FLASH DROUGHT

AGRICULTURE

Factsheet produced by:

NORTH CAROLINA CLIMATE OFFICE
https://climate.ncsu.edu

CISA

Summary

Speed of onset distinguishes flash droughts from more "typical" droughts: **flash droughts develop rapidly, often with little advance warning**. Conditions can go from near-normal to extreme dryness in a matter of days to weeks and can even occur in otherwise wet years. Like all droughts, impacts depend on the season and how dry or wet conditions are before the flash drought develops. In North Carolina, sustained above-normal temperatures or heatwaves frequently accompany flash droughts. Rain-fed crops are impacted first as increased evaporation depletes soil moisture.

Statewide Statistics

2019			DM
Jan	+1.9°	-0.06"	0%
Feb	+6.2°	+1.16"	0.6%
Mar	-0.5°	-1.07"	2.0%
Apr	+3.3°	+1.66"	2.0%
May	+5.7°	-1.71"	17.7%
Jun	+0.5°	+1.25"	34.9%
Jul	+2.1°	-0.92"	30.0%
Aug	+1.4°	-0.14"	24.8%
Sep	+4.6°	-1.20"	34.8%
Oct	+5.0°	+1.63"	66.5%
Nov	-2.0°	+0.32"	25.6%
Dec	+5.0°	+0.89"	3.8%
Annual	+2.8°	+1.80"	

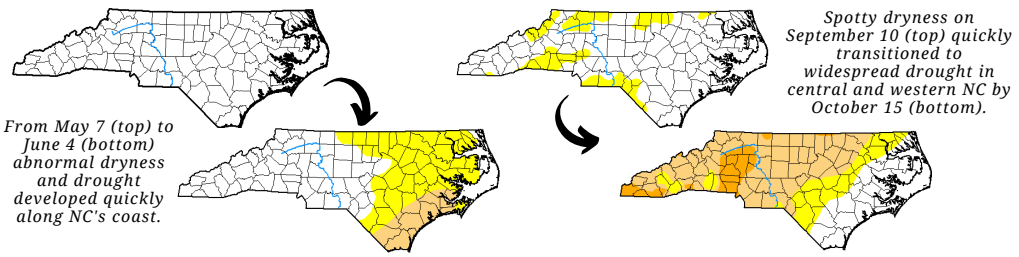
Timeline Legend

***Statewide** temperature and precipitation departures from 1901-2000 normal, from the National Centers for Environmental Information.*

DM — *Percentage of the state in D0-D4 according to the US Drought Monitor. Colors indicate the maximum USDM category that occurred in North Carolina during the month.*

2019 Droughts: An Example

Spring. In May 2019 drought developed over the span of a few weeks in eastern North Carolina due to hot temperatures and lack of rainfall. While places in western NC saw ample precipitation, **diminishing topsoil moisture** along the coast led many growers to **delay planting** soybeans over concerns about poor germination. Already established plants initially held up, but reports indicated **corn and wheat both experienced stress** and concerns over yield potential. To manage the dry conditions, farmers employed **supplemental irrigation** or reduced field work. The drought persisted in southeastern NC throughout the summer, finally ending in early September following Hurricane Dorian.



From May 7 (top) to June 4 (bottom) abnormal dryness and drought developed quickly along NC's coast.

Spotty dryness on September 10 (top) quickly transitioned to widespread drought in central and western NC by October 15 (bottom).

Fall. Following Hurricane Dorian's brush along the coast, **the axis of dryness shifted west as a period of warm dry weather** accompanying a high pressure ridge developed. The Mountains and Piedmont, which missed out on rains from Dorian, saw drought emerge. Initially, the **dry weather aided harvesting of crops** such as corn and soybeans. As the drought continued, however, inadequate soil moisture led to delays in planting of forage crops and winter grains. **The dryness combined with warm temperatures** in September and October to curtail growth of forage crops and pastures. In mid-October the weather pattern shifted again, bringing more regular frontal passages and precipitation, and ending the drought by early December. **Even though the state experienced two droughts, 2019 as a whole was slightly wetter than the long-term average.**

Future Flash Droughts?

The trend of warming temperatures in NC is projected to continue. Warmer temperatures lead to higher amounts of evaporation and transpiration, making it likely that future droughts will be more severe and "flashy."

Monthly Temperature Rankings:

Record Coolest	Coolest 10%	Coolest 33%	Near Normal	Warmest 33%	Warmest 10%	Record Warmest

Monthly Precipitation Rankings:

Record Driest	Driest 10%	Driest 33%	Near Normal	Wettest 33%	Wettest 10%	Record Wettest

US Drought Monitor Categories:

D0: Abnormally Dry	D1: Moderate Drought	D2: Severe Drought	D3: Extreme Drought	D4: Exceptional Drought