

WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE

Environmental Data Service, NOAA

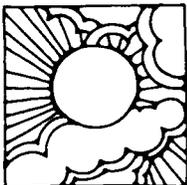
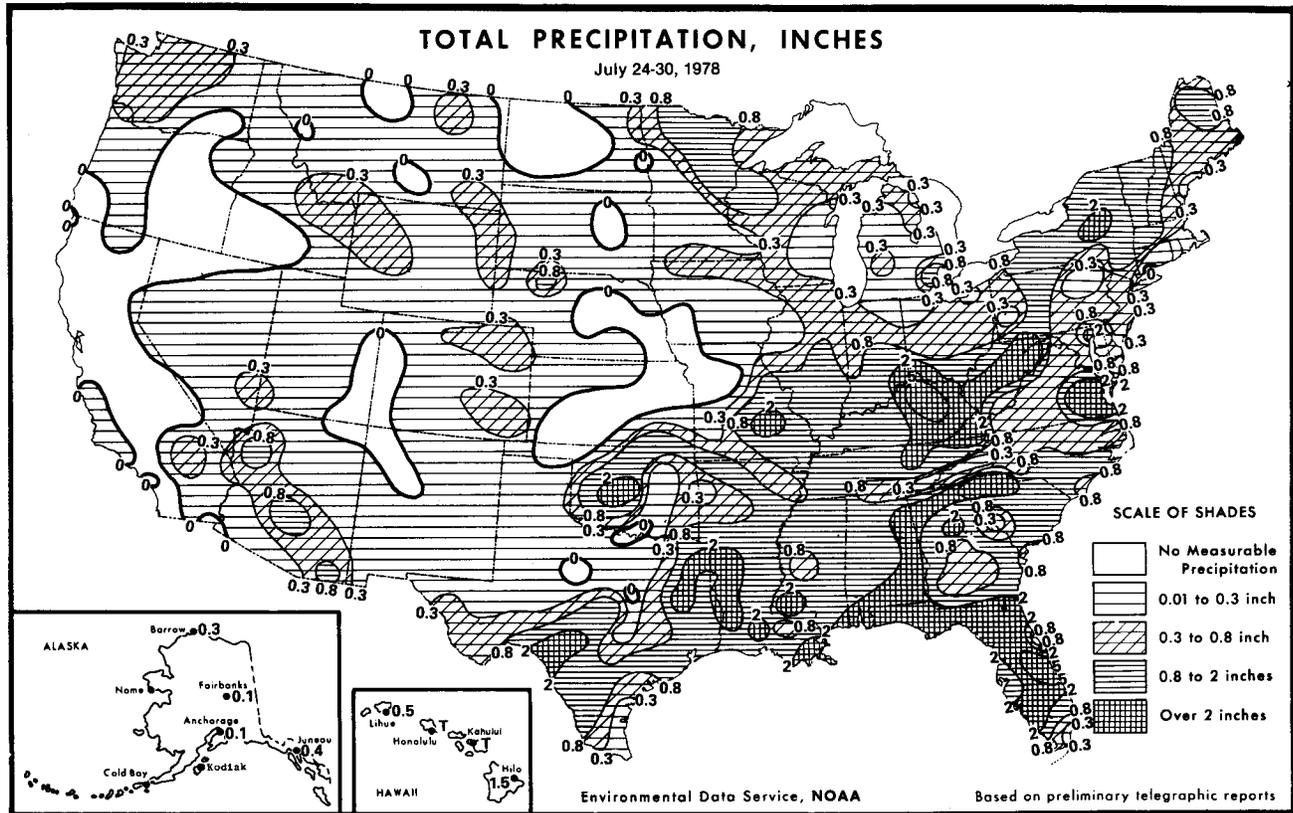
U.S. DEPARTMENT OF AGRICULTURE

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National Weather Summary

July 24 - 30

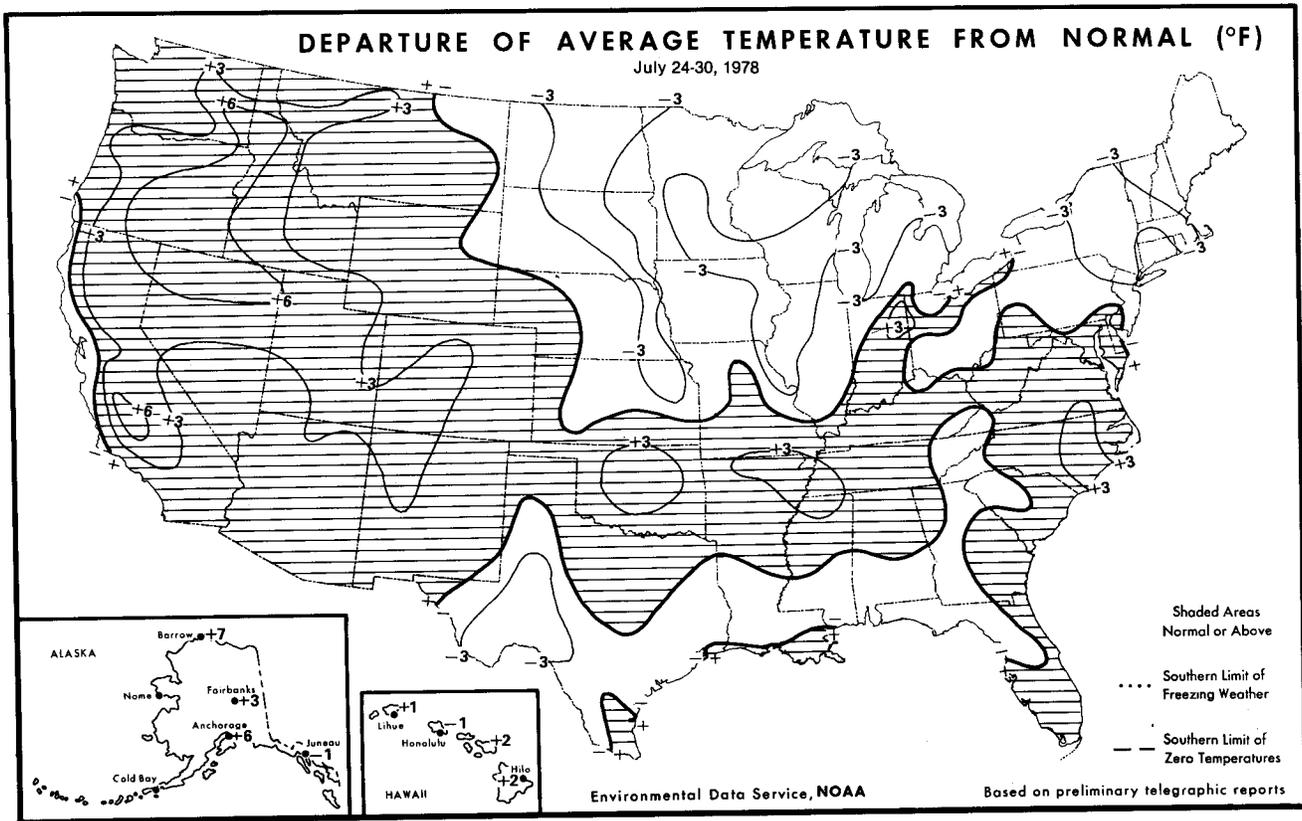
HIGHLIGHTS: Periodic influxes of cool Canadian air continued to move into the northern Plains and southeastward. As a result, temperatures varied greatly as cool air moved through making way for the heat. Low pressure in the Southwest pushed readings upward as far north as the Pacific Northwest, and triggered heavy showers as well. Severe weather was reported at some time in nearly all sections from the Plains eastward to the Atlantic Coast.

Monday morning was somewhat cooler than previous days in the Northeast and over most of the mid-Atlantic States from southern Virginia westward to

Arkansas and Southwest Texas. The cool air extended back to the northern Plains, but later in the day hot weather and thunderstorms returned to that area. The morning low temperature at Topeka, Kans., was a record 52°.

At mid-afternoon, showers and thunderstorms reached from central Texas and Oklahoma to the Ohio Valley and through the Southeast to the Gulf Coast and Florida. By late Monday, the repeating weather pattern had returned; tornadoes and hot weather covered the northern Plains. The storms began in the eastern Dakotas and moved to northwestern Minnesota.

Showers and thunderstorms continued Tuesday morning over the western portion of the Great Lakes as the new frontal system developed in the northern Plains. Meanwhile, along the earlier front, showers and thunderstorms formed from southern Virginia through Tennessee and into Arkansas. Later, showers and thunderstorms began all along the Gulf Coast to the Ohio Valley and the mid-Atlantic States. By late Tuesday, strong winds had ripped through the middle Missouri Valley, and



thunderstorms had rolled through southeastern South Dakota and spread into Iowa and Minnesota. Golf ball-sized hail and winds to 60 mph were reported.

Elsewhere, widely scattered thunderstorms brought threats of flash flooding to southern California, southwestern Arizona, and southern Nevada.

Temperatures were unseasonably cool in New England on Wednesday. The low temperature of 50° tied the record at Hartford, Conn. West of the coolness, warm, moist Gulf air flowed into the Plains northward to the cool front which stretched from Michigan to Oklahoma and into New Mexico. Hot, humid conditions existed south of the front. This contrast of temperatures across the front did the usual---spawned severe weather along and behind the front. Thunderstorms rumbled throughout the warm air in the South and Southeast. Hail and wind damage ranged along the cold front. Midland, Mich., had three and a half inches of rain in just 15 minutes. Tornadoes hit Missouri and Florida. Showers continued in the Pacific Northwest, parts of Nevada, and Arizona.

The cool front moved rather rapidly on Thursday ---as a line from Ohio to Missouri to the Texas Panhandle Thursday morning to a line from eastern New York, West Virginia, Arkansas, and to Southwest Texas by the end of the day. Much-needed rain fell in northeastern Texas, northern Louisiana, and southern Arkansas. Shreveport, La., collected nearly four and a half inches during the morning. Showers and thunderstorms were rampant from portions of West and South Texas across the Gulf Coast to the Atlantic and from the southeastern U.S. through the Ohio Valley to the lower Great Lakes and western New England. Wind damage plagued the thunderstorm area. Severe flooding hit portions of the Gulf Coast.

Friday morning showers carried three-quarters to more than an inch of rain to parts of the Gulf Coastal States and as far north as South Carolina.

By afternoon, downpours and damaging winds raked the southern Plateau Region. Storms also clipped Texas and Florida after midday; Houston and Orlando both gathered more than an inch. Unsettled weather broke the nighttime stillness in eastern Minnesota where hail fell and a couple of tornadoes touched down near Duluth.

Friday's early temperatures plummeted to new lows in Michigan, Kansas, and Texas. In all, more than 10 records were set including Detroit's 48°, Topeka's 59°, and 70° at Houston. Afternoon readings soared in Colorado where Colorado Springs notched a record 96° and Pueblo reached a new high at 103°.

Rainfall was generally light across most of the Nation on Saturday. Nearly 2 inches fell over a small portion of West Texas, but most amounts remained under an inch.

It was a cool morning east of the Great Lakes. Record low temperatures included 43° at Concord, N.H., 56° at Harrisburg, Pa., and Baltimore's 59°. West of the Mississippi River, hot air baked several areas. Wichita sweltered at 109°, 5 degrees higher than the former record. Readings extended past the century mark in the Pacific Coastal States and the southern Plateau Region as well as sections of the southern Plains.

Rain marched over the Ohio Valley early Sunday dumping up to two and a third inches on towns in Indiana, Ohio, and Kentucky. Northwestern Florida also gathered about an inch. As the day wore on, so did the rain over the Ohio Valley prompting flash flood watches. For the day, Lexington, Ky., was soaked by 4.33 in.

The storms trekked eastward bringing rain to much of the Appalachians and a large section of

(continued on back page)



National Agricultural Summary

July 24 - 30

HIGHLIGHTS: Rains fell throughout the Gulf Coast area, the lower Mississippi and Ohio River Valleys and on into New England. Most of the Nation had short to mostly adequate soil moisture. The South, including areas receiving precipitation, and most of the West generally had a shortage of soil moisture. High temperatures along with the dry soils deteriorated western rangelands. Most of the Corn Belt found relief in subnormal temperatures. Corn silking ranged from 36 to 81%, near the average in many States but well behind last year. Soybean pod set ranged from 5 to 40% in the north central States; bloom spanned 19 to 63% in the south central States. Cotton boll set generally lagged both last year and average; harvest centered in the lower Rio Grande Valley. Winter wheat harvest advanced to 92%, equalling the average but lagging last year's performance by 2 points. Among the major spring wheat producing States only South Dakota harvested a significant amount at 22%; other States were just getting started or waiting for the first grain to ripen. Rice harvest extended from Texas into Louisiana. Sorghum harvest advanced rapidly in Texas and headed in States to the north.

SMALL GRAINS: Winter wheat combining advanced northward into Montana where operations just began. South Dakota harvest reached 80%; other major producing States ranged from 95 to 100%. Spring wheat combining in the 5 major producing States just began; last year the harvest was well advanced in two of the States. South Dakota stood at 22%, eclipsed by 1977's 65% and well behind the 36% average. Minnesota struggled to 3%, far off 1977's 42% and the 19% average. The North Dakota harvest started but last year stood at 14%. Montana and Idaho harvests were not underway; the same was true for last year and the average.

Oats and barley harvests were only getting started in the major producing States of Wisconsin and North Dakota. Harvests of barley and oats in South Dakota and Iowa ranged from 35 to 69%. Minnesota growers swathed 11% of the oats and 12% of the barley. Montana and Idaho barley began ripening.

CORN: Corn rated good throughout the north central States. Silking ranged from 50 to 81% in the eastern part of the region and 36 to 81% in the western part. Only Missouri's crop development lagged very far behind the average; many States fell far short of 1977's progress.

In the South harvest increased in Florida, reached 4% in Georgia and 8% in Texas. Over half the crop reached the dent stage in many southern States. Showers helped some late Georgia plantings but generally southern corn rated only fair.

SOYBEANS: Soybeans rated good and developed well in the north central States. Pod set ranged from 5% in Ohio to 10% in Michigan, 15% in Indiana, and 30% in Illinois--5 to 20 points off the average in the eastern north central region. In the western north central States, pod set ranged from 15% in Kansas to 30% in Nebraska, and 41% in Iowa; only 5 to 10 points less than average.

In the South, conditions rated only fair to good; some areas reported stressed stands from dry soils. Bloom ranged from 19% in Arkansas to

63% in Tennessee and Louisiana. A few Georgia growers planted late beans. Rains helped some southern stands, notably Texas.

COTTON: Boll set ranged from 85 to 89% in the Southeast, ahead of average but behind last year. In the Mississippi River Delta, boll set ranged from 49 to 93%. The Oklahoma crop was squaring and stood at 64%. Texas cotton harvest advanced from the lower Rio Grande Valley into the Coastal Bend. Farmers defoliated Blacklands fields. Dryland cotton on the High and Low Plains showed drought stress; irrigated fields bloomed and looked good. Arizona cotton bolls began opening. California cotton bloom reached 20%. The Nation's cotton rated fair to good.

OTHER CROPS: Grain sorghum heading advanced northward but failed to reach South Dakota. Heading stood at 25% in Nebraska, 10% in Kansas, and 25% in Oklahoma, lagging both last year and average in these States. Texas harvest passed the halfway mark to 53% surpassing 1977's 39% and the 34% average. Dryland stands on the plains suffered from lack of moisture. Farmers cut some stressed Cross-Timbers stands for forage.

Rice heading reached 14% in Arkansas, 36% in Mississippi, and 81% in Louisiana. Harvest centered along the Gulf Coast in Texas and Louisiana. Texas combining advanced to 23%, lagging recent years. Too much rain in that area of Texas lodged stands slowing the harvest pace. Louisiana harvest reached 10% nudging ahead of 1977's 9%.

Early potato harvest started in Michigan and Wisconsin. Aroostock County, Maine potatoes had a fair set and tuber size. Idaho potato vines began lapping between the rows on 75% of the acreage, the same as last year. Oregon growers harvested Norgolds and should start on Russets soon.

Peanut pegging advanced to 77% in Alabama and 96% in Georgia, slightly behind last year's pace. Dry soils stressed Texas peanuts; harvest was just started at 2% getting the jump on recent years.

FRUITS AND NUTS: Apple harvests advanced into New York and Oregon. Apples, peaches and pears all sized well in northern areas. Sweet cherry harvests neared completion. The Michigan tart cherry harvest stood at 65%. Southern peaches generally were small sized; harvest reached 81% in Georgia, 72% in South Carolina, and 57% in North Carolina. The Northwest pear harvest should begin soon. Florida citrus groves rated excellent. Rains brought adequate to surplus moisture but slowed caretakers. California growers picked peaches, plums, and nectarines.

VEGETABLES: Farmers in northern production areas harvested sweet corn, tomatoes, snap beans, cabbage, onions, and cucumbers. Southern growers supplied some markets with limited supplies of vegetables and melons but most activity concentrated on preparation for the fall season. The widest variety of vegetables moved from California.

LIVESTOCK AND PASTURES: Grasslands rated fair to good throughout the eastern half of the Nation. In the western half, high temperatures and dry soils deteriorated most rangeland. Range fires posed a threat in Texas and California. Texas rains helped pastures in the eastern half of the State, but other grasslands deteriorated and livestock producers sold cattle to conserve forage. Florida grasslands rated excellent with standing water damaging some pastures.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., July 30, 1978

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 . . .	81	+ 1	1.6	+ .4	LA. Baton Rouge . . .	81	- 1	.4	- 1.1	Youngstown . . .	69	- 2	.4	- .4
Mobile . . .	80	- 2	3.4	+ 1.5	Lake Charles . . .	82	- 1	2.0	+ .6	OKLA. Okla. City . . .	86	+ 4	2.5	+ 2.0
Montgomery . . .	81	0	1.8	+ .7	New Orleans . . .	83	+ 1	2.0	+ .5	Tulsa . . .	87	+ 4	T	- .7
ALASKA Anchorage . . .	64	+ 6	.1	- .4	Shreveport . . .	83	- 1	1.5	+ .9	OREG. Astoria . . .	62	+ 1	.3	+ .1
Barrow . . .	46	+ 7	.3	+ .1	MAINE. Caribou . . .	64	- 1	1.4	- .5	Burns . . .	76	+ 6	T	- .1
Fairbanks . . .	63	+ 3	.1	- .4	Portland . . .	67	- 2	.2	- .4	Medford . . .	78	+ 5	0	- .1
Juneau . . .	55	- 1	.4	- .7	MD. Baltimore . . .	78	+ 1	2.3	+ 1.4	Pendleton . . .	78	+ 4	0	0
Kodiak . . .	-	-	-	-	MASS. Boston . . .	71	- 3	2.2	- .4	Portland . . .	71	+ 3	.1	0
Nome . . .	-	-	-	-	Chatham . . .	62	- 4	.1	- .4	Salem . . .	71	+ 3	T	- .1
ARIZ. Flagstaff . . .	68	+ 2	.3	- .4	MICH. Alpena . . .	62	- 4	.2	- .4	PA. Allentown . . .	72	- 2	.4	- .6
Phoenix . . .	94	+ 2	.8	+ .6	Detroit . . .	71	- 2	1.3	+ .6	Erie . . .	72	+ 3	.5	- .3
Tucson . . .	87	+ 1	.3	- .3	Flint . . .	70	0	.3	- .4	Harrisburg . . .	74	- 2	.5	- .3
Winslow . . .	80	T	-	-	Grand Rapids . . .	67	- 5	.6	0	Philadelphia . . .	78	+ 1	.4	- .6
Yuma . . .	95	+ 1	T	- .4	Houghton Lake . . .	63	- 4	.2	- .4	Pittsburgh . . .	74	+ 2	T	- .8
ARK. Fort Smith . . .	85	+ 2	T	- .7	Lansing . . .	69	- 2	.2	- .4	Scranton . . .	69	- 3	.3	- .6
Little Rock . . .	83	+ 1	.4	- .4	Marquette . . .	66	- 1	.6	0	R. I. Providence . . .	70	- 3	T	- .7
WIN. Little Rock . . .	90	+ 6	0	0	Muskegon . . .	66	- 5	1	- .5	S. C. Charleston . . .	82	+ 1	.9	- .9
CALIF. Bakersfield . . .	56	+ 1	0	- .1	S. Ste. Marie . . .	60	- 5	.8	+ .2	Columbia . . .	81	- 1	1.5	+ .2
Eureka . . .	86	+ 5	T	0	MINN. Duluth . . .	65	- 2	.8	0	Greenville . . .	78	- 1	2.0	+ 1.1
Fresno . . .	75	+ 1	0	0	Internat. Falls . . .	64	- 2	1.1	+ .3	S. D. Aberdeen . . .	71	- 2	T	- .5
Los Angeles . . .	85	+ 3	T	0	Minneapolis . . .	71	- 2	T	- .8	Huron . . .	71	- 4	T	- .4
Red Bluff . . .	86	+ 2	T	0	Rochester . . .	68	- 3	.2	- .6	Rapid City . . .	74	0	.3	- .1
San Diego . . .	73	+ 3	0	0	St. Cloud . . .	67	- 4	.1	- .6	Sioux Falls . . .	72	- 2	.2	- .4
San Francisco . . .	60	+ 3	T	0	MISS. Jackson . . .	82	0	.7	- .3	TENN. Chattanooga . . .	81	+ 2	.2	- .9
Stockton . . .	79	+ 2	0	0	Meridian . . .	80	- 2	.9	- .2	Knoxville . . .	77	- 2	1.9	+ .9
COLO. Denver . . .	77	+ 3	.2	- .2	MO. Columbia . . .	78	0	T	- .8	Memphis . . .	87	+ 5	.4	- .4
Grand Junction . . .	81	+ 2	0	- .1	Kansas City . . .	78	- 2	0	- .9	Nashville . . .	81	+ 1	1.2	+ .4
Pueblo . . .	78	+ 1	.4	- .1	St. Louis . . .	76	+ 3	1.5	+ .8	TEX. Abilene . . .	87	+ 2	0	- .5
CONN. Bridgeport . . .	74	- 1	0	- .8	Springfield . . .	79	+ 1	.2	- .5	Amarillo . . .	79	0	.1	- .6
Hartford . . .	81	- 2	.6	- .4	MONT. Billings . . .	74	+ 1	T	- .1	Austin . . .	85	0	0	- .4
D. C. Washington . . .	71	+ 3	.6	- .7	Glasgow . . .	71	- 1	.6	+ .3	Beaumont . . .	84	+ 1	1.0	- .3
FLA. Apalachicola . . .	80	- 2	2.5	+ .7	Great Falls . . .	74	+ 3	T	- .2	Brownsville . . .	86	+ 2	.2	0
Daytona Beach . . .	82	+ 1	.6	- .9	Havre . . .	74	+ 3	T	- .2	Corpus Christi . . .	85	0	.2	- .2
Ft. Myers . . .	84	+ 1	2.4	+ .5	Helena . . .	72	+ 2	.1	0	Del Rio . . .	84	- 3	2.1	+ 1.9
Jacksonville . . .	82	+ 0	2.2	+ .7	Kalspell . . .	68	+ 2	T	- .2	El Paso . . .	82	0	T	- .4
Key West . . .	85	+ 0	.7	- .1	Miles City . . .	76	0	.1	- .1	Fort Worth . . .	87	+ 1	T	- .4
Lakeland . . .	82	0	1.7	- .1	Missoula . . .	71	+ 3	T	- .1	Galveston . . .	83	- 1	1.4	+ .4
Miami . . .	83	0	.1	- 1.3	NEBR. Grand Island . . .	76	- 1	T	- .6	Houston . . .	83	- 1	1.7	+ .8
Orlando . . .	81	- 1	5.4	+ 3.7	Lincoln . . .	75	- 3	T	- .6	Lubbock . . .	80	0	.2	- .3
Tallahassee . . .	79	- 2	2.3	+ .4	Norfolk . . .	75	- 1	T	- .6	Midland . . .	79	- 4	.1	- .3
Tampa . . .	82	0	1.8	- .1	N. Platte . . .	76	+ 1	T	- .6	San Angelo . . .	82	- 3	.3	+ .1
W. Palm Beach . . .	82	0	1.1	- .2	Omaha . . .	74	- 2	T	- .8	San Antonio . . .	85	0	.6	+ .2
GA. Atlanta . . .	78	0	1.1	0	Valentine . . .	74	- 1	.3	- .2	Victoria . . .	83	- 2	.4	- .2
Augusta . . .	83	+ 2	.1	- 1.1	NEV. Ely . . .	72	+ 3	.2	+ .1	Waco . . .	87	+ 1	0	- .3
Macon . . .	82	0	.6	- 1.4	Las Vegas . . .	92	+ 2	T	+ .1	Wichita Falls . . .	88	+ 1	0	- .4
Savannah . . .	83	+ 2	.4	- 1.9	Reno . . .	74	+ 4	T	0	UTAH. Blanding . . .	77	+ 3	0	- .3
HAWAII. Hilo . . .	78	+ 2	1.5	- .4	Winnemucca . . .	79	+ 7	T	0	Salt Lake City . . .	82	+ 4	T	- .1
Honolulu . . .	79	- 1	T	- .2	N. H. Concord . . .	67	- 3	.6	- .1	VT. Burlington . . .	67	+ 3	1.2	+ .4
Kahului . . .	81	+ 2	-	-	N. J. Atlantic City . . .	74	- 1	.3	- .8	VA. Lynchburg . . .	77	+ 1	.6	- .3
Lihue . . .	-	-	-	-	Trenton . . .	74	- 2	.3	- .8	Norfolk . . .	79	+ 1	2.6	+ 1.2
IDAHO. Boise . . .	81	+ 5	0	0	N. MEX. Albuquerque . . .	82	+ 3	T	- .4	Richmond . . .	80	+ 2	2.3	+ 1.0
Lewiston . . .	81	+ 6	0	- .1	Roswell . . .	81	+ 1	.2	- .4	Roanoke . . .	78	+ 2	.6	- .3
Pocatello . . .	75	+ 2	T	- .1	N. Y. Albany . . .	67	- 5	1.9	+ 1.2	WASH. Colville . . .	71	+ 2	T	- .1
ILL. Cairo . . .	83	+ 2	1.6	+ .9	Binghamton . . .	66	- 3	.6	- .3	Omak . . .	74	+ 3	.4	+ .3
Chicago . . .	74	- 1	.3	- .6	Buffalo . . .	69	- 1	1.3	+ .6	Quillayute . . .	60	0	.2	- .3
Moline . . .	70	- 5	.1	- .8	New York . . .	74	- 3	.2	- .8	Seattle-Tacoma . . .	67	+ 2	.7	+ .6
Peoria . . .	72	- 4	.2	- .6	Rochester . . .	70	- 1	1.0	+ .3	Spokane . . .	74	+ 3	T	- .1
Rockford . . .	69	- 4	.4	- .5	Syracuse . . .	69	- 3	1.9	+ 1.2	Walla Walla . . .	80	+ 3	0	0
Springfield . . .	74	- 2	.6	- .2	N. C. Asheville . . .	74	0	.1	- 1.0	Yakima . . .	73	+ 2	.1	+ .1
IND. Evansville . . .	78	+ 0	1.7	+ .9	Charlotte . . .	80	+ 1	.5	- .5	W. VA. Beckley . . .	71	+ 1	.3	- .7
Ft. Wayne . . .	77	+ 5	.1	- .7	Greensboro . . .	79	+ 1	.8	- .2	Charleston . . .	75	0	2.4	+ 1.3
Indianapolis . . .	77	+ 2	1.1	+ .4	Hatteras . . .	81	+ 2	1.8	+ .4	Huntington . . .	77	+ 2	1.3	+ .4
South Bend . . .	70	- 3	T	- .8	Raleigh . . .	81	+ 3	.7	- .5	Parkersburg . . .	73	- 2	1.3	+ .4
IOWA. Burlington . . .	72	- 4	.3	- .8	Wilmington . . .	84	+ 3	.6	- 1.3	WISC. Green Bay . . .	66	- 4	.1	- .5
Des Moines . . .	75	- 1	T	- .8	N. DAK. Bismarck . . .	68	- 4	T	- .4	La Crosse . . .	70	- 3	.3	- .4
Dubuque . . .	69	- 3	.4	- .5	Fargo . . .	70	- 2	T	- .7	Madison . . .	67	- 4	.2	- .6
Sioux City . . .	73	- 3	.2	- .4	Williston . . .	71	0	T	- .4	Milwaukee . . .	68	- 3	.3	- .4
KANS. Concordia . . .	78	- 1	T	- .6	OHIO. Akron-Canton . . .	71	- 1	.6	- .2	WYO. Casper . . .	73	0	.1	- .1
Dodge City . . .	80	0	T	- .7	Cincinnati . . .	75	- 1	3.9	+ 3.1	Cheyenne . . .	71	+ 1	T	- .4
Goodland . . .	78	+ 1	.3	- .3	Cleveland . . .	74	+ 2	.2	- .6	Lander . . .	74	+ 2	.4	+ .3
Goodland . . .	74	- 5	T	- .9	Columbus . . .	74	0	.4	- .5	Sheridan . . .	74	+ 2	.1	0
Topeka . . .	83	+ 2	T	- .9	Dayton . . .	73	- 2	.6	- .1	P. R. San Juan . . .	84	+ 3	T	- 1.5
Wichita . . .	83	+ 2	T	- .9	Toledo . . .	72	- 1	T	- .7					
KY. Lexington . . .	77	0	5.1	+ 4.1										
Louisville . . .	78	+ 1	1.8	+ 1.0										

Based on 1941-70 normals

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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: Temperatures 2° above normal. Rainfall most sections.

Fieldwork: 5.1 days suitable. Soil moisture short. Major activities: Cultivating row crops, applying pesticides, and haymaking. Cotton fair to good condition; 49% setting bolls, 89% 1977, 67% average. Corn fair condition, 55% dented, 64% 1977, 48% average. Soybeans good condition; 39% blooming, 51% 1977, 46% average. Peanuts good condition; 77% pegging, 85% 1977, 94% average. Pastures fair.

ALASKA: Cool and showery with temperatures in mid-60's early week turned warm with temperatures in mid and upper 70's by weekend.

Limited field activity throughout much of railbelt. Warmer and dryer weekend aided haying and crop development. Maturity small grain lags last year although most fields headed and some in dough stage. First cutting hay nearly finished. Potatoes averaged 20 in. and 55% in bloom. Moisture supplies short to mostly adequate.

ARIZONA: All areas received some precipitation, heaviest over 1.00 in. Temperatures near normal.

Cotton maturing, bolls opening rapid rate. Grain sorghum generally good progress. Corn for grain making good growth. Safflower harvest virtually complete. Spring sugarbeet harvest complete, beets fall harvest good stands. Alfalfa haying full swing. Cantaloup, watermelon harvest virtually complete. Planting fall lettuce under-way Willcox area. Field preparations continued for fall vegetables. Grape harvest nearly completed. Lemon ring picking started Yuma area. Groves in good condition. Overall improvement range conditions slow. Rains improved topsoil moisture few areas. Range conditions remain poor in desert, fair to good higher elevations. Water shortage some areas. Ranchers starting to haul water. Cattle, calves fair condition in desert, mostly good condition mountain regions.

ARKANSAS: Temperatures near to slightly above normal. Rainfall light to moderate. Highest normal 83°, lowest 78°. Highest mean 87°, lowest 79°. Highest temperature 105°, lowest 56°. Most precipitation 2.31 in., least precipitation a trace.

Crops and livestock continued to show signs of heat stress and short soil moisture. Fieldwork: 6 days suitable. Soybeans fair condition; 19% bloom, 7% pod set. Cotton fair condition; virtually 100% squaring, 93% boll set. Non-irrigated crop topping in southern areas. Rice good condition, heading 14%. First harvest anticipated mid-August. Corn fair condition. Sorghum fair to good condition. Peaches and apples fair to good condition, size improving. Tomato harvest active northern areas; fair condition.

CALIFORNIA: Moisture from remnants of tropical disturbance resulted in showers and thundershowers over mountains and some valley areas of north and central. Temperatures near or slightly above normal.

Field crops making excellent growth. Corn, Sacramento Valley tassel state. Sugarbeets, harvest and cultivating San Joaquin Valley. Cotton 20% blooming. Irrigating, cultivating, spraying infestations. Rice fertilizer applications continued. Alfalfa hay all stages growth. Southern safflower fields nearing maturity, harvesting San Joaquin Valley. Seed alfalfa full bloom. Picking, packing freestone peaches, plums, nectarines. Wine grapes showed good growth. Cling peach harvest progressed well. Prunes colored. Almond hulls split. Pears harvested. Broccoli, cauliflower, cabbage, carrots, celery, lettuce continue moderate central coast. Melons,

sweet corn, bell pepper, fresh market and processing tomatoes active San Joaquin Valley. Onions done. Strawberries light central coast. Range grasses drying. Feed supplies, stock water plentiful. Fire danger high. Livestock good condition.

COLORADO: Isolated light showers south. General showers on 29th. Up to 2.00 in. with hail near Colorado Springs. 0.25 to 0.50 in. east of Divide with lesser amounts west. Hot temperatures end of week with several 100° readings.

Winter wheat harvested 97%, 95% 1977, 85% average. Winter barley harvested 87%, 89% 1977, 87% average. Spring barley very good condition; harvested 53%, 34% 1977, 20% average. Corn good condition; tasseled 62%, 86% 1977, 58% average; silked 25%, 72% 1977; average height 66 in., 72 in. 1977. Dry beans good condition; flowered 53%, 54% 1977. Alfalfa good condition; second cutting 62%, 33% 1977. Sugarbeets, sorghum, oats good condition. Potatoes very good condition. Ranges and pastures fair condition. Livestock good condition. Fieldwork: 6.5 days suitable.

FLORIDA: Continued seasonal temperatures with scattered showers and thundershowers more numerous north, central areas 26th and 27th. Precipitation averaged 1.00 to 3.00 in., some amounts north, central areas exceeding 5.00 in.

Soil moisture mostly adequate but some wet areas. Corn harvest increasing. Tobacco harvest full swing. Markets open, selling active. Peanuts, soybeans and sugarcane good to excellent condition. Early soybeans bloom stage. Hay making as weather permits. Grass growth excellent. Some low lying pastures have surplus water from frequent heavy thunderstorms. Armyworm damage evident some areas northern Panhandle. Cattle, calves mostly good to excellent. Citrus groves excellent condition; moisture adequate to surplus; hard rains slowing caretakers. Valencia harvest in clean up stages; few processing plants remain open. Preparation for fall vegetable crops active. Planting several crops begun. Gadsden County tomato planting gaining. Summer cucumbers, squash continue to move through local markets limited basis.

GEORGIA: Temperatures were 1 to 2° above normal central and northwest, generally near normal elsewhere. Temperatures ranged from middle 70's mountains and near 80° north to the low 80's elsewhere. Scattered thunderstorms; precipitation generally 0.25 to 0.75 in. but a few places received more than 3.00 in.

Soil moisture improved, short to adequate, but extremely varied. Fieldwork: 5 days suitable. Insects increasing, control very active. Corn poor to fair, showers helping late planting; 4% harvested. Peanuts fair to mostly good, almost all blooming, 96% pegging, same as last year. Soybeans fair to mostly good, still planting. Cotton fair to good; 89% setting bolls, last year 98%, average 89%. Tobacco fair to mostly good, 48% harvested, last year 46%, 71% average; auctioning active. Peaches small, mostly fair to good; 81% picked, last year 95%, average 94%. Apples fair to good, 7% picked, last year 17%. Watermelons mostly fair to good, 81% harvested, last year 90%. Hay and pastures fair to good. Cattle fair to mostly good. Hogs good.

HAWAII: Warm and humid. Temperatures above normal some sections. Rainfall variable; showers beneficial Island Hawaii. Other islands light rain windward areas; dry leeward sections.

Heavy irrigation frequent, spraying necessary. Vegetable supplies light to moderate. Banana supplies steady. Papaya supplies heavy. Sugar harvesting steady. Pineapple harvesting heavy. Pastures good; rains beneficial.

IDAHO: Temperatures 2 to 4° above normal except east where temperatures normal to 2° below normal. Limited precipitation from thundershower activity.

Small grains advanced rapidly to maturity. Harvest activity increasing southwest. Winter wheat 5% harvested, 10% last year. Percent ripe this year, last year: Spring wheat 15%, 15%; barley 15%, 30%; mixed grain 30%, 35%. Potatoes closing middles 75% this year and last. Second crop hay 20% harvested. Ranges deteriorating but still providing adequate forage. Livestock good condition.

ILLINOIS: Temperatures 1 to 5° below normal northern two-thirds, extreme south 2° above normal. Precipitation 0.50 in. northern half, 1.00 to 3.00 in. southern half.

Corn 81% silked, 100% 1977, 96% average; dough 25%, 65% 1977, 48% average; condition good. Soybeans 75% bloomed, 87% 1977, 84% average; set pods 30%, 64% 1977, 56% average; condition good. Oats 95% ripe, 100% 1977, 100% average; 60% combined, 100% 1977, 91% average. Barley 75% harvested. Second crop alfalfa hay 75% cut, 1977 96%, average 86%; condition good. Pastures fair to good. Soil moisture adequate. Fieldwork: 4.5 days suitable.

INDIANA: Near normal temperatures but heavy rains in South on weekend. Up to 3.50 in. South Central, 1.00 to 2.00 in. in southern third; only 0.30 in. northern half. Temperatures ranged from 48 to 95°. Season growing degree days above normal.

Fieldwork averaged 4 days. Topsoil and subsoil moisture adequate. Corn 10% dough, 1977 20%; 60% silked, average 65%. Corn good condition. Soybeans 70% bloom, 1977 85%; 15% setting pods, average 35%. Soybeans fair to mostly good condition. Wheat harvest complete, 1977 100%, average 100%. Oats 60% combined, 1977 95%, average 70%.

IOWA: Little precipitation; light showers mostly over north and temperatures averaged 2° subnormal.

Topsoil and subsoil moisture adequate. Corn, oats, wheat, hays, and pasture good to excellent condition. Corn silked 81%, last year 95%, normal 79%. Oats for hay harvested 86%, last year 100%. Oats for grain harvested 69%, last year 100%, normal 83%. Soybean acreage bloomed 76%, last year 91%, normal 77%. Soybean acreage setting pods 41%, last year 69%, normal 45%. Second crop alfalfa hay harvested 80%, last year 89%, normal 78%. Second crop clover hay harvested 54%, last year 57%, normal 47%. Winter wheat harvested 86%, last year 100%. Light to moderate damage done by grasshoppers. Fieldwork: 5.0 days suitable. Livestock condition good.

KANSAS: Normal to above normal temperatures. Isolated severe storms. Precipitation spotty, generally 0.10 in. or less. Locally 0.50 to 1.00 in. extreme southeast, west central, and north central. Temperatures averaged 78° north central, 1° below normal, 83° south central and southeast, 2° above normal. Elsewhere near normal temperatures except northwest where 80° average was 3° above normal.

Sorghum grain 10% headed, 30% last year, 15% average. Corn acreage 67% tasseled, 90% last year, 75% average; 10% in dough stage, 35% last year, 20% average. Soybeans blooming 35%, last year 45%; 15% setting pods, last year 30%, average 25%. Third cutting alfalfa 40% completed, last year 45%, average 30%. Heavy grasshopper and chinch bug infestations.

KENTUCKY: Temperatures near normal. Precipitation averaged 2.50 in. in East to less than 1.00 in. West.

Moisture short to adequate. Fieldwork: 4.4 days suitable. Corn continued under stress many Western areas; 38% pre-silk, 43% silking and 19% milk stage or later; 75% milk stage or later last year. Condition good to excellent. Soybean condition mostly fair to good; mostly fair to poor Western areas. Soybeans 35% blooming, 62% last

year, 38% average. Late beans spotty. Tobacco condition mostly good to fair. Burley 13% bloomed, 60% last year, 34% average. Dark types 15% bloomed, 63% 1977, 41% average. Burley 2% topped, 29% 1977, 14% average. Dark types 2% topped, 36% last year, 20% average. Late pasture and hay crops short in West.

LOUISIANA: Temperatures normal north, 1° below normal south. Extremes: 100 and 65°. Showers statewide; most southeast coast.

Fieldwork: 3.6 days suitable. Soil moisture short north, adequate to surplus south. Rice good; 81% headed, 73% last year; 26% ripe, 27% last year; 10% harvested, 9% last year. Cotton fair to good; 89% setting bolls, 93% last year. Soybeans fair to good; 63% blooming, 72% last year; 31% setting pods. Corn fair to good; 95% dough, 89% last year; 71% mature. Sorghum fair; 85% headed, 86% last year; 33% turning color. Sugarcane, sweetpotatoes and pastures fair to good. Livestock good. Hay fair.

MARYLAND & DELAWARE: Temperatures averaged 3 to 5° above normal. Highs in mid-90's, lows in mid-60's. Precipitation moderate to heavy, averaged 1.00 in. On 25th over 6.00 in. fell in southern Maryland and Eastern Shore Maryland as thunderstorms.

Fieldwork: 5.3 days suitable. Soil moisture adequate. Pastures supplying average amounts of feed. Corn 65% silked, 80% 1977, 68% average. Soybeans 25% bloomed, 25% 1977, 28% average. Alfalfa third cutting 40% complete, second cutting of clover and clover mixtures 75%. Tobacco being cultivated and sidedressed; early tobacco being topped. Vegetable harvest very active. Peach harvest expected to pick up momentum.

MICHIGAN: Temperature departures from normal ranged from none to 6° below. Average temperatures varied from low to mid-60's over Upper to near 70° over most of Lower. Warmest midweek, reaching 95° in southeast Lower, cooling to low 40's by weekend. Heavy rains and thunderstorms in some areas.

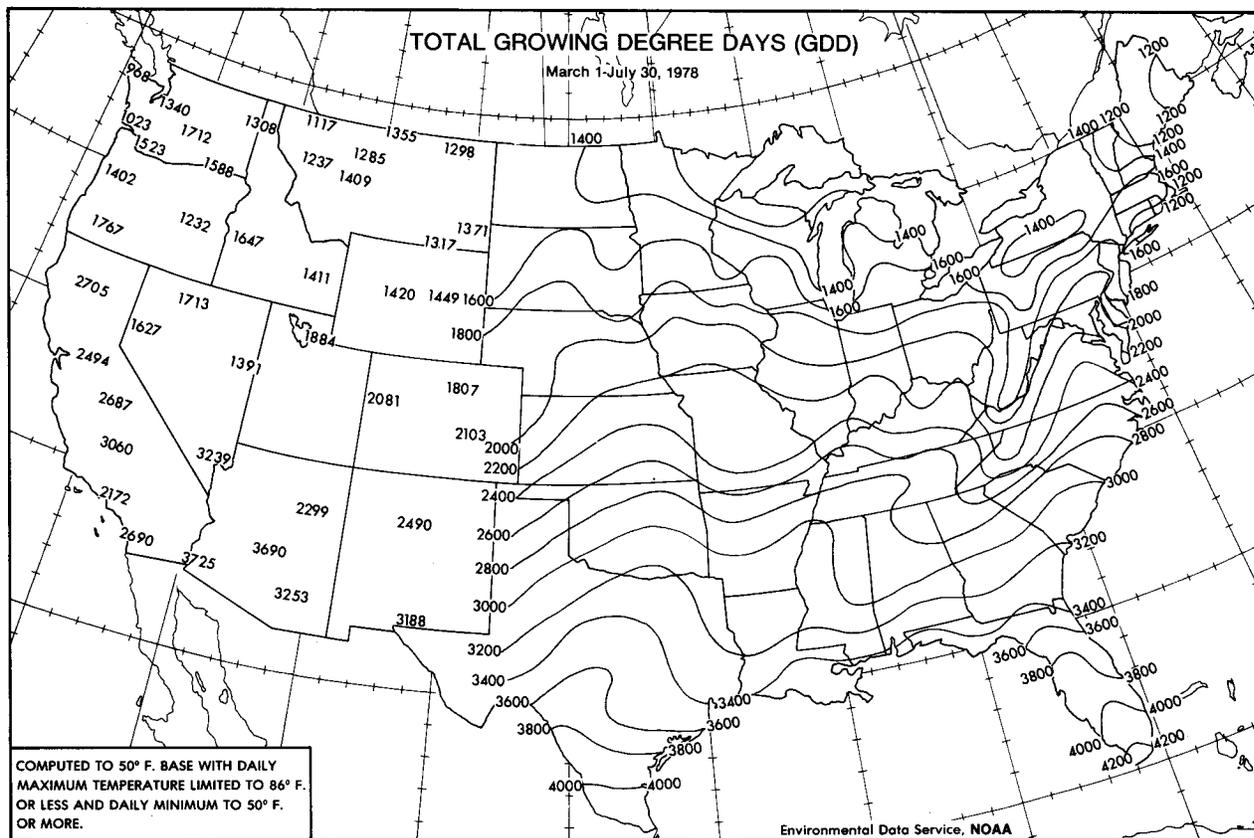
Fieldwork: 5 days. Soil moisture short to adequate. Corn 50% silked, 50% unsilked. Winter wheat 50% harvested, 95% last year, 80% normal. Oats and potato harvests just beginning. 15% dry beans and 10% soybeans setting pods. Second cut hay 40% complete, 70% last year, 55% normal. Pasture feed supplies mostly adequate. Sweet cherries 75% picked, 100% last year. Tarts 65% picked, 95% last year. Pickle and other fresh vegetable harvesting continues.

MINNESOTA: Temperatures near normal. Extremes: 99 and 37°. Precipitation near normal to 0.30 in. above normal north central and northeast and 0.30 to 0.75 in. below normal elsewhere. Precipitation totals 0.35 to 1.12 in. north central and northeast and less than 0.35 in. elsewhere.

Small grain harvest accelerating. Much barley, oats swathed. Spring wheat ripening slower. Rust in some small grains. Test weights below normal on some harvested fields. Most corn in good to excellent condition. Soybeans developing well, more variation among fields. Half of sunflowers blooming. Corn 89% tasseling, 1977 99%, normal 87%. Soybeans 88% blooming, 1977 98%, normal 91%. Combined: Spring wheat 3%, 1977 42%, normal 19%; oats 11%, 1977 63%, normal 37%; barley 12%, 1977 64%, normal 31%; winter wheat 30%, 1977 83%, normal 54%; rye 20%, 1977 78%, normal 63%. Flax 34% turning ripe, 1977 73%, normal 51%.

MISSISSIPPI: Temperatures below normal. Extremes: 62 and 97°. Widely scattered thundershowers.

Soil moisture short in western third and across north; adequate to short elsewhere. Fieldwork: 5.2 days suitable. Cotton insect numbers increasing, many producers applying insecticides. Soybeans 58% blooming, 72% 1977, 49% average; 17% podding, 33% 1977. Cotton 96% blooming, 98% 1977; 72% setting bolls, 89% 1977, 73% average.



Corn 97% silked, 97% 1977; 86% dough stage, 81% 1977; 51% dented, 49% 1977. Corn silage 33% harvested, 37% 1977. Sorghum 52% headed, 61% 1977. Hay crops 60% harvested, 52% 1977, 56% average. Rice 36% headed, 28% 1977. Watermelons 66% harvested, 64% 1977, 58% average. Soybeans, corn good to fair condition. Cotton, rice good condition. Pastures fair to good condition.

MISSOURI: Temperatures 2° above normal Bootheel, 2° below normal elsewhere. Rain heaviest Ozarks and east central, little in northwest.

Fieldwork: 5.5 days suitable. Oats 94% harvested, last year 100%, normal 92%. Corn 44% not yet tasseled, 56% tasseling and beyond. Corn 36% silked, last year 100%, normal 73%. Grain sorghum 34% headed, last year 74%, normal 36%. Soybeans 36% blooming, last year 64%, normal 48%. Cotton 94% blooming; 57% setting bolls, last year 86%, normal 62%. Alfalfa hay second cutting 80% harvested, last year 93%, normal 90%. Third cutting 12% harvested, last year 33%, normal 14%. Other hay 88% harvested. Condition of corn, soybeans, cotton and pasture mostly fair to good. Soil moisture supply mostly short to adequate.

MONTANA: Warm and dry except for East. Temperatures slightly below normal East to about 3° above elsewhere. Precipitation well below except much above in East. Moisture fell mostly toward end of week. Warmest maximums upper 90's beginning of week.

Topsoil moisture mostly adequate. Fieldwork: 6 days suitable. Winter wheat headed and green 5%, turning 65%, ripe 30%, small amount harvested. Normal 10%-50%-30% respectively plus 10% harvested. Spring wheat 65% headed, 30% turning, 5% ripe; normal 45%-40%-15%. Barley 60% headed, 35% turning, 5% ripe; normal 50%-45%-5% respectively. Oats 55% headed, 40% turning, 5% ripe; normal 40%-40%-20%. First cutting alfalfa 90% complete, normal

95%. Second cutting 10%. Native hay 60% cut. Stockwater and range feed more than adequate.

NEBRASKA: Temperatures below normal first and last portions period; above normal midweek. Only precipitation in form of light showers.

Corn silking 65%, year ago 90%, normal 75%. Sorghum heading 25%, year ago 70%, normal 35%. Soybean podding 30%, year ago 55%, normal 35%. Winter wheat harvest 95% complete, year ago 100%, normal 95%. Second alfalfa cutting 85% complete, year ago over 95%. Grasshopper populations vary widely, a problem some localities. Fieldwork: 5.8 days suitable.

NEVADA: Hot and dry. Light precipitation South and East. Occasional cloudiness but temperatures averaged 5 to 10° above normal. Extremes: 110 and 35°.

Wild hay harvest full swing. Ranges showing effect hot, dry weather.

NEW ENGLAND: Precipitation 27th and 28th; showers and thunderstorms over most of region--heaviest 1.00 to 1.50, over Vermont and Massachusetts mountains.

Apples, pears, and peaches sizing well. Cranberries sizing normally. Sweet corn harvest reaching good volume in Massachusetts and Connecticut. Tomatoes slowly ripening. Potatoes in Aroostook County, Maine showing fair set and tuber size. Grazing short. Soil dry, especially in South and Central.

NEW JERSEY: Temperatures 3° below normal. Extremes: 50 and 95°. Rainfall 0.61 in. north, 0.55 in. central and 0.35 in. south.

Soil moisture in percent of field capacity averaged 52% north, 51% central and 37% south. Soil temperature averaged 71° north, 75° central and south. Fieldwork:

6 days suitable. Irrigation active. Summer vegetable harvest increasing. Irish potato harvest continues light. Sweetpotato vine growth good. Blueberry harvest past peak. Apple and peach volume increasing. Grain harvest well advanced. Second cutting hay about complete. Field corn and soybean prospects good.

NEW MEXICO: Rain scattered and relatively light although few totals of near or more than 1.00 in.

Moisture short. Cotton fair. In south, 75% of third cutting alfalfa complete and fourth just starting in extreme south. In north, third cutting not started yet. Irrigated grains good and dryland poor to fair. Apples good. Onion harvest continues. Livestock good, although some ranges dry.

NEW YORK: Rain 1.00 to 2.00 in. through Central, less elsewhere. Rain averaged above normal, but more needed. Temperatures below normal.

Corn condition variable. Wheat 35% harvested, 50% 1977. Second cutting alfalfa 40%. Oat harvest beginning. Early onion, sweet corn, cabbage, and tomato harvesting started. Vegetable growth generally slowed by dry conditions. Sweet cherry harvest complete; tart cherry harvest continues. Early apple varieties available in Hudson Valley.

NORTH CAROLINA: Temperatures near or slightly above normal. Mountains near normal, elsewhere 2 to 4° above normal. Scattered showers and thundershowers early week; mountains 0.50 in., elsewhere over 1.00 in.

Fieldwork: 5.2 days suitable. Soil moisture adequate. Condition of tobacco, corn, cotton, peanuts, soybeans, hay crops, Irish potatoes, sweetpotatoes and apples, fair to mostly good. Pastures fair to good. Harvested: Flue-cured tobacco 19%, 1977 25%, average 30%; hays 81%, 1977 72%, average 69%; peaches 57%, 1977 79%, average 72%.

NORTH DAKOTA: Week began with maximum temperatures from upper 80's to upper 90's. Temperatures returned to seasonal normals and many low temperatures in 40's. Temperature extremes ranged from 99 to 43°. Rainfall almost non-existent.

Harvesting of fall and early spring planted small grains begun. Barley harvest near 5% complete, 37% 1977, 11% average. Spring wheat harvest just begun, 14% 1977, 4% average. Durum harvest just begun, 5% 1977, 1% average. Oats harvest just begun, 22% 1977, 8% average. Moisture mostly adequate but rain needed for late planted crops. Some sunflower head moth and aphids; not serious. Boxcar shortage critical. Many building storage for new crop.

OHIO: Temperatures averaged near normal; ranging from low 50's to low 90's. Rainfall light in north and central, heavy across south.

Conditions generally dry. Main activities: Combining wheat and oats, baling hay, peach harvest starting, pickle harvest. Corn and soybean condition mostly good. About 10% winter wheat land plowed. Corn tasseled 65%, 70% 1977, 65% average. Soybeans set pods 5%, 15% 1977, 10% average. Wheat harvested 95%, 100% 1977, 100% average. Oats harvested 45%, 75% 1977, 65% average. Potatoes harvested 5%, 10% 1977, 10% average. Alfalfa second cutting 70%, 85% 1977, 70% average. Fieldwork: 5 days suitable. Pasture condition fair to good. Soil moisture short to adequate.

OKLAHOMA: Temperatures 1° below normal to 4° above normal. Temperatures reached 100°. Scattered showers and thunderstorms midweek and over weekend. Rainfall ranged from none Panhandle and north central to 0.70 in. central.

Topsoil and subsoil moisture short. Sorghums fair condition; 25% headed, 39% 1977, 46% normal. Dryland sorghum suffering. Cotton rated fair, 64% squaring, 88% 1977, 76% normal. Peanuts fair condition with 49% flowering, 58% 1977, 70% normal. Soybeans rated good to fair but in need of rain; 33% flowered, 48% 1977, 33% average.

Some fields remain to be planted. Alfalfa rated fair. Ranges rated fair but declining. Livestock good condition and holding their own. Fieldwork: 6.8 days suitable.

OREGON: Scattered showers mostly during midweek. Precipitation generally 0.25 in. or less. Temperatures near normal along coast and 6 to 12° above normal interior. Extremes: Above 100, low 50's west; above 100, low 40's east.

Soil moisture supply short to adequate. Grain harvest continues in west. Wheat at varying stages of maturity in east; some harvest done at lower elevations. Haying continues. Grass seed harvest continues. Peach harvest started as have early apples. Pears start soon. Caneberry harvest continues, crop good. Norgold potato harvest underway. Russets coming on. Vegetable harvests continue. Sweet corn tasseling. Ranges and pastures in good condition but drying due to heat. Livestock generally in good condition.

PENNSYLVANIA: Scattered showers and thunderstorms totaling over 2.50 to under 0.25 in. Temperatures 4 to 6° below normal north, 2° below normal central and 2° above extreme south and west. Extremes: 94 and 45°.

Fieldwork: 5 days suitable. Soil moisture adequate to short. Activities: Cultivating; spraying; making hay; combining oats, barley, wheat; baling straw; harvesting apples, peaches, sweet corn, tomatoes, cabbage, potatoes, snap beans; plowing; topping tobacco. Corn 56 in., last year 69 in. Barley combined 75%, last year 83%. Wheat combined 49%, last year 57%. Oats combined 5%, last year 23%. Clo-tim first cut 94%. Alfalfa second cut 52%. Hay quality good to fair. Feed from pastures averaged to below average.

PUERTO RICO: Island rainfall 0.47 in. or 0.98 in. below normal. Temperatures averaged about 81° on coasts and 76° interior. Extremes: 94 and 60°.

SOUTH CAROLINA: Rainfall, temperatures normal. Scattered thundershowers, occasionally severe, mostly late in period.

Soil moisture mostly adequate. Fieldwork: 5 days suitable. Late corn fair; 80% dough stage, 91% last year; 42% mature, 66% last year, 36% average. Cotton good; 85% setting bolls, 85% last year, 81% average. Soybeans good; 28% blooming, 41% last year, responding to recent showers. Tobacco good; 39% harvested, 56% last year, 62% average. Peaches good, shipments peaked during week; condition fair, 72% harvested, 82% last year, 79% average. Watermelons fair to good; 80% harvested, 91% last year, 82% average. Early grape varieties being harvested. Red delicious apple harvest to start in 10 days.

SOUTH DAKOTA: Temperatures 1 to 3° below normal. Precipitation insignificant extreme southeast.

Small grain harvest continues active. Topsoil moisture generally adequate, some shortage northwest and northeast. Fieldwork: 5.5 days suitable. Oats 35% harvested, 1977 87%, normal 58%. Spring wheat 22% harvested, 1977 65%, normal 36%. Barley 43% harvested, 1977 85%, normal 60%. Winter wheat 80% harvested, 1977 93%, normal 81%. Rye 63% harvested, 1977 97%, normal 79%. Flax 86% in bloom, 1977 100%, normal 100%. Soybeans 77% in bloom, 1977 100%, normal 83%. Corn 69% tasseled, 1977 93%, normal 69%; 48% silked, 1977 79%, normal 56%. Alfalfa 58% harvested 2d time, 1977 78%, normal 49%. Wild hay 54% harvested, 1977 68%, normal 68%.

TENNESSEE: Hot with thunderstorms. Temperatures 2° above normal. Highs 90's, lows 70's. Rainfall 0.50 to 1.00 in. Some areas received 3.00 in.

Fieldwork: 4.1 days suitable. Soil moisture adequate. Rain needed many areas. Cotton 97% squaring, 1977 97%, average 96%; setting bolls 70%, 1977 76%, average 55%. Soybeans 63% blooming, 1977 74%, average 50%; setting pods 23%, 1977 29%, average 13%. Corn in dough stage 46%, 1977 58%, average 43%; dent stage 13%, 1977 22%, average 13%. Tobacco topping active. Pastures fair. Cattle good. Grasshoppers infesting crops and pastures.

TEXAS: Precipitation along coast latter part of week; scattered thunderstorms occurred most of week elsewhere. Temperatures 2 to 4° above normal along coast, Cross-Timbers, Blacklands, northern High Plains, southern Low Plains; normal elsewhere. Normals low to mid-80's. Rainfall above normal in east, Edwards Plateau, south central and Coastal Bend; below normal in Trans-Pecos and northern, southern High Plains; near normal elsewhere.

Grain sorghum harvest active; hot, dry weather accelerated harvest; 53% harvested, 39% last year, average 34%. On High, Low Plains, dryland sorghum suffering from lack of moisture; irrigated sorghum good; beginning to boot in some areas. In Cross-Timbers, some dryland fields grazed or harvested for hay. Cotton harvest in full swing in valley, progressing northward into Coastal Bend area. Some fields in southern Blacklands defoliated. Dryland cotton on High, Low Plains moisture stressed; irrigated cotton blooming and looking fairly good. In Blacklands, high temperatures caused cotton to shed some bolls. In southern part East Texas, bolls opening. Corn harvest progressed in Coastal Bend; moving north through Central Texas. Harvest 8%, last year 2%, average 5%. In silking stage northern High Plains. Infestations corn borer, mite, grasshopper several fields High Plains. Rice harvest behind schedule upper Gulf Coast; 23% harvested, last year 42%, average 30%. Rains hampered harvest. Lodging becoming problem some areas. Peanut harvest under-way parts south; 2% harvested, slightly ahead last year. Peanut fields Cross-Timbers suffering lack of moisture. Soybeans blooming upper Gulf Coast. Recent rains beneficial. Elsewhere dryland fields moisture stressed. Irrigated stands High Plains growing well, good condition. Sunflowers making normal progress High Plains; early fields beginning bloom. Hay prospects dependent additional moisture.

Land preparation and seeding fall vegetables. Irrigation and insect control on citrus groves active. Onion, bell pepper, squash, cabbage, watermelon, cucumber harvests continue. East Texas peaches ripening slowly because hot, dry weather. Grasshoppers problem Cross-Timbers. Pecans entering water stage central Texas; rain needed for nutlet development. Trees north central Texas shed nutlets due to lack of moisture.

Pastures and rangeland continue to deteriorate due to hot, dry weather and lack of moisture. Recent rains upper Gulf Coast helped pasture conditions and prospects for additional cuttings of hay. Livestock remain fair to good condition. Marketing activities increasing with ranchers selling cattle due to poor grazing conditions. Range fires continue to be problem; stock water tank supplies getting very short.

UTAH: Temperatures to 100° some areas, 80's and 90's in mountains. Light precipitation totaling several tenths of inch in South. Soil very dry most lower elevation ranges. Temperatures near normal to 6° above.

Soil moisture on nonirrigated crop and rangeland very short. Winter wheat harvest 93% complete. Spring grain 60% ripe. Second cutting alfalfa 63% complete with below normal yields. Tart cherry and apricot harvest to finish August 5.

VIRGINIA: Temperatures slightly above normal. Extremes: 100 and 53°. Rainfall heavy averaging 1.25 in. occurring as scattered showers and thunderstorms daily but becoming more general on 25th, 26th and 28th. Rainfall varied from 0 to over 3.00 in.

Topsoil moisture mostly adequate, few localities short in valley and north. Pastures, corn, soybeans, tobacco, peanuts, hay good to excellent. Flue-cured pulling 3%, 5% 1977, 8% average. Harvesting potatoes, cucumbers, sweet corn, melons, tomatoes. Slight wind and hail damage to corn, tobacco southwest. Fieldwork: 4.4 days available. Activities: Hay making, tobacco topping and suckering, fighting grasshoppers in some localities.

WASHINGTON: West: Temperatures varied 1 to 5° above normal. Moist unstable air brought thunder-showers and above normal rainfall to much of west.

Raspberry harvest slowed down. Blueberries being picked. Vegetable harvest continues. Hay baling active between showers.

East: Temperatures ranged from 1 to 7° above normal. Precipitation in central area above normal while southeast areas below.

Peach harvest advanced; good quality peaches being picked. Apricot harvest slowed down. Apples and pears sizing well. Bartlett pear harvest near. Winter wheat harvest full swing.

WEST VIRGINIA: Temperatures and precipitation well above normal.

Fieldwork: 3.5 days suitable. Soil moisture adequate. Major activities: Haying, clipping pastures. Haying 1st cutting 92% complete, 93% 1977, 94% average; 2d cutting 22%, 37% 1977, 29% average. Small grain harvest: Wheat 70% complete, barley 66%, oats 29%. Potato digging 13% complete, same 1977 and average. Pastures good. Crops mostly good.

WISCONSIN: Temperatures 4° subnormal. Extremes: 88 and 43°. Highs 70's and 80's until cold front 26th brought 60's and 70's remainder week. Rainfall less than 0.50 in. except northwest and north central. Showers and thunderstorms 25th, 26th, and 28th, heaviest north central at over 1.00 in.

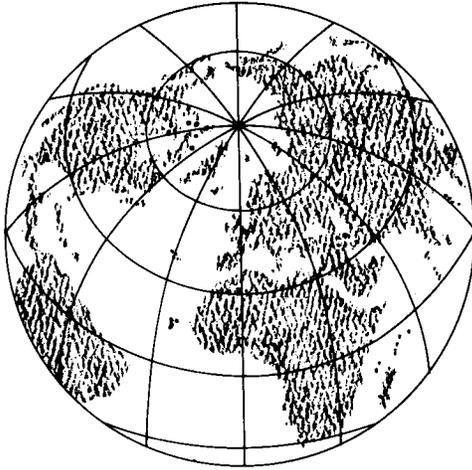
Fieldwork: 3 days suitable. Showers, heavy dew, wet fields slowing hay harvest. Second crop hay 30% done, 1977 75%, normal 35%. Third crop coming good, a few still trying to finish first crop. Hay quality hurt by rain and poor drying weather. Corn 50% silked, 1977 90%, normal 50%. Early corn excellent, tall growth and good ear development. Lowland corn stunted by excess water. Winter wheat, barley, and rye being combined; harvest started on early oats. Soybeans very good condition. Pastures well above normal. Tobacco growing fast but much late tobacco planted this year. Cherry harvest active. Harvesting early potatoes, apples, and sweet corn. Insects and plant diseases more numerous than usual due to wet weather. Soil moisture adequate to surplus.

WYOMING: Temperatures little below normal, although quite warm. Coolest temperatures northwest corner. Precipitation below normal.

Topsoil moisture short. Winter wheat 80% matured, harvest 41% completed. Spring wheat 49% turning color, 18% matured, 7% harvested. Oats 33% turning color, 15% mature, 4% harvested. Barley 64% turning color, 21% mature, 4% harvested. First cutting alfalfa 91% completed, 8% second cutting completed; 61% other hay harvested. Maturity of small grains and row crops behind last year. Row crops fair to good condition. Feed supplies for winter feed expected to be average or above.

World Weather and Crop Update

July 24 - 30



USSR. The grain harvest continued to expand northward and eastward. In general, harvesting conditions were much improved over the previous week in European USSR. Excellent harvest weather prevailed in the lower and middle Volga Valley, Belorussia, and the Baltics where the harvest was well underway. Showers---heavy in parts of the central regions and the Ukraine---hampered harvesting operations, but heavy rains were more localized than in the previous week. The harvest pace as of July 24 lagged well behind last year which also suffered poor harvesting weather. Official Soviet figures indicated 18.6 million hectares of small grains and pulses were cut as of that date with threshing completed on almost two-thirds of the area. Harvesting of winter grains began in the principal grain areas of Asiatic USSR. Rainfall was generally light over the spring wheat areas of western Siberia, North Kazakhstan, and the Urals. However, harvest prospects continued to be promising over most of these important regions.

ASIA. In the People's Republic of China, moderate to heavy rains fell over most of the North China Plain---a prime soybean, cotton and coarse grain area---and throughout the agriculturally important Manchurian Plain. Tropical Storm Agnes drenched coastal areas of Kwangtung, China's southernmost province, with many stations reporting 6 to 10 inches. However, rainfall was considerably lighter and more variable over inland areas of Kwangtung as well as in other rice-growing provinces in South China. Harvest of the early rice crop proceeded rapidly throughout these areas. The performance of India's southwest monsoon during the week ending July 26 diminished somewhat with only 17 out of

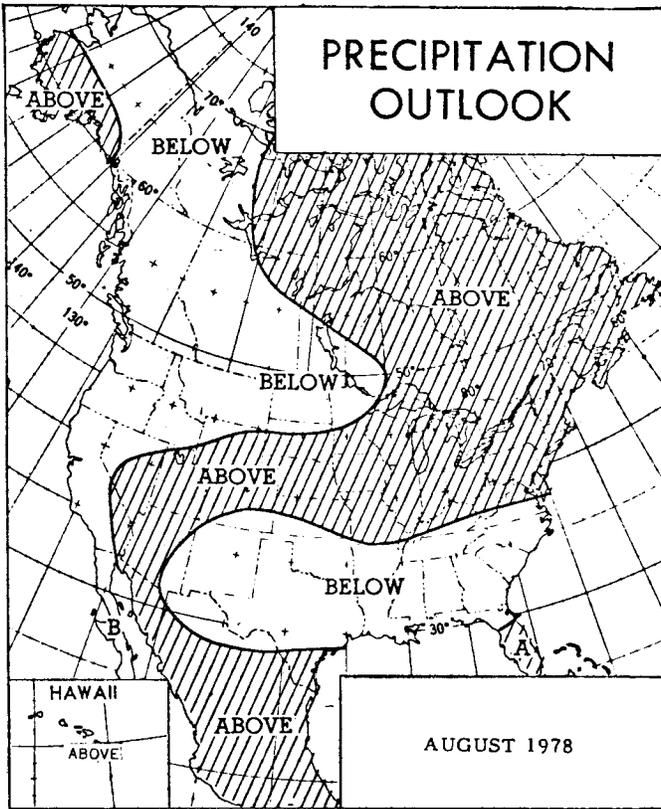
35 weather zones receiving normal or above-normal rainfall. Nonetheless, cumulative rainfall from June 1 through July 26 was normal or above for the entire country---a situation that bodes well for the fall harvest if timely and adequate rains are received during the remainder of the season.

AUSTRALIA. Crop conditions continued favorable throughout most of Australia's main grain producing regions. Moderate to heavy showers fell along the coast in southwestern Australia, but precipitation was somewhat lighter over the inland grain areas. Although additional rains are needed to replenish water storage and soil moisture, rainfall in western Australia during July alleviated the moisture deficiencies existing at the beginning of the month. Light rainfall was measured in the other grain areas where the moisture situation is generally favorable.

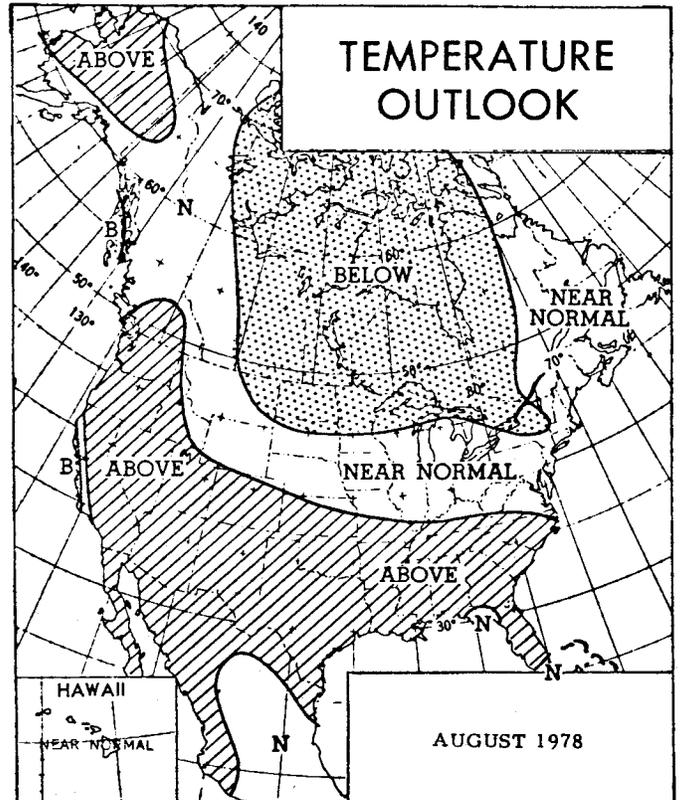
AFRICA. Hot, dry conditions continued to stress nonirrigated crops and rangeland in North Africa---Algeria, Morocco, and Tunisia. South Africa remained seasonally cool with insignificant amounts of moisture in the main agricultural regions. Torrential rains in the Sudan inflicted heavy losses on the cotton crop and seriously damaged or destroyed roads, canals, and homes in Gezira Province where 370 mm of rainfall were recorded in 2 days. About 1.5 million acres out of 2.2 million acres of cotton in this important province reportedly will be lost this year.

EUROPE. Dry, sunny weather with seasonal temperatures prevailed over the entire European subcontinent, spurring crop development and field activities in all areas. The cool, damp weather that predominated since spring had delayed crop development over much of both western and eastern Europe with adverse effects on many areas.

AMERICAS. Heavy rains swept across Brazil's southern plateau depositing from one to 4 inches of precipitation on this agriculturally important region. Temperatures continued to be well above freezing in the coffee-growing areas. Heavy rains also soaked adjacent Uruguay, but rainfall over Argentina's main grain belt was scattered and variable with precipitation amounts generally ranging from 5 to 20 mm. La Pampa Province, which needs moisture, received only scattered light showers. In the Prairie Provinces of Canada, crops generally continued to develop well. However, drought stress turned up in parts of central and eastern Alberta and central Saskatchewan. Spring-seeded cereal crops started to mature, and harvesting of winter rye had begun in some areas.

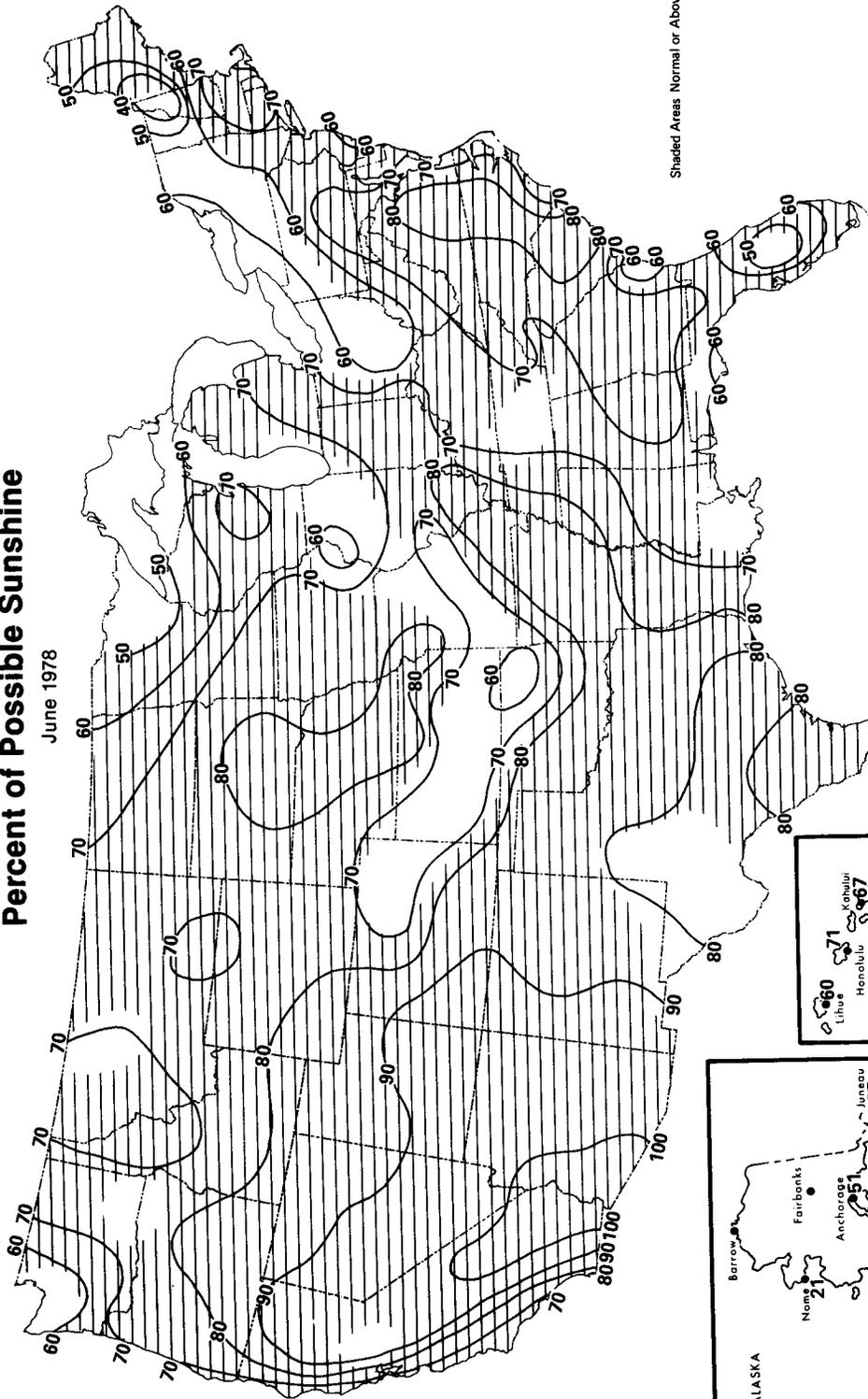


Average Monthly Weather Outlook



Percent of Possible Sunshine

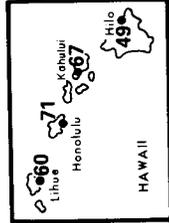
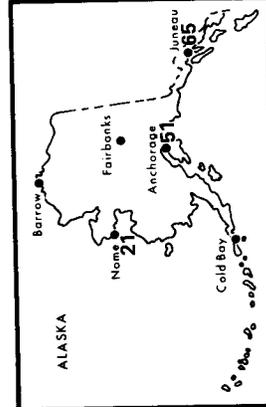
June 1978

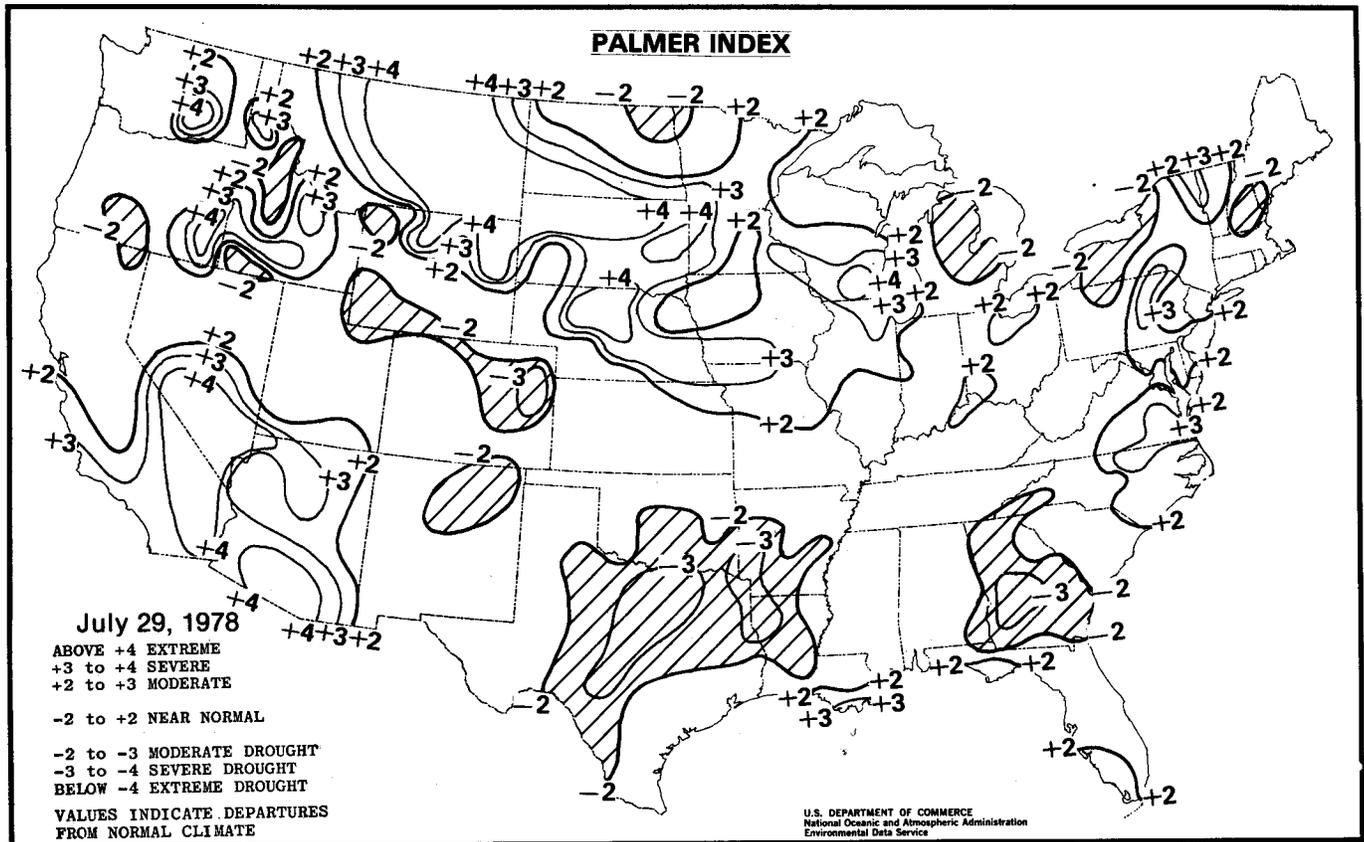


Shaded Areas Normal or Above

The Percent Possible Sunshine map above shows the percentage of time that sunshine actually occurred during the month relative to the total possible hours under clear skies. Based on preliminary telegraphic reports

Environmental Data Service, NOAA





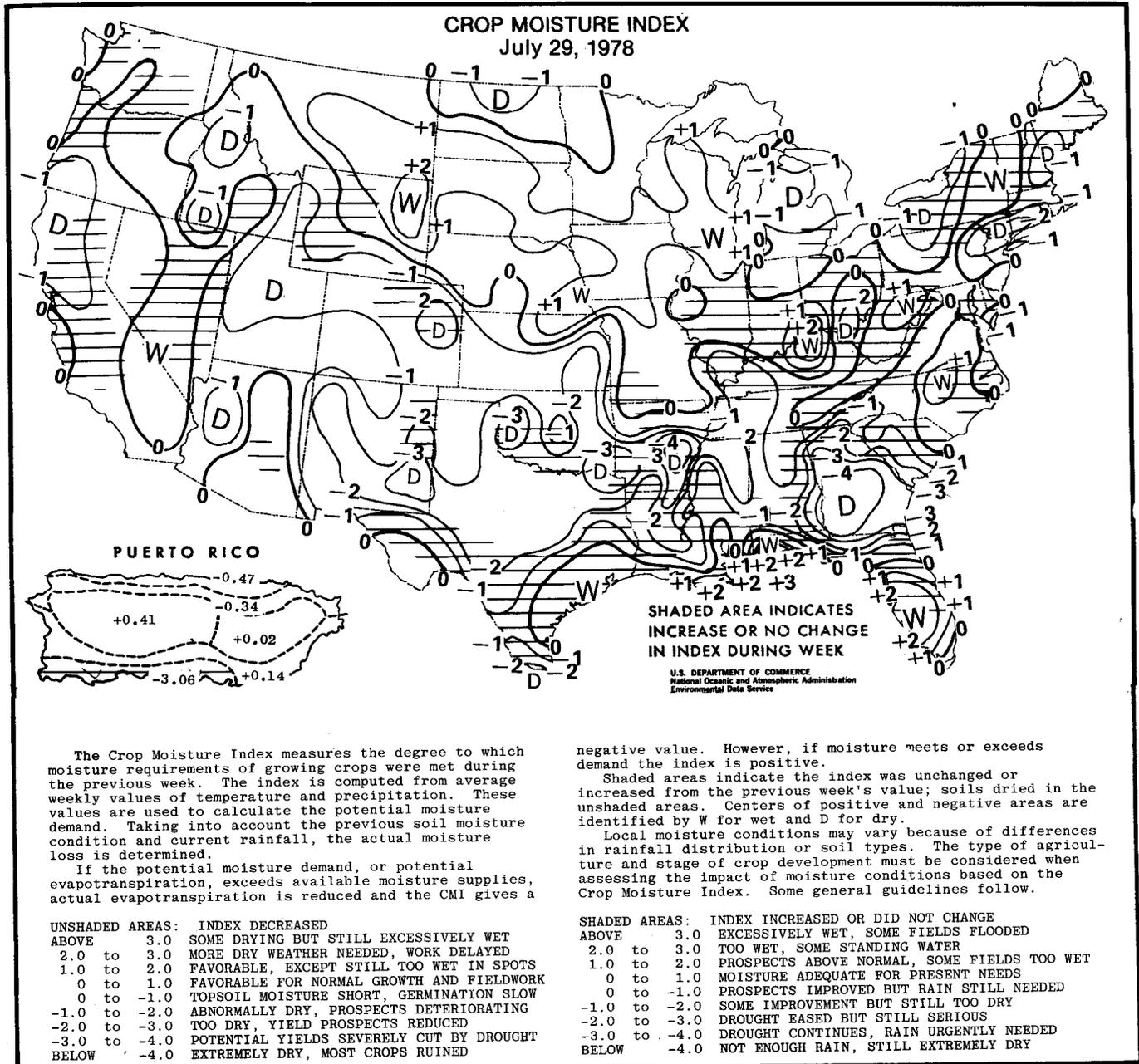
The Palmer Index

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

winter wheat

PERCENT OF ACREAGE HARVESTED AS OF JULY 30

	1978	1977	AVG.
COLO	97	95	85
ILL	100	100	100
IND	100	100	100
KANS	100	100	100
MO	100	100	100
MONT	1/	25	10
NEBR	95	100	95
OHIO	95	100	100
OKLA	100	100	100
S DAK	80	93	81
TEX	100	100	100
11 STATES	92	94	92

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

1/ LESS THAN 5%.

(continued from page 2)

the Atlantic Seaboard. The South and central Plains also reported heavy weather; Mobile, Ala., noted 1.09 in. while Las Vegas, N.M., called in 1.55 in. and points in Nebraska weathered large hail. Meantime, Tropical Storm Amelia moved inland past Brownsville, Tex., at midnight.

Southern Idaho has experienced a very dry July. Boise and Pocatello have measured less than a half-inch of rain for the month.

Temperatures on July 30 ranged from record lows of 45° at Green Bay, Wisc., and 39° at Marquette, Mich., to a record high of 103° at Little Rock, 2 degrees more than the 1896 mark.