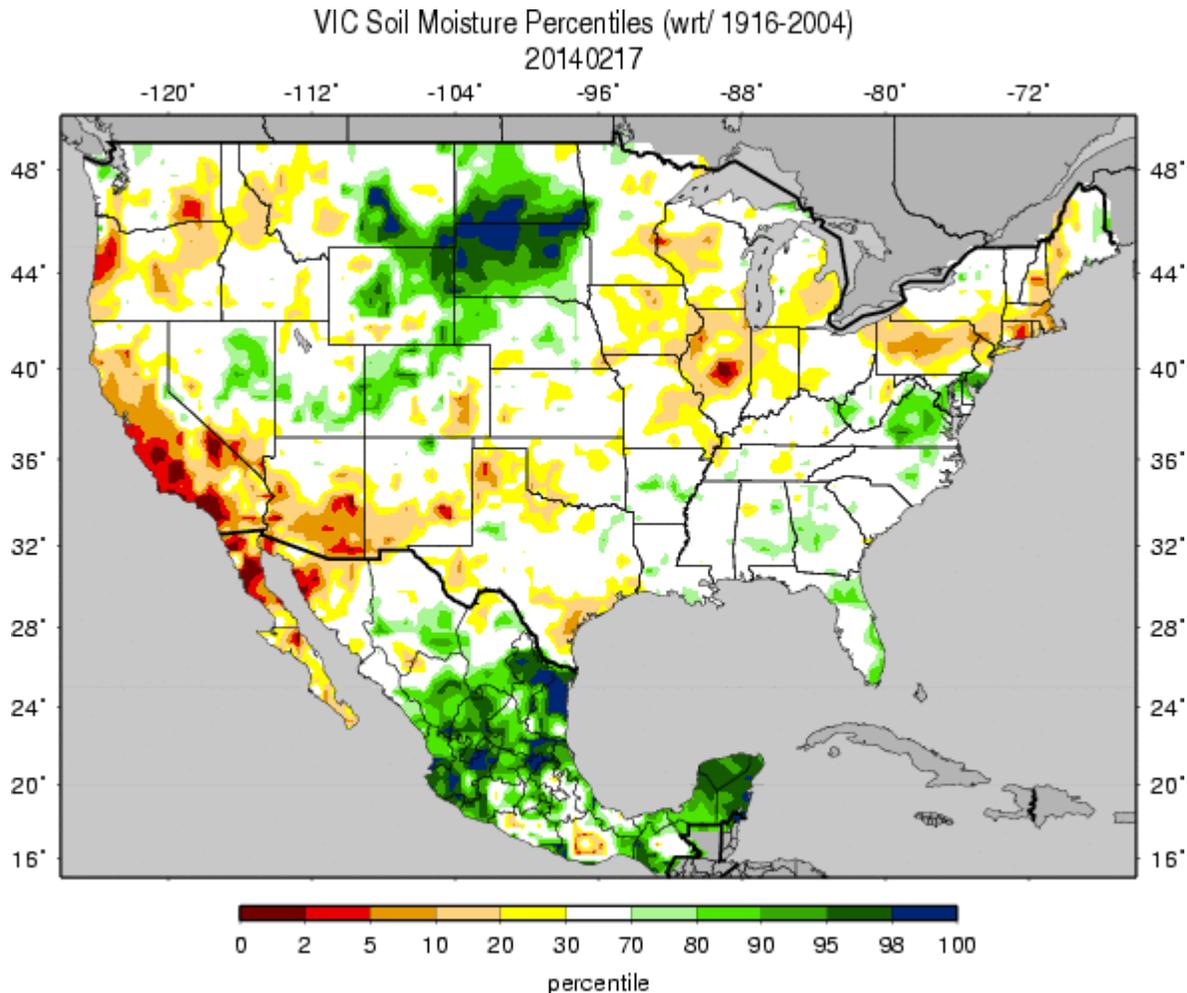


NOAA Product Highlight: Soil Moisture Data



Soil moisture is a key factor in determining the annual progress of natural environments and human systems. In horticultural and agricultural settings, soil moisture information can aid in making decisions regarding plant variety choice and planting time, irrigation needs, and the timing of various farming and gardening activities. To aid in monitoring conditions across the United States, NOAA and other federal agencies provide a suite of soil moisture products ranging from modeled estimates over broad areas to actual measurements at specific locations. The map shown displays areas that are wetter (green) and drier (yellow-red) than normal as estimated by a model (see the [soil moisture page](#) in the [U.S. Drought Portal](#) for more information and different models). This model mathematically combines information about the weather in recent times with knowledge of the soils of the United States and how water moves through soil into a best estimate of the current soil moisture condition. When soil is warmer than the freezing point, soil moisture can be measured directly at many locations to give an overall impression, or a farmer or gardener can perform their own measurements of their fields and plots.

NOAA's National Climatic Data Center (NCDC) monitors and maintains observation stations collectively known as the [U.S. Climate Reference Network](#) (USCRN). Over 100 stations measure hourly soil temperature and soil moisture with three sensors at up to five depths in vertical profiles. Quality controlled layer average values for soil moisture from these individual sensors are available on the [USCRN Observations](#) page. Bulk amounts of these data are also available in [Quality Controlled Datasets](#) for each station.

NCDC also provides several visualization tools that depict USCRN data. A [Soil Moisture and Soil Temperature Visualization](#) tool is available from the National Integrated Drought Information System (NIDIS), which draws simple line graphs of USCRN soil moisture and temperature data. The [Soil Moisture Infiltration and Percolation Visualization](#) tool depicts soil moisture changes over time and depth at a selected USCRN station. The [Soil Moisture Time Series with Inter-Hole Range Visualization](#) tool shows time series representing ranges of the three measurements of the percent of water content in the soil at different depths. Soil moisture cannot be detected by USCRN instruments when the soil is frozen, so graphs may be missing upper soil layers during winter, with data displayed more fully as soil thaws in the spring. As soils warm and thoughts turn to the garden, check on the soil moisture in your region frequently and incorporate this information into your own activities.