

“Flash Drought” Hurts Young Corn Plants, Brace Roots Fail To Grow Without Moisture

COLUMBIA, MO.

“Call it a flash drought,” said Pat Guinan, University of Missouri climatologist. The fast developing drought slows growing crops.

No rain and high temperatures cover most of Missouri and nearby regions. Abnormally dry weather covers much of the mid-western Corn Belt.

Soil moisture reserves are drawn down by high evapotranspiration rates. That’s a combination of solar radiation, temperatures, relative humidity and wind to evaporate water from soil and plants.

“Those combined with many cloudless days in May to hasten loss of soil moisture,” Guinan said. May, usually the wettest month of the year and when corn really begins to grow, is on track to be abnormally dry. “According to weather records, the Missouri Bootheel has one of the driest April-May periods in 118 years,” Guinan said.

Those unusually dry conditions affected only the Bootheel in early spring, but cover the entire state as Memorial Day weekend approaches.

“It’s going to seem more like the Fourth of July,” said Guinan, with MU Extension Commercial Agriculture. Temperatures will climb well into the 90s, with low humidity and drying winds, especially in the southern half of Missouri.

The drought already causes death of corn roots, Bill Wiebold, MU agronomist, told regional extension specialists on a weekly teleconference.

“This may be a year with rootless corn,” Wiebold said. A set of roots extending from the first node of the corn stalk will dry up and die if they do not find moisture.

Those nodal roots, sometimes called brace roots, supply needed moisture for cornstalk growth. Some corn plants in MU research plots are just seven inches tall. “Usually corn would be knee-high by now,” Wiebold said. “While they are called brace roots, the nodal roots supply moisture for the growing plant. Without water, the plant cells don’t elongate.”

The slow start on growth can affect cornstalks all season. “Corn will be shorter and ears will grow closer to the ground,” Wiebold said. “You’ll have to aim your combine snout lower this fall.”

Corn plants might overcome the initial lack of root growth, if rain falls soon. “The corn plant keeps trying to put out new roots,” Wiebold said.

Until those nodal roots form, the plant depends on primary roots, which grow deeper in the soil from below the seed corn kernel. If primary roots are in dry soil the plants may die. If secondary roots fail, the plants may fall over from lack of support.

“There’s nothing a farmer can do,” Wiebold said. “It just takes rain.”

Wiebold said, “It’s hard to predict what will happen to corn yields. If we have rootless corn and plants fall over, the corn could be a total loss. If rains come, roots can grow.”

However, long before the corn ear sets silks and stalks tassel, the number of potential kernels on each ear of corn is being determined. Early drought affects the number of rows of kernels on an immature corncob.

Then, droughts in early July can affect how long that cob grows, how many kernels are set and how much they fill. All affect yield.

“In polling my fellow agronomists, I’ve had estimates of total loss to something just short of a bumper crop,” Wiebold said.

Dry weather affects other crops as well. Uneven stands of soybean result from lack of soil moisture, Wiebold said. “I’ve seen tall soybeans, short soybeans and no soybeans in the same row.” At planting some seeds found moisture and came right up. Other seed waited for rain. Some seed never received moisture.

“The worst thing that happens is to get 1/10 of an inch of rain after planting in dry soil,” Wiebold said. “That’s enough to germinate seed, but not enough to grow roots.”

Wiebold said wheat is ripe. “I’d never seen wheat harvest in May. It looks good. But, seed heads may not be full.”

Rob Kallenbach, MU forages specialist, said pastures are growing at half normal rates. “Some high quality hay was baled early, as rain didn’t fall on it during drying.”

The weather will determine the crops, as always.

Guinan had the final word on the flash drought: “Let’s hope it goes away as fast as it arrived.” Δ