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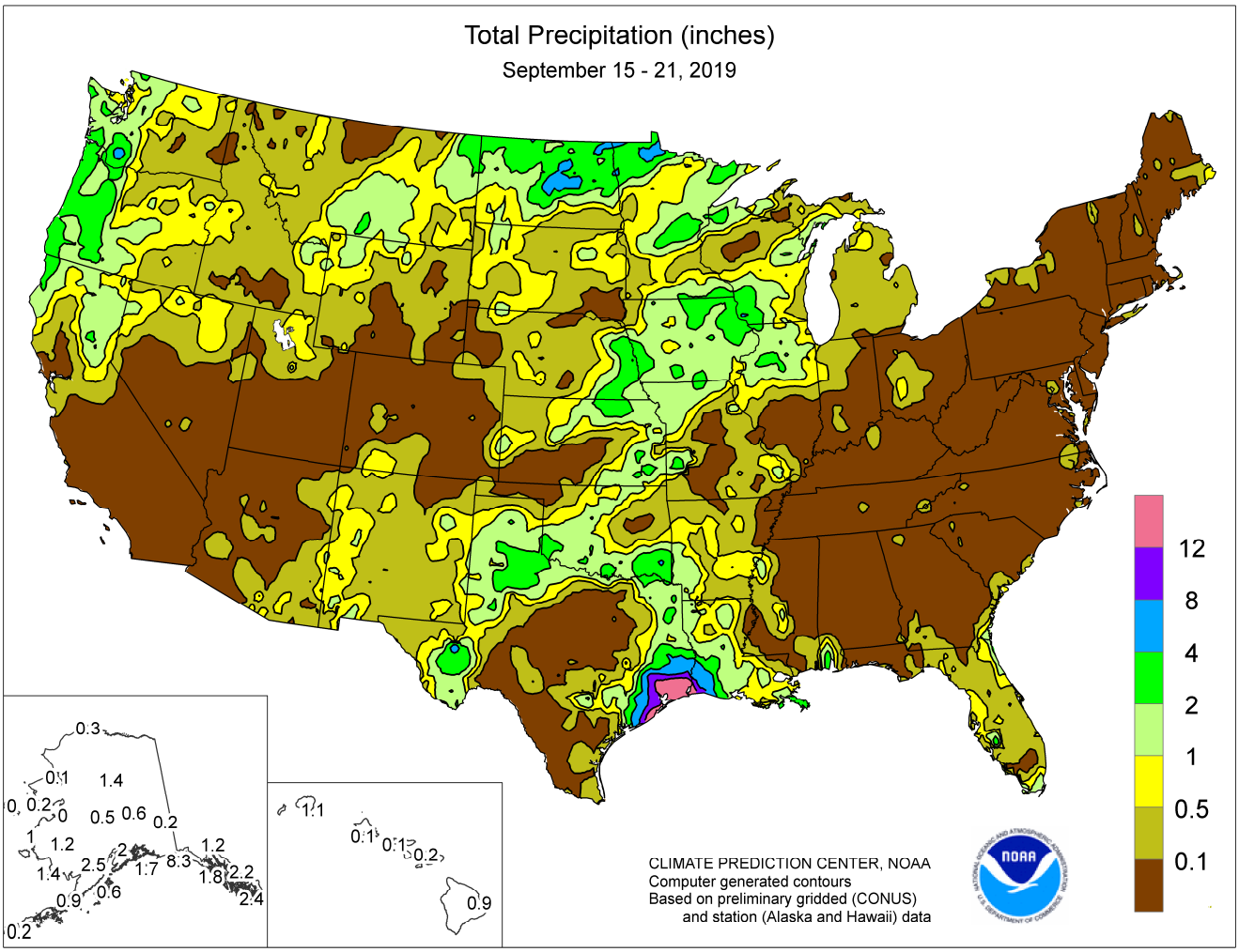
WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service
and World Agricultural Outlook Board



HIGHLIGHTS
September 15 – 21, 2019

Highlights provided by USDA/WAOB

Tropical Storm Imelda delivered inundating rainfall (1 to 3 feet or more) across a relatively small geographic area, mainly in **southeastern Texas**. The bulk of Imelda's rain fell after landfall, which occurred on September 17 near **Freeport, TX**. Meanwhile, significant rain also fell across portions of the **nation's mid-section**, including previously dry areas of the **southern Plains**. Farther north, beneficial precipitation aided late-developing summer crops in the **central Corn Belt**, but additional showers plagued the rain-soaked **northern Plains**. In the latter region, record-

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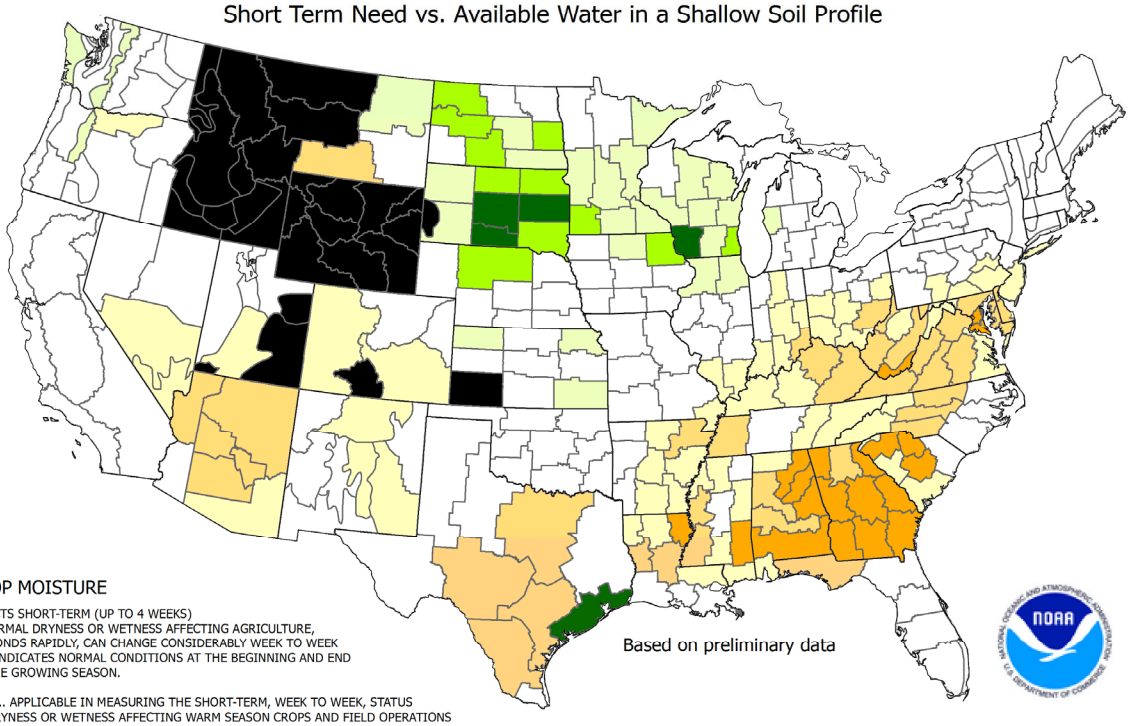


Based on preliminary data

CROP MOISTURE

DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

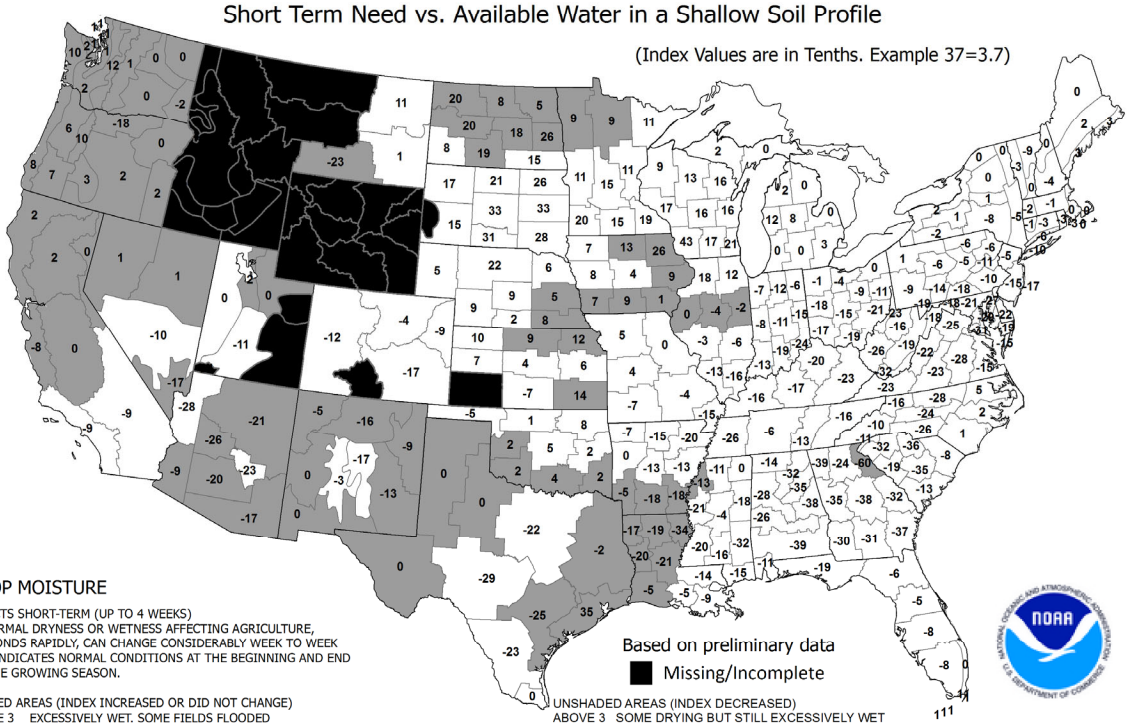
USES... APPLICABLE IN MEASURING THE SHORT-TERM, WEEK TO WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS

LIMITATIONS... MAY NOT BE APPLICABLE TO GERMINATING AND SHALLOW ROOTED CROPS WHICH ARE UNABLE TO EXTRACT THE DEEP OR SUBSOIL MOISTURE FROM A SHALLOW SOIL PROFILE,OR FOR COOL SEASON CROPS GROWING WHEN TEMPERATURES ARE AVERAGING BELOW ABOUT 55F.IT IS NOT GENERALLY INDICATIVE OF THE LONG-TERM (MONTHS, YEARS) DROUGHT OR WET SPELLS WHICH ARE DEPICTED BY THE DROUGHT SEVERITY INDEX.

- -3.0 or less (Severly Dry)
- -2.0 to -2.9 (Excessively Dry)
- -1.0 to -1.9 (Abnormally Dry)
- -0.9 to +0.9 (Slightly Dry/Favorably Moist)
- +1.0 to +1.9 (Abnormally Moist)
- +2.0 to +3.0 (Wet)
- 3.0 and above (Excessively Wet)
- Missing/Incomplete

Crop Moisture Index by Division
Weekly Value for Period Ending Sep 21, 2019
Short Term Need vs. Available Water in a Shallow Soil Profile

(Index Values are in Tenths. Example 37=3.7)



Based on preliminary data

Missing/Incomplete

CROP MOISTURE

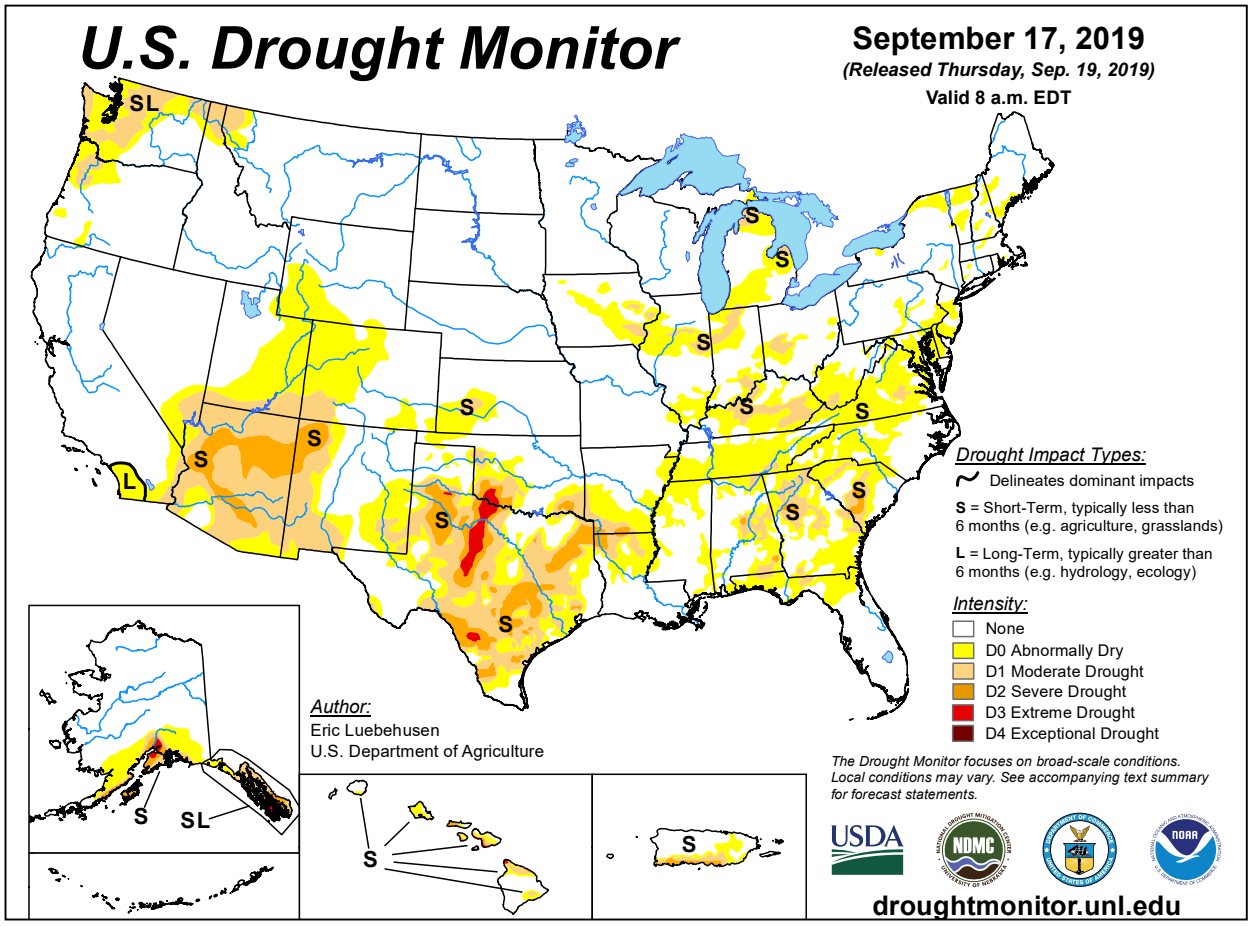
DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

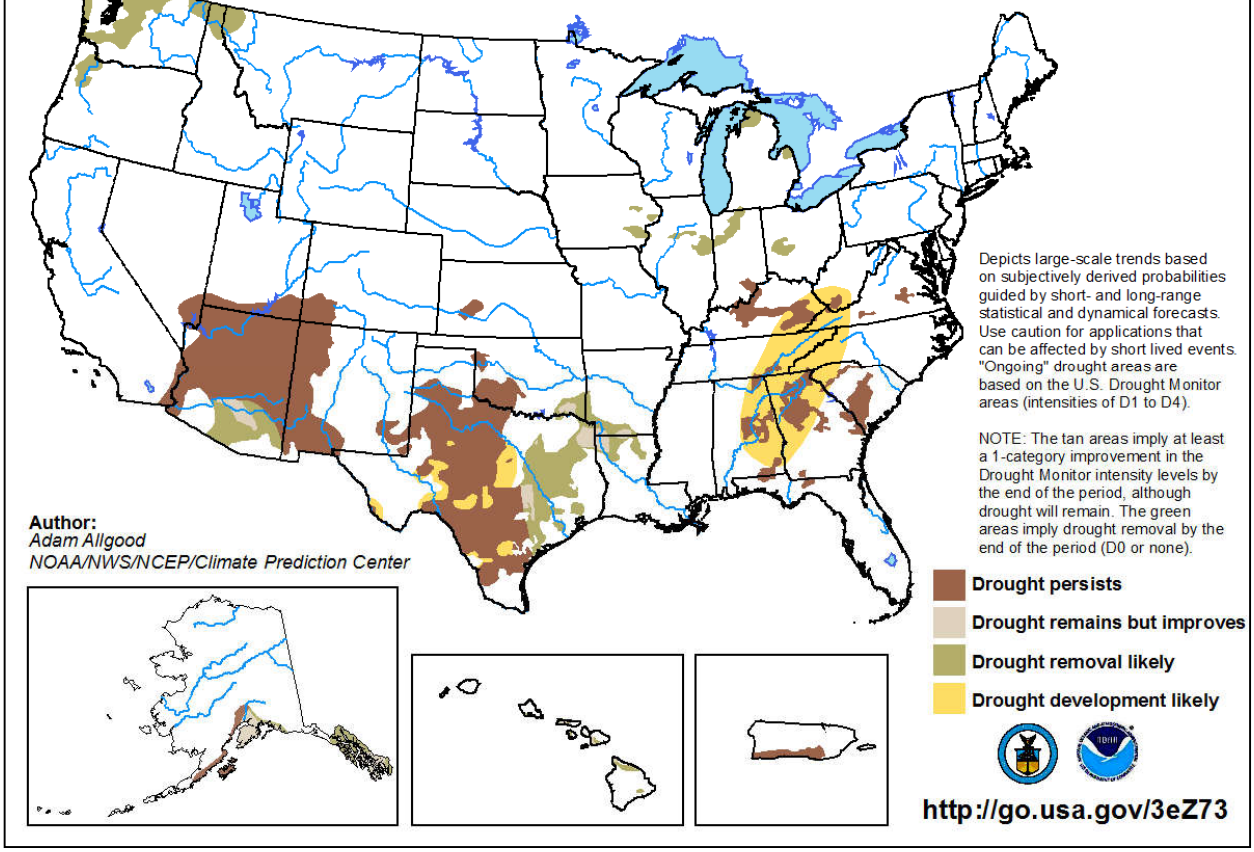
SHADED AREAS (INDEX INCREASED OR DID NOT CHANGE)

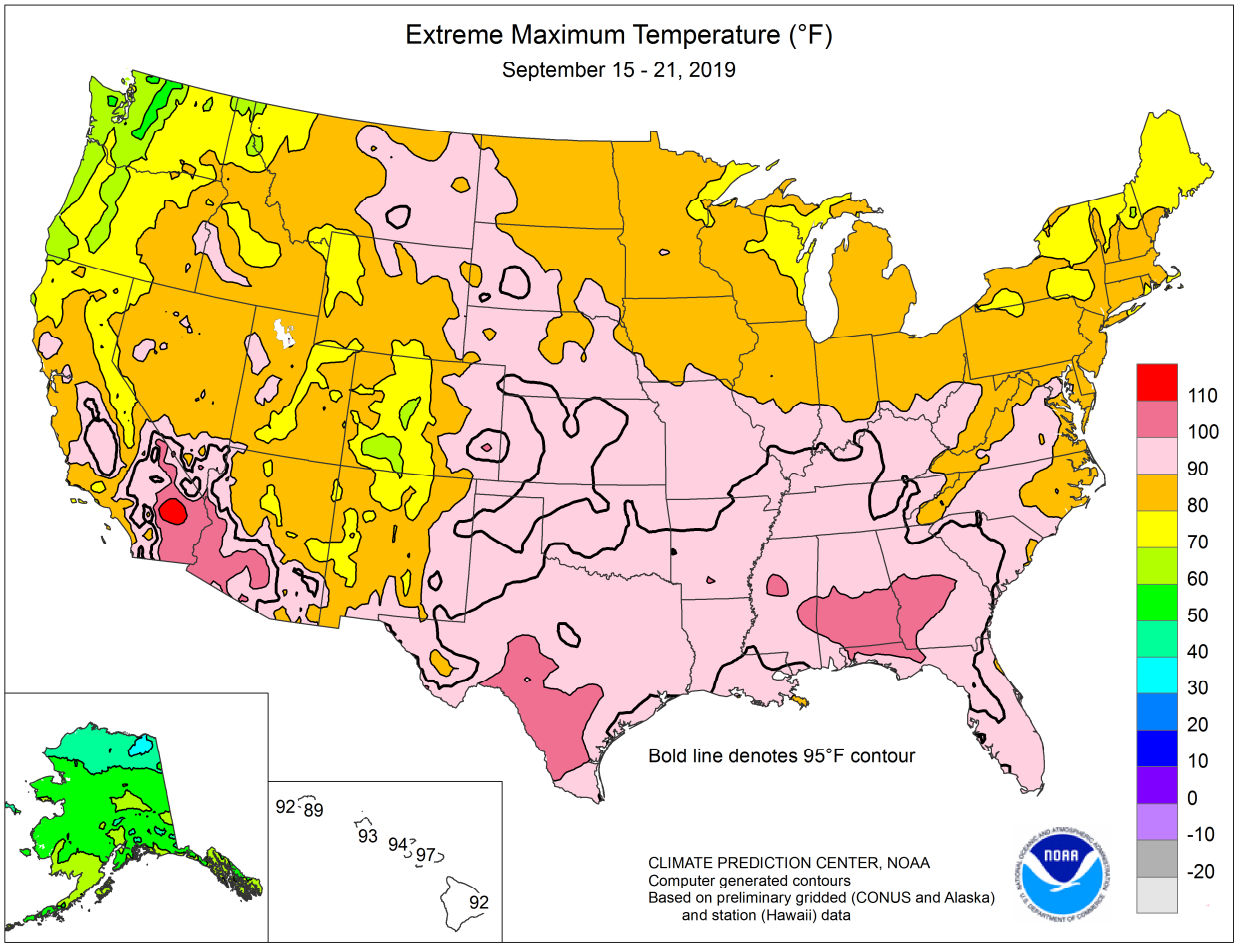
ABOVE 3	EXCESSIVELY WET. SOME FIELDS FLOODED
2 TO 3	TOO WET. SOME STANDING WATER
1 TO 2	SOME FIELDS TOO WET, PROSPECTS ABOVE NORMAL
0 TO 1	MOISTURE ADEQUATE FOR PRESENT CROP NEEDS
0 TO -1	PROSPECTS IMPROVED BUT RAIN STILL NEEDED
-1 TO -2	SOME IMPROVEMENT BUT STILL ABNORMALLY DRY
-2 TO -3	DRYNESS EASED BUT FIELDS STILL EXCESSIVELY DRY
-3 TO -4	SEVERE DRYNESS CONTINUES, MORE RAIN URGENTLY NEEDED
BELOW -4	NOT ENOUGH RAIN. EXTREMELY DRY

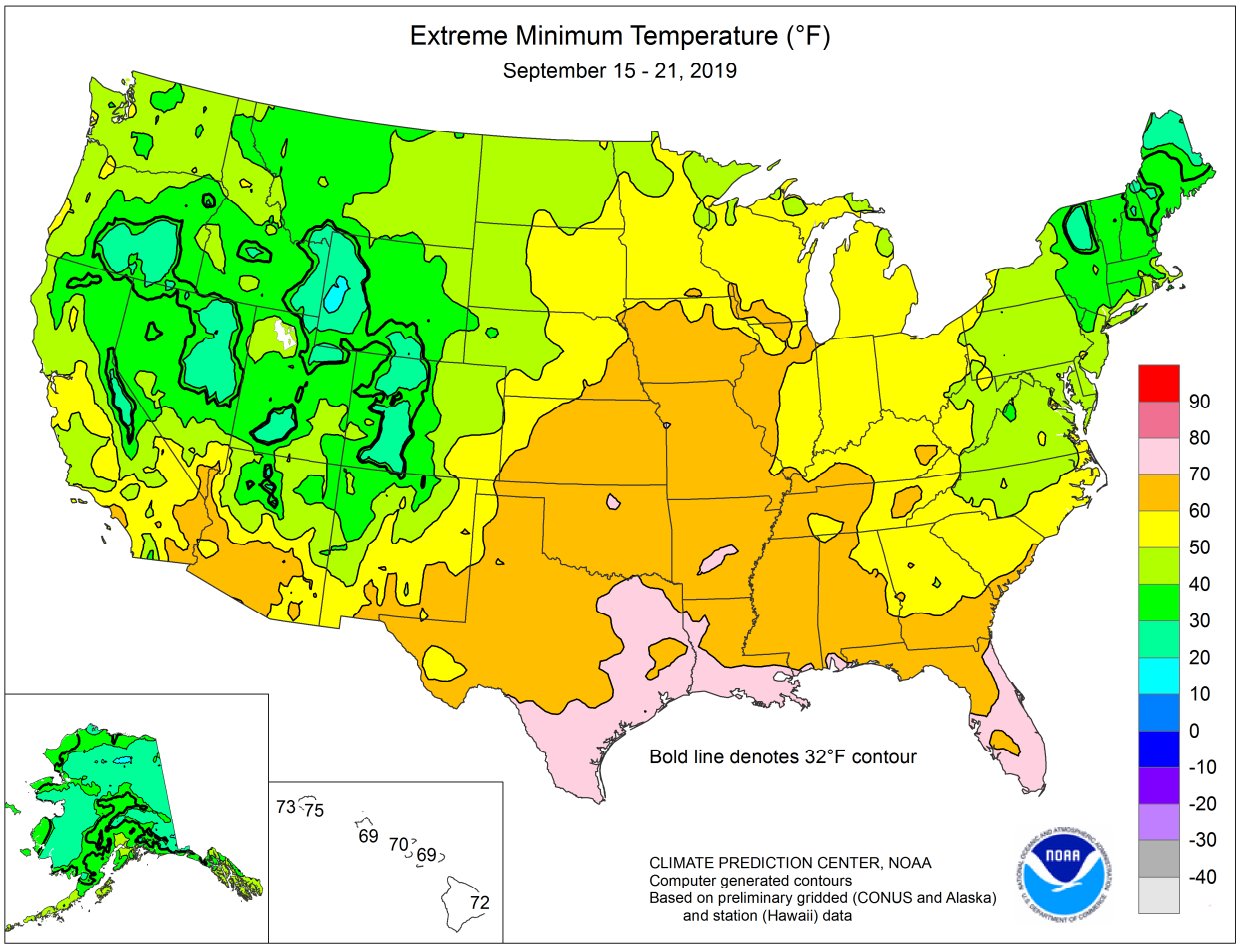
UNSHADED AREAS (INDEX DECREASED)

ABOVE 3	SOME DRYING BUT STILL EXCESSIVELY WET
2 TO 3	MORE DRY WEATHER NEEDED, WORK DELAYED
1 TO 2	FAVORABLE EXCEPT STILL TOO WET IN SPOTS
0 TO 1	FAVORABLE FOR NORMAL GROWTH AND FIELDWORK
0 TO -1	TOPSOIL MOISTURE SHORT, GERMINATION SLOW
-1 TO -2	ABNORMALLY DRY. PROSPECTS DETERIORATING
-2 TO -3	EXCESSIVELY DRY. YIELD PROSPECTS REDUCED
-3 TO -4	POTENTIAL YIELDS SEVERELY CUT BY DRYNESS
BELOW -4	EXTREMELY DRY. CROPS RUINED


U.S. Drought Monitor
September 17, 2019
(Released Thursday, Sep. 19, 2019)
Valid 8 a.m. EDT
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
Intensity:
None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought
Author:
Eric Luebehusen
U.S. Department of Agriculture
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
USDA
NDMC
droughtmonitor.unl.edu

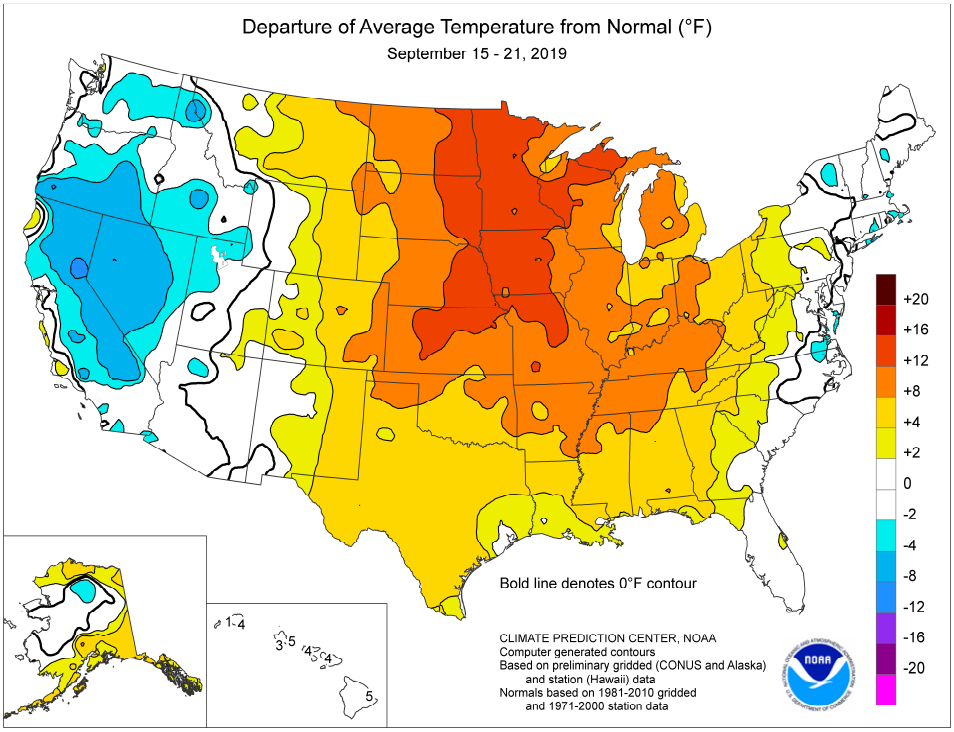

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for September 19 - December 31, 2019
Released September 19
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Drought persists
Drought remains but improves
Drought removal likely
Drought development likely
Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center
http://go.usa.gov/3eZ73


Extreme Maximum Temperature (°F)
September 15 - 21, 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
92
89
93
94
97
92
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
September 15 - 21, 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
73
75
69
70
69
72
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data

(Continued from front cover)

setting September wetness has limited small grain harvesting and threatened the quality of crops still in the field. Precipitation also fell in the **Northwest**, especially **west of the Cascades**, but dry weather covered most other parts of the country. Short-term dryness and record-setting high temperatures were particularly impressive in the **Ohio Valley** and **interior Southeast**, favoring early-autumn fieldwork but leading to pasture stress and topsoil moisture depletion. In fact, hotter-than-normal weather prevailed between the **Rockies** and **Appalachians**, with temperatures averaging at least 10°F above normal from the **northern and central Plains into parts of the Midwest and mid-South**. Slightly cooler weather covered the **Atlantic Coast States**. Elsewhere, cooler-than-normal conditions dominated the **Far West**, where weekly readings averaged at least 5°F below normal in portions of the **Great Basin** and the **Pacific Coast States**.



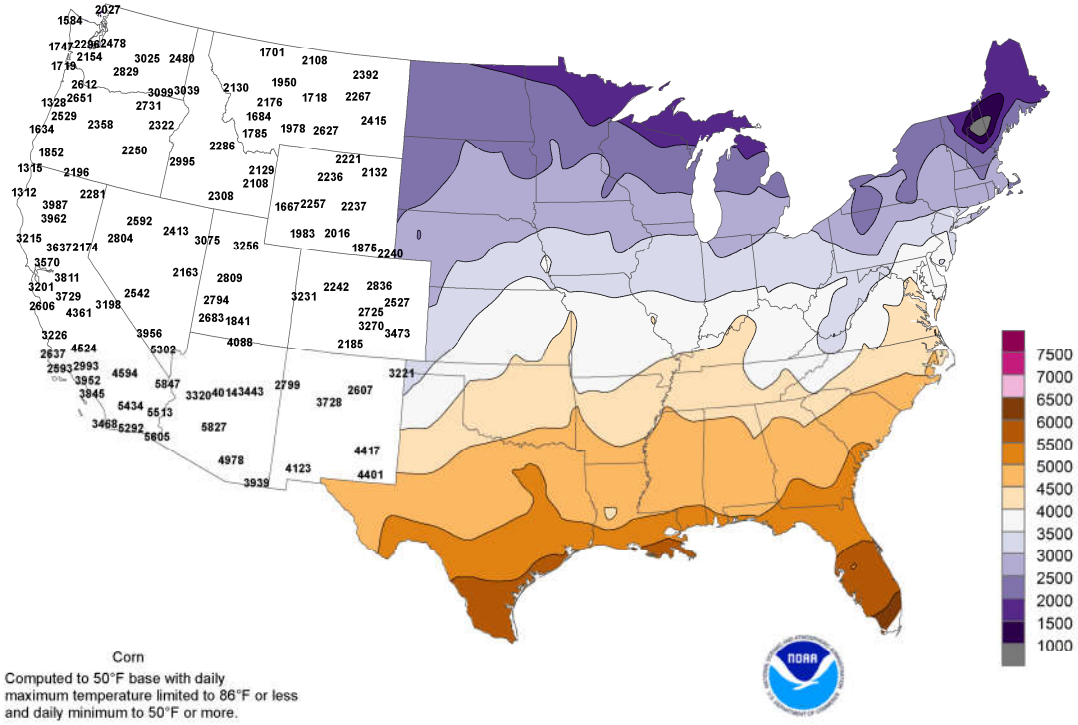
Some of the heaviest rain associated with Imelda fell in **southeastern Texas** from September 17-20. During that 4-day period, Texas totals included 22.82 inches in **Beaumont-Port Arthur**; 17.46 inches in **Galveston**; 16.15 inches in **Conroe**; and 12.68 inches in **Houston**. For all of those locations, the wettest calendar day during the event was September 19, when daily totals topped the 10-inch mark in **Beaumont-Port Arthur** (11.63 inches) and **Conroe** (11.18 inches). Even wetter weather had occurred with Hurricane Harvey just 2 years ago when daily totals had included 13.64 inches (on August 27) in **Conroe** and 26.03 inches (on August 29) in **Beaumont-Port Arthur**. During Imelda, unofficial totals topped 3 feet in several **southeastern Texas** locations, including **Taylors Bayou** (43.39 inches), **Mayhaw** Bayou (42.76 inches), and **Pevito Bayou** (39.41 inches). Following Imelda's deluge, near-record flooding was reported in several **Texas** locations, including **Cow Bayou near Mauriceville** and **Pine Island Bayou near Sour Lake**. **Cow Bayou** rose 6.98 feet above flood stage on September 20, behind only 9.85 feet on August 30, 2017. **Pine Island Bayou** crested 10.70 feet above flood stage on September 21, behind 14.68 feet on August 30, 2017, and 12.50 feet on October 20, 1994. Farther north, high water continued to work its way through parts of the **Missouri Valley**. In **Niobrara, NE**, the **Missouri River crested** 5.34 feet above flood stage on September 22. That marked the second-highest crest in that location, behind 5.76 feet above flood stage on June 26, 2011, and exceeded the March 2019 crest by 2.42 feet. Elsewhere, annual precipitation records were broken—with more than 3 months left in the year—in locations such as **Rochester, MN**, and Kennebec, SD. Previous annual records had been 43.94 inches (in 1990) and 30.25 inches (in 1915), respectively. In addition, September rainfall records have already been broken in many communities, including **Williston, ND** (7.42 inches; previously, 3.74 inches in 1959), and **Green Bay, WI** (8.28 inches; previously, 7.80 inches in 1965). On September 20, an extreme rainfall event in parts of **North Dakota** and **northern Minnesota** sparked local flooding. The NWS office in **Grand Forks, ND**, experienced its wettest September day on record on the 20th, with a 4.73-inch total. Previously, the wettest September day in that location had been September 4, 2016, when 3.73 inches fell. Farther south, scattered daily-record totals in excess of 2 inches were reported on the **Plains** in locations such as **Childress, TX** (3.46 inches on September 21), and **Omaha, NE** (2.79 inches on September 19). Meanwhile, pesky **Northwestern** showers led to several daily-record amounts, including 1.75 inches (on September 15) in **Bellingham, WA**; 1.08 inches (on September 20) in **Livingston, MT**; 1.03 inches (on September 18) in **Omak, WA**; and 1.02 inches (on September 19) in **Elko, NV**.

In stark contrast, hot, dry weather gripped the **Southeast**. No rain fell during the first 21 days of September in **Tennessee** locations such as **Jackson**, **Clarksville**, and **Memphis**. In addition, Memphis reported highs of 90°F or greater each day from August 31 – September 22, a span of 23 days. In **Kentucky**, the first 3 weeks of September featured only a trace of rain in **Lexington**, **Louisville**, **London**, **Paducah**, and **Bowling Green**. During the first half of the week, extreme heat accompanied the dry conditions. With a high of 99°F on September 16, **Cape Girardeau, MO**, experienced its highest temperature since June 16, 2016, when it was 101°F. In **Alabama**, **Montgomery's** highs of 103°F on September 17 and 18 represented the hottest weather in that location since August 2007. On September 18, daily-record, triple-digit highs soared to 102°F in **Pensacola, FL**, and **Meridian, MS**, and 101°F in **Tallahassee, FL**, and **Greenwood, MS**. With a high of 100°F on the 18th, **Mobile, AL**, achieved a triple-digit reading in September for the first time since 1927. In **Texas**, **Del Rio** tallied a trio of daily-record highs (101, 104, and 104°F) from September 17-19. Late in the week, daily-record highs stretched as far north as **Michigan**, where temperatures on September 21 climbed to 88°F in **Traverse City** and 87°F in **Pellston**. In contrast, a surge of cool air into the **East** resulted in scattered daily-record lows, including 31°F (on September 19) in **Glens Falls, NY**, and 46°F (on September 20) at **Wallops Island, VA**.

Wet weather expanded across **Alaska**, providing some relief in drought-affected areas. Despite the precipitation, mild weather prevailed across **southern Alaska**. Cool weather developed, however, in parts of **interior Alaska**, where weekly temperatures averaged as much as 5°F below normal. In **Nome**, lingering, early-week warmth resulted in a daily record-tying high of 62°F on September 15. Later, **McGrath** reported its first freeze of the season on September 17, with a low of 31°F. Similarly, **Fairbanks'** first freeze occurred on the morning of September 22, with a low of 30°F. **Bettles** reported lows ranging from 29 to 31°F each day from September 15-20. In addition, **Bettles** received a 3.4-inch snowfall (from liquid totaling 0.88 inch) on September 17. Weekly precipitation reached 8.36 inches in **Yakutat**; 4.82 inches in **Sitka**; 2.29 inches in **King Salmon**; and 1.96 inches in **Anchorage**. September 20 was especially wet in **southeastern Alaska**, where daily totals reached 4.10 inches in **Yakutat** and 2.97 inches in **Sitka**. Farther south, **Hawaii's** hot spell—fueled by oceanic warmth—continued. **Lihue, Kauai**, posted daily-record highs of 89°F on September 16, 18, and 19. From September 15-18, **Kahului, Maui**, notched four consecutive daily-record highs (94, 97, 95, and 96°F). Kahului's high of 97°F set a monthly record (previously, 96°F on September 14, 1997, and earlier dates) and tied an all-time record. Despite the ongoing **Hawaiian** heat, month-to-date rainfall through September 21 totaled 1.92 inches (141 percent of normal) in **Lihue** and 5.39 inches (79 percent) in **Hilo**, on the **Big Island**.

Total Growing Degree Days

Mar 1 - Sep 21, 2019

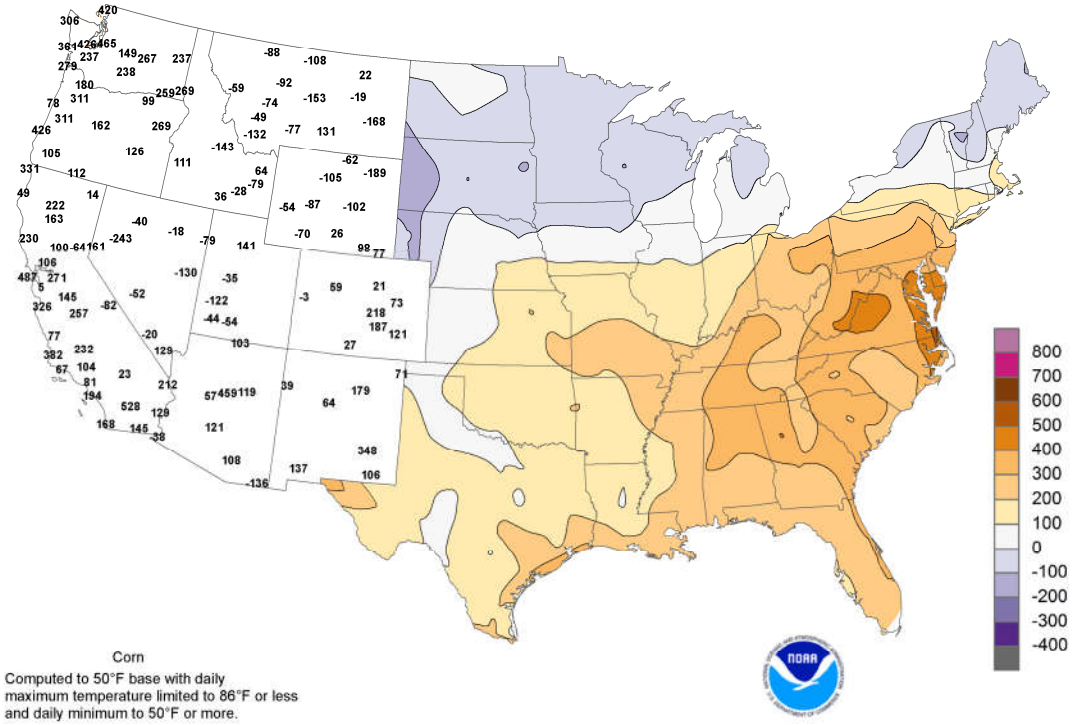


Corn

Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

Departure from Normal Growing Degree Days

Mar 1 - Sep 21, 2019

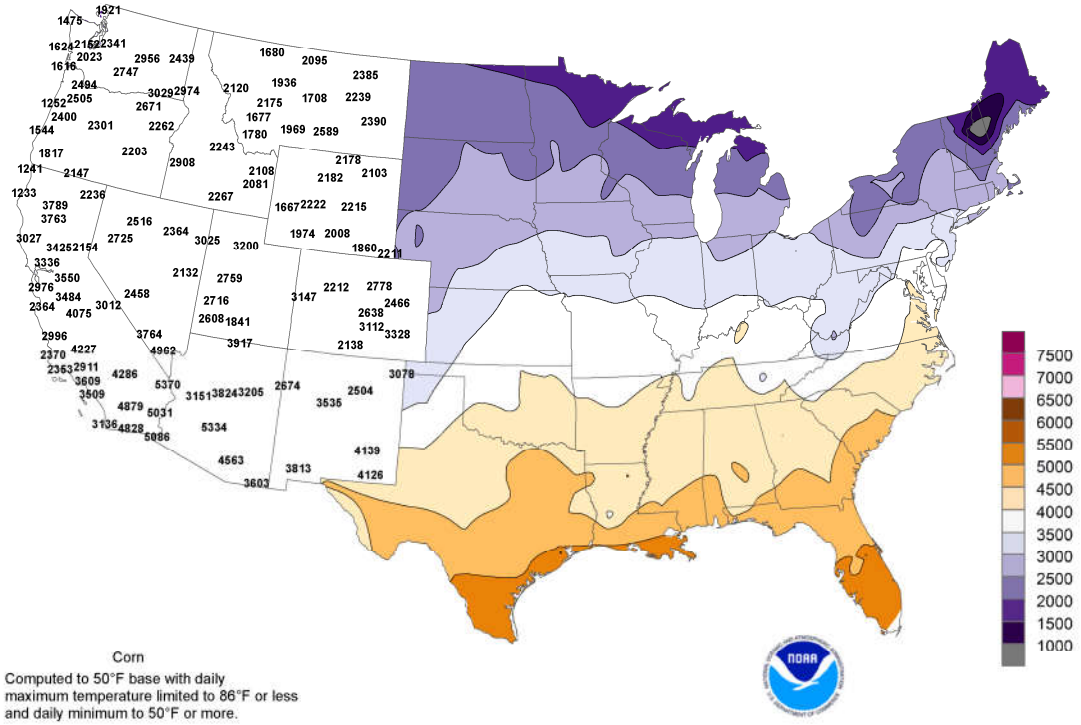


Corn

Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

Total Growing Degree Days

Apr 1 - Sep 21, 2019



Corn

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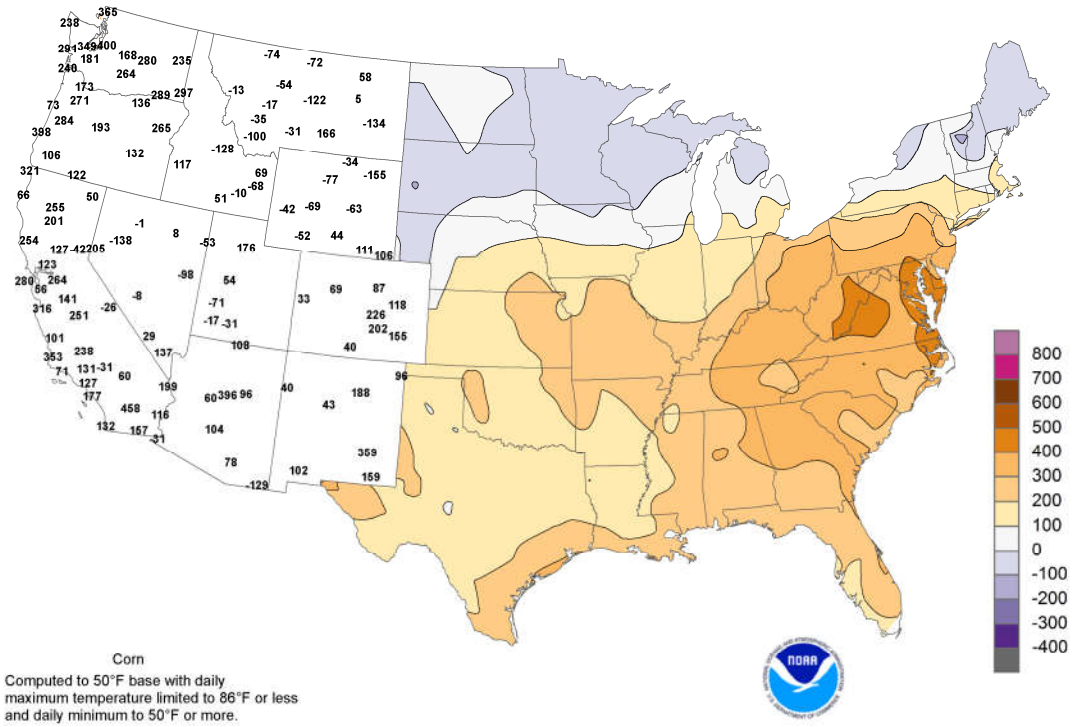
Departure from Normal Growing Degree Days

Apr 1 - Sep 21, 2019



Corn

Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

National Weather Data for Selected Cities

Weather Data for the Week Ending September 21, 2019

Data Provided by Climate Prediction Center

STATES AND STATIONS		TEMPERATURE ˚F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
																	TEMP. ˚F		PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	94	70	99	66	82	8	0.00	-0.99	0.00	0.56	20	37.08	92	77	34	5	0	0	0
	HUNTSVILLE	94	67	100	63	81	9	0.00	-1.05	0.00	0.27	9	45.31	108	86	47	5	0	0	0
	MOBILE	94	72	100	69	83	6	1.57	0.11	1.57	1.57	35	46.44	90	96	62	6	0	1	1
	MONTGOMERY	96	69	103	64	83	7	0.00	-1.04	0.00	0.05	2	34.02	82	82	33	7	0	0	0
AK	ANCHORAGE	58	49	62	45	54	6	1.96	1.30	0.86	3.01	146	8.94	81	89	78	0	0	7	2
	BARROW	40	34	41	29	37	5	0.29	0.15	0.10	0.38	76	8.36	254	93	73	0	2	6	0
	FAIRBANKS	53	39	64	34	46	1	0.52	0.28	0.21	0.65	80	12.15	158	87	70	0	0	4	0
	JUNEAU	58	48	66	43	53	3	2.34	0.57	1.21	3.98	82	32.19	88	96	84	0	0	5	1
	KODIAK	62	50	68	48	56	7	0.61	-1.26	0.20	2.52	50	37.89	76	78	61	0	0	4	0
	NOME	49	33	62	26	41	-2	0.15	-0.42	0.14	2.36	124	19.57	162	92	73	0	5	2	0
AZ	FLAGSTAFF	72	43	74	33	57	-1	0.00	-0.47	0.00	0.11	7	16.41	98	76	26	0	0	0	0
	PHOENIX	99	77	103	70	88	2	0.02	-0.15	0.02	0.02	4	3.45	62	42	27	7	0	1	0
	PRESCOTT	81	54	85	44	67	1	0.15	-0.31	0.13	1.39	89	11.63	78	66	18	0	0	2	0
	TUCSON	94	68	98	65	81	0	0.43	0.12	0.31	0.76	75	8.45	96	60	35	6	0	2	0
AR	FORT SMITH	91	72	96	70	82	8	0.64	-0.22	0.31	0.68	28	50.43	165	95	57	5	0	2	0
	LITTLE ROCK	92	71	97	70	82	8	0.20	-0.68	0.14	1.34	53	48.60	139	93	47	5	0	2	0
CA	BAKERSFIELD	86	61	99	58	74	-3	0.00	-0.03	0.00	0.02	25	6.52	137	56	35	1	0	0	0
	FRESNO	86	60	96	56	73	-2	0.00	-0.06	0.00	0.00	0	9.52	119	65	39	1	0	0	0
	LOS ANGELES	79	66	81	64	72	2	0.00	-0.06	0.00	0.00	0	12.86	131	81	57	0	0	0	0
	REDDING	82	56	90	50	69	-4	0.24	0.15	0.12	0.24	114	32.33	145	75	40	1	0	2	0
	SACRAMENTO	83	56	88	52	69	-3	0.12	0.04	0.08	0.12	55	19.48	159	87	28	0	0	2	0
	SAN DIEGO	78	65	85	61	71	-1	0.00	-0.03	0.00	0.01	10	8.43	108	88	64	0	0	0	0
	SAN FRANCISCO	78	59	85	57	69	5	0.04	0.01	0.04	0.04	50	18.46	136	81	63	0	0	1	0
	STOCKTON	84	57	91	53	70	-3	0.23	0.16	0.21	0.23	144	12.71	137	74	50	1	0	2	0
CO	ALAMOSA	74	42	77	36	58	4	0.33	0.14	0.26	0.73	116	6.98	127	79	34	0	0	2	0
	CO SPRINGS	84	53	87	48	68	8	0.00	-0.23	0.00	0.31	28	10.05	65	63	15	0	0	0	0
	DENVER INTL	87	55	90	46	71	10	0.01	-0.21	0.01	0.41	59	13.00	113	62	14	1	0	1	0
	GRAND JUNCTION	83	52	88	40	67	2	0.01	-0.18	0.01	0.24	43	7.11	111	43	26	0	0	1	0
	PUEBLO	90	54	93	48	72	7	0.00	-0.16	0.00	0.51	72	11.26	106	60	22	5	0	0	0
CT	BRIDGEPORT	75	54	80	47	65	-1	0.02	-0.81	0.02	0.80	32	36.49	113	81	55	0	0	1	0
	HARTFORD	76	46	85	38	61	-2	0.00	-0.96	0.00	1.85	64	35.32	106	90	38	0	0	0	0
DC	WASHINGTON	84	63	92	55	73	2	0.00	-0.91	0.00	0.11	4	30.88	107	83	34	2	0	0	0
DE	WILMINGTON	81	56	87	49	69	1	0.00	-0.96	0.00	0.29	11	37.20	117	95	38	0	0	0	0
FL	DAYTONA BEACH	87	75	90	73	81	1	0.69	-0.87	0.34	3.94	82	39.77	107	88	59	1	0	5	0
	JACKSONVILLE	89	71	96	66	80	2	0.57	-1.34	0.27	2.35	41	34.01	82	89	54	2	0	3	0
	KEY WEST	90	80	92	77	85	1	0.47	-0.79	0.40	2.38	60	21.23	75	82	62	4	0	2	0
	MIAMI	91	78	95	75	85	3	0.92	-1.01	0.62	3.24	52	54.94	123	80	52	4	0	4	1
	ORLANDO	90	73	94	71	81	0	0.01	-1.36	0.01	1.87	43	35.80	90	88	51	3	0	1	0
	PENSACOLA	93	76	102	73	85	6	0.00	-1.35	0.00	0.00	0	39.63	79	88	52	4	0	0	0
	TALLAHASSEE	95	71	101	68	83	4	0.00	-1.17	0.00	0.00	0	30.37	60	91	60	6	0	0	0
	TAMPA	91	75	94	72	83	1	0.91	-0.64	0.51	1.43	28	48.54	131	87	50	5	0	2	1
	WEST PALM BEACH	88	76	92	74	82	0	0.10	-1.85	0.07	1.35	23	44.08	98	83	59	3	0	3	0
GA	ATHENS	87	63	96	56	75	2	0.00	-0.83	0.00	1.40	57	35.21	98	88	47	3	0	0	0
	ATLANTA	90	69	98	62	80	7	0.21	-0.78	0.21	0.21	7	31.78	84	72	42	3	0	1	0
	AUGUSTA	90	62	98	50	76	2	0.00	-0.81	0.00	0.51	19	37.75	109	84	44	3	0	0	0
	COLUMBUS	94	71	101	64	82	6	0.00	-0.72	0.00	0.42	19	31.86	86	75	32	5	0	0	0
	MACON	95	63	103	50	79	4	0.00	-0.76	0.00	0.02	1	27.32	79	88	32	6	0	0	0
	SAVANNAH	88	68	97	61	78	1	0.09	-1.07	0.09	1.27	32	31.07	77	91	53	3	0	1	0
HI	HILO	88	74	92	72	81	5	0.95	-1.22	0.60	5.47	81	63.44	72	80	69	2	0	5	1
	HONOLULU	86	74	93	69	80	-1	0.10	-0.05	0.10	0.14	50	9.22	88	83	75	1	0	1	0
	KAHULUI	94	73	97	69	83	4	0.16	0.08	0.16	0.18	72	9.94	80	72	62	7	0	1	0
	LIHUE	88	78	89	75	83	4	1.06	0.45	0.27	2.05	127	20.04	81	83	77	0	0	5	0
ID	BOISE	72	51	92	45	61	-3	0.31	0.14	0.15	0.77	167	12.98	155	81	53	1	0	3	0
	LEWISTON	73	54	85	50	63	-1	0.22	0.05	0.17	0.56	112	9.84	107	76	55	0	0	3	0
	POCATELLO	72	45	90	34	59	0	0.12	-0.07	0.08	1.01	184	10.33	114	73	46	1	0	2	0
IL	CHICAGO/O'HARE	80	65	84	62	72	8	0.61	-0.12	0.43	3.10	121	34.94	127	91	67	0	0	3	0
	MOLINE	84	67	89	62	75	10	2.66	1.96	1.79	4.61	192	39.41	133	92	71	0	0	4	2
	PEORIA	85	66	90	64	75	9	1.57	0.83	1.24	3.00	140	38.22	142	88	58	1	0	2	1
	ROCKFORD	80	64	85	62	72	9	1.17	0.38	0.62	7.98	305	41.90	147	96	77	0	0	3	1
	SPRINGFIELD	87	66	90	62	76	9	0.17	-0.48	0.16	2.29	113	37.39	140	95	55	1	0	2	0
IN	EVANSVILLE	92	65	96	58	78	9	0.00	-0.70	0.00	0.01	0	46.02	140	86	43	6	0	0	0
	FORT WAYNE	82	59	87	54	71	7	0.00	-0.63	0.00	0.52	25	29.78	109	95	53	0	0	0	0
	INDIANAPOLIS	86	65	89	61	76	10	0.00	-0.66	0.00	0.01	0	37.69	122	87	45	0	0	0	0
	SOUTH BEND	82	61	87	59	72	9	0.39	-0.48	0.38	2.11	77	32.70	113	91	58	0	0	2	0
IA	BURLINGTON	86	69	88	66	77	11	1.74	0.90	1.63	2.78	109	34.70	119	91	60	0	0	2	1
	CEDAR RAPIDS	81	66	86	64	74	10	0.71	-0.04	0.37	3.13	124	32.99	123	99	67	0	0	4	0
	DES MOINES	86	70	90	68	78	13	0.13	-0.57	0.09	3.26	136	37.73	135	90	69	2	0	2	0
	DUBUQUE	78	63	82	58	70	8	3.38	2.57	2.24	10.77	393	42.40	151	98	85	0	0	4	2
	SIOUX CITY	85	65	88	60	75	12	0.17	-0.39	0.11	3.86	222	29.11	137	93	65	0	0	2	0
	WATERLOO	85	67	88	61	76	14	0.90	0.24	0.72	3.92	177	33.63	126	89	67	0	0	3	1
KS	CONCORDIA	93	72	98	66	82	14	1.43	0.85	1.43	1.45	81	30.80	131	81	48	6	0	1	1
	DODGE CITY	93	69	96	66	81	12	0.00	-0.37	0.00	0.10	8	19.84	106	79	32	6	0	0	0
	GOODLAND	88	58	92	51	73	9	0.00	-0.23	0.00	***	***	21.36	125	84	40	3	0	0	0
	TOPEKA	90	71	94	68	80	12	0.02	-0.84	0.02	1.24	47	42.22	151	85	54	5	0	1	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending September 21, 2019

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN01	PCT. NORMAL SINCE JAN01	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	90	70	94	68	80	9	0.06	-0.63	0.03	0.49	24	35.25	148	87	54	6	0	2	0
KY	JACKSON	89	65	94	61	77	9	0.00	-0.88	0.00	0.00	0	39.46	108	85	39	3	0	0	0
	LEXINGTON	92	65	96	57	78	10	0.00	-0.72	0.00	0.00	0	36.52	105	70	39	6	0	0	0
	LOUISVILLE	93	69	98	63	81	11	0.00	-0.72	0.00	0.00	0	39.78	119	73	35	7	0	0	0
	PADUCAH	94	65	97	60	80	11	0.00	-0.85	0.00	0.00	0	55.81	156	90	43	7	0	0	0
LA	BATON ROUGE	92	73	94	70	82	4	1.90	0.78	0.99	2.54	70	52.56	109	93	53	5	0	2	2
	LAKE CHARLES	88	75	97	74	82	3	3.77	2.33	1.72	3.79	89	56.03	132	92	68	3	0	4	3
	NEW ORLEANS	93	76	96	74	84	5	0.17	-1.14	0.17	0.19	4	46.96	94	82	55	6	0	1	0
	SHREVEPORT	93	72	99	71	83	6	1.34	0.60	0.67	1.34	66	33.73	93	91	50	5	0	3	2
ME	CARIBOU	67	42	79	31	55	1	0.01	-0.73	0.01	2.78	117	29.30	108	89	46	0	2	1	0
	PORTLAND	73	47	82	38	60	1	0.00	-0.77	0.00	0.16	7	34.46	110	89	43	0	0	0	0
MD	BALTIMORE	84	55	93	49	70	2	0.00	-0.94	0.00	0.15	5	28.04	90	86	43	2	0	0	0
MA	BOSTON	74	58	83	50	66	1	0.00	-0.80	0.00	1.75	73	34.10	114	70	39	0	0	0	0
	WORCESTER	70	50	79	41	60	0	0.00	-0.99	0.00	1.95	67	37.19	107	89	46	0	0	0	0
MI	ALPENA	76	53	87	48	65	9	0.22	-0.42	0.18	2.45	120	26.08	122	94	67	0	0	2	0
	GRAND RAPIDS	79	60	85	56	70	9	0.00	-1.02	0.00	2.26	72	33.79	125	89	54	0	0	0	0
	HOUGHTON LAKE	77	54	84	52	66	9	0.85	0.14	0.64	3.69	156	28.46	132	92	63	0	0	2	1
	LANSING	80	59	86	54	69	9	0.06	-0.75	0.06	0.44	17	27.79	118	89	63	0	0	1	0
	MUSKEGON	79	61	83	58	70	10	0.06	-0.75	0.03	3.62	138	34.00	146	86	60	0	0	2	0
	TRAVERSE CITY	80	60	88	59	70	10	0.66	-0.17	0.60	3.42	134	29.71	123	93	57	0	0	2	1
MN	DULUTH	75	58	83	53	66	12	0.84	-0.14	0.48	4.39	143	26.26	107	89	74	0	0	3	0
	INT'L FALLS	78	57	84	51	67	14	0.90	0.19	0.58	4.57	205	25.48	133	94	65	0	0	3	1
	MINNEAPOLIS	84	66	88	62	75	14	0.26	-0.34	0.14	3.42	163	37.32	157	89	64	0	0	2	0
	ROCHESTER	82	63	85	58	73	14	0.75	0.04	0.56	7.11	300	46.33	182	92	72	0	0	3	1
	ST. CLOUD	83	60	86	54	71	14	1.74	1.09	0.91	6.40	282	35.06	159	97	56	0	0	3	1
MS	JACKSON	95	69	98	63	82	6	0.21	-0.53	0.21	0.25	11	42.89	104	88	38	7	0	1	0
	MERIDIAN	96	70	103	63	83	7	0.24	-0.64	0.24	0.25	10	45.65	104	88	43	6	0	1	0
	TUPELO	94	70	99	62	82	9	0.00	-0.80	0.00	0.01	0	57.71	143	84	40	5	0	0	0
MO	COLUMBIA	90	70	94	68	80	13	0.01	-0.78	0.01	1.28	53	39.52	131	88	52	5	0	1	0
	KANSAS CITY	87	70	91	66	78	10	0.25	-0.87	0.24	1.59	51	44.90	154	91	61	3	0	2	0
	SAINT LOUIS	90	71	95	68	81	11	0.32	-0.37	0.30	1.15	56	44.22	155	79	53	6	0	2	0
	SPRINGFIELD	92	69	95	68	81	12	0.16	-1.01	0.11	0.16	5	40.28	124	83	49	5	0	2	0
MT	BILLINGS	76	53	95	46	65	6	1.38	1.07	0.64	2.47	301	18.69	162	70	38	2	0	3	2
	BUTTE	65	42	84	37	54	3	0.32	0.08	0.22	1.79	229	11.85	112	84	37	0	0	4	0
	CUT BANK	69	42	85	32	55	3	0.54	0.28	0.34	1.03	110	11.03	100	85	31	0	1	4	0
	GLASGOW	77	53	87	49	65	8	0.08	-0.14	0.05	3.31	487	16.85	178	79	52	0	0	2	0
	GREAT FALLS	72	45	90	37	58	3	0.21	-0.06	0.21	0.81	90	14.61	118	80	30	1	0	1	0
	HAVRE	76	45	92	39	60	4	0.04	-0.19	0.04	0.55	75	10.15	106	86	48	1	0	1	0
	MISSOULA	67	46	86	41	56	0	0.22	-0.02	0.11	1.87	243	12.22	116	86	62	0	0	4	0
NE	GRAND ISLAND	89	67	92	59	78	14	0.00	-0.56	0.00	0.54	29	36.95	170	82	51	3	0	0	0
	LINCOLN	91	68	94	62	80	14	0.19	-0.49	0.19	0.38	18	26.91	116	84	51	5	0	1	0
	NORFOLK	88	66	91	55	77	14	0.81	0.29	0.61	1.13	69	27.86	125	86	51	3	0	2	1
	NORTH PLATTE	88	59	92	49	74	12	0.00	-0.28	0.00	0.38	42	29.05	172	84	35	4	0	0	0
	OMAHA	89	71	92	65	80	15	3.55	2.80	2.80	3.87	172	31.08	128	88	58	3	0	2	2
	SCOTTSBLUFF	86	52	93	42	69	9	0.00	-0.28	0.00	0.86	108	27.84	206	81	41	2	0	0	0
	VALENTINE	87	57	95	47	72	11	0.08	-0.28	0.08	2.57	238	33.09	198	79	40	3	0	1	0
NV	ELY	70	36	84	26	53	-4	0.00	-0.20	0.00	0.09	15	12.16	162	53	27	0	4	0	0
	LAS VEGAS	91	71	102	63	81	0	0.00	-0.06	0.00	0.00	0	4.64	136	24	15	3	0	0	0
	RENO	72	44	85	39	58	-4	0.02	-0.08	0.01	0.07	25	8.83	169	61	36	0	0	2	0
	WINNEMUCCA	70	38	90	34	54	-6	0.36	0.25	0.20	0.75	234	8.16	139	69	34	1	0	2	0
NH	CONCORD	74	40	85	33	57	-2	0.00	-0.72	0.00	0.75	35	29.78	112	94	38	0	0	0	0
NJ	NEWARK	79	58	86	49	68	0	0.00	-0.96	0.00	1.55	55	44.27	128	75	40	0	0	0	0
NM	ALBUQUERQUE	82	59	86	55	70	1	0.42	0.20	0.30	0.44	56	6.31	89	71	30	0	0	2	0
NY	ALBANY	75	48	84	42	62	1	0.00	-0.76	0.00	1.80	76	31.88	114	87	39	0	0	0	0
	BINGHAMTON	71	47	78	42	59	0	0.03	-0.81	0.03	1.60	63	31.79	113	90	53	0	0	1	0
	BUFFALO	77	55	84	51	66	5	0.05	-0.84	0.04	4.51	160	32.89	115	85	48	0	0	2	0
	ROCHESTER	76	51	85	48	64	3	0.09	-0.71	0.09	2.03	80	23.24	93	89	48	0	0	1	0
	SYRACUSE	76	49	83	44	62	1	0.11	-0.88	0.11	2.04	70	33.98	118	91	45	0	0	1	0
NC	ASHEVILLE	81	60	90	54	71	5	0.01	-0.85	0.01	0.40	14	42.11	118	88	48	2	0	1	0
	CHARLOTTE	86	63	94	52	75	2	0.00	-0.89	0.00	0.19	7	39.32	122	84	38	3	0	0	0
	GREENSBORO	84	61	91	51	72	2	0.00	-1.02	0.00	0.02	1	38.10	117	92	46	1	0	0	0
	HATTERAS	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	0	0	0	0
	RALEIGH	84	60	90	50	72	1	0.07	-0.95	0.07	1.12	38	33.51	103	93	43	1	0	1	0
	WILMINGTON	85	65	92	58	75	0	0.00	-1.63	0.00	7.84	154	33.91	75	90	45	1	0	0	0
ND	BISMARCK	82	55	88	49	68	11	2.19	1.83	1.40	5.15	448	24.43	175	94	59	0	0	2	2
	DICKINSON	81	51	94	46	66	9	0.54	0.18	0.30	4.27	392	21.65	160	94	40	2	0	4	0
	FARGO	83	61	88	52	72	14	0.48	-0.02	0.47	3.21	210	26.18	155	91	56	0	0	2	0
	GRAND FORKS	83	60	90	48	71	14	4.46	4.03	3.79	6.51	462	23.35	148	90	54	1	0	2	2
	JAMESTOWN	82	58	88	49	70	12	1.43	1.04	1.38	3.21	263	24.48	159	97	54	0	0	2	1
	WILLISTON	80	50	91	45	65	9	1.29	0.99	0.48	7.42	815	20.45	176	85	62	1	0	4	0
OH	AKRON-CANTON	82	59	89	56	71	8	0.03	-0.78	0.03	0.86	35	36.64	127	85	51	0	0	1	0
	CINCINNATI	88	65	91	57	77	9	0.00	-0.63	0.00	0.49	24	44.79	139	76	43	1	0	0	0
	CLEVELAND	82	61	90	59	72	9	0.00	-0.89	0.00	1.13	41	33.46	118	81	50	1	0	0	0
	COLUMBUS	85	62	89	56	74	7	0.10	-0.58	0.08	0.65	30	36.50	125	80	49	0	0	2	0
	DAYTON	87	63	89	58	75	10	0.00	-0.59	0.00	0.01	1	35.21	118	85	41	0	0	0	0
	MANSFIELD	82	60	85	54	71	8	0.02	-0.76	0.02	1.79	67	40.42	123	92	51	0	0	1	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending September 21, 2019

STATES AND STATIONS		TEMPERATURE ˚F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. ˚F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN01	PCT. NORMAL SINCE JAN01	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	84	60	90	54	72	8	0.04	-0.61	0.04	2.20	104	35.71	144	86	53	1	0	1	0
	YOUNGSTOWN	79	55	86	49	67	5	0.00	-0.93	0.00	4.30	154	44.93	158	85	53	0	0	0	0
OK	OKLAHOMA CITY	88	68	91	67	78	5	0.90	-0.05	0.51	1.43	56	39.63	148	95	57	3	0	2	1
	TULSA	91	72	95	71	81	8	0.26	-0.89	0.25	0.83	26	44.90	145	86	61	5	0	2	0
OR	ASTORIA	66	54	69	48	60	1	2.62	2.03	1.03	5.43	333	31.10	78	95	85	0	0	5	2
	BURNS	64	36	86	28	50	-5	0.85	0.74	0.51	1.01	337	12.42	172	84	56	0	1	4	1
	EUGENE	68	53	74	50	60	-2	2.38	2.03	0.87	4.04	374	27.24	90	92	78	0	0	4	3
	MEDFORD	70	51	79	46	61	-5	1.33	1.16	0.65	1.48	296	16.22	148	94	55	0	0	5	2
	PENDLETON	70	50	77	48	60	-3	0.48	0.34	0.34	1.06	259	10.81	128	84	59	0	0	4	0
	PORTLAND	69	56	72	53	62	-2	2.13	1.74	0.86	3.15	294	18.56	83	88	76	0	0	5	2
	SALEM	67	54	72	49	61	-1	1.37	1.04	0.58	2.66	292	22.38	95	92	76	0	0	4	1
PA	ALLENTOWN	80	52	87	43	66	3	0.00	-1.04	0.00	1.18	37	47.66	142	83	39	0	0	0	0
	ERIE	79	61	85	57	70	6	0.00	-1.11	0.00	3.12	92	31.99	107	75	53	0	0	0	0
	MIDDLETOWN	80	57	86	50	69	3	0.00	-0.83	0.00	1.44	59	34.29	115	85	37	0	0	0	0
	PHILADELPHIA	80	60	85	53	70	1	0.00	-0.93	0.00	0.75	27	38.56	122	81	39	0	0	0	0
	PITTSBURGH	81	57	86	50	69	5	0.00	-0.76	0.00	3.66	156	40.41	140	86	41	0	0	0	0
	WILKES-BARRE	78	51	84	45	64	2	0.01	-0.92	0.01	0.56	21	38.85	140	89	41	0	0	1	0
	WILLIAMSPORT	79	52	85	44	65	2	0.00	-0.95	0.00	1.25	44	38.01	124	91	49	0	0	0	0
RI	PROVIDENCE	75	52	82	45	64	0	0.00	-0.85	0.00	0.53	20	34.84	105	86	41	0	0	0	0
SC	CHARLESTON	86	66	92	60	76	0	0.00	-1.41	0.00	3.93	85	33.83	82	90	47	3	0	0	0
	COLUMBIA	89	64	96	51	76	1	0.01	-0.89	0.01	1.64	54	27.48	72	81	39	3	0	1	0
	FLORENCE	86	63	92	56	74	-1	0.00	-0.82	0.00	3.67	133	32.90	94	91	41	3	0	0	0
	GREENVILLE	86	64	95	56	75	4	0.01	-0.92	0.01	0.18	7	36.48	97	84	40	3	0	1	0
SD	ABERDEEN	84	60	88	52	72	13	0.47	0.07	0.45	4.56	356	26.68	158	90	59	0	0	2	0
	HURON	84	63	89	56	73	12	0.21	-0.20	0.16	3.27	264	36.30	208	91	54	0	0	2	0
	RAPID CITY	82	51	91	45	67	7	0.06	-0.16	0.06	1.87	263	31.50	227	81	33	2	0	1	0
	SIOUX FALLS	84	65	88	56	74	13	0.02	-0.57	0.02	2.77	146	33.33	165	86	60	0	0	1	0
TN	BRISTOL	85	59	92	55	72	5	0.00	-0.74	0.00	0.68	32	42.22	133	93	42	3	0	0	0
	CHATTANOOGA	93	67	100	60	80	8	0.00	-1.04	0.00	0.10	3	45.72	113	86	44	4	0	0	0
	KNOXVILLE	90	66	94	61	78	7	0.00	-0.74	0.00	0.00	0	48.23	134	84	36	4	0	0	0
	MEMPHIS	96	74	100	70	85	10	0.00	-0.79	0.00	0.00	0	52.24	134	80	38	7	0	0	0
	NASHVILLE	94	69	99	65	81	10	0.00	-0.86	0.00	0.01	0	47.62	135	78	34	6	0	0	0
TX	ABILENE	96	71	97	69	84	9	0.00	-0.66	0.00	0.02	1	19.00	109	73	37	7	0	0	0
	AMARILLO	89	63	96	60	76	7	1.01	0.60	0.53	1.10	77	18.15	110	79	41	4	0	3	1
	AUSTIN	98	73	100	68	85	6	0.00	-0.66	0.00	0.18	10	26.33	112	79	42	7	0	0	0
	BEAUMONT	87	76	96	74	82	3	22.80	21.34	11.63	22.87	533	76.54	176	92	74	3	0	5	4
	BROWNSVILLE	93	78	95	75	86	5	0.06	-1.23	0.06	3.43	95	17.12	89	87	56	7	0	1	0
	CORPUS CHRISTI	95	77	98	74	86	5	0.19	-1.00	0.19	3.58	104	16.60	71	92	60	7	0	1	0
	DEL RIO	100	76	104	72	88	8	0.00	-0.48	0.00	0.01	1	13.27	96	72	40	7	0	0	0
	EL PASO	89	70	95	66	79	4	0.29	-0.08	0.15	1.28	112	4.02	58	70	33	4	0	2	0
	FORT WORTH	93	75	98	74	84	7	0.00	-0.53	0.00	0.00	0	27.14	111	79	45	6	0	0	0
	GALVESTON	88	79	94	73	83	2	17.72	16.32	6.81	17.84	430	45.77	145	91	68	2	0	5	3
	HOUSTON	88	75	96	74	81	2	12.68	11.68	9.21	14.41	476	43.64	128	93	75	3	0	4	4
	LUBBOCK	88	65	94	63	76	5	4.09	3.49	2.15	4.60	254	20.21	136	82	47	4	0	2	2
	MIDLAND	93	69	98	64	81	7	0.42	-0.12	0.37	0.86	57	12.29	113	72	39	6	0	2	0
	SAN ANGELO	97	69	102	63	83	8	0.00	-0.69	0.00	0.27	14	14.76	96	75	39	7	0	0	0
	SAN ANTONIO	97	74	100	70	85	6	0.87	0.20	0.87	1.36	70	16.65	71	87	37	7	0	1	1
	VICTORIA	93	76	96	73	84	4	0.01	-1.19	0.01	2.86	86	18.73	64	92	57	6	0	1	0
	WACO	96	73	99	69	84	5	0.00	-0.67	0.00	0.17	10	27.67	120	85	46	7	0	0	0
	WICHITA FALLS	92	70	96	68	81	6	0.72	-0.02	0.72	2.06	97	23.13	109	92	56	5	0	1	1
UT	SALT LAKE CITY	77	55	92	46	66	1	0.29	-0.02	0.24	1.40	177	16.66	142	59	26	1	0	2	0
VT	BURLINGTON	73	47	83	40	60	1	0.00	-0.90	0.00	2.24	81	28.46	107	90	38	0	0	0	0
VA	LYNCHBURG	84	56	94	45	70	3	0.00	-0.93	0.00	0.06	2	28.73	89	90	44	2	0	0	0
	NORFOLK	80	65	86	55	72	0	0.00	-0.94	0.00	2.96	102	38.59	110	84	53	0	0	0	0
	RICHMOND	84	59	94	49	71	1	0.00	-0.94	0.00	0.39	14	34.43	105	89	46	2	0	0	0
	ROANOKE	83	60	92	49	72	4	0.00	-0.91	0.00	0.80	30	32.29	100	86	53	1	0	0	0
	WASH/DULLES	83	54	91	45	68	1	0.00	-0.89	0.00	0.33	12	30.18	98	86	40	2	0	0	0
WA	OLYMPIA	67	51	70	42	59	1	1.55	1.08	0.87	2.72	206	19.94	67	96	83	0	0	4	2
	QUILLAYUTE	65	49	69	43	57	0	2.66	1.74	1.99	7.67	317	44.97	74	98	86	0	0	6	2
	SEATTLE-TACOMA	67	55	70	52	61	0	1.32	0.96	0.49	2.53	241	19.75	91	88	75	0	0	6	0
	SPOKANE	66	48	75	44	57	-2	0.18	0.01	0.09	0.95	190	10.07	93	85	52	0	0	3	0
	YAKIMA	71	47	77	41	59	-1	0.18	0.10	0.08	0.51	204	7.29	141	86	59	0	0	3	0
WV	BECKLEY	82	57	88	53	70	7	0.01	-0.76	0.01	0.04	2	35.65	111	80	45	0	0	1	0
	CHARLESTON	89	60	93	53	74	8	0.00	-0.81	0.00	0.09	4	34.11	102	88	36	2	0	0	0
	ELKINS	82	52	87	44	67	5	0.00	-0.90	0.00	0.00	0	38.70	110	89	42	0	0	0	0
	HUNTINGTON	88	62	91	53	75	8	0.00	-0.63	0.00	0.00	0	36.69	114	91	43	3	0	0	0
WI	EAU CLAIRE	82	62	85	53	72	13	0.07	-0.79	0.07	5.06	174	35.62	136	95	56	0	0	1	0
	GREEN BAY	78	61	81	58	70	11	0.48	-0.23	0.39	7.67	325	37.37	165	94	71	0	0	2	0
	LA CROSSE	83	67	87	61	75	12	0.89	0.11	0.89	4.55	175	35.01	134	91	59	0	0	1	1
	MADISON	79	62	83	59	70	10	0.13	-0.56	0.09	3.69	153	35.19	135	93	75	0	0	3	0
	MILWAUKEE	77	64	82	60	71	8	0.23	-0.52	0.22	5.28	211	34.21	129	88	70	0	0	2	0
WY	CASPER	80	45	88	37	63	6	0.17	-0.06	0.16	0.67	120	15.56	155	57	28	0	0	2	0
	CHEYENNE	81	49	89	43	65	9	0.00	-0.33	0.00	0.41	39	20.56	156	60	20	0	0	0	0
	LANDER	76	44	87	36	60	2	0.00	-0.26	0.00	0.68	106	16.25	163	57	18	0	0	0	0
	SHERIDAN	77	45	93	39	61	4	0.42	0.10	0.32	1.58	186	17.71	157	77	39	2	0	2	0

Based on 1971-2000 normals

***** Not Available**

Summer Weather Review

Weather summary provided by USDA/WAOB

Highlights: Despite an absence of extreme heat, agricultural issues developed in parts of the Corn Belt due to soil compaction, shallow-rooted crops, and a mid- to late-summer drying trend. Late-planted, late-developing crops experienced the greatest impacts, with 22 to 27 percent of the corn rated in very poor to poor condition by September 1 in Indiana, Michigan, Missouri, and Ohio. Similarly, more than one-fifth of the soybeans in Indiana and Ohio were rated very poor to poor on that date.

Following a brief hot spell in July, the Midwest experienced a protracted period with near- or below-normal temperatures, maintaining a slow corn and soybean development pace. However, those delays were mostly specific to the Corn Belt, as well as the northern Plains, where spring wheat and other small grains matured behind schedule due to a slow spring planting pace. As a result, some the northern Plains' small grains were still in the field and vulnerable to reductions in quality when torrential rain arrived in early September.

Farther south, a dreadful monsoon season resulted in a record-dry summer in Arizona and unfavorable dryness in other parts of the Southwest. The Southwestern heat and dryness led to stress on rangeland and pastures. However, much of the West escaped significant summer wildfire activity, in part due to the bountifully wet winter of 2018-19. By September 10, U.S. wildfires had burned 4.25 million acres of vegetation, well below the 10-year average of 5.92 million acres. More than 60 percent of the total, or 2.59 million acres, occurred in Alaska, which experienced an active wildfire season.

The U.S. mainland experienced only one named tropical system during the summer: Hurricane Barry. A minimal hurricane, Barry crossed the Louisiana coast on July 13 and subsequently produced pockets of heavy rain and flash flooding in the lower Mississippi Valley and neighboring areas. In late August, Dorian became a hurricane while traversing the U.S. Virgin Islands. Dorian, which utterly devastated the northwestern Bahamas as a Category 5 storm on September 1-2, later grazed the southern Atlantic coast of the U.S., making landfall on Cape Hatteras, NC, as a Category 1 hurricane on September 6.

During much of the summer of 2019, U.S. drought coverage ranged from 3 to 5 percent. During August, however, drought development across the southern Plains and Southwest resulted in an increase in coverage to 10 percent by September 3. In addition, pockets of drought in the central and eastern Corn Belt aggravated the effects of late planting and soil compaction on corn and soybeans. In mid- to late August, extreme drought (D3) returned to the continental U.S. for the first time since March 2019. However, D3 was confined to 3 percent of Texas and 2 percent of Oklahoma.

Historical Perspective: For the nation as a whole, the summer of 2019 trended toward heat and wetness. However, there were significant state and regional variations. According to preliminary data provided by the National Centers for Environmental Information, it was the country's 25th-hottest, 32nd-wettest summer during the 125-year period of record. The U.S. summer average temperature was 72.4°F (exactly one degree above the 20th century mean), while precipitation averaged 8.83 inches (106 percent of normal). Interestingly, it was the nation's coolest summer since 2014 and the driest since 2012.

State temperature rankings ranged from the 44th-coolest summer in Nebraska to the fifth-hottest June-August period on record in Delaware, Florida, and New Jersey (figure 1). Top-ten rankings for summer heat were also reported in New Mexico, Maryland, and three states in New England. Meanwhile, state precipitation rankings ranged from the driest June-August period on record in Arizona to the fifth-wettest summer in South Dakota (figure 2). A trio of Western States—California, New Mexico, and Utah—ranked in the top ten for summer dryness, while three states (Kentucky, Nebraska, and Tennessee) joined South Dakota on the top-ten list for summer wetness.

Figure 1 Statewide Average Temperature Ranks
June–August 2019
Period: 1895–2019

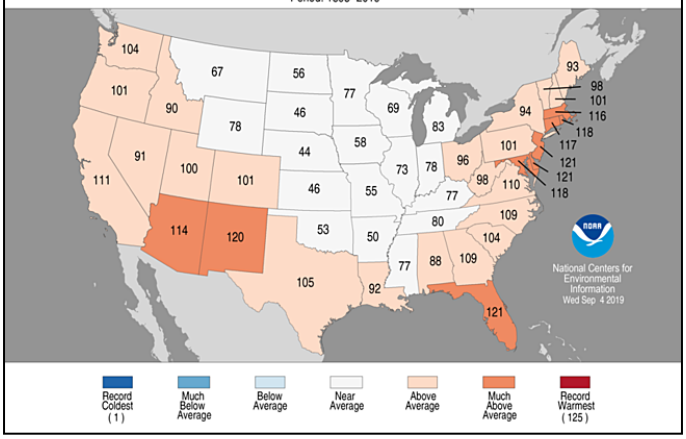
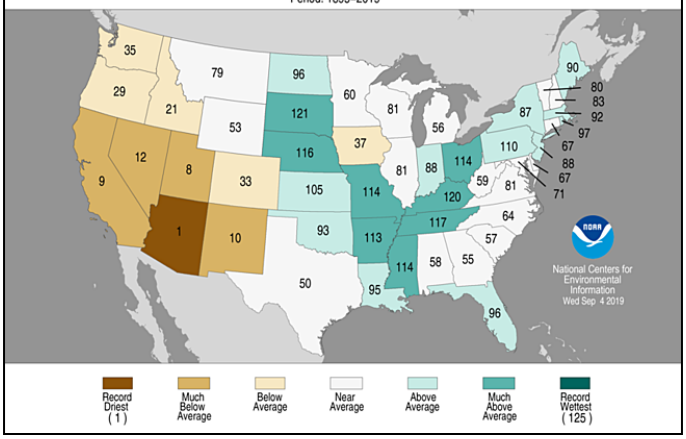


Figure 2 Statewide Precipitation Ranks
June–August 2019
Period: 1895–2019



June: Active weather continued during June across the central and eastern U.S., although rainfall in general was more evenly distributed and less intense than previously observed. Some of the heaviest rain stretched from the mid-South into the Ohio Valley, contributing to late-season planting delays and pockets of flooding. By June 30, only 92 percent of the intended soybean acreage had been planted, compared to the 5-year average of 99 percent.

Meanwhile, drought concerns remained mostly minimal, except in areas such as the Pacific Northwest and parts of the Southeast. By June 30, topsoil moisture was rated more than 40 percent very short to short in Oregon (50 percent), Alabama (49 percent), Washington (42 percent), Georgia (41 percent), and North Carolina (41 percent).

June warmth and dryness in the Far West promoted fieldwork and crop development, including winter wheat maturation. In contrast, delayed winter wheat maturation and wet conditions slowed harvest activities across large sections of the Plains, mid-South, and lower Midwest. By June 30, just 30 percent of the 2019 winter wheat crop had been harvested, compared to 48 percent on average.

Elsewhere, hot weather prevailed from southern Texas to the southern Atlantic Coast, but near- or slightly below-normal temperatures covered most other regions, including the Rockies, Intermountain West, Plains, Midwest, and Northeast. In areas such as the southern and eastern Corn Belt where many summer crops were planted unusually late, periods of cool weather further delayed corn and soybean emergence and development. Only 83 percent of the nation's soybeans had emerged by June 30, versus 95 percent on average.

July: Significant rain continued through July in several areas, including the northern Plains and upper Midwest, but precipitation tapered to light showers across the southern half of the Plains and portions of the central and eastern Corn Belt. The southern Plains' dry spell, accompanied by building heat late in the month, led to an increase in stress on rangeland, pastures, and summer crops. By July 28, topsoil moisture was rated 60 percent very short to short in Texas, along with 55 percent in Oklahoma and 40 percent in Kansas.

Short-term dryness also adversely affected summer crops in parts of the Corn Belt, especially in areas where corn and soybeans were planted very late and have poorly established root systems. By July 28, topsoil moisture was rated 51 percent very short to short in Michigan, along with 40 percent in Illinois and 39 percent in Indiana. Developmental delays compounded problems for those summer crops; by July 28, for example, only 20 to 40 percent of the corn was silking in Indiana, Michigan, Ohio, and South Dakota, with each of those values more than 40 percentage points behind the respective state 5-year averages.

Farther south, Hurricane Barry reached the Louisiana coast on July 13. Following landfall, the minimal hurricane rapidly weakened and drifted northward, delivering locally heavy mid-month showers in the lower Mississippi Valley and environs. Highly localized flooding struck several areas, including parts of Arkansas and Louisiana.

Elsewhere, pockets of drought lingered in the Southeast, mainly from Alabama to the Carolinas, while seasonably dry weather prevailed in much of the Far West. Across the interior Northwest, mostly dry weather favored winter wheat harvesting and maturation of spring-sown small grains. By July 28, the Northwestern winter wheat harvest ranged from 6 percent complete in Idaho to 33 percent complete in Oregon.

August: Near- or below-normal temperatures across the northern half of the Plains and the Midwest maintained a slow pace of development for late-planted crops such as corn and soybeans. In contrast, persistent heat gripped many other areas of the country, especially from the Pacific Coast to the southern Plains and into parts of the Southeast.

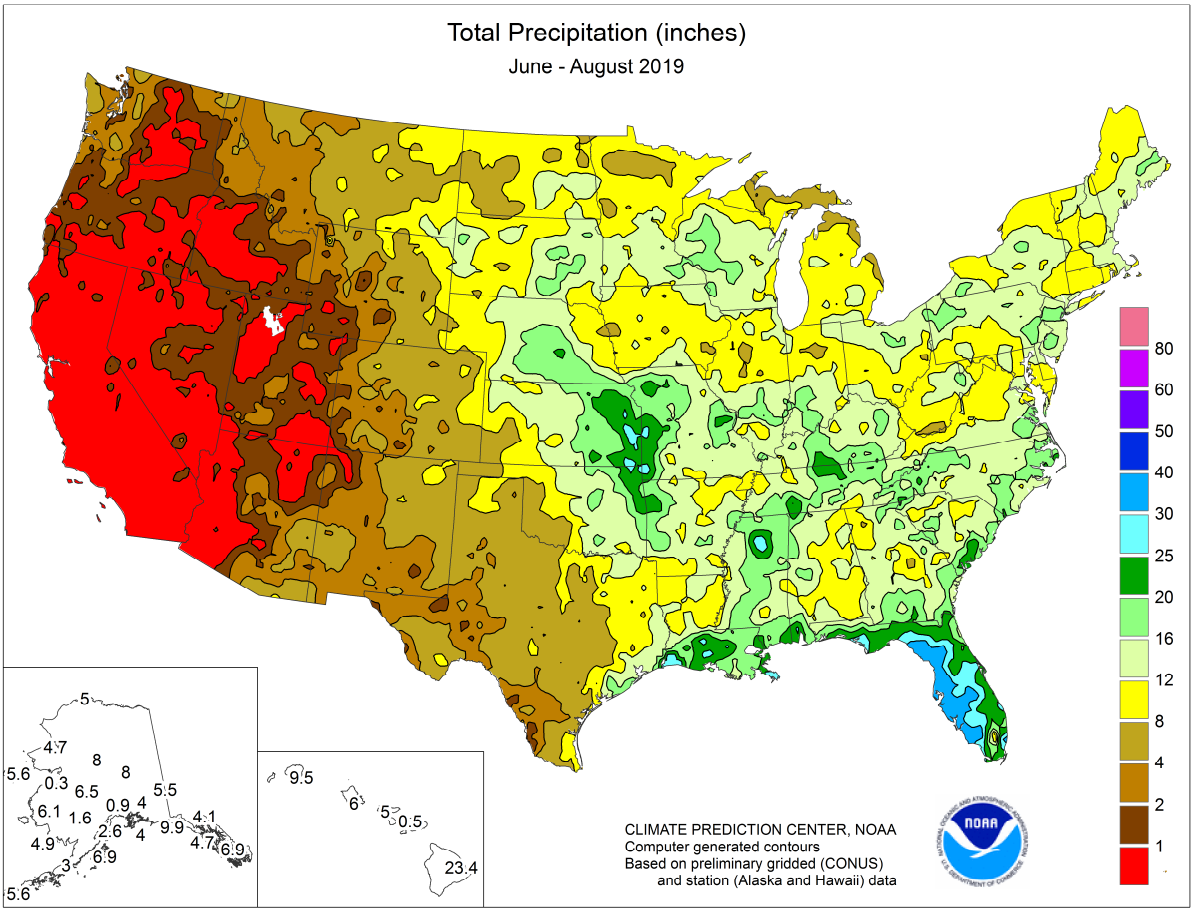
The southern Plains' heat was accompanied by erratic rainfall, leading to a general increase in stress on rangeland, pastures, and rain-fed summer crops. On September 1, nearly one-half (45 percent) of the rangeland and pastures in Texas were rated in very poor to poor condition. Minimal August rain also fell in large sections of the Four Corners States and environs, in part due to the partial failure of the Southwestern monsoon.

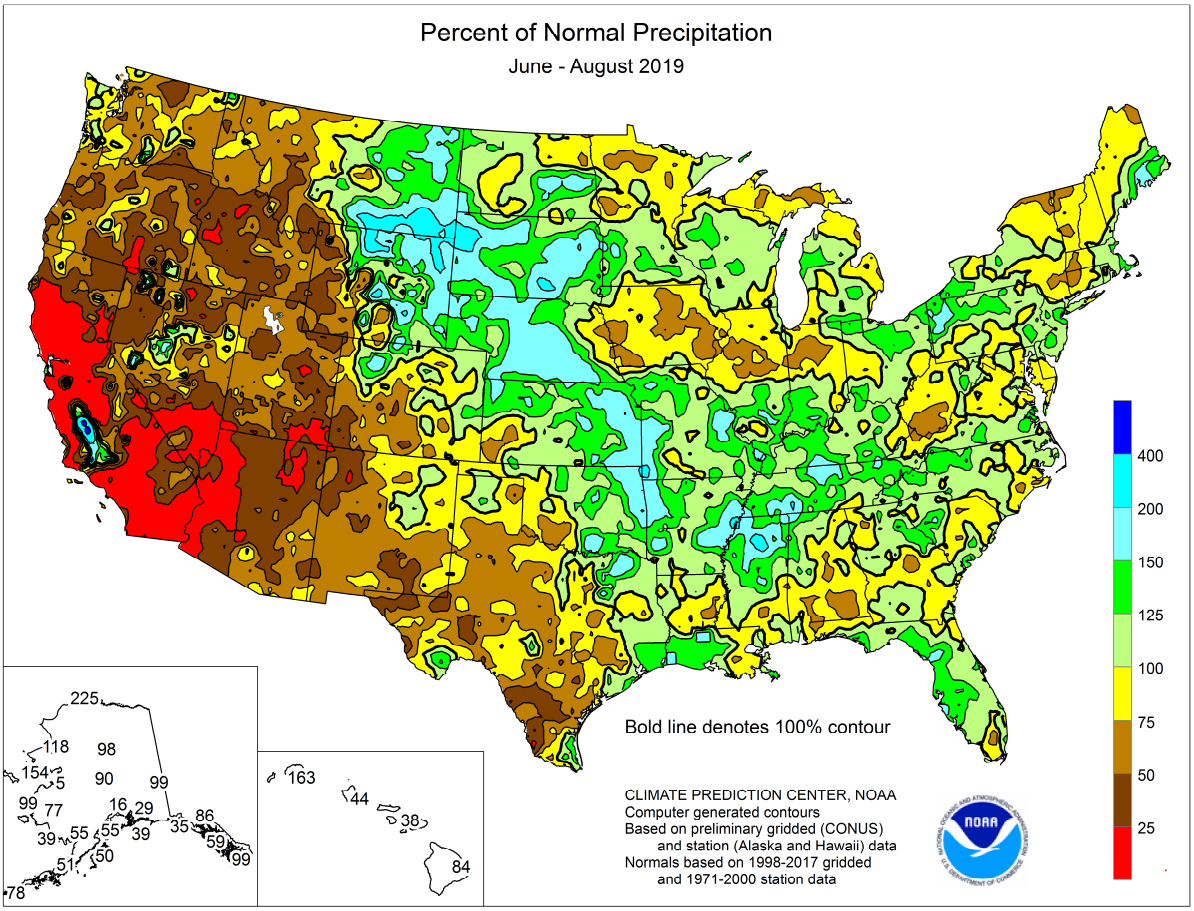
By September 1, Texas led the Plains with topsoil moisture rated 84 percent very short to short. Similarly, New Mexico paced the Southwest with topsoil moisture rated 68 percent very short to short. Some short-term drought also affected the Northwest, where topsoil moisture was rated at least one-half very short to short on September 1 in Oregon (73 percent), Idaho (55 percent), Wyoming (53 percent), and Washington (50 percent).

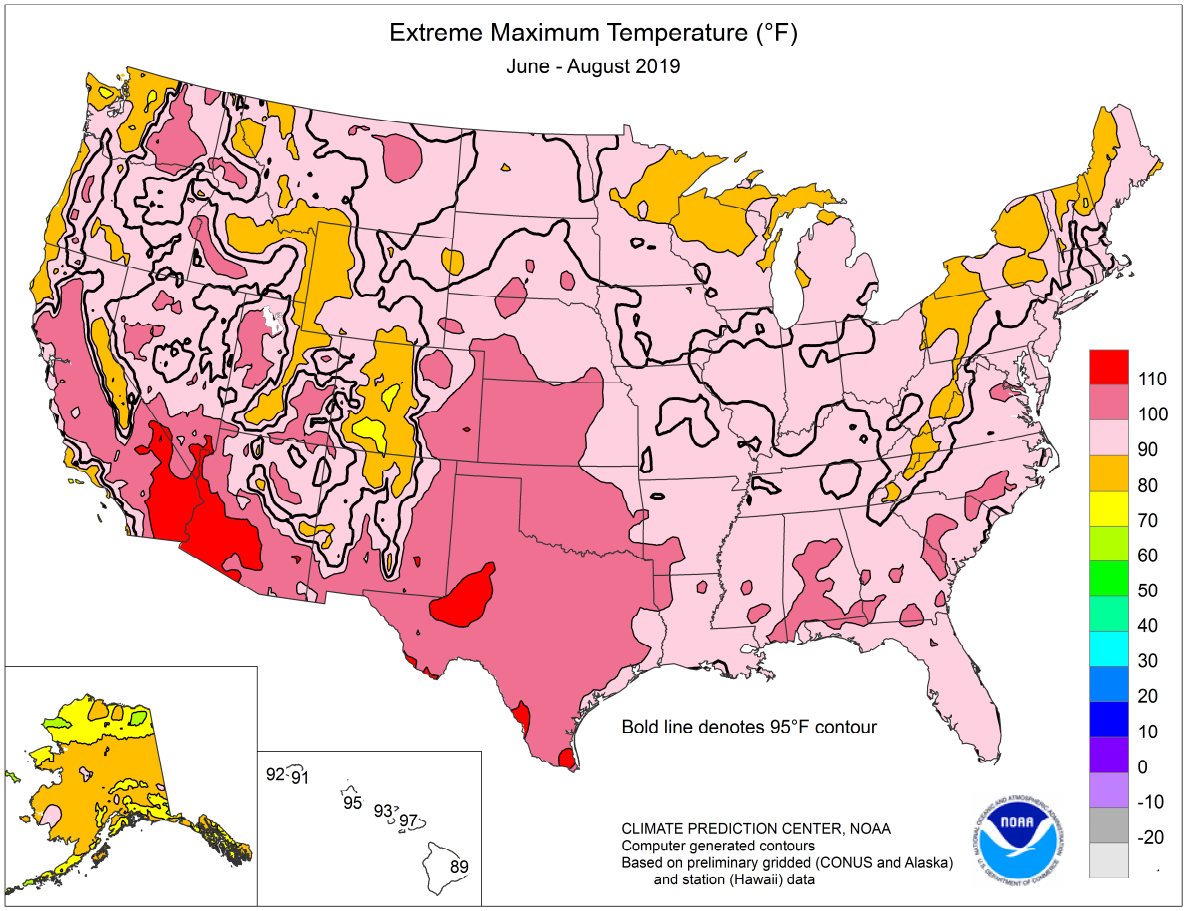
Farther east, variable rainfall in the Midwest left some fields with plenty of moisture and others—mainly in the central and eastern Corn Belt—with patchy drought. In areas where planting occurred very late and root systems were poorly developed, some corn and soybeans experienced stress, despite an absence of extreme heat. By September 1, Michigan led the Midwest with topsoil moisture rated 45 percent very short to short.

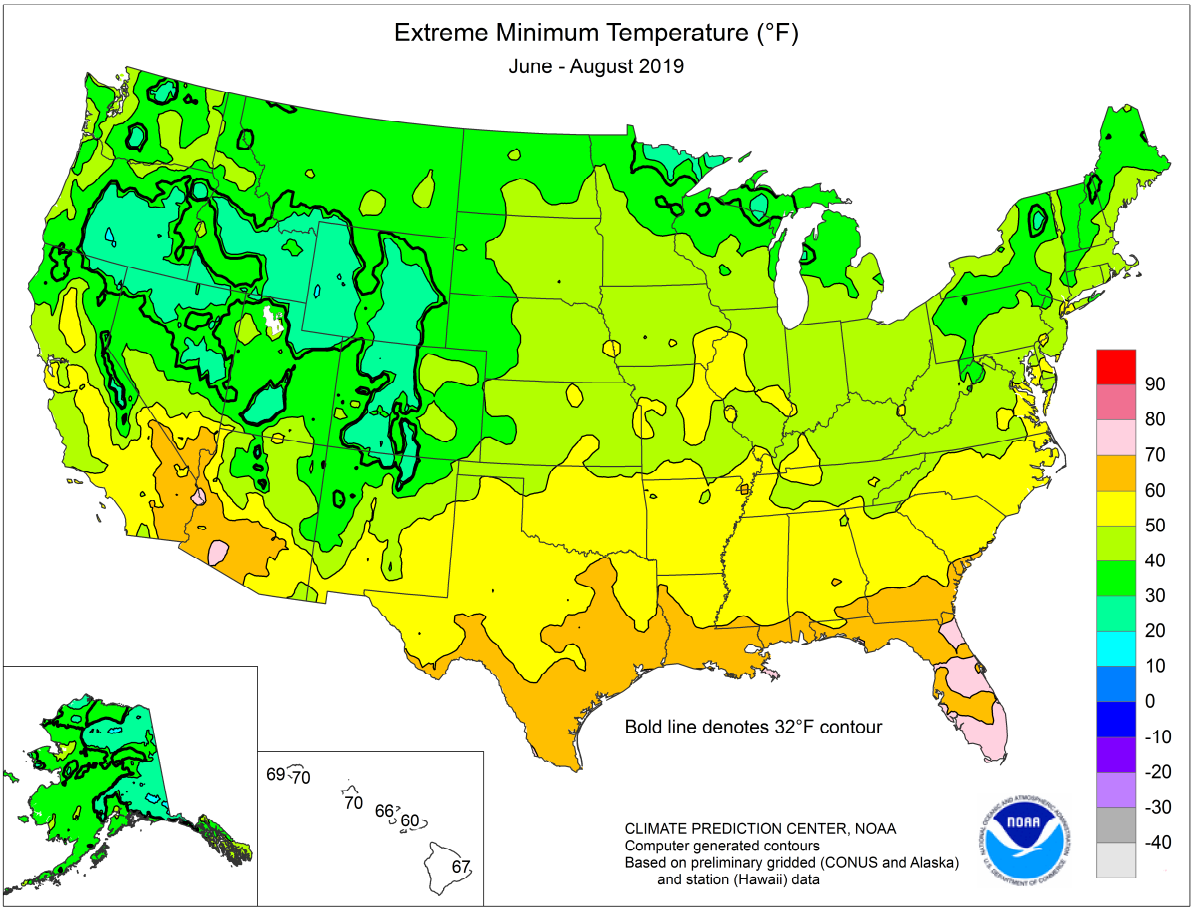
U.S. soybean development was the slowest on record going back to 1995, with just 86 percent of the crop setting pods by September 1. The previous record of 92 percent had been set in 2013. Similarly, the U.S. corn crop was 41 percent dented by September 1, the third-slowest pace of development since the mid-1990s. Slower progress had occurred in 1996, with 33 percent dented on that date, and 2009, with 37 percent.

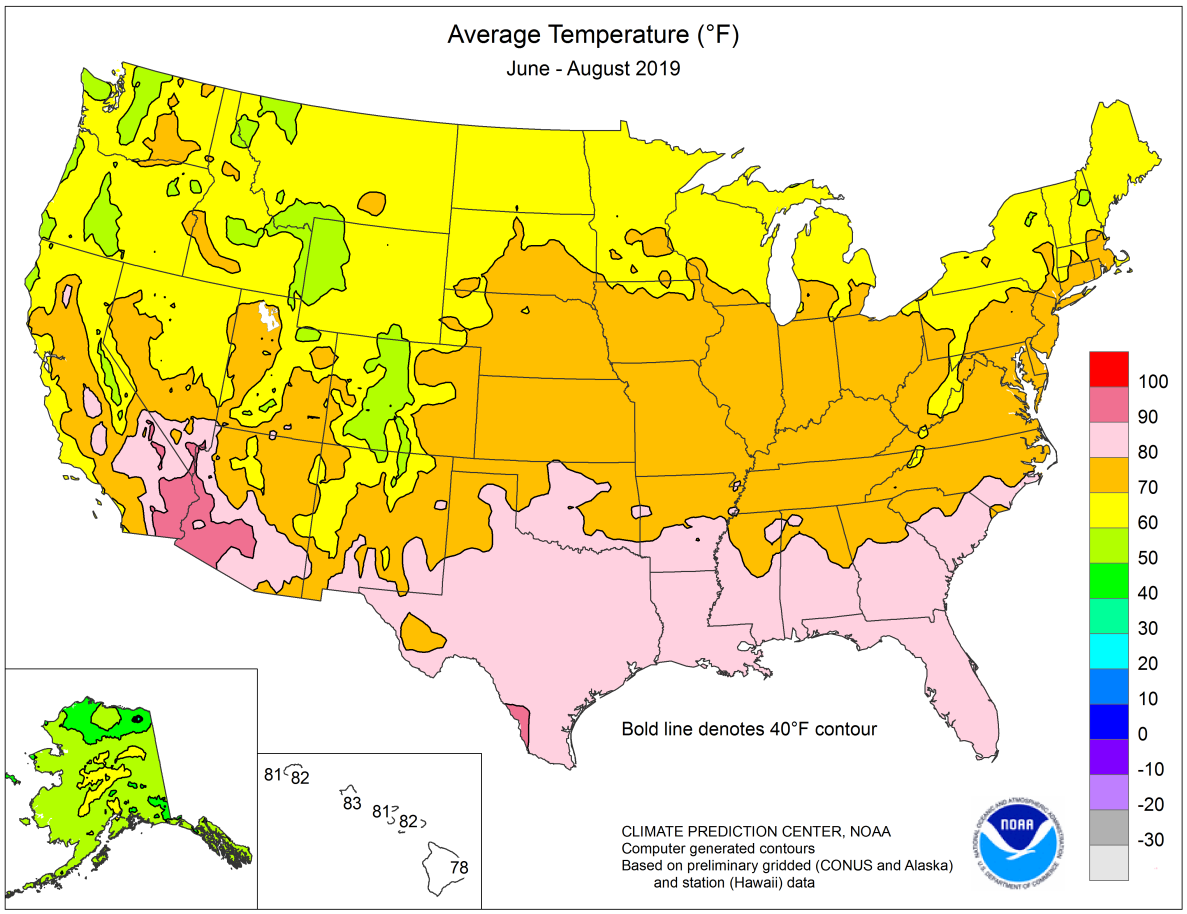
Elsewhere, growing conditions during August were mostly favorable for Southern crops, despite pockets of drought. On September 1, good to excellent crop ratings were reported for more than two-thirds of the U.S. rice (70 percent) and peanuts (67 percent). On the same date, however, topsoil moisture was rated at least 40 percent very short to short in Arkansas, Kentucky, and the Atlantic Coast States from Georgia to Delaware.

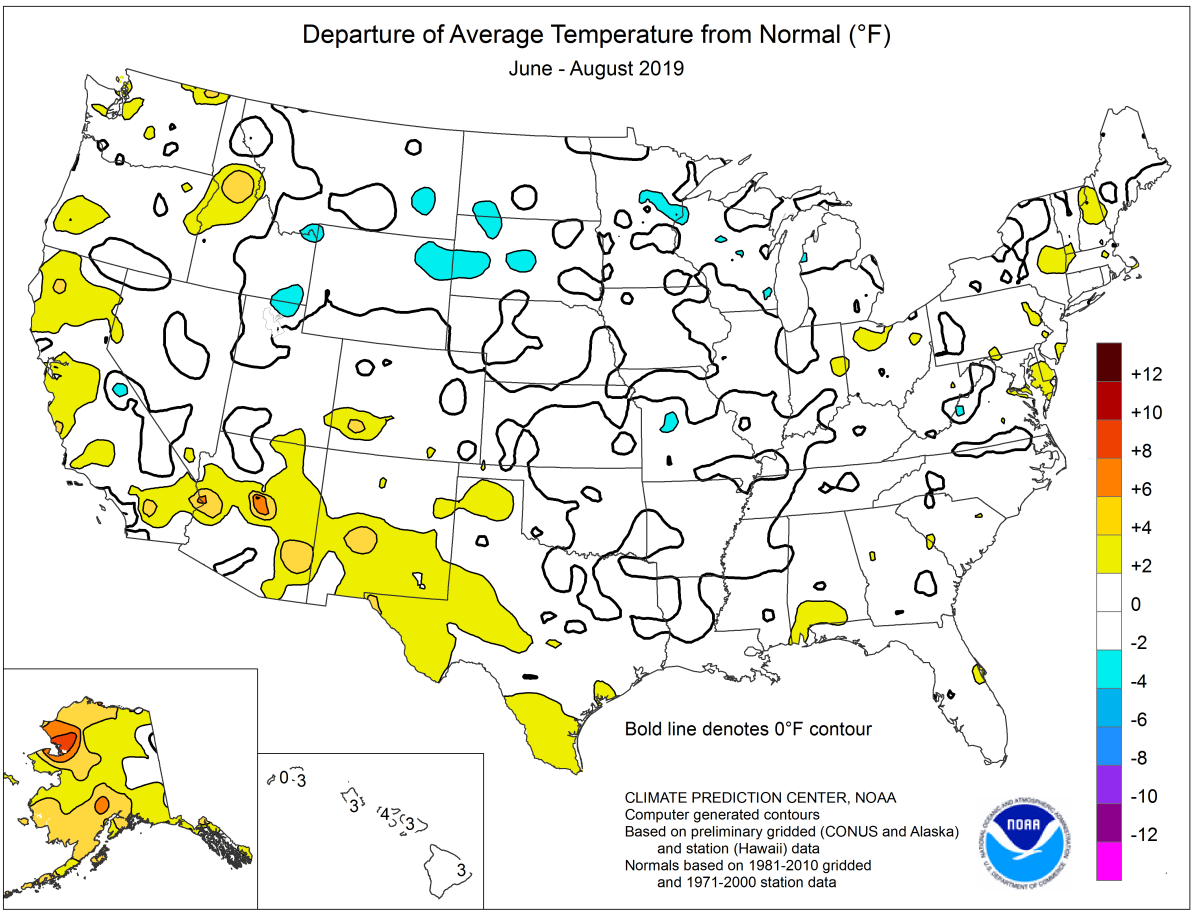

Total Precipitation (inches)
June - August 2019
80
60
50
40
30
25
20
16
12
8
4
2
1
5
4.7
8
8
5.6
0.3
6.5
5.5
6.1
1.6
0.9
4
2.6
4
9.9
4.1
4.9
3
6.9
4.7
6.9
5.6
9.5
6
5
0.5
23.4
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data
NOAA


Percent of Normal Precipitation
June - August 2019
400
200
150
125
100
75
50
25
225
118
98
154
5
90
99
99
77
16
29
86
39
55
55
39
35
59
99
51
50
78
163
44
38
84
Bold line denotes 100% contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data
Normals based on 1998-2017 gridded
and 1971-2000 station data
NOAA


Extreme Maximum Temperature (°F)
June - August 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
92
91
95
93
97
89
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (°F)
June - August 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
69
70
70
66
60
67
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Average Temperature (°F)
June - August 2019
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
81
82
83
81
82
78
Bold line denotes 40°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Departure of Average Temperature from Normal (°F)
June - August 2019
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
0
3
3
4
3
3
Bold line denotes 0°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
Normals based on 1981-2010 gridded
and 1971-2000 station data
NOAA

National Weather Data for Selected Cities

Summer 2019

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, °F AVERAGE	TEMP, °F DEPARTURE	PRECIP. TOTAL	PRECIP. DEPARTURE
AL BIRMINGHAM	81	2	12.33	-0.02
HUNTSVILLE	80	2	10.11	-1.83
MOBILE	83	2	23.59	5.84
MONTGOMERY	82	1	13.40	0.33
AK ANCHORAGE	63	6	0.90	-4.79
BARROW	43	5	5.02	2.79
COLD BAY	54	5	6.91	-2.10
FAIRBANKS	62	3	8.02	3.15
JUNEAU	59	3	10.51	-2.36
KING SALMON	58	4	3.54	-3.20
KODIAK	59	6	6.94	-7.04
NOME	52	2	10.07	3.55
AZ FLAGSTAFF	64	0	1.13	-4.59
PHOENIX	95	4	0.41	-1.61
TUCSON	88	3	2.66	-1.95
AR FORT SMITH	81	1	23.18	13.15
LITTLE ROCK	80	-1	12.61	2.42
CA BAKERSFIELD	84	3	0.23	0.03
EUREKA	59	1	0.46	-0.73
FRESNO	83	4	0.00	-0.25
LOS ANGELES	69	0	0.05	-0.20
REDDING	82	3	1.01	0.05
SACRAMENTO	76	2	0.00	-0.31
SAN DIEGO	69	-1	0.01	-0.20
SAN FRANCISCO	66	3	0.00	-0.21
STOCKTON	78	2	0.00	-0.19
CO ALAMOSA	63	1	1.57	-1.15
CO SPRINGS	70	3	4.05	-4.62
DENVER	72	2	5.24	-0.44
GRAND JUNCTION	76	2	1.03	-0.88
PUEBLO	75	2	6.32	0.68
CT BRIDGEPORT	74	2	13.80	2.71
HARTFORD	73	2	8.67	-2.83
DC WASHINGTON	79	2	12.75	2.52
DE WILMINGTON	76	2	16.85	5.47
FL DAYTONA BEACH	82	1	24.49	7.54
FT LAUDERDALE	84	2	24.58	0.99
FT MYERS	83	0	29.39	1.10
JACKSONVILLE	83	2	19.10	0.89
KEY WEST	85	1	8.08	-5.16
MELBOURNE	83	2	19.56	2.57
MIAMI	85	2	38.48	15.52
ORLANDO	83	1	22.30	1.55
PENSACOLA	84	2	24.72	3.46
ST PETERSBURG	83	0	32.48	11.41
TALLAHASSEE	83	1	18.07	-3.92
TAMPA	84	2	30.67	11.08
WEST PALM BEACH	84	2	21.72	1.52
GA ATHENS	80	2	17.78	5.65
ATLANTA	81	2	10.41	-2.01
AUGUSTA	82	3	22.76	10.02
COLUMBUS	82	1	13.89	1.56
MACON	82	2	13.89	2.24
SAVANNAH	83	2	19.13	0.40
HI HILO	78	2	23.44	-4.41
HONOLULU	83	2	6.00	4.61
KAHULUI	82	3	0.48	-0.77
LIHUE	82	3	9.53	3.68
ID BOISE	74	2	0.14	-1.29
LEWISTON	73	2	1.34	-1.29
POCATELLO	67	0	0.78	-1.49
IL CHICAGO/O'HARE	73	2	10.62	-1.14
MOLINE	75	2	9.62	-3.45
PEORIA	74	1	10.92	-0.10
ROCKFORD	73	2	11.55	-1.56
SPRINGFIELD	74	0	11.99	1.28
IN EVANSVILLE	76	-1	16.26	5.27
FORT WAYNE	73	2	10.41	-0.81
INDIANAPOLIS	74	0	14.56	2.19
SOUTH BEND	71	0	10.06	-1.84
IA BURLINGTON	74	0	9.23	-3.56
CEDAR RAPIDS	71	-1	11.47	-1.29
DES MOINES	74	0	16.42	3.16
DUBUQUE	70	0	13.87	1.47
SIOUX CITY	72	0	10.87	1.06
WATERLOO	72	0	13.66	0.56
KS CONCORDIA	77	0	14.26	2.87
DODGE CITY	78	0	7.93	-1.12
GOODLAND	73	0	13.19	3.86
HILL CITY	76	0	13.77	3.83
TOPEKA	77	1	21.81	9.29
WICHITA	79	0	15.07	4.57
KY JACKSON	74	1	16.23	2.84
LEXINGTON	76	2	13.15	0.00
LONDON-CORBIN	74	0	18.03	6.04
LOUISVILLE	79	2	12.41	0.94
PADUCAH	78	2	17.27	5.32
LA BATON ROUGE	83	2	22.36	5.21
LAKE CHARLES	83	1	23.78	7.74
NEW ORLEANS	85	3	19.74	0.56
SHREVEPORT	82	0	9.67	-2.08
ME BANGOR	67	0	16.83	7.19
CARIBOU	65	2	7.91	-3.44
PORTLAND	68	2	12.84	3.19
MD BALTIMORE	78	4	9.19	-1.83
MA BOSTON	74	3	12.17	2.52
WORCESTER	69	1	11.99	-0.31
MI ALPENA	65	1	7.43	-1.77
DETROIT	73	1	9.63	-0.18
FLINT	70	2	10.90	1.23
GRAND RAPIDS	71	2	11.70	0.69
HOUGHTON LAKE	65	0	9.27	-0.13
LANSING	70	2	11.75	2.01
MUSKEGON	70	2	8.20	-0.47
TRAVERSE CITY	67	0	8.96	-0.89
MN DULUTH	66	3	9.24	-3.43
INT'L FALLS	63	-1	11.99	1.50
MINNEAPOLIS	72	1	16.49	4.06
ROCHESTER	68	0	18.01	5.07
ST. CLOUD	68	1	13.59	1.81
MS JACKSON	81	1	13.39	1.22
MERIDIAN	82	1	12.55	-0.23
TUPELO	81	2	19.72	8.58
MO COLUMBIA	76	1	15.56	3.99
JOPLIN	77	-1	20.74	7.95
KANSAS CITY	76	0	18.77	6.37
SPRINGFIELD	76	0	12.84	0.89
ST JOSEPH	76	0	16.13	4.23
ST LOUIS	78	0	16.71	6.07
MT BILLINGS	72	3	7.41	3.39
BUTTE	61	1	3.83	-1.07
GLASGOW	69	1	8.98	3.75
GREAT FALLS	64	0	4.27	-1.07
HELENA	67	2	4.86	0.41
KALISPELL	63	1	4.50	-0.46
MILES CITY	69	-2	9.70	4.51
MISSOULA	66	1	2.54	-1.43
NE GRAND ISLAND	74	1	20.58	10.64
HASTINGS	74	0	15.34	4.76
LINCOLN	75	0	11.26	0.86
MCCOOK	74	0	13.41	4.09
NORFOLK	72	-1	11.27	0.48
NORTH PLATTE	72	0	15.81	7.32
OMAHA/EPPLEY	76	2	11.98	0.96
SCOTTSBLUFF	71	1	11.67	5.70
VALENTINE	73	2	14.78	6.20
NV ELKO	69	3	0.23	-1.10
ELY	65	1	0.72	-1.45
LAS VEGAS	92	3	0.04	-0.93
RENO	75	6	0.25	-0.73
WINNEMUCCA	69	0	0.39	-0.92
NH CONCORD	68	0	12.62	2.94
NJ ATLANTIC CITY	76	3	10.56	-0.28
NEWARK	76	1	18.77	6.67
NM ALBUQUERQUE	78	2	2.42	-1.23
NY ALBANY	72	3	13.76	2.87
BINGHAMTON	67	1	12.07	1.43
BUFFALO	70	1	10.06	-0.77
ROCHESTER	70	1	8.22	-1.61
SYRACUSE	70	1	13.49	2.20
NC ASHEVILLE	74	3	14.57	2.02
CHARLOTTE	79	0	17.67	6.74
GREENSBORO	77	1	17.82	6.14
HATTERAS	80	2	11.95	-3.38
RALEIGH	78	1	11.96	0.47
WILMINGTON	81	2	14.68	-5.61
ND BISMARCK	69	1	11.80	4.48
DICKINSON	66	-1	8.57	1.64
FARGO	69	0	12.96	4.05
GRAND FORKS	67	0	8.83	0.02
JAMESTOWN	67	-1	13.07	4.47
MINOT	68	1	9.57	1.77
WILLISTON	67	0	8.86	2.74
OH AKRON-CANTON	73	3	16.91	5.69
CINCINNATI	75	1	16.40	4.44
CLEVELAND	73	3	13.93	2.83
COLUMBUS	74	1	13.56	1.16
DAYTON	74	2	10.74	-0.71
MANSFIELD	72	3	18.14	4.80
TOLEDO	74	3	15.72	5.93
YOUNGSTOWN	71	3	18.50	7.06
OK OKLAHOMA CITY	79	-1	14.31	4.26
TULSA	80	-1	16.91	6.38
OR ASTORIA	61	2	3.67	-1.27
BURNS	65	2	1.37	-0.14
EUGENE	67	3	1.14	-2.02
MEDFORD	73	3	0.89	-0.62
PENDLETON	70	0	0.47	-1.28
PORTLAND	69	2	2.48	-0.76
SALEM	67	2	1.17	-1.53
PA ALLENTOWN	74	3	20.11	7.50
ERIE	71	1	12.26	0.49
MIDDLETOWN	76	2	10.52	-0.23
PHILADELPHIA	77	2	16.63	5.13
PITTSBURGH	72	1	15.80	4.34
WILKES-BARRE	72	2	18.89	8.08
WILLIAMSPORT	72	2	16.26	4.35
PR SAN JUAN	84	2	14.41	1.51
RI PROVIDENCE	73	2	10.50	0.05
SC CHARLESTON	81	1	22.19	3.23
COLUMBIA	81	1	13.93	-2.01
FLORENCE	82	2	15.89	1.01
GREENVILLE	78	1	15.26	2.61
MYRTLE BEACH	80	1	11.45	-2.98
SD ABERDEEN	70	0	11.28	2.45
HURON	71	0	18.35	10.14
RAPID CITY	67	-2	12.37	5.90
SIOUX FALLS	72	2	12.50	3.07
TN BRISTOL	74	1	15.13	4.03
CHATTANOOGA	80	2	11.05	-1.26
JACKSON	78	-1	17.60	4.79
KNOXVILLE	77	1	16.03	4.39
MEMPHIS	80	-1	21.53	10.01
NASHVILLE	80	3	17.59	6.46
TX ABILENE	84	2	4.64	-2.74
AMARILLO	78	2	9.28	0.38
AUSTIN	85	2	6.97	-1.12
BEAUMONT	84	2	29.91	13.25
BROWNSVILLE	88	4	8.02	0.33
COLLEGE STATION	85	1	8.31	-0.03
CORPUS CHRISTI	86	3	3.37	-5.70
DALLAS/FT WORTH	84	1	7.36	-0.02
DEL RIO	87	3	7.85	1.90
EL PASO	86	4	2.04	-2.07
GALVESTON	85	1	10.81	-0.90
HOUSTON	85	2	12.10	-0.26
LUBBOCK	81	3	8.71	1.25
MIDLAND	84	3	3.38	-1.99
SAN ANGELO	84	3	4.86	-0.81
SAN ANTONIO	85	2	5.96	-2.94
VICTORIA	85	2	5.84	-5.07
WACO	84	0	8.19	1.03
WICHITA FALLS	82	-1	6.06	-1.59
UT SALT LAKE CITY	78	4	1.05	-1.20
VT BURLINGTON	70	2	9.60	-1.81
VA LYNCHBURG	76	3	11.37	-0.22
NORFOLK	80	3	16.89	3.16
RICHMOND	79	3	13.66	1.27
ROANOKE	76	2	13.75	2.33
WASH/DULLES	76	2	9.97	-1.45
WA OLYMPIA	63	1	2.20	-1.50
QUILLAYUTE	60	2	5.65	-2.86
SEATTLE-TACOMA	67	3	3.26	-0.04
SPOKANE	69	3	1.44	-1.18
YAKIMA	70	3	0.89	-0.31
WV BECKLEY	70	1	12.37	0.22
CHARLESTON	75	3	11.43	-1.63
ELKINS	70	2	18.03	4.33
HUNTINGTON	75	1	15.63	3.41
WI EAU CLAIRE	68	-1	12.20	-0.69
GREEN BAY	69	1	13.77	3.13
LA CROSSE	73	1	13.55	1.02
MADISON	70	1	13.80	1.49
MILWAUKEE	70	0	11.12	-0.05
WAUSAU	67	-1	13.99	1.16
WY CASPER	67	0	4.67	1.22
CHEYENNE	67	2	7.58	1.38
LANDER	67	-1	2.19	-0.37
SHERIDAN	67	1	5.28	1.35

Based on 1971-2000 normals

***** Not Available**

National Agricultural Summary

September 16 – 22, 2019

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

The majority of the nation was dry. However, parts of the Corn Belt, Louisiana, Texas, Oklahoma, and the Pacific Northwest received 3 inches or more of rain. Temperatures were more than 6°F above normal in parts of the Great Lakes, Great Plains, and Mississippi Valley. In contrast, temperatures were 3°F or more below normal in parts of California, Nevada, Idaho, Utah, New England, and the Pacific Northwest.

Corn: By September 22, ninety-six percent of the corn acreage was at or beyond the dough stage, 4 percentage points behind both last year and the 5-year average. By September 22, seventy-nine percent of this year's acreage was dented, 17 percentage points behind last year and 15 points behind average. All of the estimating states, except Kentucky, North Carolina, and Texas, were behind their average denting pace. Twenty-nine percent of the 2019 corn acreage had matured by September 22, forty percentage points behind last year and 28 points behind average. Seven percent of the acreage was harvested by week's end, 8 percentage points behind last year and 4 points behind average. Harvest progress advanced 7 percentage points or more during the week in five of the 18 estimating states. Overall, 57 percent of the nation's corn was rated in good to excellent condition, 2 percentage points above the previous week but 12 points below the same time last year.

Soybean: Thirty-four percent of the nation's soybean acreage was at or beyond the leaf-dropping stage by September 22, thirty-four percentage points behind last year and 25 points behind the 5-year average. On September 22, fifty-four percent of soybeans were rated in good to excellent condition, unchanged from the previous week but 14 percentage points below the same time last year.

Winter Wheat: Nationwide, producers had sown 22 percent of the intended 2020 winter wheat acreage by September 22, four percentage points behind last year and 2 points behind the 5-year average. Winter wheat planting progress advanced 10 percentage points or more during the week in nine of the 18 estimating states.

Cotton: By September 22, sixty-four percent of the nation's cotton acreage had open bolls, 7 percentage points ahead of both last year and the 5-year average. On that date, 11 percent of the cotton was harvested, 5 percentage points behind last year but unchanged from the average. On September 22, thirty-nine percent of the 2019 cotton was rated in good to excellent condition, 2 percentage points below the previous week but equal to the same time last year.

Sorghum: Ninety percent of nation's sorghum was at or beyond the coloring stage by September 22, three percentage points behind last year but equal to the 5-year average. Sorghum coloring advanced 13 percentage points or more during the week in three of the six estimating states. By September 22, forty-two percent of the sorghum was mature, 7 percentage points behind last year and 11 points behind average. Eighty-nine percent of Texas' sorghum acreage had matured by September 22, seven percentage points ahead of last year and 9 points ahead of average. Twenty-six percent of the 2019 sorghum acreage was harvested by September 22, three percentage points behind last year and 5 points behind average. On September 22, sixty-five percent of the nation's sorghum was rated in good to excellent condition, unchanged from the previous week but 10 percentage points above the same time last year.

Rice: Nationally, 58 percent of the rice acreage was harvested by September 22, five percentage points behind last year and 3 points behind the 5-year average. Rice harvest was nearing completion in Louisiana and Texas—91 and 94 percent complete, respectively.

Small Grains: By September 22, ninety-six percent of the nation's oats had been harvested, 4 percentage points behind last year and 3 points behind the 5-year average. Harvest progress was complete or nearing completion in all estimating states, except Wisconsin.

Ninety-two percent of the nation's barley was harvested by September 22, seven percentage points behind both last year and the 5-year average.

By September 22, eighty-seven percent of the spring wheat acreage was harvested, 12 percentage points behind last year and 10 points behind the 5-year average. Spring wheat harvest progress was complete or nearing completion in all estimating states, except Montana and North Dakota.

Other Crops: Sixteen percent of the nation's peanut acreage was harvested by September 22, seven percentage points ahead of last year and 6 points ahead of the 5-year average. On September 22, sixty-one percent of the peanuts were rated in good to excellent condition, unchanged from the previous week but 10 percentage points below the same time last year.

By September 22, sugarbeet producers had harvested 11 percent of the nation's crop, 4 percentage points behind last year and 2 points behind the 5-year average. Sugarbeet harvest advanced 4 percentage points or more during the week in Idaho and Michigan.

Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Corn Percent Dough

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	98	94	98	99
IL	100	94	97	100
IN	100	90	95	99
IA	100	94	97	100
KS	100	97	98	100
KY	100	95	99	100
MI	98	80	87	97
MN	100	95	98	100
MO	100	100	100	100
NE	100	97	99	100
NC	100	100	100	100
ND	100	92	97	99
OH	100	81	88	100
PA	95	84	89	93
SD	100	93	97	100
TN	100	100	100	100
TX	100	100	100	99
WI	98	78	84	96
18 Sts	100	93	96	100

These 18 States planted 92% of last year's corn acreage.

Corn Percent Dented

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	91	61	77	91
IL	100	67	77	97
IN	97	59	73	93
IA	97	74	82	95
KS	97	88	93	96
KY	96	91	96	95
MI	86	41	53	82
MN	95	59	75	95
MO	100	80	88	99
NE	97	82	91	96
NC	100	97	100	100
ND	95	38	59	89
OH	91	44	58	91
PA	88	74	81	86
SD	98	50	71	92
TN	100	97	98	99
TX	97	97	100	93
WI	90	44	59	84
18 Sts	96	68	79	94

These 18 States planted 92% of last year's corn acreage.

Corn Percent Mature

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	37	5	23	33
IL	84	14	26	71
IN	78	16	26	61
IA	71	8	18	55
KS	78	43	60	72
KY	86	71	82	83
MI	43	3	8	35
MN	63	2	8	44
MO	88	30	54	80
NE	65	19	37	56
NC	96	93	95	96
ND	62	3	5	37
OH	51	8	17	44
PA	52	32	50	50
SD	64	6	12	44
TN	92	84	95	91
TX	81	67	77	77
WI	52	2	8	37
18 Sts	69	18	29	57

These 18 States planted 92% of last year's corn acreage.

Corn Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	1	0	4	2
IL	26	1	2	16
IN	16	1	3	11
IA	5	0	0	3
KS	28	10	19	27
KY	48	26	44	42
MI	4	0	0	2
MN	3	0	0	1
MO	40	8	15	31
NE	8	0	3	6
NC	75	72	81	74
ND	4	0	0	2
OH	5	0	2	4
PA	3	6	12	9
SD	5	0	0	3
TN	57	38	58	54
TX	67	59	65	65
WI	4	0	0	1
18 Sts	15	4	7	11

These 18 States harvested 94% of last year's corn acreage.

Corn Condition by Percent

	VP	P	F	G	EX
CO	0	3	19	65	13
IL	4	14	37	39	6
IN	9	20	40	27	4
IA	2	7	26	53	12
KS	4	10	35	40	11
KY	3	8	23	47	19
MI	5	14	35	34	12
MN	3	9	33	45	10
MO	4	15	38	39	4
NE	3	6	20	55	16
NC	13	17	29	31	10
ND	1	6	22	62	9
OH	7	22	39	29	3
PA	0	5	20	56	19
SD	2	5	27	51	15
TN	1	2	13	56	28
TX	1	9	38	41	11
WI	3	9	25	43	20
18 Sts	3	10	30	46	11
Prev Wk	4	10	31	44	11
Prev Yr	4	8	19	47	22

Oats Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
IA	100	100	100	100
MN	100	97	99	100
NE	100	100	100	100
ND	99	79	90	97
OH	100	100	100	100
PA	95	94	96	96
SD	100	97	99	100
TX	100	100	100	100
WI	99	82	88	98
9 Sts	100	92	96	99

These 9 States harvested 65% of last year's oat acreage.

Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Soybeans Percent Dropping Leaves

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AR	56	30	47	60
IL	73	3	14	56
IN	78	5	26	64
IA	69	5	22	54
KS	46	13	27	41
KY	44	25	41	38
LA	90	71	81	86
MI	59	17	35	56
MN	79	14	36	65
MS	78	50	64	75
MO	38	2	12	31
NE	81	22	55	69
NC	38	32	45	35
ND	90	42	67	83
OH	65	5	27	60
SD	81	9	30	73
TN	57	39	57	53
WI	60	6	24	48
18 Sts	68	15	34	59

These 18 States planted 95% of last year's soybean acreage.

Soybean Condition by Percent

	VP	P	F	G	EX
AR	3	11	28	40	18
IL	4	14	39	36	7
IN	9	20	40	27	4
IA	2	7	29	51	11
KS	3	7	34	48	8
KY	5	12	26	51	6
LA	2	6	26	61	5
MI	3	11	42	35	9
MN	2	8	35	49	6
MS	0	3	30	50	17
MO	4	10	35	45	6
NE	1	5	20	62	12
NC	7	16	32	38	7
ND	1	8	30	54	7
OH	6	21	40	30	3
SD	2	6	31	48	13
TN	2	8	31	49	10
WI	1	6	25	45	23
18 Sts	3	10	33	45	9
Prev Wk	4	10	32	45	9
Prev Yr	3	7	22	49	19

Rice Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AR	67	44	61	65
CA	14	5	10	12
LA	96	88	91	95
MS	81	51	64	67
MO	42	22	44	42
TX	97	92	94	97
6 Sts	63	46	58	61

These 6 States harvested 100% of last year's rice acreage.

Sugarbeets Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
ID	22	3	10	20
MI	26	4	8	15
MN	11	9	11	11
ND	13	11	13	11
4 Sts	15	8	11	13

These 4 States harvested 84% of last year's sugarbeet acreage.

Cotton Percent Bolls Opening

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AL	76	70	81	72
AZ	95	90	97	85
AR	95	85	91	84
CA	12	25	50	56
GA	67	70	81	77
KS	50	17	27	37
LA	98	77	90	96
MS	88	60	77	81
MO	89	48	58	66
NC	69	61	76	69
OK	55	47	53	53
SC	48	71	83	67
TN	91	47	69	70
TX	44	47	56	45
VA	56	56	74	56
15 Sts	57	54	64	57

These 15 States planted 99% of last year's cotton acreage.

Cotton Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AL	2	1	4	3
AZ	18	5	10	13
AR	16	4	10	6
CA	0	0	0	0
GA	2	4	10	4
KS	0	0	0	2
LA	33	9	19	21
MS	17	0	7	9
MO	8	0	5	2
NC	2	1	2	2
OK	1	0	0	0
SC	5	0	3	4
TN	9	0	6	4
TX	23	15	16	17
VA	0	0	0	0
15 Sts	16	9	11	11

These 15 States harvested 99% of last year's cotton acreage.

Cotton Condition by Percent

	VP	P	F	G	EX
AL	1	9	38	44	8
AZ	0	7	35	48	10
AR	0	5	13	43	39
CA	0	0	50	30	20
GA	3	9	30	49	9
KS	2	10	42	41	5
LA	0	2	33	57	8
MS	0	5	37	43	15
MO	7	12	52	29	0
NC	6	21	31	34	8
OK	2	11	51	35	1
SC	1	8	32	55	4
TN	4	7	29	46	14
TX	3	22	47	24	4
VA	0	9	20	64	7
15 Sts	3	16	42	32	7
Prev Wk	3	14	42	34	7
Prev Yr	7	22	32	29	10

Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Sorghum Percent Coloring

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	94	58	87	86
KS	92	73	85	90
NE	94	84	93	96
OK	84	68	87	89
SD	84	65	78	88
TX	97	97	100	92
6 Sts	93	79	90	90

These 6 States planted 97% of last year's sorghum acreage.

Sorghum Percent Mature

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	25	12	29	29
KS	30	9	21	34
NE	45	6	22	43
OK	47	35	38	55
SD	23	5	15	31
TX	82	87	89	80
6 Sts	49	34	42	53

These 6 States planted 97% of last year's sorghum acreage.

Sorghum Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
CO	1	0	0	1
KS	6	1	2	6
NE	5	0	0	5
OK	19	6	10	24
SD	1	0	2	3
TX	73	79	83	67
6 Sts	29	24	26	31

These 6 States harvested 98% of last year's sorghum acreage.

Sorghum Condition by Percent

	VP	P	F	G	EX
CO	1	2	25	62	10
KS	2	8	27	53	10
NE	3	4	14	69	10
OK	0	5	26	65	4
SD	1	2	23	67	7
TX	1	5	29	40	25
6 Sts	2	6	27	51	14
Prev Wk	1	6	28	51	14
Prev Yr	5	11	29	45	10

Peanuts Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AL	3	6	15	8
FL	27	15	37	26
GA	10	5	14	10
NC	0	1	7	3
OK	0	0	0	1
SC	4	3	10	11
TX	1	0	0	4
VA	9	2	17	4
8 Sts	9	5	16	10

These 8 States harvested 96% of last year's peanut acreage.

Peanut Condition by Percent

	VP	P	F	G	EX
AL	0	4	43	49	4
FL	3	8	36	51	2
GA	1	10	27	53	9
NC	4	6	28	46	16
OK	0	0	13	76	11
SC	1	3	32	58	6
TX	0	3	35	62	0
VA	0	9	14	72	5
8 Sts	1	7	31	54	7
Prev Wk	2	7	30	55	6
Prev Yr	1	5	23	58	13

Winter Wheat Percent Planted

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
AR	1	1	2	2
CA	11	0	5	4
CO	44	21	43	44
ID	38	13	27	32
IL	2	0	1	1
IN	8	0	2	5
KS	19	6	15	16
MI	6	3	10	9
MO	3	0	1	3
MT	7	5	15	32
NE	49	19	51	53
NC	0	0	0	0
OH	3	1	11	4
OK	25	7	21	22
OR	19	14	21	16
SD	50	5	24	45
TX	28	4	23	24
WA	62	30	47	56
18 Sts	26	8	22	24

These 18 States planted 90% of last year's winter wheat acreage.

Spring Wheat Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
ID	100	89	95	100
MN	100	83	94	98
MT	97	69	80	95
ND	99	73	85	95
SD	100	96	99	99
WA	99	87	91	100
6 Sts	99	76	87	97

These 6 States harvested 99% of last year's spring wheat acreage.

Barley Percent Harvested

	Prev Year	Prev Week	Sep 22 2019	5-Yr Avg
ID	100	94	98	99
MN	100	98	99	99
MT	95	80	85	97
ND	99	88	94	97
WA	97	70	84	99
5 Sts	99	87	92	99

These 5 States harvested 83% of last year's barley acreage.

Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Pasture and Range Condition by Percent
Week Ending Sep 22, 2019

	VP	P	F	G	EX			VP	P	F	G	EX
AL	6	32	42	19	1		NH	8	6	31	46	9
AZ	17	35	34	14	0		NJ	13	17	14	56	0
AR	1	13	37	41	8		NM	12	23	36	12	17
CA	25	25	10	40	0		NY	2	17	27	30	24
CO	4	7	25	57	7		NC	14	33	34	18	1
CT	0	0	100	0	0		ND	3	6	19	61	11
DE	3	23	37	29	8		OH	5	23	42	28	2
FL	1	8	30	48	13		OK	3	6	33	54	4
GA	10	31	35	22	2		OR	8	24	36	25	7
ID	1	7	34	45	13		PA	0	19	40	36	5
IL	4	20	44	29	3		RI	0	15	60	25	0
IN	14	27	38	19	2		SC	12	32	38	17	1
IA	4	12	41	38	5		SD	2	4	19	52	23
KS	1	5	25	61	8		TN	10	30	41	18	1
KY	24	30	32	14	0		TX	15	32	34	18	1
LA	4	10	41	41	4		UT	3	9	33	50	5
ME	0	9	54	37	0		VT	0	34	34	32	0
MD	4	23	40	30	3		VA	25	41	24	10	0
MA	0	15	35	50	0		WA	8	19	34	38	1
MI	4	20	31	40	5		WV	2	36	22	37	3
MN	3	10	27	51	9		WI	2	8	28	46	16
MS	2	15	45	33	5		WY	3	11	53	29	4
MO	1	7	26	57	9		48 Sts	7	17	31	38	7
MT	2	7	32	49	10							
NE	1	3	20	61	15		Prev Wk	6	16	31	39	8
NV	5	10	20	65	0		Prev Yr	9	15	31	38	7

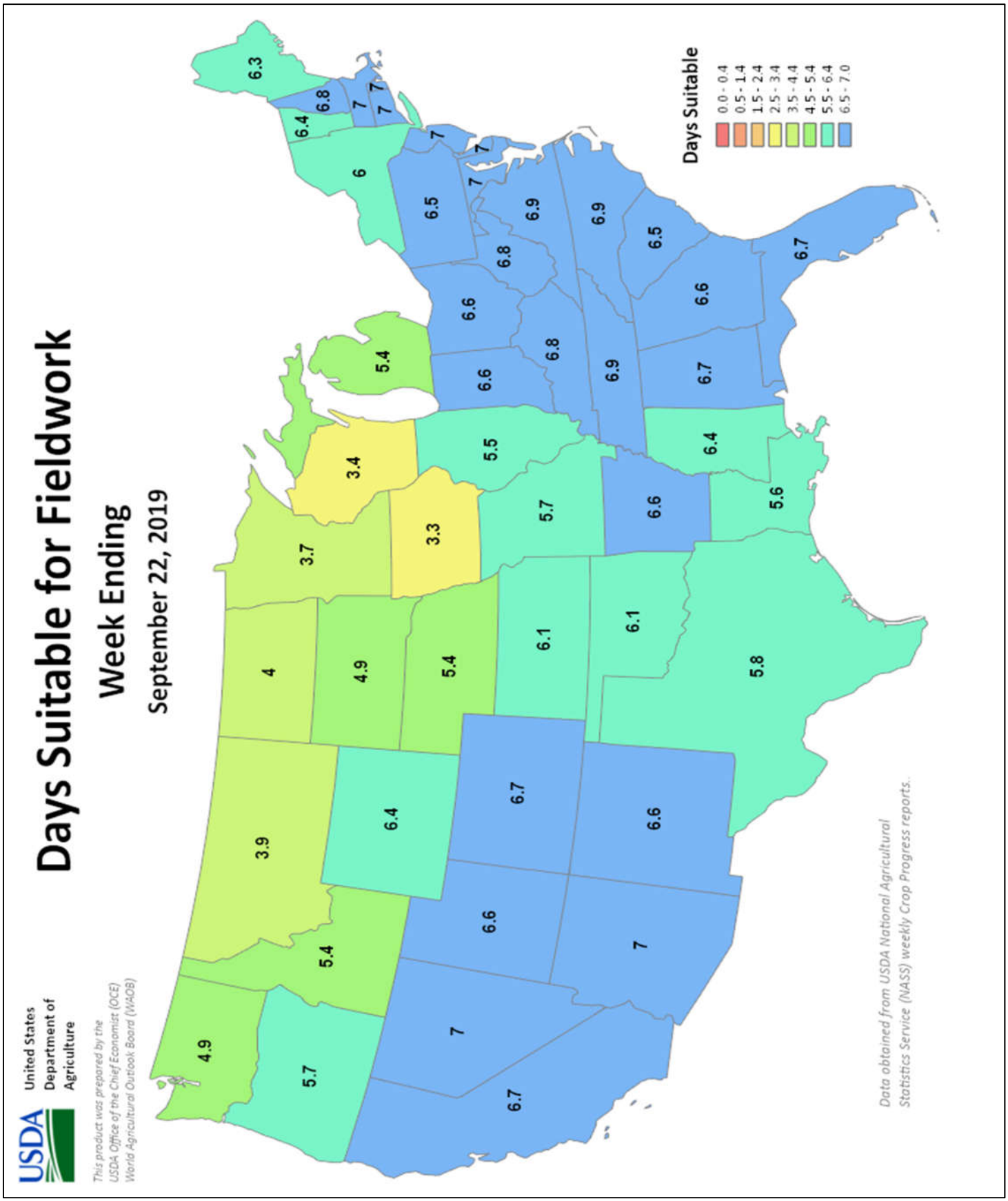
VP - Very Poor; P - Poor;
F - Fair;
G - Good; EX - Excellent

NA - Not Available
*** Revised**

Crop Progress and Condition

Week Ending September 22, 2019

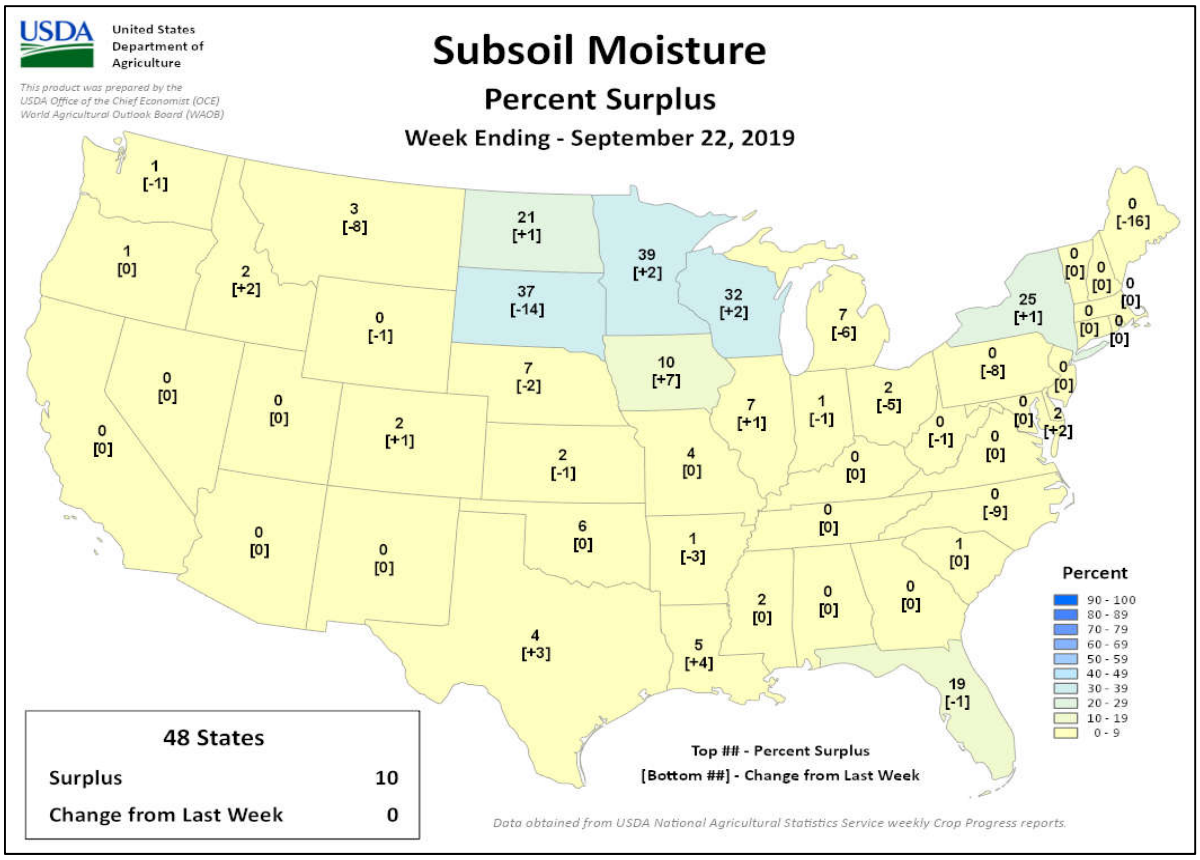
Weekly U.S. Progress and Condition Data provided by USDA/NASS

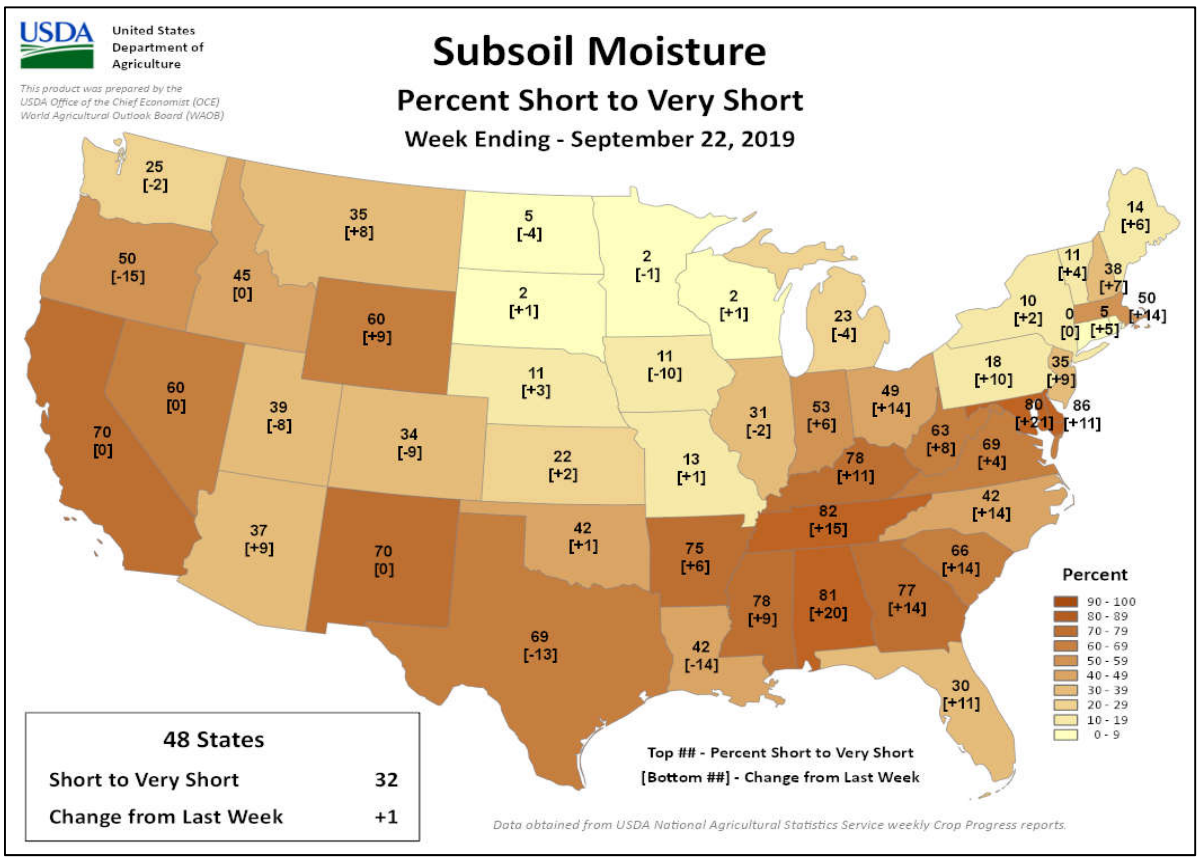


Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

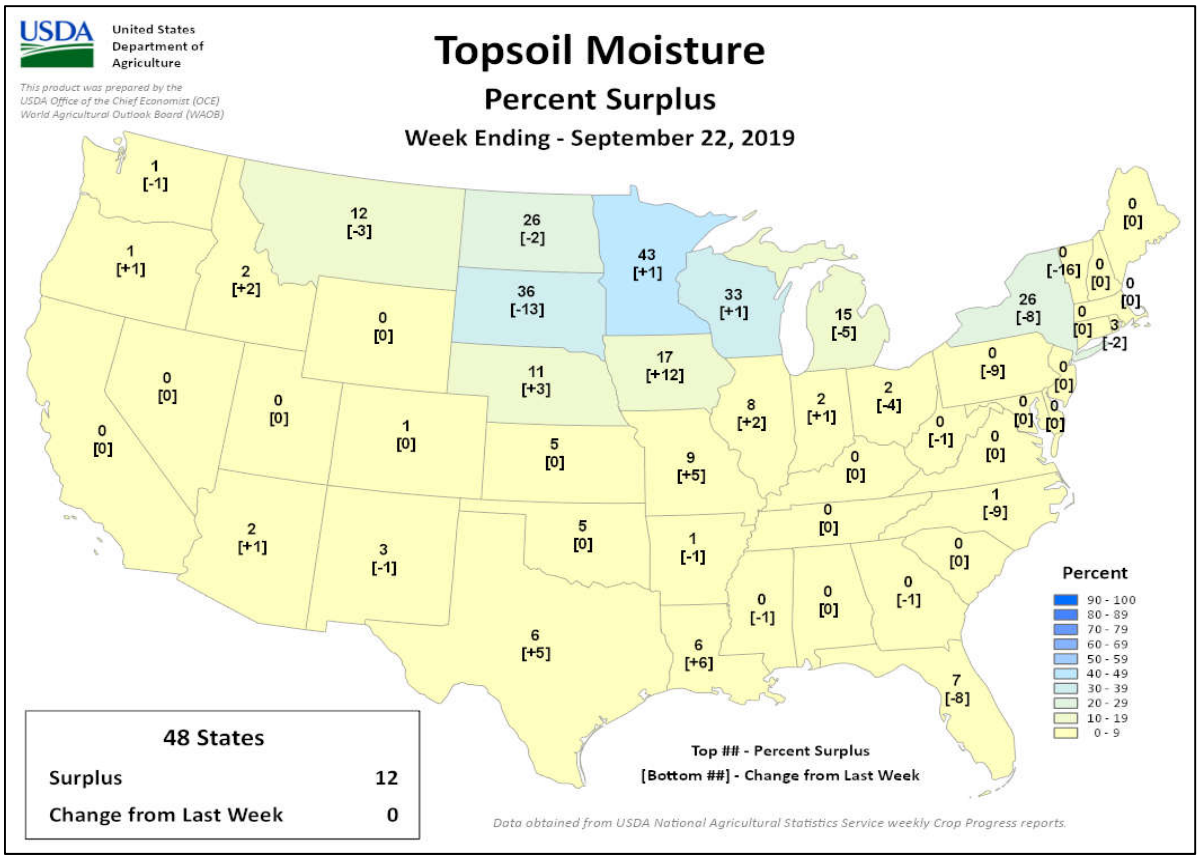


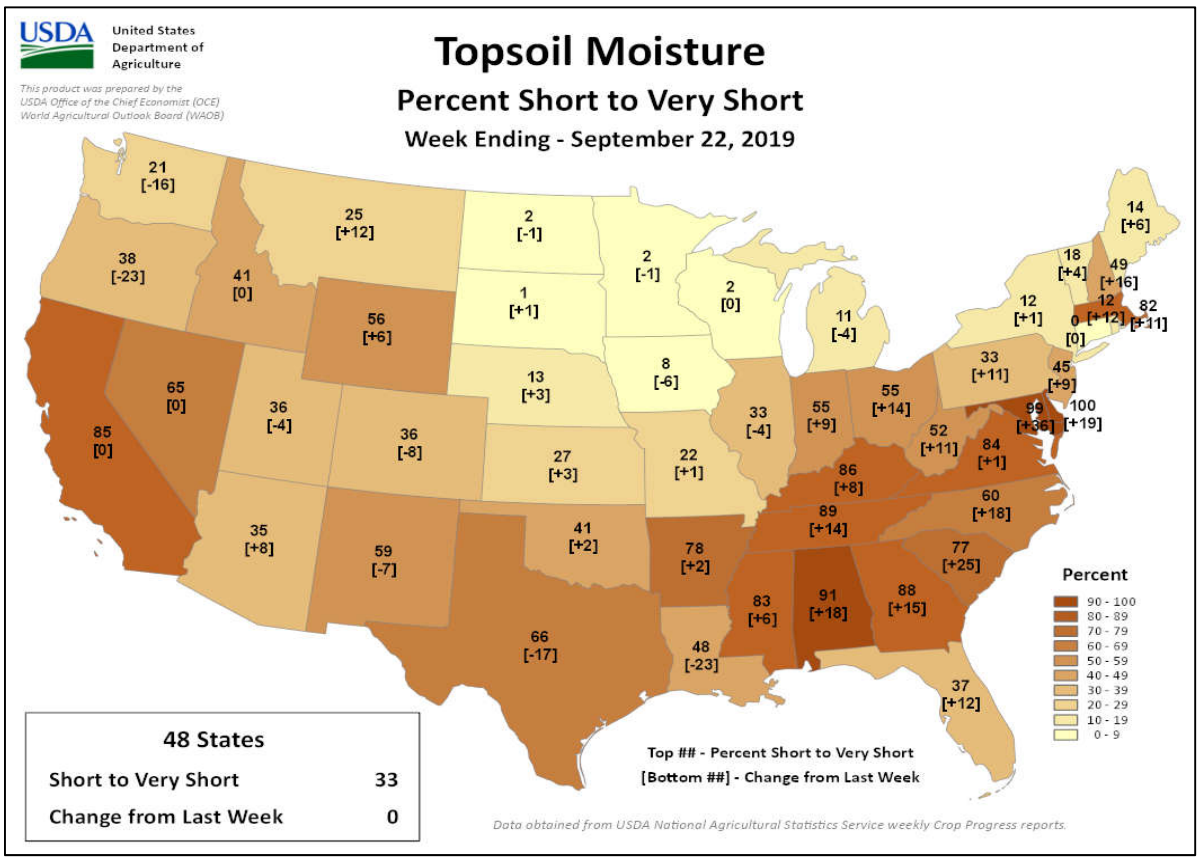


Crop Progress and Condition

Week Ending September 22, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS





International Weather and Crop Summary

September 15-21, 2019

International Weather and Crop Highlights and Summaries provided by USDA/WAOB

HIGHLIGHTS

EUROPE: Drought continued to intensify across northwestern and southeastern Europe.

WESTERN FSU: Mostly dry, warm weather heightened drought concerns in Ukraine, while showers improved moisture for winter wheat in western Russia.

MIDDLE EAST: Mostly sunny skies benefited summer crop drydown and harvesting in Turkey.

SOUTH ASIA: Wet weather throughout much of India maintained good moisture conditions for kharif crops.

EASTERN ASIA: Timely dryness promoted maturation of summer crops across eastern China.

SOUTHEAST ASIA: Seasonal showers throughout the northern half of the region maintained good moisture supplies for reproductive rice.

AUSTRALIA: Soaking rain benefited reproductive winter grains and oilseeds in South Australia, while many other areas would welcome additional rainfall.

ARGENTINA: Moisture remained limited for winter grains in western production areas.

BRAZIL: Showers increased moisture for summer crops in the southeast, but warmth and dryness continued in central farming areas.

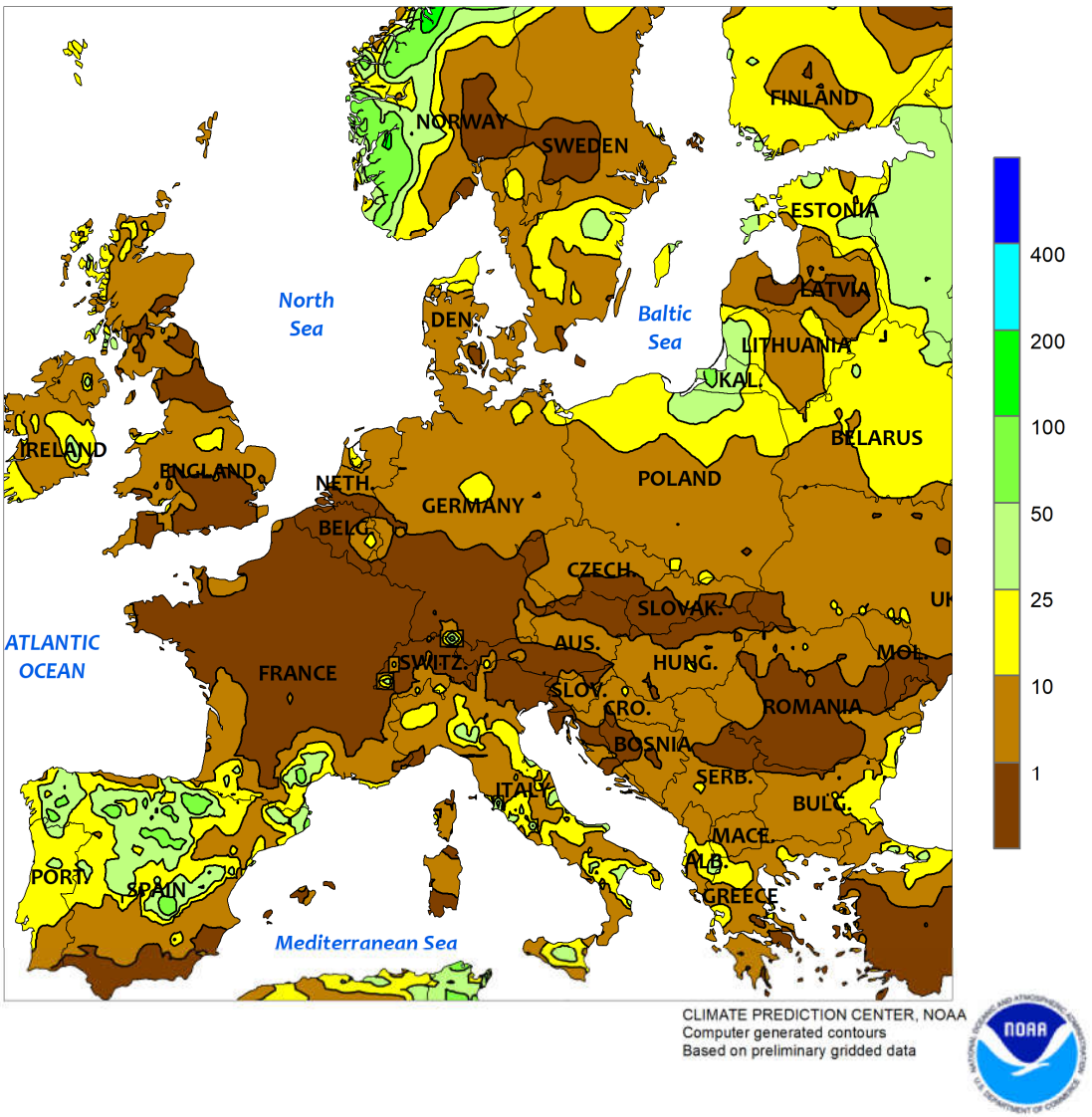
MEXICO: Hurricane Lorena generated locally heavy showers along the Pacific Coast and in northwestern watersheds.

CANADIAN PRAIRIES: Wet weather disrupted fieldwork in eastern production areas, possibly causing some damage to unharvested spring crops.

SOUTHEASTERN CANADA: Dry, unseasonably warm weather aided maturation and early harvesting of corn and soybeans.

For additional information contact: mbrusberg@oce.usda.gov

EUROPE
Total Precipitation (mm)
September 15 - 21, 2019

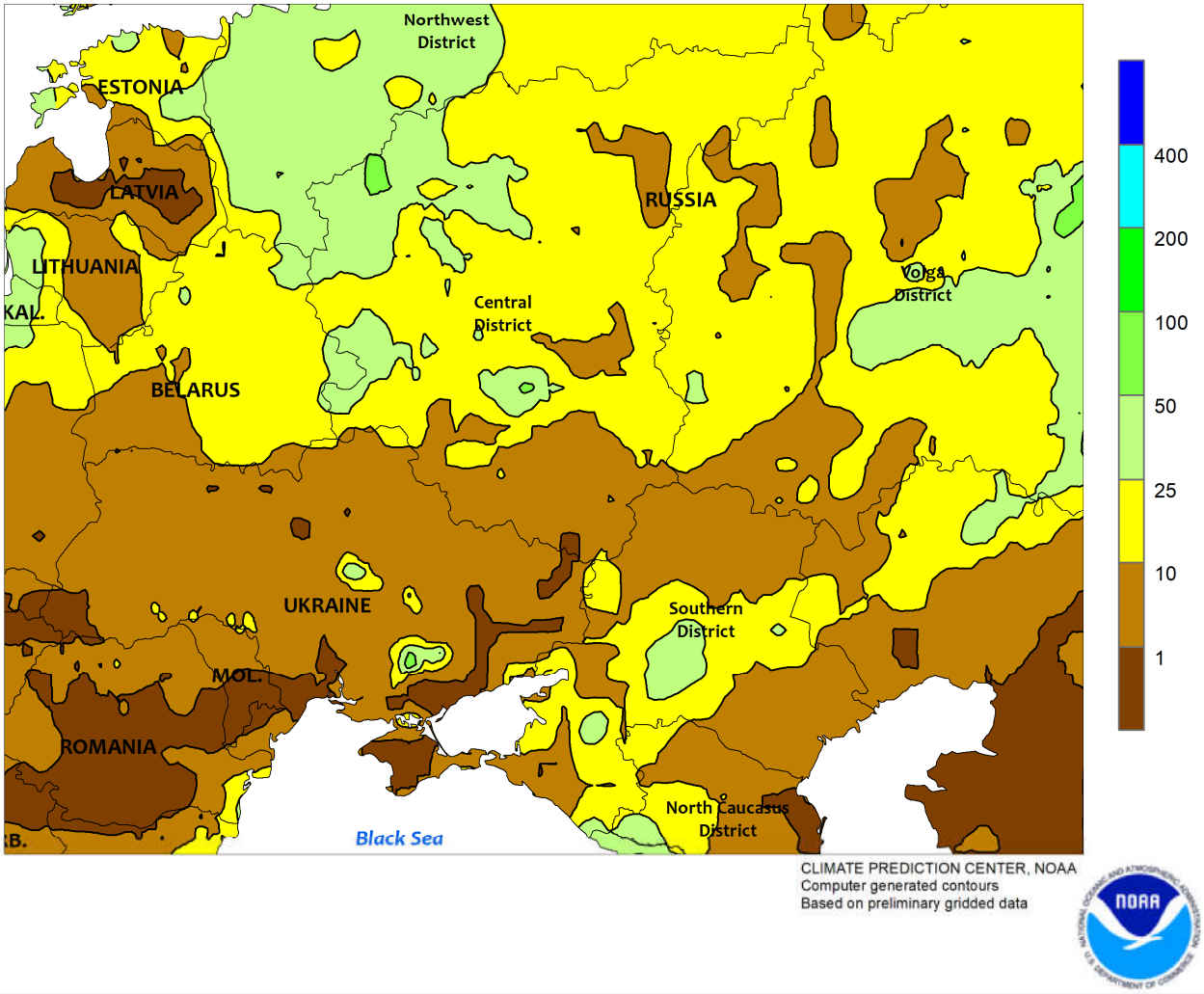


EUROPE

Intensifying drought over parts of northwestern and southeastern Europe contrasted with beneficial rain elsewhere. Severe drought continued to afflict crop areas from central France into northwestern Germany, where a dearth of rainfall over the past 90 days (locally less than 25 percent of normal) has left soils devoid of moisture for wheat and rapeseed planting and establishment. Short-term dryness has also developed in southeastern England (30-day rainfall less than 50 percent of normal), though the longer-term precipitation signal is far more positive (60-day rainfall more than 100 percent of normal). Time is running out for proper winter wheat and rapeseed establishment, especially in the driest locales of northern France. Likewise, acute short-term drought—exacerbated by late-season heat (30-32°C)—accelerated soil moisture losses in the Balkans for winter crop planting and establishment; for example, 30- and 60-day rainfall has totaled less than 10 and 50 percent of normal, respectively, in southern Romania. Conversely, moderate to heavy rain (10-60 mm) across central and northern Spain eliminated the last vestiges of drought and further improved planting prospects for winter wheat and barley. Likewise, widespread showers (5-65 mm) across northeastern Europe eased short-term dryness in northeastern Germany and maintained favorable conditions for winter crops elsewhere.

For additional information contact: mbrusberg@oce.usda.gov

WESTERN FSU
Total Precipitation (mm)
September 15 - 21, 2019

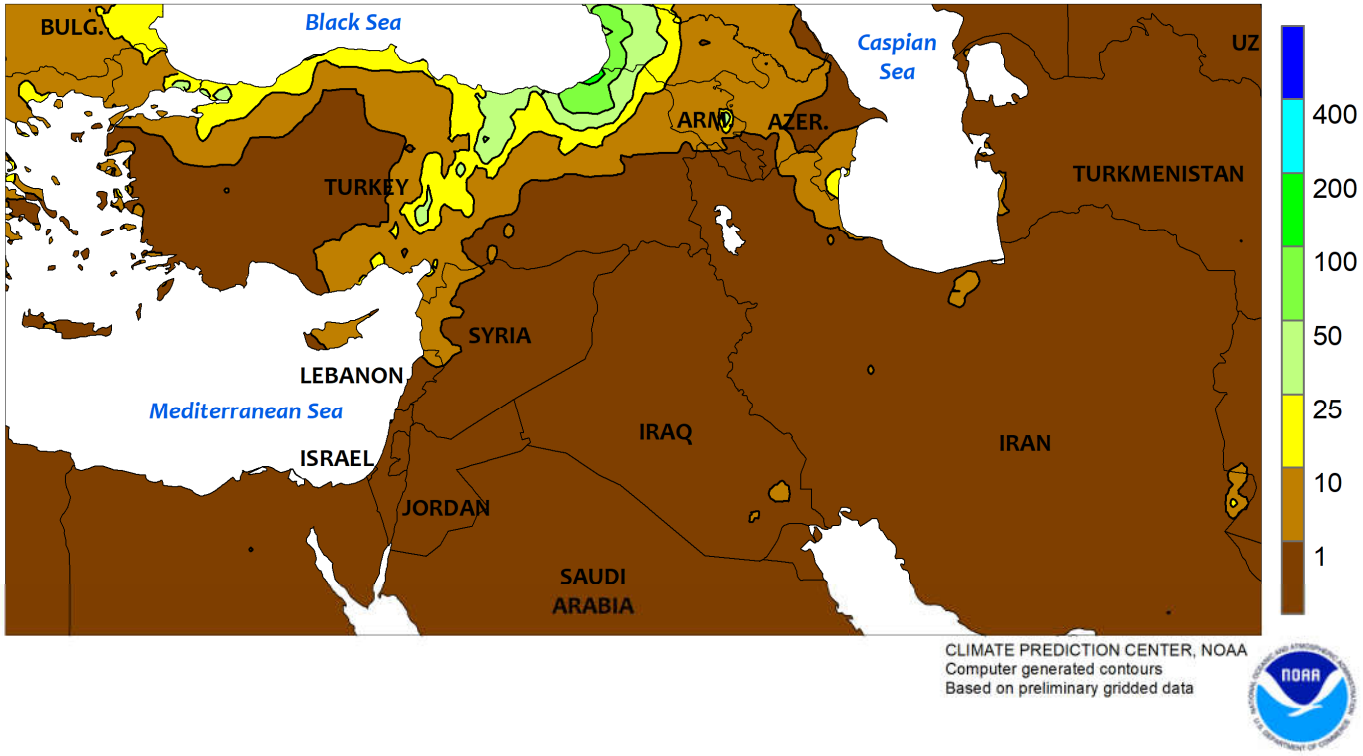


WESTERN FSU

Drought intensified across parts of Ukraine, while showers eased dryness concerns in southwestern Russia. Rain continued to bypass much of Ukraine (generally 5 mm or less), with 90-day precipitation averaging less than 50 percent of normal across north-central and west-central portions of the country. While primary winter wheat areas in southern Ukraine have fared better (60-day rainfall locally more than 100 percent of normal), short-term dryness has spread into these key winter crop areas as well. In contrast, moderate to heavy showers (5-50 mm) in Russia's Southern District eased short-term dryness, though more uniform rainfall is needed for proper winter wheat establishment.

For additional information contact: mbrusberg@oce.usda.gov

MIDDLE EAST
Total Precipitation (mm)
September 15 - 21, 2019

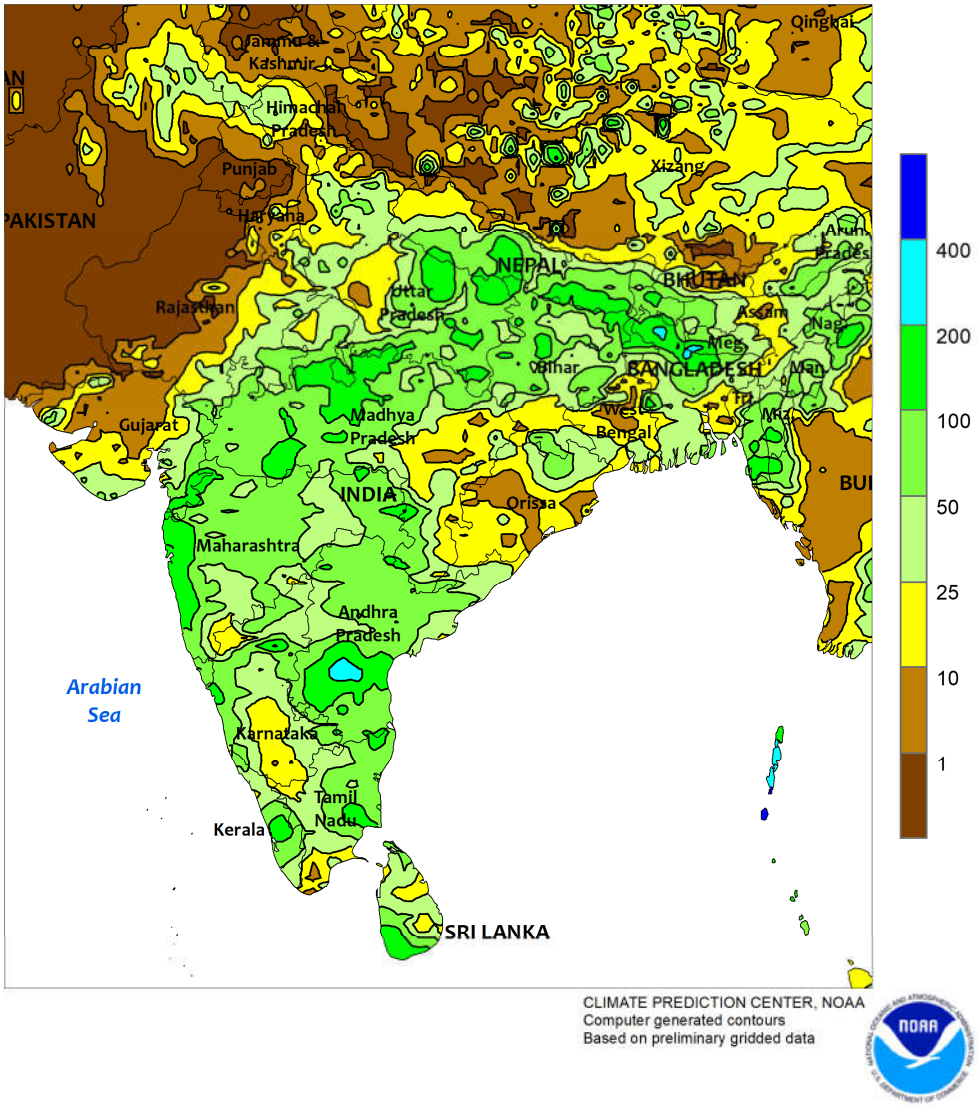


MIDDLE EAST

Seasonably dry, warm weather in Turkey promoted summer crop drydown and harvesting. Despite some showers (1-10 mm, locally more) in eastern Turkey, mostly sunny skies and seasonable temperatures (generally within 1°C of normal) favored cotton harvesting in western and southeastern Turkey as well as corn and sunflower harvesting in southeastern, central, and northern growing areas. In Turkey and Iran, winter grain sowing has likely begun, while producers from Syria into Iraq typically plant in November.

For additional information contact: mbrusberg@oce.usda.gov

SOUTH ASIA
Total Precipitation (mm)
September 15 - 21, 2019

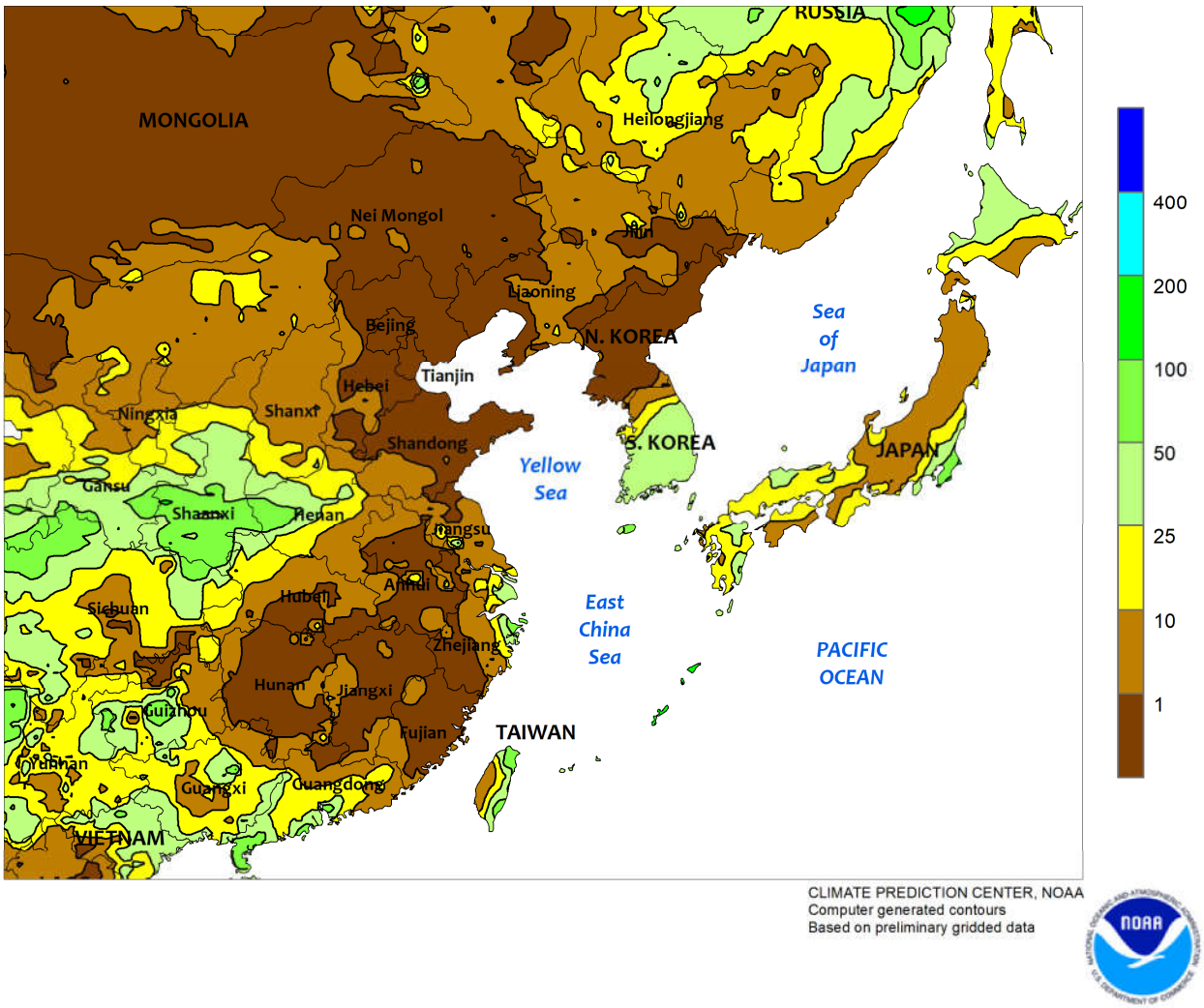


SOUTH ASIA

Showers (25-100 mm, locally more) were reported across India, even in the seasonally drier southeast; the wettest time of year in the southeast is October-November. The moisture was beneficial for reproductive kharif crops, especially cotton and oilseeds in central and western growing areas. In contrast, pockets of drier weather continued in eastern rice areas (Orissa and environs), where slight moisture deficits have occurred throughout the season. Meanwhile, the monsoon continued to show signs of retreating from northern India and Pakistan, ushering in drier weather for maturing early-crop cotton and rice.

For additional information contact: mbrusberg@oce.usda.gov

EASTERN ASIA
Total Precipitation (mm)
September 15 - 21, 2019

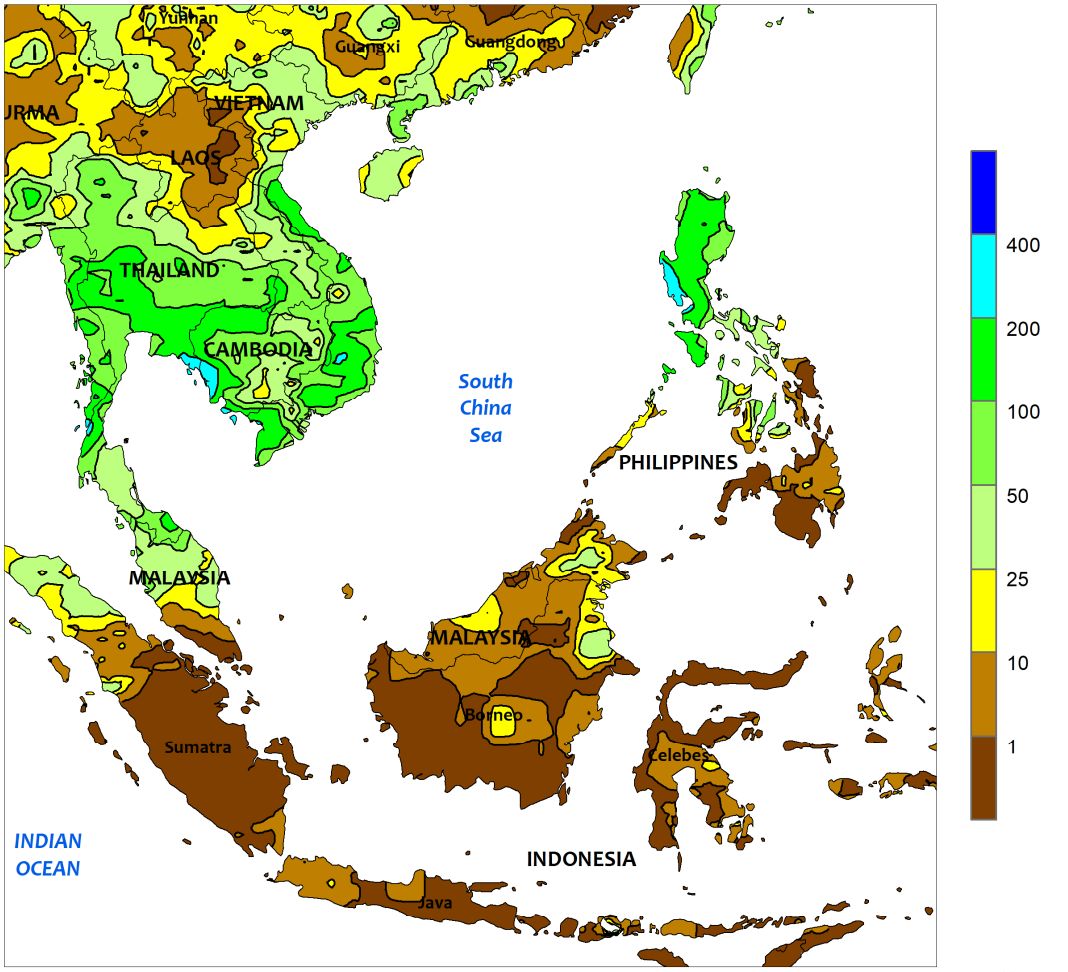


EASTERN ASIA

Dry, seasonably warm weather prevailed throughout eastern China, benefiting maturing summer crops. The dryness was particularly welcome in Heilongjiang and Jilin, where consistent rainfall during the season produced record totals; abundant soil moisture and timely late-season dryness will likely result in high yields for corn, soybeans, and rice. The current dryness was more unfavorable in the southeast, where severe drought during the latter half of the season has reduced moisture supplies for late-crop rice. Most of the rainfall (10-50 mm or more) was focused in central China (Sichuan and environs), coming too late for summer crops but boosting moisture supplies for winter crops sown in October and November. Elsewhere, Typhoon Tapah was turning toward the Koreas late in the week, as showers (25-50 mm or more) from the outer edge of the storm reached South Korea, providing much-needed moisture to ease severe seasonal drought.

For additional information contact: mbrusberg@oce.usda.gov

SOUTHEAST ASIA
Total Precipitation (mm)
September 15 - 21, 2019

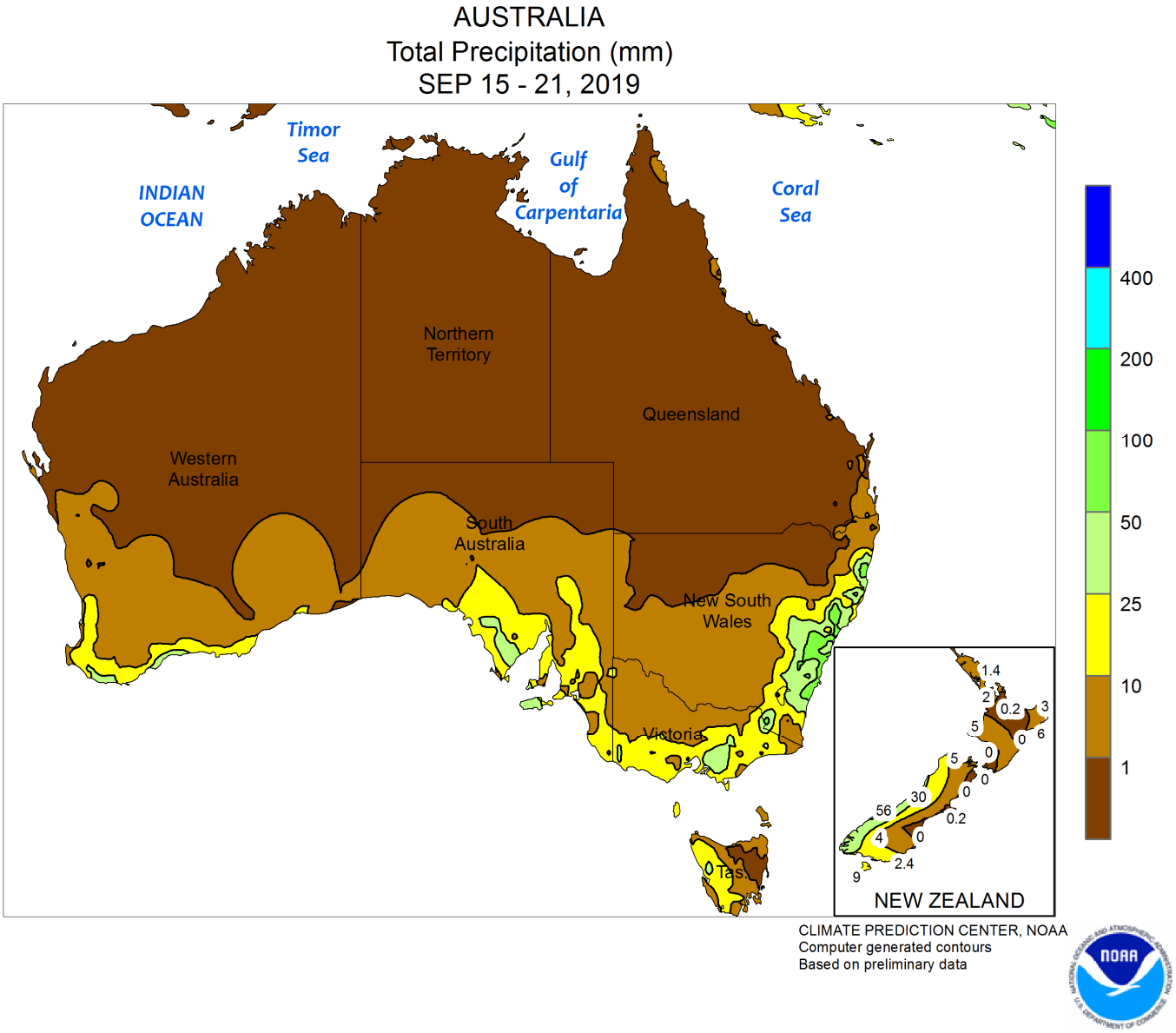


CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

SOUTHEAST ASIA

Heavy showers (25-100 mm or more) prevailed across the southern half of Indochina, boosting or maintaining moisture supplies for reproductive rice. In particular, the rainfall in northeastern Thailand has reversed the drought conditions in the early half of the season and improved rice prospects. Meanwhile in the Philippines, Typhoon Tapah formed well north of the country but still enhanced rainfall across Luzon, producing over 100 mm and locally in excess of 400 mm. Overall moisture conditions remained good in key growing areas of the Philippines, with some short-term deficits in the south. Farther south, mostly dry weather in Malaysia and Indonesia supported the main harvest period for oil palm.

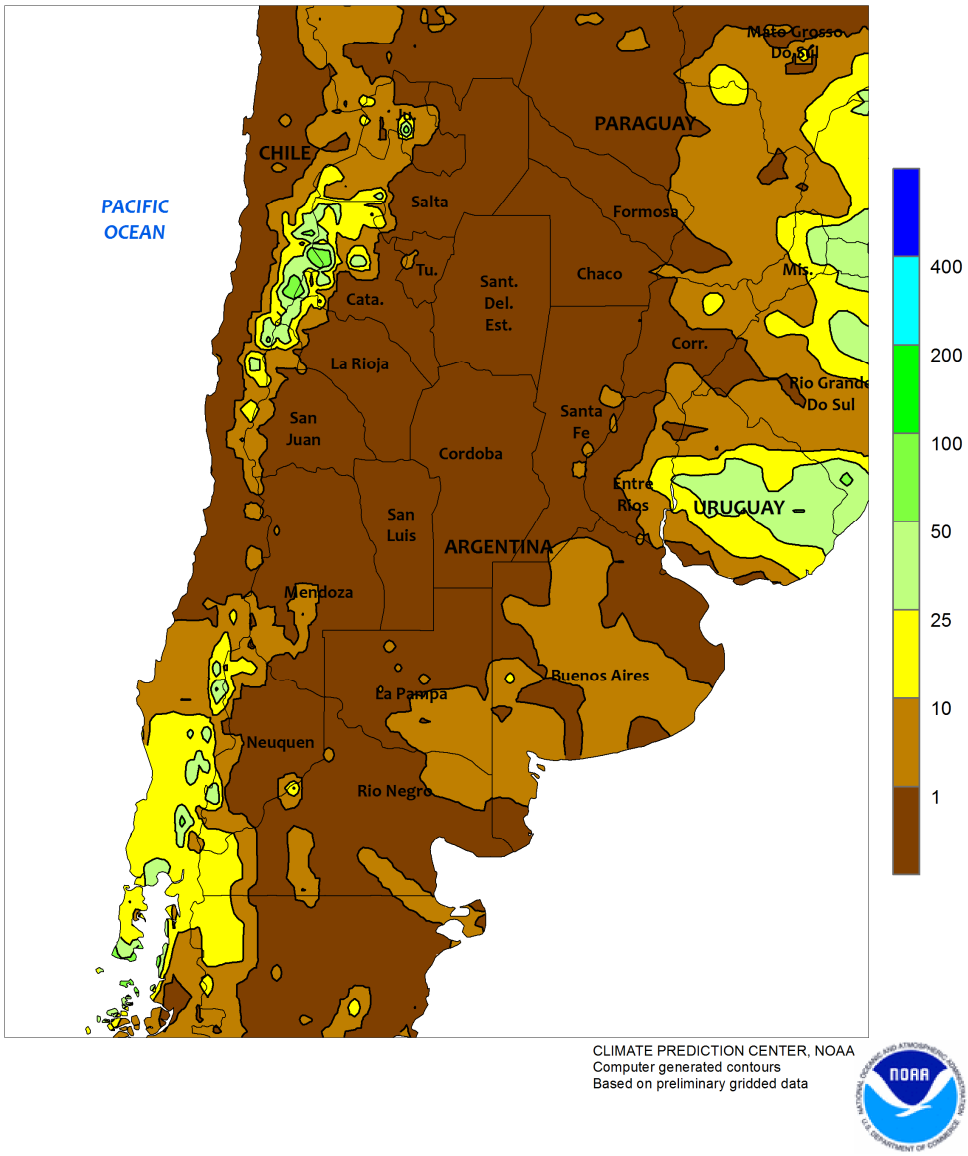
For additional information contact: mbrusberg@oce.usda.gov



AUSTRALIA

In Western Australia, mostly dry weather continued across northern and central portions of the wheat belt, further reducing moisture supplies for reproductive winter grains and oilseeds. Elsewhere in the state, widespread showers (5-25 mm) in southern portions of the wheat belt maintained generally good yield prospects for winter crops. Farther east, very timely, soaking rain (15-50 mm) overspread South Australia, helping to boost the yield prospects of reproductive wheat, barley, and canola. In contrast, less rain (5-15 mm) fell across Victoria, especially northern portions of the state, where more rain would be welcome to help maintain crop prospects. In central and southern New South Wales, showers (5-15 mm, locally more) in eastern portions of the wheat belt provided some drought relief, but the rain came much too late to substantially benefit winter crops. In southern Queensland and northern New South Wales, persistent dryness sped maturation of drought-stressed wheat and promoted early harvesting in many areas. Although some summer crop planting has likely begun, the persistent dryness has likely discouraged widespread sowing activity. Temperatures averaged 1 to 3°C above normal in southern and eastern Australia, with mid-week maxima briefly approaching 30°C in South Australia. Early in the week, minimum temperatures dropped to near freezing in eastern South Australia and western Victoria, potentially causing local frost. In Western Australia, temperatures averaged near normal.

ARGENTINA
Total Precipitation (mm)
September 15 - 21, 2019

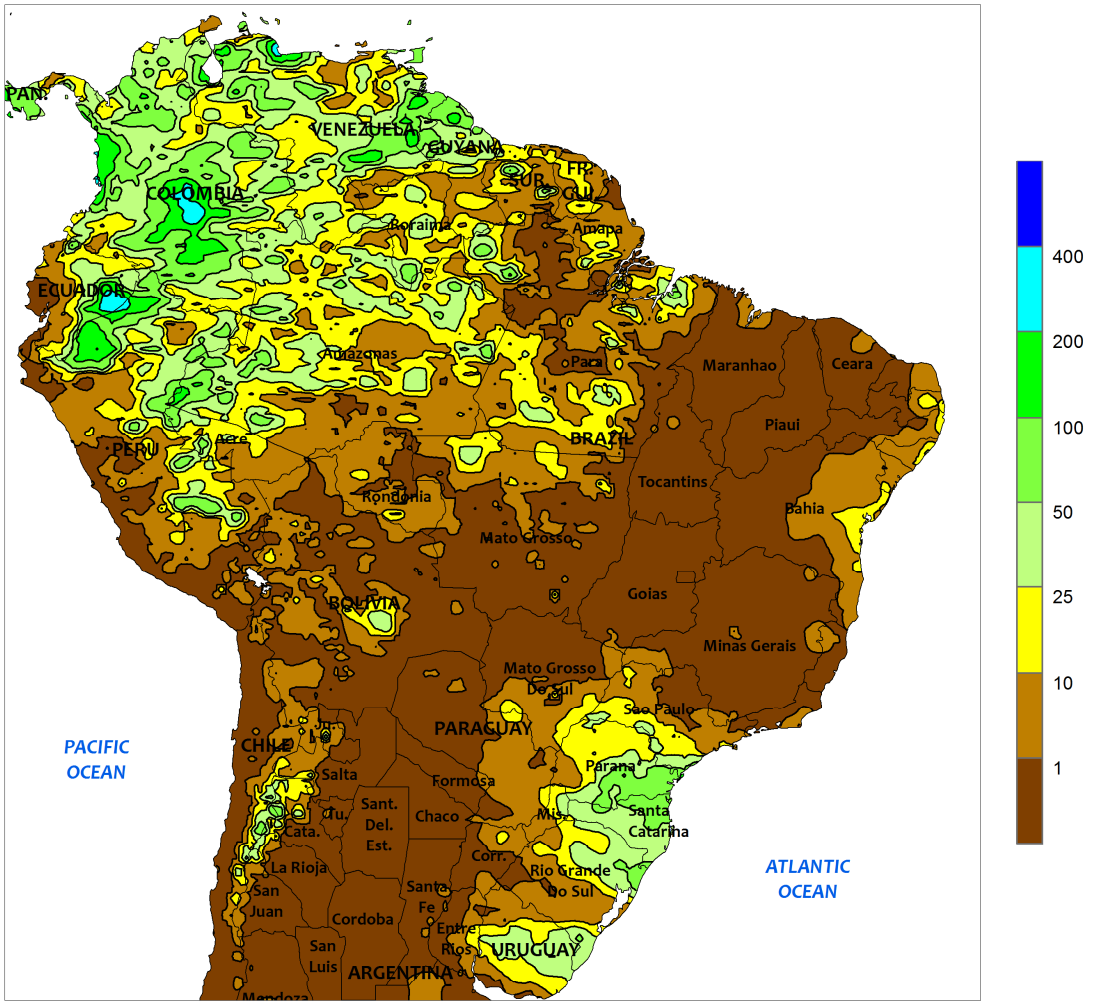


ARGENTINA

Mostly dry, generally warm weather promoted rapid winter grain development, though western farming areas were still in need of moisture. Little to no rain fell, with only a few isolated locations recording more than 10 mm; additionally, weekly temperatures averaging up to 2°C above normal exacerbated the impacts of the dryness on crops and soils. Daytime highs ranged from the lower and middle 20s (degrees C) in southern Buenos Aires to 40°C in Formosa, promoting rapid emergence of sunflowers in northern production areas, many of which recorded beneficial rainfall last week. According to the government of Argentina, sunflowers were 36 percent planted as of September 19, similar to last year's pace (37 percent); planting has not begun yet in Buenos Aires, Argentina's largest producer of sunseed. The weekly report also noted signs of moisture stress on vegetative winter wheat.

For additional information contact: mbrusberg@oce.usda.gov

BRAZIL
Total Precipitation (mm)
September 15 - 21, 2019



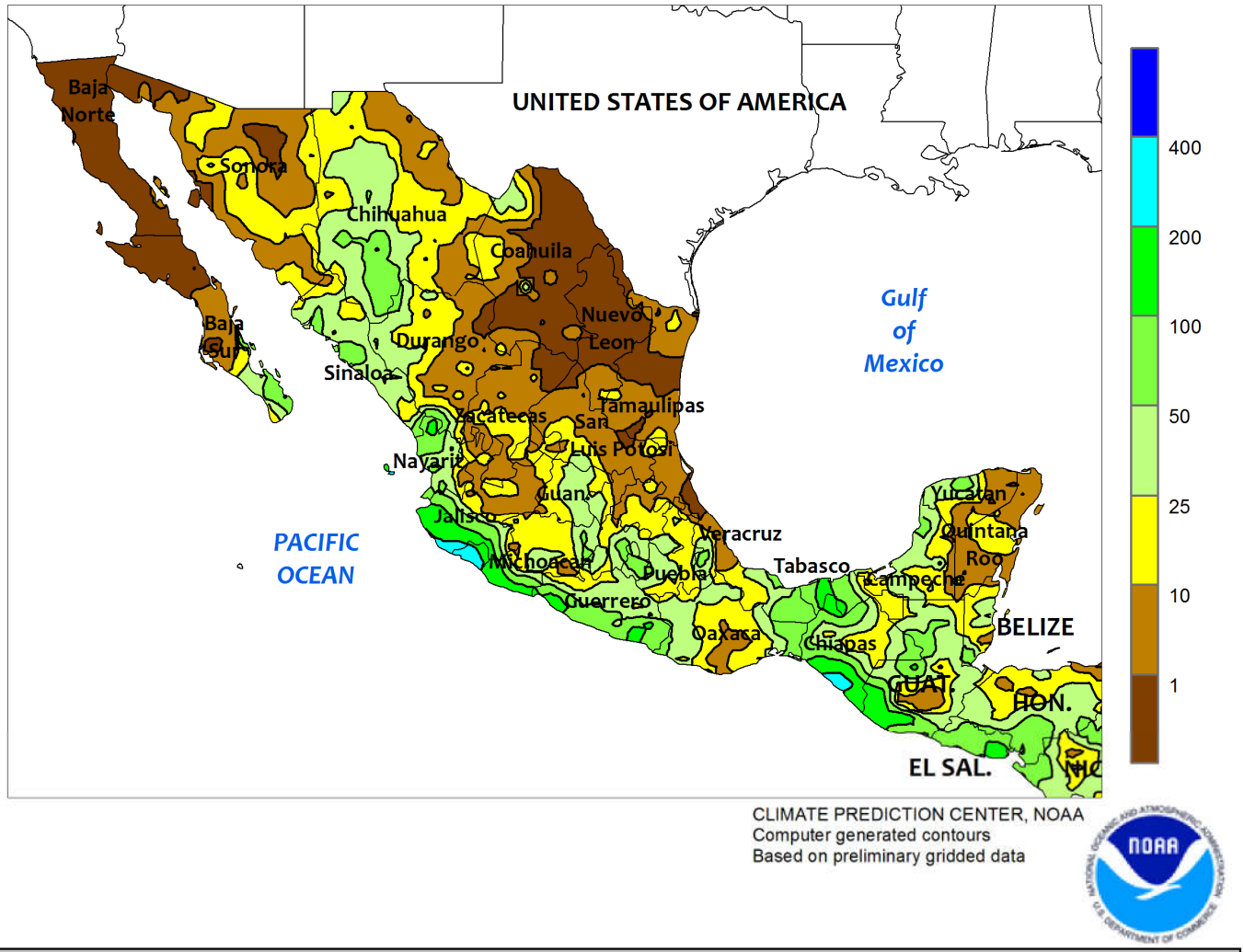
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

BRAZIL

Showers increased moisture for summer crops in parts of the southeast, but drier conditions continued to dominate farming areas of central Brazil. Rainfall totaled 10 to 50 mm, locally higher, from Parana and southern Sao Paulo southward into Uruguay. Warm weather accompanied the rain, with daytime highs reaching the upper 30s (degrees C) in northern and western Parana and temperatures staying above freezing throughout the south. According to the government of Parana, 2019/20 first-crop corn was 24 percent planted as of September 16 and soybean planting was reportedly beginning in spots, though little progress was reported; in addition, wheat was 44 percent harvested. In Rio Grande do Sul, wheat was 80 percent flowering to filling as of September 19 according to government weekly reporting. In contrast to the southern rain, dry weather dominated much of the central and northeastern interior farming areas, where most farmers awaited the onset of seasonal rainfall to begin planting soybeans. An exception was in outlying production areas of northern Mato Grosso, where scattered showers (locally greater than 10 mm) were recorded. According to the government of Mato Grosso, soybean planting had begun but less than 1 percent of current intentions had been planted.

For additional information contact: mbrusberg@oce.usda.gov

MEXICO
Total Precipitation (mm)
September 15 - 21, 2019



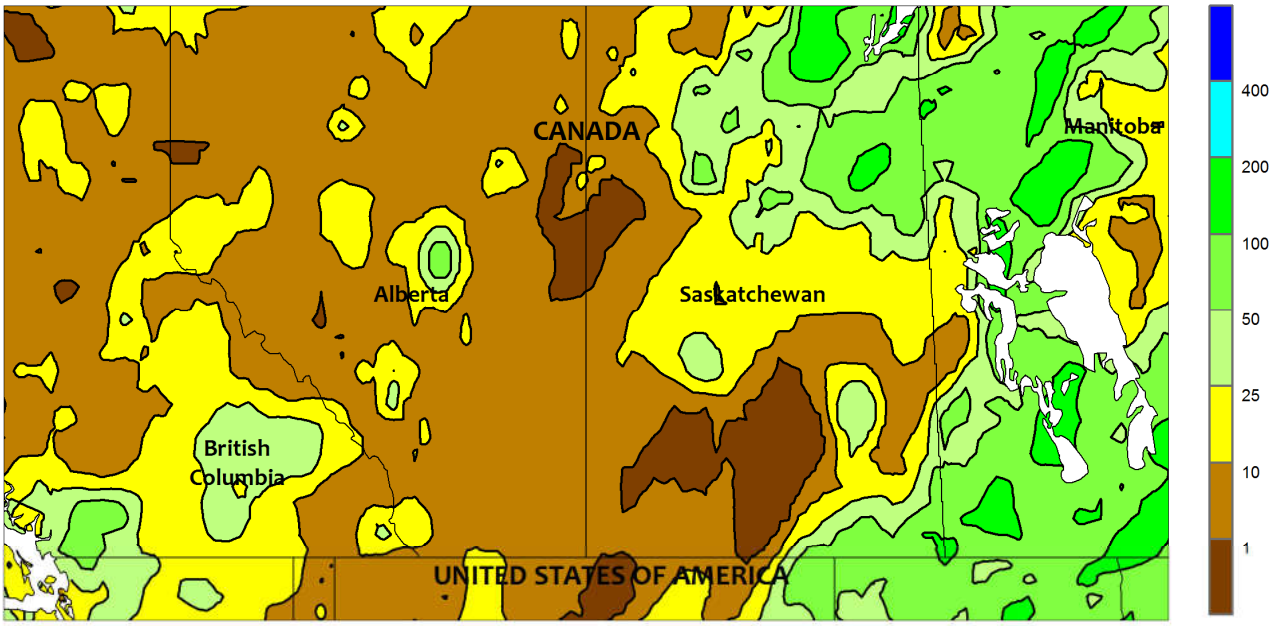
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

MEXICO

Hurricane Lorena brought locally heavy rain and high winds to parts of the south and northwest as it grazed both the southwestern coast and southeastern Baja Peninsula before weakening. The heaviest rainfall (greater than 100 mm) was recorded along the coasts of Jalisco and Michoacan, with lesser amounts (10-50 mm or more) extending from Nayarit to Guerrero; moderate to locally heavy showers (10-50 mm, locally higher) extended northward into Chihuahua as moisture from Lorena became entrained into the monsoon circulation. Tropical storm force winds (sustained winds of 34 knots or greater) were generally confined to locations closest the coast as the storm made landfall in Jalisco (September 19, with sustained winds of 65 knots) and Baja Sur (September 20, with sustained winds of 74 knots), likely causing only limited damage to infrastructure. Elsewhere, light to moderate rain (5-35 mm) fell across the southern plateau (eastern Jalisco to Puebla); similar amounts were recorded in the southeast, with higher amounts (greater than 50 mm) concentrated over the vicinity of Tabasco and southern Chiapas. Meanwhile, warmth and dryness dominated the northwest, with daytime highs reaching the middle 30s (degrees C) reaching southward through Tamaulipas. The dry region included much of Veracruz, which has been suffering from drought for much of the season.

For additional information contact: mbrusberg@oce.usda.gov

CANADIAN PRAIRIES
Total Precipitation (mm)
September 15 - 21, 2019



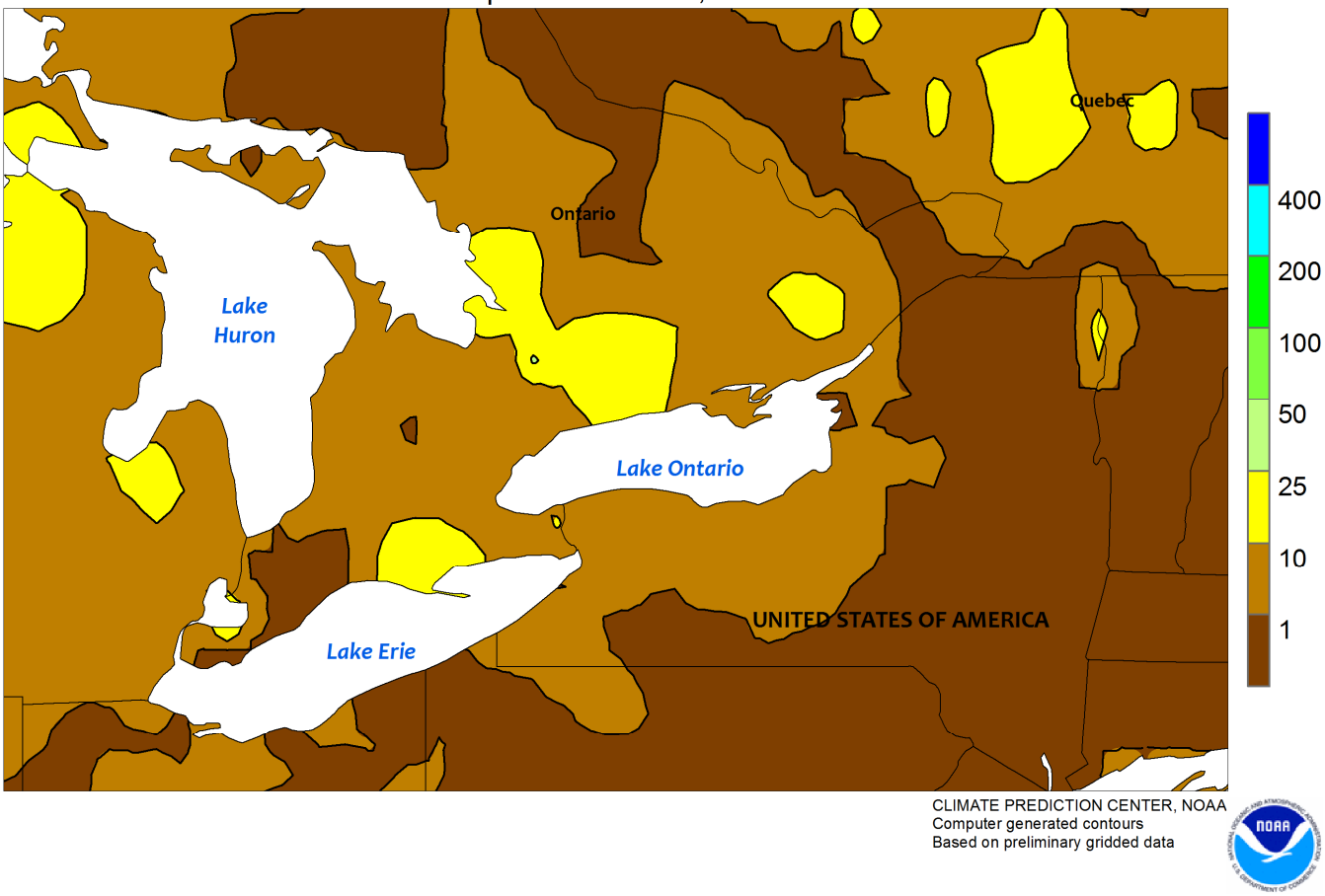
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

CANADIAN PRAIRIES

Showers intensified over the eastern Prairies, hampering fieldwork and possibly lodging standing crops. Rainfall totaled more than 50 mm over a large section of southern Manitoba, with lesser amounts (10-25 mm or more) extending northward through the Peace River Valley and westward into portions of Saskatchewan. Generally drier conditions prevailed elsewhere, though a few locations in Alberta also recorded more than 10 mm. Weekly average temperatures were near to above normal across the region, however, owing to several warm days (daytime highs reaching upper 20s and lower 30s degrees C in most areas) prior to the arrival of the rain. An exception to the warmth was in Alberta's Peace River Valley, which experienced a freeze (temperatures reaching -1°C). According to the government of Manitoba, spring wheat and canola harvesting were reportedly 71 and 40 percent complete, respectively, as of September 17, before the arrival of the heavy rain. In Saskatchewan, harvesting of all crops reached 23 percent complete by September 16, well behind the 5-year average (50 percent).

For additional information contact: mbrusberg@oce.usda.gov

SOUTHEASTERN CANADA
Total Precipitation (mm)
September 15 - 21, 2019



SOUTHEASTERN CANADA

Dry, unseasonably warm weather dominated the region, aiding late development of corn and soybeans. All agricultural districts in both Ontario and Quebec were drier than normal, with most areas reporting complete dryness and just a few locations receiving more than 5 mm. Weekly temperatures averaged from near normal to the northeast of Lake Ontario to at least 3°C above normal in Ontario's western farming areas. However, temperatures rose throughout the week, with daytime highs peaking in the upper 20s (degrees C) on September 21. Nighttime lows stayed above freezing in most areas though patchy frost (temperatures dipping to the -1 to 1°C range) was reported in southern-most Quebec and a few northern locations. Although conditions were favorable this week for maturation and early harvesting of summer crops, additional moisture would be welcome for winter wheat, which is currently being planted.

For additional information contact: mbrusberg@oce.usda.gov

United States Department of Agriculture

This product was prepared by the USDA Office of the Chief Economist (OCE) World Agricultural Outlook Board (WAOB)

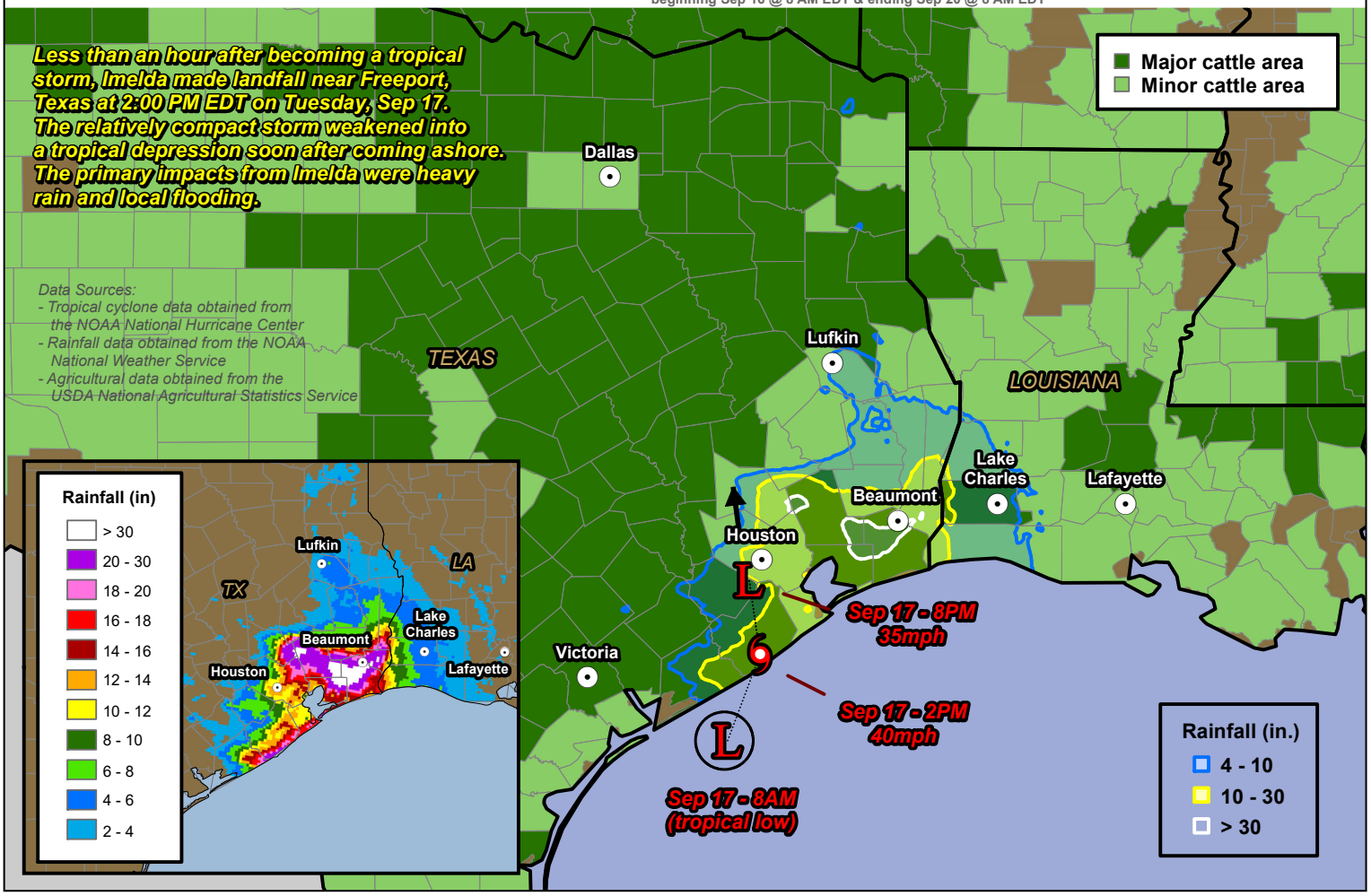
Tropical Storm Imelda

Storm-related Rainfall

September 16 - 20, 2019*

(Updated - Sep 20, 2019)

* beginning Sep 16 @ 8 AM EDT & ending Sep 20 @ 8 AM EDT



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