

# WEEKLY WEATHER AND CROP BULLETIN

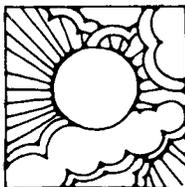
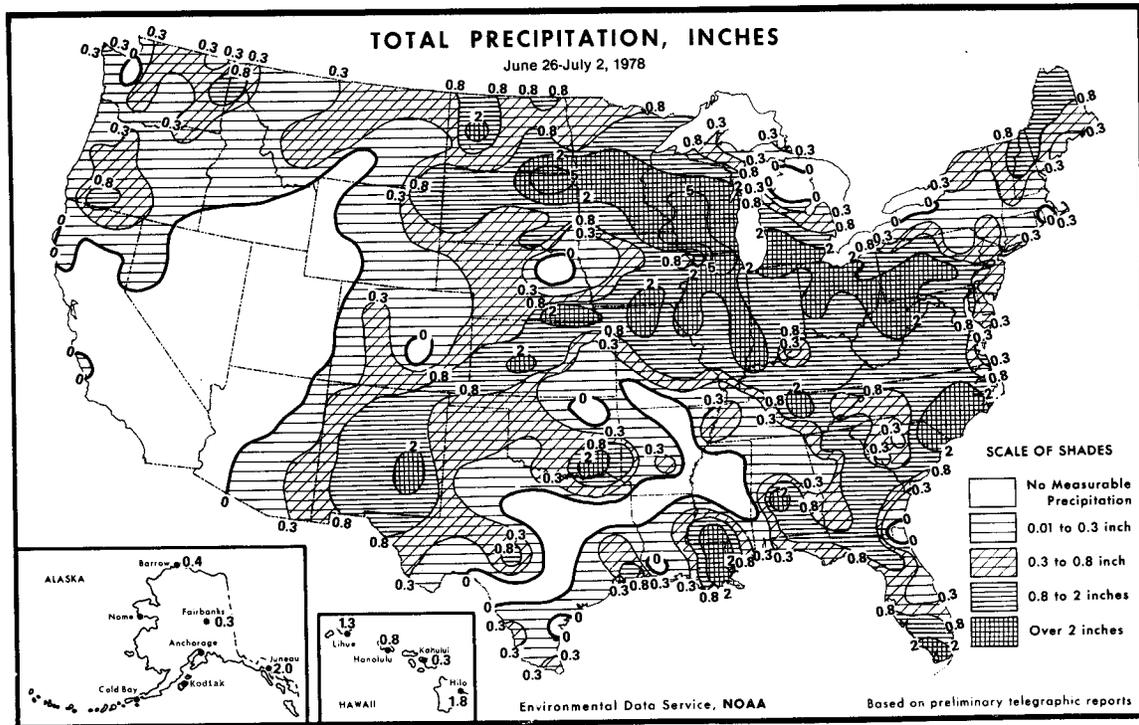
U.S. DEPARTMENT OF COMMERCE  
Environmental Data Service, NOAA

U.S. DEPARTMENT OF AGRICULTURE  
Economics, Statistics, and Cooperatives Service

Volume 65, No. 27

Washington, D.C.

July 5, 1978



## National Weather Summary

June 26 - July 2

**HIGHLIGHTS:** A typical distribution of thunderstorms dotted the Nation east of the Rockies. Some severe weather, including hail and tornadoes, damaged isolated areas. A slow-moving frontal system carried heavy rains from Minnesota and Wisconsin eastward to Pennsylvania.

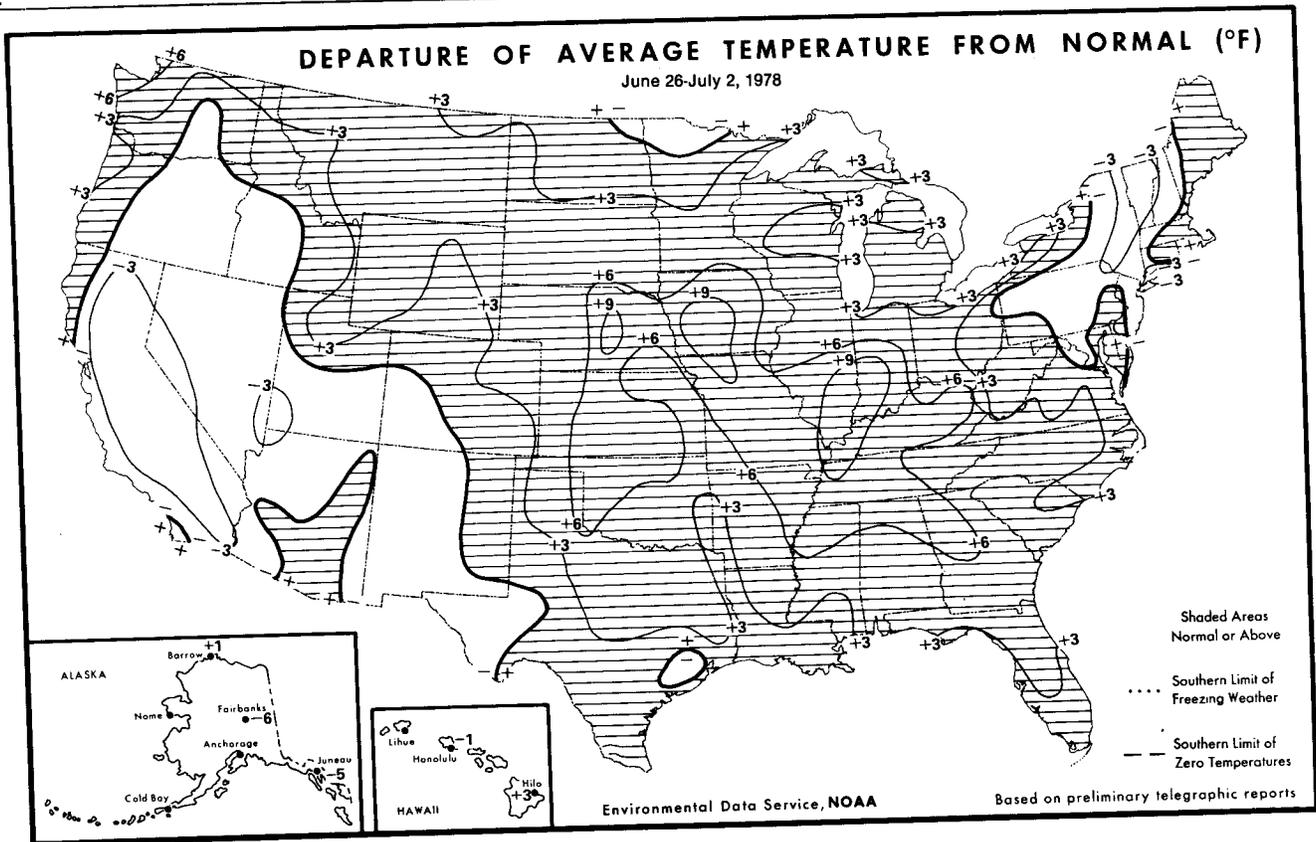
Cool nights kept the Southwest near normal after some record-breaking high temperatures during the day. Readings in the central Plains and middle Mississippi Valley ranged up to 10 degrees above normal.

Intense storms made for an unsettled Monday from the Great Plains to the Atlantic Seaboard. The lower Great Lakes Region and Ohio Valley were especially hard hit; in southern Michigan, Allegan was drenched by 6.23 in. and Hillsdale was awash under 5.17 in. Towns in central Indiana measured 3 to more than 5 inches while points in Iowa and Ohio counted one to 2 inches.

By late afternoon, one to 2 inches soaked stations in West Virginia and North Carolina. As

### PRICE INCREASE

Effective July 1, 1978, the annual subscription rate for the Weekly Weather and Crop Bulletin was raised to \$13 for domestic and \$18 for foreign subscribers.



midnight approached, 2 inches fell near Washington, D.C., and Harrisburg, Pa. Thunderstorms also roamed over the Plains triggering large hail at Amarillo, Tex., and one and a third inches of rain at Goodland, northwestern Kansas. Seven tornadoes formed on Monday from the Plains to the Appalachians to Florida.

El Paso, Tex., again topped 100° for a record-extending thirteenth consecutive day; it also tied the record for 17 days in June 100° or above.

Warm, humid weather contributed to unsettled conditions east of the Rockies again on Tuesday. High winds and hail clipped parts of the central Plains while some Missouri towns noted an inch of rain.

By nightfall, one and one-half inches of rain had covered Trinidad, southern Colorado; Beaumont/Port Arthur, East Texas; and New Orleans. In western Pennsylvania, New Bethlehem reported 2.4 inches in one hour. Again 7 tornadoes ripped the country---3 in Texas and one each in Kansas, New York, Maryland, and West Virginia.

El Paso's heat persisted---14 days at 100° or more, and a new record of 18 days for the month. Early in the morning, Memphis sweltered through its warmest low temperature for this date, 81°.

Thunderstorms diminished over the Nation early Wednesday, but not before some hail peppered central Nebraska. Later rainfalls included an inch at Ottumwa, Iowa, while about one-half inch fell on other points in the Plains and South.

Several temperature records were broken in the Southeast; in North Carolina, Wilmington at 100° and Cape Hatteras at 95° opened the books. Moving south Charleston, S.C., did the same at 99° and in Florida, Apalachicola, 97°, and Pensacola, 99°, set new marks.

Thunderstorms roamed over scattered areas of the Nation from the Rockies to the East Coast on

Thursday. The heaviest rainfalls also hit widely separated sections; southeastern North Dakota was drenched by 2 to 5 inches of rain while 2-inch downpours splashed New Orleans and McComb, southwestern Mississippi. From one-half to one inch soaked other parts of the South, middle Atlantic States, and Plains. Six tornadoes were reported---2 in Florida, and one each in Pennsylvania, Alabama, Louisiana, and Wyoming.

The thermometer soared above the century mark in the Southeast; Pensacola noted 100° and Georgia's Macon saw 102° and Columbus 104°.

Heavy rains inundated the Dakotas and upper Midwest on Friday. Aberdeen, northeastern South Dakota notched more than 5 inches of rain. As the system moved eastward over Minnesota and Wisconsin, high winds and hail combined with the rain. Some waterways flooded including southwestern Wisconsin's Kickapoo River. A sampling of the moisture amounts included 2.26 in. at Madison, Wisc., 1.29 in. at Minneapolis, and 1.10 in. at Decatur, Ill.

Other patterns of rain gathered over the country's southern tier; Macon, Ga., measured nearly 2 inches while Guadalupe Pass, Tex., got one and one-quarter.

Four confirmed tornadoes touched down in Texas, Minnesota, and North and South Dakota.

The Midwest was under continual assault by thunderstorms and flooding on Saturday. Additional rain with up to 5 inches in southeastern Minnesota pushed streams as much as 5 feet above flood stage. By noon, the precipitation had extended to lower Michigan and Indiana where Evansville collected nearly 4 inches.

One inch-plus also dampened portions of the southern Atlantic Coast States and southern Ohio. Half-inch rains clipped the Pacific Northwest and Tennessee Valley.

(continued on back page)



## National Agricultural Summary

June 26 - July 2

**HIGHLIGHTS:** Heavy rains swept through most of the north central States leaving soggy fields, and in some areas floods, in its wake. Soil moisture rated adequate except in the South and most of the West. Very little rain fell in the major winter wheat producing areas giving growers a full week of suitable weather for combining. North central States farmers also had good harvest weather until the weekend. Winter wheat harvest advanced to 40%, about one week later than 1977's 57% and the 53% average. Isolated severe weather damaged some corn in the north central States, but also supplied needed moisture to complement the high temperatures keeping the crop growing rapidly. Soybean planting was complete except in the southern States. Cotton squaring became more widespread; very few stands were setting bolls. Sorghum planting was virtually complete. Pastures rated fair to good but western rangeland, particularly at low elevations, became very dry posing a fire hazard in some areas.

**SMALL GRAINS:** Winter wheat harvest in the 11 major producing States advanced to 40%, a 20-point increase for the week which is in line with previous years. Last year combining reached 57% and, on the average, stood at 53%. Producers in the Great Plains had an almost rainless week to cut wheat. Oklahoma farmers raced toward completion harvesting almost 40% of their crop in one week to reach 91%. Texas growers pushed winter wheat combining ahead 36 percentage points nudging past the three-quarter mark. Rains caused some harvest delays in Kansas where growers reached 35%, 20 points below last year and average. Nebraska's harvest was just getting started. Farther north on the Plains most of the crop turned yellow.

In the Mountain States, winter wheat harvest was almost complete in Arizona and New Mexico; almost all colored in Colorado, headed in Wyoming, and just started to color in Montana.

California's harvest stood at 75%; farmers prepared cut fields for second crop corn and milo. Oregon's wheat harvest should begin on the 10th.

Harvest just got started in the Corn Belt States. The late week storms lodged some stands of grain. Combining in the South was almost complete.

**CORN:** Corn rated fair to mostly good. Some Georgia stands rated poor; persistent dry weather deteriorated the crop.

Rains splashed through the Corn Belt, spilling over into adjacent States. Ample moisture coupled with above-normal temperatures and spurred crop growth. Some lodging, flooding, and hail damage resulted from the storms. In the eastern north central States, corn height ranged from mostly 25 inches to 35 inches. Growth exceeded the average in Wisconsin and Michigan by 2 to 14 inches, equalled the average in Ohio, and fell short by 5 to 15 inches in Indiana and Illinois. In the western north central States, corn growth nearly equalled the average. Tasseling at 5% in Kansas equalled the average.

In the South, tasseling ranged from almost complete in Louisiana to 5 to 20% in Tennessee and Kentucky. Many of these areas needed moisture during this critical silking and tasseling stage. The Texas Plains crop was wind-stressed and needed moisture to fill.

**SOYBEANS:** Planting was almost complete; southern growers had some acreage to plant following small grain harvest. Some soils became too dry for good germination in the South while saturated soils in northern areas slowed development.

In the north central States early soybeans bloomed. Growth ranged from 6 to 10 inches which was 2 or 3 inches less than normal.

In the South, planting ranged from 93 to 98%; seedlings emerged to mostly good stands.

**COTTON:** Cotton planting was complete. Texas harvest began, but the main harvest in the lower Rio Grande Valley should start in mid-July. Development of the Texas Plains crop ranged from just emerging to squaring. In the Delta States, squaring ranged from 50 to 76%; blooming just started. In the Southeast, squaring stood at about 75%; 29% of the Georgia crop set bolls. Squaring reached 60% in California's San Joaquin Valley and approached the boll stage in the desert. Farmers irrigated and weeded the first time. The Nation's crop rated fair to good; overall development lagged last year and the average.

**OTHER CROPS:** Grain sorghum planting was virtually complete; only Missouri reported some acreage to plant. The crop rated good. Texas harvest was underway in southern areas of the State; non-irrigated stands displayed drought stress in the Plains.

Rice rated good. Arkansas rice reached the internodal growth stage. Louisiana's crop was 35% headed. Texas rice headed--harvest was 3 weeks away. California rice rated good but sustained some wind damage. Farmers applied broad-leaf weed control.

Maine potatoes rated good having no major pest problems. Idaho potatoes reached 95% emerged with 65% growing 6 inches or taller. The Oregon harvest should begin soon.

Peanuts rated fair to good, pegging reached 33% in Alabama and 52% in Georgia. Texas peanuts rated good but needed moisture. Dry soils convinced some farmers to terminate planting early.

**FRUITS AND NUTS:** Sweet cherry picking advanced into New York, Michigan, Oregon, and Washington. Orchardists in northern areas thinned apples. Peach harvest stood at 20% in North Carolina, 24% in South Carolina, 49% in Georgia, and 29% in Mississippi; all these well behind previous years. California growers harvested peaches, plums, nectarines, apricots, and Thompson and Tokay grapes. California, Arizona, and Florida citrus harvests were still active.

**VEGETABLES:** Rains slowed vegetable harvests in the north central States, notably Wisconsin peas. Harvests of summer crops became widespread in all but extreme northern areas; crops included sweet corn, tomatoes, snap beans, cucumbers, and squash. Florida harvests declined seasonally, shipping mostly watermelons and sweet corn. Texas growers shipped a wide variety of vegetables and melons and prepared land for fall crops. California producers shipped broccoli, cauliflower, cabbage, carrots, celery, lettuce, onions, strawberries, and tomatoes for both fresh and processing.

**PASTURES AND LIVESTOCK:** Pastures generally rated fair to good. The northeast quarter of the Nation had adequate moisture, but grasslands in the South and West required rain. Rangelands at low elevations were very dry and became a fire hazard. Texas stock tanks needed water.

Temperature and Precipitation Data for the Week Ending Midnight, L.s.t.,

States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches	
	Average	Departure	Total	Departure		Average	Departure	Total	Departure		Average	Departure	Total	Departure
ALA.Birmingham . . .	84	+ 5	.2	-.9	LA.Baton Rouge . . .	85	+ 3	.5	-.7	Youngstown . . .	69	- 1	1.9	+ 1.1
Mobile . . .	85	+ 4	.1	- 1.7	Lake Charles . . .	83	+ 1	0	- 1.3	OKLA.Okla. City . . .	85	+ 5	.5	-.3
Montgomery . . .	86	+ 5	1.1	0	New Orleans . . .	83	+ 2	4.1	+ 2.8	Tulsa . . .	86	+ 6	T	- 1.0
ALASKA.Anchorage . . .	86	+ 5	1.1	0	Shreveport . . .	85	+ 3	0	-.7	OREG.Astoria . . .	61	+ 3	.1	-.3
Barrow . . .	38	+ 1	.4	+ .3	MAINE.Caribou . . .	65	+ 2	1.9	+ 1.1	Burns . . .	63	- 1	.1	0
Fairbanks . . .	58	- 6	.3	-.1	Portland . . .	67	+ 1	T	-.7	Medford . . .	68	0	1.3	+ 1.2
Juneau . . .	55	- 5	2.0	+ 1.2	MD.Baltimore . . .	77	+ 2	1.2	+ .3	Pendleton . . .	69	- 1	4.4	+ 1.2
Kodiak . . .	50	- 5	2.0	+ 1.2	MASS.Boston . . .	73	+ 2	.2	-.5	Portland . . .	68	+ 3	.1	-.1
Nome . . .	50	- 5	2.0	+ 1.2	Chatham . . .	68	+ 2	.3	-.6	Salem . . .	68	+ 4	.2	0
ARIZ.Flagstaff . . .	61	- 1	0	-.3	MICH.Alpena . . .	69	+ 5	0	-.6	PA.Allentown . . .	74	+ 1	T	-.5
Phoenix . . .	90	+ 2	0	-.1	Detroit . . .	73	+ 2	1.2	+ .4	Erie . . .	71	+ 3	T	-.8
Tucson . . .	85	0	.2	0	Flint . . .	70	+ 1	.5	-.3	Harrisburg . . .	73	- 2	3.9	+ 3.1
Winslow . . .	76	0	.2	+ .1	Grand Rapids . . .	72	+ 2	3.3	+ 2.5	Philadelphia . . .	76	+ 1	2.2	-.7
Yuma . . .	87	- 3	0	0	Houghton Lake . . .	68	+ 3	1.1	-.7	Pittsburgh . . .	73	+ 2	2.3	+ 1.5
ARK.Sprt Smith . . .	83	+ 2	.2	-.6	Lansing . . .	70	0	1.2	+ .5	Scranton . . .	68	- 3	.1	-.8
Little Rock . . .	85	+ 5	T	-.8	Marquette . . .	69	+ 5	T	-.8	R.I.Providence . . .	72	+ 2	0	-.6
CALIF.Bakersfield . . .	76	- 5	0	0	Muskegon . . .	69	0	1.8	+ 1.2	S.C.Charleston . . .	84	+ 5	1.0	-.8
Eureka . . .	58	+ 2	T	-.1	S. Ste. Marie . . .	64	+ 2	.4	-.3	Columbia . . .	84	+ 3	.1	- 1.0
Fresno . . .	74	- 4	0	0	MINN.Duluth . . .	67	+ 4	1.1	+ .1	Greenville . . .	83	+ 5	.8	-.2
Los Angeles . . .	69	- 1	0	0	Internatl Falls . . .	63	- 1	.8	-.2	S.D.Aberdeen . . .	73	+ 4	5.2	+ 4.4
Red Bluff . . .	75	- 4	T	-.1	Minneapolis . . .	75	+ 5	2.4	+ 1.5	Huron . . .	75	+ 4	.7	0
San Diego . . .	69	+ 2	0	0	Rochester . . .	74	+ 5	2.1	+ 1.1	Rapid City . . .	73	+ 4	1.4	+ .7
San Francisco . . .	62	- 0	T	0	St. Cloud . . .	71	+ 3	2.3	+ 1.3	Sioux Falls . . .	75	+ 4	T	-.9
Stockton . . .	70	- 5	T	0	MISS.Jackson . . .	85	+ 4	1.1	-.8	TENN.Chattanooga . . .	84	+ 6	.4	-.7
COLO.Denver . . .	73	+ 3	.2	-.2	Meridian . . .	84	+ 3	0	- 1.0	Knoxville . . .	82	+ 5	.5	-.5
Grand Junction . . .	75	- 1	T	-.1	MO.Columbia . . .	83	+ 7	1.0	0	Memphis . . .	88	+ 7	.4	-.4
Pueblo . . .	76	+ 2	T	-.4	Kansas City . . .	83	+ 6	.8	-.4	Nashville . . .	85	+ 6	.4	-.4
CONN.Bridgeport . . .	66	- 5	.3	-.3	St. Louis . . .	85	+ 8	1.1	+ .1	TEX.Abilene . . .	88	+ 5	T	-.6
Hartford . . .	73	+ 2	.2	-.6	Springfield . . .	82	+ 6	0	- 1.0	Amarillo . . .	80	+ 3	.8	0
D.C.Washington . . .	73	+ 4	1.4	+ .6	MONT.Billings . . .	71	+ 4	T	-.5	Austin . . .	85	+ 2	0	-.6
FLA.Apalachicola . . .	82	+ 1	.5	- 1.1	Glasgow . . .	69	+ 3	.7	+ .2	Beaumont . . .	85	+ 3	1.6	+ .4
Daytona Beach . . .	84	+ 3	.1	- 1.6	Great Falls . . .	68	+ 3	.3	-.3	Brownsville . . .	86	+ 2	.6	+ .1
Ft. Myers . . .	83	+ 1	1.6	-.6	Havre . . .	71	+ 5	.5	0	Corpus Christi . . .	86	+ 2	T	-.5
Jacksonville . . .	84	+ 4	0	- 1.7	Helena . . .	68	+ 5	.5	+ .1	Dallas . . .	88	+ 2	T	-.4
Key West . . .	85	+ 4	T	- 1.8	Kalispell . . .	65	+ 4	.2	-.3	Del Rio . . .	81	- 1	1.5	+ 1.2
Lakeland . . .	83	+ 1	.8	- 1.2	Miles City . . .	74	+ 4	1	-.6	El Paso . . .	87	+ 4	0	-.5
Miami . . .	85	+ 4	.2	- 1.8	Missoula . . .	64	+ 1	.2	-.2	Fort Worth . . .	85	+ 2	.1	-.9
Orlando . . .	84	+ 3	.9	- 1.0	NEBR.Grand Island . . .	83	+ 9	T	-.9	Galveston . . .	81	- 2	.2	-.8
Tallahassee . . .	84	+ 2	.5	- 1.3	Lincoln . . .	80	+ 5	.7	-.4	Houston . . .	81	+ 2	.1	-.5
Tampa . . .	82	+ 1	.6	- 1.2	Norfolk . . .	80	+ 7	T	- 1.0	Lubbock . . .	81	+ 2	.2	-.5
W.Palm Beach . . .	83	+ 6	.1	-.9	N.Platte . . .	77	+ 5	.4	-.4	Midland . . .	81	- 1	.4	0
GA.Atlanta . . .	83	+ 5	T	- 1.0	Omaha . . .	81	+ 8	.2	-.8	San Angelo . . .	84	0	.5	+ .1
Augusta . . .	87	+ 6	2.0	+ 1.0	Valentine . . .	76	+ 5	.4	-.3	San Antonio . . .	85	+ 1	T	-.5
Macon . . .	87	+ 6	2.0	+ 1.0	NEV.Ely . . .	60	- 2	0	-.2	Victoria . . .	85	+ 1	T	-.7
Savannah . . .	86	+ 5	.1	- 1.5	Las Vegas . . .	84	- 2	0	-.1	Waco . . .	88	+ 4	0	-.5
HAWAII.Hilo . . .	78	+ 3	1.8	+ .1	Reno . . .	62	- 4	.1	0	Wichita Falls . . .	70	0	T	-.1
Honolulu . . .	79	- 1	.8	+ .7	Winnemucca . . .	66	- 1	T	-.2	UTAH.Blanding . . .	70	0	T	-.1
Kahului . . .	81	+ 3	.3	+ .2	N.H.Concord . . .	66	- 2	T	-.8	Salt Lake City . . .	75	+ 4	T	-.2
Lihue . . .	78	0	1.3	+ .9	N.J.Atlantic City . . .	72	- 1	.4	-.4	VT.Burlington . . .	64	- 4	.6	-.2
IDAHO.Boise . . .	68	- 2	.2	0	Trenton . . .	74	0	.8	-.1	VA.Lynchburg . . .	77	+ 2	1.1	+ .3
Lewiston . . .	70	+ 1	.1	-.2	N.MEX.Albuquerque . . .	76	- 1	.9	+ .7	Norfolk . . .	77	0	.1	-.9
Pocatello . . .	68	+ 1	0	-.2	Roswell . . .	80	+ 1	2.8	+ 2.5	Richmond . . .	80	+ 3	1.0	0
ILL.Cairo . . .	89	+ 9	T	-.9	N.Y.Albany . . .	67	- 4	T	-.7	Roanoke . . .	79	+ 5	1.3	+ .5
Chicago . . .	76	+ 3	1.8	+ .8	Binghamton . . .	67	- 1	T	-.8	WASH.Colville . . .	68	+ 3	.3	0
Moline . . .	78	+ 5	2.0	+ .6	Buffalo . . .	70	+ 1	T	-.6	Omak . . .	70	+ 2	.6	+ .4
Peoria . . .	79	+ 5	1.5	+ .6	New York . . .	74	- 1	.2	-.5	Quillayute . . .	64	+ 7	T	-.7
Rockford . . .	77	+ 5	4.1	+ 3.0	Rochester . . .	73	+ 3	0	-.6	Seattle-Tacoma . . .	67	+ 5	T	-.3
Springfield . . .	83	+ 8	1.9	+ .9	Syracuse . . .	71	+ 1	.1	-.6	Spokane . . .	68	+ 2	1.1	+ .9
IND.Evansville . . .	87	+ 10	4.1	+ 3.3	N.C.Asheville . . .	78	+ 5	.3	-.7	Walla Walla . . .	71	0	.4	+ .2
Ft. Wayne . . .	76	+ 4	.7	-.2	Charlotte . . .	82	+ 4	.4	-.6	Yakima . . .	68	0	.2	+ .1
Indianapolis . . .	83	+ 9	1.3	+ .4	Greensboro . . .	80	+ 4	1.3	+ .3	W.Va.Beckley . . .	72	+ 2	.8	-.2
South Bend . . .	74	+ 3	3.3	+ 2.4	Hatteras . . .	79	+ 2	1.5	+ .2	Charleston . . .	77	+ 3	1.1	+ .1
IOWA.Burlington . . .	87	+ 4	1.7	+ .6	Raleigh . . .	81	+ 5	1.6	+ .6	Huntington . . .	80	+ 6	1.0	+ .1
Des Moines . . .	84	+ 10	.9	-.1	Wilmington . . .	82	+ 3	3.2	+ 1.6	Parkersburg . . .	76	+ 2	2.0	+ 1.0
Dubuque . . .	75	+ 5	.4	-.8	N.DAK.Bismarck . . .	70	+ 2	.4	-.3	WIS.Green Bay . . .	70	+ 2	2.6	+ 1.8
Sioux City . . .	79	+ 6	.1	-.9	Fargo . . .	70	+ 2	.7	-.1	La Crosse . . .	74	+ 3	4.4	+ 3.4
KANS.Concordia . . .	81	+ 5	1.0	0	Williston . . .	71	+ 4	.6	-.1	Madison . . .	73	+ 4	4.1	+ 3.1
Dodge City . . .	83	+ 6	.9	+ .1	OHIO.Akron-Canton . . .	71	0	1.3	+ .5	Milwaukee . . .	72	+ 4	3.2	+ 2.4
Goodland . . .	76	+ 3	.5	-.1	Cincinnati . . .	80	+ 5	1.9	+ .9	WYO.Casper . . .	69	+ 2	.3	0
Topeka . . .	82	+ 6	.2	- 1.1	Cleveland . . .	73	+ 3	1.8	+ 1.0	Cheyenne . . .	67	+ 2	.2	-.3
Wichita . . .	86	+ 7	T	- 1.1	Columbus . . .	76	+ 3	1.2	+ .2	Lander . . .	70	+ 4	T	-.3
KY.Lexington . . .	81	+ 6	.8	-.3	Dayton . . .	79	+ 5	2.6	+ 1.7	Sheridan . . .	69	+ 3	T	-.5
Louisville . . .	84	+ 8	.2	-.7	Toledo . . .	72	0	4.4	+ 3.6	P.R.San Juan . . .	82	+ 2	1.4	0

Based on 1941-70 normals

Publication of the Weekly Weather and Crop Bulletin began in 1872 as the Weekly Weather Chronicle. It is issued under general authority of the Act of January 12, 1895 (44USC 213), 53d Congress, 3d Session. Contents of the Bulletin may be reprinted freely, with proper credit. Standard copy for the Bulletin is prepared by Donald J. Haddock, Lyle Denny, and O. W. Byrd, Environmental Data Service, National Oceanic and

Atmospheric Administration; Harry DeLong and Jim Carlin, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture. Yearly subscription rate: \$13.00 domestic and \$18.00 foreign airmail. Order from the Weekly Weather and Crop Bulletin, South Building Mail Unit, Room 1248, USDA, Washington, D.C. 20250. Make checks payable to Department of Commerce, NOAA.

## State Summaries of Weather and Agriculture

These summaries provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by ESCS State offices in cooperation with the National Weather Service.

**ALABAMA:** Hottest week of summer; temperatures averaged 6° above normal. Brief thunderstorms some areas. Fieldwork: 5.7 days suitable. Soil moisture very short to short. Cotton fair to good condition; 44% squaring, 78% 1977, 58% average. Corn fair condition; 62% tasseling, 61% 1977, 50% average. Soybeans fair to good condition; 95% planted, 88% 1977, 96% average. Peanuts fair to good condition; 33% pegging, 29% 1977, 44% average. Wheat harvest 85% completed, 96% 1977. Harvest summer potatoes underway.

**ALASKA:** Wet and cool. Temperatures below normal. Rain fell most of week.

Moderate crop growth throughout railbelt. Oats and barley in boot stage. Potatoes averaged 12 in. Ready for hay cutting but wet fields and continued showers interrupted progress. Soil moisture mostly adequate.

**ARIZONA:** Moisture eastern part; west continued dry. Greatest amounts over 1.00 in.; most areas trace to 0.60 in. Temperatures mostly 1 to 6° below normal.

Cotton excellent progress. Sorghum planting about complete, early fields heading out. Small grain harvest winding down. Safflower good progress; some fields nearing maturity. Sugarbeet harvest steady progress. Alfalfa haying well ahead of normal. Melon harvest full swing. Dry onion harvest virtually complete. Potato harvest active, mostly for chipping. Harvest grapes active. Limited peaches, plums remain. Harvest Valencia, grapefruit virtually complete. Lower to mid-elevation ranges drying rapidly. Higher elevation ranges good condition. Stock tanks in lower deserts drying rapidly. Cattle, calves good condition.

**ARKANSAS:** Hot and dry; only a few isolated thunderstorms. Highest normal 81°, lowest 77°. Highest mean 88°, lowest 81°. Highest temperature 102°. Lowest 65°. Most precipitation 1.16 in., least 0.

Soil moisture declined most areas short to adequate. Fieldwork: 6 days suitable. Soybean condition and growth good; planting 94% completed, 95% 1977 and average. Cotton 50% squaring, some early bloom; condition improved. Rice internode growth, condition good. Corn and sorghum good condition, need moisture. Wheat harvest 96% completed, 100% 1977 and average. Oat harvest 95% completed, 100% 1977 and average. Peach harvest active, good size and quality. Tomato harvest near peak, hot dry weather speeding maturity. Apples and grapes good condition; fruit sizing well. Pastures average condition. Hay harvest condition good. Cattle good condition; some supplemental hay fed.

**CALIFORNIA:** Scattered showers north although amounts generally less than 0.50 in. Temperatures 6 to 8° below normal.

Weather generally favorable. Harvest small grains full swing. Harvest barley 80% complete, wheat 75% complete, San Joaquin Valley virtually complete. Preparation double cropping continues for second crop corn, milo. Alfalfa growth, harvest all stages progress, some delay harvest result rain. No damage reported. Rice making good growth, broadleaf weed control measures being taken. Some wind damage reported. Sugar-

beets good growth. Dry beans being cultivated, spotty stands. Safflower blooming. Cotton nearing boll stage desert, 60% square stage lower San Joaquin Valley. Weeding underway. Most fields irrigated first time. No insect problems. Freestone peach, plum, and nectarine harvests active. Apricot harvest nearly complete. Almond husk split begun. Navel orange worm eggs being laid. Some brown rot in early peaches, not severe. Thompson seedless grape harvest increasing rapidly desert areas. Tokay grape thinning complete. Citrus harvests still active. Broccoli, cauliflower, cabbage, carrots, celery, lettuce, dry onion, potato, strawberry harvests continue. Market tomato and bell pepper harvests increasing San Joaquin Valley and south. Processing tomatoes harvested in desert and Kern districts. Fire danger increasing, grasses dry. Movement livestock to feedlots and summer pastures continues. Feeder cattle on grass excellent condition. Weights above average.

**COLORADO:** Moist air, hot temperatures produced thunderstorms and locally heavy rains. Streams eastern foothills near full. Temperatures normal to 8° above.

Winter wheat good; turned 85%, 87% 1977, 80% average; harvested 1%, 10% 1977, 6% average. Oats, potatoes very good. Corn very good, height 20 in., 36 in. 1977. Sugarbeets good. Winter barley good; turned 61%, 77% 1977. Sorghum emerged 96%, 100% 1977, average. Dry beans very good, emerged 74%, 100% 1977, 90% average. Alfalfa good; first cutting 82%, 71% 1977; second cutting 3%, 6% 1977. Fieldwork: 6 days suitable. Range forage drying but favorable grazing. Topsoil, subsoil moisture supplies short. Livestock very good condition.

**FLORIDA:** Normal summer afternoon thundershower activity common over interior with amounts around 0.25 in. and spotty; however, several areas central, south exceeded 2.00 in. Temperatures remained 2 to 3° above normal with highs in upper 90's quite common north, central portion.

Soil moisture mostly adequate south and central areas, mostly short north and Panhandle. Corn fair to good condition. Peanuts, soybeans, sugarcane good condition. Soybean planting continues. Tobacco and hay harvest active. Scattered showers brought some relief to pastures northern Peninsula, parts of Panhandle; elsewhere in these areas, grass was showing effects of little or no recent rain and hot, drying temperatures. Central, southern pastures generally good to excellent condition as result of more rain. Cattle, calves continue mostly good condition. Citrus tree condition excellent. Adequate moisture all areas. Very hot temperatures increasing evaporation. New growth continues on trees all ages. Valencia harvest winding down; grapefruit harvest all but over. Season over for some vegetables; watermelons and sweet corn continue in good volume. Sweet corn declining seasonally. Watermelons mostly from north and west. Light supplies of eggplant, okra, peppers and other vegetables available. Tomatoes, light volume from Gadsden area.

**GEORGIA:** Temperatures 3 to 5° above normal. Averages ranged from upper 70's mountains, to

mid-60's central and south. Widely scattered thundershowers mainly over south and extreme north. Amounts generally less than 0.25 in., but locally more than 1.00 in. south. Widely scattered thundershowers weekend.

Soil moisture mostly very short to short. All crops need rain. Fieldwork: 6 days suitable. Corn poor to fair, continues to decline, needs moisture. Peanuts fair to good; 87% blooming, same as last year; 52% pegging, 71% last year. Soybeans fair to good; 93% planted, 92% last year. Cotton mostly fair to good, 76% squaring, 85% last year; only 29% setting bolls compared to 77% last year and 38% average. Tobacco fair to mostly good condition; 13% harvested, 18% last year, 24% average. Grain sorghum 77% planted, ahead of last year's 68% planted. Small grain harvest continued: Wheat 94% harvested compared to 99% a year ago; oats 97% harvested compared to 98% a year ago. Watermelons and vegetable crops mostly fair to good. Watermelon harvest at 19% well behind last year's 52%. Peaches declined to mostly fair to good condition with 49% harvested compared to 77% last year and 65% average. Apple condition rating fell to fair. Hay mostly fair to good. Pastures also declined to poor to mostly fair rating. Cattle fair to mostly good. Hogs in good condition.

HAWAII: Weather variable. Winds gusty; rains heavy Waianae, Oahu.

Vine crops slightly damaged. Watermelon plantings prematurely plowed Kahuku, Oahu; disease problem. Plan progress other areas fair to good. Banana production: Apple variety light, chinese type increasing. Papaya production steady. Sugar harvesting active. Pineapple harvesting beginning peak. Pastures fair to good.

IDAHO: Temperatures 4° below normal. Extremes: 96 and 31°. Showers limited to north and southwest.

Potatoes 95% emerged, 65% with growth over 6 in. Percent headed: Winter wheat 85%; spring wheat 50%; spring barley 50%. First crop hay 70% harvested. Irrigation water supplies very good.

ILLINOIS: Temperatures 3 to 12° above normal, warmest south. Precipitation 1.00 to 4.00 in. north, light south.

Height all corn fields 35 in., 1977 60 in., average 51 in.; advanced fields 55 in., 1977 75 in., average 67 in. Corn good. Soybeans good to fair; 84% full stand, 1977 82%. Winter wheat 90% turned yellow, 1977 and average 100%; crop 65% ripe, 1977 100%, average 100%; combined 30%, 1977 74%, average 65%; condition good to fair. Oats 95% headed, 100% 1977 and average; crop 65% filled, 1977 95%, average 91%; 25% turning yellow, 1977 64%, average 57%; condition good to fair. Second crop alfalfa hay 30% cut, 1977 48%, average 31%; condition good. Red clover good; crop 90% cut, 1977 100%, average 95%. Pasture good to fair. Fieldwork: 5.5 days suitable. Soil moisture short to adequate.

INDIANA: Warm. Heavy weekend rains. Northeast, central and west central 1.90 in., southeast and southwest 1.40, northwest and south central 0.70 in.

Fieldwork: 5 days suitable. Topsoil moisture short to adequate; subsoil moisture adequate. Corn fair to mostly good; height 25 in., 1977 45 in., average 30 in. Soybeans mostly fair to good; height 6 in., 1977 12 in., average 9 in. Wheat 25% ripe; 5% harvested, 1977 25%, average 25%. Oats few fields harvested, 1977 10%. Barley 25% harvested. Rye 5% harvested. Pastures mostly fair to good.

IOWA: Hot and humid with scattered thundershowers mostly concentrated over east and south central.

Topsoil and subsoil moisture adequate. Corn, oats, wheat, hays, and pasture good condition. Average height of tallest corn: 47 in.; average height 33 in. Weed control corn good; soybeans, fair to good. First crop alfalfa hay harvested 97%, last year 100%, normal 95%. First crop clover hay harvested 77%, last year 90%, normal 72%. Oat acreage headed 91%, last year 100%, normal 94%. Fieldwork: 4.0 days suitable. Livestock condition good; minor heat stress.

KANSAS: Precipitation little to none southeast quarter, 0.50 to 1.00 in. west and north. Temperatures ranged 79° northwest, 84° to 86° east and south central; 4 to 8° above normal.

Wheat harvest 35% completed, 55% last year and average. Evening showers delayed harvest west. Row crop plantings virtually complete. Corn less than 5% tasseled, average 5%, last year 10%. Alfalfa second cutting 45% complete, same as average, 40% last year. Topsoil moisture short to adequate. Subsoil adequate, exception northwest and north central where short.

KENTUCKY: Temperatures 9° above normal. Precipitation varied considerably averaging 1.50 in. east and 0.67 in. west.

Hot, dry weather causing stress on crops and livestock. Soil moisture short. Fieldwork: 5.6 days suitable. Corn 5% tasseling, 31% last year, 17% average; condition fair to good, rain needed for tasseling and silking stage development. Tobacco plants 59% 6 in. or greater. Late set tobacco hurt by heat and some resetting necessary. Wheat 60% harvested. Planting double crop beans following wheat continued; topsoil dry in many areas. Pastures good but declining.

LOUISIANA: Temperatures 3° above normal. Extremes: 100 and 68°.

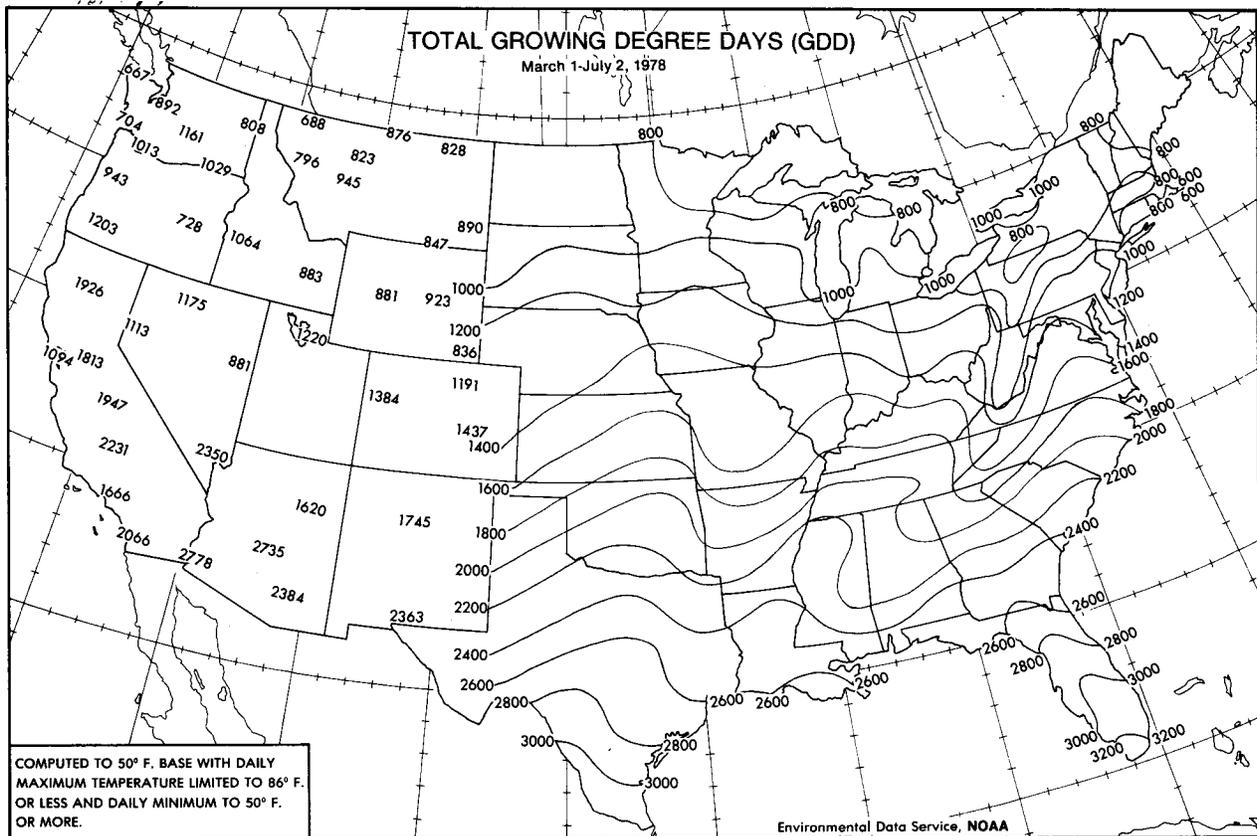
Fieldwork: 5.7 days suitable. Main activities: Planting, weed control, and haying. Soil moisture short. Soybean planting 98%, 95% last year, 93% average; 91% up to stand; fair to good. Cotton good; 57% squaring, 79% last year. Sorghum 97% planted, 95% last year; 88% up to stand; fair to good. Corn fair to good; 90% tasseled. Sweet-potatoes 97% transplanted, 92% last year; good condition. Peaches, sugarcane fair to good. Rice good, 35% headed. Livestock good. Pastures, hay fair to good.

MARYLAND & DELAWARE: Temperatures above normal. Highs in 90's, lows mid-60's. Precipitation averaged 0.75 to 1.50 in.

Fieldwork: 6.5 days suitable. Soil moisture adequate. Pastures supplying average amounts of feed. Corn growth good. European corn borer causing damage in some areas. Soybeans 90% planted, 93% 1977, 87% average. Tobacco transplanting 90% completed. June apple drop over; appears to be heavy crop.

MICHIGAN: Temperatures normal to slightly above. Mean temperature near 70°. Precipitation near 6.00 in. south central Lower, up to 5.00 in. southwestern Lower. Severe hail damage along with high winds and heavy rains one locality.

Fieldwork: 5 days suitable. Soil moisture short to adequate. Corn height 24 in., 29 in. last year, 20 in. normal; heavy rains and hail hurt corn southwest. Winter wheat 100% headed, last year 100%, 90% normal; wheat 35% turned yellow, 75% last year, 60% normal. Oats 65% headed, 75% last year, 55% normal. Dry beans 98% planted, 98% last year, 90% normal. Soybean planting 100% complete, 100% last year, 100% normal. First cut hay 80% complete, 90% last year, 70%



normal. Pasture supplies adequate. Fruit set of apples average or above. Sweet cherry harvest started. Some orchards hurt by hail in southwest. Strawberries 65% harvested.

**MINNESOTA:** Temperatures 4° above normal. Extremes: 98 and 44°. Precipitation totals ranged from traces parts of northwest and southwest to locally more than 8.50 in. southeast. Totals of 2.00 to 4.00 in. common across west central, central, east central, and southeast in very heavy rains mainly at week's end. Torrential rains of 4.00 to 9.00 in. along east tier of counties from Twin Cities to Iowa border produced severe flooding. Precipitation averaged 2.00 in. above normal west central through east central and southeast, near normal south central and northeast, 0.25 in. below normal northwest, and 0.50 in. below normal southwest.

Good growing week; moisture adequate to surplus most areas. West soil slowing soybean development, spurring corn growth. Few southern small grain fields turning ripe. Height: Corn 31 in., 1977 56 in., normal 32 in.; soybeans 10 in., 1977 16 in., normal 11 in. Heading: Spring wheat 50%, 1977 98%, normal 66%; oats 60%, 1977 99%, normal 74%; barley 70%, 1977 99%, normal 70%. Turning ripe: Winter wheat 28%, 1977 80%, normal 43%; rye 36%, 1977 77%, normal 49%. Flax 34% blooming, 1977 66%, normal 43%.

**MISSISSIPPI:** Temperatures 1 to 5° above normal. Extremes: 65 and 100°. Widely scattered thunder-showers.

Soil moisture adequate to short northern areas, Delta; short elsewhere. Fieldwork: 6.1 days suitable. Cotton insects generally light. Crops cleaner after full week of cultivation, weed control. Soybeans 95% planted, 92% 1977, 89% average; 83% up to stand, 80% 1977. Cotton 76% squaring, 89%

1977, 57% average; 10% blooming, 63% 1977; 1% setting bolls, 25% 1977, 16% average. Corn 63% silked, 69% 1977, 38% average; 22% in dough stage, 30% 1977. Sorghums 89% planted, 85% 1977, 87% average. Sweetpotatoes 97% planted, 93% 1977, 90% average. Winter wheat 96% harvested, 98% average. Oats 98% harvested, 98% average. Hay crops 44% harvested, 47% 1977, 40% average. Irish potatoes 84% harvested, 84% 1977, 79% average. Peaches 29% harvested, 57% 1977, 43% average. Cucumbers 59% harvested, 63% 1977. Watermelon 6% harvested. Cotton, rice good to fair condition. Soybeans, corn, pasture good condition. Peaches fair to good condition.

**MISSOURI:** Temperatures in 90's, 5 to 7° above normal. Precipitation light with locally heavy thunderstorms. Some flooding northeast.

Fieldwork: 5.5 days suitable. Soybeans 96% planted, last year 100%, normal 92%. Grain sorghum 96% planted, last year 100%, normal 93%. Wheat 98% turning color, last year and normal 100%. Wheat 67% ripened, last year 100%, normally 95%. Wheat 36% harvested, last year 68%, normal 65%. Cotton 13% squared, last year 55%, normal 32%. Alfalfa hay 1st cutting 93% complete, last year and normal 100%; 2d cutting 20% complete, last year 53%, normal 39%. Other hay 65% harvested. Condition of corn and pasture mostly fair to good. Condition of cotton mostly good. Soil moisture supply short to adequate.

**MONTANA:** Temperatures turned hot midweek, with showers and thunderstorms increasing. Strong winds, heavy rains, and hail accompanied some thunderstorms. Scattered areas reported amounts near 1.00 in. Temperatures near to 3° above normal.

Soil moisture adequate. Fieldwork: 5.0 days suitable. All crops in good condition. Winter wheat 15% boot, 80% headed, 5% turning; normal 20%,

60%, 15% respectively. Spring wheat 55% pre-boot, 35% boot, 10% headed; normal 35%, 35%, 30% respectively. Barley 50% pre-boot, 35% boot, 15% headed; normal 35%, 35%, 30% respectively. Oats 50% pre-boot, 35% boot, 15% headed; normal 40%, 30%, 30% respectively. First cutting alfalfa hay 40% cut, normal 35%. Wild hay 25% cut, normal 10%. Prospective and current irrigation water supply slightly above average.

NEBRASKA: Scattered thundershowers most areas; heaviest southeast. Temperatures 5 to 9° above normal.

Corn, sorghum, soybeans good condition. Wheat 70% turned, 100% year ago, 90% normal. Wheat 15% ripe, 70% year ago, 45% normal. Harvest began several areas by weekend; crop remains mostly good condition. Second cutting alfalfa hay 10% complete; 45% year ago. Several reports heavy grasshopper infestations. Soil moisture levels declining. Fieldwork: 6.5 days suitable.

NEVADA: Persistent gusty wind conditions with gusts reaching 50 to 60 mph northwest. Sporadic showers north and central. Temperatures generally 4 to 8° below normal. Extremes: 28 and 109°. Low night temperatures slowed vegetative growth. Alfalfa hay harvest active.

NEW ENGLAND: Rainfall light and spotty in south; north received 0.50 to 1.00 in. Temperatures several degrees above normal until 30th with temperatures running some 15 to 20° below normal 1st and 2nd.

Aroostook County, Maine potato crop making good progress. No major insect or disease problem apparent. Tree fruits sizing well. June drop light and chemical thinning being used. Cranberry prospects good; blooms opening. Silage corn planting about complete except in north. Haying active; good drying weather. Generally soil moisture adequate.

NEW JERSEY: Temperatures 2° below normal. Extremes: 43 and 91°. Rainfall 0.29 in. north, 0.58 in. central and 0.52 in. south.

Soil moisture in percent of field capacity: 57% north, 50% central and 49% south. Soil temperature 69° north and 73° south. Total sunshine 48% of possible hours. Fieldwork: 6 days suitable. Dry, irrigation in use in some areas. Harvest of sweet corn, tomatoes, snap beans, cucumbers and squash increasing. Blueberry harvest increasing. Strawberry supplies light from northern areas; harvest complete elsewhere. Barley combining underway. Wheat coloring. Field corn planting complete. Soybeans going in following barley harvest. Some first cutting of hay being made; second cutting ready in southern areas.

NEW MEXICO: Widespread and substantial showers through 29th with some rainfall to almost 3.00 in.

Rains brought relief from extreme heat. Cotton fair to good. Alfalfa first cutting practically complete, 2d about 90% complete south and beginning north; 3rd just beginning in extreme south. Winter wheat harvest 90% complete. Barley harvest practically completed. Onion harvest active. Peanuts and corn good. Ranges improving from rain.

NEW YORK: Scattered showers and thunderstorms; precipitation averaged below normal. Temperatures above normal at week's beginning, below normal toward end. Extremes: 95 and 24°.

Good work week. Corn condition good. First cutting alfalfa 77% done, 85% last year. Clover-timothy 60% in, 70% 1977. Grass silage 80% cut, 85% 1977. Onions, sweet corn, tomatoes and celery

in good condition. Lettuce and strawberries good to excellent. Apples showing good growth. Hudson Valley sweet cherry harvest begun.

NORTH CAROLINA: Temperatures 4° above normal; 90° midweek. Unusually high humidity. Precipitation widely scattered thunderstorms; heaviest weekend in southeast.

Fieldwork: 5.9 days suitable. Soil moisture short to adequate. Condition of tobacco, corn, cotton and pasture, fair to good; peanuts, soybeans, hay crops, Irish potatoes, sweetpotatoes, apples and peaches, fair to mostly good. Planted: Soybeans 93%, 1977 100%, average 90%; sorghum 85%, 1977 99%, average 92%; burley tobacco 99%, 1977 100%, average 100%; sweetpotatoes 94%, 1977 96%, average 92%. Harvested: Wheat 70%, 1977 83%, average 78%; oats 83%, 1977 88%, average 82%; barley 89%, 1977 91%, average 86%; rye 83%, 1977 88%, average 82%; peaches 20%, 1977 33%, average 35%; hays 64%, 1977 58%, average 56%; Irish potatoes 63%, 1977 73%, average 61%; tobacco harvest just underway. Corn silking 39%.

NORTH DAKOTA: Warm and humid with frequent showers and thunderstorms. Some thunderstorms produced very heavy rainfall with largest amounts afternoon and evening 29th. Some areas received 4.00 to 5.00 in. in short period. All areas received significant rainfall. Temperatures 2 to 5° above normal. Extremes: 47 and 93°.

Small grain condition mostly good to very good and progressing rapidly. Hard red spring wheat headed to flowering 24%, last year 42%, average 31%; very little in milk or later. Durum headed to flowering near 20%, last year 41%, average 24%; very little in milk or later. Other small grain progress similar. Late season crops all seeded and doing well. Weeds a problem. Spraying nearly complete. Pasture and hay good to excellent. Topsoil moisture adequate except northeast.

OHIO: Rainfall totals 0.25 to 0.50 in. some widely scattered parts of south and central; 2.00 to 3.00 in. north; 1.00 in. elsewhere. Weekend showers produced 1.00 to 2.00 in. statewide. Temperatures 3 to 6° above normal.

Crop conditions improved to mostly good. Some lodging of wheat and corn. Limited hail damage. Wheat harvest just beginning, two weeks late. Early soybeans and second cutting alfalfa beginning to bloom. Quality of hay fair to good. Corn height 29 in., 34 in. 1977, 29 in. average. Soybean height 9 in., 12 in. 1977, 11 in. average. Alfalfa first cutting over 95%, 100% 1977, 95% average. Clover-timothy first cutting 85%, 100% 1977, 80% average. Wheat ripe 30%, 70% 1977, 50% average. Wheat harvested 1%, 30% 1977, 5% average. Oats ripe less than 10%, 20% 1977, 15% average. Fieldwork: 5 days favorable. Pasture condition very good. Soil moisture adequate.

OKLAHOMA: Temperatures above normal. Precipitation mostly in southeast and Panhandle; elsewhere spotty, 0.10 in. or less.

Wheat harvesting virtually complete from southwest to north central; Panhandle and northeast about 50 to 75% complete; statewide harvest 91% complete. Early June rains reduced test weights and dark hard vitreous wheat. Wheat acreages being worked. Small grains harvest 90% complete.

OREGON: Precipitation scattered throughout week; rainfall west ranged from 0.10 to 0.60 in. and from less than 0.10 in. to nearly 1.00 in. east. Temperatures averaged a few degrees above normal over west and from 7° subnormal to 6° above normal

east. Extremes: Mid-90's, high 40's west; high 90's, low 30's east.

Soil moisture supply short to adequate. Early barley harvest underway at lower elevations. First wheat harvest should begin around 10th. Cereal grains generally look good but disease problems reported in both east and west. Grass seed harvest underway in western valleys. Haying continues in all areas, rain is affecting quality. Cherry harvest at various stages of completion, crop looks good. Thinning continues on apples and pears. Strawberry harvest in final stages, caneberry picking underway. Green pea harvest about 50% complete. Row crop harvest underway. Norgold potato harvest to begin soon. Onions beginning to bulb in east. Ranges and pastures in good to excellent condition. Livestock in good shape.

**PENNSYLVANIA:** Warm, humid first half with scattered showers and thunderstorms, some severe with hail and damaging winds. Drier second half until rain south 2d. Temperatures 2 to 4° below normal north, 2° above normal southeast and extreme west. Rainfall under 0.25 in. to over 4.00 in.

Fieldwork: 5 days suitable. Moisture level adequate. Activities: Filling silos and making hay; spraying; cultivating corn, potatoes. Tobacco 93% transplanted. Barley 20% ripe, last year 42%. Wheat 49% turning, last year 66%. Oats headed 59%, last year 75%. Corn height 16 in. Last year 20 in. Alfalfa first cut 88%, second cut 18%, clo-tim 74%. Hay quality fair to good. Feed from pastures average.

**PUERTO RICO:** Island average rainfall 1.15 in. or 0.04 in. below normal. Temperatures averaged about 81° on coasts and 75° interior. Extremes: 96 and 59°.

**SOUTH CAROLINA:** Hot, dry weather persisted with 100° or above several days south, west. Widely scattered thundershowers near weekend although rainfall light.

Soil moisture short to very short. Fieldwork: 5 days suitable. Corn fair; silking 80%, 86% last year; dough 40%, 47% last year. Cotton fair to good; 75% squaring, 94% last year. Soybeans 93% planted; 95% last year, 92% average; stands fair to good. Tobacco topped 55%, 59% last year; harvested 5%, 11% last year, 12% average; condition fair to good. Peaches good, 24% harvested, 37% last year, 36% average.

**SOUTH DAKOTA:** Warm and humid. Highest reading 101°. Precipitation widespread; heaviest amounts in northern areas.

Grasshoppers invading western grain fields and ranges. Topsoil moisture short to adequate. Fieldwork: 5.1 days suitable. Oats 75% headed, 1977 100%, normal 86%. Spring wheat 65% headed, 1977 100%, normal 80%. Barley 80% headed, 1977 100%, normal 93%. Winter wheat 65% turning, 1977 95%, normal 70%. Rye 68% turning, 1977 92%, normal 71%. Flax 35% in bloom, 1977 74%, normal 55%. Corn 93% cultivated 1st time, 1977 100%, normal 100%; 50% cultivated 2d time, 1977, 86%, normal 61%; height 20 in., 1977 39 in., normal 23 in. Alfalfa 95% harvested 1st time, 1977 100%, normal 95%.

**TENNESSEE:** Temperatures 4 to 10° above normal. Highs upper 90's, lows 70's. Rainfall light; scattered showers early week, severe thunderstorms weekend. Many areas averaged over 1.00 in.

Fieldwork: 5.8 days suitable. Soil moisture short. Soybeans 96% planted, 1977 96%, average 95%. Corn 20% silking, 1977 47%, average 23%. Cotton 35% squaring, 1977 72%, average 50%. Wheat 80% harvested, 1977 88%, average 79%. Oats 73%

harvested, 1977 80%, average 73%. Barley 83% harvested, 1977 87%, average 85%. All crops fair. Pastures fair, need rain. Cattle good condition.

**TEXAS:** Temperatures 2 to 5° above normal. Rainfall near normal east, Upper Coast; above normal Trans-Pecos region; below normal elsewhere.

Cotton planting now complete, stands generally good. Plains cotton varies from just emerged to squaring. Some areas in east having problems with boll weevils and bollworms. First bale of cotton harvested Lower Valley last week, main harvest will begin around mid-July. Sorghum harvest underway in east. Late planted non-irrigated sorghum is moisture stressed. Sorghum planted 99%, 1977 100%, average 99%. Wheat harvested 77%, 1977 92%, average 83%. Corn in Panhandle generally good but some fields stressed by hot winds. Statewide corn fields made good, early growth; many non-irrigated fields now dry and need moisture to fill properly. Harvest in the Lower Valley to begin in about three weeks. Peanuts stands good, need moisture. Some fields in Cross-Timbers not being planted due to shortage of moisture. Peanuts planted 93%, 1977 94%, average 94%. Rice headed out; harvest expected to begin within three weeks. Soybeans planted 94%, 1977 99%, average 98%. Hay harvest active. Regrowth slow due to dry weather. Alfalfa being cut for 2d or 3d time in Panhandle. Oat harvest active in High Plains and northern Low Plains. Oats harvested 98%, 1977 100%, average 99%. Sunflowers planted 81%, 1977 94%, average 90%.

Harvests of melons, bell peppers, onions, sweet corn, okra, peas, beans, tomatoes continued. Land preparation for fall crops underway. Lack of moisture limited production some areas. Pecan spraying to control casebearers. Dry conditions central and east limited nutlet development and caused shedding. Peach harvest near completion in south; harvest active central and east. Pastures dry; areas receiving rain early this season have ample grazing. Some areas ranges dry enough for danger of fires. Stock tanks need moisture many areas. Grasshoppers heavy many areas. Livestock fair to good condition. Several cases of screwworm reported.

**UTAH:** Few isolated afternoon and evening showers and thunderstorms principally northeast. Accumulated moisture locally light but generally little or none. Temperatures near normal with averages ranging from 4° below normal to 4° above normal.

Soil moisture deficit many dryland fields and ranges becoming critical. Range feed fair but outlook for summer poor. Livestock on summer range still in good condition with adequate water supplies. Insects a problem in many areas. Winter wheat 92% headed. Harvest to begin mid-July in most areas. Spring small grains looking good. About 60 to 70% headed. Vegetable crops good. Sweet cherries have good size and quality but production off; harvest 15% complete.

**VIRGINIA:** Temperatures mid-70's, slightly above normal. Extremes: 98 and 49°. Precipitation moderate with 0.75 to 1.00 in. occurring as showers and thunderstorms 26th thru 28th.

Topsoil moisture mostly adequate. Soybeans almost 80% planted. Corn 8% silked, 21% 1977, 13% average. Harvest progress: Barley 72%, 82% 1977 and average; wheat 36%, 65% 1977, 55% average; oats 37%, 59% 1977, 63% average. Tobacco, peanuts, corn, soybeans, pastures in good condition. Fruit prospects good to excellent. Soybean planting continues. Haying active, curing difficult. Livestock marketing active north. Fieldwork: 4.9 days available.

WASHINGTON: West: Temperatures 2 to 4° above normal. Precipitation averaged 0.40 in. below normal.

Berry crop harvests continue. Vegetable crops recently planted faring well, favorable weather. Cabbage and lettuce harvests continue. Rain gave boost to pastures and hampered some hay making operations.

East: Temperatures averaged 1 to 2° above normal and precipitation 0.20 in. below to 0.20 in. above normal.

Some late cherries splitting due to heavy rain. Bulk of crop already picked. Conditions good for apples and pears. Early potato harvest about 1 week away. Rain relieved some moisture stressed fields. Second cut hay beginning.

WEST VIRGINIA: Temperatures and precipitation well above normal; southern portion, light rain. Severe thunderstorms, high winds damaged trees north.

Soil moisture adequate to surplus. Fieldwork: 4.5 days suitable. Haying and cultivating corn major activities. First haying 71%, 76% 1977, 69% average; 2nd haying 6%, 1977 and average less than 5%; barley 13%, 1977 and average less than 5%; other grains, harvest beginning. Tobacco, 86% set. Corn planting virtually complete. Small grains crop maturity: Wheat mostly headed, barley headed to ripe, oats mostly headed. Pastures mostly good. Livestock good shape. Flies becoming problem.

WISCONSIN: Temperatures 3° above normal. Extremes: 23 and 52°. Highs 80's and 90's until

weekend when 60's and 70's with clouds and rain. Rainfall very heavy as showers and thunderstorms developed late 29th and continued through 2nd. Heaviest rains 4.00 to 6.00 in. west central and south, some local amounts up to 8.00 in. Much flooding and erosion southwest.

Crop development rapid with heat and moisture. Corn height averages 24 in., 1977 45 in., normal 22 in. Early corn hip high. Corn in low areas under water or flooded out. Oats and small grains look very good; oats 55% headed, 1977 95%, normal 60%. Oats filling good, straw length varies. Winter wheat turning color. Soybeans growing well. First crop hay 80% harvested, 1977 95%, normal 65%. Quality deteriorating with frequent showers. Second crop coming rapidly, a few harvesting. Pasture conditions above normal. Tobacco transplanting continues, plants growing fast but some stands washed out. Rains interfering with pea harvest. Soil moisture adequate to surplus.

WYOMING: Temperatures well above normal especially south and east. Precipitation generally below normal with south especially dry.

Soil moisture short to adequate. Subsoil moisture adequate. Winter wheat 93% headed, 25% turning color. Other small grains developing slowly. Acreage headed: Spring wheat 47%; oats 36%; barley 53%. Hay harvest slower than last year. First cutting alfalfa 41% completed. Range drying rapidly and deteriorating but still in generally good condition. Stock water supply adequate.

## World Weather and Crop Update

June 26 - July 2

USSR. By early July, the crop outlook generally continued quite promising. Winter grains matured in the southernmost regions of European USSR, and harvesting---mainly winter barley---is now underway. Light to moderate rains fell throughout Belorussia and the central Black Soil and central non-Black Soil regions. Rainfall was generally heavier elsewhere in European USSR. Heavy rains drenched much of the Ukraine, especially in the western and southwestern areas which have been plagued by excess moisture, and parts of the North Caucasus. Excellent rains were recorded in the Volga Valley and Urals region. Adequate moisture to maintain good growing conditions dampened much of the spring wheat fields of western Siberia and northern Kazakhstan. Although soil moisture reserves throughout the spring wheat areas were generally good, top soil in some regions is drying out, and additional precipitation is needed to improve crops.

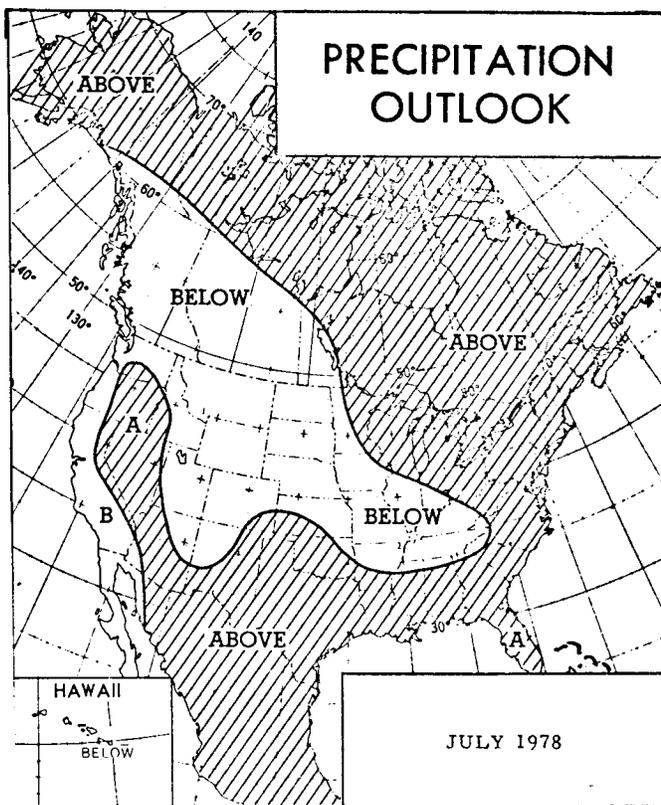
ASIA. India's monsoon continued to progress normally. By the end of June, it was established over the entire country except for the north and northwest. Pre-monsoon rains in the latter part of June in these areas, however, brought relief from the hot, dry weather that had prevailed since May. Cumulative rainfall from June 1 to June 28 was normal or above for the entire country except for West Bengal, Orissa, and Tamil Nadu. Heavy rains drenched widespread areas over the North China Plain and may have caused localized problems where the winter grain harvest was not finished. Heavy rainfall continued to boost crop prospects in the northeastern provinces where spring wheat, soybeans, and coarse grains predominate. But precipitation was generally light over the rice-growing provinces south of the Yangtze River except in Szechwan and Kwangtung.

AUSTRALIA. Favorable storm patterns again brought general rains to all the principal grain areas in Australia. Wheat and barley plantings made a good start in most areas. Livestock prospects continued to improve as the rains promoted good pasture growth.

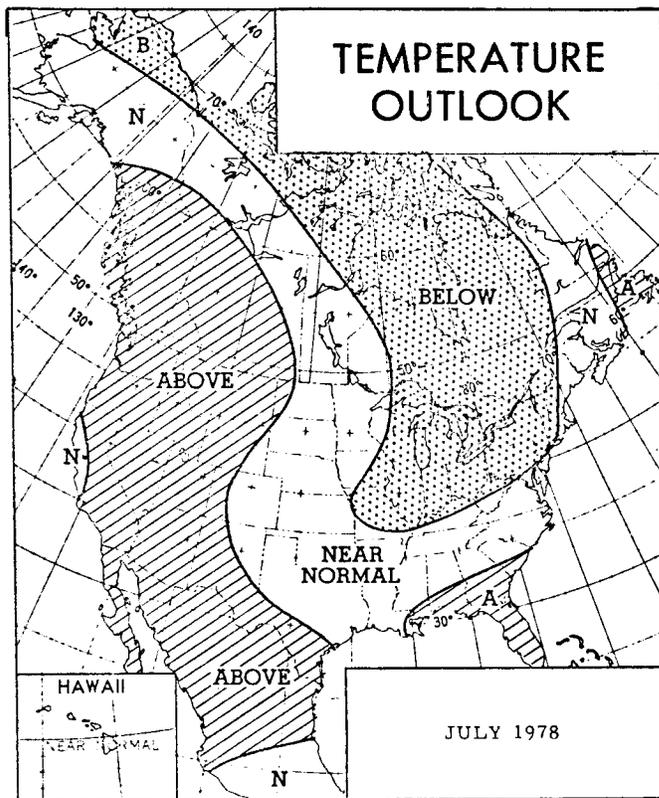
AFRICA. North Africa was dry and warm except for a few light, scattered showers in northwestern Morocco. South Africa was seasonally cool and dry.

EUROPE. Cool, damp weather pervaded much of western Europe and the United Kingdom. Light, widely scattered showers fell over Mediterranean France, Spain, and Italy. In eastern Europe, moderate to heavy rains pelted East Germany while light to moderate amounts of moisture were deposited in the other countries in this region except Bulgaria. Turkey's weather featured showers along the Black Sea Coast, but it was essentially dry elsewhere.

AMERICAS. In Brazil, moderate to heavy rain (10-25 mm) dampened Rio Grande do Sul in the extreme south, but dry areas farther north in Parana received only teasing light showers. There were no threatening temperatures in the coffee-producing states. Rainfall in Argentina's principal grain belt was confined mainly to Entre Rios and the northern part of Buenos Aires province. Heavy rains dotted Uruguay. Soil moisture continued to be good over most of Canada's Prairie Provinces where moderate rainfall was recorded. Some areas in Saskatchewan, however, need additional rain to prevent crops from deteriorating.



Average Monthly Weather Outlook



## ACREAGE OUTLOOK - 1978



*In early spring, most farmers were held at bay by wet soils and low temperatures. However, when mid-May arrived planting operations hit full swing, and by June 1 most growers saw prospects of a good to excellent harvest.*

In its annual June survey, USDA's Crop Reporting Board estimates showed most major crop acreages on the downside compared with 1977 seedings.

Feed grain acreage dropped 5 percent from last year to 122 million acres, the fewest acres seeded since 1974. Corn planted for all purposes registered a 5 percent drop to 78.7 million acres. Sorghum plantings also dipped---down 3 percent to 16.5 million acres. Oats and barley filled less acreage, off 8 percent and 6 percent respectively.

Seeded acreage to food grains declined 9 percent from a year ago to 72.2 million acres, also the fewest since 1974. All wheat, at 66.3 million acres, dipped 11 percent from the year before. Winter and spring wheat both fell, by 14 percent and 9 percent, but durum wheat acreage chalked up a 29 percent increase. Rice seedings penciled out to nearly 3 million acres, a 31 percent surge from a year ago. Rye plantings, at close to 3 million acres, jumped 11 percent above 1977's record low.

Oilseed acreage rose 6 percent to 82.7 million acres, mainly on the strength of a hefty boost in soybean plantings. Farmers put an estimated 64.3 million acres to soybeans, up 9 percent from last year for a new record. Cotton growers seeded 13.1 million acres, 4 percent below the 1977 total. Flaxseed fields numbered 965 thousand acres, off 36 percent; however, sunflower seeds planted to all purposes, gained 21 percent to 2.8 million acres. Peanuts logged about the same acreage as the year before, a bit over 1.5 million acres.

Other crops indicated the following: Hay estimates showed 61.3 million acres, up 1 percent. Dry edible peas and dry edible beans marked increases of 17 percent and 9 percent. Summer potato acreage, at 115 thousand acres, hit a 3 percent downturn, but sweetpotatoes measured a 5 percent increase to 123 thousand acres.

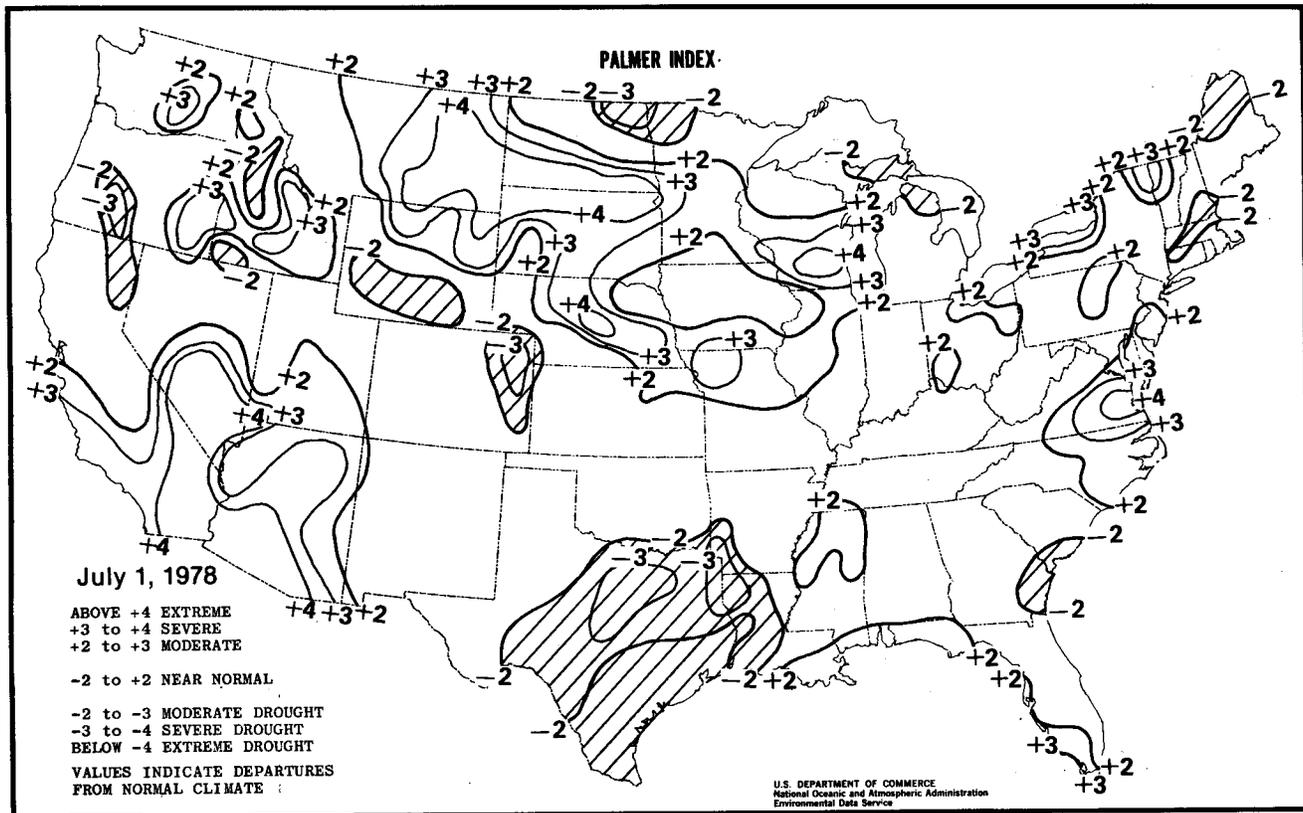
Tobacco acreage experienced a slight decline of 1 percent to 945 thousand acres. Farmers planted sugarbeets to 1.32 million acres, 4 percent more than a year ago. Sugarcane growers also increased acreage a bit---by 4 thousand acres---for a total of 763 thousand.

Heating Degree Days (Base 65° F.)

June 1978

ALA. Birmingham . . . . .	0	MAINE, Caribou . . . . .	156	OKLA. Okla. City . . . . .	0
Mobile . . . . .	0	Portland . . . . .	134	Tulsa . . . . .	0
Montgomery . . . . .	0	MD. Baltimore . . . . .	9	OREG. Astoria . . . . .	161
ALASKA, Anchorage . . . . .	308	MASS. Boston . . . . .	18	Burns U. . . . .	189
Barrow . . . . .	952	Chatham . . . . .	98	Medford . . . . .	44
Fairbanks . . . . .	304	MICH. Alpena . . . . .	191	Pendleton . . . . .	46
Juneau . . . . .	317	Detroit . . . . .	65	Portland . . . . .	58
Nome . . . . .	605	Flint . . . . .	86	Salem . . . . .	51
ARIZ. Flagstaff . . . . .	128	Grand Rapids . . . . .	62	PA. Allentown . . . . .	15
Phoenix . . . . .	0	Houghton Lake . . . . .	144	Erie . . . . .	84
Tucson . . . . .	0	Lansing . . . . .	84	Harrisburg . . . . .	17
Winslow . . . . .	0	Marquette U . . . . .	183	Philadelphia . . . . .	10
Yuma . . . . .	0	S. Ste. Marie . . . . .	270	Pittsburgh . . . . .	38
ARK. Fort Smith . . . . .	0	MINN. Duluth . . . . .	176	Scranton . . . . .	73
Little Rock . . . . .	0	Internatl Falls . . . . .	195	R. I. Providence . . . . .	27
CALIF. Bakersfield . . . . .	0	Minneapolis . . . . .	46	S. C. Charleston . . . . .	0
Eureka U. . . . .	264	Rochester . . . . .	66	Columbia . . . . .	0
Fresno . . . . .	0	St. Cloud . . . . .	92	Greenville . . . . .	0
Los Angeles U . . . . .	0	MISS. Jackson . . . . .	0	S. DAK. Aberdeen . . . . .	74
Red Bluff . . . . .	0	Meridian . . . . .	0	Huron . . . . .	119
Stockton . . . . .	0	Vicksburg U . . . . .	-	Rapid City . . . . .	91
San Diego . . . . .	0	MO. Columbia . . . . .	3	Sioux Falls . . . . .	78
San Francisco . . . . .	135	Kansas City . . . . .	6	TENN. Chattanooga . . . . .	0
COLO. Denver . . . . .	87	St. Louis . . . . .	5	Knoxville . . . . .	0
Grand Junction . . . . .	9	Springfield . . . . .	7	Memphis . . . . .	0
Pueblo . . . . .	54	MONT. Billings . . . . .	97	Nashville . . . . .	0
CONN. Bridgeport . . . . .	43	Glasgow . . . . .	111	TEX. Abilene . . . . .	0
Hartford . . . . .	25	Great Falls . . . . .	106	Amarillo . . . . .	6
D. C. Washington . . . . .	0	Havre . . . . .	79	Austin . . . . .	0
FLA. Apalachicola . . . . .	0	Helena . . . . .	87	Beaumont . . . . .	0
Ft. Myers . . . . .	0	Kalispell . . . . .	169	Brownsville . . . . .	0
Jacksonville . . . . .	0	Miles City . . . . .	68	Corpus Christi . . . . .	0
Key West . . . . .	0	Missoula . . . . .	171	Dallas . . . . .	--
Lakeland U. . . . .	0	NEBR. Grand Island . . . . .	26	Del Rio . . . . .	0
Miami . . . . .	0	Lincoln . . . . .	27	El Paso . . . . .	0
Orlando . . . . .	0	Norfolk . . . . .	28	Fort Worth . . . . .	0
Daytona Beach . . . . .	0	North Platte . . . . .	71	Galveston U. . . . .	0
Tallahassee . . . . .	0	Omaha . . . . .	23	Houston . . . . .	0
Tampa . . . . .	0	Valentine . . . . .	72	Lubbock . . . . .	0
GA. Atlanta . . . . .	0	NEV. Ely . . . . .	172	Midland . . . . .	0
Augusta . . . . .	0	Las Vegas . . . . .	0	San Angelo . . . . .	0
Macon . . . . .	0	Reno . . . . .	113	San Antonio . . . . .	0
Savannah . . . . .	0	Winnemucca . . . . .	96	Victoria . . . . .	0
IDAHO, Boise . . . . .	74	N. H. Concord . . . . .	72	Waco . . . . .	0
Lewiston . . . . .	40	N. J. Atlantic City . . . . .	24	Wichita Falls . . . . .	0
Pocatello . . . . .	119	Trenton U . . . . .	15	UTAH, Milford . . . . .	42
ILL. Cairo U. . . . .	0	N. MEX. Albuquerque . . . . .	2	Salt Lake City . . . . .	36
Chicago . . . . .	36	Roswell . . . . .	3	VT. Burlington . . . . .	90
Moline . . . . .	13	N. Y. Albany . . . . .	84	VA. Lynchburg . . . . .	6
Peoria . . . . .	14	Binghamton . . . . .	100	Norfolk . . . . .	3
Rockford . . . . .	29	Buffalo . . . . .	81	Richmond . . . . .	5
Springfield . . . . .	4	New York . . . . .	16	Roanoke . . . . .	4
IND. Evansville . . . . .	0	Rochester . . . . .	63	WASH. Colville . . . . .	109
Fort Wayne . . . . .	26	Syracuse . . . . .	92	Omak . . . . .	--
Indianapolis . . . . .	4	N. C. Asheville . . . . .	0	Quillayute . . . . .	187
South Bend . . . . .	41	Charlotte . . . . .	0	Seattle-Tacoma . . . . .	78
IOWA, Burlington . . . . .	17	Greensboro . . . . .	4	Spokane . . . . .	101
Des Moines . . . . .	9	Hatteras R. . . . .	0	Walla Walla U. . . . .	26
Dubuque . . . . .	41	Raleigh . . . . .	0	Yakima . . . . .	73
Sioux City . . . . .	33	Wilmington . . . . .	0	W. VA. Beckley . . . . .	56
KANS. Concordia . . . . .	9	N. DAK. Bismarck . . . . .	105	Charleston . . . . .	23
Dodge City . . . . .	12	Fargo . . . . .	90	Huntington . . . . .	12
Goodland . . . . .	50	Williston U . . . . .	91	Parkersburg U. . . . .	21
Topeka . . . . .	6	OHIO. Akron-Canton . . . . .	51	WIS. Green Bay . . . . .	107
Wichita . . . . .	6	Cincinnati U . . . . .	10	Madison . . . . .	59
KY. Lexington . . . . .	6	Cleveland . . . . .	43	Milwaukee . . . . .	83
Louisville . . . . .	1	Columbus . . . . .	23	WYO. Casper . . . . .	107
LA. Baton Rouge . . . . .	0	Dayton . . . . .	15	Cheyenne . . . . .	157
Lake Charles . . . . .	0	Toledo . . . . .	43	Lander . . . . .	127
New Orleans . . . . .	0	Youngstown . . . . .	86	Sheridan . . . . .	153
Shreveport . . . . .	0				

Preliminary reports from airport locations, except those marked U for urban and R for rural.  
\*Estimated.



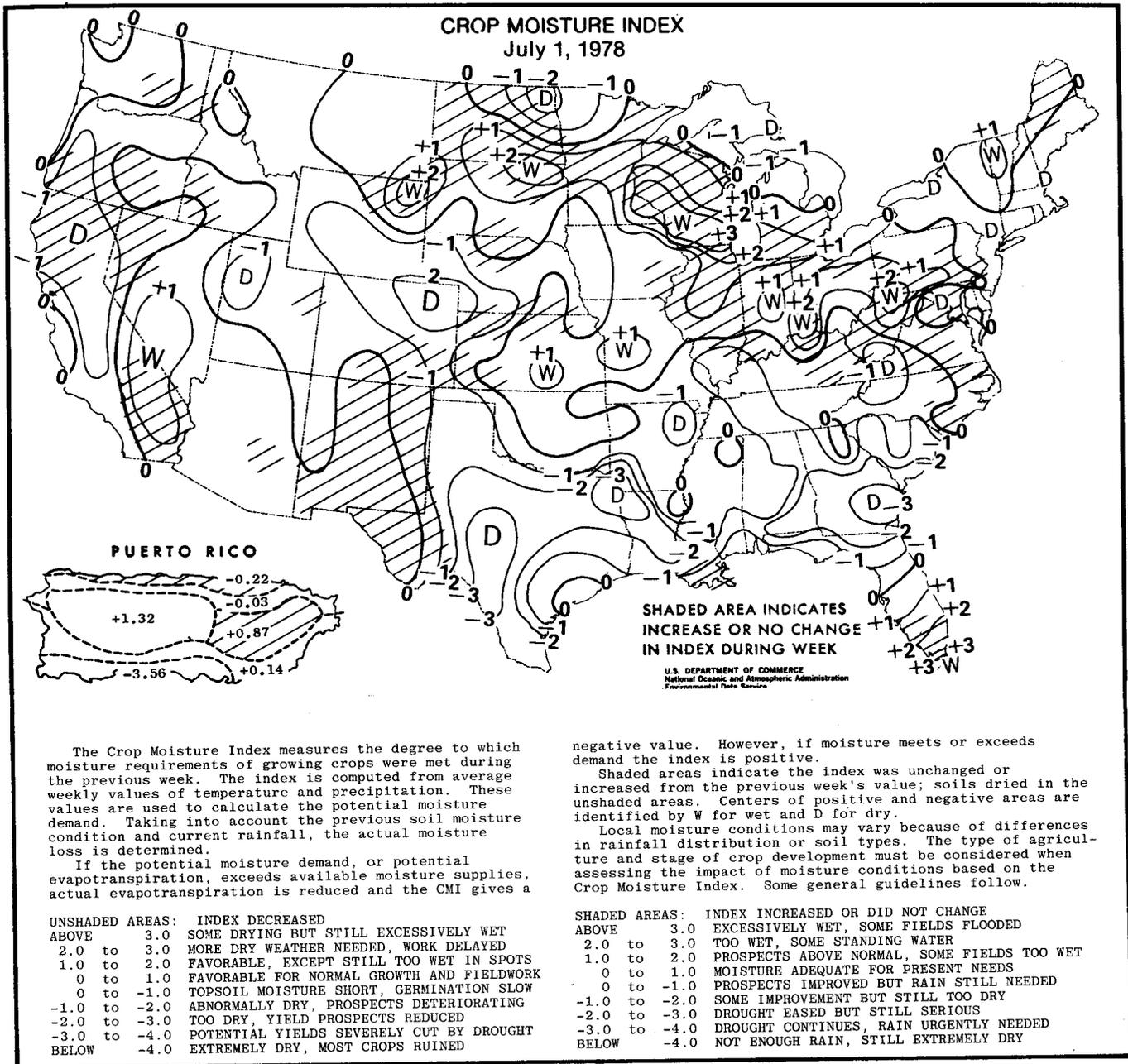
The Palmer Index

The Palmer Index is an index of meteorological drought, which may be defined as a prolonged and abnormal moisture deficiency. The general concept is one of supply and demand. Supply is represented by precipitation and stored soil moisture. Demand is the combination of potential evapotranspiration, the amount needed to recharge the soil moisture, and the runoff needed to keep the rivers, lakes, and reservoirs at a normal level. The results of this water balance accounting produce a positive or negative anomaly which is then weighted by a climate factor. The final product is an index that expresses the abnormality for that particular place for the period of time being computed. This manipulation allows the index to have a reasonably comparable local significance in space and time, that is, a certain index value obtained for a division in New York would have the same local significance as a like value in the more arid areas of western Kansas. This monthly increment is added to a portion of the previous month's index to include the duration of the anomaly in the final index.

The Palmer Index was designed as a climatological indicator of the scope and severity of past droughts. Using the Palmer Index on a real-time basis presents difficulties. A day or so of normal or better rainfall is certainly welcome in an area that has experienced a long drought, but one cannot know whether it indicates the end of the drought or just a brief respite. In order to

make the program have some real-time value, a system of computing a "probability" that a weather spell has ended was devised. This is not entirely satisfactory, but does allow one to assign a definite index value at times when there may be some doubt as to whether it should be positive (wet) or negative (dry).

Another aspect of using the Palmer Index is that one must remember that the demand part of the computations includes three parameters---potential evapotranspiration, recharge of soil moisture, and runoff, any one of which may produce a negative index. For instance if only enough rain fell to satisfy most of the expected evapotranspiration, but not enough to supply the expected recharge and runoff, then a negative index would result. If such a situation continued then one might find that agriculture was progressing at a near normal pace but the Palmer Index would be indicating a worsening drought. In this situation the drought would cause shallow wells and springs to go dry and the levels of rivers, lakes and reservoirs to fall below normal and, if this odd situation continued long enough, would cause serious economic stress to the livestock industry and eventually to other industries and cities. Then if rainfall fell below the minimum needed for agriculture, crops would suffer drastic and rapid decline because there would be no reserve water in the soil. Such a situation, to some extent, occurred during the Northeast drought in the 1960's when New York City almost ran out of water.



The Crop Moisture Index measures the degree to which moisture requirements of growing crops were met during the previous week. The index is computed from average weekly values of temperature and precipitation. These values are used to calculate the potential moisture demand. Taking into account the previous soil moisture condition and current rainfall, the actual moisture loss is determined.

If the potential moisture demand, or potential evapotranspiration, exceeds available moisture supplies, actual evapotranspiration is reduced and the CMI gives a

negative value. However, if moisture meets or exceeds demand the index is positive.

Shaded areas indicate the index was unchanged or increased from the previous week's value; soils dried in the unshaded areas. Centers of positive and negative areas are identified by W for wet and D for dry.

Local moisture conditions may vary because of differences in rainfall distribution or soil types. The type of agriculture and stage of crop development must be considered when assessing the impact of moisture conditions based on the Crop Moisture Index. Some general guidelines follow.



# FIRST CLASS MAIL

## HARVESTING PROGRESS

PERCENT OF ACREAGE HARVESTED  
AS OF JULY 2

### winter wheat

	1978	1977	AVG.
COLO	1	10	6
ILL	30	74	65
IND	5	25	25
KANS	35	55	55
MO	36	68	65
MONT	0	0	0
NEBR	1/	35	15
OHIO	1	30	5
OKLA	91	97	95
S DAK	0	1/	0
TEX	77	92	83
11 STATES	40	57	53

THESE 11 STATES PRODUCED 75%  
OF THE 1977 U.S. WINTER  
WHEAT CROP.

1/ LESS THAN 5%

(continued from page 2)

Major flooding and continued rain plagued the Midwest. Southern Wisconsin and northern Illinois suffered the heaviest damage; 40 percent of the roads and 8 bridges in Wisconsin's Monroe County were damaged by the overflow.

The rain marched eastward dumping up to 2 inches on the Ohio Valley. Farther South, up to 2 inches covered parts of the Carolinas while over an inch

moistened the upper coastal plain of Texas. Back in the Plains, Rapid City, S.Dak., and Wauneta, southwestern Nebraska, chalked up another inch and one-quarter.

It remained hot and dry in northern Louisiana; Shreveport sweltered at 100° and had not had measurable rainfall since June 6. Meantime, Concord, N.H., cooled to a record low 38°.