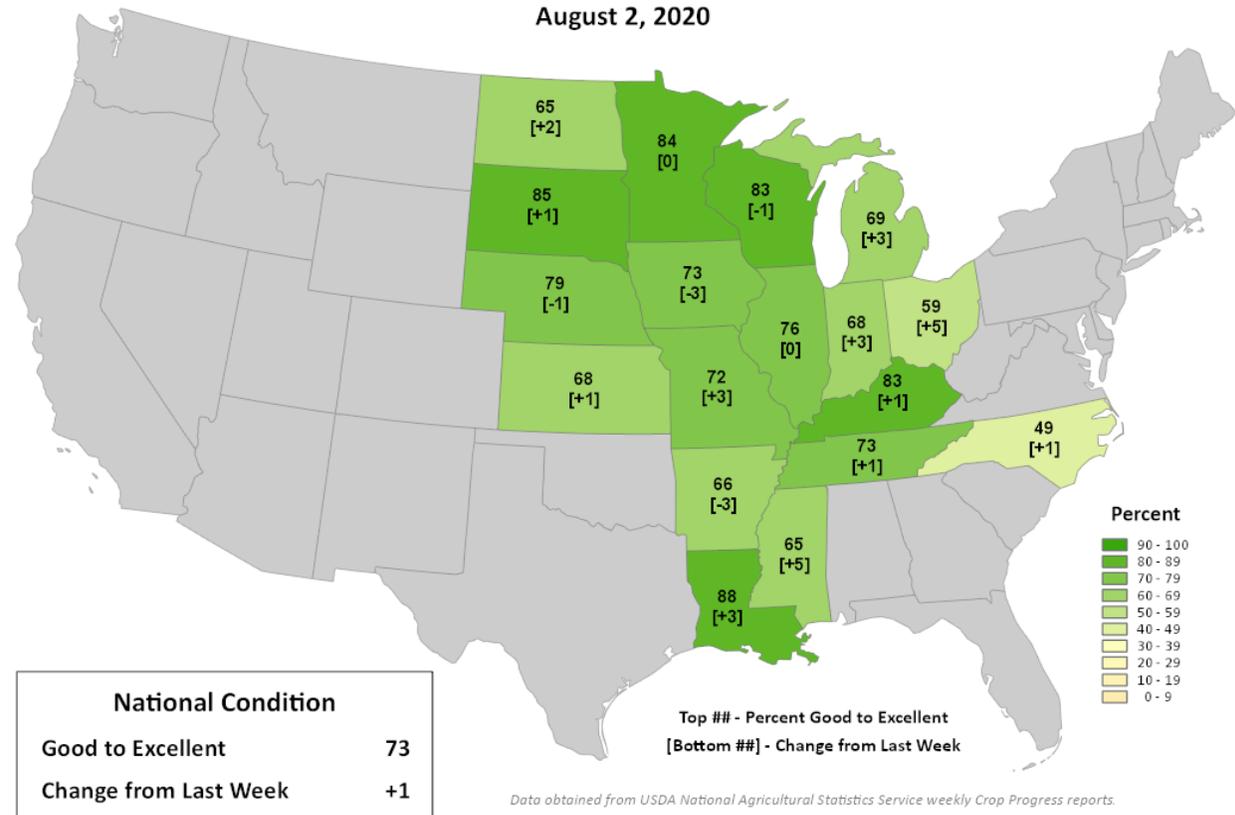
This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Corn Conditions Percent Good to Excellent August 2, 2020



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

Soybean Conditions Percent Good to Excellent August 2, 2020



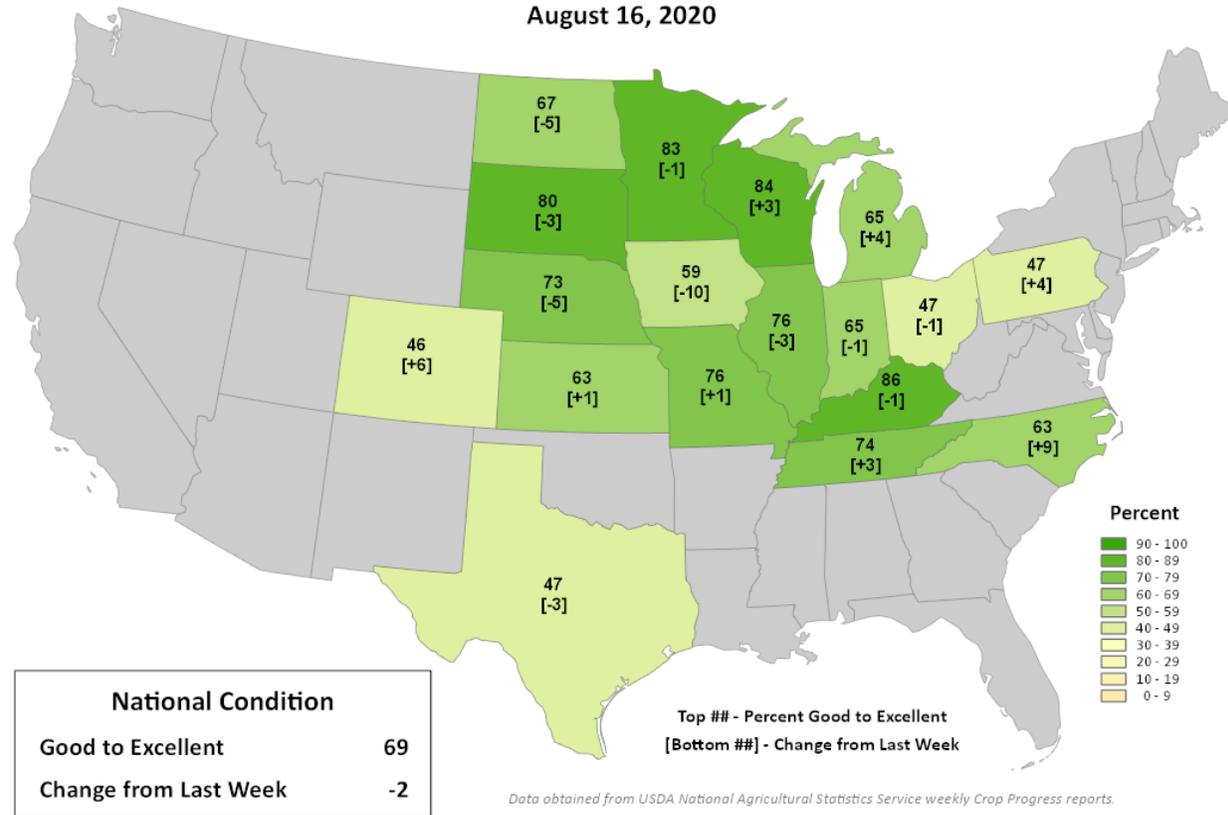
Courtesy: USDA-OCE Ag-Meteorologist Brad Rippey

USDA Crop Condition – August 16th 2020



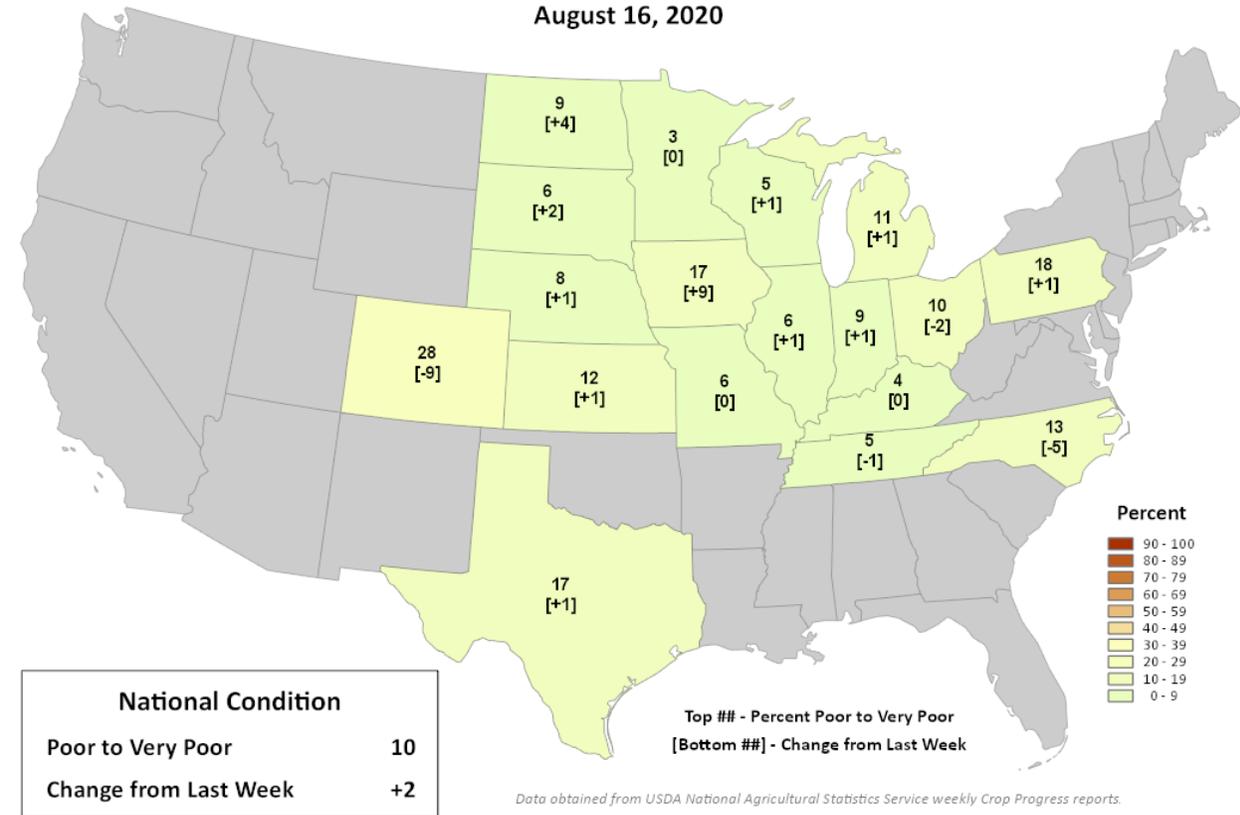
This product was prepared by the
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World Agricultural Outlook Board (WAOB)

Corn Conditions Percent Good to Excellent August 16, 2020



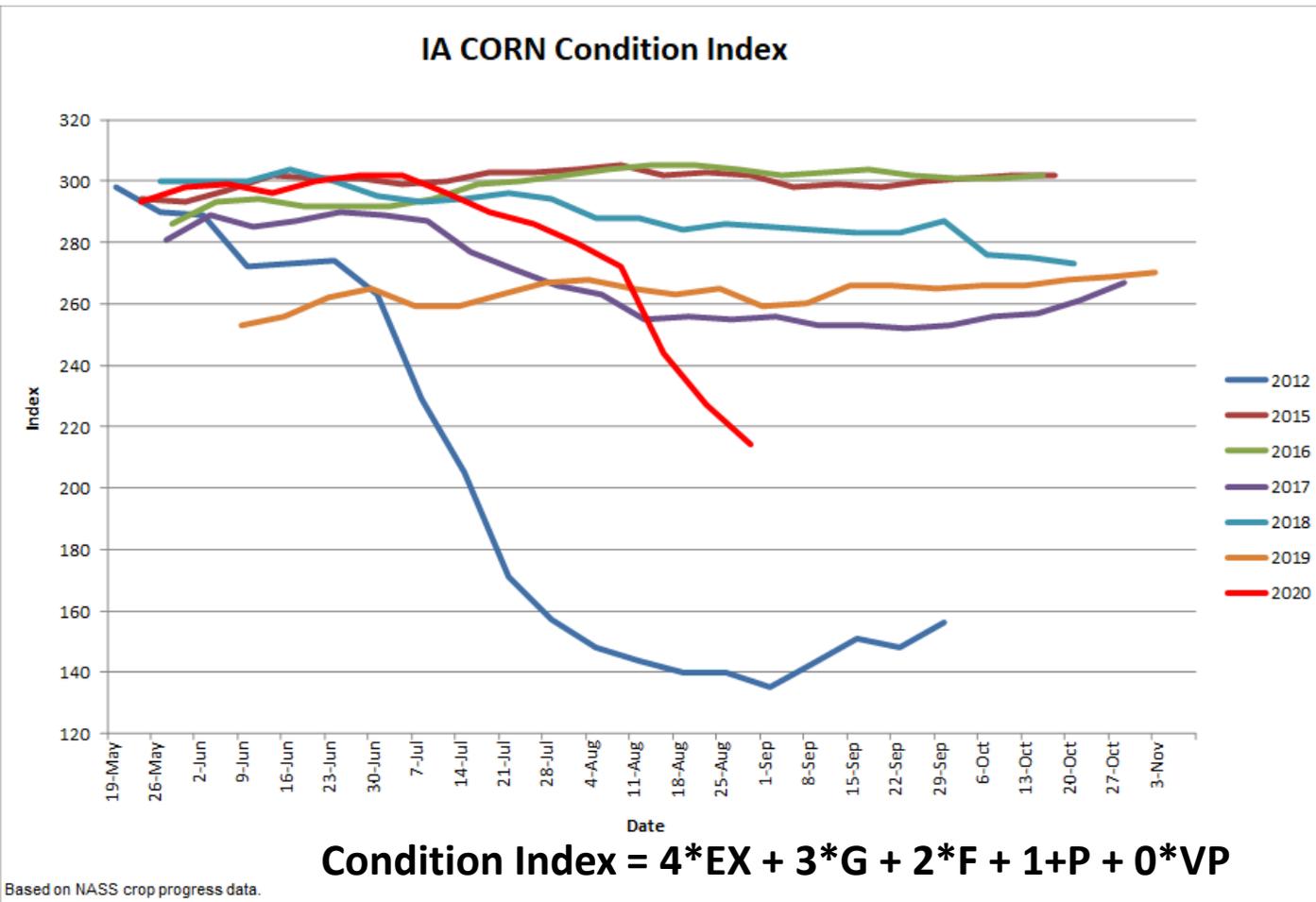
This product was prepared by the
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World Agricultural Outlook Board (WAOB)

Corn Conditions Percent Poor to Very Poor August 16, 2020



Courtesy: USDA-OCE Ag-Meteorologist Brad Rippey

USDA NASS Corn Condition Index



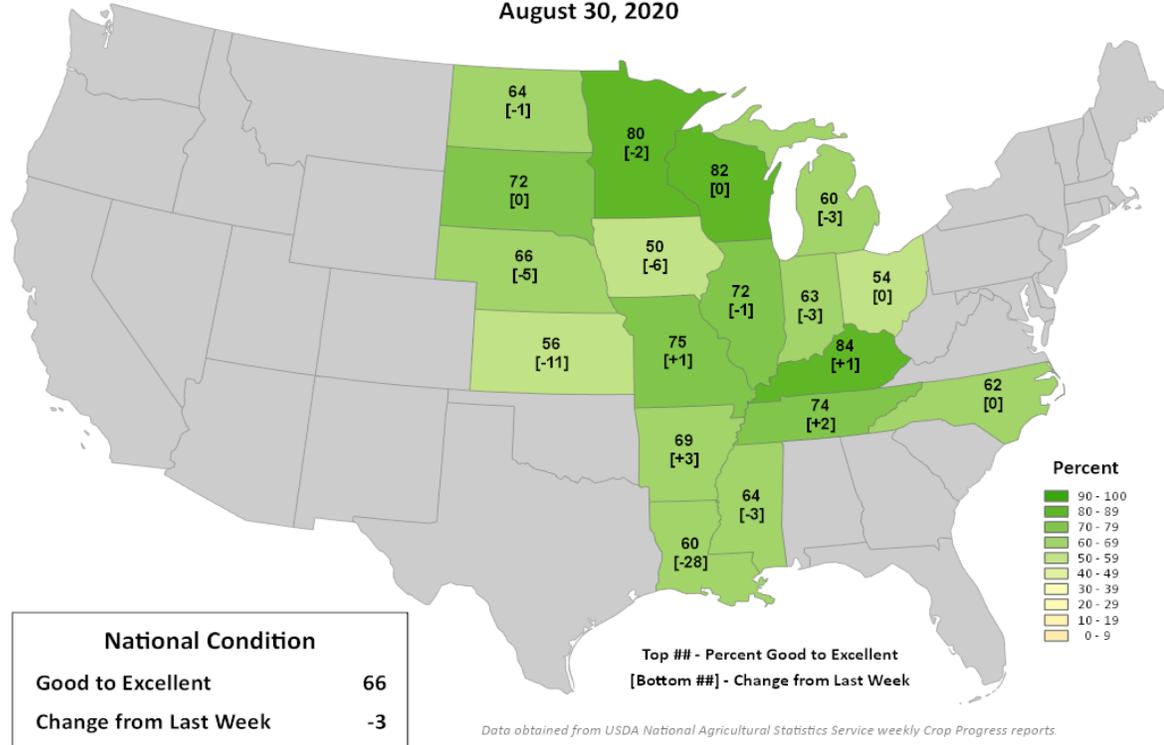
- Corn conditions across Iowa were already declining given existing drought conditions
- After the August 10th event, a steep drop in the index occurred, highlighting the widespread damage caused by the derecho (wind and hail)

Courtesy: USDA-OCE Ag-Meteorologist Brad Rippey

Soybean Conditions

Percent Good to Excellent

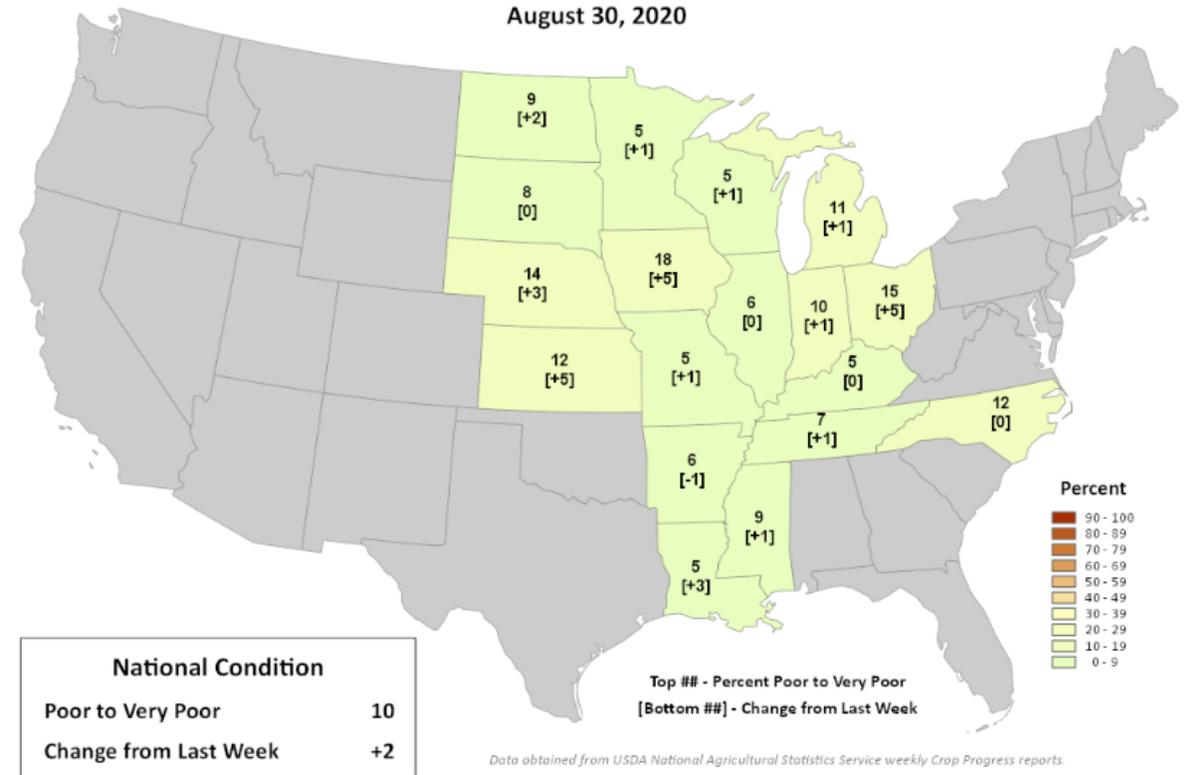
August 30, 2020



Soybean Conditions

Percent Poor to Very Poor

August 30, 2020



Courtesy: USDA-OCE Ag-Meteorologist Brad Rippey

Grain Storage Loss

- Substantial infrastructure losses due to derecho downbursts and microburst
- On the commercial side, around 57 million bushels of lost capacity from damage or destroyed grain bins
- Estimates of on-farm storage losses are on par with commercial losses
- Co-ops estimate \$300 million to remove, repair or replace damaged bins



Grain Storage Loss Impacts

- In 2019, Iowa farmers harvested 2.6 billion bushels of corn and 502 million bushels of soybeans (USDA-NASS)
- A key point here is that many rural communities in the path of the derecho were hit hard and may no longer have a local elevator to sell grain
- Sec. of Agriculture Mike Naig sent a letter to USDA Risk Management Agency (RMA) about no harvest options for farmers who have suffered severe damage

How Many Acres Won't Be Harvested?

- Adjusters have been out across the state with many more weeks of work to go
- Some damaged fields have been zeroes out and have been knocked down and disked in already
- Silage is also being chopped
- Harvest will really tell the tale of how yields have been impacted as well as grain quality

Specialty Crop Impacts

- Initial estimates have about 300,000 acres of specialty crops that were impacted by the derecho
 - Tree fruit and orchards
 - Pumpkins, strawberries
 - Peppers, tomatoes
- Also loses of growing tunnels and specialty infrastructure



Dr. Ajay Nair



Dr. Ajay Nair



Dr. Ajay Nair

Agricultural Impacts Summary

- Widespread damage to row and specialty crops that were already struggling from seasonal drought
- Determining impacts of drought vs. derecho will be difficult moving forward through harvest
- Yield amounts and grain quality issues will come into clearer view as harvest commences
- Grain storage has been decreased or degraded both commercially and on farms



IOWA DEPARTMENT OF
**AGRICULTURE &
LAND STEWARDSHIP**

Thank you!

Justin.Glisan@IowaAgriculture.gov

<https://iowaagriculture.gov/climatology-bureau>