USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

June 23, 2023

Midwest Ag-Focus Climate Outlook

Main Points

- Drought has improved to some extent in the Plains but worsened rapidly in much of the Corn Belt.
- Grasses and small grains are already impacted by drought conditions.
- Corn and soybean reports are showing stress; impacts on corn yields are imminent unless more rain comes soon.
- Rainfall has been limited. Moderate temperatures have mitigated crop stress so far.
- Air has been dry, and air quality was impacted this month by frequent smoke episodes from Canada wildfires.

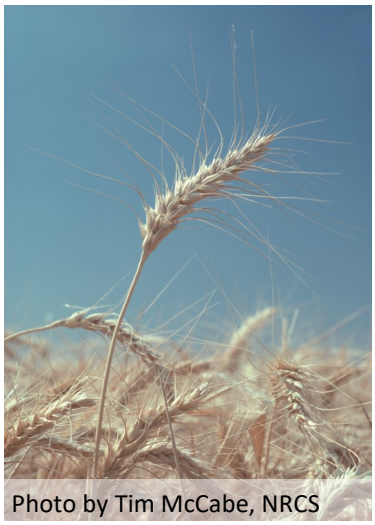
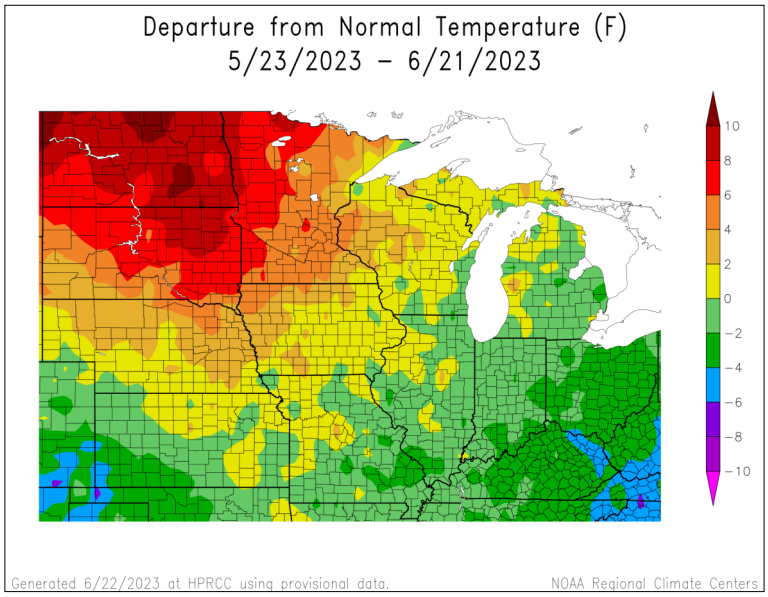
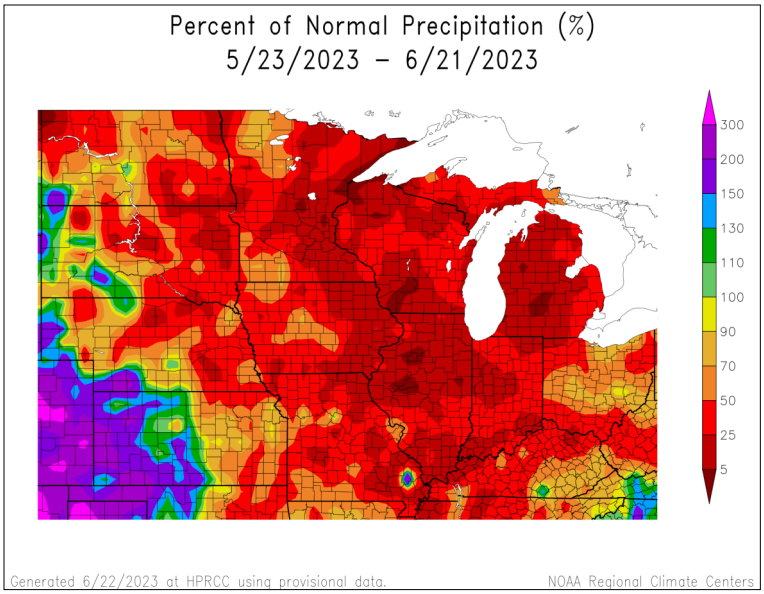


Photo by Tim McCabe, NRCS

Current Conditions





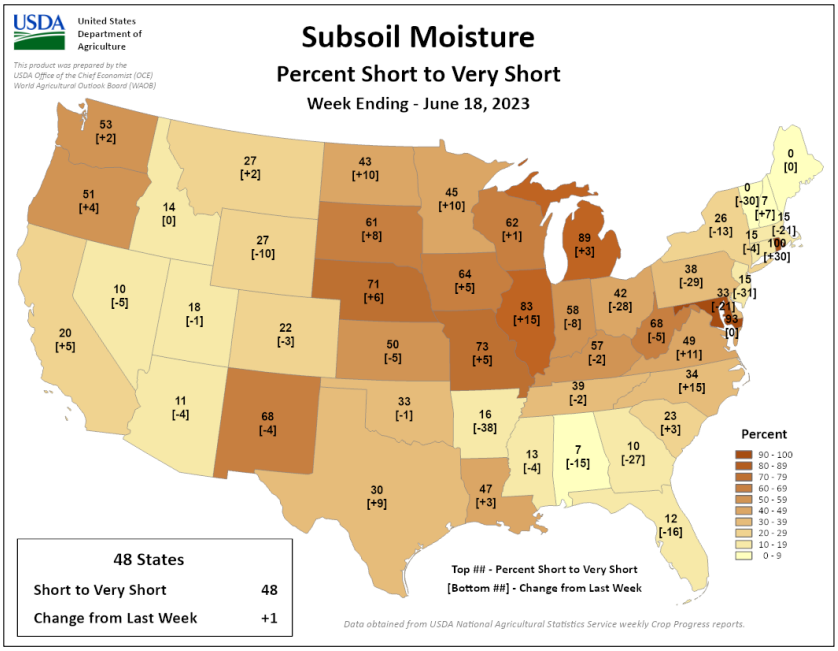
Several recent rainfalls in the Plains have helped to improve drought conditions, but over much of the Corn Belt, conditions have been much drier. Very spotty rainfalls have helped ease stress in some places, but across large areas near the Mississippi River and into Michigan, 30-day total precipitation has been less than an inch. Surrounding areas are only slightly better. Nearly the entire Midwest has received less than 50% of average precipitation, with large areas less than 25% of average. Temperatures in the northern Plains have been much warmer than average (4-10°F). Most of the rest of the region has had moderate temperatures with influence of Canadian air moving in more frequently. Eastern areas have been slightly below average (1-4°F). While the lack of heat has helped, the Canadian air has been dry and has brought frequent smoke episodes, which are impacting air quality and reducing solar radiation.

Images from High Plains Regional Climate Center (HPRCC), Online Data Services: ACIS Climate Maps. Generated: 6/23/2023.

Impacts

Drought

The ongoing drought problems are showing up in several ways. USDA-NASS soil moisture products suggest that large parts of the region have very dry soils. The dry soils are impacting various crops; grass and forage production has been noted as a problem for livestock in many areas already, and small grain condition reports are worsening. Corn and soy conditions are much poorer than usual for this time of year in several states. Soy still has time to recover. Corn is approaching reproductive stages in many areas, so some yield potential may have already been lost and continues to be threatened without near-term rainfall.

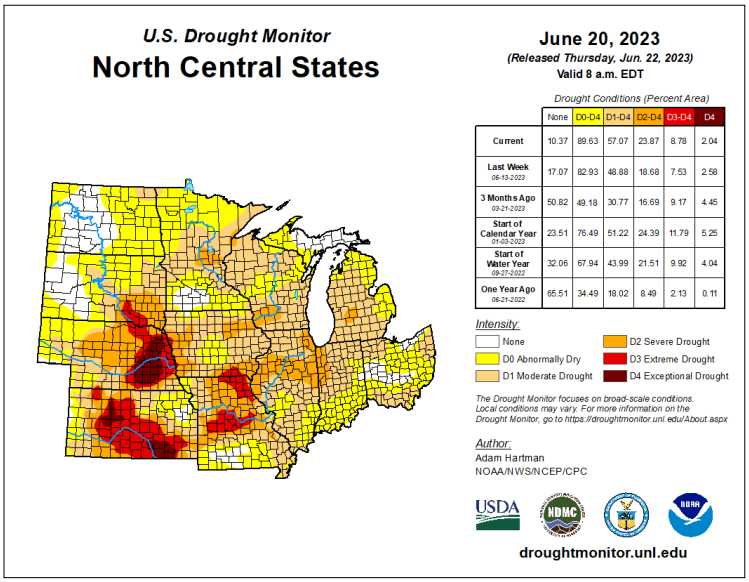


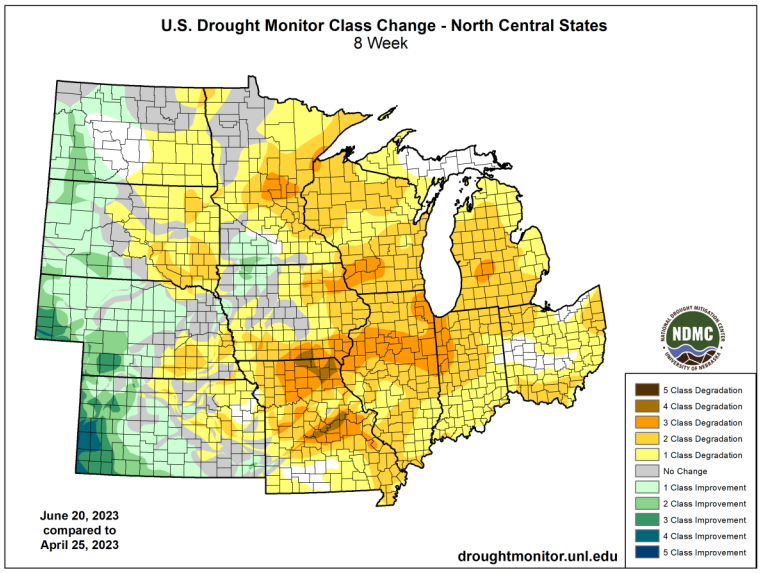
Smoke

Canadian air has brought smoke to the region several times. The ongoing discussion is the overall impact on crop yields. Impacts are difficult to assess currently because several issues are interacting. The smoke does reduce incoming solar radiation, which can reduce yields, but the reduced radiation can also reduce high temperatures slightly during the day, reducing stress in the afternoon. Recent research has also shown diffuse radiation passed through smoke can in fact be used more effectively by crops in the canopy.

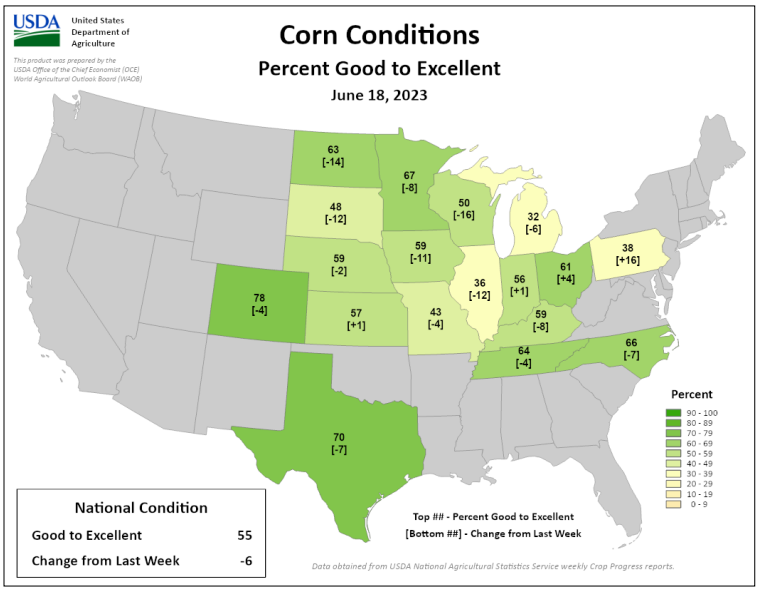
Water

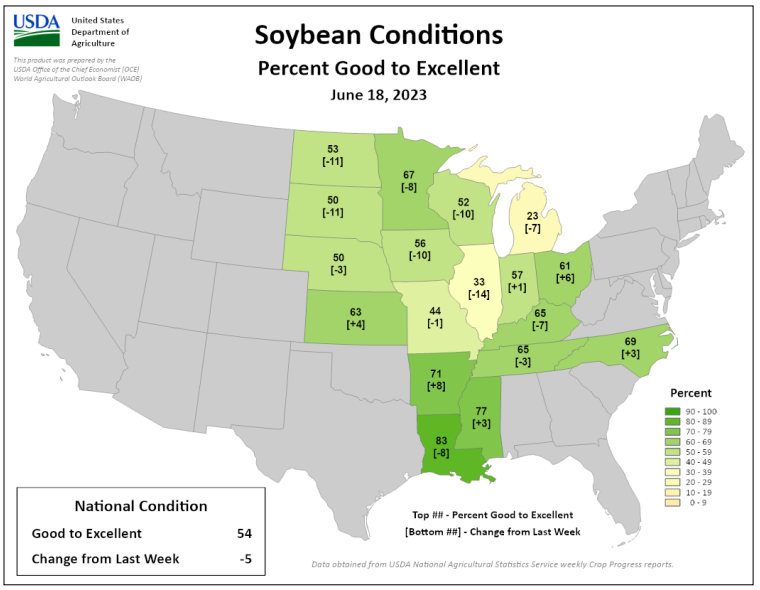
The melt-off of the winter snow has moved downstream in the Mississippi River leading to recent flow reductions. Along with the widespread dryness in the region and lower streamflow into the river, low-flow conditions are starting to impact river travel in the central Mississippi. This is a significant concern leading into lower-flow times of the year.





Maps Generated by the United States Department of Agriculture, National Drought Mitigation Center and the Short-term Prediction Research and Transition Center.





Maps generated by the United States Department of Agriculture and are now available on a National Drought Mitigation Center webpage.

Outlook

Outlooks are being watched very closely for shifts to a more active precipitation pattern. This has already happened in the Plains, while much of the Midwest has been much less active. The transition to El Niño has occurred, with NOAA having issued its first El Niño advisory. So far, conditions have been less El Niño-looking in the region when compared with previous El Niño years. The El Niño influence later in the summer may hint at some improvement in drought conditions.

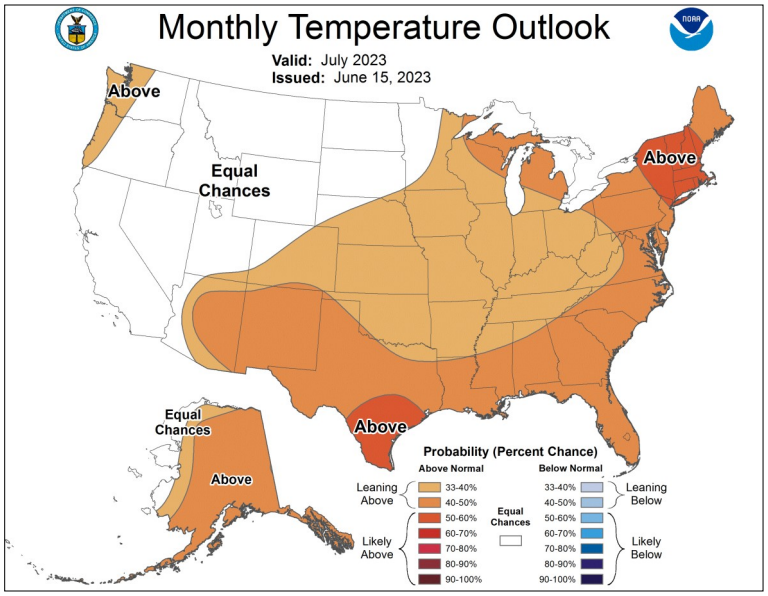
NOAA's Climate Prediction Center has updated their 30- and 90-day outlooks. Generally, they have few specifics for the region because guidance about upcoming conditions is fairly inconsistent. In the 30-day outlook, most of the Midwest has slightly better chances for warmer-than-average. Slightly increased chances for precipitation cover the northern Plains and eastern parts of the region. Precipitation is difficult to project in the summer due to the convective (i.e. spotty) nature of rains.

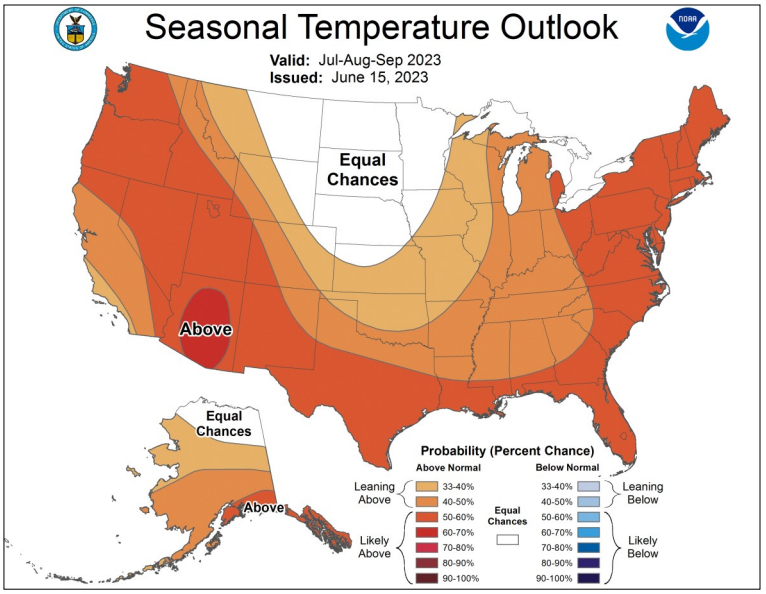
In the 90-day outlook, a temperature pattern similar to the 30-day exists while the increased precipitation chances cover more of the central Plains. A slightly better chance of drier conditions covers parts of the Great Lakes.

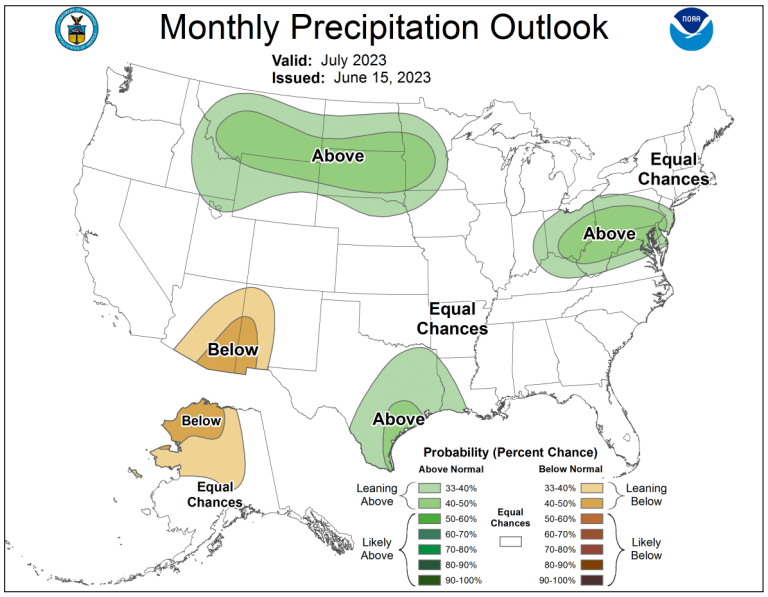
The overall confidence in these outlooks is fairly low. These outlooks hint that some improvement may be coming – or at least enough precipitation to ease major crop losses in some areas. Drought conditions will likely persist or worsen in some areas. Pinning down these areas is particularly difficult with summer precipitation. Thus, some yield reductions in corn are likely. Soy still has time to recover. Non-irrigated specialty crops will also struggle.

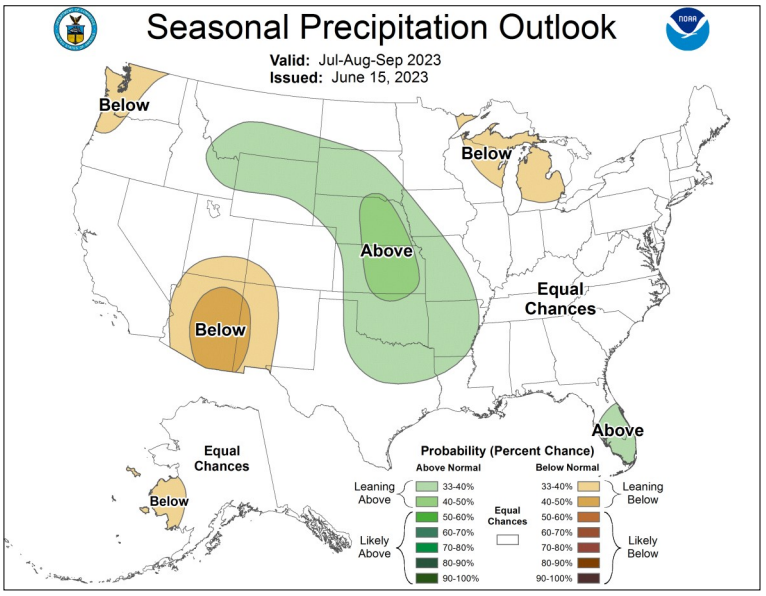
See the following page for 30- and 90-day outlook maps.

Midwest Ag-Focus Climate Outlook









Outlooks provided by the Climate Prediction Center.

Partners and Contributors

United States Department of Agriculture (USDA)
National Oceanic and Atmospheric Administration (NOAA)
Climate Prediction Center (CPC)
National Weather Service (NWS)
National Center for Environmental Information (NCEI)
National Drought Mitigation Center (NDMC)
National Integrated Drought Information System (NIDIS)
Midwestern Regional Climate Center (MRCC)
Midwest State Climatologists
High Plains Regional Climate Center (HPRCC)

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