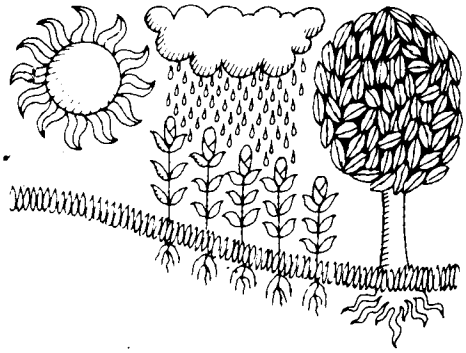

# WEEKLY WEATHER AND CROP BULLETIN

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

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Statistical Reporting Service

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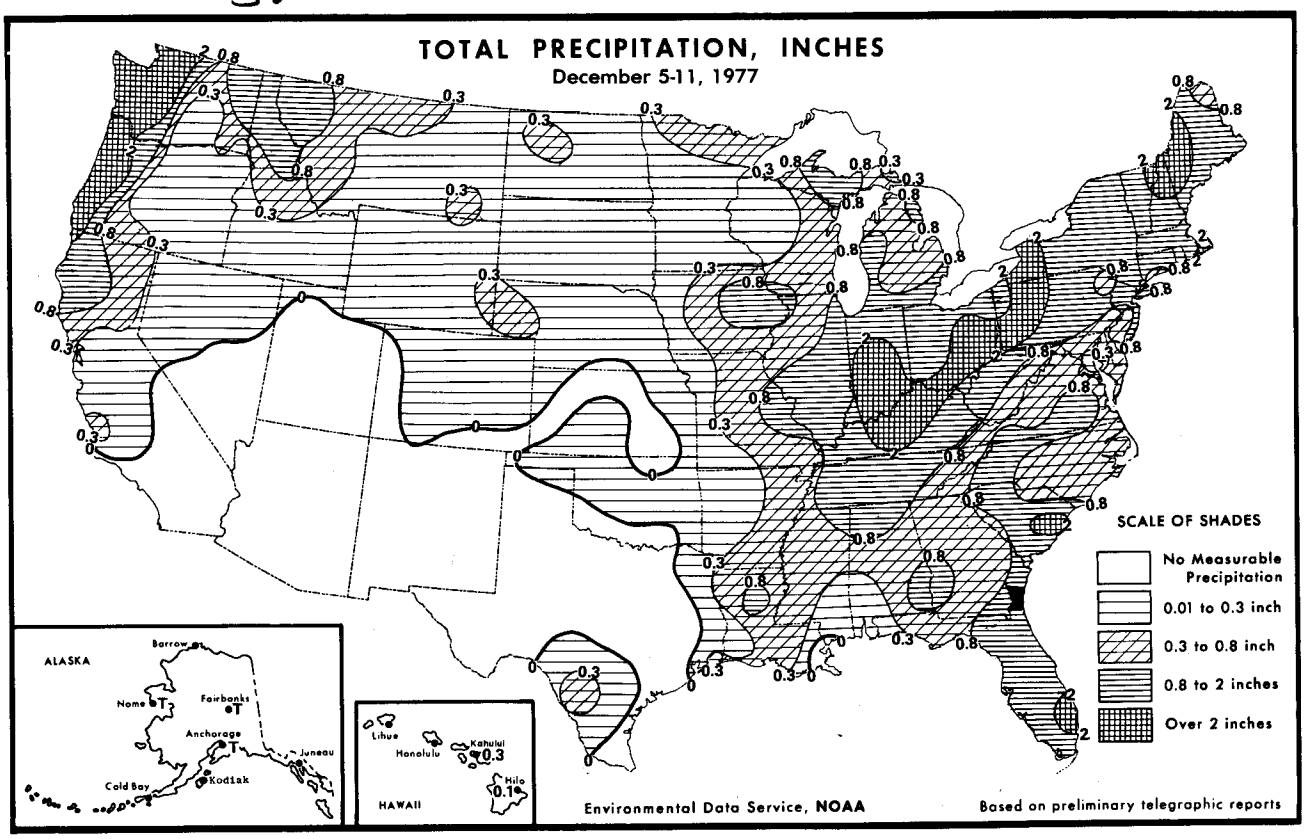


## National Weather Summary

December 5 - 11

HIGHLIGHTS: Severe winter weather highlighted the week as the 48 continental States recorded freezing temperatures; zero readings reached from the northern Rockies through the Nation's midsection to New England. Temperatures were as much as 31° colder than normal in Montana and readings to 20° colder than normal were noted from the northern Rockies to central Ohio. Heavy snows blanketed an area from the Mississippi Valley through most of New England.

In the Pacific Northwest, heavy rains hit the coast turning to snow in the higher elevations; smaller amounts extended into northern California.

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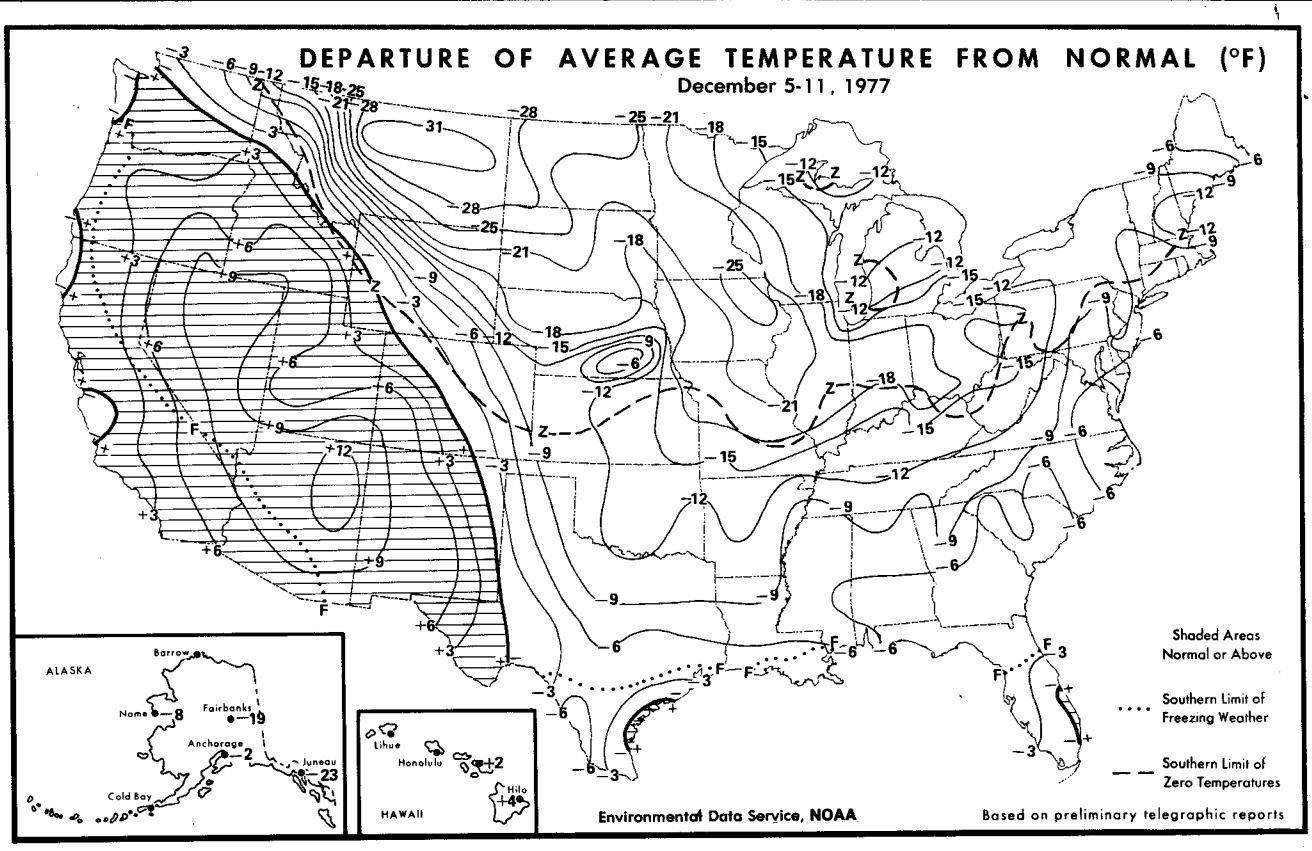
A deep low pressure system moved into Indiana on Monday producing a variety of inclement weather over the east central and southeastern States. Thunderstorms pounded sections of Tennessee and Alabama; a half dozen tornadoes were reported and large hail pelted Birmingham, Ala. Up to 4 inches of rain soaked the southern Appalachians while snow and freezing rain spread from the middle Mississippi Valley to the middle Atlantic Coast. Another storm center dumped heavy snow from western Pennsylvania through New York State to New England. Snow depths for the day included 4 inches at St. Louis and Buffalo's 10 inches.

Meantime arctic air held the center of the Nation in an icy grip. Below-zero temperatures were common over the northern portions of the Rockies and Plains. By contrast, record high temperatures were noted from Texas to Georgia. A sampling showed 94° at Brownsville, Tex., 84° at New Orleans, and 79° at Mobile.

Tuesday the intense storm in the Northeast continued to dump heavy snow from the Great Lakes and the Ohio Valley to New England. By nightfall it moved off the Atlantic Coast leaving behind snowfalls of 21 inches in Bradford, Pa., and a foot in Cleveland, Ohio, and Portland, Maine. Some rain




fell in the Pacific Northwest where Eugene, Ore., notched a half-inch. Thunderstorms rumbled over southern Florida soaking West Palm Beach, Miami, and Key West with more than a half-inch of rain.

Freezing temperatures reached as far south as central Texas and the northern portion of the Deep South. Record low readings frosted stations in the lower Great Lakes and Ohio Valley; single-figure temperatures chilled Cleveland, Akron, Louisville, and Huntington, W.Va., where the 8° day was 9 degrees below the former record.

An arctic air mass centered over Kentucky on Wednesday brought bitterly cold temperatures to the eastern half of the Nation. Many readings plunged below zero and records fell in the wake of this winter blast; Tallahassee shivered at 27° and Asheville, N.C., at 5°, had its coldest December temperature ever. Meantime another winter storm was brewing in the northern Rockies and brought snow as far east as the Great Lakes region at day's end.

The winter storm raced into the center of the country carrying heavy snow and icy temperatures. On Thursday, the storm moved from the Rockies to the Ohio Valley; snowfalls included 9 inches at Milwaukee, 6 inches at Chicago, and 4 inches at Pittsburgh. The cold air chilled the Nation as far south as Texas. Dallas' record-breaking high reading of 80° on Wednesday dropped 50 degrees to below freezing by midnight. Before the cold air entered the Lone Star State, other cities there registered record high temperatures. Low marks that opened the record book were noted from Michigan to Maryland. Three towns in West Virginia (Huntington, Beckley, and Charleston) and Asheville, N.C., had their third consecutive day of new low readings.

Deep low pressure centered over the Great Lakes left snow in its wake as it marched toward the Atlantic on Friday. Heavy snow from the Midwest to the upper East Coast was common. The added inches meant snow covers of 39 inches in Marquette, Mich.; 32 inches in Bradford, Pa.; and 2 feet in Buffalo. Meantime the frigid temperatures in the center of the Nation moved steadily eastward and southward. Temperatures more than 30 degrees below zero were prevalent in the northern tier of States. The bottom fell out of the record high reading at Midland, Tex.--Thursday's 83° slipped to 22° by Friday morning. In other sections, moist air moved ahead of a Pacific frontal system dumping rain and snow on western Washington. At the opposite corner of the country, southern Florida was hit by locally heavy thunderstorms; West Palm Beach measured 1.72 in.

Snow and cold continued to dominate the eastern half of the Nation on Saturday. Record low temperatures were the order of the day from Minnesota southward to Louisiana and eastward to the Atlantic Coast. It dipped to 30° at Mobile and Cross City, Fla. Rain and snow persisted in the Pacific Northwest edging into Idaho; the precipitation count at Astoria, Ore., was 1.33 in. and Tacoma, Wash., had 1.10 in. Temperatures zoomed up in the frozen upper half of the Rockies. Friday afternoon's below-zero temperatures in Great Falls, Mont., increased by 64° by Saturday afternoon.

Cold temperatures continued east of the Mississippi on Sunday and records tumbled once again. At -18° Alpena, Mich., recorded its lowest December reading ever; Beckley, W.Va., 5°, set a record low for the fifth day in six; and the deep freeze chilled Tallahassee at 24°. Temperatures kept climbing in the northern Rockies, and the Plains began to shake off the cold. Phoenix equalled its record high of 81°. By day's end, however, the mercury had dipped low at several eastern stations. It was 11° outside Washington, D.C., 8° at Boston, and a record -15° at Concord, N.H.

Another front entered the Pacific Northwest spreading precipitation from the coast to the Rockies; more than 2 inches had fallen on some sections of the Northwest.

# National Agricultural Summary

December 5-11

HIGHLIGHTS: Winter storms blasted the northern part of the Nation with snow and icy winds plunging temperatures far below normal in all but the West. Snow cover helped protect most of the winter grains, but in some parts of the Plains winds reached up to 100 mph blowing away snow and soil as well. Low temperatures froze soils and farmers in some areas were able to harvest crops where wet conditions prevailed earlier. The corn and soybean harvests were virtually complete except for some activity in the south central States and Missouri. Completion of the cotton harvest was delayed in the Delta States eastward, but Plains farmers with clear although cold weather harvested quickly. Only southern pastures provided much forage though low temperatures slowed growth there. Soil moisture rated adequate to surplus in the East and Northwest and short elsewhere in the West.

SMALL GRAINS: The Nation's winter wheat rated good with some excellent stands noted in Kansas. Dryland stands on the southern Great Plains were moisture-stressed and not providing the amount of grazing normally expected. Snow cover was good through most of the eastern Corn Belt where significant wheat acreage was planted.

Kansas winter wheat rated good to excellent but top growth was dormant. Greenbug infestation declined but leaf rust was apparent. Kansas cattle pastured 15% of the wheat acreage, equal the average but ahead of 1976's 5%. Texas wheat seeding was almost complete. Irrigated stands on the High Plains grew well, however, dryland stands over the entire Texas plains area were moisture-stressed. Earlier warm weather boosted growth in other areas of Texas where moisture was available, but the recent cold snap chilled top growth. Oklahoma wheat rated good though declining because of low temperatures and soil moisture supplies. About 98% was up to stand and almost 40% was being grazed.

Winter wheat in the Corn Belt States of Ohio, Indiana, and Illinois had good snow cover to protect it from the winds and subnormal temperatures. The crop rated good and had adequate growth. Missouri's crop rated fair to good, but only 75% of the intended acreage was planted.

Montana's wheat rated good. In Washington dryland stands improved, but soils need more water to replenish depleted reserves. California growers were still planting.

CORN: Corn harvest was almost complete including the South. Only Missouri lagged at 85% complete. Many areas benefited from the low temperatures which allowed farmers to drive harvest equipment onto frozen fields, and producers throughout the Corn Belt harvested the final acreages. Harvest was 97% complete in Mississippi and 98% in Georgia.

SOYBEANS: Combining was most active in the south central States with harvest ranging from 80% in Alabama, 85% in Mississippi, 92% in Oklahoma, 97% in Louisiana, and completed in Texas. Arkansas growers were almost finished but wet soils hampered progress. Wet fields also delayed combining along the Atlantic Coast area with harvest ranging from 72 to 81%. In northern areas frozen soils allowed producers to harvest beans inaccessable earlier because of wet soils. Missouri farmers made very little progress, advancing only 1 point for the week reaching 89% complete, about equal to the average. Last year, harvest was finished.

COTTON: Picking moved at a very slow pace from the Delta States eastward with progress limited to, at most, 3 or 4 percentage points. Progress ranged from 85% in Georgia to 97% in Mississippi. Harvests were virtually complete in Arkansas and Louisiana. On the plains Oklahoma and Texas growers enjoyed better conditions and harvest advanced rapidly. Texas producers reached 97% complete, far ahead of 1976's 73% and the 64% average. Many growers finished stripping and gins reduced the backlog of trailers and modules. Oklahoma harvest reached 80%, lagging 1976's 90% but well ahead of the 45% average. Arizona, New Mexico, and California growers reached the final harvest stages and were destroying crop residue.

OTHER CROPS: Grain sorghum harvest was almost complete; frozen soils permitted harvest where wet conditions prevented completion earlier. Missouri growers lagged at 92%, short of 1976's 100% but slightly ahead of the 90% average.

Sugarcane harvest continued in Florida, Texas, and Louisiana. Cajun cane growers reached 77%, ahead of 1976's 70% and the 76% average.

Tobacco markets were active in Virginia; volume in Kentucky surpassed last year. Producers prepared plant beds for the 1978 crop in extreme southern areas.

VEGETABLES: Vegetable harvests were limited to the Florida, Texas, California, and Arizona areas. The Florida crops rated good although frost and windburn caused very minor damage. Total shipments held steady from the previous week but cabbage, carrots, and celery increased; snap beans, escarole, lettuce, peppers, and tomatoes held steady while other vegetable crops declined in volume. Strawberry plants set fruit. California broccoli and cauliflower supplies were strong but celery, lettuce, and sweet corn went into seasonal declines.

FRUITS AND NUTS: Fruit growers in northern areas pruned grapes and deciduous trees. Pecan harvest ranged from 81% in Georgia, 87% in Mississippi, 93% in Louisiana, and 80% in Texas. In Florida citrus trees rated excellent with rain providing adequate moisture in most areas. No freezing temperatures reached the citrus area but foliage growth slowed. Orange harvest was active. Navel orange harvest advanced in California's San Joaquin Valley. Sizes were small but good quality. Tangerine, lemon, and desert grapefruit harvests continued.

PASTURES AND LIVESTOCK: Northern pastures deteriorated from low temperatures and in many areas were snow covered. Only southern pastures provided significant forage requirements to cattle. Rain improved Florida grasslands but low temperatures slowed growth. Texas ranchers boosted feed rations and culled herds to offset the affects of subnormal range and small grain growth. Weights were light in areas with poor grazing. Livestock producers along the Gulf Coast moved cattle to small grain pastures. California's rangelands were critical; newly sprouted seedings need rain. Farmers fed extra rations and hauled water.

## Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., Dec. 11, 1977

| States and Stations | Temperature °F Average | Temperature °F Departure | Precipitation Inches Total | Precipitation Inches Departure |
|---|---|---|---|---|
| ALA.Birmingham. . . | 38 | - 8 | .7 | - .5 |
| Mobile. . . . . | 46 | - 8 | .1 | - 1.2 |
| Montgomery. . . . | 46 | - 3 | .7 | - .4 |
| ALASKA.Anchorage. . | - 2 | -16 | T | - .3 |
| Barrow. . . . . | --- | --- | --- | ----- |
| Fairbanks . . . . | -28 | -19 | T | - .1 |
| Juneau. . . . . | 6 | -23 | .1 | - 1.0 |
| Kodiak. . . . . | --- | --- | --- | ----- |
| Nome. . . . . | - 3 | - 8 | T | - .2 |
| ARIZ.Flagstaff. . . | 41 | +10 | 0 | - .5 |
| Phoenix . . . . | 63 | + 9 | 0 | - .1 |
| Tucson. . . . . | 62 | + 9 | 0 | - .2 |
| Winslow . . . . | 48 | +13 | 0 | - .1 |
| Yuma. . . . . | 63 | + 6 | 0 | - .1 |
| ARK.Fort Smith. . . | 32 | -11 | .1 | - .6 |
| Little Rock . . . | 31 | -12 | .3 | - .6 |
| CALIF.Bakersfield . | 52 | + 3 | T | - .1 |
| Eureka. . . . . | 48 | - 1 | .7 | - .8 |
| Fresno. . . . . | 47 | 0 | .1 | - .3 |
| Los Angeles . . . | 60 | + 1 | 0 | - .5 |
| Red Bluff . . . . | 49 | + 1 | .8 | 0 |
| San Diego . . . . | 62 | + 4 | 0 | - .4 |
| San Francisco . . | 52 | + 1 | .1 | - .7 |
| Stockton . . . . | 48 | + 1 | .1 | - .5 |
| COLO.Denver . . . . | 30 | - 4 | T | - .1 |
| Grand Junction. . | 37 | + 6 | 0 | - .1 |
| Pueblo. . . . . | 33 | - 1 | T | - .1 |
| CONN.Bridgeport . . | 28 | - 8 | .4 | - .4 |
| Hartford. . . . . | 22 | - 8 | 1.0 | 0 |
| D.C.Washington. . . | 32 | - 7 | .1 | - .6 |
| FLA.Apalachicola. . | 52 | - 4 | .4 | - .4 |
| Daytona Beach . . | 57 | - 3 | 1.5 | + 1.1 |
| Ft. Myers . . . . | 63 | - 3 | 1.7 | + 1.4 |
| Jacksonville. . . | 51 | - 5 | 1.2 | + .7 |
| Key West. . . . . | 70 | - 2 | 1.0 | + .6 |
| Lakeland. . . . . | 58 | - 5 | .8 | + .3 |
| Miami . . . . . | 69 | 0 | 1.4 | + 1.0 |
| Orlando . . . . . | 61 | - 1 | 1.6 | + 1.2 |
| Tallahassee . . . | 50 | - 4 | .7 | - .3 |
| Tampa . . . . . | 58 | - 4 | .9 | + .4 |
| W.Palm Beach. . . | 67 | 0 | 2.8 | + 2.3 |
| GA.Atlanta. . . . . | 36 | - 9 | .2 | - .7 |
| Augusta . . . . . | 42 | - 5 | .8 | + .1 |
| Macon . . . . . | 43 | - 6 | .1 | - .9 |
| Savannah. . . . . | 46 | - 5 | .8 | + .1 |
| HAWAII.Hilo . . . . | 76 | + 4 | .1 | - 3.8 |
| Honolulu. . . . . | --- | --- | --- | ----- |
| Kahului . . . . . | 75 | + 2 | .3 | - .3 |
| Lihue . . . . . | --- | --- | --- | ----- |
| IDAHO.Boise . . . . | 38 | + 4 | .2 | - .2 |
| Lewiston. . . . . | 39 | + 3 | .3 | 0 |
| Pocatello . . . . | 37 | + 8 | .2 | 0 |
| ILL.Cairo . . . . . | 27 | -14 | .7 | - .2 |
| Chicago . . . . . | 9 | -12 | 1.0 | + .5 |
| Moline. . . . . | 6 | -23 | .6 | + .2 |
| Peoria. . . . . | 8 | -22 | .8 | + .4 |
| Rockford. . . . . | 7 | -20 | .6 | + .2 |
| Springfield . . . | 12 | -20 | 1.1 | + .7 |
| IND.Evansville. . . | 22 | -15 | 1.3 | + .5 |
| Ft. Wayne . . . . | 11 | -20 | .9 | + .4 |
| Indianapolis. . . | 14 | -19 | 2.3 | + 1.7 |
| South Bend. . . . | 13 | -17 | 1.1 | + .5 |
| IOWA.Burlington . . | 8 | -22 | .3 | - .1 |
| Des Moines. . . . | 9 | -19 | .7 | + .4 |
| Dubuque . . . . . | 1 | -25 | .9 | + .5 |
| Sioux City. . . . | 10 | -16 | .1 | - .1 |
| KANS.Concordia. . . | 18 | -14 | T | - .2 |
| Dodge City. . . . | 24 | -11 | T | - .1 |
| Goodland. . . . . | 21 | -11 | T | - .1 |
| Topeka. . . . . | 18 | -16 | T | - .4 |
| Wichita . . . . . | 24 | -12 | T | - .3 |
| KY.Lexington. . . . | 21 | -16 | 2.3 | + 1.5 |
| Louisville. . . . | 23 | -14 | 2.2 | + 1.4 |
| La.Baton Rouge. . . | 49 | - 5 | .3 | - .8 |
| Lake Charles. . . | 51 | - 4 | .1 | - 1.2 |
| New Orleans . . . | 51 | - 5 | T | - 1.2 |
| Shreveport. . . . | 42 | - 9 | .4 | - .5 |
| MAINE.Caribou . . . | 15 | - 4 | .7 | 0 |
| Portland. . . . . | 16 | -13 | 1.5 | + .5 |
| MD.Baltimore. . . . | 30 | - 7 | .3 | - .5 |
| MASS.Boston . . . . | 27 | - 9 | 1.3 | + .3 |
| Chatham . . . . . | 30 | --- | 2.3 | ----- |
| MICH.Alpena . . . . | 13 | -13 | 1.0 | + .5 |
| Detroit . . . . . | 14 | -17 | 1.0 | + .4 |
| Flint . . . . . | 17 | -12 | .3 | - .1 |
| Grand Rapids. . . | 18 | -12 | .5 | 0 |
| Houghton Lake . . | 13 | -12 | .5 | 0 |
| Lansing . . . . . | 17 | -12 | .4 | - .1 |
| Marquette . . . . | 17 | - 9 | 1.0 | - .5 |
| Muskegon. . . . . | 19 | -12 | 1.3 | + .7 |
| S. Ste. Marie . . | 10 | -13 | .2 | - .4 |
| MINN.Duluth . . . . | 0 | -17 | .1 | - .3 |
| Internatl Falls . | - 6 | -18 | .4 | + .2 |
| Minneapolis . . . | - 1 | -23 | .2 | 0 |
| Rochester . . . . | - 2 | -24 | .2 | 0 |
| St. Cloud . . . . | - 5 | -24 | .1 | - .1 |
| MISS.Jackson. . . . | 43 | - 7 | .5 | - .6 |
| Meridian. . . . . | 44 | - 5 | .1 | - 1.2 |
| MO.Columbia . . . . | 16 | -19 | .6 | + .2 |
| Kansas City . . . | 16 | -19 | T | - .4 |
| St. Louis . . . . | 16 | -21 | 1.3 | + .8 |
| Springfield . . . | 23 | -15 | .2 | - .4 |
| MONT.Billings . . . | 4 | -25 | .1 | - .1 |
| Glasgow . . . . . | -11 | -31 | .2 | + .1 |
| Great Falls . . . | - 2 | -31 | .3 | + .1 |
| Havre . . . . . | - 9 | -30 | .5 | + .4 |
| Helena. . . . . | 8 | -18 | .3 | + .2 |
| Kalispell . . . . | 17 | - 9 | 1.0 | + .7 |
| Miles City. . . . | - 5 | -30 | .2 | + .1 |
| Missoula. . . . . | 25 | - 2 | .6 | + .4 |
| NEBR.Grand Island . | 14 | - 6 | .1 | 0 |
| Lincoln . . . . . | 13 | - 7 | .1 | - .1 |
| Norfolk . . . . . | 9 | -18 | .1 | 0 |
| N.Platte. . . . . | 11 | -18 | .1 | 0 |
| Omaha . . . . . | 10 | -18 | .2 | 0 |
| Valentine . . . . | 7 | -19 | .1 | 0 |
| NEV.Ely . . . . . | 37 | + 9 | T | - .2 |
| Las Vegas . . . . | 55 | + 9 | 0 | - .1 |
| Reno. . . . . | 40 | + 6 | .1 | - .1 |
| Winnemucca. . . . | 41 | + 9 | .3 | + .1 |
| N.H.Concord . . . . | 14 | -13 | 1.0 | + .2 |
| N.J.Atlantic City . | 31 | - 6 | 1.1 | + .2 |
| Trenton . . . . . | 28 | - 9 | .8 | 0 |
| N.MEX.Albuquerque . | 45 | + 8 | 0 | - .1 |
| Roswell . . . . . | 44 | + 4 | 0 | - .1 |
| N.Y.Albany. . . . . | 20 | - 8 | 1.4 | + .7 |
| Binghamton. . . . | 17 | -10 | 1.6 | + .9 |
| Buffalo . . . . . | 19 | -11 | 3.0 | + 2.3 |
| New York. . . . . | 29 | - 9 | 1.0 | + .1 |
| Rochester . . . . | 19 | -11 | 1.7 | + 1.1 |
| Syracuse. . . . . | 19 | -11 | 1.1 | + .4 |
| N.C.Asheville . . . | 30 | -10 | 1.0 | + .2 |
| Charlotte . . . . | 38 | - 6 | .4 | - .4 |
| Greensboro. . . . | 35 | - 6 | .7 | 0 |
| Hatteras. . . . . | 46 | - 3 | .7 | - .4 |
| Raleigh . . . . . | 35 | - 7 | .6 | - .1 |
| Wilmington. . . . | 43 | - 6 | .6 | - .2 |
| N.DAK.Bismarck. . . | - 5 | -24 | .1 | 0 |
| Fargo . . . . . | - 6 | -22 | T | - .1 |
| Williston . . . . | -10 | -28 | .2 | + .1 |
| OHIO.Akron-Canton . | 19 | -12 | 2.0 | + 1.4 |
| Cincinnati. . . . | 14 | -21 | 1.7 | + 1.1 |
| Cleveland . . . . | 16 | -16 | 1.2 | + .6 |
| Columbus . . . . | 16 | -16 | 1.8 | + 1.2 |
| Dayton. . . . . | 13 | -20 | 1.7 | + 1.2 |
| Toledo. . . . . | 13 | -17 | 1.3 | + .8 |
| Youngstown. . . . | 15 | -16 | 1.5 | + .9 |
| OKLA.Okla. City . . | 29 | -13 | .1 | - .2 |
| Tulsa . . . . . | 29 | -13 | T | - .4 |
| OREG.Astoria. . . . | 44 | 0 | 3.6 | + 1.2 |
| Burns . . . . . | 35 | + 6 | .2 | - .2 |
| Medford . . . . . | 40 | + 1 | .6 | - .2 |
| Pendleton . . . . | 39 | + 2 | .2 | - .2 |
| Portland. . . . . | 43 | + 1 | 1.7 | + .3 |
| Salem . . . . . | 44 | + 2 | 2.3 | + .8 |
| PA.Allentown. . . . | 24 | - 9 | 1.0 | + .2 |
| Erie. . . . . | 19 | -12 | .2 | - .5 |
| Harrisburg. . . . | 27 | - 7 | .8 | + .1 |
| Philadelphia. . . | 26 | -11 | .6 | - .2 |
| Pittsburgh. . . . | 19 | -13 | 2.1 | + 1.5 |
| Scranton. . . . . | 22 | - 9 | .7 | + .1 |
| R.I. Providence . . | 26 | - 7 | 1.1 | + .1 |
| S.C. Charleston . . | 46 | - 4 | .9 | + .2 |
| Columbia. . . . . | 40 | - 7 | .9 | + .1 |
| Greenville. . . . | 39 | - 5 | .8 | - .1 |
| S.D. Aberdeen . . . | - 1 | -20 | .1 | 0 |
| Huron . . . . . | 4 | -18 | T | - .1 |
| Rapid City. . . . | 8 | -20 | T | - .1 |
| Sioux Falls . . . | 5 | -18 | T | - .2 |
| TENN.Chattanooga. . | 34 | - 8 | .2 | - 1.0 |
| Knoxville . . . . | 33 | -10 | .7 | - .3 |
| Memphis . . . . . | 37 | - 7 | .8 | - .3 |
| Nashville . . . . | 30 | -12 | 1.7 | + .7 |
| TEX.Abilene . . . . | 40 | - 8 | 0 | - .2 |
| Amarillo. . . . . | 33 | - 7 | 0 | - .1 |
| Austin. . . . . | 49 | - 5 | T | - .5 |
| Beaumont. . . . . | 54 | - 4 | .6 | - .6 |
| Brownsville . . . | 62 | - 2 | T | - .3 |
| Corpus Christi. . | 61 | + 1 | T | - .4 |
| Dallas. . . . . | --- | --- | --- | ----- |
| Del Rio . . . . . | 51 | - 2 | T | - .1 |
| El Paso . . . . . | 52 | + 7 | 0 | - .1 |
| Fort Worth. . . . | 39 | -10 | 0 | - .4 |
| Galveston . . . . | 56 | - 2 | .1 | - .7 |
| Houston . . . . . | 53 | - 3 | T | - 1.0 |
| Lubbock . . . . . | 39 | - 4 | 0 | - .1 |
| Midland . . . . . | 45 | - 2 | 0 | - .1 |
| San Angelo. . . . | 47 | - 3 | 0 | - .1 |
| San Antonio . . . | 50 | - 4 | .2 | - .2 |
| Victoria. . . . . | 57 | - 1 | T | - .5 |
| Waco. . . . . | 45 | - 6 | T | - .5 |
| Wichita Falls . . | 34 | -12 | 0 | - .3 |
| UTAH.Blanding . . . | 41 | +10 | 0 | - .3 |
| Salt Lake City. . | 39 | + 7 | T | - .4 |
| VT.Burlington . . . | 15 | -10 | .8 | + .2 |
| VA.Lynchburg. . . . | 30 | - 9 | .8 | + .1 |
| Norfolk . . . . . | 40 | - 4 | .4 | - .3 |
| Richmond. . . . . | 35 | - 5 | .8 | 0 |
| Roanoke . . . . . | 29 | -10 | .7 | 0 |
| WASH.Colville . . . | 21 | - 8 | .9 | + .4 |
| Omak. . . . . | 24 | - 5 | .3 | - .1 |
| Quillayute. . . . | 41 | 0 | 3.9 | + .4 |
| Seattle-Tacoma. . | 41 | 0 | 2.7 | + 1.4 |
| Spokane . . . . . | 27 | - 4 | 1.2 | + .7 |
| Walla Walla . . . | 39 | 0 | .3 | - .1 |
| Yakima. . . . . | 34 | + 1 | .2 | 0 |
| W.Va.Beckley. . . . | 21 | -13 | .8 | + .1 |
| Charleston. . . . | 24 | -14 | 1.0 | + .3 |
| Huntington. . . . | 23 | -14 | 1.3 | + .6 |
| Parkersburg . . . | 21 | -16 | 1.4 | + .8 |
| WIS.Green Bay . . . | 8 | -15 | .4 | + .1 |
| La Crosse . . . . | 3 | -21 | .3 | 0 |
| Madison . . . . . | 8 | -16 | .5 | + .1 |
| Milwaukee . . . . | 13 | -14 | .7 | + .3 |
| WYO.Casper. . . . . | 16 | -12 | .1 | 0 |
| Cheyenne. . . . . | 24 | - 6 | .2 | + .1 |
| Lander. . . . . | 22 | - 3 | .2 | + .1 |
| Sheridan. . . . . | 3 | -24 | .3 | + .1 |
| P.R.San Juan. . . . | 80 | + 3 | .6 | - .5 |

Based on 1941-70 normals

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Standard copy for the Bulletin is prepared by Donald J. Haddock, Lyle Denny, and O. W. Byrd, Environmental Data Service, National Oceanic and Atmospheric Administration; Harry DeLong and Jim Carlin, Statistical Reporting Service, U.S. Department of Agriculture.

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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 SRS State offices in cooperation with the National Weather Service.

ALABAMA: Temperatures 8° below normal. Warm 5th; cold air 6th dropped temperature to teens by 7th. Rainfall light.

Fieldwork: 3 days suitable. Soil moisture adequate to surplus. Cotton 88% harvested. Soybean harvested, 94% 1976. Pecan and small grain condition good. Pastures and livestock fair condition.

ARIZONA: Mild, dry; no precipitation. Temperatures 4 to 13° above normal.

Cotton harvest approaching final stages. Residue disposal well advanced. Small grains good progress, early plantings good stand. Sugarbeets good growth. Alfalfa haying increased, unseasonally warm temperatures. Lettuce harvest full swing Yuma area, winding down Salt River Valley. Harvest early planted mixed vegetables underway. Picking lemons, navels, sweet oranges, early tangerines, grapefruit active. Ranges drying, unseasonally warm temperatures, lack of rainfall. Low to mid-elevations mostly poor, higher elevations generally good. Cattle, calves, sheep, lambs mostly good condition.

ARKANSAS: Mean temperatures 6 to 16° below normal. Extremes: 76 and 5°. Precipitation from 0 to 1.71 in.

Limited fieldwork due to wet field conditions. Soybean harvesting middle of week; worked in darkness until stopped by rain. Will have to "mud out" remainder of beans. Livestock producers preparing herds for winter.

CALIFORNIA: Small amounts of precipitation in isolated sections in the northern half. Slightly above normal temperatures to the northern half and much above normal readings to the southeast interior.

Land preparation, planting small grains. Alfalfa sheeped off, green chopped. Sugarbeets all stages. Milo, corn, cotton harvests wound down. Cotton fields shredded, disced. Pruning vineyards, deciduous fruit and nut trees active. Date harvest continues. Table grape movement from cold storage. Navel orange harvest increasing San Joaquin Valley; small size good quality. Tangerine, lemon, desert grapefruit harvests continue. Artichokes light supply. Broccoli and cauliflower continue strong. Celery, lettuce and sweet corn in light supply with seasonal decline. Field preparation active. Rangeland conditions critical; newly sprouted seed needs rain. Supplemental feeding, hauling water necessary. Calving, lambing continue.

COLORADO: Light snow eastern plains and north central mountains. Precipitation beginning of week and midweek; amounts generally less than 0.10 in. of moisture. Temperatures in mountains and west 7 to 9° above normal; San Luis Valley 12° above normal; eastern plains 1 to 5° below normal. Eastern foothills experienced 80 to 100 mph wind gusts several days.

FLORIDA: Significant rainfall accompanied cold front 6th and 9th. Amounts of 1.00 to 2.00 in. common over central and south with 0.50 to 1.00 in. north. Temperatures near normal over south, but few degrees cooler than normal across central and north.

Soil moisture mostly adequate. Soybean and pecan harvest about complete. Cotton and sugarcane harvest continue. Small grains good to excellent condition. Land preparation for planting early spring crops gettin underway. Tobacco plant beds being prepared. Recent rains improved temporary and permanent pastures. Small grain pastures progressing fairly well, although cool temperatures slowed growth some areas; some are being grazed. Cattle condition mostly good. Calving should increase. Citrus tree condition excellent. Rain provided adequate moisture most areas. No freezing temperatures. New foliage growth slowed. Orange harvest very active. Vegetable crops condition good. Light, spotty frost caused very little damage. Windburn caused light damage to foliage. Total shipments held steady. Crops increasing are cabbage, carrots, celery. Holding steady are snap beans, escarole, lettuce, peppers, tomatoes. Crops declining are chinese cabbage, sweet corn, cucumbers, eggplant, radishes, squash. Some crops declining seasonally. Strawberry plants setting fruit. Very light scrapping underway for local use.

GEORGIA: Temperatures near normal; normals ranged from 39 to 55°. Extremes: 5 and 82°. Rainfall midweek; amounts 0.50 to 1.00 in.

Soil moisture mostly adequate to excessive. Fieldwork: Averaged 3 days suitable. Wet, cold weather hampered farming activities. Corn poor; harvest 98% complete, last year 96%. Cotton mostly poor to fair; 85% harvested, same last year. Soybeans mostly fair to good; 81% combined, same last year. Pastures, cattle fair to good. Hogs mostly good. Pecans fair; harvest 81% complete, last year 77%. Wheat 93% seeded, 90% last year. Rye 97% seeded, 93% last year. Other small grains 95%, 92% last year.

HAWAII: Weather favorable.

Rains most sections beneficial to crops and sugarcane. Some isolated pasture areas dry Hawaii Island. No rains for many months. Few cattle death losses reported because inadequate foliage. Banana and papaya supplies heavy. Vegetable supplies: Cabbage crops and cucumbers increasing. Others steady and light. Pineapple harvesting light. Pastures: Rains beneficial most areas. Dry in few isolated areas Hawaii.

IDAHO: Temperatures 1 to 5° below normal north, 5 to 9° above normal remainder. Extremes: 59 and -1°. Precipitation quite variable but generally 0.02 to 0.35 in. below normal.

Farm activities: Caring for livestock, marketing crops and livestock, repairing equipment and buildings. Livestock good condition. Feed supplies adequate.

ILLINOIS: Temperatures 14 to 24° below normal. Cool period third straight week. Lowest departures since January. Low temperature records set northern half. Precipitation 0.50 to 1.33 in.

Snow cover statewide; heaviest north. Winter wheat mostly good. Pastures mostly fair to good. Soil moisture adequate to surplus.

INDIANA: Cold, stormy. Two snow and ice storms closed schools and county roads central and north. Parts of interstate roads also temporarily closed by snow accumulation of 1 to 2 feet, prolonged winds and blowing snow. Temperatures averaged 20° below normal and ranged from -11° on 11th to 51° on 5th. Sunshine was 50% of possible.

Fieldwork nil. Snow removal, machinery repair, keeping water lines open and caring for livestock major activities. Over-wintering crops under heavy snow cover and protected from sub-zero temperatures. Tobacco stripping continues; some frozen and unworkable.

IOWA: Bitterly cold with temperatures averaging 20° subnormal. Temperatures averaged from 1 to near 10°. Two major snowstorms blocked highways with the greatest snow depths in east. Snow cover negligible over west but 6 to 12 in. cover east.

Strong winds with snowstorm on 7th to 8th and continuing on the 9th swept snow from west open areas with obvious soil erosion.

KANSAS: Rain or snow showers mostly beginning of period and again 8th produced locally 0.25 in. to over 0.50 in. south, few hundredths or less north central and northwest. Temperatures range 18° north central, 24 to 26° south, 20 to 22° elsewhere or from 11 to 14° below normal.

Bitter cold temperatures; harvesting aided by frozen ground. Snow, ice conditions slowed farm activities. Wheat condition good to excellent, growth standstill. Greenbug infestations declining, leaf rust apparent. Wheat being pastures 15%, last year 5%, average 15%. Virtually all row crop harvesting finished. Harvest centered around soybeans. Pastures and ranges deteriorated slightly because of cold. Livestock given special attention, sickness noted young calves. Farm activities centered around caring livestock, pasturing cattle.

KENTUCKY: Heavy rains flooded rivers in south 5th followed by 1 to 3 in. snow and bitter cold with temperatures about 20° below seasonal normals during midweek. Night lows 0 to 5° below zero and afternoon highs 5° into teens. Freezing rains and snow followed on 8th. Temperatures moderated by week's end with some highs in the 40's on 11th.

Outside activities practically at standstill due to weather conditions. Supplemental feeding necessary for livestock due to extreme cold and ice cover. Tobacco volume continues to run above previous year.

LOUISIANA: Temperatures 4 to 8° below normal. Extremes: 21 and 84°. Little rain.

Soil moisture adequate to surplus. Activities: Harvesting soybeans and sugarcane. Cotton 100% harvested, 100% last year, 92% average. Soybeans 97% harvested, 100% last year, 94% average. Sugarcane 77% harvested, 70% last year, 76% average. Pecans 93% gathered. Oats 99% seeded; wheat 98%. Pastures fair. Cattle fair to good.

MARYLAND & DELAWARE: Temperatures 3° below normal. Highs in upper 40's, lows in 20's. Western areas colder; highs in 30's, lows in teens. Precipitation widespread with most areas receiving 0.25 to 0.75 in. Weekend cold.

Some soybeans harvested on frozen fields. Farmers busy with winter chores and maintenance work.

MICHIGAN: Temperatures ranged from 7° below normal northwest to 17° below normal southeast. Maximum temperatures were in 20's to near 30's. The cold snap brought -13° to northeastern Lower and -30° to southwestern Upper, establishing record low temperatures. Precipitation averaged 0.20 in. over Upper to 1.00 in. over Lower. High snow fall reached 48 in. at Marquette midweek. Snow depth over lower peninsula ranged from 12 to 21 in.

Farm activities limited to farm chores and livestock feeding.

MINNESOTA: Temperatures 10 to 15° below normal northeast and from 15 to 25° below normal elsewhere. Extremes: 29 and -34°. Precipitation 0.10 to 0.25 in. above normal northern third and normal to 0.23 in. below normal elsewhere. Precipitation totals 0.25 to 0.60 in. northern third and 0.10 to 0.25 in. elsewhere. Snowfall ranged from trace southwest to 6 in. northeast except around 10 in. extreme northeast. Snow on ground from 0 extreme southwest to around 20 in. north central and northeast.

MISSISSIPPI: Temperatures near or slightly above normal. Extremes: 82 and 14°.

Soil moisture surplus to excessive north, surplus to adequate elsewhere. Fieldwork: 2.7 days suitable. Soybeans 85% harvested, 98% 1976, 91% average. Cotton 97% harvested, 98% 1976, 93% average. Corn 97% harvested, 98% 1976, 96% average. Pecans 87% harvested, 91% 1976, 85% average. Winter wheat and oats in good condition. Pastures and livestock in good to fair condition.

MISSOURI: Temperatures 13° subnormal ranging from 18° below normal northeast prairie to 3° below normal Bootheel. Precipitation averaged 0.25 to 1.00 in. north and west central plains, and 1.50 to 2.50 in. south. Snow fell 5th, 7th and 8th.

Fieldwork: 0.8 days suitable. Soybeans 89% harvested, last year 100%, normal 90%. Corn 85% harvested, last year 100%, normal 90%. Grain sorghum 92% harvested, last year 100%, normal 90%. Intended winter wheat seeding 75% completed. Plowing for spring planted crops 35% completed. Winter wheat condition mostly fair to good. Soil moisture supply adequate to surplus.

MONTANA: Very cold with strong warming by weekend. Temperatures over plains 25 to 35° below normal, above normal over southwest. Arctic air midweek; below zero readings all except western edge. Precipitation above normal except south, heaviest near 2.00 in. northwest. Coldest minimums between -40 and -50° northeast.

Winter wheat condition good. Livestock condition good, with most animals on supplemental feed. Warm winds late week will cause grazing to be difficult due to crusted snow.

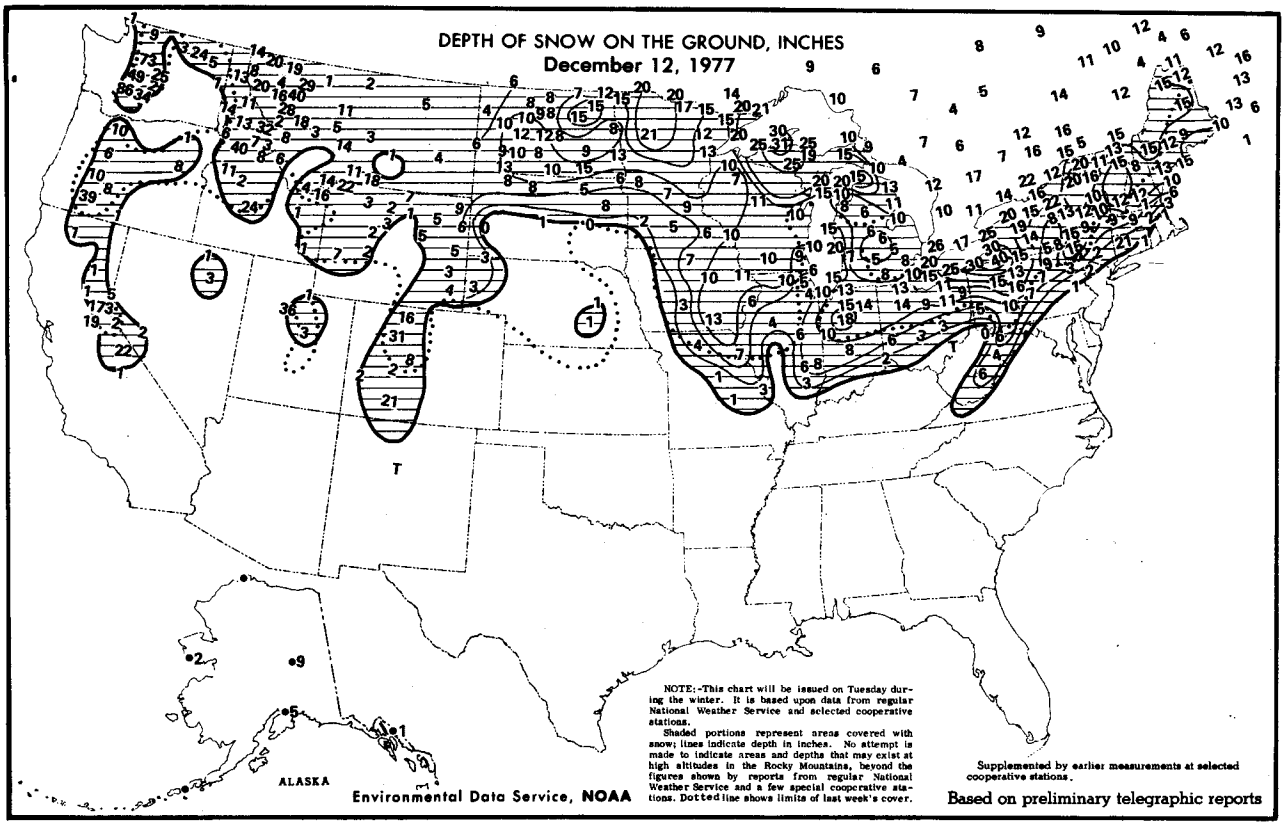
NEBRASKA: Light snow; amounts generally less than inch. Temperatures 15 to 20° below normal; coldest period this season.

Below normal temperatures kept ground frozen, aiding late harvesting wet spots. Corn, sorghum, soybean harvest virtually complete, isolated fields remaining north and northeast. Harvested fields providing grazing. Roughage supplies adequate for winter.

NEVADA: Mild and mostly dry early, widespread precipitation end of week. Temperatures 5 to 12° above normal. Extremes: 75 and 10°.

Cotton harvest, feeding livestock main ranch activities.

NEW ENGLAND: First general snow of season fell late 5th and 6th. Up to 8 to 12 in. snow fell in some northern and interior sections tapering down to just 1 or 2 in. near south coast. Precipitation amounts of 0.50 to over 1.00 in. recorded most areas. Another 0.25 to 0.75 in. precipitation 9th with most of it occurring as snow north and rain south. Snow or snow flurries practically every day in most northern areas. Temperatures near to just slightly below normal early week




plunged to as much as 20 to 30° below normal by week's end.

NEW JERSEY: Very cold with temperatures 10° below normal averaging 24° north, 28° south, and 31° coastal areas. Extremes: 4 and 61°. Precipitation below normal north and central and above normal elsewhere averaging 0.71 in. north, 0.94 in. south and 1.21 in. coastal sections. Snow fell mostly north and central 6th, 7th, 9th and 10th. Depth of snow 12th, 2 in. to trace.

Farmwork limited to some harvesting field corn and soybeans as freezing temperatures hardenen soil following excessive rains and wet fields. Routine livestock chores continue. Some machinery repairs made.

NEW MEXICO: No rain or snow. Mostly sunny with mild temperatures. Sharply colder eastern plains 9th warming again weekend.

Moisture short. Cotton and red chile harvesting almost complete. Pecan harvest active. Irrigated winter wheat fair to good and dryland poor to fair. Livestock in good condition, and ranges fair although moisture needed.

NEW YORK: Very cold temperatures; 8 to 10° below normal. Precipitation ranged from 0.50 to 3.00 in. Ground snow depth ranges from 1 in. in Hudson Valley to 40 in. in southwest.

NORTH CAROLINA: Temperatures 5° below normal mountains to normal along coast. Record low temperatures and snow in mountains. Rainfall light to moderate.

Fieldwork: 2.8 days suitable. Soil moisture adequate to surplus. Soybeans 76% harvested, 1976 84%, average 85%. Cotton 92% picked, 1976 90%, average 90%. Small grains fair to mostly good. Wheat 92% seeded, other small grain seeding nearing completion.

NORTH DAKOTA: Very cold and wet with heavy snow and blizzard conditions 7th and 8th. Most areas received above normal moisture; only southeast received below normal moisture. Temperatures well below normal with many new record lows established. Extremes: 38 and -40°.

Ground drifting of snow making travel difficult rural areas. Caring for livestock main activity. Stock water supplies adequate.

OHIO: Winter storms spread snow and freezing rain 5th through 10th. Snow depth of 10 to 12 in. across north and 4 to 6 in. from central southward. Bitter cold arctic air dropped temperatures to subzero readings by 9th.

Fall sown wheat in good condition with adequate growth. Tobacco stripping on schedule, nearing completion. Livestock in fair condition. Most animals confined to buildings and dry lots. Corn harvest continues as weather permits. Limited soybean acreage left to be combined.

OKLAHOMA: Temperatures 8 to 12° below normal ranging from 29° north central to 37° south central. Extremes: 5 and 78°. Precipitation light, less than 0.05 in.

Topsoil moisture supplies short, subsoil moisture supplies adequate. Wheat condition good but declining, 98% up to stand, 97% 1976 and 94% normal. About 40% of acreage being grazed. Fall seeded oats and barley good condition with 97% up to stand. Virtually all grain sorghum combined. Cotton harvest over 80% complete, 90% 1976 and 45% normal. Soybean harvest 92% complete, the same as last year. Ranges in fair to good condition. Livestock in good condition.

OREGON: Substantial rain west caused flood problems early week. Precipitation ranged from 2.00 to 4.00 in. with localized amounts approaching 10.00 in. in the coastal mountains. East of Cascades rainfall varied from less than 0.10 to 0.50 in. Temperatures mild, about normal along coast, 5 to 8° above normal elsewhere. Extremes: Mid-50's, low 30's west; mid-50's, low teens east.

Farm activity continues light due to rains. Surface moisture supply generally adequate. Subsoil moisture varies. Livestock conditions generally good. Feeding continues. Hay and roughage supplies locally adequate.

PENNSYLVANIA: Cold, snowy. Heavy snow north and central 5th and again midweek. Over two feet northwest snowbelt. Snow cover: Trace southeast to over 30 in. northwest. Total precipitation 0.50 in. south central to over 2.00 in. northwest. Temperatures 6 to 12° below normal. Extremes: 46 to -20°.

Weather condition kept most farmers indoors except for normal winter chores.

PUERTO RICO: Island average rainfall 0.35 in. or 0.74 in. below normal. Temperatures averaged about 79° on coasts and 72° interior. Extremes: 93 and 56°.

SOUTH CAROLINA: Above normal temperatures early week changed to considerably below normal last half. One low reading was 13° with many readings in teens. Rainfall near normal most areas with most early week. Damaging wind storms on 5th across foothills, south central, north central areas.

Soybeans, cotton harvest continued as weather permitted. Seeding small grains completed most areas. Grains, pasture growth slowed by cold. Pruning fruit trees, grape vines; preparing tobacco beds; taking soil samples, liming; general maintenance.

SOUTH DAKOTA: Temperatures 15 to 20° below normals. Warmer during weekend. Extremes: -34 and 56°. Heavier snows northeast. Moisture 0.30 in. greatest amount.

Limited corn harvest as field conditions permit.

TENNESSEE: Temperatures averaged from upper 20's to mid-30's. Precipitation ranged from 0.24 to 1.67 in. Arctic air caused light snow.

TEXAS: Cold fronts early and midweek. Southerly flow, after each front warmed temperatures. Little precipitation. Temperatures 2 to 4° below normal northwest, Edwards Plateau; elsewhere, normal or above. Rainfall below normal.

Continued dry weather allowed farmers to rapidly complete harvesting operations but slowed small grain growth. Land preparations active, except where soils too dry, hard. Cotton harvest continues rapid pace; many producers Panhandle, Trans-Pecos completed stripping. Gins reducing backlog of trailers, modules. Soybean harvest generally complete, few scattered fields left. Peanut harvest nearing completion. Scattered fields remain Cross-Timbers, Edwards Plateau. Sugarcane harvest continues active Lower Rio Grande Valley. Wheat seeding nearing completion. Irrigated stands High Plains good growth but dryland stands over entire plains area moisture-stressed. Warm weather early boosted growth other areas where soil moisture available. Oat seeding generally complete about one week ahead of average. Stands in areas with sufficient moisture improved with warm weather early but growth slowed late by cold spell. Flax planting rapid progress. Cotton harvested 97%, 73% 1976, 64% average. Peanuts harvested 99%, 96% 1976, 95% average. Soybeans harvested 100%, 99% 1976, 97% average. Pecans harvested 80%, 74% 1976, 73% average. Sugarbeets harvested 100%, 94% 1976, 99% average. Sunflowers harvested 100%, 94% 1976, 97% average. Wheat planted 99%, 97% 1976, 99% average. Oats planted 100%, 96% 1976, 98% average. Flax planted 78%, 33% 1976, 70% average.

Citrus harvest strong in conjunction with gift season demand. Coastal land cabbage, onions making satisfactory growth. Harvests of bell peppers, cabbage, spinach, carrots active. Pecan harvest remains active. Supplemental feeding increased due poor growth of small grains. Ranchers feeding heavy where no winter grazing available. Some still culling herds. More cattle moved onto small grain pastures east Texas and along coast. Livestock condition generally fair to good where ample grazing or where ranchers feeding. Some herds in poor condition, most lighter than average.

UTAH: Few, scattered areas rain in valleys, snow in mountains northwest forepart period and again over weekend. Accumulated moisture generally light to moderate northwest, little or none south and east. Average Temperatures much above normal ranging between 4 and 16° above.

Activities include: Sugarbeet processing, care and feeding of livestock, grading and marketing potatoes, dry onions and apples from storage.

VIRGINIA: Rainfall averaged 0.75 in. Some snow in higher elevations, mostly in southwest. Temperatures 2° below normal. Extremes: 67 and -5°.

Topsoil moisture adequate to surplus. Pastures, small grains good to excellent. Wet fields delaying some late crop harvests. Soybeans: 28% still in field. Combining active as weather permits. Some corn, milo also. Limited cover crop seeding. Tobacco markets active. Livestock feeding increasing. Feed supplies short to adequate. Fieldwork: 1.6 days suitable. Activities: Livestock feeding and care; pruning orchards.

WASHINGTON: West: Temperatures 1 to 2° below normal. Precipitation 0.30 to 0.60 in. below normal except 1.50 in. below coastal area.

Very little farm activity. Some carrots remain to be harvested.

East: Temperatures varied from 2° above normal to 3° below. Pruning and removing old trees. Apple nursery stock in short supply due to heavy planting demand. Some grapevine pruning continued. Grain corn being harvested. Dryland soil moisture conditions improving, but need additional precipition to build moisture reserves. Other farm activities include feeding livestock and fall calving.

WEST VIRGINIA: Temperatures 4° below normal northeast, 8 to 10° elsewhere. Sub-zero midweek in central. Precipitation half of normal northeast; near normal to slightly above elsewhere. Snow depth 1 in. central, 8 to 10 in. high elevations in northern mountains.

Fieldwork: 2.3 days suitable. Soil moisture mostly adequate. Hay supplies short to adequate. Fall pasturing over.

WISCONSIN: Cold and snowy. Temperatures well below normal. Minimums below zero most mornings. Daytime maximums plunged from around 30° beginning week to single digits or teens remainder of week. Highs near zero or slightly below 9th and 10th. Snow 5th heaviest extreme southwest at 6 in., 2 to 4 in. south, lesser amounts north. Snowstorm developed late 7th west, spread over state 8th. Snowfall totals 5 to 10 in. south and east; 1 to 4 in. north and west. Strong winds 40 mph late

8th and early 9th caused near blizzard conditions south, with much drifting making secondary roads impassable. Currently good snow cover exists; heaviest in southern areas.

WYOMING: Temperatures well below normal northeast half. Most minimum temperatures below normal. Above normal temperatures remained in southwest half averaging 6° higher than normal. Precipitation above normal in northeast half, east of the Front Range Mountains. Extreme southwest remains dry. Powder, Little Missouri and Tongue drainage received over twice normal amount, with an average 0.63 in.

Winter wheat fair to good. Additional moisture needed. Most livestock on winter pasture. Normal supplemental feeding. Feed supplies adequate most areas.

## World Weather and Crop Update

December 5-11

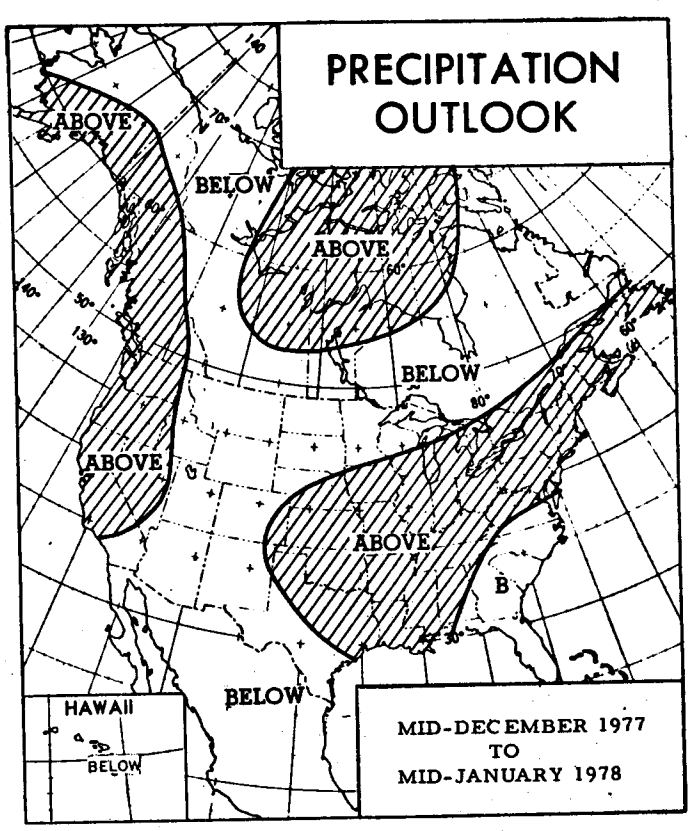
USSR. Bitter, wintry weather prevailed over European USSR. Although snow cover has been established over much of the winter grain area, crops in Moldavia, southern Ukraine, and the North Caucasus were essentially without snow cover and may have been damaged by well below normal temperatures that reached minus 15° C. at Rostov.

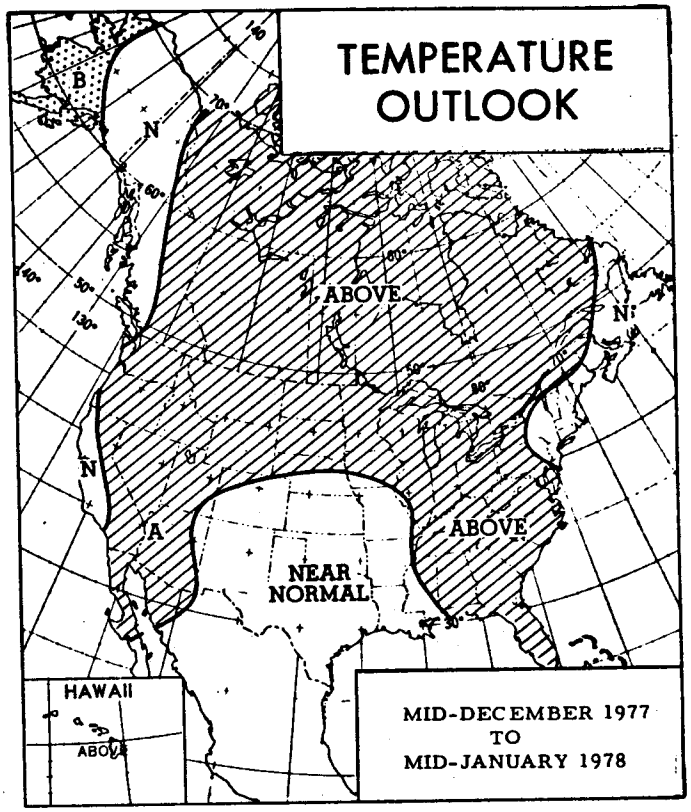
ASIA. The grain harvest in Australia continued under favorable conditions, but drought persists in the principal agricultural areas, and non-irrigated crops and pastures need rain. The severe shortage of moisture in most areas was further exacerbated by early summer heat. It was seasonally warm and dry throughout the Indian subcontinent. Drought threatens the main rice crop in important growing areas in northwestern Malaysia. The rice crop in northeastern Thailand also has been adversely affected by a shortage of moisture. It was seasonally dry with above-normal temperatures over most of the People's Republic of China, except in the northeast. Harvesting of late crops in the south continued under favorable conditions.

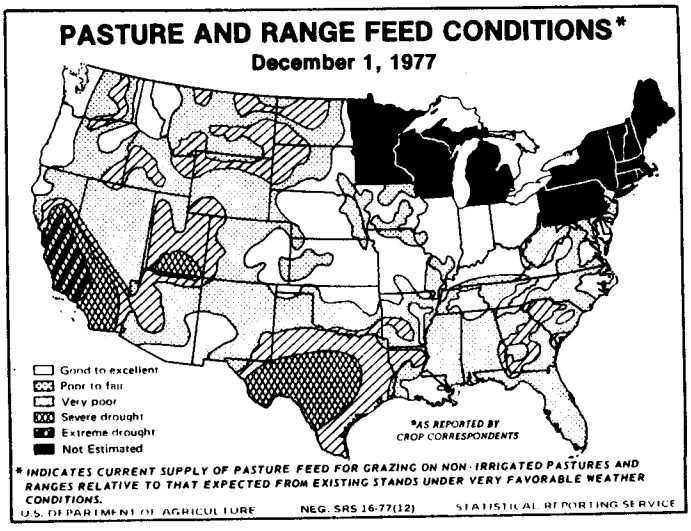
AFRICA. Heavy rains struck most of Morocco, but only scattered, light showers fell in Algeria and Tunisia where additional precipitation is needed to replenish soil moisture. Light showers dampened the main agricultural areas in South Africa, but more rain is required for normal crop and pasture development.

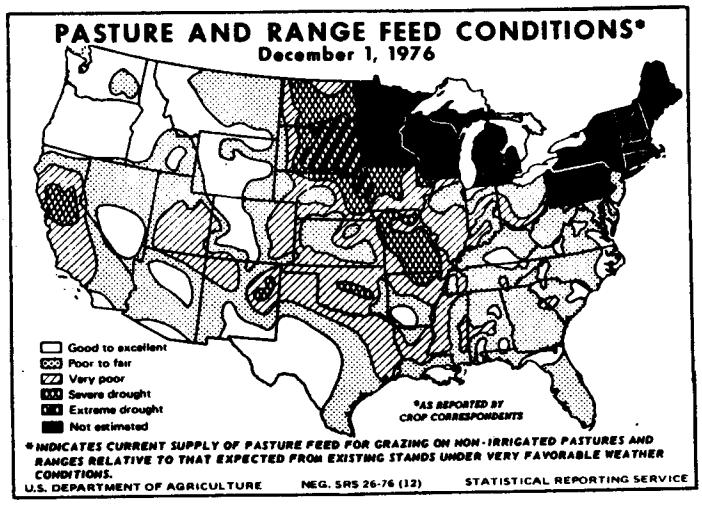
EUROPE. Cool, wet weather (mainly rain) prevailed throughout most of western Europe, including the United Kingdom, during the week; however, a warming trend was evident at the end of the period. Livestock continued to have access to forage in the absence of snow cover in most areas. Rains were fairly general throughout Spain and Italy. In eastern Europe, light snow fell mainly in the eastern half of Poland and Czechoslovakia, but other areas were generally without snow cover. Rains were moderate to heavy in southern Yugoslavia, Bulgaria, and Greece. It was seasonally cool with little significant precipitation in the winter grain areas of Turkey.

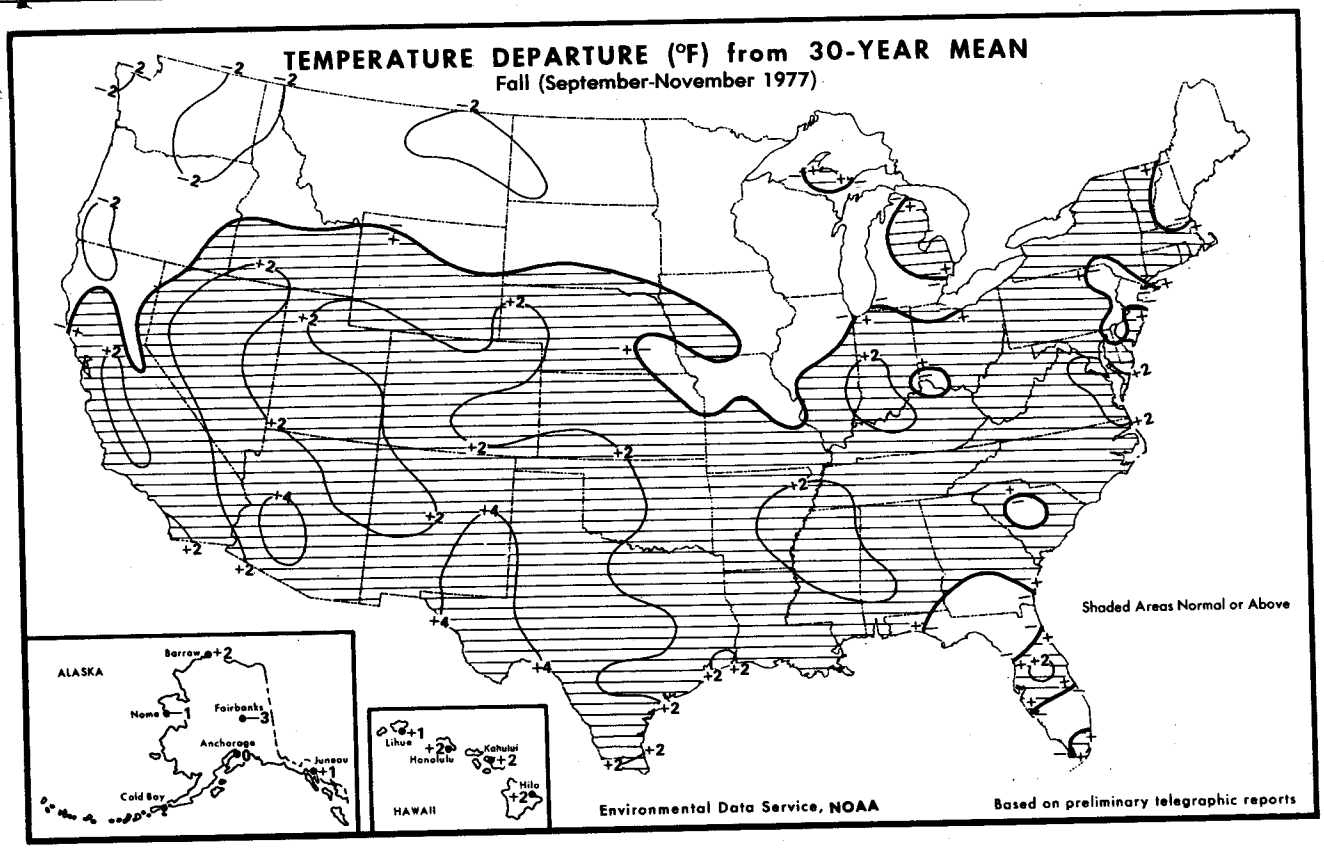
## Average Monthly Weather Outlook





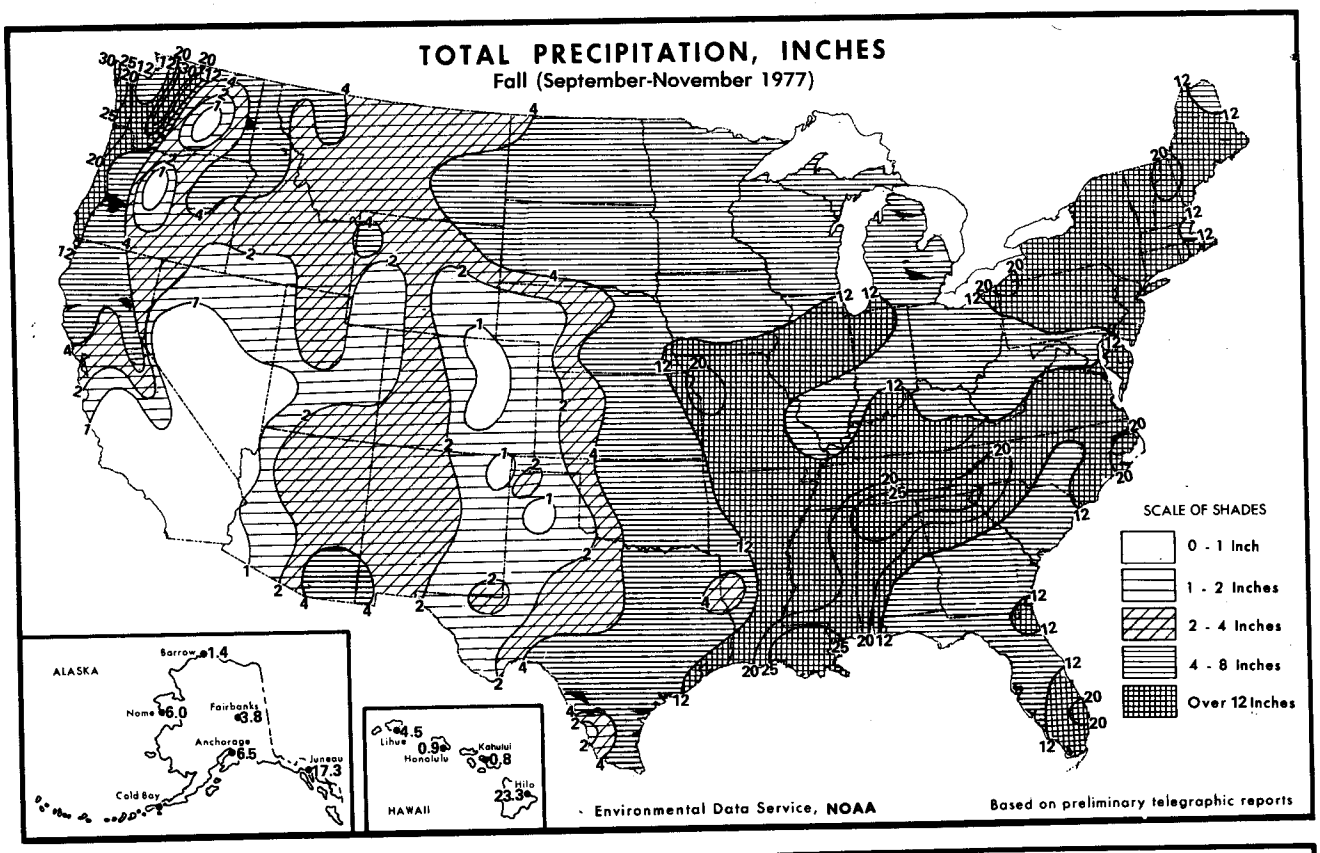

## Fall Weather Review

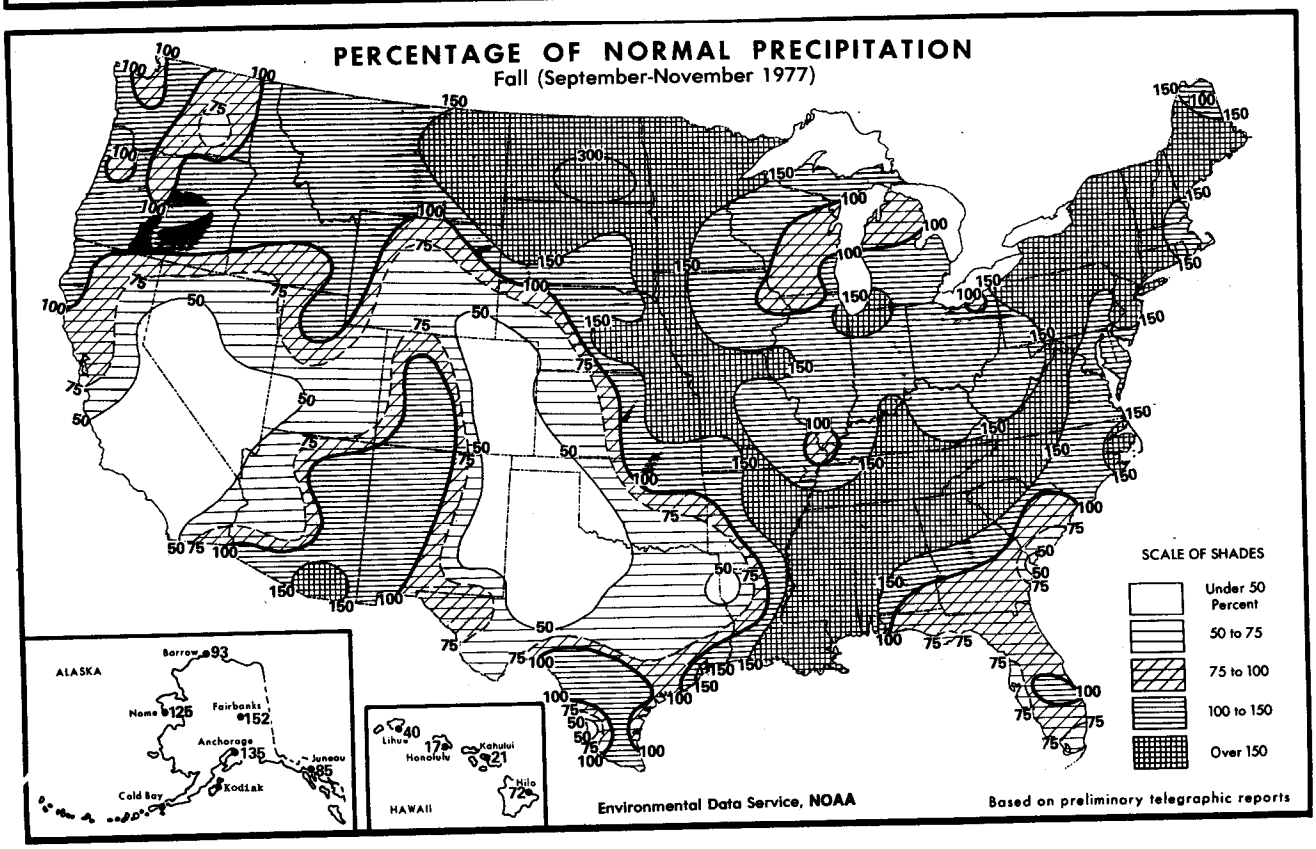
HIGHLIGHTS: Drought continued to plague much of the West while eastern rainfall became plentiful and even surplus in some areas. Drought decreased only a bit in extreme northern California during late November but intensified in wirter wheat areas of the Texas Panhandle, western Kansas, and eastern Colorado. Very heavy rains fell over the Washington Coast and Cascades, from Mississippi Delta into the southern Appalachians, mid-Mississippi Valley and several small eastern areas. Temperatures averaged near seasonal except 4 to 6° above normal in parts of the Southwest.

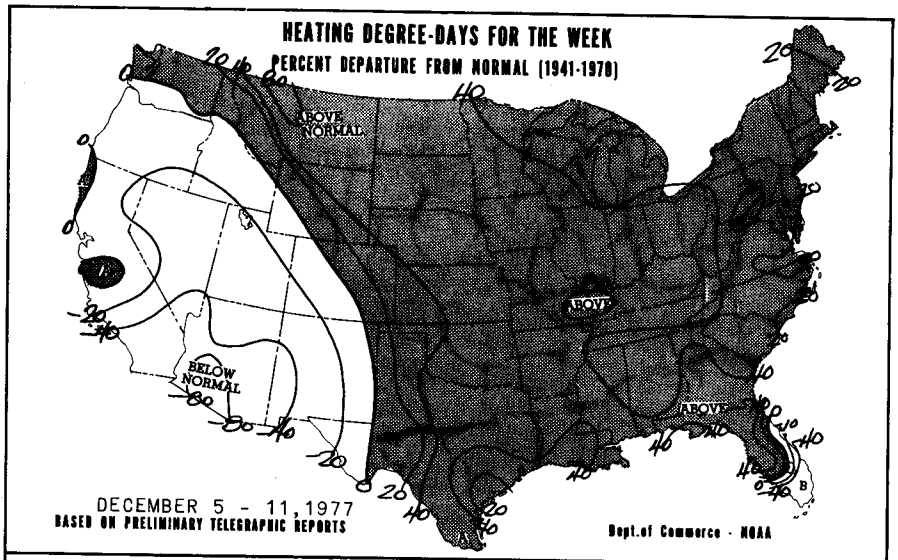
In early September, tropical weather systems brought heavy rainfall to parts of the Gulf Coast and from the Mississippi Delta into the southern Appalachians. A series of low pressure systems moved through the Pacific Northwest triggering heavy showers. The lows, continuing eastward and forming waves along a cold front from Kansas into New England, produced widespread rains. Some large amounts, falling in the central corn, northern soybean, and eastern wheat sections, delayed harvesting and seeding. The mid-Atlantic States became very dry as significant rains skirted the area. Dryness over most of California extended eastward to the western fringes of the central and southern Plains where it caused problems for planting winter wheat. September was warm across most of the Nation while southwestern Texas had the largest average departure with 6 to 8° above seasonal.

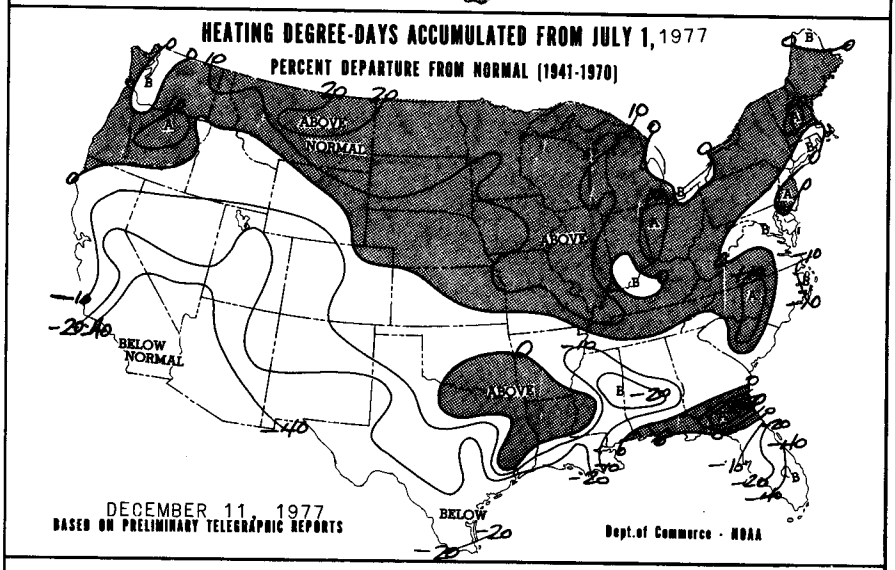
October rainfall was moderate to heavy over the western and central Gulf Coast through New England, mid-Mississippi Valley, Pacific Northwest, and southeastern Arizona. Excessive rains caused local flooding and hampered harvesting in some grain and cotton sections. Welcome rains finally fell in the mid-Atlantic States and alleviated the shortage of soil moisture. Dry weather continued over most of the West. Temperatures in October averaged slightly below seasonal east of the Rockies and in parts of the Pacific Northwest. Most western portions were slightly warmer than normal.

November precipitation was generally moderate over most eastern and northwestern sections. Some heavy amounts occurred in the Pacific Northwest Coast and much-needed rains fell as far south as San Francisco. Several low pressure systems formed in the Gulf of Mexico and moved northeastward producing locally heavy rains. Snow accumulated during late November from the Cascades eastward into western New England as cold Canadian air pushed frequently into the northern Rockies and eastward. Wet soils in the South and snow-covered fields in the North made harvesting difficult. Plowing and land preparation for 1978 row crops lagged in some areas. November temperatures averaged slightly above what is expected for that time of year across the Nation except a little below westward from the Great Lakes.


TOTAL PRECIPITATION, INCHES
Fall (September-November 1977)
SCALE OF SHADES
0 - 1 Inch
1 - 2 Inches
2 - 4 Inches
4 - 8 Inches
Over 12 Inches
ALASKA
Barrow 1.4
Nome 6.0
Fairbanks 3.8
Anchorage 6.5
Juneau 17.3
Cold Bay
HAWAII
Lihue 4.5
Honolulu 0.9
Kahului 0.8
Hilo 23.3
Environmental Data Service, NOAA
Based on preliminary telegraphic reports


PERCENTAGE OF NORMAL PRECIPITATION
Fall (September-November 1977)
SCALE OF SHADES
Under 50 Percent
50 to 75
75 to 100
100 to 150
Over 150
ALASKA
Barrow 93
Nome 125
Fairbanks 152
Anchorage 135
Juneau 85
Kodiak
Cold Bay
HAWAII
Lihue 40
Honolulu 17
Kahului 21
Hilo 72
Environmental Data Service, NOAA
Based on preliminary telegraphic reports


HEATING DEGREE-DAYS FOR THE WEEK
PERCENT DEPARTURE FROM NORMAL (1941-1970)
ABOVE NORMAL
BELOW NORMAL
DECEMBER 5 - 11, 1977
BASED ON PRELIMINARY TELEGRAPHIC REPORTS
Dept.of Commerce - NOAA


HEATING DEGREE-DAYS ACCUMULATED FROM JULY 1, 1977
PERCENT DEPARTURE FROM NORMAL (1941-1970)
ABOVE NORMAL
BELOW NORMAL
DECEMBER 11, 1977
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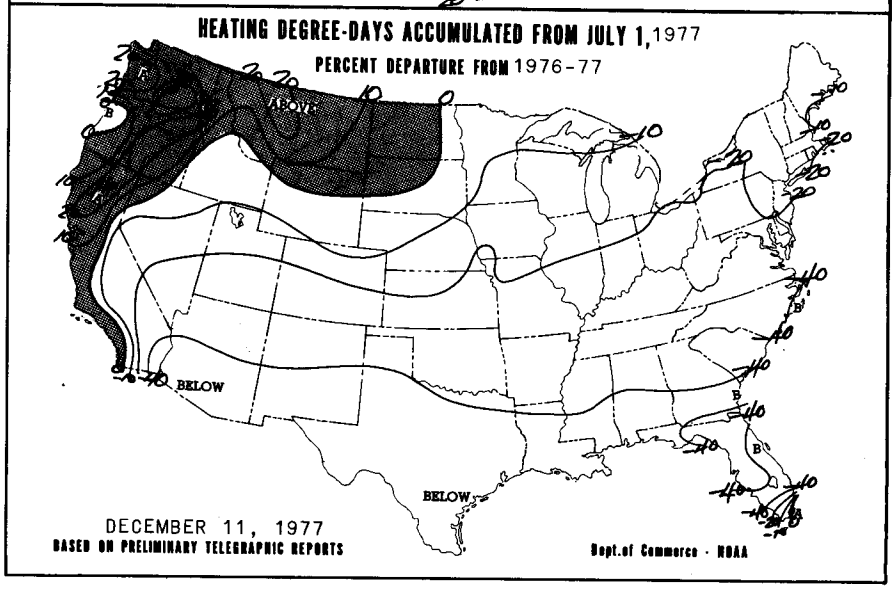
HEATING DEGREE-DAYS ACCUMULATED FROM JULY 1, 1977
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# THE WEATHER--WHAT ABOUT 1978?

Looking ahead to 1978, weather becomes very important because it is the major production factor which the farmer cannot control. If accurate and timely long-range weather forecasts were available, a farmer could make certain adjustments to overcome potential problems, or at least minimize their impacts. However, reliable long-range forecasts of this nature are not available, and won't be for some time.

Climatological records tell us what "normal" weather would be, but it is the year to year, or season to season anomalies that determine the level of production. Nonetheless, it is possible to make plans and preparations for 1978, including some adjustments for potential weather impacts. Thus it is necessary to discuss how information about current weather developments, agronomic knowledge, and probabilistic information about weather events can be drawn upon to reach conclusions for 1978 production prospects.

The starting point is to consider recent and current weather events. The rainfall patterns of recent weeks have helped to determine how much soil moisture the 1978 corn and soybean crops will have available for growth. It has already determined the amount of fieldwork completed in preparation for spring and the condition of the winter wheat crop. In this agricultural weather system there has been a certain amount of "inertia" or momentum established.

The past summer's weather was "mixed". Nearly every part of the country experienced some level of drought, but September and October precipitation strikingly reversed that picture in all areas east of the Rockies. September moisture was unusually heavy in the Pacific Northwest, the northern Great Plains, the Great Lakes region to the Gulf, and New England. October was a month of extremes with very sharp lines between areas of extreme wet and very dry. Much of the western Corn Belt and eastern Plains received over twice the normal moisture. In addition the area from the Deep South to the Ohio River Valley was also very wet. The middle Atlantic States finally received much-needed drought relief. November moisture was also abundant from the eastern Plains to the Atlantic Coast.

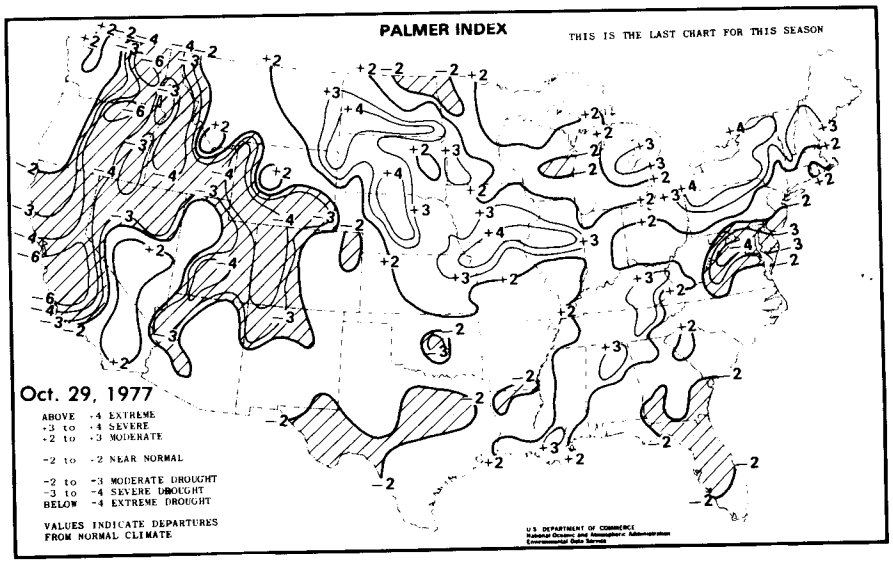
The result of this precipitation is a soil moisture situation which shows conditions to be near to well above normal over most of the country. In many areas, excessive wetness has developed to the point of having serious implications for 1978, as well as the short term. The situation can be seen most easily on the Palmer Index map (see Figure 1).

The Palmer Index is designed to evaluate the scope, severity, and frequency of prolonged periods of abnormally wet or dry weather. It is not always an indication of the current moisture situation relative to plant requirements, but it is an excellent measure of the overall soil moisture situation. Essentially, it shows the overall "hydrologic picture", which can have very important implications for agriculture particularly in longer-term planning. The Palmer Index is also useful because it effectively integrates the results of the weather over a period of weeks and even months. Positive values of the Index indicate that the moisture supply, either from current or antecedent rainfall, exceeded the amount required to sustain normal soil moisture levels for a given area.

Present drought concerns are focused on the western States, and in particular the water supply outlook for 1978. Although not a major problem at the moment, the southwestern Great Plains is also much drier than normal. Some problems were encountered in planting winter wheat because of the dryness. This area will bear close watching during the winter and early spring.

On the other hand, the moisture situation is adequate to excessive over large areas of the United States from the Plains eastward. The situation has potential implications for 1978 which could be very serious. Figure 2 outlines the area where soils were at or above field capacity (based on Palmer Index program computations) over the central U.S. as of October 28, 1977. November moisture was abundant and makes Figure 2 conservative.

The very wet fall weather has produced conditions as wet or wetter than the fall of 1973. In that year the following winter and spring were very wet; record flooding occurred along the Mississippi River and most corn and soybean crops were planted



very late. This delayed the crops which were stressed by extreme summer dryness and an early frost. This, however, does not mean the situation will repeat itself in 1978.

What changes might be expected in the situation over the next few months? Moisture loss is normally minimal during the winter months, particularly in northern and central areas. Moisture can be lost through runoff, drainage or percolation, and evaporation from the surface. Both percolation and evaporation are reduced by cooler temperatures, and there is little water use by vegetation. Once the ground freezes the water is trapped as ice and held until the spring thaw occurs. At the same time, very little winter moisture can penetrate the soil.

Under typical conditions for the major grain-producing areas, there is still some soil capacity to absorb additional moisture when the ground finally opens up in the spring. Usually, by the time planting season rolls around in the Corn Belt soil profiles are full. In 1978, soil profiles will still be nearly saturated when the soils open up. Springtime moisture would normally maintain these saturated profiles and make spring fieldwork very difficult. This will be particularly important because the amount of fieldwork completed this fall lagged normal.

Hence, it is possible to draw some conclusions about production problems which could occur in 1978. The discussion will be limited to wheat, corn, and soybeans.

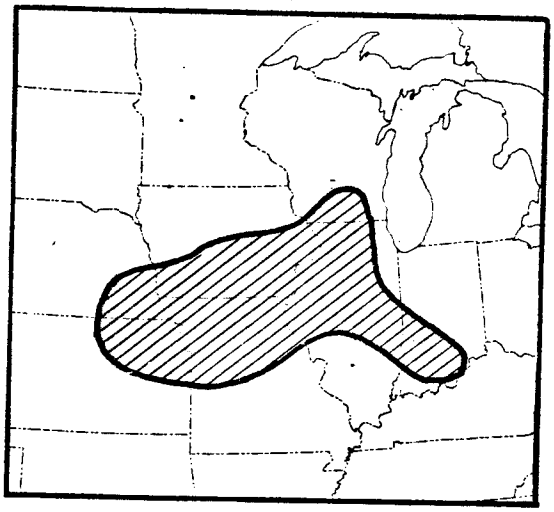


**Figure 2. Areas of central U.S. in which soil profiles are at or above field capacity as of October 28, 1977**

Winter Wheat

The eastern portions of the wheat belt are well above normal in moisture, and crop growth is well advanced. Some damage may have occurred because of excessive moisture. Root growth may be stunted. Dry areas in the western Plains must also be watched carefully. Given the abundant moisture supply, conditions will be excellent for growth when the crop breaks dormancy this coming spring. Current moisture is sufficient to carry the crop through the major growth of the crop. Only one or two good rains would provide the moisture to carry the crops to maturity. Overall prospects for winter wheat are good.

Spring Wheat

The primary spring wheat areas generally have normal to above normal moisture. Soil moisture conditions should not cause any major difficulty for fieldwork and seeding. However, moisture must be at least normal or above during spring and early summer for good yields.

Corn/Soybeans

Present moisture conditions are such that the probability of some delays in spring fieldwork and planting is reasonably high.

Normal or above-normal rainfall in the areas indicated in Figure 2 would result in significant planting delays. The probability of receiving this amount of moisture is approximately 40 percent. A warm, relatively dry April would be extremely beneficial. That would allow soils to dry sufficiently to allow preparation of fields and planting. It would also permit the surface soils to warm up quickly--wet soils tend to remain cold. With the current situation, even normal moisture would cause some problems. Today's equipment will allow planting of the entire corn crop within two weeks if necessary, but drained soils are required. However, if delayed beyond May 10, the general rule of thumb is that yields are reduced about 1 bushel a day. Cold, wet weather during or after planting also reduces or slows germination and enhances diseases and weed problems.

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Supposing the crop is planted with miminal difficulty, the excellent soil moisture which exists would carry the crop through the first few weeks of growth. This is in direct contrast to last year. However, the critical period is the reproduction phase and moisture supplies must be ample at that time.

Any delay in corn planting would also be reflected in soybean plantings because they are normally planted after corn. Soybeans would not be affected as greatly by late planting, although any delay pushes the reproductive period into the hotter, drier parts of late July and August.

## Some Early Advice

With the information available, the probability of problems due to excessive moisture next spring is relatively high. What can the farmer do to be prepared for such problems? Here are a few possibilities:

Prepare equipment carefully: Considerable work will be done under wetter than usual conditions which will put a heavier strain on equipment and increase fuel consumption.

Take advantage of early weather breaks: Farmers must take full advantage of every good day for fieldwork.

Prepare for last minute changes: If the weather continues wet and delays become serious, some switching of varieties or crop types may be required. It would be worth a farmer's time to evaluate the alternatives. Such as shorter season varieties.

Chemical application: Fertilizer, herbicide, and early pesticide application may be completed under unfavorable conditions. Herbicides, which are effective over a wide range of weather conditions, will be needed.

Richard E. Felch
Weather Analyst, World Food and Agricultural
Outlook and Situation Board, USDA