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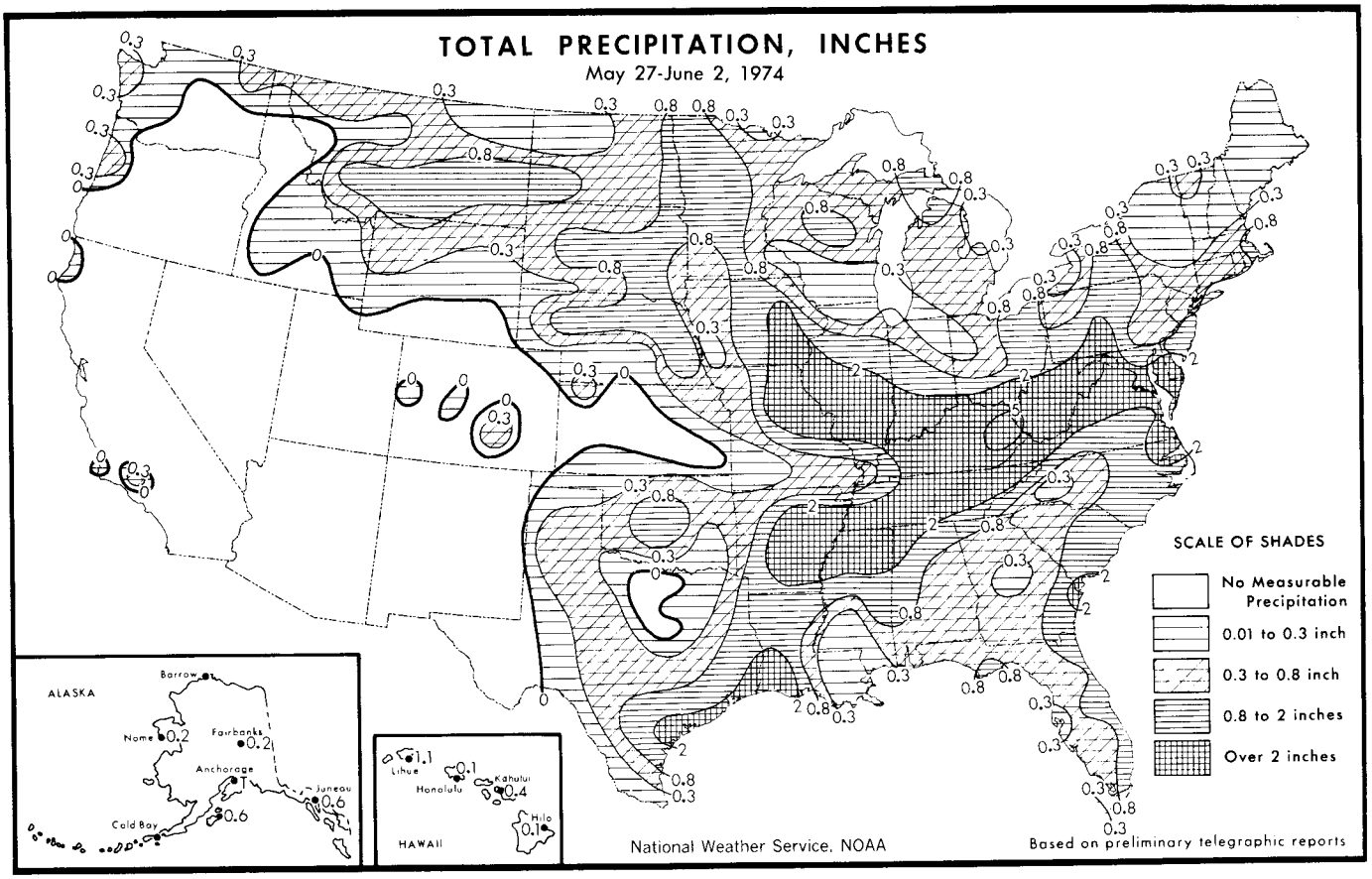


NATIONAL WEATHER SUMMARY

HIGHLIGHTS: A series of storm systems dumped between 2.00 and 5.00 in. of precipitation throughout sections of the Mississippi Valley, Ohio Valley and mid-Atlantic States last week.

Little or no precipitation fell in the dry Southwest, Rocky Mountains and the West Coast area. Denver, Colo., experienced the driest May on record, recording only 0.06 in. of precipitation, compared with an average May total of 2.64 in.

Most of the Nation enjoyed a mild week. Weekly temperatures averaged 4° to 6° above normal last week in the dry Southwest. Only a few spots in Montana and along the New England Coast reported temperatures averaging 5° or 6° below normal.

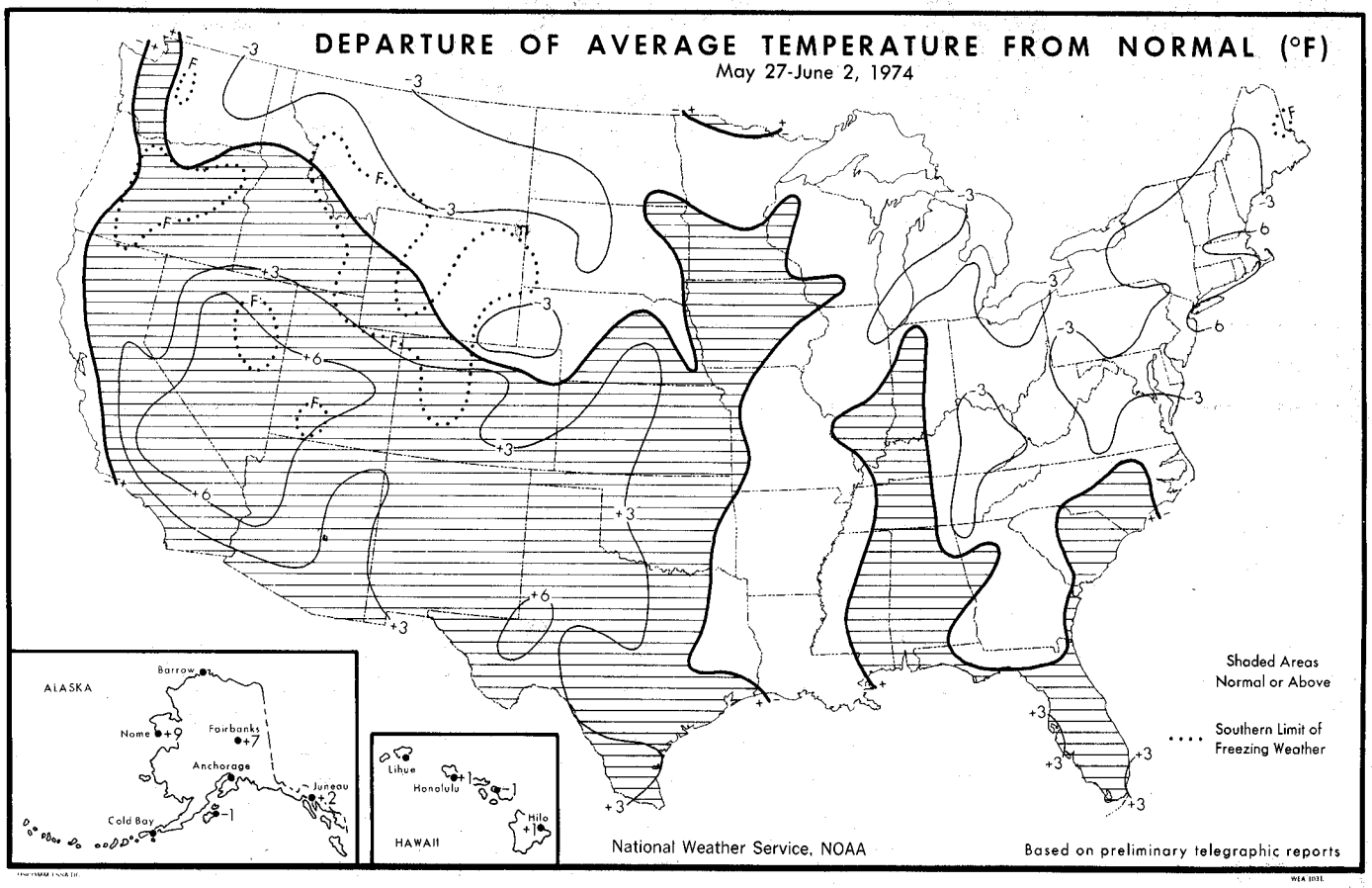
PRECIPITATION: Scattered precipitation fell across the Nation east of the Rockies last week. Some of the heaviest rainfall occurred in the following cities: Memphis, Tenn., 3.54 in.; Charleston, W.Va., 3.96; Washington, D.C., 2.48; Cincinnati, Ohio, 2.03; St. Louis, Mo., 3.18; Little Rock, Ark., 2.78; Port Arthur, Tex., 3.00; and Lake Charles, La., 2.58.

Early in the week severe thunderstorms and high winds struck the middle Missouri Valley. Wind gusts up to 60 mph hit Rapid City, S. Dak., and Brewster, Nebr. Pierre, S.Dak., got more than 1.00 in. of rain, while more than 2.00 in. fell in Nebraska between North Platte and McCook on Monday evening.

Thunderstorms dumped locally heavy rains over the southern half of Florida and gradually spread to southeast Louisiana on Tuesday. After 6 hours of rainfall, Homestead, Fla., measured 1.55 in.

Wednesday, strong thunderstorms spread over the Central Plains and the Middle Mississippi Valley. Some local flooding was reported in eastern Iowa after 2.00 in. of rain.

Thursday, intense thunderstorms moved from southeast Nebraska into northern Missouri, producing locally heavy rains. Shenandoah, Iowa, reported



more than 3.50 in. of rain in about 1 hour nearby Bedford, Iowa, got 2.25 in. in only 45 minutes. Randolph, Iowa, got 2.00 in. of rain in half an hour. High winds, hail and numerous tornadoes were reported in Illinois, Indiana, Kansas, and Minnesota throughout the day.

On Friday, thundershowers moved through the Central and Southern U.S. along a strong cold front. Both Columbia and St. Louis, Mo., received nearly 3.00 in. of rain, 2.50 in. fell at Fayetteville, Ark., and 2.00 in. soaked Kirksville, Mo.; Evansville, Ind.; and Houston, Tex. By late afternoon an isolated thunderstorm caused local flooding in the Texas Panhandle town of Turkey and in several towns in Arkansas, including Little Rock.

Saturday, a cold front reaching from New England to the western Gulf States triggered numerous showers and thunderstorms. Heaviest rainfall occurred from Kentucky to Louisiana and across southeastern Texas. By Saturday night the heavy storms caused flooding along the Embanas River, Ill., the Wabash River and the White River, Ind., and the Little Kanawha River, W. Va.

Early Sunday, thunderstorms again dumped heavy rain from the Central Gulf Coast through the southeastern Ohio Valley into the mid-Atlantic States. Both Washington, D.C., and Atlantic City, N.J., got over 1.00 in. of rain in a 6-hour period.

TEMPERATURES: Most of the Nation enjoyed another mild spring week with temperatures averaging near normal for the season. Cities reporting weekly temperatures averaging 4° to 6° above normal included: Ely and Las Vegas, Nev.; Bakersfield, Calif.; Roswell, N.Mex.; Denver, Colo.; and Midland, Tex.

Along the New England Coast, Boston, Mass., and Atlantic City, N.J., reported temperatures averaging as much as 6° below normal for the week. In Montana, both Billings and Miles City recorded weekly temperatures averaging 5° below normal.

Early in the week the East Coast States' temperatures were below normal for June, while the sun managed to push readings well above normal from central Texas into southern California. Temperature extremes ranged from a hot 106° at Needles, Calif., to 45° at Nantucket, Mass.

Tuesday, temperatures were quite warm in the southern half of the Nation, with readings in the 80's or 90's common in the Southwest and as far north as Colorado. In contrast, clouds held early afternoon temperatures to the 50's in parts of New England, Montana, North Dakota, and the northern Pacific Coast.

During the pre-dawn hours on Wednesday, a sudden blast of warm air along the trailing edge of a thunderstorm sent the temperature at Wichita, Kans., rising to 96°, setting a new record for this date.

Thursday, fair weather reached from the Southern Plains to the central and southern Pacific Coast areas, with the exception of a few cloudy spots in southern California. Warm and very humid weather continued in the southeastern quarter of the Nation with most places in the 80's and low 90's. A high pressure center in Montana brought much cooler readings to the Northcentral and Northwestern U.S. Casper, Wyo., set a new record morning low for the date with 31°.

On Saturday maximum temperatures were generally in the 70's and 80's but the thermometer topped 100° in portions of the Desert Southwest, while the central Pacific Coast was only in the 50's,

NATIONAL AGRICULTURAL SUMMARY

HIGHLIGHTS: Winter wheat harvesting increased but dryness, diseases and hail hurt much acreage in the Great Plains. Frequent rains and soaked soils restricted corn and soybean planting in the Corn Belt--the June 2 completion rate nearly matched 1973's abnormally late planting season. Cotton planting slowed in Texas. Drought continued in the southwest.

SMALL GRAINS: The winter wheat harvest gained momentum in Texas and Oklahoma while dryness, diseases, and hail storms dropped wheat condition in Kansas and Colorado. Dry weekend weather in North Dakota favored active spring wheat seeding progress.

Harvesting advanced to 22% complete in Texas compared to 5% a year earlier and 10% complete in Oklahoma versus only test cuttings a year ago and a 5% average for the date. Test cuttings were made all the way northward in Oklahoma to the Southern Kansas border and harvest is expected to start in Kansas this week.

Kansas wheat condition declined from the previous week due mainly to a streak mosaic outbreak and severe leaf rust in the central area and very dry conditions in the western third of the State. The crop continued to mature rapidly with 25% of the Kansas acreage in or past the turning color stage versus 5% in 1973, and 20% for the 10-year average. In Colorado, dryland wheat continued to decline and overall condition varies from poor to excellent depending on locality.

Nebraska's wheat crop is mostly good and 95% headed, but prospects are being affected adversly by downy brome and mustard weed infestations, lack of adequate moisture in the panhandle and southwest, and hail storms. Elsewhere in the Corn Belt, winter wheat is generally in good to excellent condition and is developing and maturing ahead of last year. Cool weather has slowed small grain growth in Montana and the Pacific Northwest but most fields are with adequate moisture.

CORN: Frequent rains continued to hamper corn planting throughout the Corn Belt as overall progress kept pace with a year earlier, but stayed behind average. By June 2, corn planting had advanced 13 points over the past week to 83% complete in the Corn Belt compared with 83% a year ago and an average for the date of 90% complete.

Planting completeness varies from a low of 60% done in Indiana to highs of nearly 100% done in Nebraska, and 95% done in Ohio and Kansas. Rain and wet fields held Iowa weekly corn planting progress to a 2-point gain to 86% complete versus 89% in 1973 and 98% average. Similar conditions existed in Illinois where 73% of the corn crop is planted versus 80% in 1973 and 92% average. Corn planting progress is ahead of last year's slow pace in Ohio, Michigan, Wisconsin, Missouri, Nebraska, and Kansas. Ponding and wet spots will require re-seeding in many areas where rainfall has been heavy. About 70% of the Iowa corn planted acreage has emerged compared to only 52% last year.

COTTON: Planting of cotton is virtually complete in most growing areas with the exception of Texas, Oklahoma and Tennessee. Texas cotton farmers accomplished only moderate planting progress last week as a shortage of soil moisture on the Texas High and Low Plains restricted planting. The Texas cotton crop was 79% planted by June 2 compared to 88% a year earlier.

Cotton planting moved rapidly in Oklahoma and reached 80% complete versus only 52% in 1973. Wet conditions continued to keep cotton planting behind in Tennessee with 85% planted versus 90% in 1973 and 95% average. Most emerged cotton in the Delta area is in fair to good condition but warm, sunny weather is needed. South Texas cotton made excellent progress while satisfactory growing progress was reported in California and Arizona.

SOYBEANS: Wet conditions and concern with corn planting held soybean planting progress in the Corn Belt to almost the same as last year's abnormally late pace. By June 2, the Corn Belt soybean crop was 39% planted compared to 42% this time last year and an average of 64%.

Planting completeness varies widely reflecting very wet conditions in some areas and favorable conditions in other areas. In Illinois, the Nation's leading soybean producing State, only 15% of the crop is planted compared to 40% a year earlier and a 3-year average of 70% planted. Ohio's soybean acreage is 75% planted, well ahead of both last year and average while Iowa's crop is only 44% planted versus 50% in 1973 and 80% average. Planting is slow in Indiana, at 20% complete while Minnesota at 74% done about matches average progress. The Southern States soybean crop is 46% planted, ahead of last year's slow pace of 34% planted.

OTHER CROPS: A shortage of soil moisture slowed sorghum planting in Texas to only 77% complete versus 83% last year. Nebraska sorghum planting at 70% done is nearly as far along as Texas.

Flue-cured tobacco in North Carolina is 95% set, while burley is 60% set. Heavy rains slowed tobacco setting in Kentucky although progress is still ahead of 1973 and average.

Potato planting is 33% complete in Aroostook Co., Me., and is 100% complete in Idaho.

FRUITS AND NUTS: Most fruit and nut crops progressed well in California while the Valencia orange, grapefruit and lemon harvests continued actively. More frequent rains have boosted Florida citrus trees and new crop fruit into very good condition.

A few early variety peaches were picked in South Carolina and harvest increased in Texas.

VEGETABLES: Watermelon shipments increased from both Florida and Texas.

Spring vegetable harvesting became more active in the South and northward into eastern North Carolina. Planting continued in the Great Lakes and North Atlantic areas.

Sweet corn is moving in volume from Florida and some areas of California while tomatoes for fresh market increased in the Imperial Valley.

PASTURES AND LIVESTOCK: Ranges in much of the Southwest are under stress from drought. Cattle in some of the hardest hit areas are showing severe stress. On the brighter side, pastures in Wisconsin improved and cattle are making good gains off lush growth in Oklahoma.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., June 2, 1974

States and Stations	Temperature °F Average	Temperature °F Departure	Precipitation Inches Total	Precipitation Inches Departure
ALA.Birmingham. . .	74	0	.6	- .2
Mobile.	78	0	.6	- .5
Montgomery. . . .	76	0	.5	- .3
ALASKA.Anchorage. .	51	0	T	- .1
Barrow.	--	--	--	---
Fairbanks	61	+7	.2	0
Juneau.	52	+2	.6	- .1
Kodiak.	45	-1	.6	- .4
Nome.	50	+9	.2	+ .1
ARIZ.Flagstaff. . .	59	+5	0	- .1
Phoenix	85	+5	0	0
Tucson.	80	+2	0	0
Winslow	69	+2	0	0
Yuma.	84	+2	0	0
ARK.Fort Smith. . .	72	-2	.4	- .9
Little Rock . . .	72	-2	2.8	+1.8
CALIF.Bakersfield .	79	+6	0	0
Eureka.	52	-2	T	- .3
Fresno.	74	+4	0	0
Los Angeles . . .	67	+1	0	0
Red Bluff	73	+2	0	- .1
San Diego	64	0	T	0
San Francisco . .	59	-1	T	0
Stockton	70	+2	0	0
COLO.Denver	66	+5	T	- .6
Grand Junction. .	71	+5	T	- .1
Pueblo.	68	+2	.6	+ .2
CONN.Bridgeport . .	61	-2	1.0	+ .3
Hartford.	59	-4	.5	- .3
D.C.Washington. . .	67	-3	2.5	+1.7
FLA.Apalachicola. .	79	+1	1.1	+ .3
Daytona Beach . .	79	+2	.8	- .2
Ft. Myers	81	+1	.4	-1.1
Jacksonville. . .	77	0	.9	- .1
Key West.	83	+1	.2	- .6
Lakeland.	81	+2	.7	- .4
Miami	82	+3	.9	- .9
Orlando	81	+2	1.3	+ .2
Tallahassee . . .	76	-2	.7	- .4
Tampa	82	+3	.2	- .7
W.Palm Beach. . .	81	+2	.9	- .7
GA.Atlanta.	73	+1	.4	- .4
Augusta	74	-1	.6	- .2
Macon	76	-1	.1	- .7
Savannah.	77	+1	2.0	+ .9
HAWAII.Hilo	75	+1	.1	-1.7
Honolulu.	78	0	.1	- .1
Kahului	75	-1	.4	+ .3
Lihue	77	0	1.1	+ .7
IDAHO.Boise	61	+1	T	- .3
Lewiston.	61	0	0	- .4
Pocatello	58	+1	T	- .4
ILL.Cairo	72	-1	.4	- .8
Chicago	61	-4	.7	- .1
Moline.	65	-1	1.5	+ .6
Peoria.	65	-1	1.2	+ .3
Rockford.	63	-1	T	- .9
Springfield . . .	67	-1	2.0	+1.2
IND.Evansville. . .	71	+1	3.6	+2.7
Ft. Wayne	64	-1	.7	- .2
Indianapolis. . .	67	0	1.1	+ .1
South Bend. . . .	63	0	.2	- .5
IOWA.Burlington . .	65	-2	2.0	+1.1
Des Moines. . . .	68	+2	1.3	+ .2
Dubuque	63	0	.2	-1.0
Sioux City. . . .	67	+1	.4	- .6
KANS.Concordia. . .	70	+3	T	-1.2
Dodge City. . . .	72	+3	.1	- .7
Goodland.	66	+2	T	- .6
Topeka.	71	+2	.6	- .5
Wichita	73	+2	0	- .9
KY.Lexington. . . .	66	-3	4.2	+3.2
Louisville. . . .	67	-2	2.1	+1.1
La.Baton Rouge. . .	77	-1	.1	- .7
Lake Charles. . .	77	-1	2.6	+1.5
New Orleans . . .	78	0	.1	- .9
Shreveport. . . .	76	-1	1.2	+ .2
MAINE.Caribou . . .	53	-2	.2	- .5
Portland.	54	-3	.3	- .5
MD.Baltimore. . . .	64	-4	1.7	+ .9
MASS.Boston	56	-7	1.1	+ .3
Chatham	51	--	1.3	---
MICH.Alpena	53	-3	.1	- .5
Detroit	60	-3	.2	- .6
Flint	59	-2	.3	- .5
Grand Rapids. . .	59	-3	.5	- .3
Houghton Lake . .	56	-2	.7	0
Lansing	59	-3	.7	- .1
Marquette	54	-1	.6	- .1
Muskegon.	57	-3	.6	0
S. Ste. Marie . .	53	-1	1.3	+ .5
MINN.Duluth	53	-1	.7	- .2
Internatl Falls .	55	0	.3	- .5
Minneapolis . . .	62	0	.6	- .3
Rochester	62	+1	.2	- .8
St. Cloud	59	-1	1.2	+ .2
MISS.Jackson. . . .	76	0	.3	- .6
Meridian.	77	+1	1.7	+ .9
MO.Columbia	67	-2	3.1	+2.1
Kansas City . . .	69	0	.4	- .8
St. Louis	70	0	3.3	+2.3
Springfield . . .	69	0	.1	-1.0
MONT.Billings . . .	53	-5	1.1	+ .5
Glasgow	55	-3	.1	- .4
Great Falls . . .	53	-4	.2	- .5
Havre	55	-3	.3	- .2
Helena.	53	-2	.5	0
Kalispell	52	-2	.4	- .2
Miles City. . . .	55	-5	1.6	+ .9
Missoula.	53	-2	T	- .5
NEBR.Grand Island .	70	+5	.2	- .8
Lincoln	67	0	1.4	+ .4
Norfolk	65	0	1.4	+ .3
N.Platte.	63	0	.2	- .6
Omaha	67	+2	.2	- .9
Valentine	60	-2	.4	- .4
NEV.Ely	59	+6	T	- .2
Las Vegas	84	+7	0	0
Reno.	59	+1	0	- .1
Winnemucca. . . .	63	+6	0	- .2
N.H.Concord	56	-4	.2	- .5
N.J.Atlantic City .	61	-5	1.7	+ .9
Trenton	62	-5	.9	+ .2
N.MEX.Albuquerque .	75	+5	0	- .1
Roswell	77	+4	T	- .3
N.Y.Albany.	58	-5	.2	- .5
Binghamton. . . .	55	-5	.6	- .2
Buffalo	59	-1	.3	- .3
New York.	61	-6	.7	0
Rochester	59	-3	.9	+ .3
Syracuse.	59	-3	.2	- .5
N.C.Asheville . . .	66	-1	.3	- .5
Charlotte	72	0	.4	- .3
Greensboro. . . .	69	-2	.4	- .4
Hatteras.	70	-1	1.3	+ .4
Raleigh	73	+2	1.4	+ .6
Wilmington. . . .	74	0	1.1	+ .1
N.DAK.Bismarck. . .	56	-3	.6	- .1
Fargo	59	-1	.8	+ .2
Williston	57	-1	.1	- .5
OHIO.Akron-Canton .	61	-3	1.3	+ .5
Cincinnati. . . .	65	-3	2.0	+1.1
Cleveland	60	-3	1.3	+ .5
Columbus	64	-2	.6	- .4
Dayton.	64	-2	.4	- .5
Toledo.	61	-3	.7	- .1
Youngstown. . . .	60	-2	.6	- .2
OKLA.Okla. City . .	74	+2	1.3	+ .1
Tulsa	74	+1	.6	- .6
OREG.Astoria. . . .	53	-1	T	- .6
Burns	56	+1	0	- .3
Medford	61	+1	0	- .3
Pendleton	62	0	0	- .3
Portland.	59	0	T	- .4
Salem	55	-3	.7	+ .3
PA.Allentown. . . .	61	-4	.4	- .4
Erie.	57	-3	.3	- .5
Harrisburg. . . .	67	-1	.8	0
Philadelphia. . .	64	-4	.5	- .3
Pittsburgh. . . .	60	-4	.9	+ .1
Scranton.	60	-3	.6	- .2
R.I. Providence . .	57	-4	.6	- .1
S.C. Charleston . .	77	+2	1.4	+ .3
Columbia.	78	+2	.9	+ .1
Greenville. . . .	72	-1	.4	- .3
S.D. Aberdeen . . .	60	0	.8	+ .1
Huron	61	-1	1.1	+ .3
Rapid City. . . .	58	-1	.8	0
Sioux Falls . . .	63	0	.4	- .5
TENN.Chattanooga. .	69	-3	1.0	+ .3
Knoxville	70	-2	3.5	+2.7
Memphis	74	-1	4.4	+3.5
Nashville	72	0	2.8	+1.9
TEX.Abilene	80	+4	.5	- .3
Amarillo.	74	+4	.5	- .3
Austin.	79	+1	.6	- .2
Beaumont.	79	+1	3.0	+2.9
Brownsville . . .	83	+2	T	- .7
Corpus Christi. .	83	+3	1.4	+ .7
Del Rio	84	+3	T	- .6
El Paso	80	+4	0	- .1
Fort Worth. . . .	78	+2	T	- .9
Galveston	80	+2	2.4	+1.6
Houston	80	+2	1.4	+ .2
Lubbock	78	+5	.4	- .4
Midland	82	+6	.1	- .4
San Angelo. . . .	79	+1	.4	- .2
San Antonio . . .	79	0	1.0	+ .3
Victoria.	81	+2	2.3	+1.4
Waco.	80	+2	0	- .9
Wichita Falls . .	80	+4	0	-1.0
UTAH.Blanding . . .	65	+4	0	- .1
Salt Lake City. .	66	+4	0	- .3
VT.Burlington . . .	57	-3	.4	- .4
VA.Lynchburg. . . .	66	-3	2.0	+1.2
Norfolk	70	-1	2.1	+1.3
Richmond.	69	-1	1.8	+1.0
Roanoke	67	-1	1.0	+ .2
WASH.Colville . . .	55	-3	.4	0
Omak.	58	-2	.1	- .2
Quillayute. . . .	51	-2	.4	- .5
Seattle-Tacoma. .	60	+3	.1	- .3
Spokane	54	-4	T	- .4
Walla Walla . . .	62	-1	0	- .4
Yakima.	59	-2	0	- .1
W.Va.Beckley. . . .	61	-2	3.0	+2.1
Charleston. . . .	66	-2	3.0	+2.3
Huntington. . . .	67	-2	5.0	+4.2
Parkersburg . . .	65	-3	2.1	+1.3
WIS.Green Bay . . .	57	-2	.6	- .1
La Crosse	62	-2	T	-1.0
Madison	61	0	.1	- .8
Milwaukee	57	-2	.2	- .5
WYO.Casper.	56	-1	.1	- .3
Cheyenne.	61	-5	T	- .6
Lander.	56	0	.1	- .5
Sheridan.	54	-2	.5	- .2
P.R.San Juan. . . .	82	+2	.2	-1.3

Based on 1941-70 normals.

CONDENSED STATE SUMMARIES

The Bulletin capsulizes nationally important weather and crop conditions. Every Monday SRS publishes more detailed data in State Weekly Weather and Crop Bulletins in cooperation with the National Weather Service, NOAA. Voluntary weather observers, crop reporters, and county extension agents contribute weekly observations for these reports.

ALABAMA: Sunny and warm most of week. Highs in 80's statewide with high humidities prevalent after midweek. Rains Saturday averaged over 1.00 in. west and north with lighter amounts central and east. Cooler, drier air returned to State Sunday.

Few scattered fields cotton, corn remained to be planted; good headway made planting soybeans. Cultivation of row crops main activity. Cotton planting consisted mainly replanting scattered fields with skippy stands. Most acreage emerged to even stands and making good growth. Crop needs hot weather for maximum development. Late planted corn, mainly north up to good stand. In lower half corn more advanced, growers cultivated and side-dressed earliest acreage. Many fields laid-by. Peanuts in few localities could use additional moisture. Soybean planting 60% complete. Combining wheat active 20% harvested. Disease reduced prospects lower half but north crop escaped serious damage. Fair amount small grain, pasture hay saved.

ALASKA: Entire week very dry. Temperatures averaged as much as 10° to 12° above normal. Precipitation almost nonexistent except for 0.34 in. at Kodiak, about 0.65 in. below normal.

Potato planting about 70% completed in district one and nearly 100% elsewhere in Railbelt. Planting of oats and barley about 75% completed. Good to excellent feed growth on pastures and hay meadows Topsoil moisture supply short, subsoil moisture adequate.

ARIZONA: Warm weather continued. Daytime highs well above normal. Clear skies allowed nightly temperatures to drop below normal. Temperatures 2° to 5° above normal. No rainfall statewide.

Cotton good condition, warmer night temperatures accelerating growth. Squaring approaching 70% Yuma area, central desert fields 10% to 25%. Small grain beginning harvest. Early planted sorghum Yuma area doing well, reaching bloom stage, other areas preparing for planting. Sugarbeet yields, sugar content harvested fields Yuma, Maricopa bearing out favorable expectations. Alfalfa hay harvest well advanced.

ARKANSAS: Temperatures near normal. Highs in mid-80's to low 90's. Lows 50's and low 60's. Rain fell on Friday and Saturday, ranging from 1.00 to 3.00 in.

Fieldwork moved quickly but Friday rains stopped fieldwork. Soil moisture adequate to surplus especially in east third. Virtually all cotton planted. Cotton needs warm, sunny weather for growth. Weeds a problem. Rice received first flood, herbicides controlling grasses. Soybean planting delayed by wet soils. Early beans getting first cultivation. Soybeans 35% planted. Few fields of wheat and oats harvested. Corn crop making good growth. Sorghum 70% planted. Rain interfered hay making. Pasture providing adequate forage. Cattle making excellent gains.

CALIFORNIA: Fair weather continued except considerable night and morning low cloudiness along coast. Precipitation limited to few afternoon and evening showers. Temperatures averaged few degrees above normal all areas except near normal along immediate coast.

Barley harvest nearing completion desert, wheat peak. Barley Central Valley increasing, wheat getting underway. Cutting alfalfa, grain hay active. Digging sugarbeets continued, good yields. Planting corn, sorghum, dry beans. Cotton satisfactory progress. Earlier rice good, some late planting. Grapes rapid development. Almond progress continues good, sizing well, many orchards limbs propped. Walnuts developing normally, set light Stockton area, considerable blight showing. Pears progressing well, fairly heavy drop some areas. Harvest early apricots, nectarines, plums increased. Cherry harvest past peak Stockton area, harvest begun Santa Clara County, birds doing considerable damage. Avocado harvest steady, good set new fruit reported. Valencia orange harvest active, granulation and stem end drying showing on some larger sizes. Grapefruit, lemon harvest continued active.

Asparagus continued processors. Broccoli supply good. Cauliflower steady. Cantaloups increasing desert. Carrots increase Kern County, beginning Salinas. Celery steady Oxnard, beginning Santa Maria-Oceano. Sweet corn full swing. Lettuce strong central coast. Onions continued Central Valley. Potatoes increased Kern County. Market tomatoes increased Imperial Valley. Processing tomatoes normal progress. Watermelon shipments increased desert areas.

Livestock good non-irrigated pastures, rangelands dry.

COLORADO: Only spotty rains, no relief from extremely dry weather. Hot, dry weather continued. Craig and Montrose in west had no measurable precipitation during May and only 0.06 in. fell at Denver. Unseasonably warm week. Highs climbed above 100° portions southeast on 28th. Highest that day was 102° at Holly.

Condition dryland winter wheat continued to decline--hot, dry winds prevailed. Wheat crop and other small grains rated poor to excellent depending on locality. Wheat 76% headed, 30% 1973 and 61% 5-year average. Corn 95% planted, 86% emerged, good to excellent condition. Sorghum 50% planted. Sugarbeets 95% emerged, good to excellent. Dry beans 43% planted, 8% emerged, good. Fall potatoes 90% planted, 5% emerged, good. Summer potatoes made good growth. Alfalfa good to excellent except dryland. Ranges and pastures declining--moisture critically needed. Livestock condition decling southeast, no pasture growth.

FLORIDA: Warm days and mild nights with scattered afternoon and evening showers and thundershowers. Temperatures averaged near to slightly above normal. Rainfall totals were light to moderate locally, heavy at isolated locations.

Soil moisture improved, some areas continue short. Corn growing well. Peanuts good. Soybean plantings progressed rapidly. Harvest flue-cured tobacco started. Sugarcane making good growth. Spraying, cultivating active. Pastures in west and north good to excellent except parts of extreme west panhandle deteriorated.

Citrus trees and new crop fruit condition very good. Rains more frequent--irrigation stopped--trees colored better--new crop droppage has abated. Watermelons increased sharply, now volume leader.

GEORGIA: Temperatures averaged from 2° to 3° subnormal northwest to near normal on coast, elsewhere 1° to 2° below. Widely scattered showers or thundershowers early week, amounts generally under 0.50 in. except north quarter averaged over 1.00 in. with locally more than 2.00 in. extreme northeast. Weekend wet.

Soil moisture mostly adequate north and central, short to very short south and southeast. Fieldwork continued very active. Late crop planting nearing completion. Cotton fair to mostly good condition, 24% squaring, 1% setting bolls. Tobacco good, 2% harvested. Corn fair to mostly good, considerable acreage "laid by" in south. Nitrogen short many areas. Peanuts mostly good, applying herbicides, fungicides and insecticides, some land plaster application south. Soybeans 62% planted and sorghums 44% planted.

HAWAII: Weather throughout State generally cloudy and warm. Variable rainfall beneficial to crops. Irrigation in heavy use in dry areas. Spraying intensified to minimize insect damage. Production of leafy crops expected to continue heavy. Other vegetables adequate supply. Banana production steady. Papayas heavy. Cattle and pastures fair to good. Pineapple harvesting becoming active. Normal sugar operation in progress.

IDAHO: Moderate precipitation east but southwest and southcentral remained dry. Temperatures below normal north and slightly above elsewhere. Highs upper 70's to upper 80's, lows mostly 30's.

Warmer weather favored crop development. Haying operations underway north and southwest. Winter wheat 40% boot stage, 10% headed. Under 20% spring grains in boot, few advanced fields headed. Potato planting complete except few high elevation fields in east. Emergence varies from 90% southwest to 10% east. Sugarbeets blocked and thinned 70% southwest, 25% southcentral. Corn crop 90% planted. Dry bean planting 80% southwest and 60% southcentral. Lower ranges and non-irrigated pastures continue dry.

ILLINOIS: Temperatures 1° to 4° subnormal. Warming trend midweek, 80's entire State. Precipitation varied, under 0.50 in. north portion, over 3.00 in. southwest.

Corn 73% planted, 80% 1973, average 92%. New plantings fair to good condition 76%. Replanting varies considerably. Soybeans 15% planted, 40% 1973, average 70%. About 90% winter wheat filling stage, 62% 1973, average 66%. About 15% turning yellow, 7% 1973, average 10%. Good to excellent condition 74%. About 40% oats heading stage, average 25%; 10% filling stage, average 5%. First cutting alfalfa hay 10% complete, 16% 1973, average 27%. Red clover hay cutting about 8% complete, average 20%. Grain sorghum planting just starting. Pastures good to excellent 98%. Soil moisture 9% adequate, 91% surplus. Fieldwork: 2 days suitable.

INDIANA: Near normal temperatures. Rainfall from 0.10 in. northeast to 3.00 in. southwest. Temperature extremes: 42° northeast, 87° southwest. Low drying rates. Soil temperatures near normal.

Fieldwork averaged 3 days. Topsoil and subsoil moisture declined. Still adequate to mostly surplus. For 3d week, plowing 90% along. Corn 60% planted, 75% 1973, 80% average. Corn 60% emerged, stands fair to mostly good. Corn 4 in. high, 3 in. 1973 and average. Soybeans 20% planted, 30% 1973, 50% average. Soybeans 20% emerged, stands fair to good. Height 1 in., same as 1973 and average. Wheat 90% headed, 75% 1973 and average. Wheat 10% ripe. Alfalfa hay 15% cut first time, lagging 1973 and average. Pastures rated good.

IOWA: Temperatures averaged near normal for the week. Showers and thunderstorms common until weekend when drier weather returned.

Fieldwork spotty, 2.5 days suitable, average 4.7 days. Corn 66% planted, average 98%, 1973 89%. Corn emerged 70%, 1973 52%, statewide 8% replanted or to be replanted. Soybeans 44% planted, average 80%, 1973 50%. Oats, hay stands and pasture mostly good, ranged from fair to excellent. Topsoil moisture 30% adequate, 70% surplus. Subsoil moisture 38% adequate, 62% surplus. Weed control for corn, soybeans 90% fair to good.

KANSAS: Above normal temperatures early week, subnormal late week. Weekly average 5° above normal northwest and westcentral, 2° above normal east and southcentral. Rainfall from thunderstorms, amounts quite variable and scattered. Most beneficial amounts in extreme east, much less west.

Wheat crop condition down. Wheat streak mosaic outbreak centered in central, also severe leaf rust central. Western third very dry. Wheat in or past heading stage 95%, same as 1973 and 10-year average. Wheat in or past turning stage 25%, 1973 5%, 10-year average 20%. Wheat harvest to begin this week. Corn planted 95%, last year 85%, 10-year average 90%. Corn laid by 5%, none 1973. Soybeans 35% planted, 1973 15%, 10-year average 40%. First cutting alfalfa 75% harvested, 65% 1973, 60% average. Livestock doing well.

KENTUCKY: Slow warming during week with temperatures averaging near normal. Rainfall Wednesday through Saturday totaled slightly under 1.00 in. west to over 5.00 in. portions east. Localized flash flooding east Friday and Saturday.

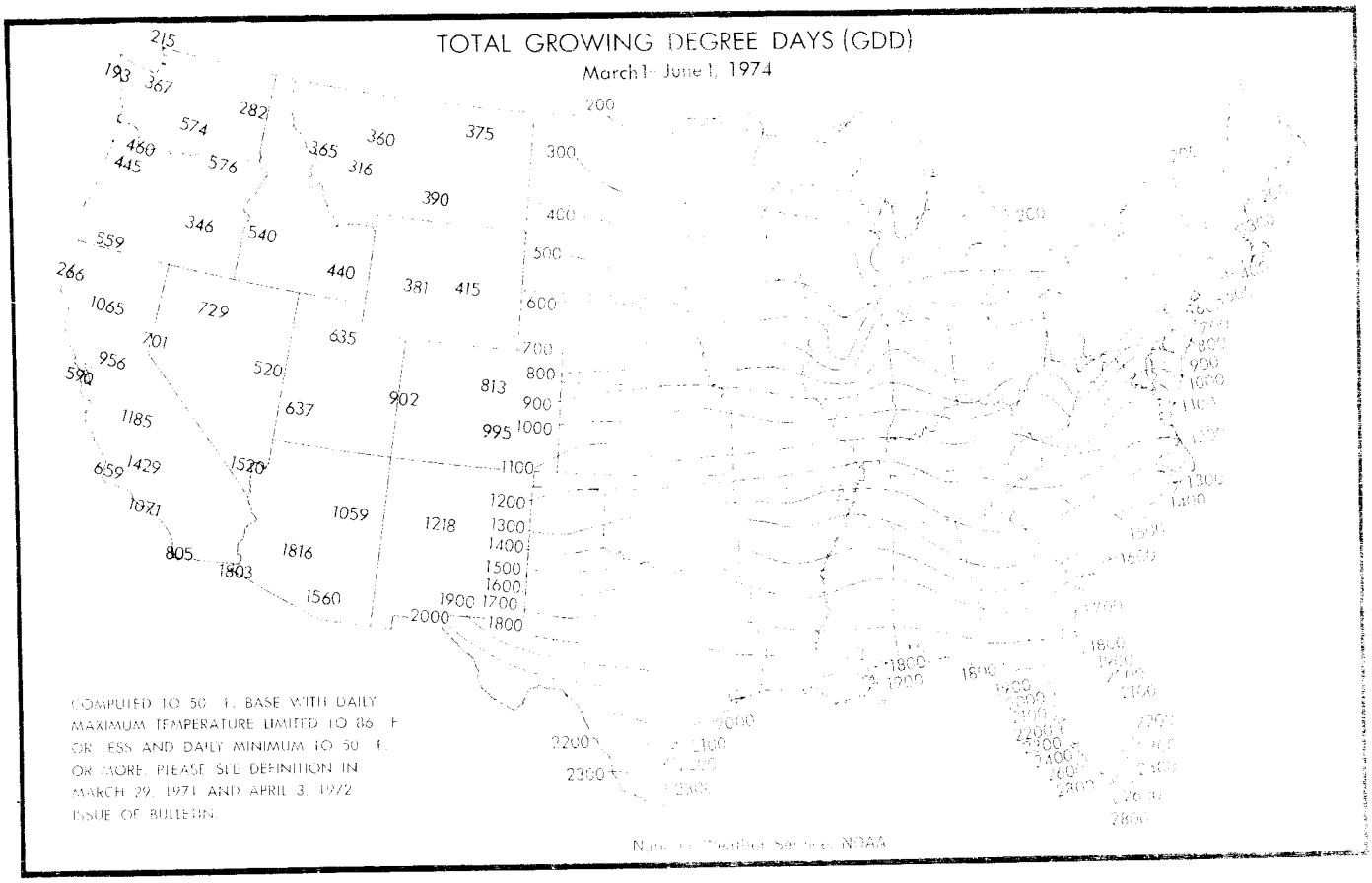
Soil moisture excessive to adequate across State following heavy rains north and east. Planting delayed and tobacco setting slowed. Most corn planted, up to good stands, crop now averages 6 in high, compared to 3 in. a year ago. Soybean planting now 33% completed, 2 weeks ahead 1973. Tobacco setting well ahead of 1973 and average, now 57% completed. Generally started well, but some localized plant loss due root rot caused by excessive moisture. Barley harvest 10% completed, yields disappointing. Wheat ripening, wide range in condition of crop. Pastures improved immensely by rains central and east, furnishing adequate grazing.

LOUISIANA: Temperatures averaged near normal. Extremes: 92° at Monroe 29th and 56° Winnfield 28th. Precipitation 1 to 4 days and ranged from 0.50 to more than 5.00 in.

Cultivation, planting, haying and vegetable harvest main activities. Soil moisture generally adequate. Several parishes surplus. Fieldwork possible 4.3 days. Cotton 90% up to stand, growing well. Hail May 26 destroyed about 10,000 acres in northeast, most has been replanted. Insects and diseases causing problems several parishes. Corn good. Sorghum 60% planted, 70% 1973. Soybean planting active, 66% complete, 40% 1973. Stands good, fields clean. Sugarcane good, layby continued; borer infestation heavy in spots. Rice good, topdressing and weed control active.

MARYLAND AND DELAWARE: Temperatures averaged 2° to 5° subnormal. Highs upper 60's Garrett County, mid-70's to mid-80's elsewhere. Lows from low 40's to low 50's except low 30's Garrett County. Precipitation frequent ranging from 0.02 to 2.50 in. except 3.46 in. at Snow Hill.

Poor work week, fields too wet and little sunshine for drying. Corn planting nearing completion. Early fields good stands. Soybean planting 35% done, 1973 27%, average 36%. Barley harvest to start this week. Wheat turning color most areas.



MICHIGAN: Temperatures averaged from near normal southwest to 5° subnormal extreme eastcentral. Coldest Monday morning with lows in 30's areas. Weekend highs mostly in 70's. Precipitation totaled 0.20 in. or less north and east to 0.80 southcentral and southwest lower peninsula.

Fieldwork progress good. Cool weather retarded crop germination and growth. Soil moisture adequate to surplus. Fieldwork: 4.0 days suitable. Corn 71% planted, 1973 65%, average 86%. Soybeans 32% planted, 1973 20%, average 51%. Potatoes 82% planted, average 78%. Dry bean planting started. Corn germination and growth slow, spotty. Some corn being replanted. Wheat, oats and hay fair to good growth. Pasture feed supply average.

MINNESOTA: Another cool and cloudy week. Temperatures normal to 2° below. Some readings in low 80's on 27th-28th, southeast corner. Precipitation subnormal except northwest third where above.

Spring grain seeding continued behind average with surplus soil moisture in northwest. Dry conditions late in week allowed crop planting to get underway in this important small grain producing area. Elsewhere small grain, fall crop planting nearly completed but below normal temperatures delayed germination and growth of all crops. Percent planting completion: Corn 90, 1973 96, average 91; soybeans 74, 1973 82, average 75; spring wheat 64, average 88; barley 49, average 86; oats 79, average 92; flaxseed 62, average 77; sugarbeets 75, average 74; potatoes 38, average 64; sweet corn for processing 74, average 80; processing green peas 100, average 92.

MISSISSIPPI: Temperatures averaged 2° to 4° subnormal over north and central and near normal south. Rainfall over north and central sections averaged 1.00 to 2.00 in. while amounts generally less than 0.50 in. south.

Soil moisture surplus to excessive in north third and lower delta. Adequate to surplus in south, western and remaining central counties, and adequate in other southern counties. Fieldwork: 3.5 days. Cotton 97% planted, 95% 1973, normal 100%. Soybeans 42% planted, 25% 1973, normal 50%. Other crops seeded--corn 90%, sorghum 60%, sweet potatoes 59%. Wheat 18%, oats 21% and hay 15% harvested. About 1% of cotton acreage squaring.

MISSOURI: Another wet week. Some local areas received less than 0.50 in., but portions of central and northeast got 2.00 to more than 6.00 in. Mississippi River above flood stage again. Temperatures averaged near or a few degrees below normal.

Fieldwork: 2 days suitable. Corn 81% planted, 77% normal. Soybeans 30% planted, 44% normal. Grain sorghum 45% planted. Cotton 92% planted. Some replanting necessary areas of recent heavy rainfall. Winter wheat 35% turning color, 24% 1973. First cutting alfalfa 43% harvested, 44% 1973, 51% normal. Soil moisture supplies adequate to surplus.

MONTANA: Temperatures averaged subnormal. Precipitation averaged over 0.80 in. most of south. Grain and hay crops growing slowly because of

cool weather. Soil moisture adequate except west of Divide. Irrigation water plentiful. Winter wheat good condition, 15% in boot. Spring grain mostly good except central and southwest districts where fair to good. Nearly 20% sugarbeets thinned. Almost 75% corn, 85% potatoes, and 65% dry beans seeded.

NEBRASKA: Temperatures slightly above normal. Precipitation fell over entire State, amounts averaging 0.25 to 1.50 in. Locally turbulent thundershower and hail activity midweek caused severe damage to crops.

Winter wheat fair 12%, good 70%, excellent 18%, 1973 17% fair, 75% good, 8% excellent. Wheat crop 95% headed. Wheat streak mosaic in 2 counties. Drought in panhandle and southwest. Wheat prospects hurt by downy brome and mustard infestations, drought and hail storms. Corn planting almost 100% completed, normal 95%. Sorghum 70% planted, same as 1973, near normal. Soybeans 60% planted, 72% 1973, 65% normal. Soybeans up in early planted acreages. Alfalfa and wild hay conditions unchanged, mostly good. Fields with alfalfa weevil infestations cut early, heavy losses reported. Fieldwork: 6 days suitable. Soil moisture improved statewide. Topsoil moisture 66% adequate, 6% surplus, 28% short. West in drought conditions. Subsoil moisture supplies 7%, surplus, 77% adequate, 16% short. Pasture and range feed mostly adequate. Livestock good.

NEVADA: Temperatures averaged 4° to 7° above normal. Extremes: 108° Las Vegas and Logandale, 21° Mountain City. Precipitation nil except for thunderstorm which dumped 1.87 in. McDermitt.

Soil moisture supplies short to very short, supply adequate Carson City, Pershing and Washon Counties. Alfalfa mostly fair, weevils usual problem, first cutting started central, second cutting well underway south. Most spring grains emerged, some stands uneven due wind and moisture shortage. Winter wheat mostly fair to good. Livestock movement spring range, calving, lambing and shearing all about completed. Range fire hazard exists.

NEW ENGLAND: Mostly cloudy, cool and wet week. Temperatures well below normal all sections. Lowest 30° at Houlton, Me., 28th.

Crop development slow due to wet, cold weather, except cool weather vegetables. Apple prospects good south Vermont and south New Hampshire, fair northeast Massachusetts. Insects active. Cranberry vine growth slow, one third Potato crop 33% planted Aroostook Co., Me. Grass silage harvest began south. Over 50% corn planted south, less than 25% north.

NEW JERSEY: Cold, wet week. Temperature averaged 3° subnormal north and 4° subnormal central and south. Extremes: 79° to 42°. Rainfall averaged 0.95 in. north, 1.20 in. central and 1.54 in. south Most rain over weekend.

Weekend rain benefitted crops. Cloudy, cool weather during period slowed crop growth rate. Most vegetable crops excellent condition. Early planted potatoes and snapbeans in bloom. Peaches being thinned in orchards where set is heavy. Weather conditions poor for hay and rye straw drying. Small grains look good. Pasture growth good. Early planted soybeans up.

NEW MEXICO: Very dry, only spotty showers northeast and northern mountains. Temperatures average near to a few degrees above normal.

Moisture short. Minor frost damage most crops north. Cotton planting finished south, 90% north. Alfalfa good, harvest 40% north, 95%; second cut starting south. Irrigated sorghum 75% planted. Very few fields dryland sorghum. Irrigated wheat 90% headed, fair to good. Harvest to begin shortly. Dryland wheat poor, considerable abandonment. Onions, lettuce good, lettuce harvest nearing end. Apples fair, much fruit lost to spring freezes. Ranges poor. Cattle, sheep fair. Stockwater scarce in a few areas.

NEW YORK: Week began with lows in mid-30's in a few locations, highs in 70's generally Thursday through Sunday. Temperatures averaged 1° to 4° below normal. Rainfall below normal most sections except Rochester with nearly 1.00 in. and eastern Long Island with 1.75 in.

Cool, wet conditions limited fieldwork, especially north. Corn 60% planted, ahead 1973. Early corn growth slow, some yellowing. Oat planting 80% complete, some intended acreage may not be planted. Wheat, pastures and hay mostly good although growing slowly. Seeding plant beds for fall cabbage on Long Island. Cool, damp weather holding back growth. Tomato, cabbage, sweet corn and snapbean planting continued Upstate. Orange County lettuce and celery stands look good, onions developing well. More favorable pollinating weather improved apple prospects west. Peach prospects fair to good and pears poor to good. Few strawberries ready to pick on Long Island.

NORTH CAROLINA: Temperatures below normal early week but returned to near or above normal in latter half. Rainfall above normal most areas.

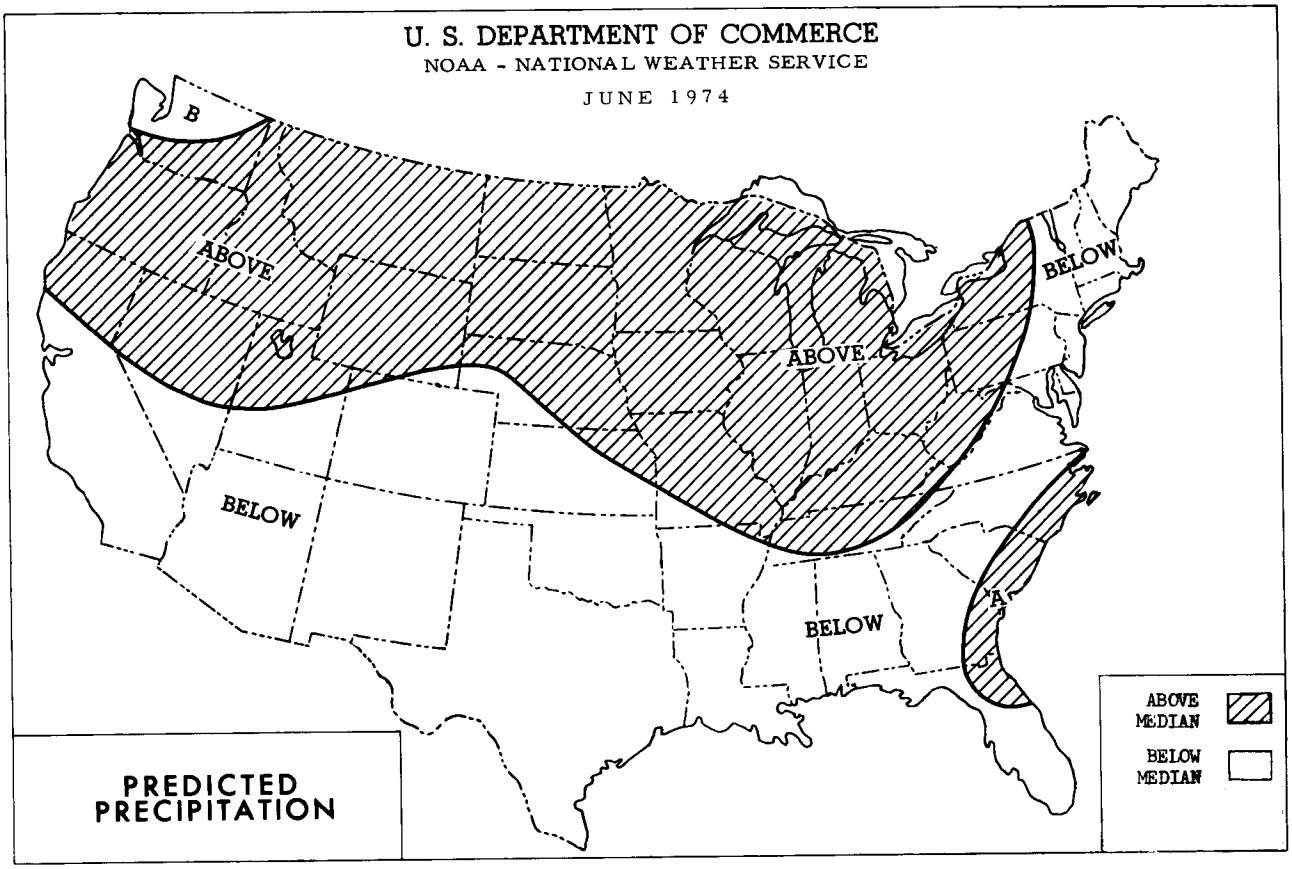
Wet fields stopped farmers from planting and cultivating; only 2.9 days suitable for fieldwork. Corn 95% planted, same as 1973 and 10-year average. Flu-cured tobacco 95% set, Burley 60%. Soybeans 63% planted, 1973 60%, 10-year average 61%. Cotton planting almost complete. Peanuts 95% planted, Sweetpotatoes 63% set. Pasture and small grains mostly good. Peaches mostly fair to good. Spring vegetable harvest active east.

NORTH DAKOTA: Temperatures averaged near normal, southwest near 3° below normal. Extremes: 81° at Ft. Yates, 32° at Marmarth. Precipitation from 0.04 in.

Subnormal northwest and northcentral to near 0.06 above normal southwest. Weekend showed warming trend mostly sunny, most precipitation was 0.90 in. at Devils Lake Sunday night. Northeast and northcentral area farmers finally started seeding spring grains. Low wet spots being passed over. Mostly dry weather over weekend favored fieldwork progress. Seeding nearing completion westcentral and south districts. Slow development earlier seeded spring grain fields due to cool temperatures.

OHIO: Temperatures below normal 27th and 28th, near normal 29th through 2nd. High 83°, low 37°. Sunny 25th to 27th. Precipitation on 29th, 30th, and 31st ranged 0.36 to 4.18 in.

Corn 95% planted, 60% 1973 and 80% normal. Soybean planting 75% complete, 30% 1973 and 55% normal. Tobacco 50% set, 10% 1973, and 25% normal. Wheat 75% headed, 50% 1973 and 40% normal.


U. S. DEPARTMENT OF COMMERCE
NOAA - NATIONAL WEATHER SERVICE
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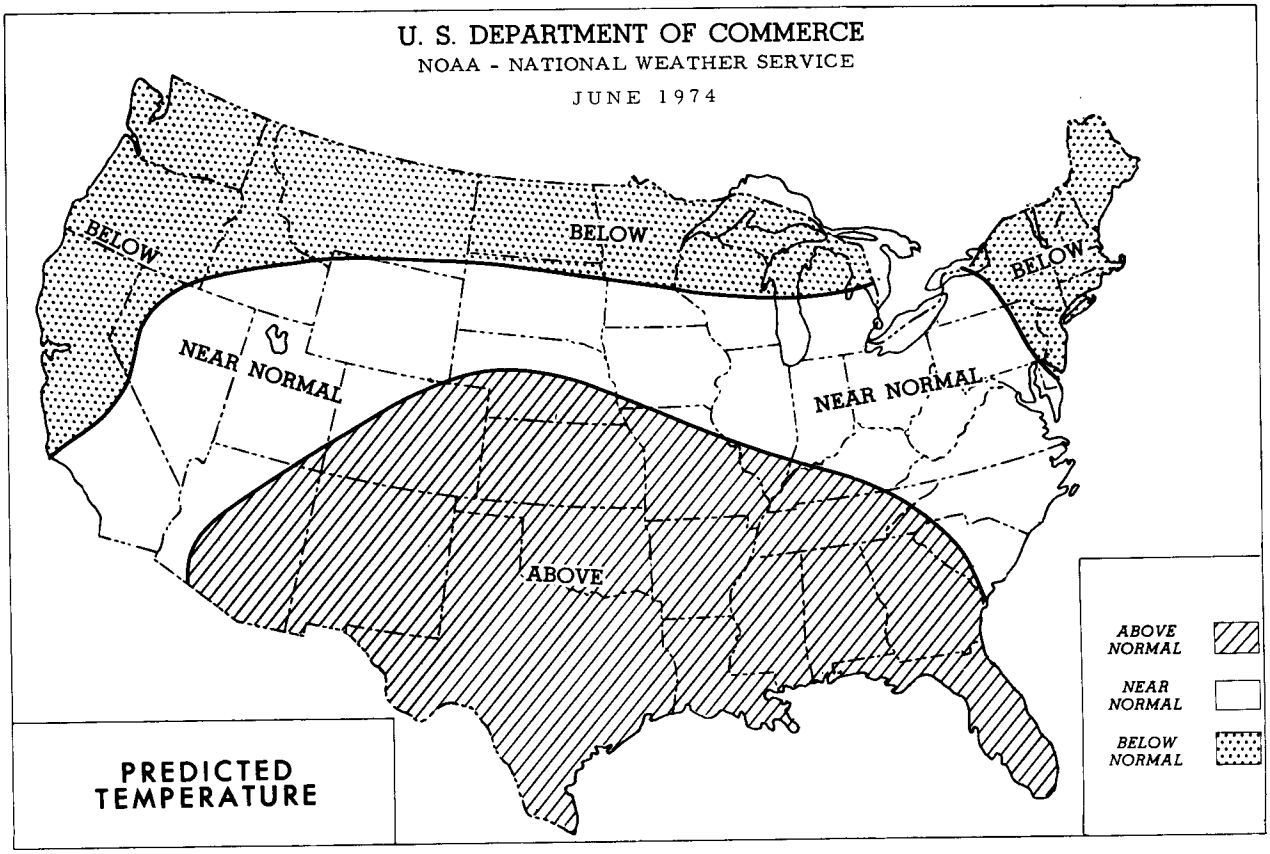
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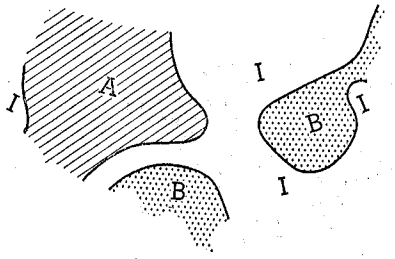
OUTLOOK FOR SUMMER AVERAGE TEMPERATURES

June through August 1974



A — Above Normal, 60% chance of occurrence

B — Below Normal, 60% chance of occurrence

I — Indeterminate, 50% chance of Above Normal
50% chance of Below Normal

The two categories Above and Below are to be compared to the long-term average or "normal" temperatures of the years 1941-70. Each category has a natural climatic frequency or probability of 50%. Each carries a 60% probability of occurring where forecast (shaded area), based on the verification scores of fifteen years of experimental seasonal predictions.

NOAA National Weather Service
Long Range Prediction Group

May 29, 1974

OKLAHOMA: Temperatures 1° below normal to 3° above normal. Precipitation averaged up to about 0.30 in. Panhandle to 0.80 in. central. Weekend warm with rainfall most areas.

Wheat harvest active in southwest with test cuttings made all way north to Kansas line. About 10% acreage cut compared with 5% average for date and only test cutting year ago. Test weights good, yields vary. Weekend rains in northwest will cause delays. Nearly 67% sorghums planted with nearly 30% intended acreage up to stand. Condition mostly good. Cotton planting moved rapidly, 80% complete, 52% 1973. Peanuts 17% acreage up in good condition. Soybean outlook good, 60% seeded. First cutting alfalfa mostly taken, second cutting coming on fast. Pastures, ranges lush growth, some fields weedy. Cattle rated mostly good to excellent, rapid gains on grass.

OREGON: Temperatures normal. Highs reached 70° west, 80's southwest valleys and part of east. Lows warmed with only scattered frost in central. North coast rainfall measured between 0.30 and 0.50 in., elsewhere no rain.

Improved weather allowed agricultural activities. Crop conditions fair to good. Development slow, warm weather needed. Cutting hay in all areas, expected yields below normal. Spraying continued, irrigation starting. Asparagus harvest continued. Early peas blooming. Onion weeding, sugarbeet thinning underway. Strawberry and cherry harvest 1 week behind normal. Fruit thinning starting, little frost reported, fruit condition good. Livestock, pastures, ranges good. Growth slow but improving.

PENNSYLVANIA: Cloudy, cool and wet most of week. Temperatures 3° to 7° below normal for coolest week since early May. Extremes: 31° and 83°. Rainfall somewhere in State every day totaled 1.50 to 2.50 in. southwest and southcentral mountains to less than 0.25 in. northcentral.

Soil moisture 72% adequate versus 81% surplus a year ago. Corn 83% planted. Planting of oats nearly complete except north third. Potatoes 89% planted. Alfalfa weevil causing damage statewide. First cutting of hay underway, condition good. Tobacco transplanting started, on schedule. Strawberry harvest underway. Fruit growers waiting for June drop to assess size of crop.

PUERTO RICO: Rainfall averaged 0.95 in. or 0.88 in. subnormal. Highest weekly total 5.54 in. at Isabela. Highest 24-hour total 4.30 in. at Isabela. Rainfall well distributed islandwide except south coast areas where drought continued. Heavy rainshowers northwest and western interior. Temperatures averaged 79° coasts and 74° interior. Extremes: 92°, 53°.

Drought hurting sugarcane ratoons south coast but rainshowers north coast beneficial. Flowering of coffee trees and development of bean affected by drought some zones but other areas recuperating with rainshowers. Weather favored tobacco drying some areas but too dry in some places for high quality. Pastures suffering due lack of rain south slopes and south coast but improving in western interior and north coast. Food crops suffering in non-irrigated areas, mostly south coast. Other areas doing better. Good harvest avocados expected western interior. Vegetables, citrus, plantains and bananas harvested western interior.

SOUTH CAROLINA: Rainfall near or a little above normal. Southern tip got over 2.00 in. Rainfall mostly at beginning and end of week. Temperatures averaged below normal central and north, near normal south. Rather cool early week, warmer by midweek.

Soil moisture generally adequate. Most crops responding well to good soil moisture conditions. Cotton generally good, some damage from thrips. Corn good to excellent depending upon amount of nitrogen applied. About 67% soybeans planted. Wheat 65% ripe, 14% harvested. Oats 71% ripe, 27% harvested. Rye 69% ripe, 22% harvested. Barley 70% ripe, 26% harvested. Harvesting a few early variety peaches.

SOUTH DAKOTA: Fluctuating temperatures, averages near normal. Extremes: 90° at Oelrichs June 1, 32° at Oral and Oelrichs 29th. Variable precipitation, above normal north half, subnormal south. Pierre received over 3.00 in. Half of State subnormal moisture for growing season.

Most winter wheat and rye in boot stage; 35% and 40% headed, respectively. Barley and oats 17% and spring wheat 15% in boot stage, 5% normally. Over 90% corn and flaxseed planted. Soybeans 82% planted. Sorghum 50% planted. Fieldwork limited by wet conditions past week. Crop spraying in progress. Corn cultivation underway in early planted fields.

TENNESSEE: Fair and mild early week, showers and thundershowers last half. Very heavy rains central and west Friday and Saturday where 24-hour rainfall averaged between 2.00 and 3.00 in. Temperatures averaged 2° to 3° below normal.

Frequent heavy rains continued to delay all farm activities which are behind schedule. Corn 80%

planted, 70% 1973, average 90%. Cotton 85% seeded, 90% 1973, 95% normal. Considerable re-seeding done, condition fair to good. Soybeans 20% planted, same as 1973, average 50%. Tobacco acreage 70% transplanted, average for date. Some plants reset because of rain damage and many plants transplanted above optimum size, some as large as 12 in. Nearly all wheat, barley and oats headed, near average pace but ahead of 1973. Wheat 75%, oats 67%, and barley 85% yellow or turning, all ahead of normal and last year.

TEXAS: Record breaking heat west Texas early week. Scattered showers thunderstorms brought above normal rainfall northwest and southeast corners of State. Temperatures above normal nearly all Texas during week. Cooler late in week. Heavy rains fell from coastal bend across southeast. Over weekend, heavy thunderstorm activity dropped generous amounts from Upper Red River across Panhandle.

Wheat, oat, flax harvest rapid progress across State. Some good yields noted, most farmers disappointed with turnout. Planting cotton, sorghum, rice, peanuts moderate progress. Seeding on high and low plains restricted by short moisture. Southern half cotton, corn, sorghum, rice excellent progress. Indications some sorghum to be harvested in week or 10 days. Major crops percent harvested: wheat 22, 1973 5; oats 49, 1973 30; barley 35, 1973 5; flax 95, 1973 95. Major crops percent planted: cotton 79, 1973 88; corn 100, 1973 100; sorghum 77, 1973 83; rice 98, 1973 92; peanuts 47, 1973 38; soybeans 39, 1973 57.

Lower Rio Grande Valley: Watermelon, cantaloup and honeydew harvest continued. Pepper and tomato picking active. Onion and cabbage supplies decreased. Coastal Bend: Watermelon harvest full swing. San Antonio-Winter Garden: Light watermelon harvest underway. Onion harvest in progress. Cantaloups good progress. Cucumber, potato harvest active. East Texas: Sweetpotato planting continued. Watermelons good growth. Knox-Haskell: Potato harvest will start next week. Trans-Pecos: Onion and lettuce harvest continued El Paso County. Onion harvest active Presidio and Reeves Counties. High Plains: Potatoes and onions made good progress.

Peach harvest continues to gain momentum with supplies increasing from central and east. Irrigation and insect control major activities in citrus groves. Livestock good to excellent. Ranges furnishing abundant grazing east, south; west half short moisture reduced grazing considerably. Hay baling active. Yields first cutting good to excellent east, south. Prospects second cutting good east. Screwworm cases continued south.

UTAH: No precipitation. Temperatures averaged up to 6° above normal. Southwest exceptionally warm.

Warm weather pushed crop growth and moisture requirements. Soil moisture very short except northcentral short to adequate. First crop alfalfa hay harvest started in several areas, prospects fair to good. Winter wheat about 67% jointed and about 20% headed. Spring wheat and barley about 25% jointed, oats 15%. Potato planting about 90% done in late central and southwest, completed elsewhere. Sugarbeet thinning active, about 30% done. Ranges need moisture; fair to good northcentral, poor to fair elsewhere.

VIRGINIA: Showers with temperatures averaging a few degrees below normal. Scattered frost at Hot Springs on 28th. Small stream flooding in Page County. Temperature extremes: 88° and 35°.

Crops need warm nights. Fieldwork: 3.9 days. Soil moisture 78% adequate, 13% surplus, 9% short. Soybeans 42% planted, 1973 32%. All crops good condition. Percent of full stand: corn 94, tobacco 92, peanuts 86. Spraying required for armyworms and other insects in corn and small grains. First fields of barley harvested. Ensilage harvest active. Wet weather delayed hay harvest, yields still improved. Vegetables on Eastern Shore good condition. Cattlemen clipping pastures and applying herbicides to control weeds. Pastures excellent.

WASHINGTON: West: Cooler than normal. Highs 60's, lows 40's. Rain up to 0.03 in. Strawberries full bloom. Blueberries past full bloom, continued "mummyberry" disease problem. Raspberry fields blooming. Planting vegetable crops. Lettuce harvest 2 to 3 weeks behind normal. Corn planting behind schedule and some pea acreage will not be planted. Weed spraying continued. Silage and hay harvest underway.

East: Temperatures 2° to 3° subnormal. Highs 70's, lows 40's, and some 30's. Precipitation 0 to 0.30 in. Asparagus harvest continued. Sugarbeet thinning active. Alfalfa harvest active. Cherries, apples and pears sprayed. Winter wheat and bluegrass good condition. Some indication of nitrogen deficiency in wheat fields. Seeding and fertilizing spring peas and lentils completed, prior plantings emerging well. Livestock and pastures improved.

WEST VIRGINIA: Cool early week followed by daily rain Tuesday through Saturday. Temperatures averaged a little below normal. Highs low to mid-80's, lows in low 30's to mid 40's. Lowest 27° at Bartow.

Reports of soil moisture about evenly split between adequate and surplus. Less than 3 days favorable for fieldwork. Corn planting did not reach 90% mark and first cutting of hay made little or no progress. Gardening very active along with fence repairing and miscellaneous chores.

WISCONSIN: Temperatures slightly below normal. High's in upper 70's on Wednesday and again on weekend. Cool nighttime readings in upper 30's and low 40's Monday and weekend. Rainfall variable, averaging 0.20 in. south to 0.80 in. north. Heaviest northcentral.

Good progress on crop planting. Corn 80% planted, 1973 60%, normal 80%. Some replanting necessary due to poor germination when wet and cold in May. Hard crust on soils also hurt emergence. Sunshine and warmer temperatures helpful for corn and other crops. Oats doing well. Winter wheat and rye making good progress. Hay very good, cutting started. Pastures improved but utilization below normal. Soybeans 20% planted, 1973 30%, normal 50%. Potato planting finishing north. Vegetable crops going in on schedule except sweet corn behind. Fruit trees had good bloom as did strawberries. Tobacco beds held back by cold weather in May. Soil moisture 10% short, 60% adequate, 30% surplus.

WYOMING: Significant precipitation reported over most of north half, especially in northeast. Southern half remained quite dry. Temperatures near normal.

Spring small grains, sugarbeets almost all planted, 85 to 95% emerged. Corn 95% planted, 65% emerged. Potatoes 80% seeded, 45% emerged. Dry beans 50% planted. Sugarbeets 10% thinned. Winter wheat headed many areas. Small grains, alfalfa fair to good. Moisture needed badly most areas. Crop, range growth hampered by lack of rain. Irrigation continued. Range ewes 90% lambed. Stockwater adequate. Prospects for summer grazing fair to good. Livestock moving to summer ranges.

ESTIMATING FARM FUEL REQUIREMENTS FOR CROP PRODUCTION AND LIVESTOCK OPERATIONS

Dale Hull and H. J. Hirning
Cooperative Extension Service
Iowa State University

Federal energy experts estimate that 3 to 4 percent of the energy consumed in the United States is required by American agriculture to produce the Nation's food and fiber. With the energy supply problems facing our country, every producer should use farm fuels efficiently and be able to adjust to possible reduced supplies.

How to Estimate Your Farm Fuel Requirements

By using the Iowa fuel use tables and good judgment, you can estimate the gallons of gasoline, diesel fuel or LP gas you will need to grow your next crop and maintain your livestock program.

Here's an example of how you can use the Iowa fuel use tables for crop planning. Consider a 480-acre Corn Belt farm. The operator plans to plant 240 acres of corn, 160 acres of soybeans and wants to raise 800 market hogs. The field crop operations are performed mostly with his diesel-engine tractors and combines; the livestock chore jobs are done with a gasoline-burning tractor.

From the table, 6.85 gallons of diesel fuel are needed to grow an acre of corn; 6.5 gallons of diesel fuel will produce an acre of soybeans. So,

Corn--6.85 gal/a x 240a planned = 1,644 gallons diesel fuel
Soybeans--6.50 gal/a x 160a planned = 1,040 gallons diesel fuel

Estimated Annual Requirement = 2,684 gallons diesel fuel

The table indicates that 0.4 gallon of gasoline is needed to raise a market pig. It takes 0.4 gallon of gasoline to keep the liquid manure hauled from the confinement finishing house and field spread.

Growing market pigs--0.4 gal. x 800 head = 320 gallons of gasoline
Cleaning finishing building--0.4 gal. x 800 head = 320 gallons of gasoline

Estimated Annual Requirement = 640 gallons of gasoline

(Continued on page 16.)

ESTIMATES OF FUEL BURNED FOR CROP AND LIVESTOCK PRODUCTION OPERATIONS UNDER AVERAGE CONDITIONS

CROP PRODUCTION

Cropping system	Gallons per acre: Gasoline	Diesel fuel	LP gas
Corn-conventional methods	9.5	6.85	11.4
-plowing with minimum tillage planting	7.5	5.40	9.0
-no plowing, minimum tillage planting	6.0	4.30	7.2
Corn harvested and stored as whole-plant silage			
Conventional methods	12.0	8.65	14.4
Plowing with minimum tillage	10.0	7.20	12.0
No plowing, minimum tillage	8.5	6.10	10.2
Soybeans-conventional methods	9.0	6.50	10.8
Small grains-oats, barley, rye, wheat	4.25	3.00	5.1
Small grains-with plowing	6.50	4.70	7.8
Hay-dry cured, 3 cuttings, baled	12.0	8.65	14.4
Haylage-3 cuttings or dry chopped	18.0	13.00	21.6
Using combined type cutting with self-propelled cut, crush, windrow			
Hay-3 cuttings	7.2	5.20	8.6
Haylage-3 cuttings	13.2	9.50	15.8

Corn drying-with favorable drying conditions, 1 gal. propane will dry 7 bu. corn
-with good drying conditions, 1 gal. propane will dry 6 bu. corn
-with unfavorable drying conditions, 1 gal. propane will dry 5 bu. corn

LIVESTOCK PRODUCTION
(Includes all fuel used to remove feed from storage, process and deliver to feeders)

Animal	Feeding period	Gallons per animal or 100 birds: Gasoline	Diesel fuel	LP gas
Swine	Raise 1 pig to market including feeding of sow and boar	0.40	0.30	0.50
Dairy	Cow milking 9,000 lbs. milk/year	1.00	0.75	1.20
	Cow milking 12,000 lbs. milk/year	1.35	1.00	1.60
	Heifer-1 year	0.40	0.30	0.50
Beef	Steers-grown from 400 t to 1,200 lbs.	1.80	1.30	2.15
	Heavy steers-grown from 700 to 1,200 lbs.	1.00	0.75	1.20
	Heifers-grown from 400 to 850 lbs.	1.35	1.00	1.60
	Yearlings-grown from 650 to 1,200 lbs.	1.75	1.25	2.10
	Cows-winter and raise calf to 400 lbs.	0.90	0.65	1.10
Sheep	Lambs-native, from birth to market	0.60	0.45	0.70
	Feeder lambs-50 lbs. to market	0.125	0.10	0.15
Poultry	Raise 100 broilers from birth to market	0.75	0.55	0.90
	Raise 100 pullets from birth to laying	2.70	1.95	3.25
	Layers for 1 year-100 birds	7.50	5.40	9.00
	Raise 100 turkeys from birth to market	7.50	5.40	9.00

A MODEL CAN HELP SAVE UTAH'S FRUIT

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E. Arlo Richardson, Gaylen L. Ashcroft,
J. LaMar Anderson, Schulyer D. Seeley,
and David R. Walker
Utah State University, Logan, Utah

The ideal model is not always the 36-22-34 variety. Modeling by the numbers, however, has been an important tool of scientists for many years.

Recently a model that describes the growth and dormancy cycle of apples trees has been developed at Utah State University. This model expresses the relationship between the atmospheric or climatic environment of an apple tree and its yearly phenological development. The mathematical model covers two periods in the life of the tree. Winter temperatures are related to the rest-dormancy requirements for a certain amount of chilling of the tree while springtime temperatures are related to the energy required by the tree for bud development. By defining these relationships, the model allows the prediction of the likely bloom date for trees under specified conditions.

Dormancy Requirements

The most effective temperature in meeting the cold requirements of a tree is 43°F. Delicious apples require 1,234 hours at this temperature or equivalent conditions during the winter before growth can begin. By contrast, apricots require only 720 hours (table 1). "Cold" temperatures vary in their effectiveness in meeting the cold requirements of trees. We have equated temperatures with chill units, (table 2) which are related to the tree's need for exposure to a certain number of hours of cold temperatures.

Warm Temperatures

Prior to the completion of winter rest, warm temperatures have very little effect on the development of the buds. Once rest is completed, any temperature above 40°F will induce some growth. The conditions necessary to produce budding have been related to the temperature of the tree in terms of the number of degrees above 40°F and the number of hours involved.

The time-temperature correlation equates with "growing degree hours." A growing degree hour has been defined as 1 hour at a temperature 1 degree above 40°F. In the USU model, the maximum accumulation within an hour is 37 growing degree hours, which is obtained at a temperature of 77°F. Temperatures above 77°F still contribute only 37 growing degree hours per hour. The number of growing degree hours accumulated after rest completion can be correlated with the various stages of development of the tree.

A Delicious apple tree annually experiences 8 standard developmental stages. The usual energy requirements associated with each of these stages are shown in table 3. Full bloom requires near 12,480 growing degree hours.

The past spring, following completion of winter, the growing degree hour accumulation for the various stages of development in 10 Utah orchards was compared with the actual dates of bud development. In all cases, the predicted date was not more than 1 to 3 days away from the observed date of occurrence.

Evaporative Cooling

In one test of our model, we used data from another experiment being conducted at the University. Evaporative cooling was used to delay bud development. By May 21, the unsprinkled trees were in full bloom; that is, the buds had accumulated 12,480 growing degree hours (see table 3). On the same date, the sprinkled trees were only in the 1/2-inch green stage of development. Thus, sprinkling had lowered temperatures enough that the sprinkled buds had only accumulated 5,580 growing degree hours -- 6,900 less than the unsprinkled buds. Using the model, and assuming "normal" temperatures at Logan for the period after May 21, we calculated that it would require 16 days to accumulate the 6,900 growing degree hours necessary to bring the sprinkled trees into full bloom. The estimate was off by only 1 day; the trees actually required 17 days to reach the full bloom stage.

These results illustrate the practicality of using our mathematical model to predict any effects a cultural practice such as sprinkling may have on bud development and freeze susceptibility. The predicted development may be updated as the season progresses, using available climatological data. A grower can thus control the rate of bud development as he wishes.

Table 1. Chill units required to complete rest for various fruit trees

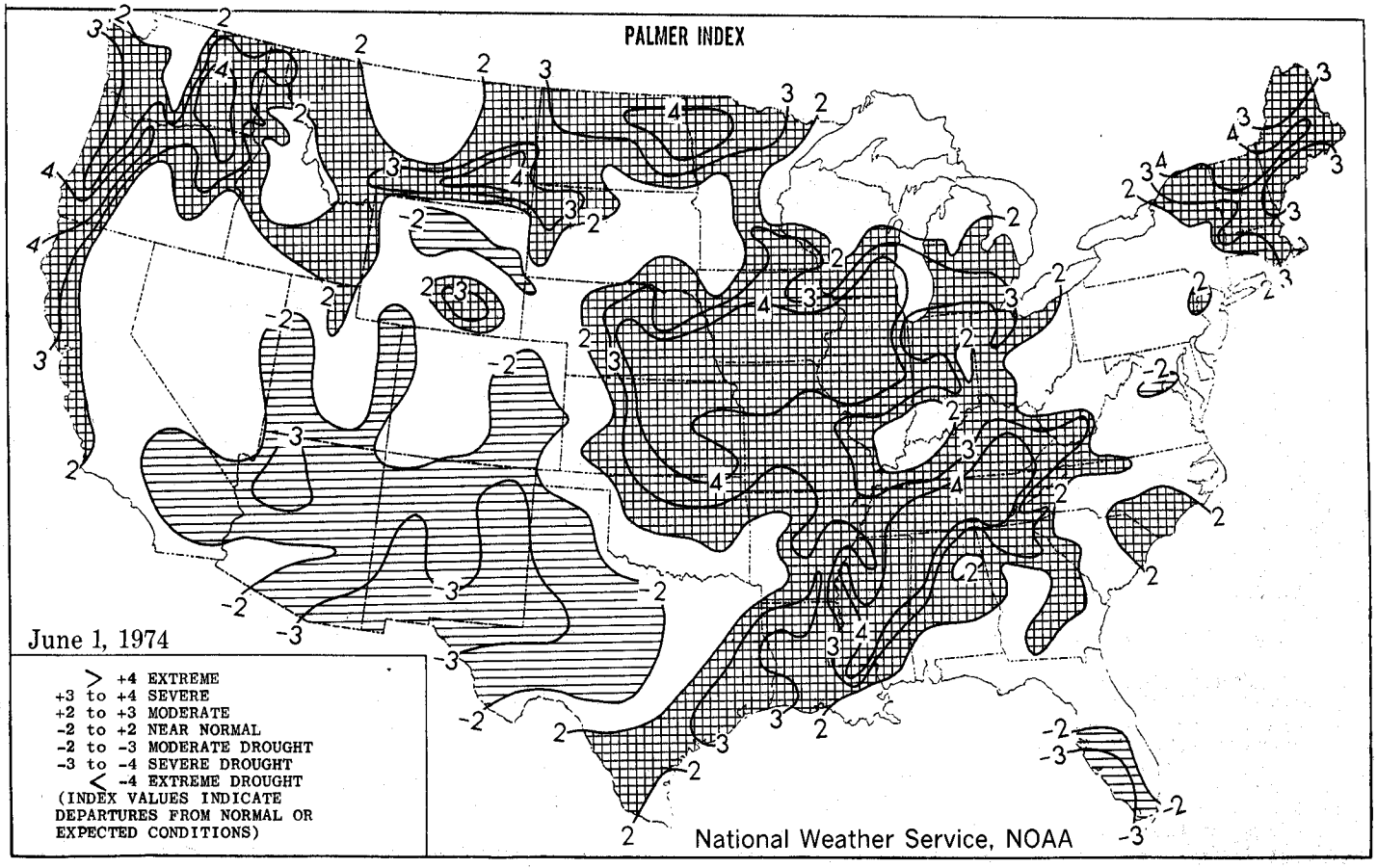
Fruit	Chill units
Delicious apple	1,234
Apricot	720
Bing cherry	880
Elberta peach	800
Bartlett pear	1,210
Italian prune	818

Table 2. Conversion of selected temperatures to chill units

Temperature	Units contributed
34° or less	0
35-36°F	0.5
37-48°F	1
49-54°F	0.5
55-60°F	0
61-65°F	-0.5
Above 65°F	-1

Table 3. Energy requirements for Delicious apple bud development

Stages of fruit bud development	Accumulated growing degree hours
1. Silver tip stage	3,710
2. Green tip stage	4,580
3. Half-inch green stage	5,580
4. Tighter cluster stage	7,090
5. First pink stage	8,740
6. Full pink stage	9,710
7. First bloom stage	11,110
8. Full bloom stage	12,480

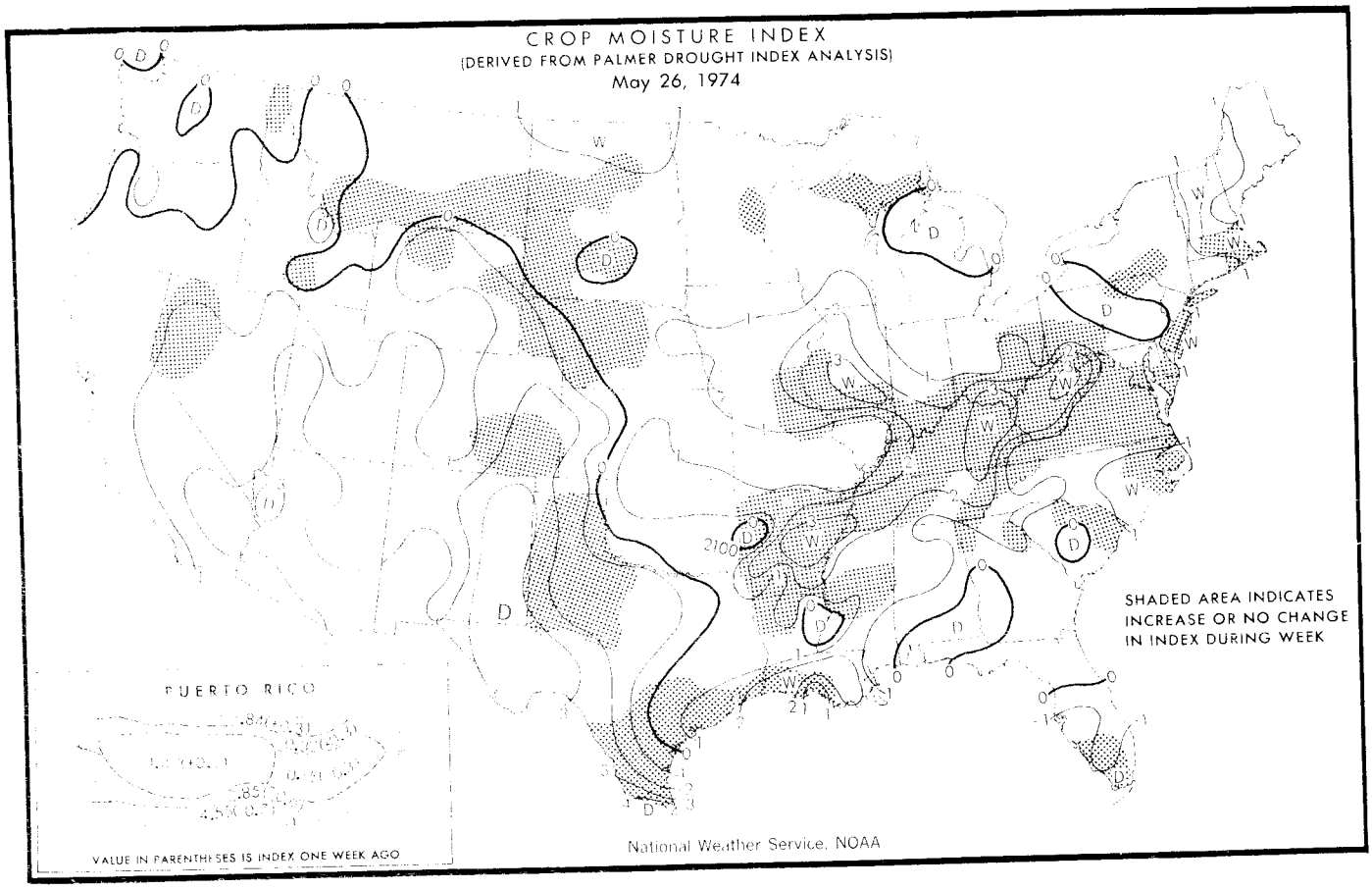


The index values depicted in the above map are a result of long term effects of rainfall and temperature on the normal climate of the area.

The drought area, indicated in the Southwest, began in western Arizona in October last year and has slowly spread to encompass the rather large area inside the minus two line. Severe drought now exists in extreme west Texas, southern New Mexico and parts of Arizona. In comparing this month's with last month's (May 7th issue of this bulletin) it can be seen that the drought area has spread eastward and northward.

The positive area of the index values has changed very little since last month. The area enclosed by the plus three line in Central and Southern U. S. has had an abnormally moist climate since the fall of 1972.

Current, or short term, moisture situations can be determined from the Crop Moisture map appearing each week in this bulletin.



SHADED AREAS: Index increased or did not change last week

Index

Above	3.0	Excessively wet, some fields flooded
2.0 to	3.0	Too wet, some standing water
1.0 to	2.0	Prospects good, some fields too wet
0 to	1.0	Moisture adequate for present normal needs
0 to	-1.0	Prospects improved, but rain still needed
-1.0 to	-2.0	Some improvement, but still too dry
-2.0 to	-3.0	Drough eased, but still serious
Below	-4.0	Not enough rain, still extremely dry

UNSHADED AREAS: Index decreased last week

Index

Above	3.0	Some drying, but still excessively wet
2.0 to	3.0	More drying weather needed, work delayed
1.0 to	2.0	Favorable, except still too wet in spots
0 to	1.0	Normal growth and fieldwork
0 to	-1.0	Topsoil moisture short, germination slow
-1.0 to	-2.0	Abnormally dry, prospects deteriorating
-2.0 to	-3.0	Too dry, yield prospects reduced
-3.0 to	-4.0	Potential yields severely cut by drought
Below	-4.0	Extremely dry, most crops near ruin

The map gives a general picture of how wet or dry the Nation was last week. It shows areas where abnormal wetness or dryness have hindered crops and areas where moisture conditions have favored them.

The lines show the crop-moisture situation according to an index computed from values of temperature and precipitation by areas...350 climatological divisions, which correspond roughly to SRS's crop reporting districts. Previous weekly computations of soil moisture account for the effects of prior weather.

Shaded areas are those where precipitation increased the index last week or where soils did not dry. Unshaded areas dried last week.

The centers of wet or dry areas are marked: W=wet; D=dry. The map lines mark off crop situations. Use the legend to interpret.

Local variations caused by isolated rain or by soil differences are not shown. While shallow rooted crops in poor soils may suffer more than the map shows, conditions may be better where soils are good. Also, legends apply to growing rather than mature plants. Any map interpretation must consider both the growth stage and moisture status and trend. In irrigated regions, the index values reflect only departures from ordinary irrigation requirements.

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(Continued from page 12.)

The amount of LP gas (propane is the most popular dryer fuel) needed to dry shelled corn can be estimated. The operator in the example planned to dry 20,000 bushels of corn. With good drying weather, 1 gallon of propane will dry 6 bushels of corn.

$$\frac{20{,}000 \text{ bushels}}{6 \text{ bu./gal.}} = 3{,}333 \text{ gallons of LP gas}$$

Now comes the judgment part of the fuel use estimates. The long-range weather forecast for his area predicts that the planting season will be "above normal" for rainfall and with "near normal" daytime temperatures.

With those conditions, a farmer needs to anticipate more fuel for planting, so should add 10 percent to the diesel fuel estimate. Adding 268 gallons to 2,684 gives 2,952 gallons of diesel fuel needed to grow the corn and soybean crops. He would not need to increase the gasoline required to raise 800 market pigs because a pig grown in confinement is not greatly affected by the weather.

If he used both diesel fuel and gasoline-burning tractors to grow the crops, he must adjust his estimates. In one example, suppose that about half of each type of fuel was used to produce corn. This means that he grew 120 acres of corn using all diesel fuel and 120 acres using only gasoline.

So:

Corn--6.85 gal/a x 120a planted = 822 gallons of diesel fuel

Corn--9.5 gal/a x 120a planted = 1,140 gallons of gasoline

Total 240a planted

The amount of fuel burned between Jan. 1 and Dec. 31 to produce an acre of any crop might vary in different parts of the Corn Belt due to many unforeseen conditions beyond the producer's control.

These figures provide estimates of fuel required to do jobs under typical Iowa conditions. In any given year, fuel consumption on a particular farm may be either larger or less than the values given in the tables.