



NEBRASKA STATE
CLIMATE OFFICE

Nebraska Climate Update

CARC Meeting
13 November, 2019

MARTHA SHULSKI PH.D.

NEBRASKA STATE CLIMATOLOGIST AND ASSOCIATE PROFESSOR

Highlights

- ❑ Flooding continues along Missouri.
- ❑ We should think already be thinking about wetness impacts heading into spring.
- ❑ Harvest should complete in the next week or so. Potential issues with proper dry down.
- ❑ Dryness in west/southwest, winter wheat showing some signs of stress.
- ❑ Potential hay stock issues due to wetness.

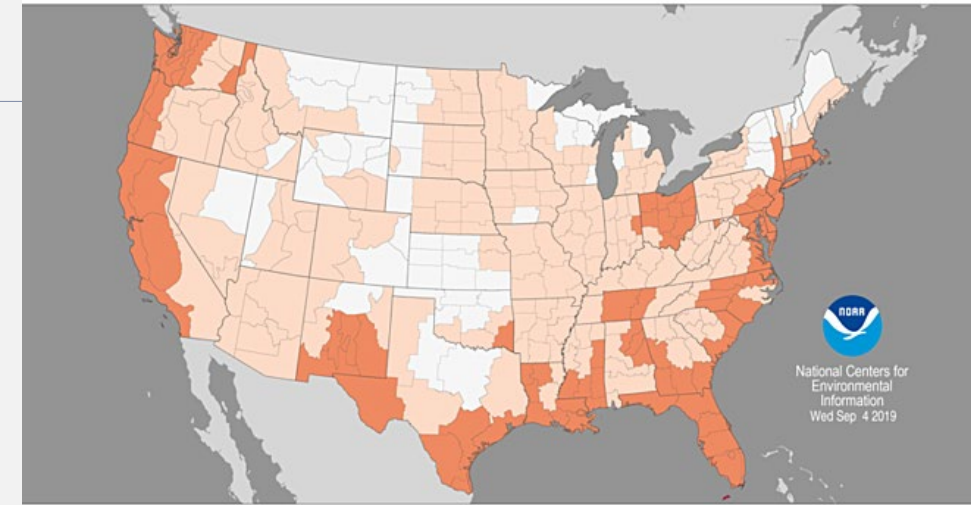
Summer recap

- Cloudy conditions were prevalent with daytime highs cooler than normal, nighttime lows warmer than normal.
- Some crop stress evident on hot days for late-planted crops with poor root structure.
- Irrigation tunnel collapse in July, impacting portions of the panhandle. Water cut off for over a month.

Divisional Minimum Temperature Ranks

June–August 2019

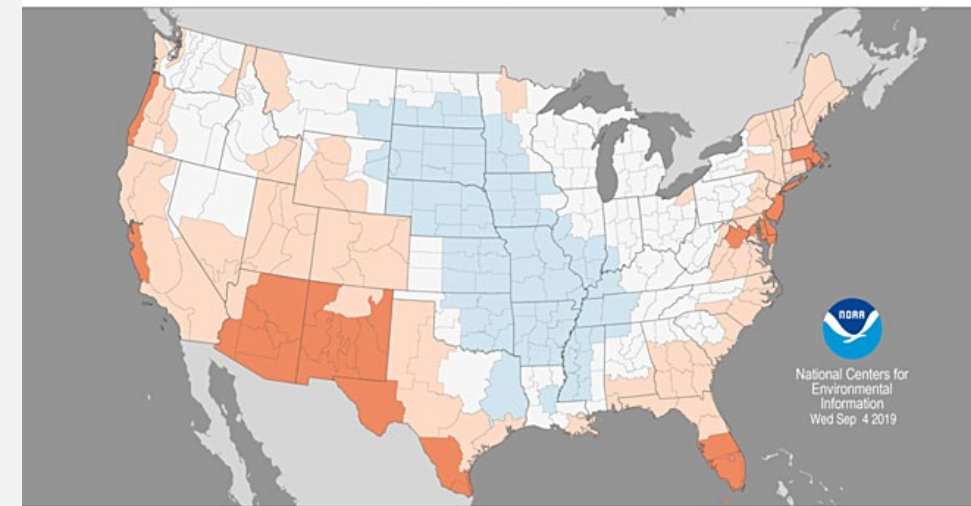
Period: 1895–2019



Divisional Maximum Temperature Ranks

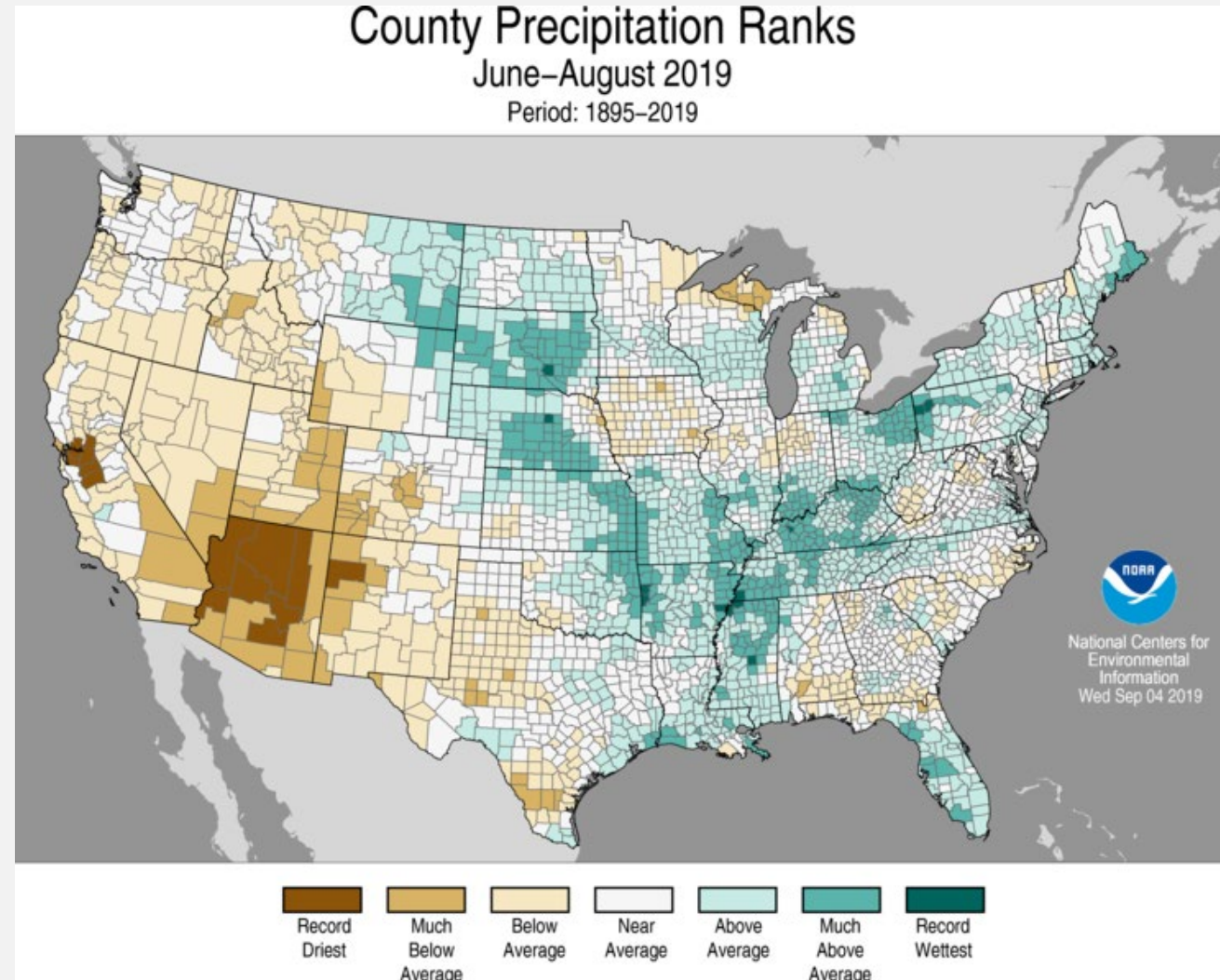
June–August 2019

Period: 1895–2019



Summer of extreme rainfall

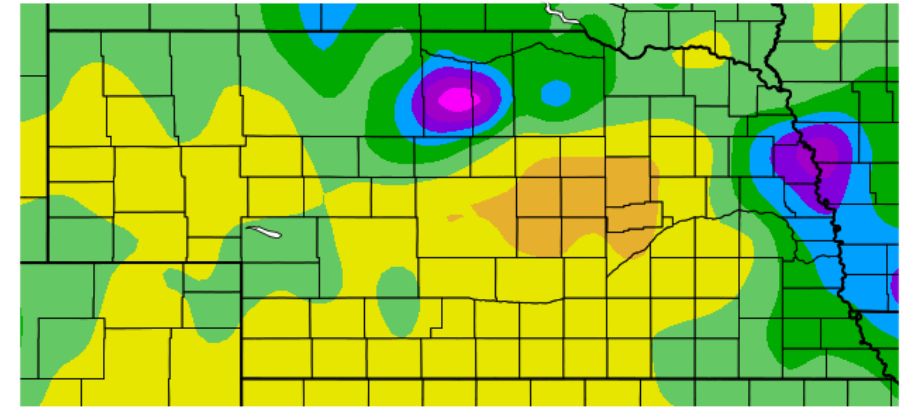
- Heavy rain in early July over large swath of southcentral Nebraska (4 inches over a 10 county area, 8.88 inches near Loomis).
- Significant flood impacts to Central Platte communities.
- Wettest August on record for the statewide average, particularly for southcentral Nebraska (16 inches near Doniphan).



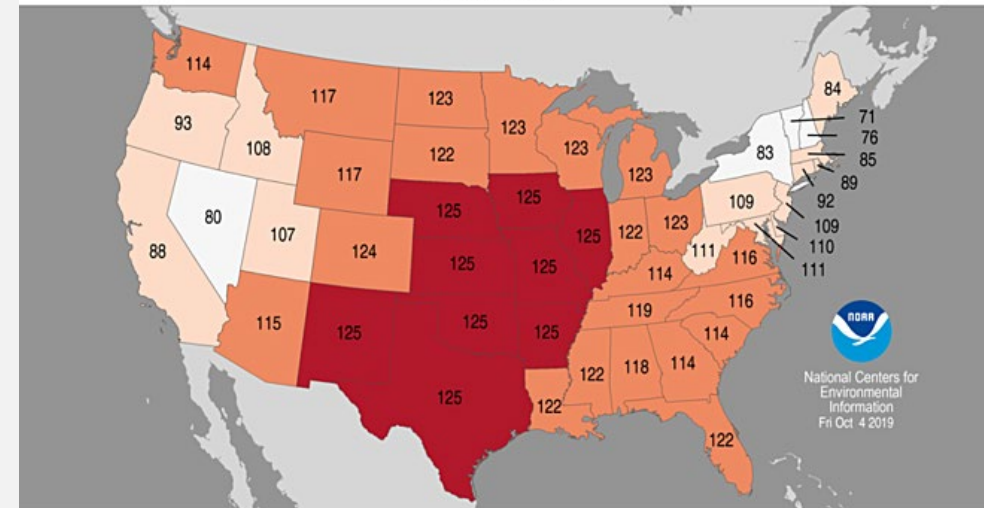
September

- Locally heavy rainfall for Ainsworth area (8 inches over two days), flooding impacts for Brown and Rock counties.
- Record wet in the Upper Missouri Basin. Missouri River up to 6 ft above flood stage at Brownville and Rulo.
- Quite warm conditions, record warmth for nighttime lows.

Departure from Normal Precipitation (in)
9/1/2019 – 9/30/2019



Statewide Minimum Temperature Ranks
September 2019
Period: 1895-2019

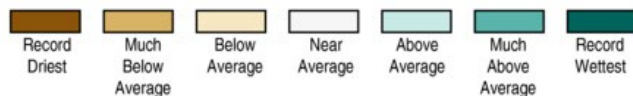
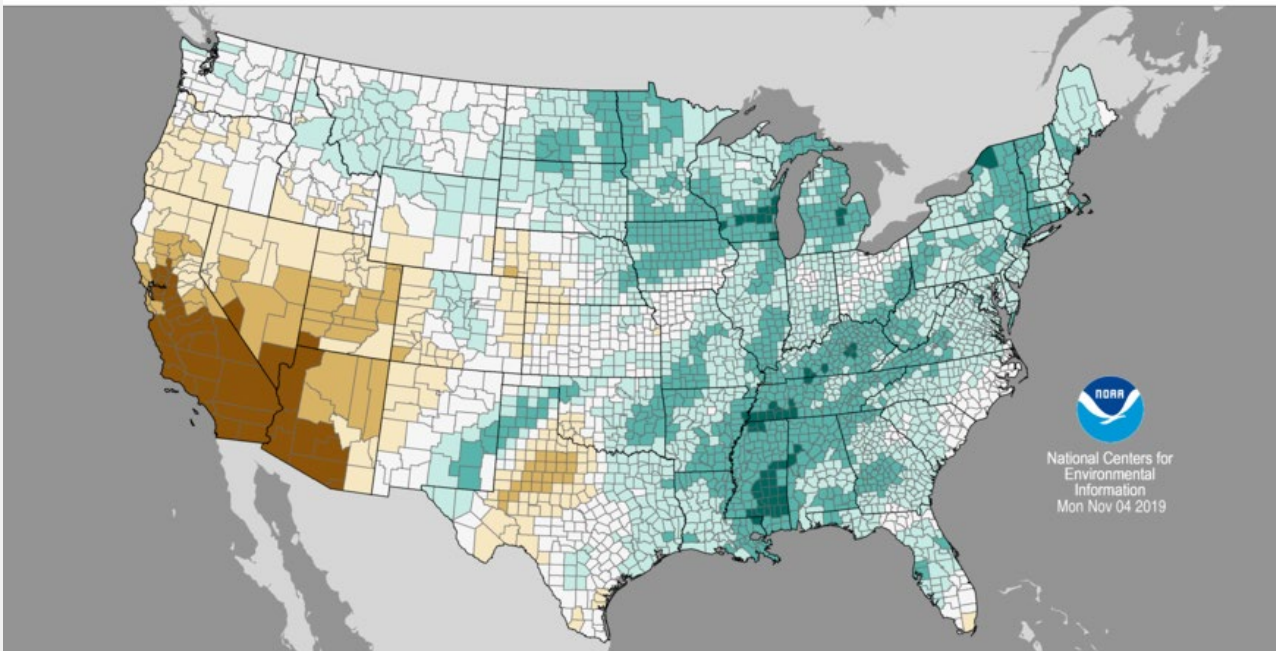


October

- Fifth coldest October for Nebraska, average temperature of 44.4°F (6° below normal).
- Season ending freezes, which occurred within a week of average dates.
- Precipitation trends showed east-west gradient. Heavy snow for the Panhandle.

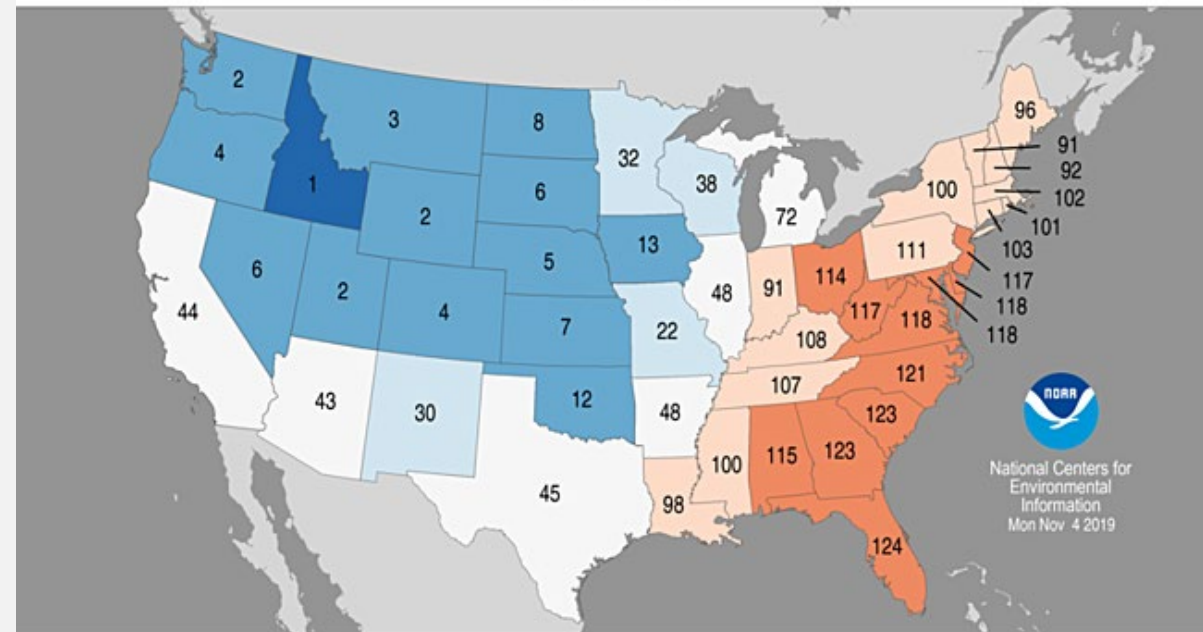
County Precipitation Ranks

October 2019
Period: 1895–2019



Statewide Average Temperature Ranks

October 2019
Period: 1895–2019

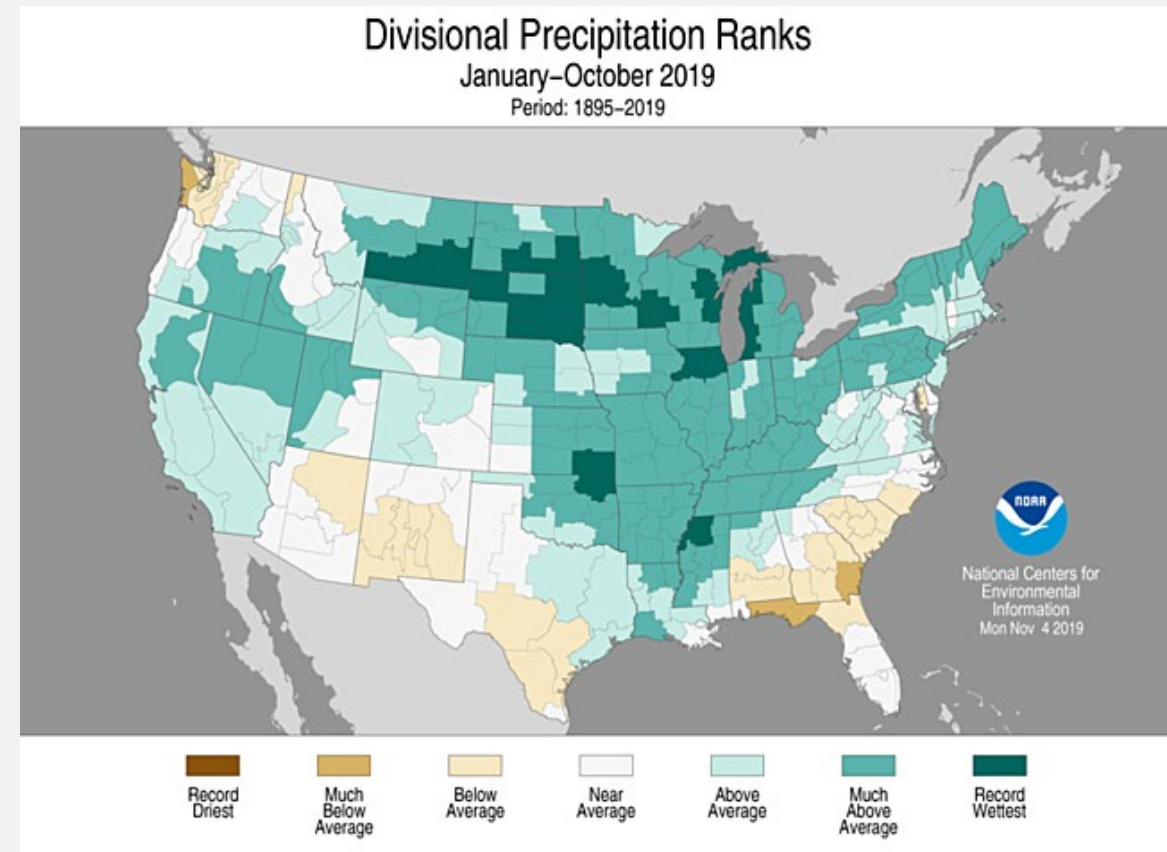
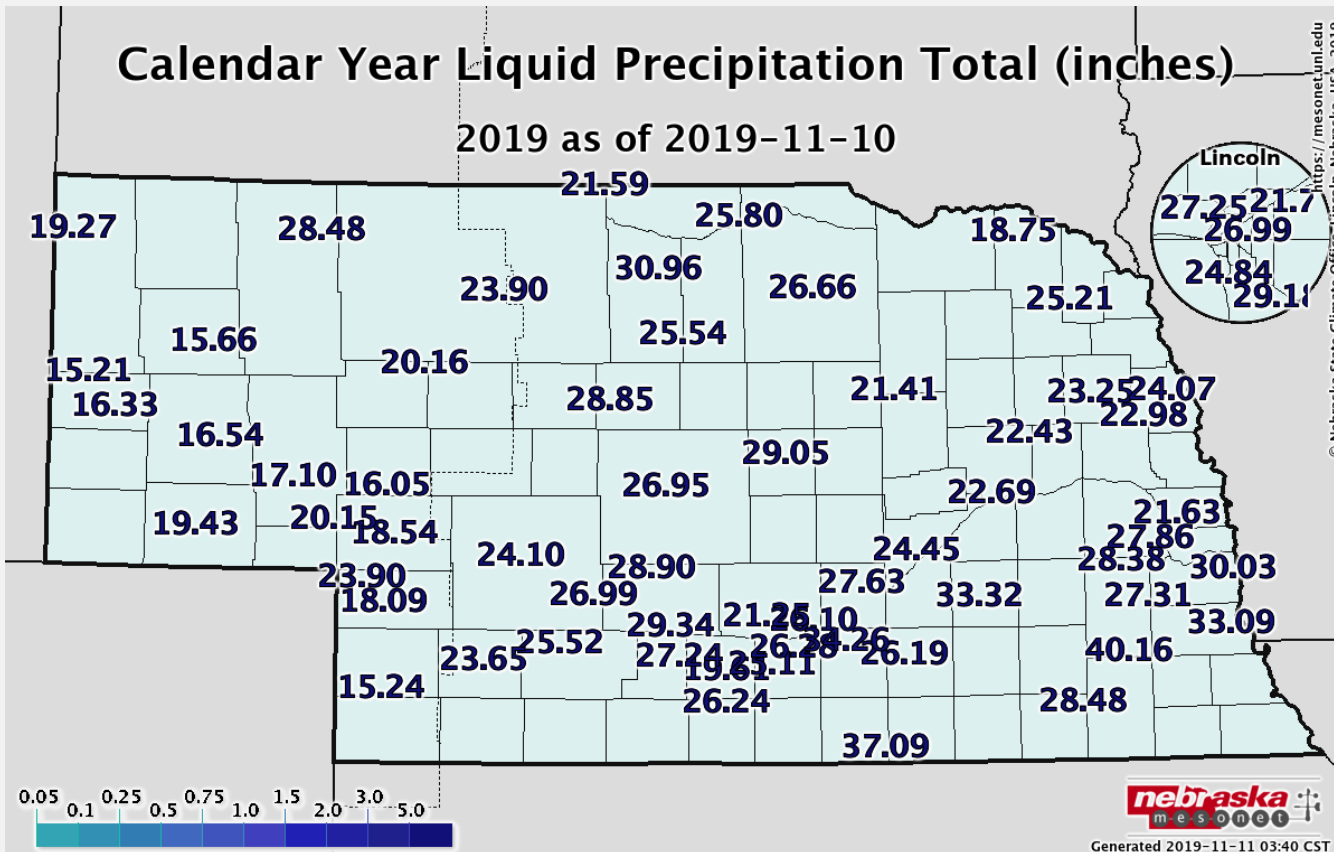


Agriculture Impacts

- For the late planted crops due to wet conditions, freeze occurred before corn reached black layer. Dry down will be biggest issue going forward.
- Some reports of disappointing corn yields (10-20 bu/ac loss) for irrigated areas around Imperial. Heavy cloud cover and cool daytime highs are thought to be the culprit.
- Dryland yield reductions reported for northeast Nebraska, most significantly in late and replanted corn.
- Corn disease reports – stalk rot and tar spot (emerging issue that is moving westward).

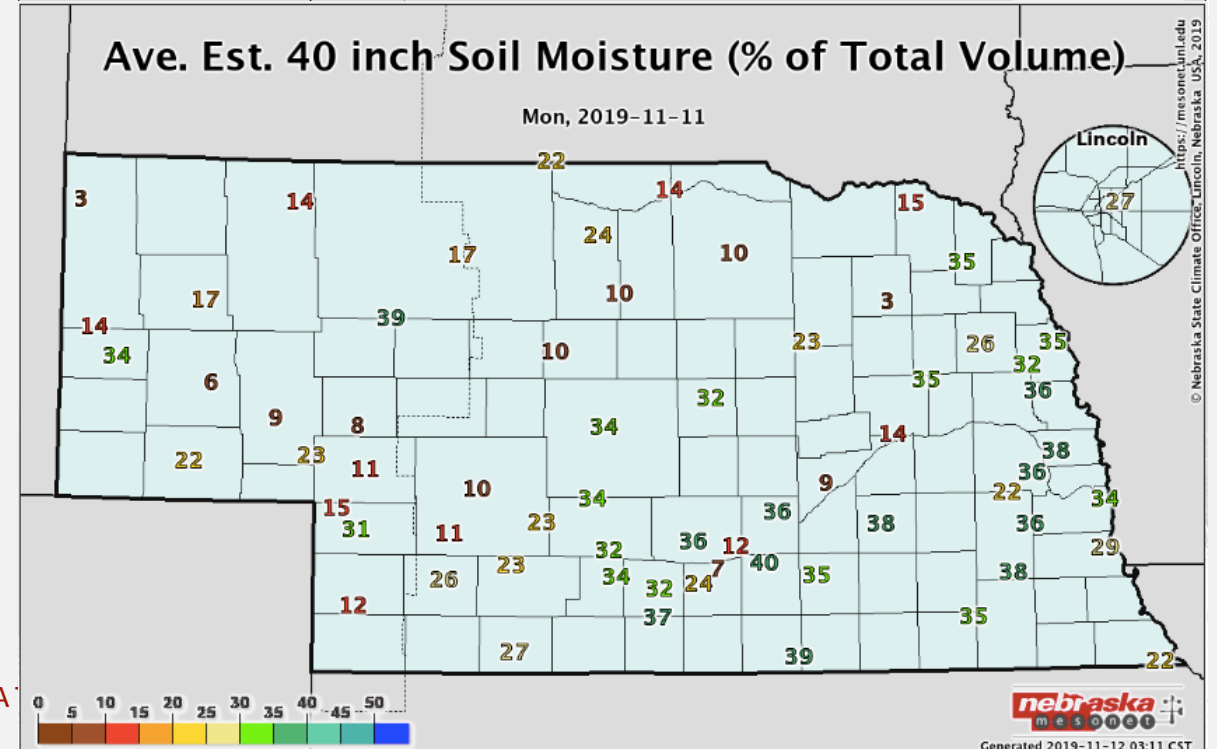
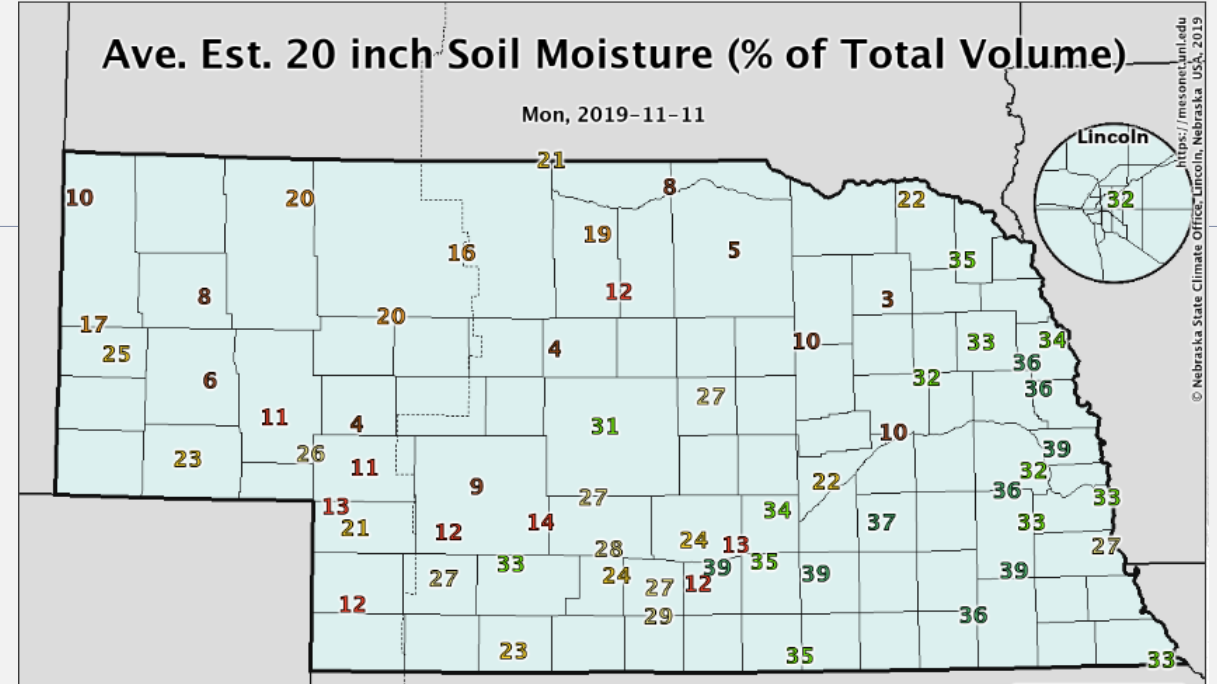
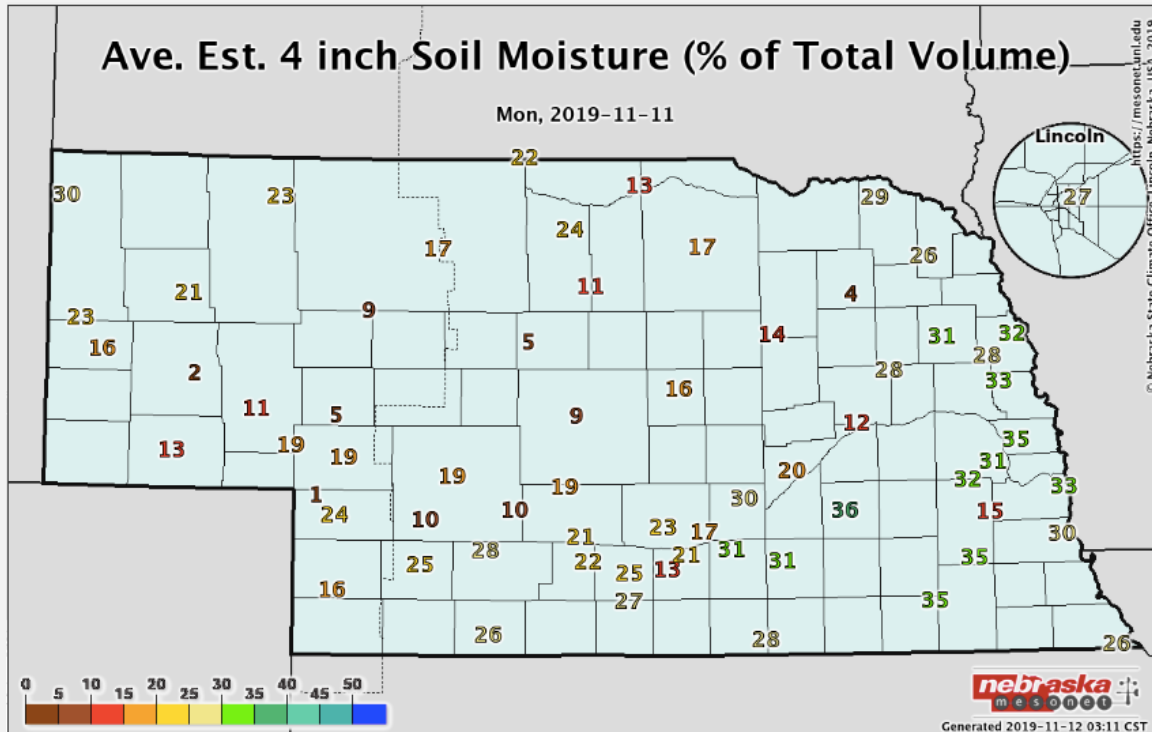
Rainfall YTD

- Third wettest on record in Nebraska, Jan – Oct 2019.



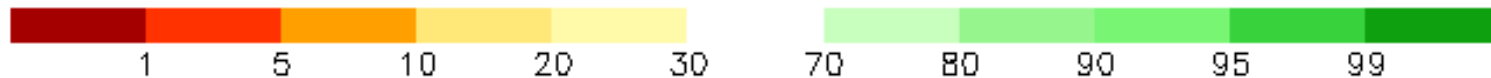
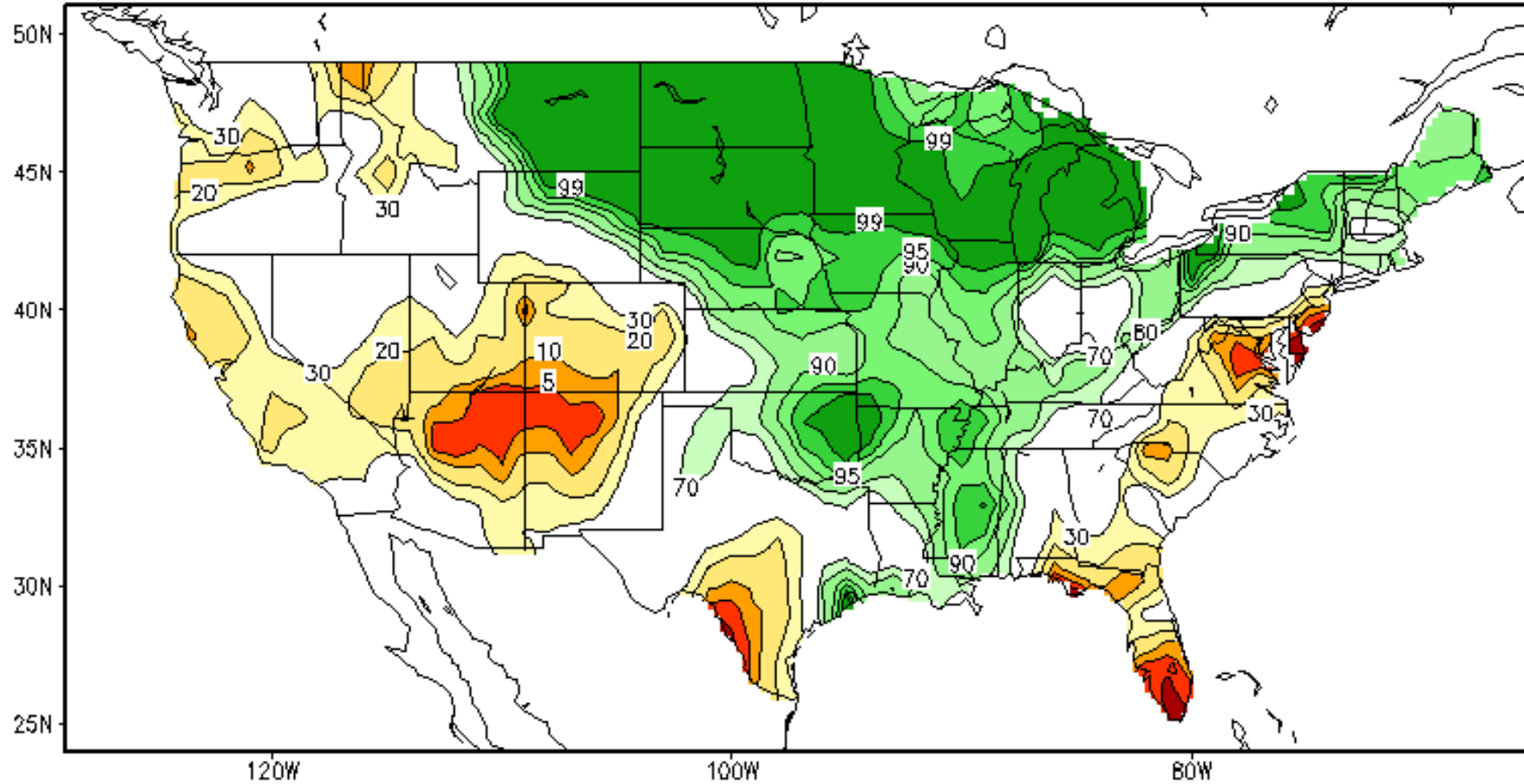
Soil Moisture

- Wetness in the north and west.
- Some dry conditions near the surface, wetter at deeper layers.











Soil Moisture - National

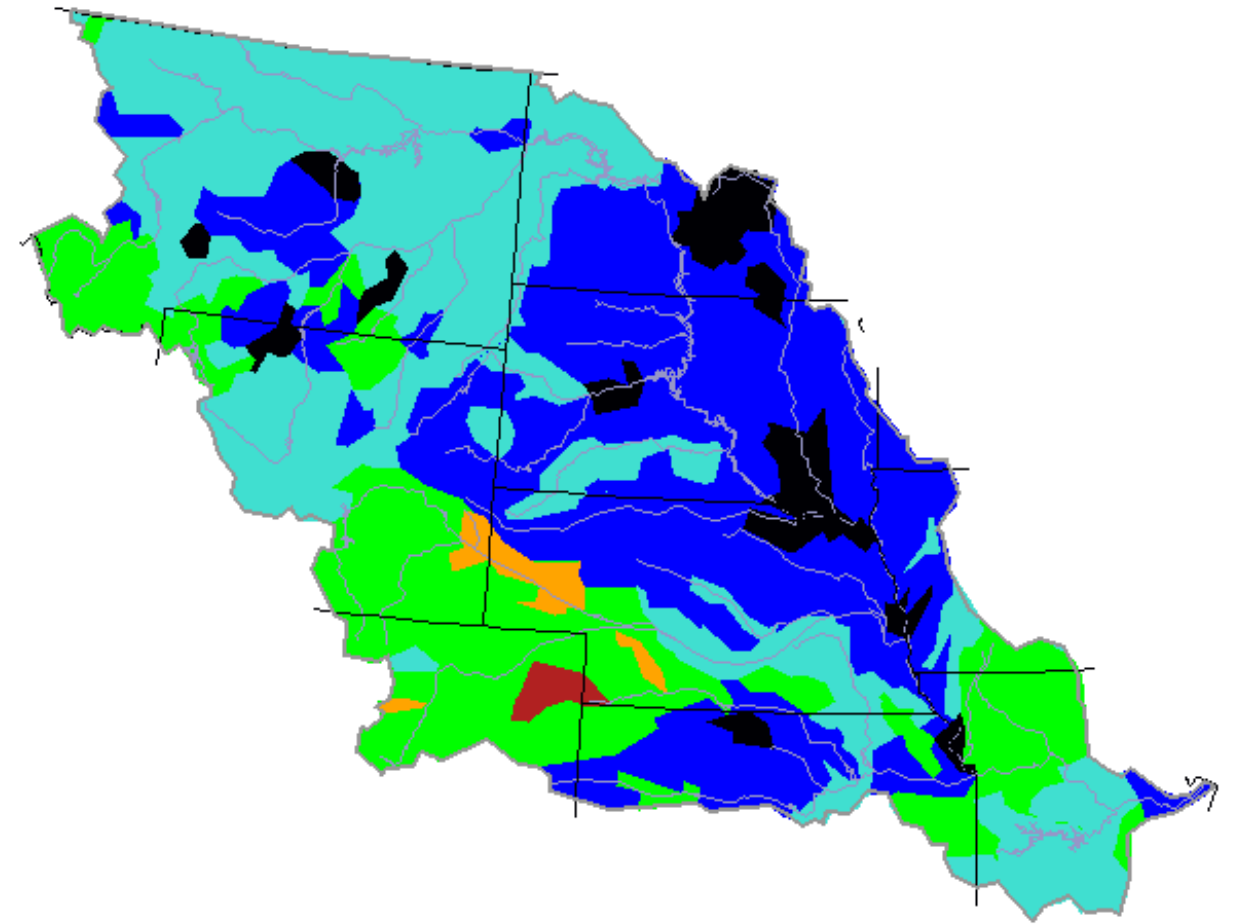
Calculated Soil Moisture Ranking Percentile
NOV 11, 2019



Streamflows to start the winter

Friday, November 08, 2019

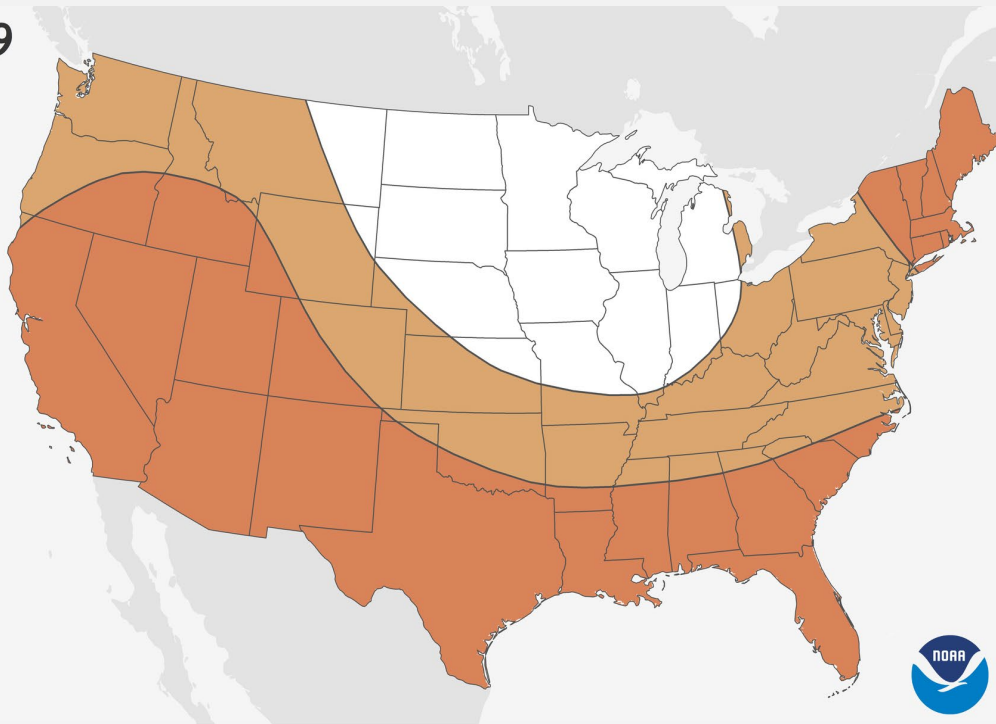
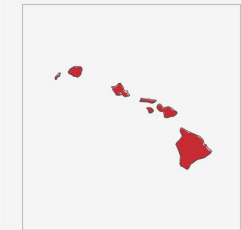
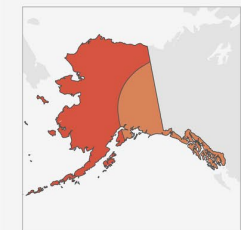
Explanation - Percentile classes								
								
Low	<10	10-24	25-75	76-90	>90	High	No Data	
	Much below normal	Below normal	Normal	Above normal	Much above normal			



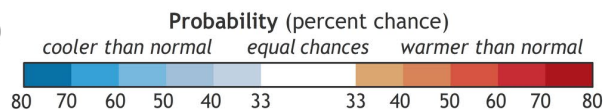
Outlook: Dec-Jan-Feb

- Lack of an equatorial Pacific signal. Persistence driving the seasonal outlook.
- Arctic signal could play a stronger role, which is generally less predictable.

Winter 2019 U.S. Temperature Outlook

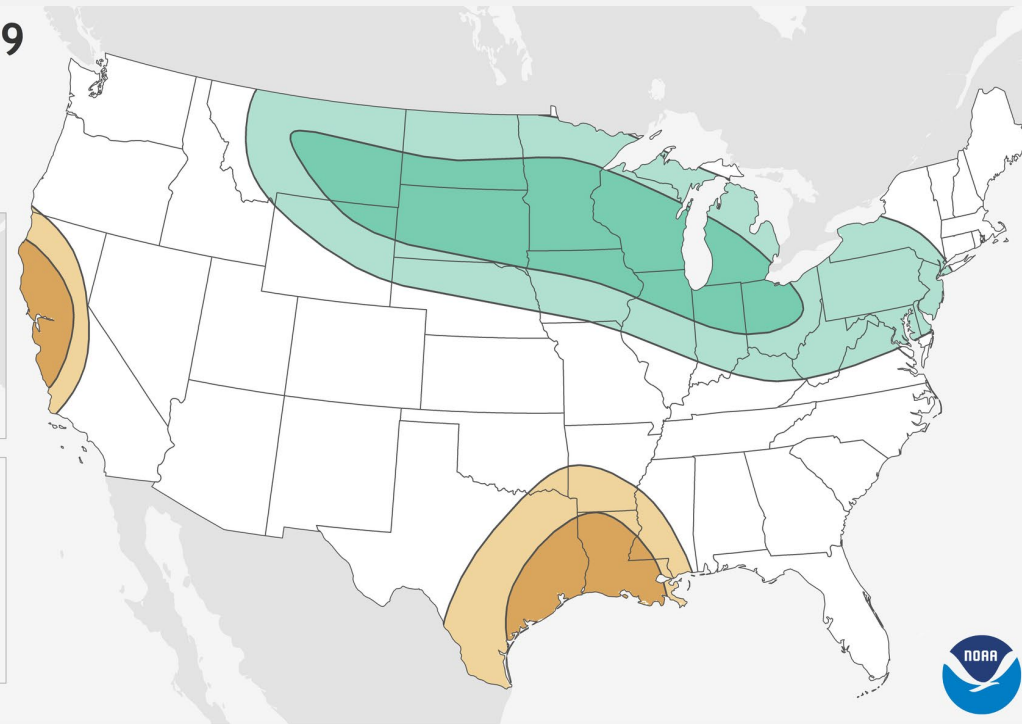
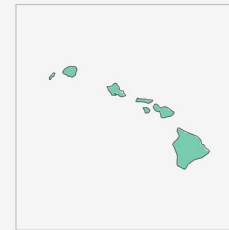
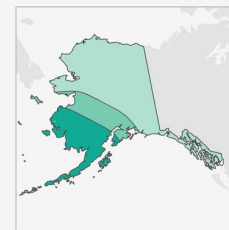


Temperature Outlook
for December 2019 – February 2020
Issued 17 October 2019

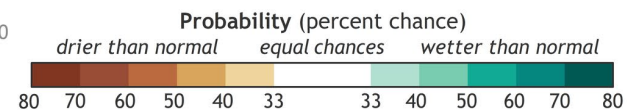


NWS Climate Prediction Center
Map by NOAA Climate.gov

Winter 2019 U.S. Precipitation Outlook



Precipitation Outlook
for December 2019 – February 2020
Issued 17 October 2019



NWS Climate Prediction Center
Map by NOAA Climate.gov

Looking ahead to spring



Central Region
Regional Operations Center



816-200-1140
crhroc@noaa.gov
weather.gov/crh

Extremely Wet Conditions Heading into the late Fall and Winter Sets the Stage for a Difficult Spring Flood Season

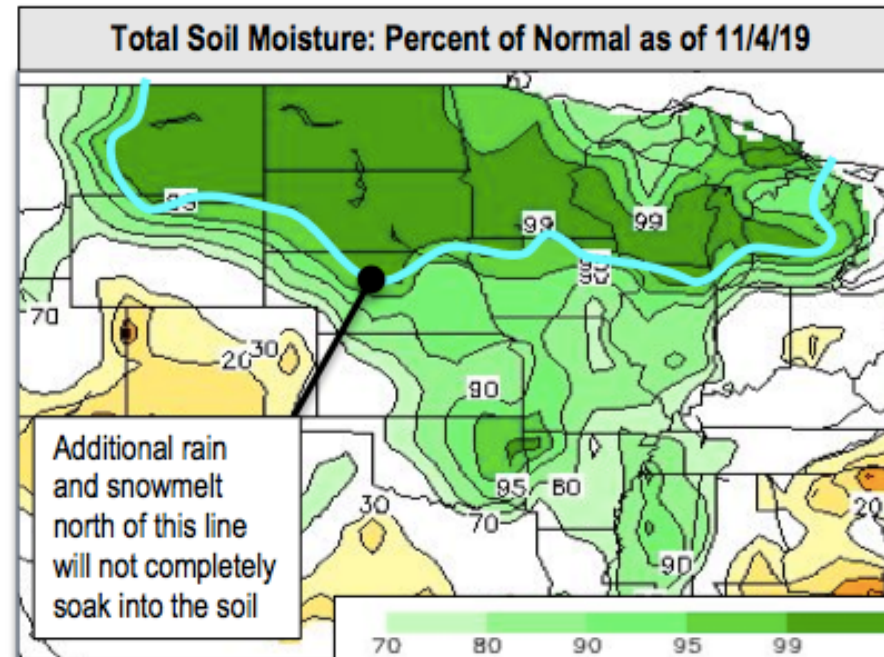
Setting the Stage:

Precipitation and Soil Moisture

Well above normal rain and snowfall throughout 2019 has led to unprecedented flooding, record high river levels, and abnormally wet ground **for the fall season** across the region.

Through the end of October, nearly every state in the Upper Midwest and Northern Plains was within its top five wettest years-to-date.

The precipitation since mid-October has been near normal across the Dakotas, Minnesota, and Iowa. Areas farther south and east in Illinois, Indiana, and Michigan have been approximately 1-2 inches above normal during this time.



ABOVE: Wet soils across most of the region can accept very little to no more water.

Impacts

Potential Impacts This Winter and Spring

Unusually high streamflow, water levels, and abnormally wet soil suggest the **following potential impacts** for the upcoming winter and spring seasons:

- Rivers freezing above flood stage
- Freezing of overland flooding
- Long-term soil damage
- Widespread ice jams, including on some rivers that are not usually affected by ice jams
- Widespread record flooding again next spring
- Delay or prevention of crop planting



2019

Spring floods and soils that just didn't dry out led to prevented plant acres being reported on more than 400,000 acres of Nebraska cropland. Overall Nebraska ranked 16th in the nation on prevent plant acres.

USDA Reports 400,000 Acres of Prevented Plant Cropland in Nebraska

AUGUST 15, 2019

Jim Jansen - Agricultural Systems Economics Extension Educator | Jeff Stokes - Professor and Hanson-Clegg-Allen Chair in Agricultural Banking and Finance





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E | NSCO.UNL.EDU

P | 402.472.5206

 @MSHULSKI3

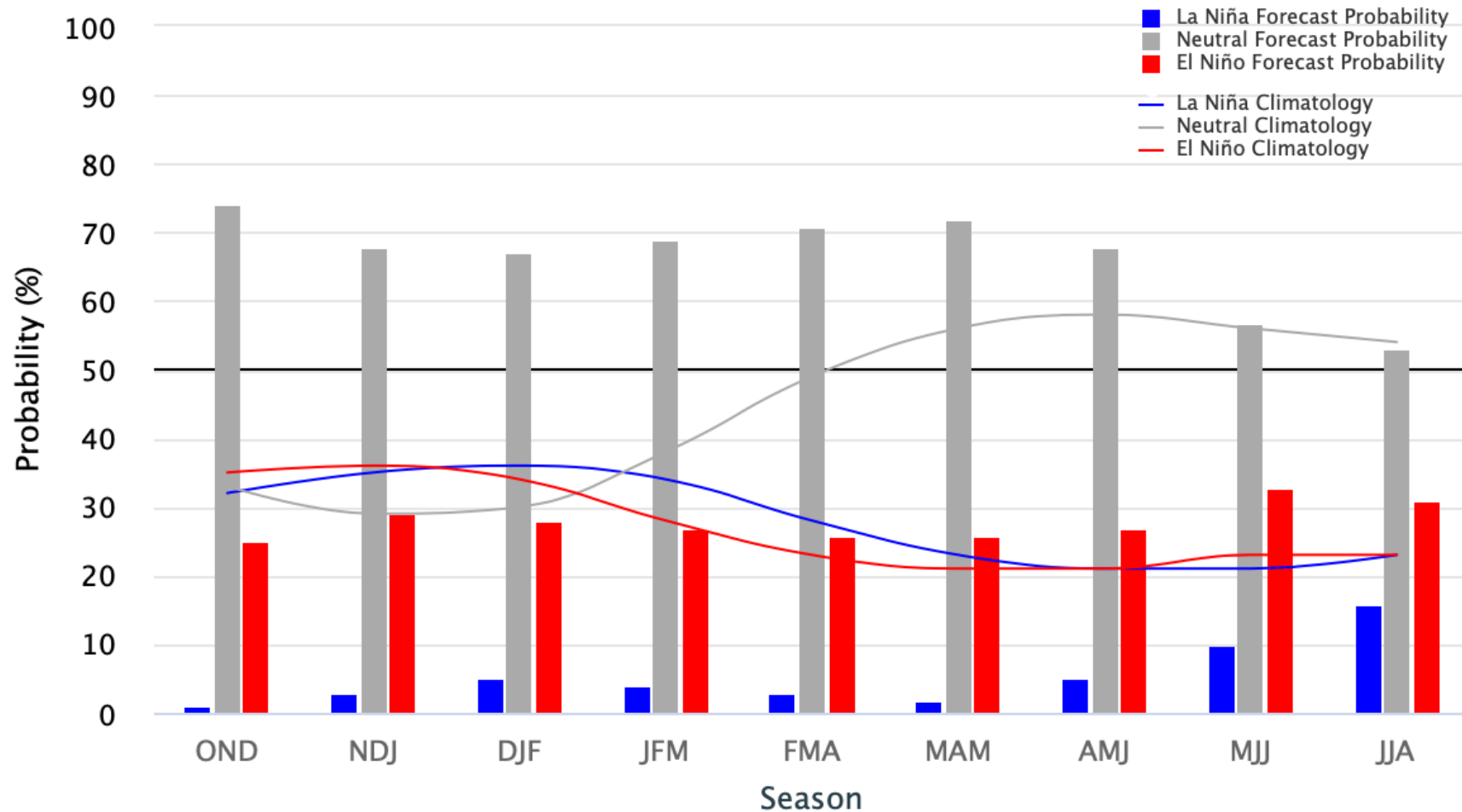


ENSO

Mid-October 2019 IRI/CPC Model-Based Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly

Neutral ENSO: $-0.5\text{ }^{\circ}\text{C}$ to $0.5\text{ }^{\circ}\text{C}$



ENSO

Historical Nino 3.4 Sea Surface Temperature Anomaly

