

# Nebraska Ag Climate Update

April 8, 2016  
Updated on April 11

## Freeze Risk and Planting

It is that time of year when we study our soil conditions, forecast, and freeze risk in order to decide when to plant our crops. These conditions are highly variable from year to year, so it is challenging to know when we will reach, and maintain, proper soil temperatures conducive for proper crop germination. Even though temperatures may be adequate for germination, it is important to understand the potential for a freeze.

Current seven-day average soil temperatures at 4 inches under bare soil are near normal for most of the state. Portions of southern and southeast Nebraska are in the mid 50s and northeast and northwest Nebraska are in the mid to upper 40s. While the soil temperatures may be close to proper germination for corn, the field to field variability and risk of frost may limit the success of crops planted too early.

It is not that uncommon for snowstorms to move through Nebraska in May and remain cold for a long period of time. Even though our soil temperatures have warmed up to adequate temperatures for planting, it is imperative to analyze your risk and use the current trends and climatology to make an informed decision. There may be some benefit to early planting in order to capture a longer growing season, but the risk may outweigh the award. You also want to take into consideration the proper planting dates for crop insurance.

The average last frost date is one way to analyze the risk of frost damage to your crops. The map below shows the median last 28°F freeze for Nebraska from 1981-2010 average. The median date for southeast Nebraska is the first week or two of April and moves later in the year as you go north and west.

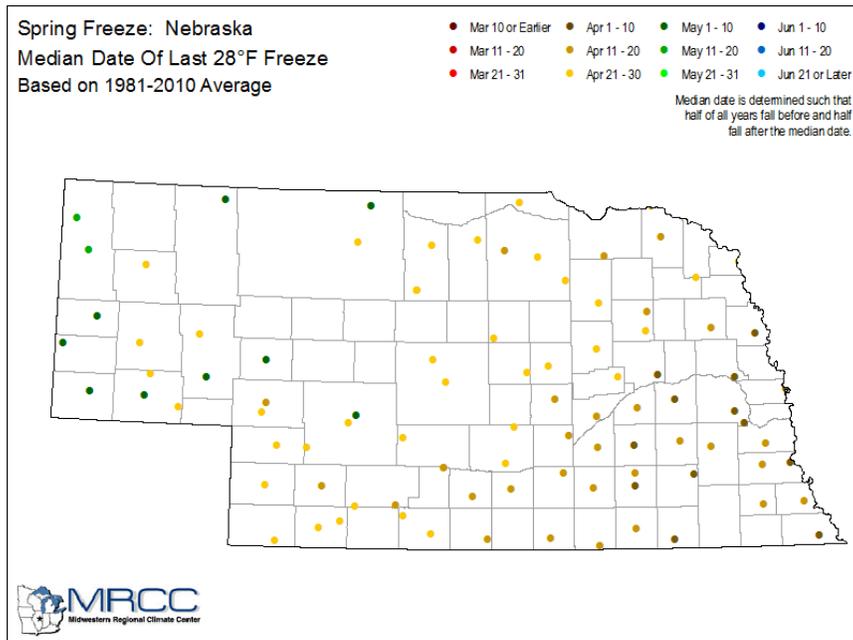


Figure 2. Median 28°F spring freeze dates based on 1981-2010 average spring freeze dates. Map from Midwest Regional Climate Center—<http://mrcc.isws.illinois.edu/>

## Average Soil Temperature (F) at 4 Inches (4/1-4/7)

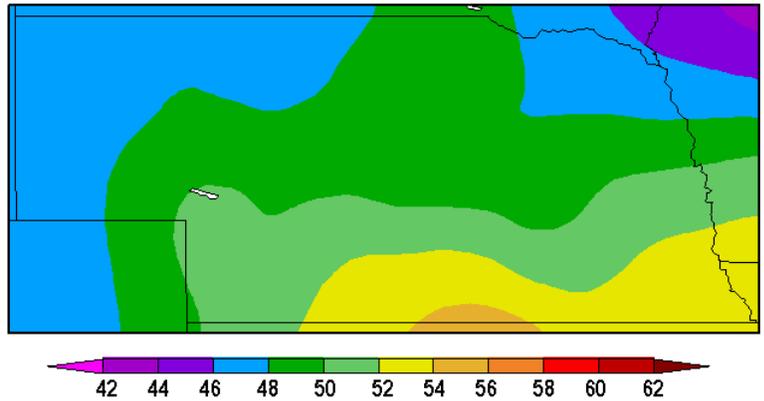


Figure 1. Seven day average soil temperature at the 4 inch depth on April 7, 2016—Map from CropWatch—[cropwatch.unl.edu](http://cropwatch.unl.edu)

The latest date for a 28°F freeze during this time period was the second week of May for most of Nebraska; however, late freezes did occur in June for locations in the Panhandle. More comprehensive freeze data for your location can be found here: <https://www.ncdc.noaa.gov/climate normals/clim20supp1/states/NE.pdf>

Freezing temperatures (32 F or lower) during May have been fairly frequent the last 5 years. North Platte has recorded freezing temperatures each of the last 5 May's, Scottsbluff 4 of the last 5 May's, Lincoln 3 of the last 5 May's, and Grand Island 2 of the last 5 May's. Measurements were taken at local airports and may be nearby urban temperatures and rural locations may have recorded lower minimum temperatures. Here are the range of last frost/freeze dates for these 4 locations the past 5 years, along with their measured low temperature:

Scottsbluff: 5/5/11 – 32, 4/18/12 – 31, 5/5/13 – 26, 5/15/14 – 31, 5/11/15 – 29.

North Platte: 5/16/11 – 30, 5/14/12 – 32, 5/5/13 – 22,

5/17/14 – 31, 5/21/15 – 30.

Grand Island: 4/20/11 – 29, 4/11/12 – 30, 5/5/13 – 30, 5/17/14 – 32, 4/22/15 - 27

Lincoln: 5/3/11 – 32, 4/23/12 – 31, 5/12/13 – 31, 5/16/14 – 30, 4/22/15 - 26

Certainly elevation plays a key role in freeze risk during May, so we should not be surprised how often freezing temperatures in May occur. It should be noted that freezes in May have occurred 3 out of the last 5 years across eastern Nebraska. Early April corn planting increases the risk that frost/freeze events can catch corn at the 6 leaf stage and beyond, when the growing point no longer is below the soil surface.

### Looking Forward

The April Outlook from the Climate Prediction Center gives Nebraska increased probabilities for having above normal temperatures and an equal chance of above or below normal precipitation. Over the last couple months, most of Nebraska has been relatively dry and warm and some abnormally dry conditions have developed along the southern tier of the state. Because the dryness across the southern 1/3 of Nebraska ranks in the lowest 10 percent of historic data, the Drought Monitor has introduced abnormally dry conditions for southern Nebraska.

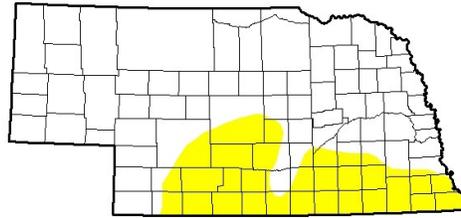
Most of the state has above normal moisture for the recharge period dating back to October 1, so the abnormally dry conditions introduced by the Drought Monitor authors this week just reflects short term dryness leading to concern that surface drying and may play a role in early season germination rates if widespread rainfall fails to materialize during April. The April Outlook does not provide a lot of confidence that these conditions will reverse this month and is something that should be monitored through the start of the growing season.

If we look more short-term, the weather over the next week will be very positive to kick off planting season. Temperatures will warmup Tuesday through Friday and will remain dry during the week. I know we are already dry, but it looks like there is a good chance of moisture next weekend. The weekend storm system will hopefully provide some much needed topsoil moisture for germination; however, we are still far enough out that this forecast can change significantly.

\*Article adapted from CropWatch article "Spring Freeze Risk" released on April 8, 2016—<http://cropwatch.unl.edu/2016/spring-freeze-risk>

**Tyler Williams**  
Nebraska Extension Educator in Lancaster County  
[lancaster.unl.edu](http://lancaster.unl.edu)  
[twilliams2@unl.edu](mailto:twilliams2@unl.edu)  
Twitter: @tylerw\_unl  
<http://agclimatenebraska.weebly.com/>

**Al Dutcher**  
Associate Nebraska State Climatologist  
[adutcher1@unl.edu](mailto:adutcher1@unl.edu)



	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	76.40	23.60	0.00	0.00	0.00	0.00
Last Week 3/29/2016	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 1/5/2016	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 12/29/2015	99.99	0.01	0.00	0.00	0.00	0.00
Start of Water Year 9/29/2015	71.41	28.59	0.00	0.00	0.00	0.00
One Year Ago 4/9/2015	31.54	68.46	22.49	0.00	0.00	0.00

**Intensity**  
■ D0 Abnormally Dry ■ D3 Extreme Drought  
■ D1 Moderate Drought ■ D4 Exceptional Drought  
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**  
Richard Tinker  
CPC/NOAA/NWS/NCEP



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

Figure 3. U.S. Drought Monitor for Nebraska on April 5, 2016 shows abnormally dry conditions migrating into southern Nebraska. Map from the National Drought Mitigation Center - [droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

### April Outlook

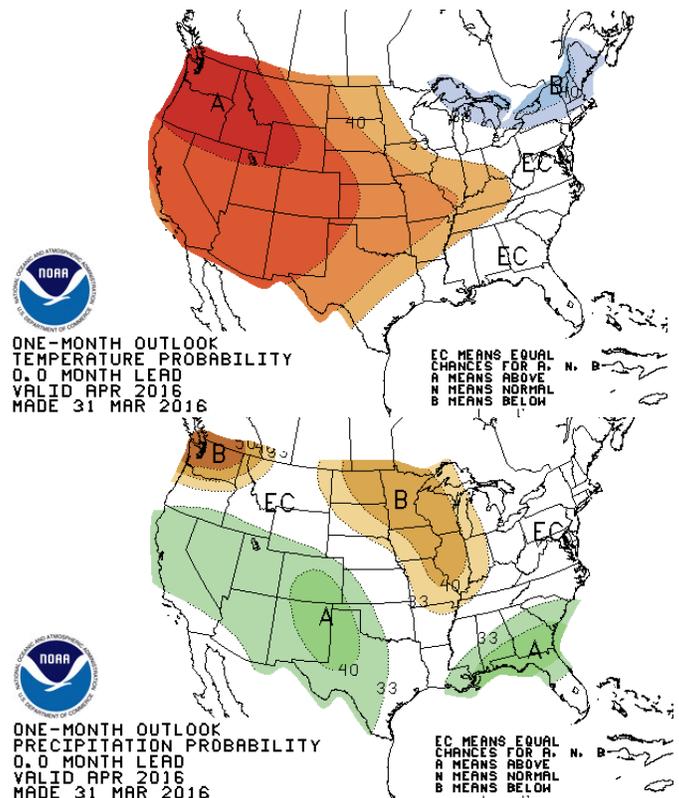


Figure 4. One-month temperature (top) and precipitation (bottom) outlook for March from the Climate Prediction Center - [www.cpc.ncep.noaa.gov/](http://www.cpc.ncep.noaa.gov/)