

# Arid Start To 2012 Crop Season Raises Concern As Prolonged Heat Builds

**COLUMBIA, MO.**

**A**n arid spring brought only 4 inches of rain to Missouri in May and June. Normal rainfall is 10 inches, says a University of Missouri climatologist.

We have a 6-inch moisture deficit going into what are normally the hottest and drier months of summer, says Pat Guinan with the MU Extension commercial agriculture program.

In addition to the rain shortage, January-to-June temperatures show the warmest average on record in 118 years. The state continues to set heat records: Third warmest winter, warmest March and warmest spring.

"It's a unique growing season," Guinan says. High heat and lack of rain indicate possible prolonged drought.

"It's beginning to look a lot like 1988," says Bill Wiebold, MU Extension agronomist.

Guinan says 1988 was one of the three worst droughts of the last century. That includes the mid-1950s and the dust bowl days of the 1930s.

"We're not there yet," Guinan says. "But you do have to go back to 1988 to find a drier May and June than we've had this year. Hot, dry weather in the spring isn't a good start."

Normally, May and June are the wettest months of the year in Missouri. "This year, we're short on soil moisture. There's no reserve in the top 12 inches and subsoil is not much better," he says. Soil moisture supports crop growth during hot months, supplemented by normal rainfall.

In many parts of Missouri, a foot of soil is all there is. Below the topsoil lies claypan or rock. Iowa and Illinois cornfields tend to have deeper soils with more water reserves. That can make a difference in plant survival, Guinan says.

A National Weather Service outlook for July issued at the end of June shows below-normal precipitation and above-normal temperatures for the month ahead. Usually, July is the hottest month of the year.

A drought has many facets, Guinan says. There is the lack of precipitation. That is combined this year with high temperatures, an unusual number of sunny days and low relative humidity. Humidity levels run 20 to 30 percent by midafternoon, day in and day out.

"We've already had temperatures in triple digits, most unusual for June," he said. "Strong winds and low humidity boost water evaporation, creating plant stress."

The buildup of solar energy on the soil intensifies drought effects, Guinan says. Sunshine

boosts evapotranspiration, the water use by plants combined with evaporation from soil surfaces.

Plant transpiration pulls moisture out of the soil. Evaporation removes water from the surface, including ponds and lakes.

The Bootheel remains the driest part of the state, which now rates as extreme drought on the National Drought Monitor. Most of the rest of the state ranks as moderate drought.

Some areas of northwestern and western Missouri received "million-dollar rains" in late June to keep crops growing, Guinan says.

Wiebold, who oversees crop variety test plots across the state, looked at 1988 yield reports. "Then we had lots of corn that made only 10 bushels per acre," he says.

Regional extension agronomists report some cornfields with "rootless corn syndrome." Lack of soil moisture when corn was planted hurt growth of strong roots. Brace roots, which emerge at the soil surface level, failed to extend into dry soils.

Recently, strong winds blew over cornstalks in northeastern Missouri. "That corn is dead," Wiebold says.

The most critical time of the year for corn yield potential is underway.

Pollen release from tassels at the top of the stalk and silk emergence from ears at mid-stalk must coincide. Pollen from the tassels must connect with the freshly emerged silks from the ear. Hot weather dries silks before pollination can occur.

Each silk must receive one pollen grain to set one kernel of corn on the cob. The kernel must receive moisture to grow and fill the ear during the remaining growing season. Kernels per cob contribute to the size of the corn harvest.

Short-term forecasts into early July show daily temperatures above 100 degrees Fahrenheit. "There is a dire need for moisture," Guinan adds. "June ranks sixth driest on record."

Guinan encourages public reports on local conditions to the Drought Monitor participation page. The Drought Monitor is a source used by USDA in assessing drought disasters. Authors of the Drought Monitor pay attention to public reports, Guinan says.

Anyone can contribute at <http://droughtreporter.unl.edu>.

The 2012 drought has become a widespread concern and now covers much of the Corn Belt.

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