

# WEEKLY WEATHER AND CROP BULLETIN

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

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

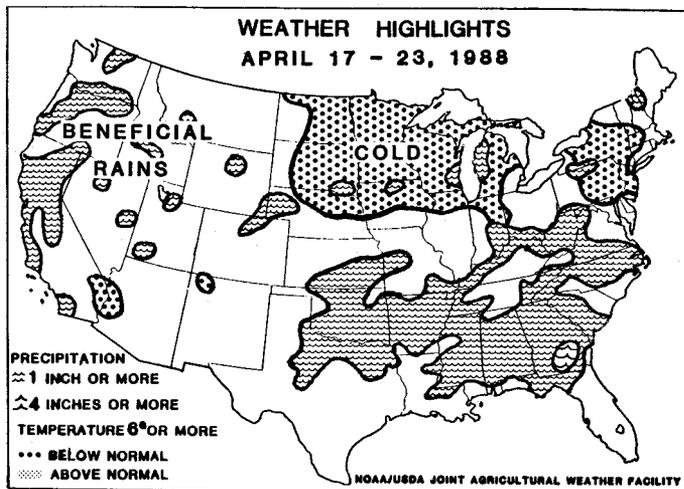
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## National Weather Summary

April 17 - 23, 1988



**HIGHLIGHTS:** A storm moved across Oklahoma, Texas, and the deep South early in the week, bringing heavy rains and severe thunderstorms to the Gulf States and the Carolinas. Showery conditions prevailed west of the Rockies throughout the week. A storm developed on Thursday over the central Rockies and moved eastward, spreading snow across the central and northern Plains and the upper Mississippi Valley, while causing widespread thunderstorm activity from Nebraska to Michigan. By week's end, rain showers and thunderstorms had spread across most of the eastern third of the Nation.

**SUNDAY...**A storm system centered over Oklahoma brought showers and thunderstorms to the central and southern Plains and the lower half of the Mississippi Valley. At the same time, a cold front tracked southward and eastward across the Great Lakes and the central Plains, accompanied by gusty winds, showers, and a few thunderstorms. In the afternoon, showers and thunderstorms were widely scattered across the Pacific Northwest and Intermountain regions.

**MONDAY...**Severe thunderstorms broke out in the afternoon and evening in Mississippi, Alabama, and Georgia. Large hail and damaging winds were reported at numerous locations. Rain also extended from Oklahoma across the Tennessee and Ohio Valleys and from the central Appalachians to the North Atlantic coast.

**TUESDAY...**Thunderstorm activity diminished in the Southeast, while it increased in the West, particularly in California and Florida. Tornadoes and hail accompanied the thunderstorms in parts of the Southeast, particularly in Florida. Snow showers

occurred across western and central portions of New York.

**WEDNESDAY...**A storm system off the California coast continued to supply atmospheric moisture to the Western States. Showers and thunderstorms were scattered across much of California and portions of the Intermountain Region. Rains diminished in southern California, after soaking much of the region. Rain fell in the Great Lakes region, the Ohio Valley, and the Middle Atlantic States. Cold weather prevailed in the northern tier of States.

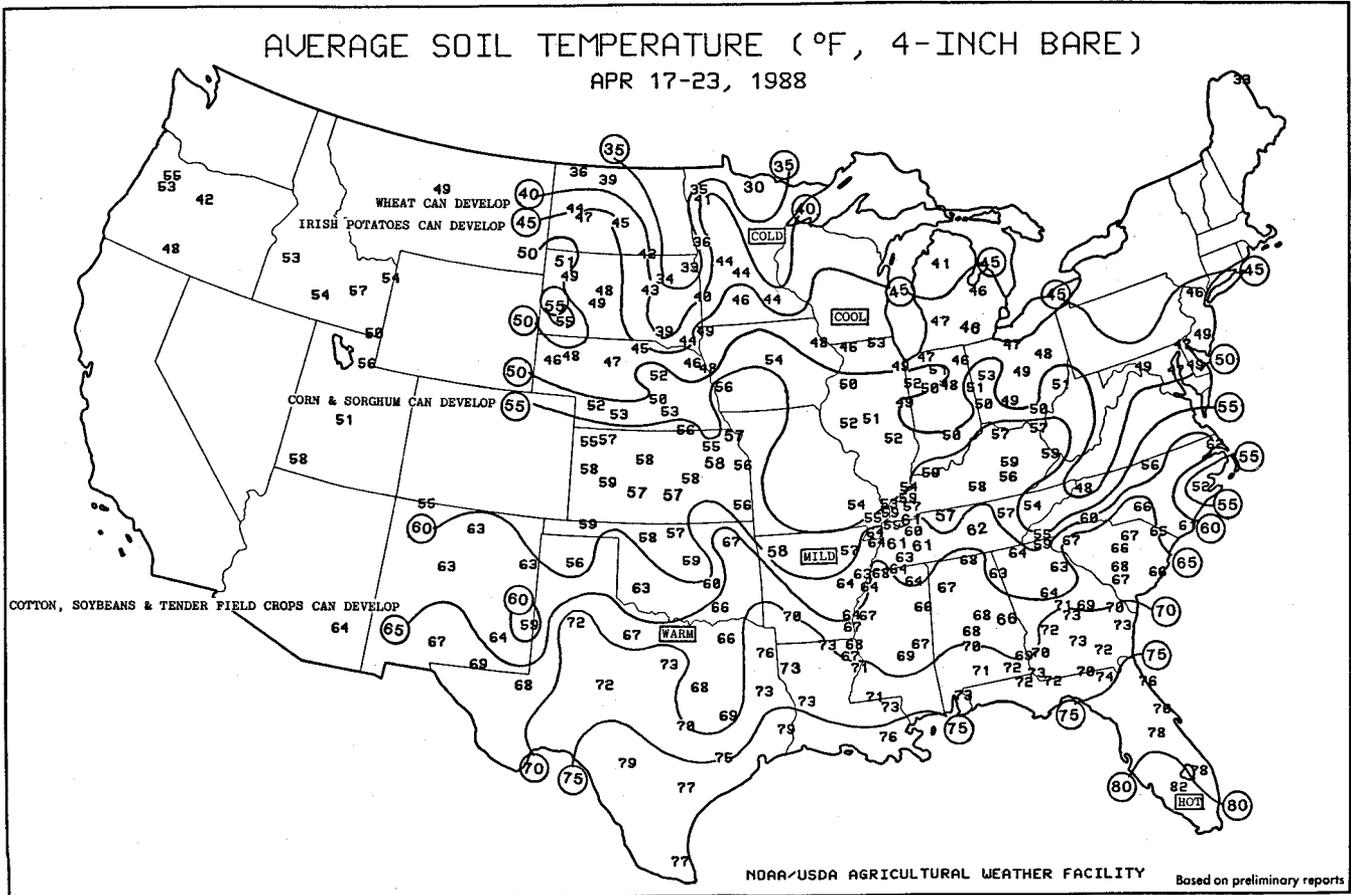
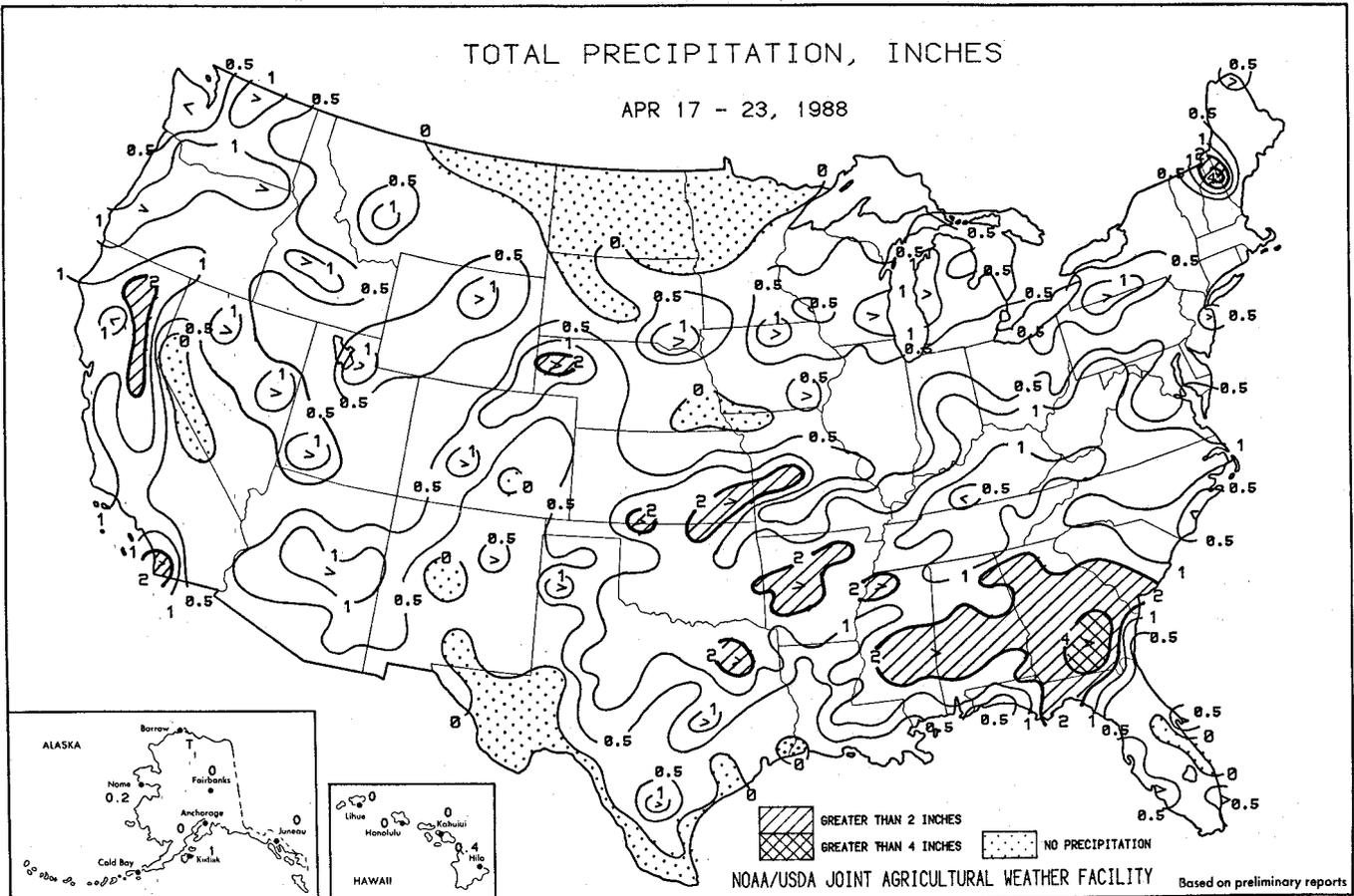
**THURSDAY...**A complex low-pressure system brought a variety of weather to the western half of the Nation. A few tornadoes accompanied severe thunderstorms in Colorado. In New Mexico, snow and hail accompanied thunderstorms, and strong winds caused blowing sand. Some heavy showers were reported in the Columbia River Valley. A slow-moving warm front extended from Kansas across Missouri and Kentucky to southern Virginia, separating warm air to the South from cool air to the North. Showers and thunderstorms developed in the middle Mississippi and the Ohio Valleys.

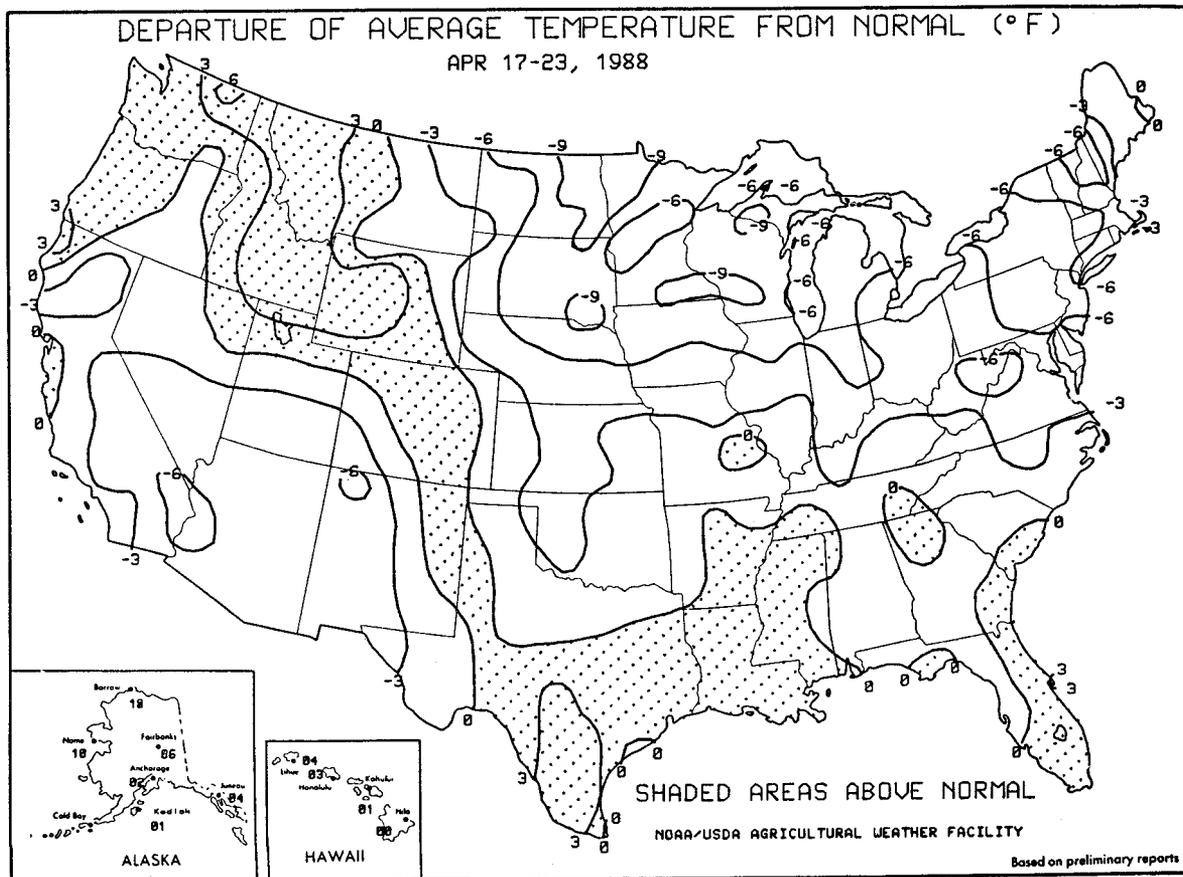
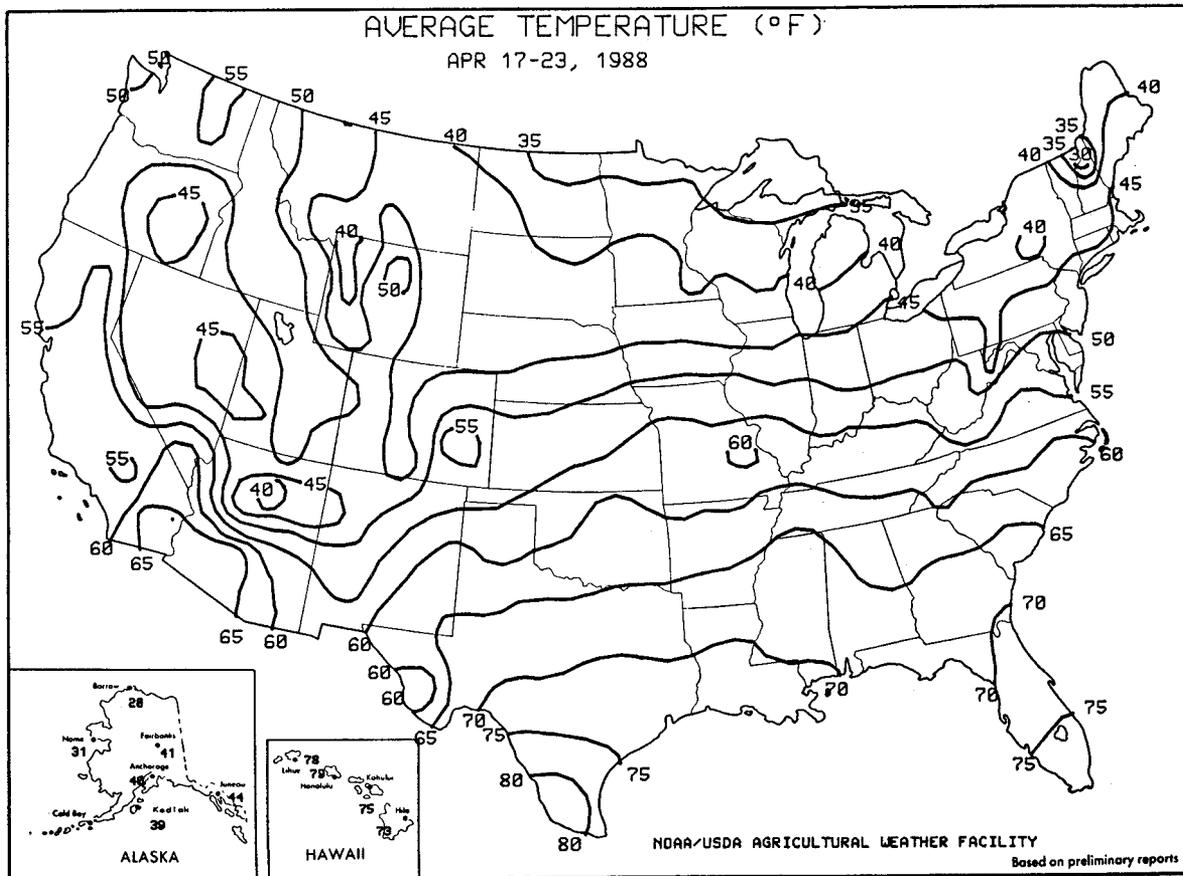
**FRIDAY...**The storm over the central Plains continued to intensify. Snow fell in Nebraska, Wyoming, South Dakota, Minnesota, and Wisconsin and was quite heavy at some locations. Severe thunderstorms broke out in Illinois, lower Michigan, and Wisconsin. Thunderstorms were widespread across Alabama and Georgia. A storm in the Far West brought rain showers to California valleys, while snow fell at higher elevations in Oregon, California, and Nevada.

**SATURDAY...**Showers and thunderstorms, many of them severe, were scattered across the Ohio Valley, the Middle Atlantic States, and much of the Southeast. Snow fell in the Great Lakes region. In the West, showers and thunderstorms were scattered across Arizona and southern California.

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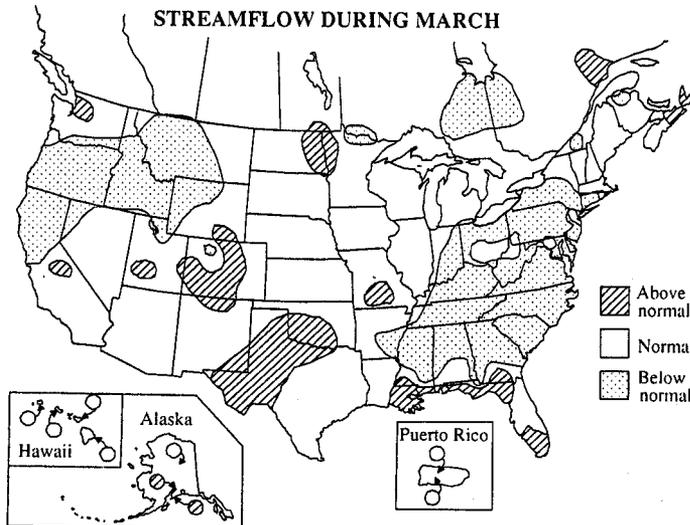


# National Water Conditions

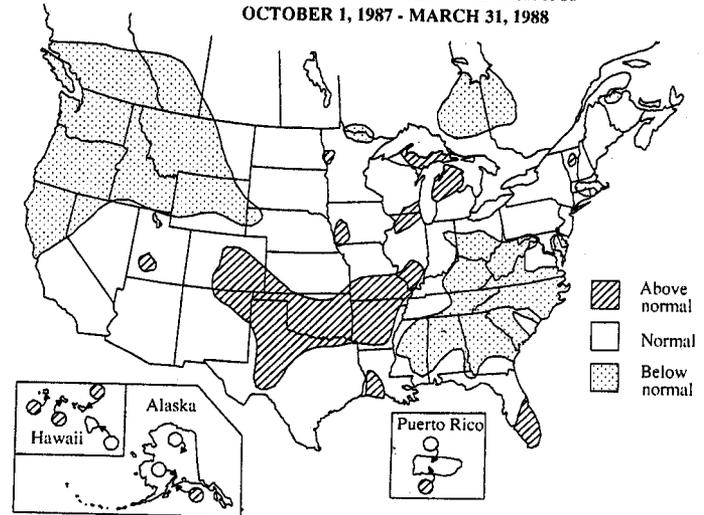
UNITED STATES  
Department of the Interior  
Geological Survey

CANADA  
Department of the Environment  
Water Resources Branch

MARCH 1988



## STREAMFLOW FOR FALL - WINTER 1988 OCTOBER 1, 1987 - MARCH 31, 1988



Below- and above-normal flow indicate the lowest and highest quartile (25 percent), respectively, in the reference period 1951-80.

Drought persisted in the Pacific Northwest for the 12th consecutive month. Total streamflow at the 17 index stations in Oregon, Washington, Idaho, and Montana was 35 percent below the total median, despite above-average precipitation in parts of the area during March. In the Southeast, total streamflow at the 39 index stations was 54 percent below the total median after decreasing by 12 percent from that for February. Streamflow for fall-winter 1988 was below normal in much of the West and most of the Southeast. Streamflow was in the normal to above-normal range at 58 percent of the index stations in southern Canada, the United States, and Puerto Rico, the lowest percentage of stations with flow in the normal to above-normal range for March in the last 6 years. Total March

flow for the index stations in the conterminous United States and southern Canada was 23 percent below median and the lowest for March in the last 6 years. Mean March elevations at the four master gages on the Great Lakes (provisional National Ocean Service data) were lower than those for March 1987. The combined flow of the three largest rivers in the lower 48 States (Mississippi, St. Lawrence, and Columbia) was 13 percent below median during March, after a 12-percent decrease from February to March, and was the lowest for March in the last 6 years. Contents of 60 percent of reporting reservoirs were near or above average for the end of March, compared with the 74 percent in those categories for February.

## GROWING DEGREE UNITS FOR CORN

Growing degree days are used to relate the cumulative effects of temperature above a given base to plant growth. The base temperature varies with type of crop.

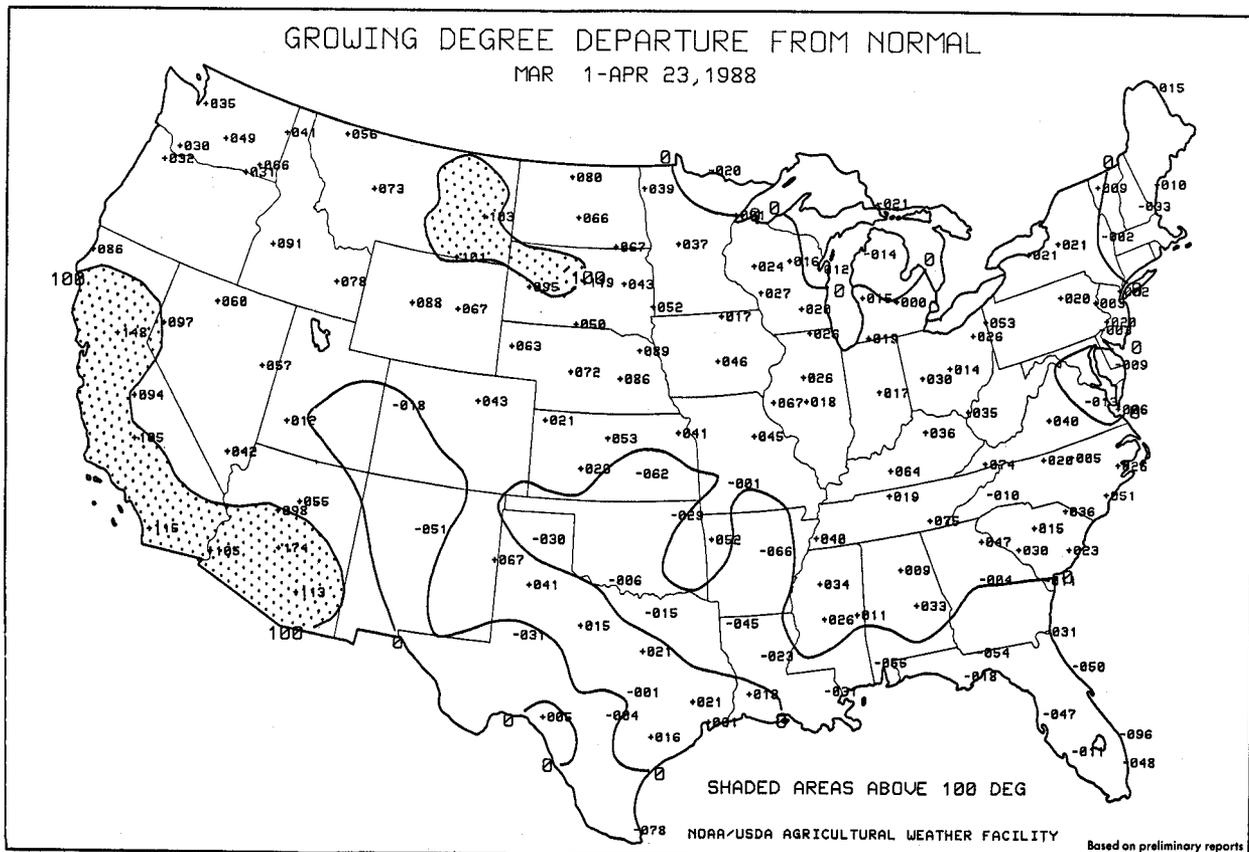
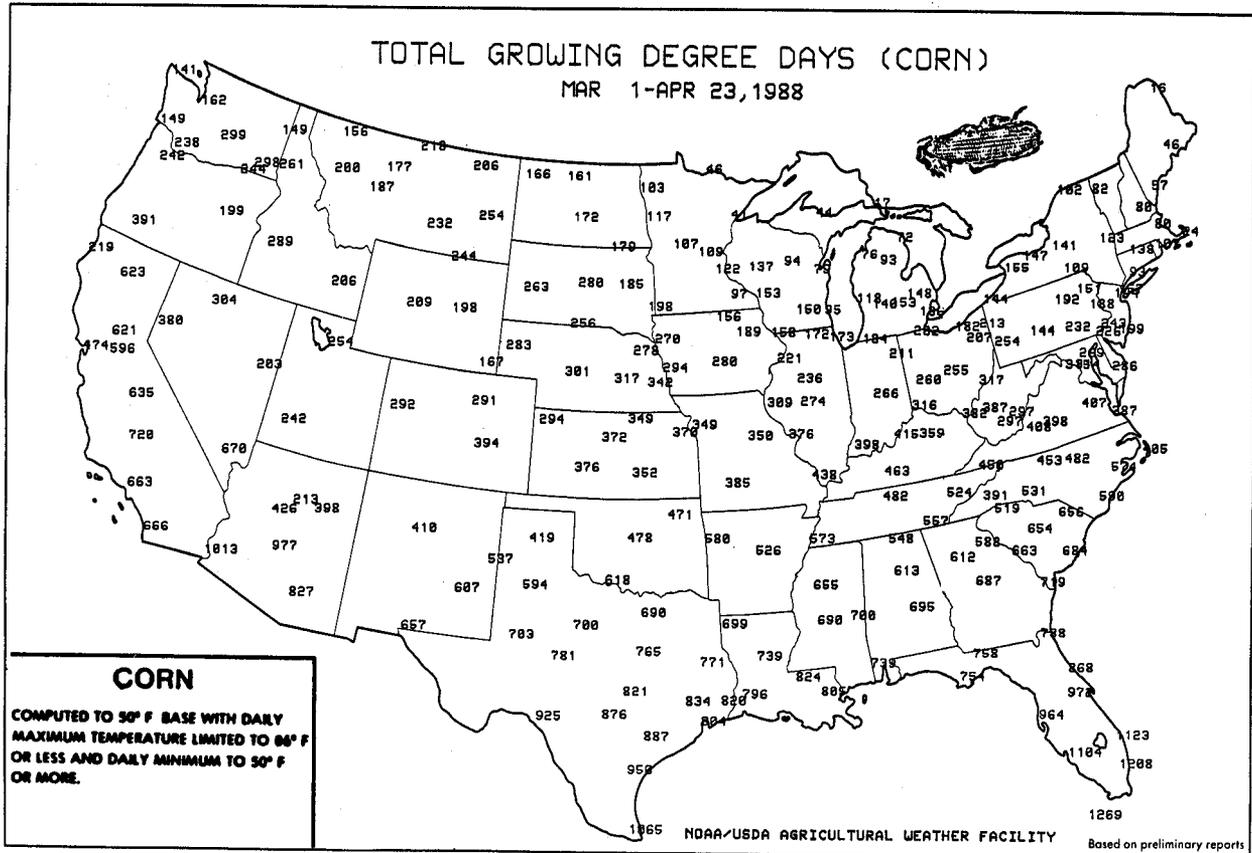
Common practice had been to label corn maturity in days. A 135-day variety presumably will reach maturity 135 days after it is planted. This system did not take into account the complicated physiological processes that control corn growth and development. The number of days required to reach maturity depends on the location of the planting and the weather that the plant is subjected to in a particular growing season. In most years, the period will be about 135 days.

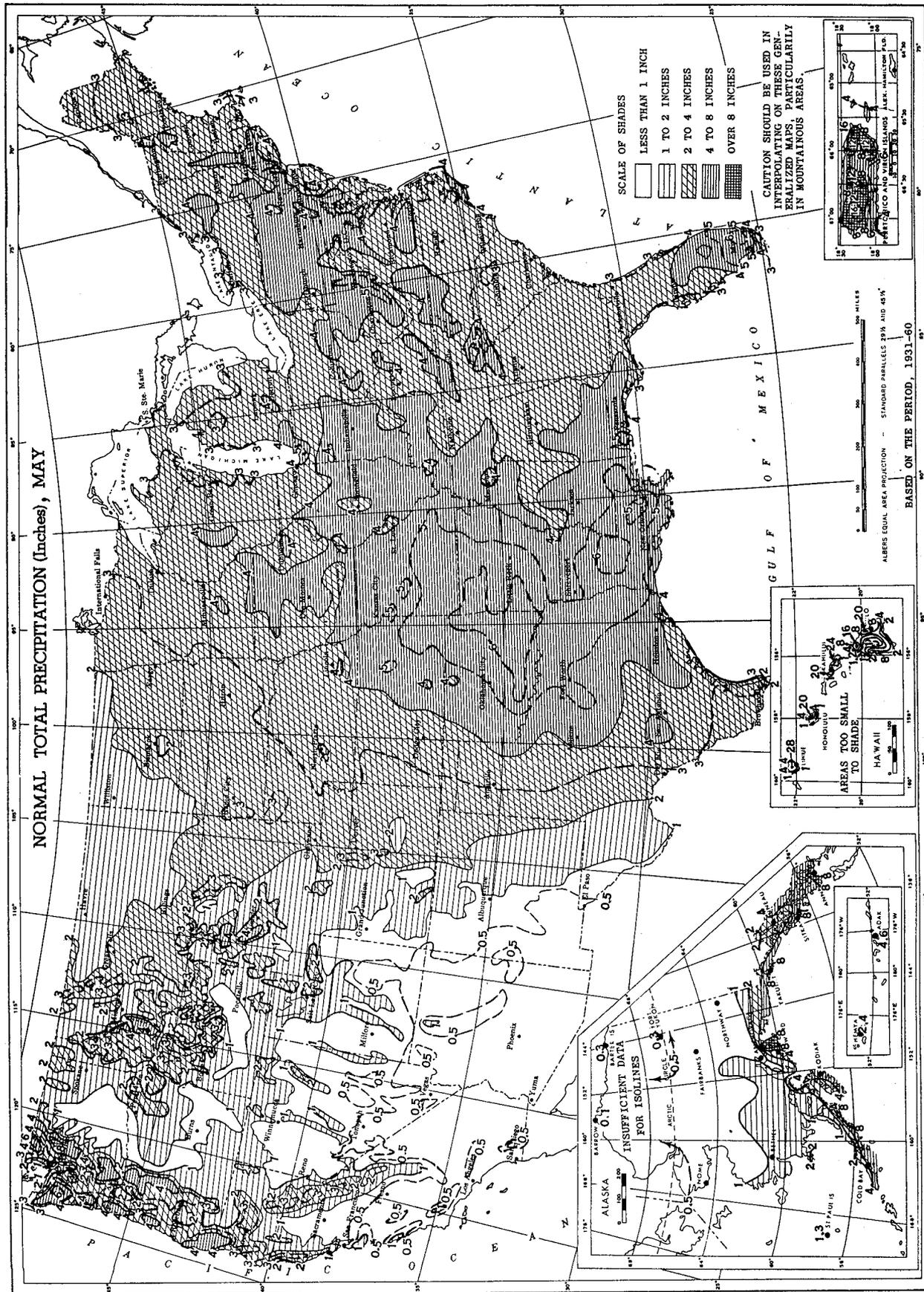
Each day does not contribute equally to the growth of plants. Growth is faster during the warm season than it is in cold weather. In contrast, summer temperature can be too high for optimum growth. Although other factors than temperature determine rate of growth, seed producers adopted the temperature-based Growing Degree Units (GDU) to express maturity in 1970, which was introduced in the Weekly Weather and Crop Bulletin in 1969.

GDU for corn is calculated by subtracting a base temperature of 50° F from the average of maximum and minimum temperatures for the day (corn does not grow much at temperatures below 50° F). As the temperature rises, corn grows faster if moisture is plentiful. At a temperature higher than 86° F, the roots, however, have increasing difficulty taking in water fast enough to keep the plant growing its optimum rate. GDU is calculated by the following equation:

$$\text{GDU} = (\text{max. temp.} + \text{min. temp.}) / 2 - 50.$$

Minimum temperatures below 50° F are counted as 50, and temperatures above 86° F are counted as 86. For example, a day with temperature extremes of 82° F and 60° F would have contributed 21 GDU. A day with a high temperature of 90° F and a low of 48° F will be considered as one with temperatures of 86° F and 50° F for calculation. That day would have had 18 GDU.





# National Weather Data for Selected Cities

## Weather Data for the Week Ending April 23, 1988

STATES AND STATIONS	TEMPERATURE °F							PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE		PRECIPITATION	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	76	50	83	36	63	-1	1.2	.1	1.0	6.1	59	13.7	67	97	47	0	0	4	1
MOBILE	79	59	85	46	69	-1	1.3	.1	1.3	11.9	113	22.8	113	97	59	0	0	1	1
MONTGOMERY	78	53	83	40	66	-1	3.8	2.9	2.8	10.4	112	21.8	120	96	51	0	0	4	2
AK ANCHORAGE	46	34	49	29	40	2	T	.1	T	.8	68	1.5	53	82	45	0	3	0	0
BARROW	25	14	32	6	20	18	T	0	T	.1	42	.2	25	96	83	0	7	1	0
FAIRBANKS	53	29	57	27	41	7	T	.1	T	.1	22	.6	38	80	29	0	6	0	0
JUNEAU	54	35	59	31	45	4	T	.7	T	6.0	110	15.1	116	98	46	0	2	1	0
KODIAK	45	34	49	31	39	1	1.0	.1	.8	13.5	205	30.7	175	90	58	0	2	5	1
NOME	35	26	38	19	31	10	.2	0	.1	1.1	107	2.9	127	90	73	0	7	3	0
AZ PHOENIX	76	56	86	50	66	-3	.6	.5	.4	1.3	125	2.4	103	82	33	0	0	2	0
PRESCOTT	56	37	65	32	46	-4	1.8	1.6	.9	2.6	120	4.4	80	79	46	0	1	5	1
TUCSON	77	50	84	43	64	-3	.1	0	.1	1.5	166	2.5	105	78	22	0	0	2	0
YUMA	77	56	83	51	67	-5	.1	.1	.1	.6	263	1.0	118	75	29	0	0	2	0
AR FORT SMITH	77	48	91	35	63	-1	1.1	.1	1.1	10.6	150	14.3	124	93	38	2	0	1	1
LITTLE ROCK	76	52	85	42	64	0	1.9	.6	1.4	8.0	91	14.2	85	79	44	0	0	2	1
CA BAKERSFIELD	70	50	78	46	60	-4	.8	.6	.3	1.4	101	2.6	75	97	38	0	0	3	0
EUREKA	59	48	63	41	53	4	.7	.1	.3	2.5	34	10.2	52	85	68	0	0	4	0
FRESNO	66	49	74	46	58	-4	1.6	1.3	1.0	2.7	107	5.0	78	96	45	0	0	4	1
LOS ANGELES	64	53	69	50	58	-2	.7	.5	.3	1.2	49	4.6	57	90	58	0	0	3	0
REDDING	63	48	69	40	55	-6	2.6	2.0	.9	3.5	49	10.9	49	96	54	0	0	4	3
SACRAMENTO	66	49	74	45	58	-2	1.5	1.2	.8	2.3	74	6.8	68	94	54	0	0	4	1
SAN DIEGO	65	55	68	51	60	-1	3.0	2.8	1.4	4.3	178	6.6	107	92	62	0	0	6	3
SAN FRANCISCO	62	50	66	47	56	0	1.9	1.6	1.3	2.0	53	6.3	54	90	56	0	0	4	1
CO DENVER	63	36	74	29	50	0	.6	.1	.2	1.9	76	2.9	79	91	35	0	2	4	0
GRAND JUNCTION	60	42	69	38	51	-2	.3	.3	.2	2.0	159	3.3	135	85	39	0	0	5	0
PUEBLO	71	41	80	37	56	3	T	.3	T	1.2	87	2.2	113	90	21	0	0	0	0
CT BRIDGEPORT	55	38	61	32	47	-4	.3	.6	.2	2.8	42	9.1	70	67	34	0	2	2	0
HARTFORD	55	34	62	30	45	-6	.2	.7	.1	2.8	38	10.1	72	71	29	0	3	2	0
DC WASHINGTON	62	43	69	35	53	-6	.1	.6	.1	3.6	63	9.2	83	77	34	0	0	2	0
FL APALACHICOLA	77	61	80	53	69	0	2.6	1.8	2.6	8.5	130	19.9	143	97	62	0	0	2	1
DAYTONA BEACH	86	58	93	54	72	1	.1	.5	.1	4.7	102	11.8	115	98	41	3	0	1	0
JACKSONVILLE	84	57	91	51	71	0	.3	.4	.3	3.4	60	15.8	128	97	39	1	0	2	0
KEY WEST	84	73	87	65	79	0	0	.4	0	1.7	74	6.9	115	91	63	0	0	0	0
MIAMI	87	67	90	61	77	1	.8	.1	.8	1.2	28	3.7	44	91	48	3	0	1	1
ORLANDO	88	61	91	58	74	1	T	.5	T	6.5	132	11.0	107	95	35	2	0	0	0
TALLAHASSEE	82	54	88	47	68	0	2.3	1.4	1.7	10.6	122	21.2	115	99	43	0	0	2	2
TAMPA	82	60	85	56	71	-2	1.0	.6	1.0	5.2	110	9.4	94	98	52	0	0	1	1
WEST PALM BEACH	88	64	93	60	76	2	T	.8	T	5.5	111	11.9	115	93	40	3	0	0	0
GA ATLANTA	77	52	84	41	65	1	3.0	2.0	1.6	8.1	86	16.0	85	83	36	0	0	4	2
AUGUSTA	80	47	89	36	64	-1	3.1	2.3	1.7	7.8	105	15.4	99	98	39	0	0	3	3
MACON	79	51	86	39	65	-2	2.1	1.3	1.0	6.2	79	14.1	84	96	44	0	0	4	2
SAVANNAH	82	56	92	45	69	2	1.7	.9	.6	5.2	83	12.7	101	87	35	1	0	3	2
HI HILO	81	65	82	63	73	0	.4	-2.5	.2	21.8	92	42.1	89	92	57	0	0	3	0
HONOLULU	86	72	88	70	79	3	T	.3	T	1.1	24	5.4	48	75	46	0	0	0	0
KAHULUI	85	66	86	62	75	1	T	.2	T	1.1	30	9.7	92	79	47	0	0	0	0
LIHUE	82	73	82	71	78	4	0	.7	0	2.0	28	13.5	79	81	63	0	0	0	0
ID BOISE	63	42	69	36	53	3	1.0	.7	.7	3.1	164	4.9	106	92	40	0	0	3	1
LEWISTON	60	46	67	43	53	2	.5	.3	.5	1.6	86	2.7	65	80	50	0	0	1	1
POCATELLO	61	41	77	31	51	5	.3	0	.1	1.5	84	2.8	74	87	35	0	1	4	0
IL CHICAGO	54	35	74	28	45	-6	.2	.7	.1	4.0	69	7.2	84	76	34	0	3	3	0
MOLINE	56	36	77	28	46	-7	.2	.7	.2	3.5	61	6.4	73	65	32	0	2	2	0
PEORIA	59	36	75	29	48	-6	.4	.5	.3	4.3	74	7.0	79	78	39	0	1	3	0
QUINCY	66	36	76	29	51	-4	.1	.8	.1	2.7	44	4.3	48	74	33	0	2	1	0
ROCKFORD	52	32	75	23	42	-8	.4	.7	.2	5.0	85	8.0	94	82	42	0	3	3	0
SPRINGFIELD	65	39	76	30	52	-4	.3	.7	.2	4.0	64	7.5	79	74	37	0	1	3	0
IN EVANSVILLE	71	39	85	31	55	-4	.5	.5	.5	4.6	60	11.8	85	93	36	0	2	2	0
FORT WAYNE	58	33	73	26	46	-6	.2	.6	.1	5.8	101	9.3	95	80	31	0	4	3	0
INDIANAPOLIS	62	36	70	30	49	-6	1.4	.6	.7	7.0	110	12.4	107	86	37	0	2	5	1
SOUTH BEND	54	34	73	25	44	-7	.4	.5	.2	5.4	86	9.6	89	82	35	0	3	4	0
IA DES MOINES	58	37	73	27	48	-5	T	.8	T	1.2	26	2.2	32	61	28	0	2	1	0
SIOUX CITY	56	33	65	22	44	-8	.4	.2	.3	2.5	72	3.6	72	67	28	0	2	3	0
WATERLOO	54	30	68	20	42	-8	.6	.3	.4	2.5	51	3.6	54	75	40	0	4	3	0
KS CONCORDIA	64	40	76	32	52	-4	.1	.5	.1	1.5	43	2.9	57	71	33	0	1	1	0
DODGE CITY	67	40	81	31	54	-3	1.0	.5	1.0	3.0	107	4.0	106	86	36	0	1	2	1
GOODLAND	63	35	75	28	49	-2	.6	.3	.4	2.4	133	4.2	165	96	44	0	3	3	0
TOPEKA	68	41	80	30	55	-2	.6	.2	.6	3.6	80	6.2	94	83	34	0	1	1	1
WICHITA	66	43	77	35	55	-4	1.3	.7	1.0	6.1	157	6.8	125	91	47	0	0	2	1
KY BOWLING GREEN	73	42	84	30	57	-2	.5	.4	.5	4.6	52	11.8	67	92	33	0	1	3	0
LEXINGTON	68	40	82	30	54	-3	.7	.2	.7	5.2	66	11.2	75	82	37	0	1	1	1
LOUISVILLE	71	41	82	32	56	-3	1.2	.2	.9	6.5	82	14.0	96	89	34	0	1	2	1
LA ALEXANDRIA	82	59	87	43	71	2	.3	-1.0	.2	11.2	122	16.3	88	88	48	0	0	2	0
BATON ROUGE	80	61	86	47	71	1	1.1	.2	1.1	11.8	132	28.2	152	96	56	0	0	2	1
LAKE CHARLES	80	62	85	48	71	1	T	.9	T	7.3	123	15.6	111	95	61	0	0	1	0
NEW ORLEANS	81	64	88	50	72	2	.1	-1.0	.1	17.2	213	32.2	175	98	62	0	0	1	0

Based on 1951-80 normals

Weather Data for the Week Ending April 23, 1988

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS				
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE °F		PRECIPITATION	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
SHREVEPORT	82	56	89	45	69	1	.4	-.8	.2	6.9	93	12.5	84	94	43	0	0	2	0
ME CARIBOU	44	32	55	26	38	2	1.0	-.4	.5	3.2	73	8.6	96	98	54	0	4	6	0
PORTLAND	51	35	54	29	43	1	.1	-.8	.1	3.5	51	8.8	61	74	38	0	1	2	0
MD BALTIMORE	61	39	68	32	50	2	.2	-.6	.1	3.6	57	10.1	82	72	29	0	2	2	0
SALISBURY	63	41	66	35	52	4	.4	-.3	.3	8.8	135	16.9	126	87	32	0	0	2	0
MA BOSTON	54	39	59	36	46	3	.2	-.7	.1	4.2	60	10.6	72	71	35	0	0	2	0
CHATHAM	51	40	54	36	46	2	.2	-.7	.2	4.4	63	12.3	79	72	53	0	0	2	0
MI ALPENA	49	26	69	20	37	6	.8	-.2	.6	5.0	131	7.6	110	90	35	0	7	2	1
DETROIT	57	33	77	28	45	4	.3	-.4	.1	2.5	51	5.9	69	79	31	0	4	4	0
FLINT	54	30	69	25	42	4	1.0	-.3	.4	4.0	89	6.8	90	86	34	0	5	4	0
GRAND RAPIDS	52	31	69	25	41	6	.9	0	.4	4.8	89	8.4	93	83	37	0	4	4	0
HOUGHTON LAKE	47	29	63	24	38	6	.5	-.2	.4	3.9	102	6.8	101	84	42	0	5	2	0
LANSING	54	30	70	22	42	6	1.0	-.3	.5	5.6	121	8.2	107	88	37	0	5	4	0
MARQUETTE	41	23	54	18	32	6	.4	-.5	.2	5.0	88	9.9	104	91	45	0	7	3	0
MUSKEGON	47	31	59	22	39	9	1.4	-.7	.5	5.0	100	9.5	106	82	45	0	4	4	1
SAULT ST. MARIE	42	25	51	22	34	4	.5	-.1	.3	5.0	130	9.0	117	89	48	0	6	3	0
MN ALEXANDRIA	53	28	57	22	40	4	.5	-.6	0	2.6	93	3.8	87	78	26	0	7	0	0
DULUTH	47	24	54	18	35	6	.4	-.5	.4	3.0	90	3.9	72	71	27	0	7	1	0
INT'L FALLS	45	21	49	17	33	8	.4	-.4	.4	1.9	84	2.5	65	78	29	0	7	0	0
MINNEAPOLIS	52	31	58	25	41	8	.6	-.1	.4	2.4	74	4.0	83	69	26	0	4	2	0
ROCHESTER	48	27	56	18	37	10	.4	-.2	.3	2.5	67	3.8	73	70	35	0	6	3	0
MS GREENWOOD	78	54	84	44	66	0	.9	-.3	.9	6.4	60	10.8	53	90	45	0	0	2	1
JACKSON	79	55	86	42	67	0	3.0	1.7	2.0	12.8	128	19.0	98	99	53	0	0	5	2
MERIDIAN	78	53	85	40	66	0	3.4	2.3	1.8	11.2	103	18.1	88	97	52	0	0	3	2
MO CAPE GIRARDEAU	72	44	80	33	58	9	.9	-.1	.5	5.2	62	10.6	73	97	41	0	0	2	1
COLUMBIA	68	40	84	34	54	4	.6	-.3	.6	6.1	96	9.9	98	76	36	0	0	2	0
KANSAS CITY	67	42	78	34	55	5	.2	-.6	.2	3.6	69	5.7	74	67	28	0	0	1	0
SAINT LOUIS	71	45	85	35	58	5	.5	-.4	.2	5.9	98	11.5	115	72	31	0	0	2	0
SPRINGFIELD	70	43	82	30	56	2	.4	-.5	.3	9.5	145	13.0	126	92	43	0	1	2	0
MT BILLINGS	55	35	69	28	45	2	.2	-.3	.1	1.3	54	2.5	60	74	40	0	2	2	0
GLASGOW	57	28	63	24	43	3	.2	-.2	.1	.5	62	1.2	82	54	23	0	6	0	0
GREAT FALLS	56	34	66	27	45	0	.2	-.2	.1	.8	40	2.0	55	82	36	0	2	3	0
HAVRE	61	30	67	23	45	0	.8	-.3	0	.5	32	1.0	40	63	23	0	5	0	0
HELENA	57	37	70	30	47	0	.8	-.6	.5	1.7	115	2.4	94	91	44	0	2	3	1
KALISPELL	60	41	74	32	51	6	.1	-.2	.1	1.1	66	2.9	67	76	37	0	1	2	0
MILES CITY	58	31	65	26	44	6	.1	-.3	.1	.3	21	.7	26	65	25	0	4	2	0
MISSOULA	59	40	77	30	50	4	.3	-.1	.2	1.5	100	2.9	76	89	41	0	1	4	0
NE GRAND ISLAND	59	36	70	23	47	1	.1	-.6	.1	1.7	47	3.1	65	70	32	0	1	2	0
LINCOLN	61	36	72	27	49	1	.1	-.7	.1	1.4	34	2.0	35	70	29	0	2	0	0
NORFOLK	55	33	67	24	44	7	.3	-.3	.3	1.8	58	3.0	68	69	32	0	3	1	0
NORTH PLATTE	59	32	72	22	45	5	.7	-.2	.6	2.3	93	3.0	90	91	39	0	3	2	1
OMAHA	58	37	69	27	48	4	.1	-.6	.1	1.4	35	2.0	35	79	37	0	1	1	0
SCOTTSBLUFF	59	29	75	19	44	7	2.1	1.7	1.2	3.2	159	4.1	143	88	40	0	4	3	2
VALENTINE	54	27	71	15	41	8	.1	-.3	.1	1.4	65	2.8	100	77	38	0	5	2	0
NV ELY	52	32	61	27	42	1	1.3	1.1	.6	1.8	113	3.1	104	93	47	0	4	7	1
LAS VEGAS	69	50	78	44	60	0	.1	0	.1	.8	136	1.7	112	76	33	0	0	1	0
RENO	58	37	64	27	48	1	.1	-.1	.1	1.0	91	1.5	46	74	27	0	2	0	0
WINNEMOCCA	55	37	62	29	46	1	1.2	1.0	.6	1.7	131	3.1	109	92	48	0	1	4	2
NH CONCORD	52	29	58	21	41	6	.1	-.6	.1	2.0	37	6.2	58	84	33	0	5	3	0
NJ ATLANTIC CITY	59	33	69	28	46	6	.3	-.4	.2	3.4	52	10.2	76	78	35	0	3	3	0
NM ALBUQUERQUE	65	40	74	35	53	4	.1	-.1	.1	2.3	304	2.6	166	74	24	0	0	2	0
CLOVIS	76	45	84	37	61	2	.1	-.2	.1	1.0	94	1.5	76	64	17	0	0	0	0
ROSWELL	77	47	86	41	62	0	.1	-.1	.1	.2	34	1.9	130	61	16	0	0	1	0
NY ALBANY	54	33	63	29	43	6	.1	-.6	.1	2.4	45	7.3	74	73	30	0	4	2	0
BINGHAMTON	50	28	62	24	39	7	.7	0	.6	3.0	57	8.4	82	89	35	0	7	3	1
BUFFALO	52	32	67	30	42	5	.6	-.2	.2	5.0	94	10.6	99	83	38	0	4	4	0
NEW YORK	59	41	66	38	50	4	.2	-.7	.1	3.1	44	9.1	69	71	33	0	0	2	0
ROCHESTER	53	29	62	27	41	7	.4	-.2	.2	3.3	73	6.2	67	92	37	0	7	4	0
SYRACUSE	53	32	66	28	43	6	.4	-.4	.2	3.4	60	7.0	64	87	37	0	5	5	0
NC ASHEVILLE	72	40	84	27	56	2	.7	-.1	.3	4.8	64	9.4	67	87	32	0	2	3	0
CHARLOTTE	74	47	88	36	60	2	.5	-.2	.5	5.6	76	10.1	67	85	34	0	0	3	0
GREENSBORO	70	42	80	30	56	4	1.1	.4	1.0	4.2	67	7.8	59	89	40	0	2	3	1
HATTERAS	65	52	75	45	59	2	.6	-.2	.5	6.5	102	16.3	106	88	56	0	0	3	0
NEW BERN	76	47	84	36	62	2	.8	-.1	.8	6.9	118	14.1	102	86	35	0	0	1	1
RALEIGH	72	43	80	30	58	3	1.7	1.1	1.7	5.3	90	10.9	84	91	40	0	1	2	1
WILMINGTON	75	50	83	37	62	2	.4	-.3	.4	6.8	109	14.2	106	94	44	0	0	2	0
ND BISMARCK	53	20	64	12	37	9	0	-.4	0	.9	51	2.0	73	73	21	0	7	0	0
FARGO	51	20	59	12	36	10	0	-.5	.1	1.0	45	2.9	90	67	22	0	7	0	0
GRAND FORKS	49	22	59	17	35	9	0	-.3	0	.9	51	1.7	56	71	25	0	7	0	0
WILLISTON	54	23	60	18	39	6	0	-.3	0	.8	52	1.8	73	64	19	0	7	0	0
OH AKRON-CANTON	59	32	79	26	46	6	.6	-.2	.4	4.4	75	8.2	77	81	32	0	4	4	0
CINCINNATI	66	36	81	26	51	5	1.4	.5	.7	7.3	109	15.0	119	86	35	0	2	4	2
CLEVELAND	59	34	79	28	46	4	.6	-.2	.2	4.8	87	8.7	85	86	31	0	2	4	0
COLUMBUS	63	35	81	27	49	5	.2	-.7	.1	4.6	80	11.0	102	82	30	0	3	3	0

Based on 1951-80 normals

Weather Data for the Week Ending April 23, 1988

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS				
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE °F		PRECIPITATION	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
DAYTON	61	35	79	28	48	-6	.5	-.3	.4	5.0	87	10.2	98	79	28	0	3	5	0
TOLEDO	59	32	76	24	46	-5	.3	-.5	.1	2.9	58	5.4	61	74	27	0	4	3	0
YOUNGSTOWN	58	30	79	26	44	-5	.3	-.5	.1	3.6	60	7.2	66	88	30	0	6	3	0
OK OKLAHOMA CITY	72	49	86	36	61	-2	1.4	.6	1.4	10.6	256	12.3	189	88	40	0	0	2	0
TULSA	72	49	87	37	61	-2	.7	-.3	.6	9.5	152	11.7	124	83	34	0	0	2	1
OR ASTORIA	56	43	65	36	50	1	.2	-.8	.1	10.6	97	20.8	70	95	65	0	0	2	1
BURNS	53	35	57	30	44	-1	.7	.5	.3	1.5	103	2.8	69	90	52	0	1	0	0
MEDFORD	61	43	67	36	52	1	.6	.4	.4	1.4	55	4.2	51	92	48	0	0	4	0
PENDELTON	57	44	64	40	50	-1	2.0	1.8	.7	3.1	174	5.1	109	87	61	0	0	4	3
FORTLAND	59	46	68	42	52	1	1.6	1.1	1.2	6.5	122	12.6	81	94	63	0	0	4	1
SALEM	59	43	64	34	51	1	.9	.4	.5	5.7	93	13.2	74	94	62	0	0	3	1
PA ALLENTOWN	57	34	65	31	46	-7	.3	-.7	.2	3.2	47	9.3	69	74	33	0	2	2	0
ERIE	54	33	66	29	43	-4	.6	-.3	.3	4.8	85	8.8	86	83	37	0	3	4	0
HARRISBURG	60	36	67	31	48	-7	.4	-.3	.3	3.8	64	9.3	79	70	28	0	2	2	0
PHILADELPHIA	59	37	67	32	48	-7	.4	-.4	.2	3.9	60	10.8	85	79	33	0	1	2	0
PITTSBURGH	61	33	80	27	47	-5	.2	-.6	.2	4.1	67	9.1	79	88	33	0	5	3	0
SCRAMTON	54	32	63	27	43	-8	.4	-.3	.2	3.0	61	6.8	73	73	29	0	4	2	0
RI PROVIDENCE	55	36	60	33	46	-4	.2	-.7	.1	4.5	62	12.5	82	73	31	0	0	2	0
SC CHARLESTON	79	54	91	44	67	1	1.3	.7	.8	4.1	66	9.3	71	97	40	1	0	3	1
COLUMBIA	80	49	91	37	65	-1	.9	.2	.3	4.9	61	11.0	67	94	35	1	0	3	0
FLORENCE	78	49	89	36	63	-2	.8	.2	.6	6.4	99	10.4	78	93	38	0	0	3	1
GREENVILLE	74	48	85	36	61	-1	1.2	.2	.4	7.1	75	12.8	70	85	36	0	0	3	0
SD ABERDEEN	54	23	65	12	38	-9	0	-.5	0	4	15	1.0	29	61	17	0	7	0	0
HURON	52	27	65	14	40	-6	.6	.1	.5	2.3	85	3.2	83	82	35	0	5	2	1
RAPID CITY	55	27	70	21	41	-6	.2	-.3	.2	.8	30	1.3	36	83	40	0	6	4	0
SIOUX FALLS	52	30	62	18	41	-9	1.0	.4	.6	3.0	90	4.8	100	76	40	0	0	3	1
TN CHATTANOOGA	77	49	86	33	63	1	.8	-.2	.6	5.1	52	14.1	71	93	31	0	4	4	1
KNOXVILLE	74	46	86	30	60	-1	.9	0	.6	4.7	56	11.9	69	92	37	0	2	3	1
MEMPHIS	77	53	85	42	65	1	1.4	0	1.2	7.1	72	14.8	78	91	42	0	2	2	1
NASHVILLE	74	44	83	30	59	-3	.7	-.3	.7	4.3	47	10.0	57	95	37	0	1	2	1
TX ABILENE	79	53	90	37	66	-1	1.5	-.9	1.5	2.6	91	3.0	62	78	26	1	0	1	1
AMARILLO	71	43	82	32	57	-2	.2	-.1	.2	3.3	210	3.7	139	79	26	0	1	2	0
AUSTIN	85	59	91	46	72	2	1	-.7	.1	3.7	93	4.3	53	93	33	1	0	1	0
BEAUMONT	81	61	86	50	71	1	1	-.4	1	1.4	87	6.9	157	95	57	2	0	0	0
BROWNSVILLE	85	67	92	58	76	2	2	-.5	0	.9	45	2.9	56	98	45	3	0	0	0
CORPUS CHRISTI	87	65	93	53	76	2	2	-.5	0	.2	7	.4	11	64	22	2	0	0	0
DEL RIO	87	61	92	47	74	1	1	-.5	1	.2	43	1.1	90	62	17	0	0	2	0
EL PASO	75	46	84	38	61	-5	1.1	.1	.1	3.7	67	5.8	64	87	38	0	0	2	1
FORT WORTH	78	54	88	37	66	-1	1.1	.1	1.1	4.7	113	8.5	89	96	64	0	0	1	0
GALVESTON	78	66	86	55	72	1	1	-.6	1	5.1	94	7.7	62	94	46	0	0	1	0
HOUSTON	83	60	88	47	72	1	1	-.9	1	1.9	94	7.7	62	94	46	0	0	1	0
LUBBOCK	77	48	87	40	62	0	.1	-.2	.1	1.9	118	2.6	101	75	21	0	0	2	0
MIDLAND	82	50	92	43	66	0	0	-.2	0	.8	79	1.3	64	61	14	2	0	0	0
SAN ANGELO	84	54	92	39	69	0	1.1	.7	1.1	2.0	96	2.4	68	79	20	2	0	1	1
SAN ANTONIO	87	60	93	47	74	1	1	-.6	1	1.6	48	2.9	43	90	32	2	0	1	0
VICTORIA	84	62	91	46	73	3	1	-.5	2	2.5	78	5.3	72	97	48	1	0	2	0
WACO	84	55	91	37	70	1	1	-.5	3	3.8	78	5.9	69	90	29	2	0	2	0
WICHITA FALLS	76	49	89	34	63	-3	1.6	.8	1.6	7.3	183	9.1	153	89	38	0	0	2	1
UT BLANDING	54	36	61	29	45	-4	.3	-.2	.1	.6	43	3.1	85	91	58	0	1	5	0
CEDAR CITY	52	36	58	33	44	-4	1.9	1.7	.9	4.6	249	6.2	187	99	64	0	0	5	2
SALT LAKE CITY	61	43	75	37	52	2	1.3	-.7	.8	2.4	69	3.6	58	90	41	0	0	5	1
VT BURLINGTON	51	31	58	26	41	-2	.6	-.3	.2	2.6	60	4.9	62	84	36	0	0	5	0
VA NORFOLK	66	45	78	36	56	.6	.3	-.1	.5	5.1	85	10.9	83	88	40	0	0	3	1
RICHMOND	66	42	76	31	54	.5	.5	-.1	.4	4.4	76	10.0	82	82	35	0	1	2	0
ROANOKE	66	42	73	34	54	.4	1.8	1.1	.9	4.3	71	7.2	60	81	36	0	0	5	1
WA QUILLAYUTE	58	40	71	37	49	-4	.3	-.2	.2	20.2	115	37.9	85	95	54	0	0	3	0
SEATTLE-TACOMA	58	44	68	39	51	-2	.1	-.4	.1	6.3	115	11.1	70	96	59	0	0	2	0
SPOKANE	59	43	64	38	51	-3	.1	-.2	.1	3.2	149	5.3	85	90	52	0	0	2	0
YAKIMA	61	45	66	38	53	-3	1.3	1.2	.8	1.6	159	2.2	72	92	50	0	0	4	1
WV BECKLEY	64	39	80	29	51	-2	1.6	.9	.5	5.0	76	8.9	67	83	31	0	0	3	1
CHARLESTON	67	39	85	29	53	-4	1.1	.3	.7	4.8	72	8.9	67	84	29	0	1	4	1
HUNTINGTON	68	39	85	27	53	-5	1.9	1.1	.8	6.0	90	10.4	81	90	29	0	1	3	2
PARKERSBURG	63	37	83	27	50	-6	.4	-.3	.3	5.6	91	8.4	72	82	27	0	1	3	0
WI GREEN BAY	50	28	64	22	39	-6	.6	-.1	.3	3.0	77	5.6	90	79	34	0	5	2	0
LACROSSE	52	31	62	25	41	-9	.3	-.4	.2	2.9	70	4.1	68	68	29	0	4	3	0
MADISON	53	27	68	19	40	-9	1.0	-.2	.5	3.4	76	5.7	85	79	33	0	6	3	1
MILWAUKEE	52	33	73	27	43	-9	1.0	-.2	.8	4.7	89	9.2	112	81	40	0	3	3	1
WAUSAU	47	29	57	25	38	-6	.6	-.1	.5	3.0	74	3.5	58	79	36	0	7	2	0
WY CASPER	59	31	70	22	45	-5	.5	-.2	.4	1.3	61	2.3	75	79	36	0	4	3	1
CHEYENNE	56	30	67	18	43	-1	1.7	1.4	1.2	3.1	170	4.3	163	89	37	0	4	3	0
LANDER	60	38	70	30	49	.9	.8	.2	.4	2.2	81	2.7	68	73	34	0	2	3	1
SHERIDAN	56	34	67	30	45	5	.5	.4	.7	1.8	71	3.3	80	84	42	0	4	3	1
FR SAN JUAN	88	74	90	72	81	2	.8	-.2	.6	4.3	89	10.4	105	90	42	1	4	3	1

Based on 1951-80 normals

## National Agricultural Summary

April 18 to 24, 1988

**HIGHLIGHTS:** Below-normal and subfreezing temperatures curtailed planting in the Corn Belt. Precipitation slowed planting in the central and southern Great Plains, Delta, and Southeast. The cold weather slowed wheat growth in the northern and central Great Plains and Corn Belt. Inadequate soil moisture continued plaguing the northern Great Plains. Fieldwork averaged less than 4 days in most Southeast and Delta States. Five to 6 days of fieldwork were common in most other areas.

Winter wheat was mostly good to fair. The lack of moisture hampered growth in the northern Great Plains, while disease and insects were the main culprits in the central Great Plains. Heading reached 5 percent (%) completion, trailing 6 percentage points behind normal. Wheat turned color in Arizona, Texas, Alabama, and Louisiana. Harvest is expected to begin soon in Texas. Spring wheat was 60% seeded, compared with the 22% 5-year average. Corn planting increased 9 points to 15% completion, 6 points above average. Planting was ahead of normal in virtually all States. Cotton planting reached 21% completion, 1 point behind normal. Sorghum was 17% seeded. Wetness slowed rice planting in the Delta, leaving seeding 6 points below the 36% average. Soybean planting was underway in Georgia, Ohio, Illinois, Arkansas, Oklahoma, and Texas. Livestock was mostly good.

**SMALL GRAINS:** Winter wheat and small grains were mostly good to fair except in the northern Great Plains where condition was mostly fair. Inadequate moisture continued plaguing fall seeded grains in the northern Great Plains. Below-normal temperatures restricted growth throughout most of the Great Plains and Corn Belt. Winter wheat was 5% headed in the 20 major producing States, compared with 8% in 1987 and 11% normally.

Timely precipitation benefited small grains in the Texas High Plains. Producers treated fields for aphids and wheat streak mosaic disease. Wheat turned color in central and southern areas, and harvest should begin soon at Coastal Bend. Russian wheat aphids plagued wheat in western Oklahoma. Fungicides were applied to reduce disease infestation. Heading was over a week behind normal at 5% completion. Normally, 20% of the acreage would be heading by this time. In Kansas, wheat streak mosaic was the most prevalent disease in wheat. Severely affected fields were ragged and growth was uneven. Powdery mildew increased across the State, especially in heavily seeded fields. Russian wheat aphids increased in western areas, and the weather greatly influenced chinch bug damage. Winter wheat was good to fair in Nebraska. Some fields were treated, and others were reaching treatment levels for Russian wheat aphids in the Panhandle and central areas. Winter wheat was severely moisture stressed in many areas of South Dakota.

Washington's wheat was mostly fair to good. Rain improved small grains in Oregon and California. Dryland small grains benefited in varying degrees in California.

Spring wheat seeding surged 28 points ahead of the previous week to 60% completion. Seeding was 38 points above average and 27 points ahead of 1987. Planting was ahead of normal in all States. In South Dakota, 84% of the acreage was seeded compared with the 38% average. Producers seeded 36% of their acreage in 1 week, reaching 67% completion in Minnesota. Emergence was just beginning. Idaho's planting lagged 17 points behind 1987 at 68% completion but was 12 points above normal. Spring wheat was 38% emerged.

**CORN:** Corn planting moved 9 points ahead of the previous week to 15% completion in the 17 major producing States. This compared with 11% seeded in 1987 and 9% seeded normally. Planting was underway in all States except Michigan and South Dakota. Seeding surpassed the average in nearly all States. Below-normal and sometimes freezing temperatures slowed planting in some Corn Belt States. Planting neared completion in Georgia and was 80% finished in Texas. Kansas producers seeded 20% of their acreage in 1 week, while 31% was seeded in Missouri.

**COTTON:** Cotton was 21% seeded, slightly behind normal and 3 points behind 1987. Planting was ahead of normal in only Alabama, Oklahoma, and Texas. Arizona and California's seedings were nearly three-fourths finished but still lagged 7 and 4 points behind normal, respectively. In California, some cotton may be reseeded because of crusting. Heavy hail defoliated emerged cotton which will require reseeding the Wasco area. Hail destroyed some stands in south-central Arizona. Unfavorable weather dramatically slowed planting. Cotton started squaring at Coastal Bend and in the Rio Grande Valley. South Carolina's plantings registered a 20-point deficit from normal at 11% completion.

**SORGHUM:** Wetness curtailed sorghum planting in the 11 major producing States, climbing only 2 points ahead of the previous week. Seventeen percent of the acreage was seeded, 1 point below average. Planting was just beginning in Missouri, Oklahoma, and Tennessee, but none was seeded in Illinois, Kansas, Nebraska, and South Dakota.

**OTHER CROPS:** Soybeans were 5% seeded in Arkansas. Planting was underway in Georgia, Ohio, Illinois, Oklahoma, and Texas.

Rice planting trailed 6 points behind normal mostly because of the 8-point deficit in Arkansas, 14-point in Louisiana, and 19-point in Mississippi. Seeding stood still in Louisiana and was virtually unchanged in Mississippi, Texas, and California.

Peanut planting trailed behind normal in some Southeast States and in Texas. Nineteen percent of the acreage was seeded in Alabama. Seeding was 3 points behind normal in Georgia at 17% completion. Peanut planters were still idle in North Carolina.

Tobacco transplanting progressed normally in the Southeast. Tobacco plants were 70 and 85% emerged in Kentucky and Tennessee, respectively.

**FRUITS AND NUTS:** Frost damaged peaches and apples in the Appalachian and some Corn Belt States. Freezing temperatures damaged cherry tree buds in Michigan. Peaches reached the petal fall stage in southern New Jersey. Peach condition improved in South Carolina.

Rain delayed avocado and citrus harvests in California. Hail damaged almonds, apricots, peaches, and plums in isolated areas of the San Joaquin Valley. Valencia orange and grapefruit harvests progressed well in western and central Arizona. Texas' citrus growers were busy irrigating and treating for insects. In Florida, citrus producers irrigated extensively. Valencia harvest increased but grapefruit movement slowed.

**VEGETABLES:** Very little precipitation caused heavy irrigation in Florida's vegetable producing areas. The first watermelons were harvested in the Immokalee area. High winds plagued watermelon

(Continued to p. 19)

## 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 NASS State Statistical Offices in cooperation with the National Weather Service.

**ALABAMA:** Rainfall totals ranged 2.00 to 4.00 in. central; at least 1.00 in. southern two-thirds; less than 0.50 in. extreme north. Temperatures averaged close to normal; scattered frost north.

Days suitable for fieldwork 4.0. Soil moisture 11% short, 85% adequate, 4% surplus. Showers interrupted field activities, provided needed moisture. Acreage intended for spring planting 82% prepared, 78% 1987. Corn 79% planted, 74% 1987, 63% avg. Sorghum 20% planted, 13% 1987, 11% avg. Cotton 31% planted, 59% 1987, 28% avg. Peanuts 19% planted, 15% 1987, 14% avg. Wheat 59% headed, 53% 1987, 51% avg.; 13% turning color, 7% 1987, 3% avg.; 30% fair, 68% good, 2% excellent. Damage from late March freeze more visible Mobile County wheat fields. Livestock, poultry mostly good. Primary activities: Land preparation, seeding spring crops; applying fertilizer, lime, herbicides to cropland; planting vegetables; applying fungicides to commercial vegetables, fruit, nuts; maintaining equipment; routine care of livestock, poultry.

**ARIZONA:** Late winter storm, 1 to 10 in. snow Mogollon Rim, White Mountains 17th. Remainder State cloudy, scattered showers 17th. Sunny, warmer conditions 19th, 20th. Another late winter storm, substantial moisture 21st, 22nd. Snow level reached 4,500 ft. 22nd. Moisture amounts 0.50 to 2.00 in. west, north; less than 0.10 in. southeast. Fast moving disturbance 23rd, 24th. High country 1 to 4 in. snow; light rain lower elevations. Average temperatures 2 to 9° below normal.

Unfavorable weather dramatically slowed plantings cotton crop. Statewide 72% planted, 83% 1987, 85% avg. Wet, cool, humid conditions created problems west, dampening off some stands. Planting continued as conditions allowed; cultivation, furrowing out in established stands. Hail storm south central 16th destroyed some stands. Some replanting required due to drownings, late removal of caps. Statewide alfalfa good to excellent; weed, insect infestations hindered crop southeast. Rains damaged cut, wind-rowed alfalfa west; good regrowth, second cuttings. Elsewhere, heavy rains slowed harvest to minimum. Small grains good to excellent statewide; 75% heading, 30% turning color. West, spring vegetable season almost complete. Asparagus, cauliflower harvested, shipped west. Artichokes harvested, shipped Parker area; should complete this week. Cantaloups, watermelons, honeydews good to excellent; average size fruit. Grapes continued good progress; fruit began to develop size. Red potatoes harvested, shipped central. Head lettuce harvest, shipping continued from Maricopa, Aguila, Marana-Eloy area. Other mixed vegetables shipped Salt River Valley. Valencia orange, grapefruit harvest progressed west, central. Citrus groves generally good; favorable crop prospects expected next season.

**ARKANSAS:** Cooler weather across State. Temperatures slightly below normal. Temperature extremes 33°, 91°. All sections moderate rainfall. Rainfall totals 0.15 to 2.51 in.

Days suitable for fieldwork 4.0. Soil moisture supplies 1% short, 70% adequate, 29% surplus. Rain, wet soils limited land preparation and planting row crops. Cotton 23% poor, 57% fair, 20% good. Rice 23% poor, 23% fair, 46% good, 8% excellent. Soybeans less than 5% planted. Sorghum 14% fair, 67% good, 19% excellent. Corn 74%

planted, 84% 1987, 70% normal; 21% fair, 68% good, 11% excellent. Tomatoes setting fruit. Peaches, strawberries, blueberries good bloom set. Watermelon crop being planted. Hay, pastures making excellent growth. Livestock good.

**CALIFORNIA:** High pressure finally weakened allowed low pressure area to develop. Rain over much of State with Blue Canyon receiving just over 4.50 in. Temperatures mostly below normal.

Widespread showers stopped field activities. Cool weather slowed crop progress. Seeding cotton, rice, virtual standstill. Some seeded cotton not emerged to be reseeded, crusting. Heavy hail Wasco area defoliated emerged cotton, require reseeded. Thick layers hail ruined alfalfa cutting Wasco area. Cut hay damaged all areas. Headed oats, barley lodged extensively. Dryland grain not previously lost benefited varying degrees. Rain slowed activities. Hail damage to almonds, apricots, peaches, plums in isolated areas of San Joaquin Valley. Rain delayed avocado, citrus picking. Navel orange harvest slowed; valencia orange harvest continued. Cool days with rain slowed field activity decreased sizes of vegetables. Artichoke volume heavy good quality Castroville. Asparagus movement light Sacramento Valley, slowed by rain Delta. Broccoli supplies heavy, good quality Salinas, Santa Maria. Broccoli harvest active Westside, slow Merced-Atwater. Cauliflower movement light to moderate, good quality Salinas, Santa Maria; harvest active Westside. Carrots harvested Riverside. Celery harvest continued south, central coast. Lettuce volume increased variable quality Salinas, decreased variable quality central San Joaquin Valley. Potato sheds operated full-time Tulelake where growers continued to prepare ground. Strawberry production continued south coast, supplies moderate, good quality central coast. Tomato planting finished Sacramento Valley, continued Huron area. Livestock good statewide. Rains benefited rangeland, pastures northern counties, higher elevations. Grasses lower elevations past maturity, actually lost nutrient value due to rain. Livestock movement heavy Redding area, slowed other areas, herd reductions accomplished. Supplemental feeding heavy Redding. Water supply levels improved, still below normal.

**COLORADO:** Showers, thunderstorms early week, weekend. Precipitation none to 0.95 in. Average temperature 2 to 5° above normal.

Days suitable for fieldwork 4.3. Soil moisture supplies 18% short, 74% adequate, 8% surplus. Winter wheat good, 15% jointed. Other small grain plantings, emergence ahead of 1987 and avg. Livestock good, death losses avg. Calving, lambing near 80%. Stored feed supplies adequate.

**FLORIDA:** Southerly flow mild temperatures statewide, 18th with cloudiness, few showers extreme north. Late season, strong cold front moved down State 19th. Rain, rain showers, thunderstorms, preceded, accompanied front. Tornado, Madison area, four fatalities. Heavy rains extreme south Florida night of 18th, morning of 19th. Sunny skies, warm temperatures returned remainder of week.

Soil moisture mostly adequate, western, central Panhandle, short along much of upper eastern Peninsula, short to adequate elsewhere. Tobacco transplanting, corn planting completed. Peanut planting active. Land preparation cotton, soybeans, sorghum continued. Winter wheat, other

small grain mostly good. Corn, sugarcane good growth. Warmer temperatures, rains some areas promoted forage growth. Grazing mostly fair; few areas Panhandle, Peninsula good or better. Cattle continued fair to mostly good. Citrus groves very good. Rain needed; extensive irrigation. Valencia oranges holding well; harvest increased. Grapefruit movement slowed. Temple harvest all but over. Honey tangerine movement slowed. Caretakers post bloom sprayed cultivated, irrigated. Mild days, cool nights vegetable producing areas. Very little precipitation; irrigation extensive. Crops fair to good. Harvest active. Volume leaders: Tomatoes, potatoes, cucumbers, peppers, sweet corn, cabbage. Also good volume celery, squash, snap beans, carrots, lettuce, radishes, strawberries. First immokalee watermelons harvested.

**GEORGIA:** Rain extreme north less than 1.00 in.; central, south 2.00 to 3.00 in.; isolated totals 5.00 in. Temperatures 2 to 4° above normal north, south; near normal central. Warmest low 80s north to low 90s central, south. Coldest 30s north to low 50s south. Blairsville, Clayton lows 26°. Frost over north morning 20th.

Days suitable for fieldwork 4.2. Soil moisture 9% short, 78% adequate, 13% surplus. Corn 14% fair, 71% good, 15% excellent; planting ahead of average. Cotton 4% poor, 53% fair, 43% good. Peanuts 3% poor, 52% fair, 45% good; 17% planted, 14% 1987, 20% avg. Soybeans 1% planted, 1% 1987, 2% avg. Tobacco 2% poor, 40% fair, 57% good, 1% excellent; 91% transplanted, 78% 1987, 91% avg. Washing, high wind damage. Watermelons 91% planted, 88% 1987, 88% avg.; improved. Wheat 93% jointing, 99% 1987, 98% avg.; 66% boot, 87% 1987, 89% avg. Some tall stands south blown over, but improved. Small grains helped by rain. Apples bloomed 100%. Peaches 98% good, 2% excellent. Pastures mostly good; applied herbicides, fertilizer. Livestock, poultry good. Main activities: Onion harvest underway. Some damage vegetables wind, rain.

**HAWAII:** Favorable weather. Mostly sunny, warm days. Cooler nights. Light showers, windward areas. Temperatures low 70s to mid 80s. Rainfall none to 1.50 in. Trade winds 10 to 30 mph.

Days suitable for fieldwork 7.0. Field activity increased. Crops generally good. Papaya production up seasonally. Banana production steady. Head cabbage output moderate to heavy, good quality. Chinese cabbage production steady, mainland shipments down. Lettuce output steady. Watermelon production up, higher than normal yields. Tomato production steady. Ginger root planting increased.

**IDAHO:** Temperatures 2 to 8° above normal. Precipitation varied north, east, south central, above normal southwest.

Days suitable for fieldwork 5.0. Soil moisture 5% very short, 48% short, 47% adequate. Irrigation water supplies fair. Spring wheat 68% seeded, 86% 1987, 56% avg.; 38% emerged. Winter wheat good. Barley 64% seeded, 80% 1987, 41% avg. Oats 46% seeded, 73% 1987, 43% avg. Sugarbeet planting virtually complete, 33% emerged. Dry peas 14% planted, 67% 1987, 37% avg. Potatoes 11% planted, 17% 1987, 16% avg. Hay, roughage supplies adequate. Livestock good. Calving, lambing neared completion.

**ILLINOIS:** Temperatures averaged 5 to 10° below normal. Precipitation averaged 0.20 to 0.50 in.; 1.00 in. isolated spots northwest, extreme southern areas.

Days suitable for fieldwork 5.8. Soil moisture 26% short, 70% adequate, 4% surplus. Soybeans 1% planted, none 1987, none avg. Oats 91% planted,

92% 1987, 68% avg. Alfalfa 4% fair, 82% good, 14% excellent. Pasture 18% fair, 70% good, 12% excellent; supplying livestock roughage requirement 53%, 56% 1987, 48% avg.

**INDIANA:** Temperatures 5 to 10° below normal. Lows mid 20s to upper 30s, highs 50s to low 70s. Precipitation below normal. Totals 0.50 to 1.00 in. central, below 0.50 in. elsewhere. Soil temperatures below normal.

Days suitable for fieldwork 5.0. Topsoil moisture 11% short, 81% adequate, 8% surplus. Subsoil moisture 10% short, 88% adequate, 2% surplus. Spring cropland 87% tilled, 88% 1987, 74% avg. Wheat 10 in. high, 9 in. 1987, 8 in. avg. Wheat 34% jointed, 31% 1987, 26% avg. Oats 80% seeded, 90% 1987, 78% avg. Clover 91% seeded, 91% 1987, 80% avg. Tobacco beds 88% seeded, 93% 1987. Pastures 6% poor, 46% fair, 44% good, 4% excellent. Planting, tilling slowed by rain, sub-freezing temperatures.

**IOWA:** Cool week. Temperatures averaged 5° below normal southwest to 9° below average northeast. Temperature extremes 15° Sheldon 19th to 73° Council Bluffs 24th. Moderate precipitation north, east. Southern half State no precipitation.

Days suitable for fieldwork 6.0. Topsoil moisture 78% short, 22% adequate; subsoil moisture 39% short, 61% adequate. Winter wheat 9% poor, 35% fair, 51% good, 5% excellent; hay 1% very poor, 13% poor, 49% fair, 34% good, 3% excellent. Oats 97% sown, 80% 1987, 64% avg.; 38% emerged, 37% 1987, 30% avg. Seedbed preparation 90%; fertilizer application 85%, 65% 1987, 58% avg. Livestock mostly good. Dusty feedlots caused dust related diseases. Some TGE in swine herds.

**KANSAS:** Temperatures averaged 51° northwest to 60° southeast; 4° below normal southwest, within 2 to 3° of normal elsewhere. Precipitation heaviest south, 0.10 in. extreme north to 1.50 in. southeast.

Days suitable for fieldwork 4.5. Topsoil moisture 33% short, 56% adequate, 11% surplus. Subsoil 29% short, 63% adequate, 8% surplus. Wheat 60% jointing, 80% 1987, 55% avg. Russian wheat aphid increased western third, still light levels. Chinch bugs present wheat, other small grains. Weather greatly influence chinch bug damage. Wheat streak mosaic most prevalent disease, light to severe western two-thirds. Severely affected fields ragged, uneven growth caused by disease. Powdery mildew increased across State, especially thick planted wheat. Oat, barley seeding virtually complete. Seedbed preparation spring row crops. Alfalfa weevils eastern two-thirds, light to severe. Spraying for control. Spring black stem increased central, east; defoliation some areas. Range, pastures good statewide; best conditions east central, southeast; worst northwest. Cattle off wheat to grass. Pastures supplying 45% roughage requirements. Feed grain, hay and forage in adequate supply.

**KENTUCKY:** Temperatures cool first half, again 24th. Warming trend last half sent highs into 80s 22nd, 23rd. Precipitation averaged 0.75 to 1.00 in. Rain widespread 18th, spotty showers last half week.

Days suitable for fieldwork 3.9. Soil moisture 25% short, 71% adequate, 3% surplus. Corn plantings slow, tobacco plants 70% emerged, winter wheat good. Some frost damage peaches, apples. Pastures fair to good, alfalfa weevil heavy some areas.

**LOUISIANA:** Temperatures normal to 2° above normal. Temperature extremes 39°; 89°. Rainfall averaged 0.03 to 1.32 in.

Days suitable for fieldwork 5.6. Soil moisture 15% short, 85% adequate. Spring plowing 80%, 78% 1987, 79% avg. Corn fair to good; 88% planted, 81% 1987, 84% avg.; 60% emerged, 62% 1987, 74% avg. Rice 32% emerged, 43% 1987, 45% avg. Sorghum 8% emerged, 16% 1987, 25% avg. Sweetpotatoes 7% planted, 5% 1987, 10% avg. Winter wheat fair to good; 94% headed, 87% 1987, 74% avg.; 3% turning color, 9% 1987, 13% avg. Livestock good. Sugarcane, vegetables, pastures fair to good. Harvesting strawberries, crawfish. Main activities: Spring plowing; fertilizing pastures; harvesting vegetables; planting corn, cotton, rice, sorghum, sweetpotatoes, vegetables.

**MARYLAND & DELAWARE:** Maryland: Precipitation averaged 0.33 in. Average temperature 50°, normal 55°. Temperature extremes 25°; 71°.

Days suitable for fieldwork 5.2. Topsoil, subsoil moisture adequate. Acreage 63% prepared for planting, 63% 1987. Field corn 12% planted. Small grains good. Potatoes 96% planted.

**Delaware:** Precipitation averaged 0.29 in. Average temperature 49°, normal 55°. Temperature extremes 31°; 68°.

Days suitable for fieldwork 7.0. Topsoil, subsoil moisture adequate. Acreage 55% prepared for planting, 60% 1987. Field corn 10% planted. Small grains good. Potatoes 94% planted.

**MICHIGAN:** Temperatures ranged 5 to 8° below normal. Temperature extremes 18°; 77°. Precipitation ranged 0.21 to 1.78 in. across State.

Winter wheat good. Pastures improved. Corn planting not started. Some fruit buds, primarily cherries, damaged by freezing temperatures southwest area. Activities: Sowing oats, working soils, fertilizing, orchard spraying, marketing grain, livestock, preparing machinery for planting. Livestock good. Feed supplies adequate.

**MINNESOTA:** Temperatures averaged 7 to 10° below normal. Temperature extremes 12°; 69°. Precipitation averaged 0.22 to 0.36 in. above normal southwest, south central; 0.11 to 0.52 in. below normal elsewhere. Greatest weekly total 1.28 in.

Days suitable for fieldwork 5.9. Topsoil moisture 36% very short, 53% short, 11% adequate. Spring wheat 67% planted, 62% 1987, 23% avg.; 5% emerged, 19% 1987, 5% avg. Oats 73% planted, 76% 1987, 34% avg.; 7% emerged, 34% 1987, 9% avg. Barley 55% planted, 48% 1987, 18% avg.; 1% emerged, 8% 1987, 2% avg. Corn 41% land prepared, 51% 1987, 17% avg.; 7% planted, 16% 1987, 3% avg. Soybeans 17% land prepared, 25% 1987, 7% avg.; none planted. Sunflowers none planted, 1% 1987, none avg. Sugarbeets 72% planted, 38% 1987, 8% avg. Potatoes 6% planted, 7% 1987, 2% avg. Flaxseed 8% planted, 1% 1987, none avg. Sweet corn 1% planted, 6% 1987, 1% avg. Green peas 38% planted, 39% 1987, 22% avg. Fall seeded grains 13% dormant, 15% poor, 46% fair, 24% good, 2% excellent. Hay fields 18% dormant, 17% poor, 44% fair, 19% good, 2% excellent. Pastures 18% dormant, 22% poor, 45% fair, 14% good, 1% excellent.

**MISSISSIPPI:** Temperatures near normal. Extremes 33°; 87°. Rainfall averaged 1.00 to 2.00 in. Greatest 24-hour total rainfall 2.22 in. Greatest weekly rainfall 3.45 in.

Days suitable for fieldwork 2.8, 6.1 1987, 4.7 avg. Soil moisture 60% adequate, 30% surplus, 10% excessive. Fieldwork limited; mostly shopwork. Corn 51% planted, 62% 1987, 63% avg.; 34% emerged, 33% 1987, 41% avg. Wheat good; 55% heading, 47% 1987, 54% avg.; some fungicide being applied. Rice 18% planted, 27% 1987, 37% avg. Sorghum 18% planted, 20% 1987, 26% avg. Cotton 4% planted, 8%

1987, 14% avg.; soil temperatures still too low. Pastures, livestock good. Peaches 20% poor, 20% fair, 55% good, 5% excellent. Peanut, watermelon planting behind.

**MISSOURI:** Temperatures 3° below normal, coolest eastern half. Precipitation 1.50 in. Bootheel, over 2.50 in. localized west central area, less than 0.50 in. elsewhere.

Days suitable for fieldwork 5.1. Topsoil moisture 41% short, 49% adequate, 10% surplus. Tillage for spring crops 78%, 66% 1987, 56% avg. Oats 96% seeded, 90% 1987, 76% avg. Pastures 1% very poor, 11% poor, 35% fair, 50% good, 3% excellent.

**MONTANA:** Temperatures above normal 3 to 5° west, southwest. central about normal. Eastern temperatures 2 to 5° below normal. Precipitation 0.25 to 1.25 in. west, southwest, central, south central. North central, northeast, southeast remained dry.

Days suitable for fieldwork 6.1. Topsoil moisture 76% short, 18% adequate, 6% surplus. Subsoil moisture 60% short, 38% adequate, 2% surplus. Winter wheat 27% greening, 73% green; growing. Barley 53% planted, 20% 1987, 27% avg.; 4% emerged. Oats 47% planted, 9% 1987, 18% avg. Sugarbeets 78% planted, 14% 1987, 20% avg. Calving 89%, 81% 1987, 82% avg. Lambing 82%, 70% 1987, 73% avg. Range grass growth compared with average 69% slow, 26% avg., 5% above.

**NEBRASKA:** Week started out mild but turned colder. West, north central portions heavy snow while east scattered thunder showers. Precipitation ranged 2.00 in. Panhandle to less than 0.10 in. extreme east. Temperatures averaged 4 to 8° below normal. Extremes 11°; 75°.

Days suitable for fieldwork 6.0. Topsoil moisture 71% short, 29% adequate. Subsoil moisture 32% short, 68% adequate. Winter wheat 36% fair, 60% good, 4% excellent; 4% joint stage. Some fields treated, reaching treatment levels for Russian wheat aphids in Panhandle, central. Populations of wheat curl mites found in portion of Panhandle could lead to streak mosaic problems. Corn 6% planted, 3% 1987, 3% avg. Oats 90% seeded, 83% 1987, 63% avg. Dry soil conditions, cool soil temperatures slowed corn planting and emergence of spring seeded small grains. Summer pastures continued to be slow greening up. Some cattle continued to be turned out on summer pasture. Scour problems evident young calves Panhandle, southwest.

**NEVADA:** Series low pressure systems early, midweek brought cooler air, showers, scattered thunderstorms. Moderate snow central mountains. System accumulated up to 6 in. new snow. Snow again accumulated several inches central areas late. Temperatures generally few degrees below normal, south off about 6°. Temperature extremes 21°; 84°.

Progress fieldwork, planting operations slowed by inclement weather. Alfalfa harvest full swing extreme south. Planting fall potatoes getting off to late start.

**NEW ENGLAND:** Precipitation averaged 0.25 to 0.50 in. north, less than 0.25 in. south. Average temperatures ranged upper 30s northern Maine, Vermont to mid 40s coastal south. Temperatures 3 to 6° below normal.

Major farm activities: Field, machinery preparation for spring planting; tending livestock.

**NEW JERSEY:** Temperatures averaged much below normal. Extremes 24°; 71°. Rainfall averaged 0.25 in. north, 0.21 in. central, 0.44 in. south. Heaviest 24-hour total 1.12 in. on 23th, 24th.

Estimated soil moisture percent field capacity averaged 92% north, south; 91% central, 90% south. Four inch soil temperatures averaged 46° north, 47° central, 47° south.

Soil moisture most areas of State, remained adequate for germination and growth of early season crops. However, cool temperatures continued to slow growth. Peaches petal fall stage southern counties. Harvest of asparagus, greens, radishes, spinach progressed. Limited tomato planting begun. Oat planting neared completion. Soil preparation active for field corn. Hay, pasture growth increased.

**NEW MEXICO:** Average weekly temperatures near normal eastern plains; below normal central, west. Some precipitation scattered localities.

Days suitable for fieldwork 6.0. Soil moisture 67% short, 33% adequate. Barley 40% fair, 60% good. Wheat 43% poor, 31% fair, 26% good; 5% heading. Cotton 44% planted. Onions 33% fair, 67% good. Lettuce 100% fair. Cattle 7% poor, 53% fair, 40% good. Sheep 50% fair, 50% good. Range 7% very poor, 21% poor, 65% fair, 7% good.

**NEW YORK:** Temperatures 3 to 6° below normal. Precipitation variable, heaviest southern tier. Snow Adirondacks.

Plowing underway. Seeding oats. Soils still cold, waiting for warm temperatures to plant corn. Fruit in green tip to half inch green stage. Onion planting well underway. Asparagus emerging.

**NORTH CAROLINA:** Temperatures averaged 1 to 4° below normal across State. Temperature extremes 25°; 88°. Precipitation ranged 0.36 to 1.94 in. across State.

Days suitable for fieldwork 3.6. Soil moisture 3% short, 79% adequate, 18% surplus. Oats 2% poor, 17% fair, 75% good, 6% excellent. Barley 2% poor, 15% fair, 73% good, 10% excellent. Rye 2% poor, 13% fair, 80% good, 5% excellent. Pasture 3% poor, 20% fair, 73% good, 4% excellent. Hay and roughage supplies 91% adequate, 9% surplus. Feed grain supplies 4% short, 92% adequate, 4% surplus. Tobacco 14% transplanted, 7% 1987, 14% avg.; plantbeds 6% poor, 18% fair, 72% good, 4% excellent. Tobacco plant supplies 7% short, 91% adequate, 2% surplus. Irish potatoes 19% fair, 76% good, 5% excellent. Peaches 18% fair, 76% good, 6% excellent. Truck crops 8% poor, 33% fair, 59% good. Sorghum 12% planted, 4% 1987, 9% avg. Major farm activities: Planting corn; preparing land for spring planting; tending tobacco plantbeds; bedding land for tobacco transplanting; transplanting tobacco, peppers, cabbage; harvesting asparagus; fertilizing, spraying nursery crops; spraying alfalfa weevils; feeding livestock; general farm maintenance.

**NORTH DAKOTA:** Temperatures ranged 4° below normal southwest to 8° below normal north central, northeast. Extremes 9° northeast; 80° southeast. Precipitation none.

Days suitable for fieldwork 7.0. Topsoil moisture below normal; 68% very short, 30% short, 2% adequate. Subsoil moisture below normal; 45% very short, 39% short, 16% adequate. Winter wheat 19% poor, 74% fair, 7% good. Spring planting ahead of normal. Spring wheat 49% planted, 18% 1987, 13% avg.; durum 24%, 6% 1987, 5% avg.; barley 44%, 17% 1987, 12% avg.; oats 43%, 15% 1987, 12% avg.; sugarbeets 66%, 60% 1987, 16% avg. Livestock good; calving 89%, lambing 94%, shearing 90%. Pastures mostly poor.

**OHIO:** Temperatures averaged 4 to 8° subnormal. Highs upper 50s to around 60°; lows in 30s. Extremes 20s to low 80s. Precipitation sparse central, north; 0.25 in. northwest; heavy rains early in south in excess of 1.00 in. Soil

temperatures upper 40s to low 50s; 2 to 4° subnormal.

Days suitable for fieldwork 5.4. Soil moisture 17% short, 73% adequate, 10% surplus. Farm activities included working ground; equipment, fence repair; spreading manure, fertilizer; spraying herbicides, digging nursery stocks. Field condition excellent but cold weather limited spring planting progress. Soybean, tomato planting just started. Cold weather holding back fruit development. Peach frost damage most areas. Some apples damaged. Early strawberries southwest experienced frost damage.

**OKLAHOMA:** Temperatures averaged normal east central to 4° below normal north central. Precipitation averaged none southeast to 0.70 in. north central.

Days suitable for fieldwork 3.8. Topsoil moisture 75% adequate, 25% surplus. Subsoil moisture 100% adequate. Wheat 1% fair, 95% good, 4% excellent; 5% heading, 10% 1987, 20% avg. Heading over 1 week behind average. Fungicides to be applied to reduce disease infestation. Russian wheat aphids continued to plague west. Sorghum 2% planted, 1% 1987, 2% avg. Cotton 2% planted, none 1987, 1% avg. Peanuts none planted, 3% 1987, 2% avg. Soybeans 1% planted, 5% 1987, 1% avg. Corn 35% planted, 60% 1987, 40% avg. Alfalfa weevils increased north, west. Pastures improved with rainfall. Cattle good; marketings, prices down from preceding week.

**OREGON:** Most temperatures near normal; north central 2 to 3° below normal, extreme south central border area 4 to 5° below normal. Coast less than 1.00 in. precipitation. Willamette Valley, north central, northeast areas mostly 1.00 to 2.00 in.

Soil moisture 29% short, 65% adequate, 6% surplus. Barley 95% seeded, 94% 1987, 87% avg. Grain fields improved with much needed rain across State, most noticeable east. Grass seed mostly good west; some chemical damage, slight leaf spot problems. First irrigation completed central area, northeast mountains. Much replanting of frost damaged sugarbeets Malheur County; growers there applied broadleaf weed control on small grains. Strawberries early bloom, blueberries late bloom, caneberries still pre-bloom Willamette Valley; spraying, cultivation continued. Pear, apple blooms ahead of normal all areas. Some fire blight infection Hood River. Codling moths emerged, thinning chemicals applied to golden delicious apples Milton-Freewater. Cherries blooming Union County, high elevations west. Cranberries roughneck to early bud stage south coast, some damage by black vine weevil larvae. Wet field conditions slowed asparagus harvest Umatilla County. Potato planting started Hermiston-Boardman area, 50% complete Malheur County, field preparations underway Baker County. Onion planting complete Malheur County, 75% emerged. Sowing onions Willamette Valley. Early vegetables harvested west; planting beets, broccoli; green peas emerged, good condition; sweet corn planting delayed by wet fields. Livestock mostly good. Forage conditions improved east, but lowest, warmest areas still poor. Generally, ranges fair to good elsewhere east. Western pastures mainly good, except low foothills southwest.

**PENNSYLVANIA:** Dry, unseasonably cool across State. Average temperature 44°, 4° below normal. Temperature extremes 20°; 80°. Average precipitation 0.51 in., 0.31 in. below normal.

Days suitable for fieldwork 5.0. Soil moisture 37% short, 61% adequate, 2% surplus. Plowing 60%, 52% 1987; 40% avg. Corn 7% planted, 7% 1987, 4% avg. Oats 66% planted, 62% 1987, 44% avg. Potatoes 42% planted, 39% 1987, 21% avg. Tobacco beds 90% planted, 72% 1987, 60% avg. Barley 96%

pre-boot, 98% 1987, 97% avg.; 4% boot, 2% 1987, 3% avg. Wheat 97% pre-boot, 97% 1987, 99% avg.; 3% boot, 3% 1987, 1% avg. Wheat 6% poor, 24% fair, 55% good, 15% excellent. Oats 6% poor, 31% fair, 49% good, 14% excellent. Hay stands mostly fair to good. Feed from pastures mostly average to below average. Peaches 41% pre-pink, 50% 1987, 63% avg.; 28% pink, 18% 1987, 15% avg.; 31% full bloom or past, 32% 1987, 22% avg. Cherries 45% pre-pink, 48% 1987, 51% avg.; 28% pink, 25% 1987, 18% avg.; 27% full bloom or past, 27% 1987, 31% avg. Apples 83% pre-pink, 60% 1987, 76% avg.; 15% pink, 28% 1987, 16% avg.; 2% full bloom or past, 12% 1987, 8% avg. Activities: Planting corn, potatoes, oats, hay, tobacco; spring plowing; fence repair; hauling manure; spreading fertilizer; machinery maintenance; caring for livestock.

**PUERTO RICO:** Island rainfall averaged 3.18 in., 2.10 in. above normal. Highest weekly total rainfall 12.75 in. Corozal AES, 7.68 in. Morovis, 7.64 in. Negro Corozal. Highest 24-hour total 6.75 in. Corozal AES. Accumulated total rainfall since January 1 13.33 in. which is 24% above normal. Total rainfall 7.44 in., 0.54 above normal. Divisional temperature averaged about 79 to 80° on coasts, 74 to 76° interior divisions with mean station temperature ranging 66° Pico Del Este-Luquillo to 80° San Juan City. Lowest minimum temperature 56° Adjuntas. Highest maximum temperature 91° several places.

**SOUTH CAROLINA:** Temperatures averaged near to slightly above seasonal normals. Temperature extremes 31°; 91°. Rainfall averaged 1.00 to 2.00 in. over most of State.

Days available for fieldwork 5.0. Soil moisture 14% short, 86% adequate. Corn good; 95% planted, 82% 1987, 78% avg. Tobacco good; 65% planted, 49% 1987, 63% avg. Cotton fair to good; 11% planted, 17% 1987, 31% avg. Peanuts fair to good; 5% planted, 11% 1987, 13% avg. Watermelons fair to good; 80% planted, 83% 1987, 76% avg. Tomatoes good; 94% planted, 93% 1987, 95% avg. Spring cukes fair to good; 73% planted, 83% 1987, 81% avg. Wheat good; 55% headed, 19% 1987, 47% avg. Oats good; 55% headed, 37% 1987, 45% avg. Peaches improved to good.

**SOUTH DAKOTA:** Average temperatures 10° below to 1° above normal. Extremes 8°; 83°. Snow occurred southern half of State. Precipitation ranged none northeast to 1.14 in. south central. Precipitation for year below normal, ranged from 2.10 in. above to 3.03 in. below normal.

Days suitable for fieldwork 5.3. Topsoil moisture mostly critically short to short. Many areas of State winter wheat under severe moisture stress. Small grain seedings 2 to 3 weeks ahead of normal. Topsoil moisture 42% critically short, 35% short, 23% adequate.

**TENNESSEE:** Frontal passages brought rain statewide 18th, 23rd. Temperatures 2 to 4° below normal middle, east; 3° above normal west. Heaviest rainfall 1.99 in. plateau, mid State averaged 0.70 in., west 0.43 in.

Days suitable for fieldwork 3.9. Soil moisture 22% short, 73% adequate, 5% surplus. Corn 39% planted, 34% 1987, 32% avg. Cotton 6% planted, 7% 1987, 7% avg. Tobacco 85% plants up, 88% 1987, 86% avg. Wheat 82% jointed, 78% 1987, 72% avg.; 11% headed, 13% 1987, 10% avg. Sorghum 5% planted, 8% 1987, 6% avg. Alfalfa 1% very poor, 4% poor, 30% fair, 59% good, 6% excellent. Pastures 29% fair, 64% good 7% excellent. Some fruit damaged by frost. Cool temperatures slowed early growth. Soil preparation, planting active.

**TEXAS:** Week started rain north, south as front pushed off Gulf Coast. Significant rains north,

east. Dry air mass ended rain activity rest week. Disturbance north of State weekend triggered widely scattered rain activity. Temperatures close to normal all areas, except below normal Rolling Plains, Trans-Pecos. Rainfall below normal.

**Crops:** Small grains received timely, beneficial rainfall Plains. Fields entered boot stage, rain helped progress. Producers treated fields aphids, many incidences streak mosaic. Blacklands some scattered rain help later fields. Fields central, south turning color, some harvest begin soon Coastal Bend. Additional grazing out poorer fields. Wheat 15% headed, 31% 1987, 36% avg. Corn planting increased Plains. Added moisture improved planting conditions, seed germination. Producers busy many other areas cultivating fields. Weeds problem. Fields Rio Grande Valley progressed slowly. Some fields Upper Coast moisture stressed. Stands east good. Corn 80% planted, 73% 1987, 79% avg. Grain sorghum planting increased Low Plains, Cross-Timbers with added moisture. Planting getting underway High Plains. Stands varied Blacklands, central, cultivation active. Development Rio Grande Valley slowed by late season cold spell. Fields east good. Upper Coast, Coastal Bend use rain. Sorghum 57% planted, 53% 1987, 59% avg. Cotton producers Plains enjoyed rain. With improved moisture conditions, planting begin when soil temperatures increase. Planting continued Trans-Pecos. Fields Coastal Bend, Rio Grande Valley started squaring. Some spraying insects underway. Land preparation continued other areas. Cotton 15% planted, 15% 1987, 13% avg. Rice planting continued Upper Coast, many producers finished. Fields good emergence, some flushing earlier fields. Rice 95% planted, 80% 1987, 80% avg.; 39% emerged, 42% 1987, 45% avg. Peanut producers south waiting rain to begin planting. Conditions very dry. Land preparations continued other areas. Other field crops: Peanuts 3% planted, 3% 1987, 5% avg. Sugarbeets 89% planted, 81% 1987, 83% avg. Soybeans 2% planted, 8% 1987, 3% avg.

**Commercial Vegetables:** Rio Grande Valley harvest onions steady pace. Yields fair to good. Light supplies cabbage, carrots available. Progress good peppers, tomatoes. High winds plague melon vines; damage light. Citrus groves good. Grove caretakers busy irrigating, treating for insects. San Antonio-Winter Garden planting melons slowed by dry conditions. Irrigation steady planted fields. Onion harvest begin soon. East growth, development most vegetables good. Melon planting continued. High Plains rain should help alleviate irrigation needs onions, potatoes. Land preparation continued. Trans-Pecos high winds burned tops of onion plants. Irrigation steady. Melon progress slow. Late season peaches that survived freezes, sizing well. Spraying programs continued. Some thinning underway east. Harvest underway Valley. Pecan trees progress well. Most areas need rain.

**Range and Pasture:** Range, native pasture conditions slowly improving many areas, especially where rained. Producers fertilized many areas. Pastures deteriorating west because dry conditions. Livestock conditions declined slightly west. Hay feeding steady. Shearing continued Hill Country.

**UTAH:** Temperatures 6° below to 6° above normal. Precipitation heavy to very heavy.

Days suitable fieldwork 3.1. Soil moisture 6% short, 85% adequate, 9% surplus. Spring wheat 93% seeded, 80% 1987, 53% avg.; 54% emerged, 36% 1987, 14% avg. Barley 90% seeded, 78% 1987, 57% avg.; 53% emerged, 39% 1987, 29% avg. Oats 66% seeded, 49% 1987, 43% avg. Winter wheat height 5 in., alfalfa height 3 in. Sweet cherries, peaches bloom well along, tart cherry bloom began. Cows calved 85%. Ewes lambed 94% farm, 67% range. Sheep sheared 89% farm, 85% range. Major farm

activities: Hauling manure, marketing livestock, fertilizer application, seedbed preparation, calving, lambing.

**VIRGINIA:** Cool, moderate precipitation. Temperatures averaged 5° below normal, range 26 to 83°. Some areas brief wet snow. Precipitation range 0.02 to 1.71 in. Most common 0.75 in.

Days suitable for fieldwork 3.8. Topsoil moisture 17% short, 66% adequate, 17% surplus. Scattered frost caused light damage to fruit, barley some areas. Crop, pastures good to excellent. Corn 35% planted, 21% 1987, 35% avg. Irrigated, clipped, sprayed tobacco plantbeds. Prepared tobacco, soybean, peanut fields. Cut rye

for silage. Apples blooming except extreme southwest. Pasture growth somewhat slow due to cool weather. Sprayed hay to control alfalfa weevil. Cut some hay. Still feeding livestock. Moved more cattle to pasture. Sheared sheep. Some lambing, calving, cattle marketing. Tomato planting began. Tent caterpillars very heavy this season.

**WASHINGTON:** Temperatures averaged near normal to 8° above. Precipitation sparse; none to 1.30 in.

Days suitable for fieldwork 6 east Cascades, 5 west. Soil moisture 60% short, 40% adequate east, 75% adequate, 25% surplus west. Spring wheat,

(Continued to back cover)

**Crop Progress**

FOR WEEK ENDING APRIL 24, 1988

	CORN % PLANTED		
	1988	1987	AVG.
COLO.	12	1	3
GA	91	88	87
ILL	22	10	10
IND	9	11	9
IOWA	10	4	3
KANS	25	15	15
KY	23	17	20
MICH	0	3	2
MINN	7	16	3
MO	47	19	21
NEBR	6	3	3
N C	61	38	51
OHIO	9	8	5
PA	7	7	4
S DAK	0	0	0
TEX	80	73	79
WIS	2	2	0

17 STATES 15 11 9

THESE 17 STATES PRODUCED 94% OF THE 1987 CORN CROP.

	WINTER WHEAT % HEADED		
	1988	1987	AVG.
ARK	31	45	NA
CALIF	85	85	75
COLO	0	0	0
GA	66	54	70
IDAHO	0	0	0
ILL	0	0	0
IND	0	0	0
KANS	0	0	0
MICH	0	0	0
MO	2	5	3
MONT	0	0	0
NEBR	0	0	0
N MEX	5	11	NA
N C	19	4	NA
OHIO	0	0	0
OKLA	5	10	20
OREG	0	0	0
S DAK	0	0	0
TEX	15	31	36
WASH	0	0	0

20 STATES 6 9 NA

EXCL. STATES WITH NA 5 8 11

THESE 20 STATES PRODUCED 91% OF THE 1987 WINTER WHEAT CROP.

NA - NOT AVAILABLE.

	RICE % PLANTED		
	1988	1987	AVG.
ARK	18	46	26
CALIF	4	5	3
LA	45	61	59
MISS	18	27	37
TEX	95	80	80

5 STATES 30 45 36

THESE 5 STATES PRODUCED 97% OF THE 1987 RICE CROP.

	COTTON % PLANTED		
	1988	1987	AVG.
ALA	31	59	28
ARIZ	72	83	85
ARK	3	10	8
CALIF	71	75	75
GA	13	9	16
LA	13	15	16
MISS	4	8	14
MO	3	8	5
N MEX	44	47	29
N C	2	19	19
OKLA	2	0	1
S C	11	17	31
TENN	6	7	7
TEX	15	15	13

14 STATES 21 24 22

THESE 14 STATES PRODUCED 100% OF THE 1987 COTTON CROP.

	SPRING WHEAT % PLANTED		
	1988	1987	AVG.
IDAHO	68	86	56
MINN	67	62	23
MONT	63	15	26
N DAK	49	18	13
S DAK	84	61	38

5 STATES 60 33 22

THESE 5 STATES PRODUCED 95% OF THE 1987 SPRING WHEAT CROP.

	GRAIN SORGHUM % PLANTED		
	1988	1987	AVG.
ARK	22	36	30
ILL	0	NA	NA
KANS	0	0	0
LA	18	31	42
MISS	18	20	26
MO	4	2	2
NEBR	0	0	0
OKLA	2	1	2
S DAK	0	0	0
TENN	5	8	6
TEX	57	53	59

11 STATES 16 NA NA

EXCL. STATES WITH NA 17 16 18

THESE 11 STATES PRODUCED 96% OF THE 1987 GRAIN SORGHUM CROP.

NA - NOT AVAILABLE.

**Crop Condition**

FOR WEEK ENDING APRIL 24, 1988

STATE	WINTER WHEAT				
	VP	P	F	G	EX
ARK	0	0	2	61	37
CALIF	0	5	20	70	5
COLO	0	3	29	57	11
GA	0	2	12	74	12
IDAHO	0	4	28	56	12
ILL	0	0	3	75	22
IND	1	3	43	51	2
KANS	0	6	27	46	21
MO	0	2	30	64	4
MONT	1	8	32	50	9
NEBR	0	0	36	60	4
N MEX	0	43	31	26	0
N C	0	0	16	77	7
OHIO	1	4	21	60	14
OKLA	0	0	1	95	4
OREG	0	2	57	39	2
S DAK	11	23	40	23	3
TEX	2	15	46	26	11
WASH	0	5	75	15	5

VP - VERY POOR P - POOR F - FAIR  
G - GOOD EX - EXCELLENT

## International Weather and Crop Summary

April 17-23, 1988

### HIGHLIGHTS:

**UNITED STATES** ... Below-normal and subfreezing temperatures curtail planting in the Corn Belt. Precipitation slows planting in the central and southern Great Plains, Delta, and Southeast. The cold weather slows wheat growth in the northern and central Great Plains and Corn Belt.

**WESTERN U.S.S.R.** ... Mild weather and mostly light, scattered rain help winter grain growth and spring grain planting.

**EUROPE** ... Above-normal temperatures favor crops and drying rates in the north. Moderate to heavy rain benefits winter grains in the southwest.

**SOUTH ASIA** ... Showers in the east and south increase pre-planting irrigation levels. Temperatures are seasonably hot.

**NORTHWESTERN AFRICA** ... Mostly dry and unseasonably warm weather cover winter grains which are beginning to mature.

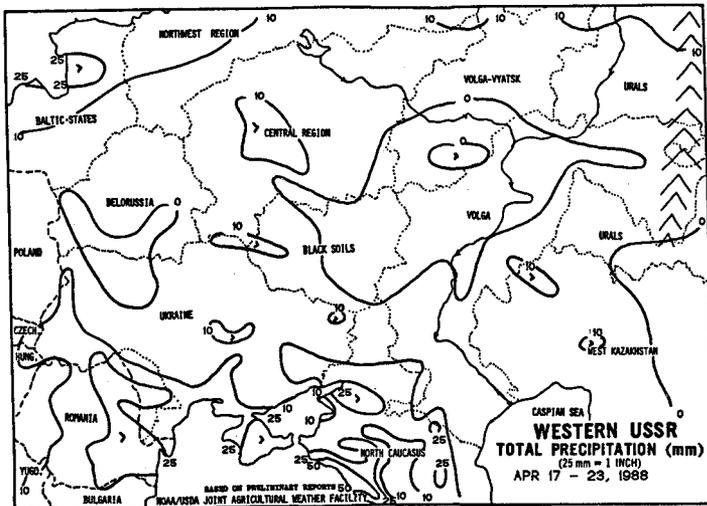
**CANADA** ... Scattered, light rain covers portions of the Prairie grain belt. Moisture continues limited for planting.

**EASTERN ASIA** ... Widespread rain benefits newly planted spring wheat in Manchuria. Above-normal temperatures promote rapid growth of winter grains.

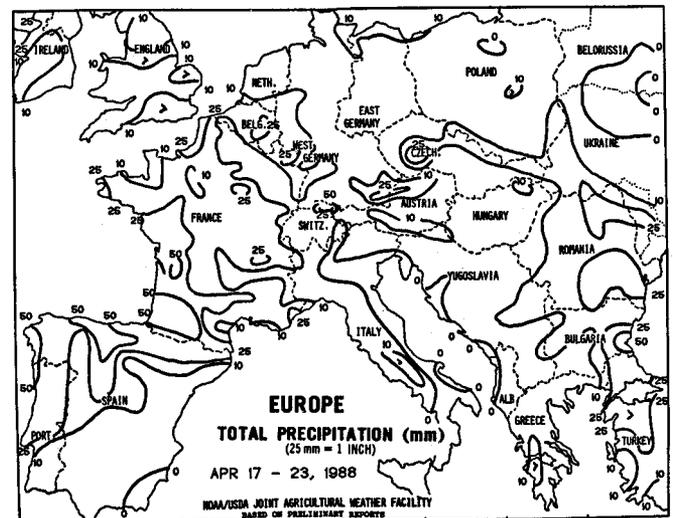
**SOUTHEAST ASIA** ... Showers continue over Indochina, improving pre-planting soil conditions. Scattered showers cover most of Indonesia and Malaysia, but drier weather returns to the northern Philippines.

**SOUTH AMERICA** ... Rain slows crop harvests in Argentina and south-central Brazil.

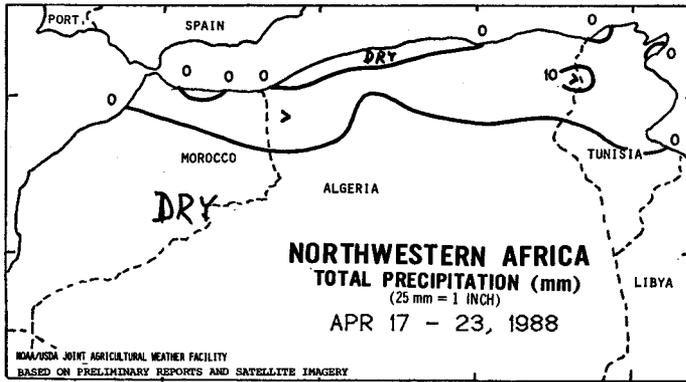
**AUSTRALIA** ... Light rains cause minor delays in wheat planting across southeastern Queensland. Rain over southern Australia benefits pre-plant soil moisture levels.



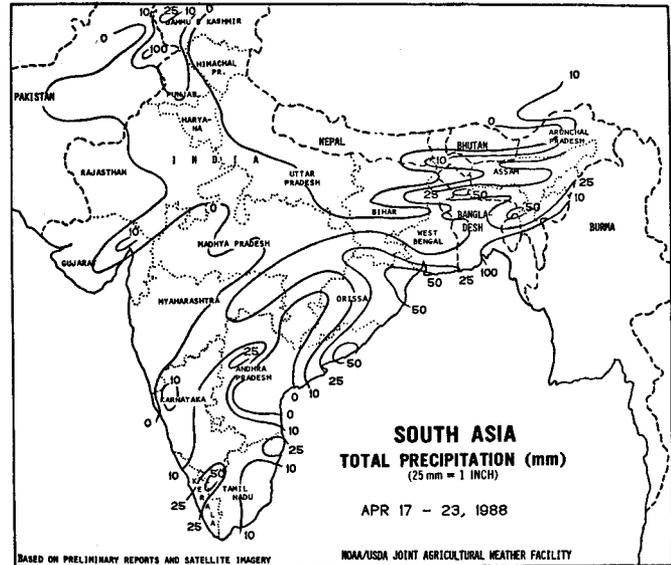
**WESTERN U.S.S.R.** ... A warming trend occurred through midweek with maximum temperatures reaching 19-23 degrees Celsius. Cooler weather pushed into the region by week's end. Weekly average temperatures were 2-5 degrees above normal over many crop areas. Mostly dry weather prevailed across the region except for areas of the southern Ukraine and North Caucasus along the Black Sea where 10-30mm or more of precipitation fell. Mostly scattered light showers fell elsewhere. Winter grains were jointing in the southern Ukraine and North Caucasus, and tillering over the remainder of the region. Spring grain planting progressed in the south, helped by several days of dry weather.



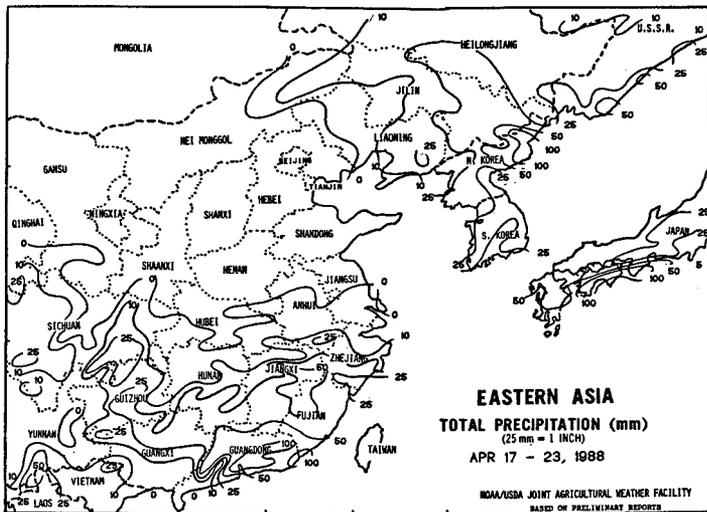
**EUROPE** ... Scattered, mostly light showers (less than 10mm) caused only minor delays in fieldwork across northern Europe. Above-normal temperatures in the north favored a continuation of soil dry down after heavy precipitation and flooding in March. Moderate to heavy rain (greater than 25mm) fell over southwestern France and northern Spain, causing delays in fieldwork but benefiting winter grains entering reproductive phases. Light to moderate rain fell over eastern Europe, keeping soil moisture levels generally favorable for spring and winter crops. Below-normal temperatures over southeastern Europe kept evaporation rates low but slowed growth of crops.



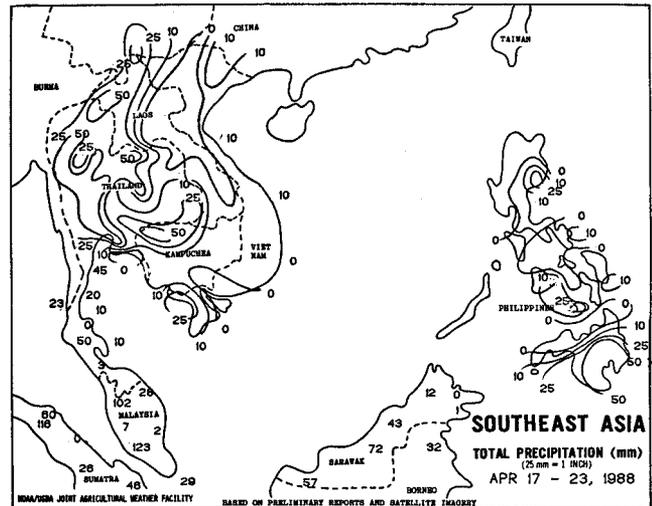
**NORTHWESTERN AFRICA** ... Some scattered light rain (1-6mm) fell over eastern Algeria, Tunisia, and the northern tip of Morocco. However, mostly dry and unseasonably warm weather generally prevailed across the winter grain belt. Weekly temperatures averaged above normal over the entire region. While the weather favored crop maturation, unfavorable growing conditions persisted for that portion of the winter grain crop still in the filling stage.



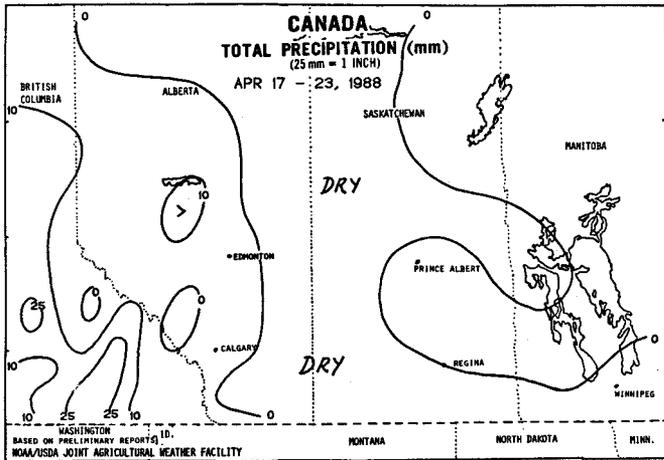
**SOUTH ASIA** ... Light to moderate rain (10-50mm or more) continued over southern and eastern crop regions, increasing irrigation reserves for planting in India and Bangladesh. The current rice crop is mostly in the filling stage of development. Temperatures continued to be seasonably hot throughout South Asia, hastening crop maturity. Scattered, light rain (less than 10mm) fell across northern crop regions, bringing little improvement to irrigation reserves.



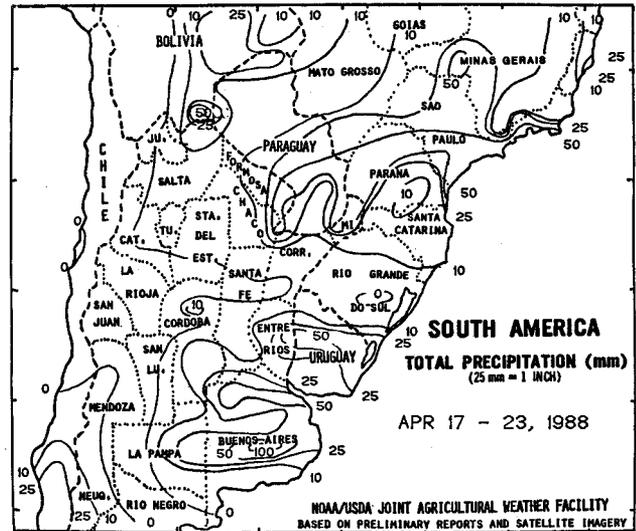
**EASTERN ASIA** ... Widespread rain (greater than 25mm) continued over southern rice growing areas. Heaviest rain (up to 247mm) fell in northern Guangdong and Taiwan, possibly resulting in some flooding. Light rain (mostly less than 10mm) favored vegetative to heading wheat across the Yangtze River Valley, while most northern wheat areas remained dry. Above-normal temperatures in winter crop areas continued to promote rapid growth of winter grains for the second straight week. Elsewhere, moderate to heavy rain (greater than 25mm) favored pre-planting soil moisture levels in Japan and the Korean Peninsula. Widespread rain benefited newly-planted spring wheat across much of Manchuria, while western spring wheat areas continued mostly dry.



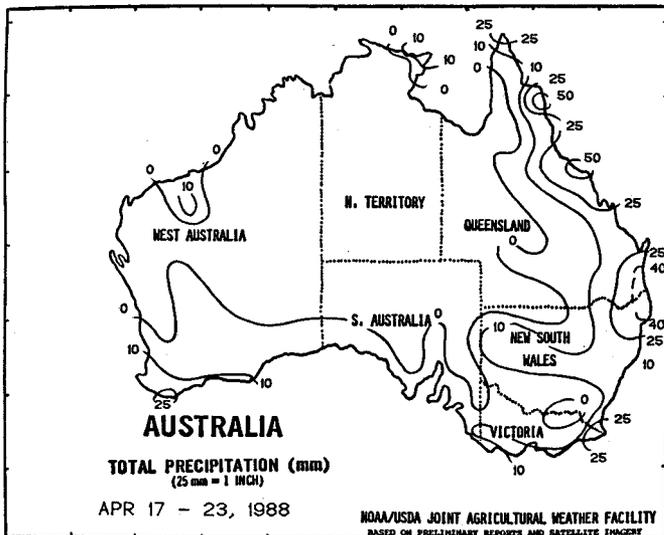
**SOUTHEAST ASIA** ... Scattered showers (10-50mm or more) covered Indonesia, maintaining irrigation levels. Heavier rain (43-123mm) continued over eastern Malaysia and the west coast of the Malay Peninsula as drier weather returned to the southeastern Malay Peninsula. Further north, beneficial showers (10-50mm or more) covered most Thai grain regions and continued over northern Laos and northern Vietnam, improving pre-planting conditions. In the Philippines, dry weather returned to northern grain regions, but moderate to heavy rain (21-50mm) continued across Mindanao. Grain planting is usually underway by May.



**CANADA** ... Light rain (less than 4mm) fell over grain regions of central and western Alberta and parts of Saskatchewan and Manitoba as dry weather persisted elsewhere in the Prairie grain belt. Heavier rain (10-44mm) covered a large portion of British Columbia but failed to reach the major crop regions. Spring wheat planting is normally underway by late April, but moisture is limited over much of the region due to drier-than-normal weather this past winter.



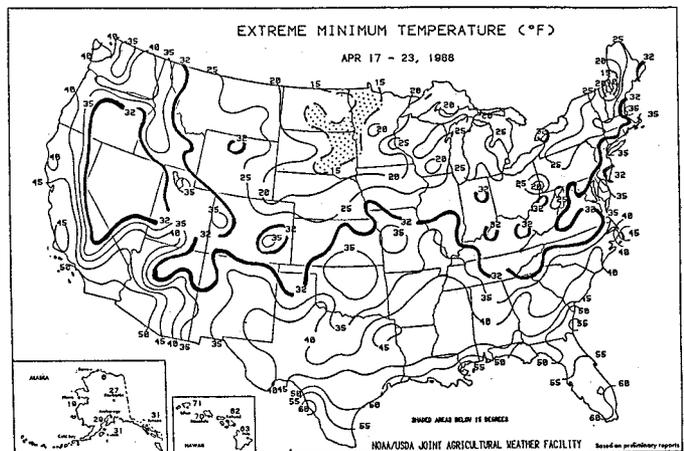
**SOUTH AMERICA** ... Some rain fell over most crop areas of Argentina and south-central Brazil, slowing crop harvesting. In Argentina, substantial showers produced 20-50mm of rain over most of Buenos Aires, disrupting corn, sorghum, sunflower, and early soybean harvesting. Weekly rainfall generally averaged 10-20mm over southern Cordoba and southern Santa Fe. Drier weather prevailed further north. Another area of substantial rainfall (20-70mm), however, slowed cotton harvesting in extreme northern Argentina, and soybean harvesting in southern Paraguay and in Brazil from extreme northern Rio Grande do Sul to southern Mato Grosso and southern Minas Gerais. Light rain (2-9mm) caused minimal harvest delays in most of Rio Grande do Sul.



**AUSTRALIA** ... Light to moderate rain continued over extreme eastern crop areas, causing harvesting delays. Early wheat planting progressed in crop areas of southeastern Queensland, with only minor delays due to light rain. Scattered rain fell along the eastern coast of Queensland, benefiting vegetative sugarcane. In the south, a weak frontal system brought mostly light rain (less than 10mm) from Western Australia eastward to Victoria and New South Wales, increasing pre-plant soil moisture levels for winter crops. Rainfall over previously dry crop areas in southern New South Wales and northern Victoria was very light, and soil moisture for planting remains limited.

(Continued from p. 10)  
vines in the Rio Grande Valley, but damage was light. Dry conditions slowed melon planting in the San Antonio-Winter Garden area. Cool days with rain decreased vegetable size and slowed field activity in California. In western Arizona, spring vegetable planting neared completion.

**PASTURES AND LIVESTOCK:** Cool temperatures and the lack of moisture slowed pasture growth in the northern and central Plains. Below-normal temperatures slowed growth in the Corn Belt and Southeast. Livestock was mostly good.



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(Continued from p. 16)

barley mostly fair to good. Spring wheat 91% planted, 77% emerged. Barley 79% planted, 62% emerged. Sweet corn, green pea planting, asparagus harvest, continued. Potatoes 60% planted, 26% emerged. Range, pasture short to adequate east; mostly adequate west.

WEST VIRGINIA: Average temperature 51<sup>o</sup>, 1 to 6<sup>o</sup> below normal. Extremes 89<sup>o</sup> Creston; 22<sup>o</sup> Elkins. Average precipitation 1.12 in.; above normal.

Days suitable for fieldwork 4.2. Soil moisture 7% very short, 45% short, 48% adequate. Wheat, barley good to fair; oats fair to good. Oats 63% planted, 44% emerged. Tobacco beds fair to good; 73% planted, 32% emerged. Apples good to fair, close to full bloom. Some scab, fireblight infection. Peaches fair to good. Feed supplies adequate to short. Cows calved 87%; ewes lambed 96%. Farm activities: General farm maintenance, livestock care, plowing, lime and fertilizer application, planting.

WISCONSIN: Cold week, temperatures averaged 40<sup>o</sup>, 8<sup>o</sup> below normal. Extremes 13<sup>o</sup>; 64<sup>o</sup>. Precipitation 0.30 to 0.90 in., most 22nd to 23rd. Snow north 2 to 5 in., central 1 to 2 in.

Days suitable for fieldwork 4.6. Soil moisture 58% short, 42% adequate. Spring plowing 41%, 41%

1987, 25% avg. Able to work even heavy soils. Oats 52% seeded, 51% 1987, 30% avg. Some oats up. Corn 2% planted, 2% 1987, none avg. Pea, cabbage planting started. Alfalfa winter damage 22% none, 65% light, 12% moderate, 1% severe. Winter wheat damage 15% none, 47% light, 34% moderate, 4% severe.

WYOMING: Temperatures above normal. Precipitation well above normal except northwest.

Days suitable for fieldwork 4.0. Topsoil moisture 37% short, 59% adequate, 4% surplus. Spring wheat 45% planted, 45% 1987, 45% avg.; 10% emerged, 15% 1987, 20% avg. Oats 40% planted, 35% 1987, 35% avg.; 5% emerged, 10% 1987, 10% avg. Barley 70% planted, 70% 1987, 60% avg.; 35% emerged, 30% 1987, 35% avg. Sugarbeets 65% planted, 60% 1987, 60% avg.; 5% emerged, 5% 1987, 10% avg. Corn 5% planted, 5% 1987, 10% avg. Potatoes 5% planted, 10% 1987, 15% avg. Winter wheat fair to good. Livestock mostly good. Spring calves born 85%, 80% 1987, 80% avg. Death losses light to normal. Farm flock: Ewes lambed 85%, 85% 1987, 85% avg.; shorn 75%, 85% 1987, 80% avg. Range flock: Ewes lambed 50%, 45% 1987, 45% avg.; shorn 55%, 55% 1987, 50% avg. Death losses light to normal. Range, pasture mostly fair to good.

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