

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

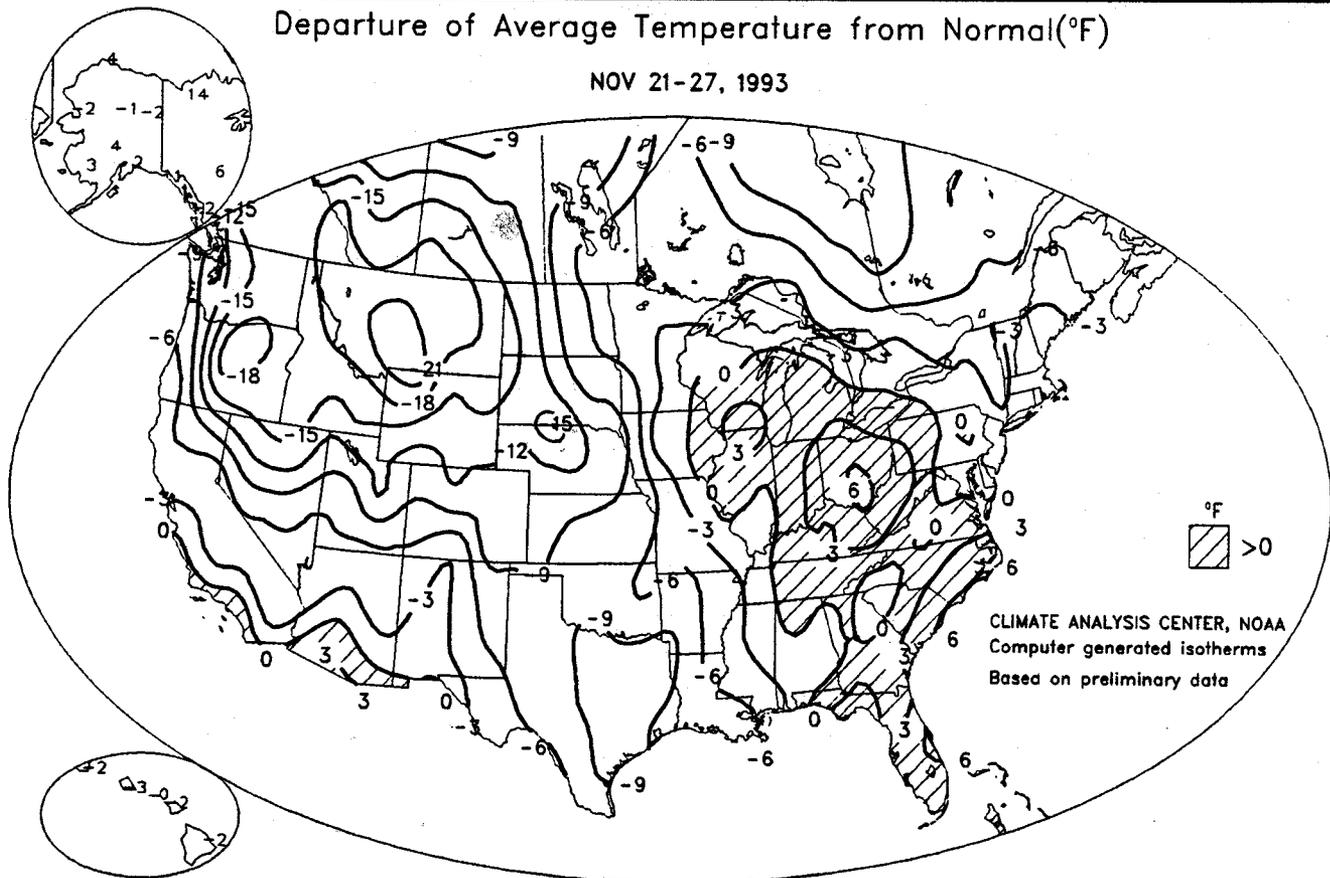
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Washington, D.C.

November 30, 1993

Departure of Average Temperature from Normal(°F)

NOV 21-27, 1993



HIGHLIGHTS

November 21 - 27, 1993

A slow-moving, Thanksgiving-week, powerhouse winter storm affected much of the Nation with a variety of disruptive weather, including bitter cold, heavy snow, and flash-flooding. The storm punched into the Northwest early in the week, ushering in snowy, bitterly cold weather. Early-week snow depths reached 2 inches in Spokane, WA and 8 inches in Grangeville, ID, providing insulation for winter wheat before temperatures plunged. Spokane, WA chilled to -5°F on Wednesday. Frigid air also poured into the Great Basin, where temperatures fell to -12°F in Burns, OR and to -9°F in Elko, NV. Sub-freezing temperatures visited northern California's valleys (Redding, 23°F on Tuesday) and coastal regions (Eureka, 31°F on Wednesday). On the other side of the Rockies, extremely heavy snow spread eastward from Montana into the Dakotas, while cold air slid southward

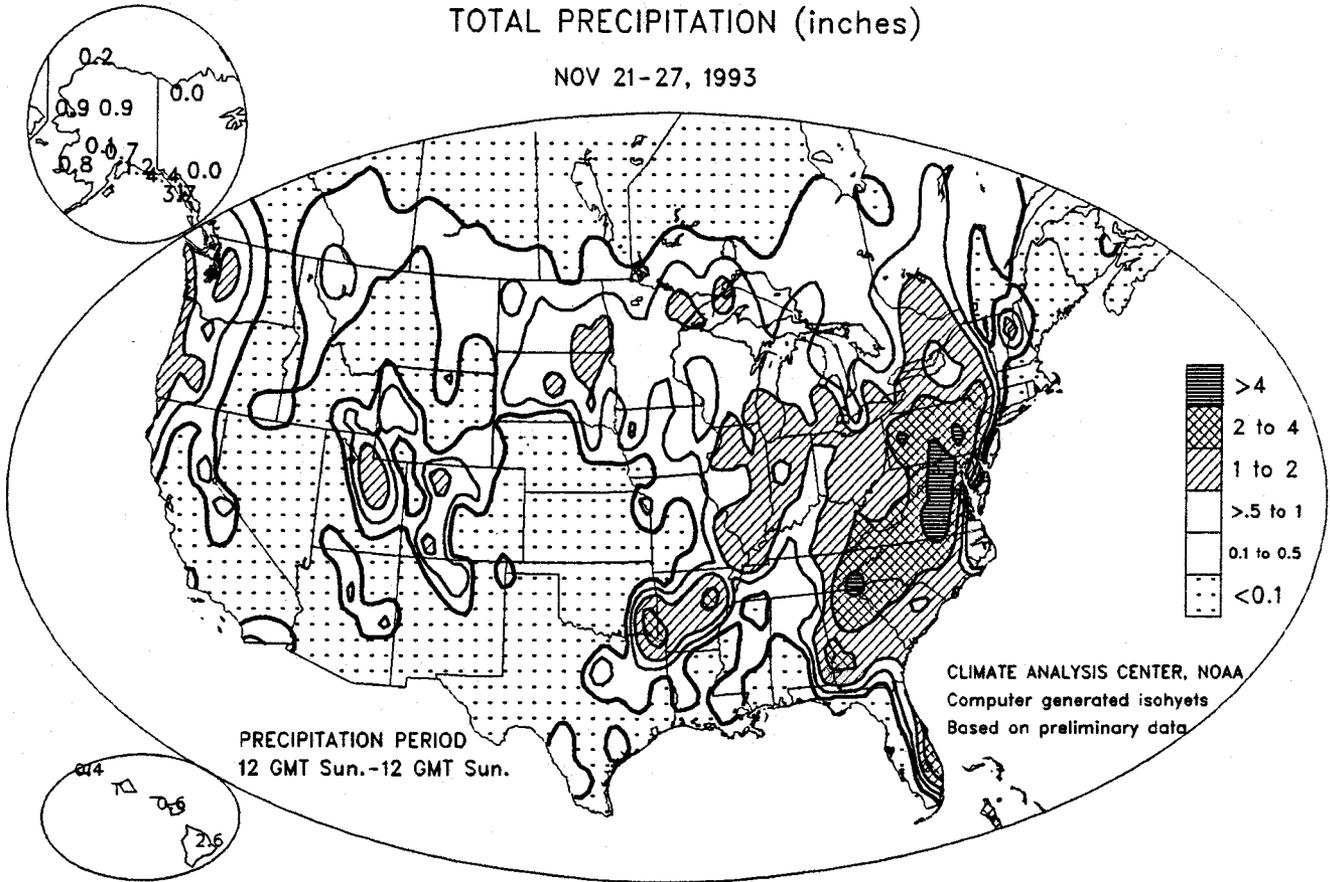
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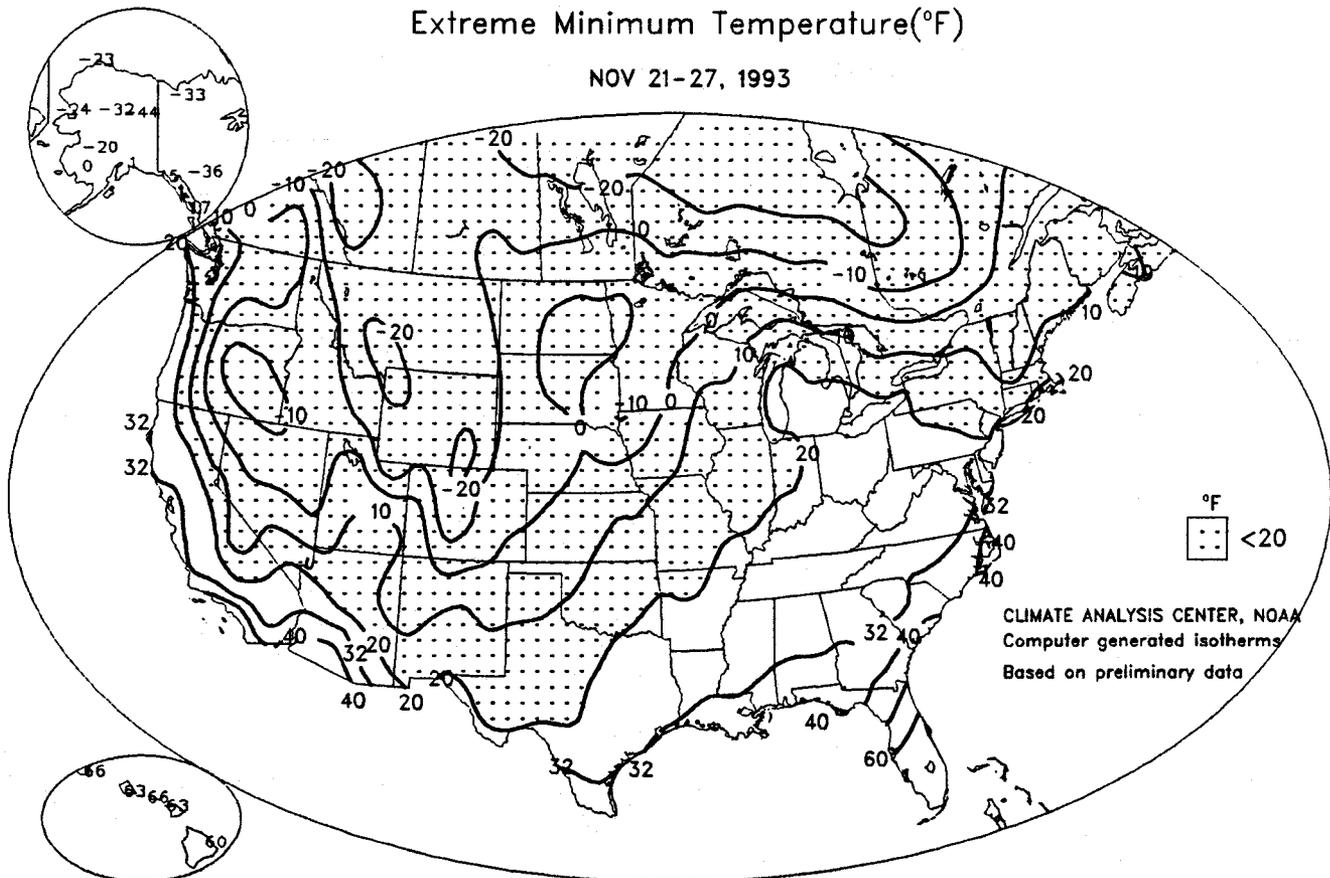
TOTAL PRECIPITATION (inches)

NOV 21-27, 1993



Extreme Minimum Temperature(°F)

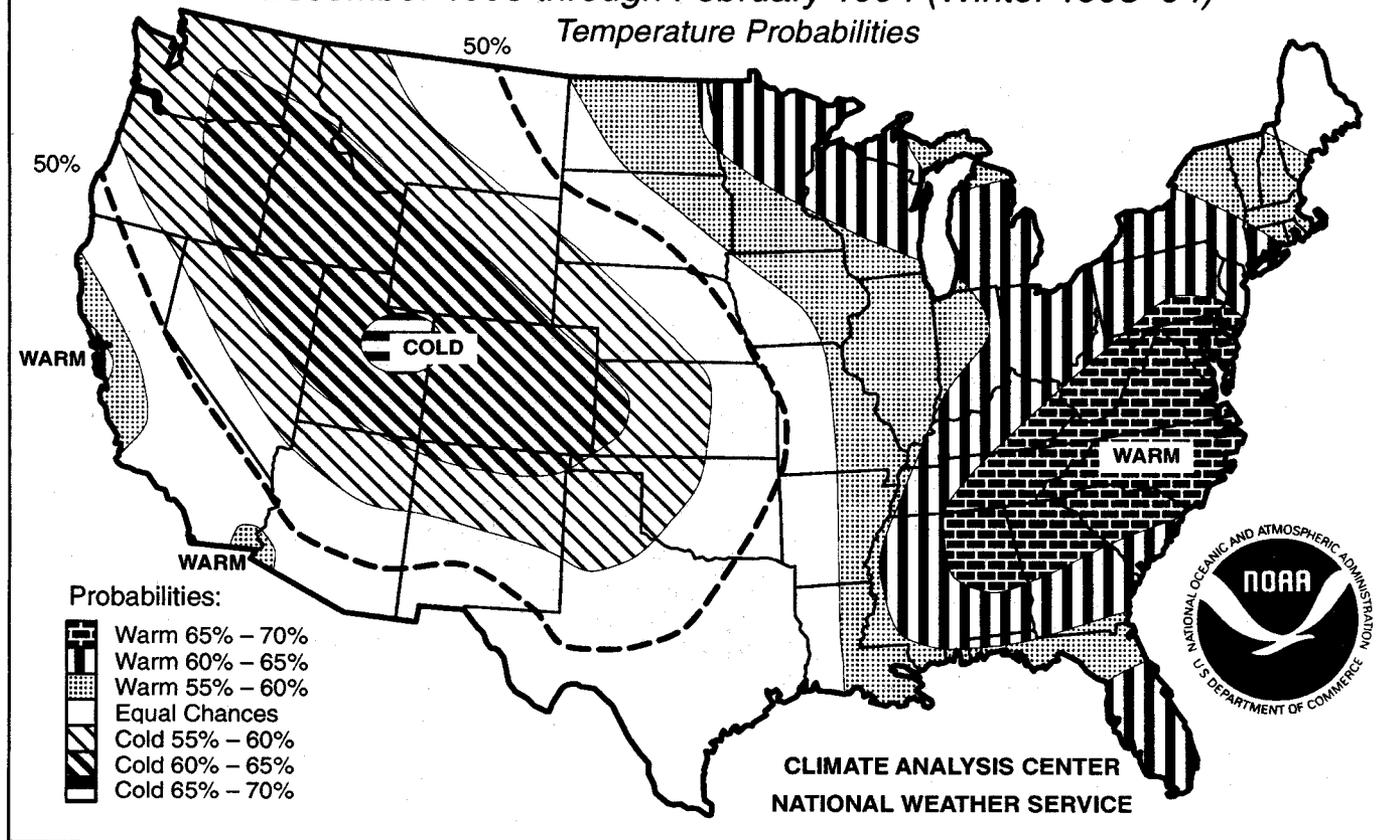
NOV 21-27, 1993



THREE-MONTHLY WEATHER OUTLOOK

December 1993 through February 1994 (Winter 1993-94)

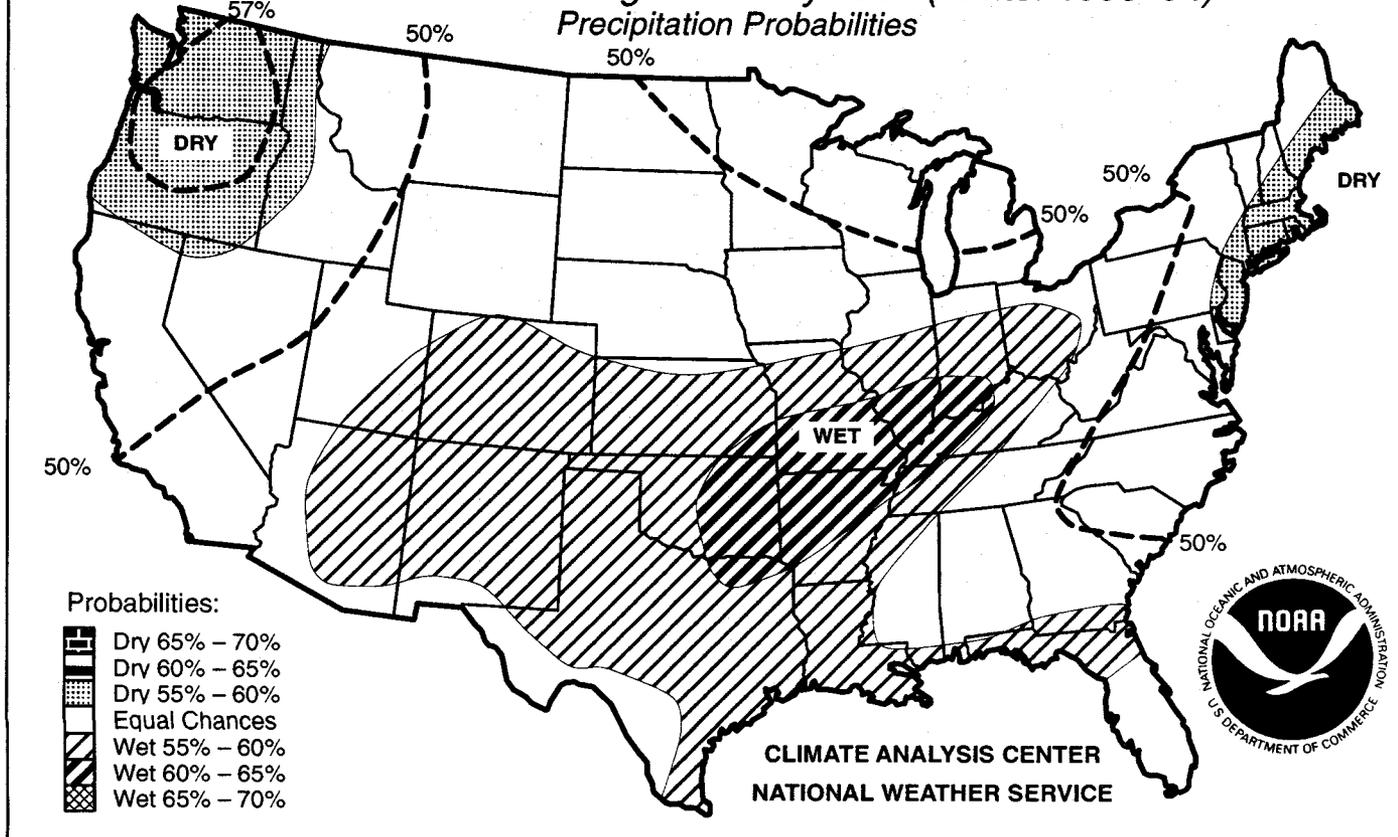
Temperature Probabilities



THREE-MONTHLY WEATHER OUTLOOK

December 1993 through February 1994 (Winter 1993-94)

Precipitation Probabilities



National Weather Data for Selected Cities

Weather Data for the Week Ending November 27, 1993

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 Sept 1	PCT. NORMAL SINCE Sept 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	TEMP. °F		PRECIP.	
																		90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	64	36	72	28	50	0	.2	-.9	.2	10.1	95	35.0	72	87	41	0	3	2	0	0	
MOBILE	68	40	74	33	54	-3	.1	-1.1	.1	11.5	93	56.7	98	87	45	0	0	1	0	0	
MONTGOMERY	66	37	74	30	52	-2	.1	-1.0	.1	12.7	130	47.7	96	93	42	0	2	2	0	0	
AK ANCHORAGE	28	14	42	2	21	2	.1	-1.1	.1	8.1	142	16.6	113	84	67	0	7	3	0	0	
BARRROW	5	-7	22	-23	-1	4	.2	-1.1	.1	2.3	179	5.2	125	83	75	0	7	3	0	0	
FAIRBANKS	15	-9	34	-21	3	5	.1	-1.1	.1	4.1	161	10.9	109	81	73	0	7	2	0	0	
JUNEAU	35	25	43	11	30	0	1.4	.4	.8	23.4	123	55.0	111	91	76	0	3	4	4	1	
KODIAK	39	28	46	22	34	1	1.8	.4	1.0	19.9	102	66.1	110	91	66	0	5	5	2	2	
NOME	21	9	36	-4	15	2	.3	-1.2	.2	8.2	175	17.4	124	83	69	0	6	4	4	0	
AZ PHOENIX	71	49	76	39	60	1	.1	-.2	.1	4.1	197	13.3	201	60	28	0	0	0	0	0	
PRESCOTT	53	28	59	15	41	-1	.1	-.4	.1	3.4	75	16.9	95	71	24	0	5	0	0	0	
TUCSON	72	42	79	31	57	0	.1	-.2	.0	2.3	68	14.8	137	71	26	0	2	2	0	0	
YUMA	71	52	81	45	62	1	.1	-.1	.1	1.3	170	4.8	180	34	20	0	0	0	0	0	
AR FORT SMITH	53	29	72	21	41	-6	.4	-.5	.4	15.2	145	44.7	119	86	51	0	6	1	0	0	
LITTLE ROCK	54	35	67	25	44	-5	1.6	.4	1.1	13.5	106	43.3	98	78	41	0	3	3	1	1	
CA BAKERSFIELD	61	38	67	29	49	-3	.1	-.2	.1	.4	37	7.0	140	68	38	0	2	0	0	0	
EUREKA	55	37	66	31	46	-4	.3	-1.3	.3	1.2	13	31.6	102	80	57	0	1	2	0	0	
FRESNO	59	36	68	29	48	-3	.1	-.4	.1	1.0	50	12.5	139	88	41	0	3	0	0	0	
LOS ANGELES	72	55	79	49	63	3	.1	-.4	.1	.4	15	18.8	185	56	28	0	0	1	1	0	
REDDING	58	30	67	23	44	-5	.1	-1.3	.1	3.1	39	39.3	145	72	25	0	4	4	0	0	
SACRAMENTO	56	34	61	26	45	-5	.1	-.6	.1	1.5	38	20.6	140	96	49	0	2	2	0	0	
SAN DIEGO	71	51	80	47	61	1	.2	-.2	.2	.9	47	16.4	200	71	40	0	0	0	0	0	
SAN FRANCISCO	59	44	62	40	51	-2	.1	-.6	.1	.7	18	20.1	124	78	43	0	0	0	0	0	
CO DENVER	39	13	64	-8	26	-10	.2	-.0	.1	6.0	199	14.5	98	83	42	0	0	0	0	0	
GRAND JUNCTION	40	20	57	12	30	-8	.1	-.2	.1	2.1	69	11.1	116	80	38	0	7	2	0	0	
PUEBLO	41	10	66	-7	26	-11	.1	-.1	.1	1.4	74	13.7	127	87	49	0	7	1	0	0	
CT BRIDGEPORT	49	32	56	20	40	-2	.1	-.9	.1	11.6	121	32.2	85	78	40	0	3	1	0	0	
HARTFORD	48	25	59	12	37	-2	.1	-1.0	.1	11.2	102	39.5	99	82	39	0	6	1	0	0	
DC WASHINGTON	57	35	64	30	46	-1	1.8	1.1	1.8	8.8	96	34.8	99	86	47	0	2	1	1	1	
FL APALACHICOLA	74	52	79	43	63	4	1.1	.3	.9	14.4	104	48.6	96	77	71	0	0	0	0	0	
DAYTONA BEACH	75	66	84	63	70	6	.8	.2	.4	10.0	77	33.7	75	97	71	0	0	0	0	0	
JACKSONVILLE	71	55	75	47	63	0	.8	.3	.4	20.0	154	46.1	99	86	70	0	0	0	0	0	
KEY WEST	80	72	82	70	76	2	.2	-.6	.1	12.0	93	33.8	90	86	73	0	0	0	0	0	
MIAMI	82	69	86	67	76	4	.1	-.3	.1	25.8	164	60.4	112	94	68	0	0	0	0	0	
ORLANDO	76	64	82	61	70	4	.1	-.4	.1	10.1	96	43.8	96	94	76	0	0	0	0	0	
TALLAHASSEE	73	48	78	35	61	3	.2	-.4	.2	9.2	77	49.5	82	77	46	0	0	0	0	0	
TAMPA	77	62	84	58	70	4	.1	-.4	.1	11.1	115	36.2	87	87	70	0	0	0	0	0	
WEST PALM BEACH	81	68	85	66	75	3	1.4	.8	.8	22.3	123	61.2	108	98	74	0	0	0	0	0	
GA ATLANTA	63	43	72	35	53	3	1.9	.9	1.7	11.7	118	45.5	99	78	43	0	0	0	0	0	
AUGUSTA	68	41	75	31	54	2	1.1	.5	1.1	9.3	115	35.6	87	89	44	0	1	2	1	1	
MACON	67	38	75	29	52	-1	1.1	.3	.7	10.6	144	46.6	117	91	44	0	1	2	1	1	
SAVANNAH	71	52	76	44	62	5	1.5	.9	1.4	14.7	167	45.9	100	73	51	0	0	0	0	0	
HI HILO	78	65	79	60	71	-2	1.6	-1.9	.5	26.1	84	96.0	83	89	63	0	0	0	0	0	
HONOLULU	80	66	83	63	73	3	.1	-.7	.1	2.0	36	5.5	30	82	56	0	0	0	0	0	
KAHULUI	79	67	83	63	73	3	.6	-1.1	.6	3.3	86	10.8	62	81	58	0	0	0	0	0	
LIHUE	77	68	80	66	73	3	.3	-1.0	.2	7.9	67	18.1	49	79	63	0	0	0	0	0	
ID BOISE	33	7	57	-7	20	-17	.1	-.2	.1	.6	21	11.5	109	83	34	0	0	0	0	0	
LEWISTON	32	16	52	2	24	-15	.1	-.2	.0	1.0	35	11.8	105	77	48	0	6	2	0	0	
POCATELLO	27	2	53	-14	14	-18	.5	.2	.3	1.8	66	17.2	158	82	55	0	7	4	0	0	
IL CHICAGO	47	32	56	19	39	3	.8	.1	.4	8.2	93	43.9	133	86	62	0	2	3	0	0	
MOLINE	45	29	58	14	37	2	.9	.3	.6	6.1	66	49.8	136	85	53	0	4	4	1	0	
PEORIA	47	31	56	18	39	2	.9	.2	.3	12.1	135	52.8	157	89	57	0	5	4	0	0	
QUINCY	46	32	57	15	39	0	.3	-.3	.2	10.8	101	36.2	98	82	55	0	3	3	0	0	
ROCKFORD	45	30	56	15	37	4	.8	.2	.6	6.2	69	41.2	121	91	63	0	3	3	1	0	
SPRINGFIELD	47	33	56	18	40	1	.8	.1	.5	12.0	146	46.5	144	80	55	0	3	3	0	0	
IN EVANSVILLE	54	34	64	22	44	-1	1.2	.2	.9	16.0	163	43.2	104	90	54	0	4	2	1	0	
FORT WAYNE	49	33	57	21	41	3	.8	.1	.3	9.5	124	40.0	127	90	60	0	2	3	0	0	
INDIANAPOLIS	51	32	59	18	42	2	.9	.1	.8	16.2	193	48.6	134	83	57	0	4	2	1	0	
SOUTH BEND	48	31	57	18	39	2	1.1	.3	.6	14.1	147	45.0	127	87	56	0	2	3	1	0	
IA DES MOINES	41	24	56	5	33	-1	.4	.0	.2	8.5	103	55.0	169	84	61	0	4	3	0	0	
STOUK CITY	31	12	61	-8	22	-10	.3	.1	.2	4.2	72	31.9	128	88	64	0	7	4	0	0	
WATERLOO	41	24	55	11	32	1	.3	-.1	.2	5.6	72	52.2	162	90	63	0	4	3	0	0	
KS CONCORDIA	38	19	59	6	29	-9	.1	-.2	.1	4.5	75	43.3	156	83	48	0	6	0	0	0	
DODGE CITY	45	16	70	3	30	-9	.1	-.2	.1	2.5	64	25.5	123	87	38	0	7	0	0	0	
GOODLAND	35	13	58	-1	24	-11	.1	-.1	.1	3.2	103	20.2	115	84	50	0	7	0	0	0	
TOPEKA	42	22	61	10	32	-7	.1	-.3	.1	9.5	110	46.4	138	86	57	0	6	2	0	0	
WICHITA	45	22	61	11	33	-8	.1	-.4	.1	4.0	46	31.5	95	82	43	0	6	0	0	0	
KY BOWLING GREEN	57	32	64	25	45	0	.5	-.7	.3	9.4	88	31.9	70	89	55	0	4	2	0	0	
LEXINGTON	55	36	61	29	46	3	1.0	.1	.6	12.6	143	42.3	105	94	52	0	2	3	1	0	
LOUISVILLE	58	36	65	26	47	3	.4	-.5	.3	11.2	122	44.8	111	93	53	0	3	3	0	0	
LA BATON ROUGE	64	38	74	33	51	-6	.2	-.9	.2	10.6	87	57.5	105	97	43	0	0	1	0	0	
LAKE CHARLES	62	40	75	32	51	-7	.1	-.9	.1	12.0	89	56.9	115	91	54	0	1	1	0	0	
NEW ORLEANS	65	40	73	35	53	-6	.2	-1.0	.2	8.6	69	49.8	90	95	54	0	0	1	0	0	
SREVEPORT	58	31	71	22	45	-8	.2	-.8	.1	12.8	113	55.8	126	95	51	0	4	2	0	0	

Based on 1961-90 normals.

Weather Data for the Week Ending November 27, 1993

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 Sept 1	PCT. NORMAL SINCE Sept 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE	MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	TEMP. °F		PRECIP.	
																			.01 INCH OR MORE	.50 INCH OR MORE		
ME CARIBOU	30	13	48	3	22	-5	.1	-.7	.1	12.1	124	35.7	108	77	37	0	0	7	7	2	0	
PORTLAND	44	23	55	11	34	-2	.4	-1.2	.1	10.9	94	37.5	95	80	36	0	0	6	6	1	0	
MD BALTIMORE	55	31	61	25	43	-1	1.5	.7	1.5	9.2	98	37.0	100	84	43	0	0	6	6	1	0	
SALISBURY	58	33	65	23	45	-1	.1	-.7	.1	9.4	95	43.1	104	96	50	0	0	3	1	1	0	
MA BOSTON	49	31	62	18	40	-2	.4	-1.0	.4	10.2	100	35.6	96	80	41	0	0	4	4	1	0	
CHATHAM	48	35	54	24	41	0	.4	-1.0	.4	10.2	89	33.3	83	81	55	0	0	3	2	2	0	
MI ALPENA	40	26	48	17	33	1	.7	.2	.4	6.0	83	25.4	96	92	65	0	0	6	6	2	0	
DETROIT	49	35	57	27	42	5	1.0	.3	.4	8.1	110	29.8	101	86	59	0	0	2	3	3	0	
FLINT	45	29	53	20	37	1	.9	.3	.6	8.2	101	30.6	110	89	56	0	0	4	3	3	1	
GRAND RAPIDS	46	30	56	22	38	3	.9	.1	.8	14.5	144	44.9	136	86	56	0	0	4	3	3	1	
HOUGHTON LAKE	41	26	49	18	33	2	.6	.1	.5	5.5	72	26.0	100	88	57	0	0	6	2	2	1	
LANSING	46	29	55	19	38	4	.7	.1	.5	9.1	102	34.7	119	91	57	0	0	4	3	1	1	
MARQUETTE	32	18	40	5	25	-1	.7	.1	.5	10.5	102	31.7	98	89	62	0	0	7	5	1	1	
MUSKEGON	44	33	55	26	38	2	.9	.2	.8	8.2	86	35.0	120	93	60	0	0	4	3	1	1	
SAULT ST. MARIE	33	17	42	7	25	-4	.8	.0	.6	11.3	113	31.4	101	91	51	0	0	7	4	1	1	
MN ALEXANDRIA	25	14	43	-3	20	-5	.5	.3	.2	3.6	60	25.9	105	92	76	0	0	7	4	1	0	
DULUTH	29	13	41	-4	21	-2	.5	.1	.2	3.9	48	30.0	105	90	67	0	0	7	3	0	0	
INT'L FALLS	26	8	42	-10	17	-3	.4	.1	.2	3.5	56	21.0	90	84	57	0	0	7	4	0	0	
MINNEAPOLIS	33	21	50	3	27	-2	.5	.2	.5	4.4	70	31.7	117	83	61	0	0	6	4	0	0	
ROCHESTER	33	21	49	4	27	-1	.4	.1	.3	4.7	64	37.8	133	92	75	0	0	6	2	0	0	
MS GREENWOOD	64	35	74	25	50	-2	.7	-1.2	.7	9.0	79	39.0	81	93	45	0	0	4	1	0	0	
JACKSON	62	35	72	28	48	-4	.1	-1.1	.1	11.5	110	45.2	94	98	45	0	0	3	1	0	0	
MERIDIAN	67	36	76	30	52	-2	.1	-1.1	.1	12.4	118	51.2	102	93	39	0	0	3	2	0	0	
MO CAPE GIRARDEAU	52	34	62	24	43	-1	1.4	.4	.9	15.3	152	46.2	112	91	59	0	0	3	3	1	0	
COLUMBIA	46	27	63	13	37	-3	.3	-.4	.2	18.3	181	61.0	171	85	53	0	0	6	4	0	0	
KANSAS CITY	42	25	60	10	33	-6	.5	.2	.2	11.7	118	50.6	141	81	57	0	0	4	3	0	0	
SAINT LOUIS	51	36	64	23	43	1	.7	-.1	.3	16.6	190	53.3	156	78	46	0	0	3	4	0	0	
SPRINGFIELD	48	27	67	13	38	-5	.3	-.6	.2	22.9	192	54.2	134	83	51	0	0	5	3	0	0	
MT BILLINGS	22	3	56	-11	12	-19	.1	-.1	.1	4.2	127	15.6	109	78	48	0	0	7	2	0	0	
GLASGOW	13	-6	43	-19	4	-21	.5	.4	.4	1.7	89	16.1	153	82	66	0	0	7	3	0	0	
GREAT FALLS	18	-1	42	-14	9	-22	.3	.1	.2	3.8	146	22.8	160	77	51	0	0	7	4	0	0	
HAVRE	16	-6	41	-24	5	-20	.4	.1	.2	.4	19	12.8	121	82	57	0	0	7	0	0	0	
HELENA	15	-6	36	-12	4	-24	.1	.0	.1	2.3	106	18.6	170	83	63	0	0	7	3	0	0	
KALISPELL	15	-4	37	-14	5	-23	1.0	.6	.6	3.8	115	21.8	149	86	62	0	0	7	3	1	0	
MILES CITY	20	-1	45	-18	9	-19	.2	.1	.1	1.5	57	18.6	139	86	63	0	0	7	3	0	0	
MISSOULA	21	-2	44	-11	9	-20	.2	.0	.2	2.8	109	13.7	112	79	60	0	0	7	2	0	0	
NE GRAND ISLAND	33	13	64	1	23	-10	.2	-.1	.1	3.9	76	32.7	136	82	60	0	0	7	2	0	0	
LINCOLN	34	16	59	2	25	-9	.1	-.2	.0	5.6	83	25.4	93	91	59	0	0	7	2	0	0	
NORFOLK	31	13	64	-3	22	-10	.2	.0	.2	5.4	108	33.9	139	82	61	0	0	7	3	0	0	
NORTH PLATTE	34	11	60	-2	22	-9	.7	-.1	.7	3.6	114	26.0	139	83	42	0	0	7	1	0	0	
OMAHA	34	18	57	3	26	-8	.1	-.1	.1	5.7	78	41.4	146	84	60	0	0	5	3	0	0	
SCOTTSBLUFF	28	11	56	-7	20	-13	.3	.2	.2	6.6	272	24.2	166	79	52	0	0	7	4	0	0	
VALENTINE	23	8	59	-5	15	-17	.2	.0	.1	3.8	86	20.1	92	85	53	0	0	7	2	0	0	
NV ELY	39	9	51	-1	24	-7	.7	-.1	.7	1.8	70	9.8	104	80	34	0	0	7	0	0	0	
LAS VEGAS	58	36	69	25	47	-5	.7	-.1	.7	1.2	22	4.8	132	58	18	0	0	3	2	0	0	
RENO	46	21	54	13	34	-4	.0	-.2	.0	1.4	95	6.3	98	76	27	0	0	6	0	0	0	
WINNEMUCCA	38	4	53	-7	21	-13	.1	-.1	.1	.7	37	6.9	95	83	39	0	0	7	1	0	0	
NH CONCORD	45	19	56	7	32	-2	.7	-.9	.7	9.7	104	26.6	81	83	38	0	0	7	0	0	0	
NJ ATLANTIC CITY	55	29	61	22	42	-1	.7	-.9	.7	7.2	80	34.1	93	88	45	0	0	5	0	0	0	
NM ALBUQUERQUE	53	29	64	19	41	0	.7	-.1	.7	2.1	92	8.8	106	76	24	0	0	5	0	0	0	
CLOVIS	51	22	69	11	37	-7	.7	-.1	.7	2.2	52	14.0	83	76	29	0	0	5	1	0	0	
ROSWELL	60	24	81	11	42	-6	.0	-.1	.0	1.5	43	9.9	82	83	39	0	0	7	0	0	0	
NY ALBANY	43	22	57	10	33	-3	.1	-.7	.0	8.4	97	36.2	110	86	50	0	0	7	6	0	0	
BINGHAMTON	44	26	53	16	35	0	.2	-.6	.1	9.8	107	37.9	113	84	42	0	0	5	2	0	0	
BUFFALO	44	29	51	21	37	-1	1.2	-.3	1.1	12.2	121	36.5	106	84	58	0	0	4	3	1	0	
NEW YORK	52	36	61	27	44	0	.0	-.9	.0	9.9	101	38.0	99	78	45	0	0	4	0	0	0	
ROCHESTER	43	29	52	21	36	-1	1.3	-.6	1.2	10.2	127	26.9	93	88	57	0	0	2	2	1	0	
SYRACUSE	43	25	54	12	34	-4	.5	-.4	.5	14.6	141	45.0	127	90	50	0	0	5	2	2	0	
NC ASHEVILLE	57	29	66	20	43	-2	2.5	1.5	1.7	6.1	46	34.4	67	92	43	0	0	5	2	2	0	
CHARLOTTE	61	41	71	35	51	2	1.5	.8	1.5	5.8	59	32.4	82	78	33	0	0	4	1	1	0	
GREENSBORO	58	35	71	29	47	0	1.3	.7	1.3	6.7	68	39.1	100	86	47	0	0	4	1	1	0	
HATTERAS	66	57	71	50	62	7	.7	-.4	.7	17.8	121	54.3	106	90	67	0	0	0	1	1	1	
NEW BERN	67	47	71	38	57	4	.8	.1	.8	9.9	90	42.9	86	94	53	0	0	0	1	1	1	
RALEIGH	63	40	70	32	52	3	1.7	1.0	1.7	9.1	104	34.3	91	85	39	0	0	1	1	1	1	
WILMINGTON	70	47	76	33	59	6	2.1	1.3	2.1	19.0	145	59.1	112	89	50	0	0	0	1	1	1	
ND BISMARCK	20	9	48	2	15	-9	1.0	.9	.5	1.3	47	26.2	175	91	74	0	0	7	6	1	0	
FARGO	27	14	45	8	21	-2	1.3	1.2	.5	2.5	58	20.9	111	87	59	0	0	7	6	1	0	
GRAND FORKS	25	10	41	1	18	-4	.6	.5	.4	2.0	47	20.9	119	89	67	0	0	7	4	0	0	
WILLISTON	16	0	39	-4	8	-14	.7	.6	.3	1.3	52	18.6	142	82	69	0	0	7	5	0	0	
OH AKRON-CANTON	51	33	55	28	42	3	1.7	1.0	1.7	14.2	169	38.4	115	87	55	0	0	3	3	1	0	
CINCINNATI	54	36	63	27	45	4	.9	.0	.5	9.6	108	36.2	96	82	51	0	0	2	3	1	0	
CLEVELAND	51	33	56	27	42	3	1.2	.5	1.0	13.4	152	38.3	116	86	50	0	0	3	3	1	1	
COLUMBUS	56	35	62	28	45	7	.8	.0	.6	9.4	112	35.9	104	90	58	0	0	3	3	1	1	
DAYTON	52	35	61	24	44	4	1.0	.3	.6	13.9	179	49.4	148	83	50	0	0	2	3	1	1	

Based on 1961-90 normals.

Weather Data for the Week Ending November 27, 1993

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 Sept 1	PCT. NORMAL SINCE Sept 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE	MAXIMUM	MINIMUM	90 AND ABOVE	32 AND BELOW	TEMP. °F		PRECIP.	
																			.01 INCH OR MORE	.50 INCH OR MORE		
TOLEDO	49	32	58	21	41	4	.9	.2	.6	8.4	113	28.4	95	91	61	0	0	3	3	1	1	
YOUNGSTOWN	49	31	55	26	40	3	1.0	.3	1.0	11.2	126	34.1	100	89	47	0	0	3	3	1	1	
OK OKLAHOMA CITY	51	24	70	13	37	-3	.0	-.4	.0	5.2	58	31.7	99	80	35	0	0	5	5	0	0	
TULSA	52	29	68	14	40	-6	.4	-.7	.4	9.8	87	37.4	98	77	40	0	0	4	4	0	0	
OR ASTORIA	43	31	49	24	37	-8	1.4	-1.2	.9	5.2	30	39.5	72	85	54	0	0	5	3	1	1	
BURNS	30	1	43	-12	16	-15	.4	-.3	.4	16	8.4	96	84	50	0	0	7	7	0	0		
MEDFORD	46	22	54	16	34	-7	.2	-.7	.2	17	13.8	91	94	47	0	0	6	6	1	0		
PENDLETON	30	10	56	1	20	-19	.4	-.4	.3	11	12.1	118	85	52	0	0	7	7	2	0		
PORTLAND	41	29	48	18	35	-9	.3	-1.1	.2	2.4	26	24.7	84	80	54	0	0	6	6	2	0	
SALEM	42	26	48	18	34	-4	.4	-1.2	.3	2.0	19	27.3	86	82	53	0	0	5	5	4	0	
PA ALLENTOWN	51	27	58	16	39	-1	.2	-.7	.2	14.3	138	46.4	117	88	48	0	0	5	5	1	1	
ERIE	48	32	53	23	40	0	.9	.0	.8	12.5	107	34.7	93	82	46	0	0	3	3	2	1	
HARRISBURG	51	31	59	25	41	1.4	.6	1.4	1.3	13.0	135	42.6	115	85	48	0	0	4	4	1	1	
PHILADELPHIA	57	35	66	26	46	3	.1	-.9	.1	9.9	91	36.9	88	79	43	0	0	3	3	1	1	
PITTSBURGH	52	33	59	26	43	4	.7	.0	.7	10.7	136	35.9	107	83	51	0	0	2	2	1	1	
SCRANTON	50	29	58	19	40	1	.3	-.4	.3	11.8	133	34.4	103	81	40	0	0	4	4	1	0	
RI PROVIDENCE	51	27	58	17	39	-2	.1	-1.0	.1	9.5	85	34.9	86	83	41	0	0	5	5	1	0	
SC CHARLESTON	70	52	75	42	61	5	1.1	.5	1.1	11.6	118	50.4	105	71	51	0	0	0	2	1	1	
COLUMBIA	67	39	73	28	53	1	1.6	.9	1.6	10.1	109	36.6	79	92	42	0	0	1	1	1	0	
FLORENCE	70	46	73	34	58	5	.4	-.2	.4	6.6	80	31.0	77	79	43	0	0	0	1	0	0	
GREENVILLE	61	37	70	29	49	0	2.1	1.2	2.0	7.5	67	36.3	78	82	36	0	0	2	2	1	1	
SD ABERDEEN	24	13	53	4	19	-6	1.3	1.1	.7	3.5	85	27.6	135	86	63	0	0	7	6	2	1	
BURON	26	11	58	-4	19	-9	.4	.3	.2	3.8	99	29.0	148	88	54	0	0	7	6	0	0	
RAPID CITY	27	10	60	-5	19	-12	.6	.5	.4	3.1	108	19.3	120	76	51	0	0	7	3	0	0	
SIoux FALLS	29	12	57	-11	20	-8	.4	.2	.2	3.9	68	35.8	155	91	54	0	0	7	4	0	0	
TN CHATTANOOGA	62	34	71	29	48	0	.6	-.5	.5	6.8	59	34.8	73	95	45	0	0	5	2	0	0	
KNOXVILLE	61	34	68	25	47	1	1.3	.3	1.0	10.3	112	38.1	90	95	53	0	0	4	2	1	1	
MEMPHIS	58	36	67	25	47	-2	.4	-.3	.3	9.7	88	38.4	84	84	44	0	0	4	4	2	0	
NASHVILLE	59	34	65	27	47	0	.4	-.7	.3	7.7	79	37.5	89	87	44	0	0	4	4	0	0	
TX ABILENE	57	31	74	16	44	-8	.4	-.3	.3	6.0	85	17.9	77	78	38	0	0	5	0	0	0	
AMARILLO	50	18	73	7	34	-9	.0	-.1	.0	2.1	51	17.4	91	80	32	0	0	7	7	0	0	
AUSTIN	61	35	77	29	48	-10	.2	-.3	.2	3.8	42	25.4	85	88	48	0	0	3	2	0	0	
BEAUMONT	63	41	77	32	52	-7	.2	-1.0	.2	13.7	91	65.2	126	96	52	0	0	1	1	1	0	
BROWNSVILLE	68	50	81	36	59	-8	.4	-.3	.3	7.8	77	24.9	99	88	63	0	0	0	0	0	0	
CORPUS CHRISTI	67	45	82	32	56	-8	.1	-.2	.1	3.8	38	32.8	114	86	46	0	0	1	2	1	0	
DEL RIO	65	38	78	25	52	-6	.4	-.2	.2	1.6	23	14.2	60	74	41	0	0	2	2	1	0	
EL PASO	64	34	74	23	49	0	.0	-.1	.0	2.0	69	8.9	108	74	23	0	0	3	3	0	0	
FORT WORTH	56	32	71	23	44	-7	.2	-.3	.2	10.0	91	30.2	86	88	46	0	0	4	4	1	0	
GALVESTON	62	48	73	38	55	-6	.1	-.8	.1	14.2	120	44.8	117	87	60	0	0	4	0	1	0	
HOUSTON	63	37	77	27	50	-8	.4	-.2	.4	9.7	65	55.3	114	92	52	0	0	1	1	0	0	
LUBBOCK	55	26	70	12	41	-6	.0	-.1	.0	1.0	20	12.4	69	73	29	0	0	4	4	1	0	
MIDLAND	60	27	79	13	44	-7	.4	-.1	.4	3.3	63	16.1	110	80	33	0	0	5	0	0	0	
SAN ANGELO	59	31	77	19	45	-7	.0	-.2	.0	3.1	46	14.9	76	78	37	0	0	4	4	0	0	
SAN ANTONIO	63	34	78	23	49	-9	.1	-.5	.1	4.3	48	31.6	108	86	45	0	0	5	5	0	0	
VICTORIA	63	38	78	26	51	-10	.2	-.6	.1	5.4	39	47.4	113	90	50	0	0	1	2	0	0	
WACO	56	31	73	22	44	-11	.5	-.1	.4	11.0	121	30.3	102	94	55	0	0	5	2	0	0	
WICHITA FALLS	53	28	71	15	40	-9	.4	-.3	.4	5.8	65	26.7	88	84	39	0	0	5	5	2	0	
UT CEDAR CITY	44	16	57	6	30	-4	.4	-.2	.4	1.9	65	9.8	91	78	27	0	0	6	6	1	0	
SALT LAKE CITY	36	17	52	3	27	-11	.5	-.2	.2	3.5	89	18.0	122	83	50	0	0	6	6	3	0	
VT BURLINGTON	39	21	52	6	30	-4	.4	-.7	.4	8.8	97	31.5	99	82	42	0	0	6	0	0	0	
VA NORFOLK	59	45	69	39	52	2	.1	-.6	.1	8.3	86	32.5	79	87	62	0	0	0	1	0	0	
RICHMOND	61	37	69	26	49	2	1.2	.5	1.2	7.6	78	37.6	95	91	41	0	0	1	1	1	1	
ROANOKE	56	33	68	26	45	0	2.0	1.3	2.0	9.4	91	34.4	91	87	46	0	0	3	3	1	1	
WA QUILLAYUTE	42	27	51	18	35	-8	1.5	-2.2	.9	10.4	36	55.1	62	93	59	0	0	5	3	1	1	
SEATTLE-TACOMA	41	27	49	19	34	-9	.2	-1.3	.1	2.3	22	22.9	75	85	47	0	0	5	3	0	0	
SPOKANE	26	8	45	-5	17	-15	.1	-.4	.1	1.0	28	11.5	83	80	58	0	0	6	2	0	0	
YAKIMA	32	6	57	-5	19	-17	.1	-.2	.1	.6	35	5.2	81	83	49	0	0	7	2	0	0	
WV BECKLEY	54	34	60	24	44	3	1.0	.3	.6	9.9	111	35.7	95	77	49	0	0	2	2	1	1	
CHARLESTON	60	37	66	29	49	4	.9	.0	.7	13.0	139	38.0	98	81	47	0	0	3	2	1	1	
HUNTINGTON	60	37	69	28	48	7	1.0	.2	.8	11.5	122	38.9	98	83	47	0	0	3	3	1	1	
PARKERSBURG	57	35	62	28	46	5	.7	-.1	.7	8.7	107	35.4	95	86	47	0	0	2	2	1	1	
WI GREEN BAY	39	26	49	17	33	3	.6	-.1	.5	6.6	86	33.3	123	87	49	0	0	7	2	0	0	
LACROSSE	38	27	52	16	33	2	.4	-.4	.4	2.7	36	39.5	135	92	61	0	0	4	4	0	0	
MADISON	43	27	56	16	35	3	.9	-.4	.5	6.2	76	43.0	142	86	48	0	0	5	3	0	0	
MILWAUKEE	46	32	55	19	39	5	.7	-.1	.5	6.0	74	35.8	118	92	58	0	0	2	3	0	0	
WAUSAU	35	21	50	6	28	0	.0	.0	.0	8.1	92	35.7	115	85	55	0	0	6	3	1	1	
WY CASPER	27	6	48	-19	17	-13	.2	-.0	.1	3.0	115	15.2	129	70	47	0	0	6	4	0	0	
CHEYENNE	30	9	51	-16	20	-13	.1	-.0	.1	6.2	251	18.6	134	78	46	0	0	7	2	0	0	
LANDER	26	4	45	-15	15	-12	.1	-.0	.1	3.3	112	16.1	130	85	50	0	0	7	1	0	0	
SHERIDAN	26	5	53	-14	15	-13	.1	-.1	.1	3.0	89	16.8	123	80	52	0	0	7	1	0	0	

Based on 1961-90 normals.

HEATING DEGREE DAYS (Base 65° F) November 21 - 27, 1993

(Cumulative totals and departures from normal are for the period July 1 - November 27, 1993)

STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE		
	TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92
AL BIRMINGHAM	102	1	515	43	72	LA BATON ROUGE	95	38	356	139	123	TULSA	171	41	878	323	233
HUNTSVILLE	107	-6	602	58	81	LAKE CHARLES	96	39	291	90	65	OR ASTORIA	192	55	1487	122	123
MOBILE	74	16	303	83	74	NEW ORLEANS	86	32	261	77	80	EUGENE	237	92	1181	158	272
MONTGOMERY	92	15	404	75	91	SHREVEPORT	140	63	502	213	158	MEDFORD	213	49	1020	35	260
AK ANCHORAGE	308	-17	2597	-491	-603	ME BANGOR	242	17	1664	104	-81	NORTH BEND	157	43	1317	84	235
BARROW	459	-33	5221	-832	-910	PORTLAND	219	12	1503	58	-71	PENDLETON	313	130	1287	91	139
BETHEL	334	-25	3112	-558	-740	MD BALTIMORE	153	6	838	55	-7	PORTLAND	210	63	955	-37	97
COLD BAY	213	-9	2623	-374	-491	MA BOSTON	172	12	1011	97	-129	REDMOND	342	136	1944	274	385
FAIRBANKS	428	-40	3423	-454	-743	MT ALPENA	221	-8	1872	176	-149	SALEM	215	63	1079	-57	172
JUNEAU	245	-2	2147	-499	-380	DETROIT	161	-36	1184	-22	-129	PA ALLENTOWN	181	6	1130	92	-60
KING SALMON	293	-21	2710	-640	-732	FLINT	191	-11	1576	261	76	BRADFORD	216	-9	1721	-36	-52
KOTZEBUE	432	7	3929	-354	-668	GRAND RAPIDS	187	-24	1517	162	12	ERIE	171	-4	1190	147	39
MCGRATH	422	-34	3394	-641	-763	LANSING	190	-20	1559	187	-56	PHILADELPHIA	133	-17	685	-118	-114
NOME	347	-18	3623	-392	-839	MUSKEGON	184	-18	1485	185	00	PITTSBURGH	153	-27	1096	-16	-66
ST PAUL ISLAND	216	-17	2910	-525	-609	TRVERSE CITY	208	-11	1576	87	-158	SCRANTON	176	-11	1277	112	32
YAKUTAT	236	-14	2426	-447	-508	MN DULUTH	305	15	2428	301	40	WILLIAMSPORT	187	4	1256	122	75
AZ FLAGSTAFF	226	10	1615	-18	80	INT'L FALLS	336	16	2567	291	83	RI PROVIDENCE	179	11	1086	78	-21
PHOENIX	40	-2	114	-14	13	MINNEAPOLIS	266	11	1777	239	80	SC CHARLESTON	27	-41	222	-52	-6
TUCSON	57	-2	175	-11	-43	ROCHESTER	264	5	1873	259	-12	COLUMBIA	84	-6	414	-10	04
AR FORT SMITH	165	42	711	189	185	MS JACKSON	114	33	523	158	188	GREENVILLE	110	-1	591	59	-50
LITTLE ROCK	143	29	650	171	178	MERIDIAN	93	11	432	41	105	SD ABERDEEN	323	46	1880	178	-8
CA FRESNO	121	20	302	-84	16	MO COLUMBIA	195	22	1136	252	143	HURON	323	62	1821	245	61
LOS ANGELES	12	-28	57	-110	04	KANSAS CITY	221	41	1155	242	126	PIERRE	324	77	1725	274	136
SACRAMENTO	139	36	383	-13	70	SAINT LOUIS	150	-7	878	130	92	RAPID CITY	320	82	1722	159	92
SAN DIEGO	27	-5	91	-34	24	SPRINGFIELD	191	35	1019	230	207	SIOUX FALLS	310	53	1752	205	77
SAN FRANCISCO	96	12	401	-240	62	MT BILLINGS	366	131	1849	263	331	TN BRISTOL	123	-22	819	21	-10
CO COLORADO SPRINGS	263	51	1641	264	238	GLASGOW	426	141	2157	270	274	CHATTANOOGA	116	-4	551	-26	-59
DENVER	273	70	1481	220	244	GREAT FALLS	389	145	2332	539	474	KNOXVILLE	122	-10	703	19	42
GRAND JUNCTION	242	43	1248	215	238	HAVRE	416	138	2246	332	262	MEMPHIS	122	15	561	91	116
CT HARTFORD	198	13	1271	165	-33	HELENA	423	163	2282	360	430	NASHVILLE	125	0	700	93	119
DE WILMINGTON	148	-3	807	-6	-79	KALISPELL	415	158	2431	218	355	TX ABILENE	147	54	601	248	235
DC WASHINGTON	132	6	683	78	-62	MISSOULA	388	138	2155	196	255	AMARILLO	214	58	1024	274	168
FL DAYTONA BEACH	0	-27	51	-19	21	NE GRAND ISLAND	292	71	1458	223	65	AUSTIN	117	61	340	177	122
FORT MYERS	0	-9	14	-5	14	NORTH PLATTE	298	64	1630	206	118	BROWNSVILLE	58	40	128	88	65
JACKSONVILLE	16	-28	131	-27	12	OMAHA	271	56	1404	252	121	CORPUS CHRISTI	72	40	172	93	61
KEY WEST	0	0	0	0	00	SCOTTSBLUFF	314	88	1785	366	271	DALLAS FT WORTH	145	63	524	239	205
MIAMI	0	-3	4	1	04	NV ELKO	324	96	2139	536	305	EL PASO	109	-1	464	49	24
ORLANDO	0	-18	38	-7	23	ELY	285	47	2098	336	422	HOUSTON	107	52	314	129	90
PENSACOLA	46	-8	211	16	51	LAS VEGAS	124	30	375	54	55	LUBBOCK	169	41	761	195	196
TALLAHASSEE	33	-26	209	-13	44	RENO	218	26	1071	-234	78	LUFKIN	130	59	441	194	115
TAMPA	0	-22	35	-23	09	WINNEMUCCA	303	93	1591	128	204	MIDLAND ODESSA	146	39	606	164	174
WEST PALM BEACH	0	-7	10	-2	10	NH CONCORD	230	11	1631	114	-66	SAN ANGELO	137	48	522	189	184
GA ATHENS	101	3	491	44	09	NJ ATLANTIC CITY	159	5	967	85	-10	SAN ANTONIO	111	53	333	150	118
ATLANTA	83	-18	433	-34	-15	NEWARK	153	7	784	43	-7	VICTORIA	98	53	263	125	99
AUGUSTA	73	-14	352	-50	-1	NM ALBUQUERQUE	167	-1	862	41	73	WACO	146	73	534	289	250
MACON	87	9	405	45	62	NY ALBANY	224	23	1420	143	-68	WICHITA FALLS	170	59	712	272	279
SAVANNAH	22	-42	205	-39	09	BINGHAMTON	209	-1	1617	180	-107	UT CEDAR CITY	243	44	1302	84	158
ID BOISE	314	115	1437	175	160	BUFFALO	199	5	1375	146	-30	SALT LAKE CITY	268	74	1285	168	140
POCATELLO	352	121	1943	383	338	MASSENA	258	22	1619	-9	-198	VT BURLINGTON	245	23	1580	70	-83
IL CHICAGO	179	-22	1344	194	16	NEW YORK	146	2	742	1	-89	VA LYNCHBURG	136	-4	759	3	-7
MOLINE	195	-12	1285	164	-19	ROCHESTER	202	8	1428	172	-84	NORFOLK	88	-17	457	-48	-18
PEORIA	182	-12	1190	158	36	SYRACUSE	219	25	1424	159	-45	RICHMOND	112	-14	620	-39	-62
ROCKFORD	192	-26	1433	183	-18	NC ASHEVILLE	153	14	846	21	08	ROANOKE	139	-1	818	36	-20
SPRINGFIELD	174	-7	1122	178	152	CAPE HATTERAS	23	-53	148	-171	-91	WA OLYMPIA	242	72	1408	-86	176
IN EVANSVILLE	144	-10	854	63	126	CHARLOTTE	95	-15	483	-23	-13	QUILLAYUTE	211	54	1622	-17	115
FORT WAYNE	167	-24	1191	90	-22	GREENSBORO	126	0	674	26	-42	SEATTLE TACOMA	215	64	1181	0	163
INDIANAPOLIS	162	-16	1133	160	119	RALEIGH DURHAM	92	-22	569	10	-14	SPOKANE	335	105	1835	182	244
SOUTH BEND	178	-15	1323	180	71	WILMINGTON	43	-31	265	-60	-56	YAKIMA	320	114	1580	188	251
IA DES MOINES	224	12	1381	247	82	ND BISMARK	351	62	2117	213	81	WV BECKLEY	147	-22	1028	-88	-9
MASON CITY	258	8	1728	232	14	FARGO	310	15	2029	154	13	CHARLESTON	113	-34	841	20	-2
SIOUX CITY	300	67	1580	298	107	MINOT	370	76	2252	270	133	HUNTINGTON	114	-34	837	-2	19
WATERLOO	226	-11	1466	63	-49	WILLISTON	397	98	2338	318	215	WI EAU CLAIRE	258	-3	1869	234	111
KS CONCORDIA	252	59	1216	257	51	OH AKRON CANTON	158	-24	1246	126	-66	GREEN BAY	224	-19	1704	122	-41
DODGE CITY	241	62	1219	356	129	CLEVELAND	158	-21	1160	74	-51	MADISON	208	-28	1553	57	-15
GOODLAND	285	77	1539	326	181	COLUMBUS	135	-41	1005	-30	-32	MILWAUKEE	181	-38	1243	-95	-160
RUSSELL	248	60	1192	262	130	CINCINNATI	138	-29	1020	98	30	WY CASPER	337	90	1789	70	269
TOPEKA	228	48	1143	229	129	DAYTON	149	-28	1112	97	27	CHEYENNE	314	85	2042	366	366
WICHITA	220	51	1032	252	196	TOLEDO	170	-28	1272	53	-8	LANDER	346	80	2009	257	386
NY LEKINGTON	133	-21	904	71	65	YOUNGSTOWN	171	-18	1318	92	-73	ROCK SPRINGS	335	68	2305	354	390
LOUISVILLE	123	-23	825	66	141	OK OKLAHOMA CITY	193	61	865	313	262	SHERIDAN	343	90	2090	302	376

Based on 1961-90 normals.

National Agricultural Summary

November 22 - 28, 1993

HIGHLIGHTS: Winter wheat in the Northwest, late row crop harvests, and livestock suffered as a slow moving storm brought snow, sleet, rain, and cold weather from the Northwest through the Mississippi Valley to the Mid-Atlantic States. Heavy rains caused some local flooding in parts of Virginia at the end of the week. Temperatures were generally below normal west of the Mississippi River and in the Northeast, and slightly above or near normal elsewhere. Temperatures averaged more than 10 degrees below normal in many parts of the Northwest and western Great Plains.

SMALL GRAINS: Winter wheat emergence was at 93 percent (%), compared with 91% last year and a 94% average. The cold weather in the Northwest brought wheat emergence to a virtual stop, and pushed the crop into dormancy across much of Kansas. The cold weather may have adversely affected some wheat in Washington. The storm brought adequate snow cover to many parts of the upper Great Plains. Winter wheat condition was rated at 69% good to excellent, unchanged from last week. The planting of other small grains continued in the South. In California, planting continued where moisture was adequate. Many areas of Texas were in need of more rain and warmer weather to boost growth.

CORN: Corn harvest in the 17 major producing States reached 96% complete, compared with 75% last year and a 93% average. The most progress this week was made in the central Plains and the eastern Corn Belt. This week's storm left unharvested corn in the upper Plains. Muddy fields froze in the central Plains and allowed the harvest to advance.

SOYBEANS: In Georgia and the Carolinas, the harvest advanced to 63% complete, compared with 64% last year and a 77% average. Elsewhere, wet, cold conditions prevented the harvest from reaching conclusion.

COTTON: Harvest progress was ahead of average in all major States except Arkansas, where rain slowed progress. Cotton harvest in the 14 producing States advanced to 92%, compared with 83% last year and an 85% average. Harvest was active in northern Texas until freezing conditions arrived. Land preparation for the 1994 crop began in the Trans-Pecos region of Texas.

SORGHUM: The harvest in Colorado made good progress as this week's conditions allowed fields to dry and the crop to dry down. Harvest progress in New Mexico and Oklahoma reached 82% completed, compared with 93% last year.

OTHER FIELD CROPS: Onion planting advanced in Georgia but a shortage of transplants slowed progress. The onion crop made good progress in Texas. The peanut harvest advanced in Oklahoma and Texas. Progress in Oklahoma remained behind last year and average. In Texas, this week's weather caused harvest delays in many areas. Rainfall in eastern Tennessee allowed tobacco stripping to reach near 75% complete. The Christmas tree harvest was underway nationally.

FRUITS AND NUTS: The citrus harvest advanced in Arizona, California, and Florida. Low night time temperatures had little effect on the crop in the California Central Valley. Irrigation of some citrus groves continued in parts of Florida as dry conditions persisted. Nationally, the pecan harvest was active. Harvest progress in Mississippi and Georgia was behind last year and average. In east Texas, the pecan harvest advanced under excellent conditions.

VEGETABLES: This week's low temperatures caused little damage to vegetables growing in Texas and northern Florida. However, the extreme cold stopped the carrot harvest in Washington State. The vegetable harvest was active in Arizona, Florida, and California. The planting of spring 1994 vegetables began in California.

PASTURE AND LIVESTOCK: Pasture feed conditions continued generally fair to good across the Nation. However, recent rains caused some problems for small grain pastures in parts of Texas. Supplemental feeding increased due to the cold conditions, but hay supplies were generally adequate across the country, except in parts of Texas and Iowa. The cold conditions caused some sickness in calves in South Dakota. Generally, livestock condition remained good across the Nation.

Crop Condition (Percent)

for the Week Ending November 28, 1993

WINTER WHEAT					
State	VP	P	F	G	EX
AR	0	0	20	80	0
CA	0	0	5	85	10
CO	0	3	9	61	27
GA	0	0	28	70	2
ID	0	1	23	65	11
IL	2	9	30	57	2
IN	0	4	38	53	5
KS	0	2	7	55	36
MI	2	8	25	50	15
MO	2	5	53	40	0
MT	0	0	25	58	17
NE	0	0	12	71	17
NC	0	0	35	62	3
OH	1	2	20	55	22
OK	0	0	57	43	0
OR	0	0	25	70	5
SD	0	0	14	78	8
TX	1	12	49	35	3
WA	0	5	45	50	0
19 State	0	3	28	54	15
Prev Week	0	4	27	54	15
Prev Year	1	4	30	48	17

VP - Very Poor P - Poor F - Fair
G - Good EX - Excellent

This is the last compilation of the national crop progress and condition statistics for the 1993 crop year. Presentation of this data will resume in early April 1994.

Crop Progress

for the Week Ending November 28, 1993

WINTER WHEAT
(Percent Emerged)

	Current	Last Wk	1992	Avg.
AR	80	70	87	84
CA	30	25	30	33
CO	100	100	100	100
GA	41	22	42	36
ID	93	93	99	98
IL	90	80	100	100
IN	99	94	99	99
KS	99	97	97	96
MI	96	95	85	96
MO	77	75	84	93
MT	90	85	100	97
NE	100	100	100	100
NC	59	50	69	64
OH	100	98	97	96
OK	95	94	80	94
OR	97	96	100	95
SD	100	100	100	100
TX	88	84	80	89
WA	93	93	100	98
19 States	93	90	91	94

These 19 States produced 90% of the 1992 winter wheat crop.

CORN
(Percent Harvested)

	Current	Last Wk	1992	Avg.
CO	96	90	85	94
GA	100	100	100	100
IL	99	98	81	96
IN	94	90	70	85
IA	99	97	79	95
KS	99	98	90	100
KY	98	96	98	99
MI	85	80	25	80
MN	93	92	80	95
MO	95	94	84	96
NE	96	90	73	94
NC	100	100	100	100
OH	93	87	58	88
PA	80	73	54	77
SD	94	88	64	93
TX	100	100	100	100
WI	90	88	52	88
17 States	96	93	75	93

These 17 States produced 94% of the 1992 corn crop.

COTTON
(Percent Harvested)

	Current	Last Wk	1992	Avg.
AL	95	94	81	94
AZ	95	94	98	90
AR	96	93	98	98
CA	99	98	99	99
GA	92	88	76	89
LA	99	98	99	99
MS	98	94	97	98
MO	98	97	94	99
NM	79	74	65	62
NC	91	89	68	89
OK	85	74	49	54
SC	95	93	81	91
TN	98	94	93	95
TX	83	77	67	66
14 States	92	88	83	85

These 14 States produced 99% of the 1992 cotton crop.

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 0.07 to 0.72 in. north; none to 0.71 in. central; none to 1.15 in. south. Temperatures 4° below normal to 3° above normal north; 3° below normal to 2° above normal central; 5° below normal to 2° above normal south. Lows 20 to 30° north; 21 to 29° central; 21 to 36° south. Highs 69 to 73° north; 70 to 74° central; 71 to 76° south.

Days suitable for fieldwork 5.7. Soil moisture 15% short, 80% adequate, 5% surplus. Sorghum harvested 98%, 100% 1992, 100% avg. Wheat seeded 81%, 85% 1992, 77% avg. Pasture feed condition 6% very poor, 16% poor, 51% fair, 24% good, 3% excellent. Primary activities: Harvesting sorghum, cotton, soybeans, seeding small grains, general care of livestock, poultry, catfish.

ARIZONA: Cloudy 21st. Rainy, with snow at higher elevations, 22nd and 23rd. Sunny, cooler rest of week. Temperatures varied 6° below normal to 1° above normal. Extremes 5°; 77° higher elevations; 17°; 81° deserts.

Cotton harvest activity increased; 95% harvested, 98% 1992, 90% avg. Stalk shredding, plowdown activity moderate to active all areas, except light west. Small grains field preparations active. Small grain seeded 26%, 30% 1992, 36% avg.; established 12%, 10% 1992, 15% avg. Alfalfa good. Harvest light all areas. Sheeping off activities light to moderate all

areas. Cauliflower harvested western areas. Lemons, grapefruit, naval oranges, lettuce, bok choy, broccoli, napa harvested western, central areas. Central areas, tangerines, tangelos, cantaloupe, mixed greens, parsley, radishes, spinach, green onions, beets, bok choy, cabbage, cilantro, dill, kale, leeks, napa, rapini, swiss chard, sweet corn, pecans harvested. Apples, tomatoes, potatoes harvested eastern production areas.

ARKANSAS: Temperatures below normal. Scattered showers south region, mixed frozen precipitation north region, middle of week. Extremes 11°; 76°. Rainfall none to 2.24 in.

Days suitable for fieldwork 3. Soil moisture supplies adequate to surplus. Main farming activities for the week: Wheat, oats seedbed preparation; planting wheat, oats; pasture fertilization; poultry house maintenance; shredding cotton stalks; harvesting cotton, soybeans. Cotton harvest slowed due to rainfall. Soybeans harvested 91%, 97% 1992, 95% avg. Wheat planted 89%, 94% 1992, 93% avg. Pastures mostly good condition. Pastures supplied average feed to herds for the week. Livestock good.

CALIFORNIA: Cold air from Canada, Pacific Northwest brought below normal temperatures to much of State. Southern coast only area near or above normal temperatures. Record lows

included 26° Sacramento Executive airport. Weak frontal system moved through State early week, brought generally light amounts rain to parts of State.

Field activities gained momentum most areas, soils dried. Rice stubble burned where allowable. Cotton harvest virtually complete. Plowdown for pink bollworm control followed harvest. Seedbed preparation small grains, forage crops progressed. Fields irrigated, fertilized, weed control. Small grain seeding where soil moisture adequate. Harvest corn grain, silage, dry beans, grain sorghum rapidly winding down. Alfalfa, sudan grass cut hay, greenchopped. Some alfalfa fields plowed down, replanted. 1994 sugar beets irrigated, hand weeded. Tree pruning active. Date, avocado, citrus fruit picking active. Cold nighttime temperatures central valley caused little harm citrus crops. Broccoli harvest Coachella Valley continued, slowing down central valley. Cabbage harvest Tulare County continued. Carrots harvested Kern County. Cauliflower harvest Merced County complete, continued Tulare County. Broccoli, cauliflower, celery harvests continued central coast. Sweet corn harvest Coachella Valley slowing. Excellent quality fall head lettuce harvested San Joaquin Valley. Shredding companies continued harvest fall head lettuce central valley. Spring 1994 head lettuce planted Fresno, Kern counties. Processing spinach planted Tulare County for early spring harvest. Ground work continued around State. Other crops harvested: eggplant, cucumbers, snap beans, okra, peppers, squash. Rangeland, pastures need more moisture to promote better grass growth. Supplemental livestock feeding light to moderate. Sheep grazing alfalfa fields. Livestock good condition.

COLORADO: On the 22nd there was light rain in the west, light snow in the mountains with windy conditions in the mountains and along the foothills. Very cold air invaded the state on the 23rd with freezing drizzle along the Palmer Divide and southern foothills but otherwise little moisture at lower elevations. High temperatures on the 23rd were around 30° cooler than those on the 22nd both east, west of the Continental Divide. A weak system on the 24th produced 3 to 6 in. of snow at lower elevations, the remainder of the week was mostly dry with below normal temperatures into the weekend. Moisture 0.25 in. or less over major river basins in the State. Cold Arctic air kept average temperatures considerably below normal over the State. The San Luis Valley recorded average temperatures 2 to 5° below normal while over the remainder of the State 7 to 12° below normal temperatures were common.

Corn harvest made good progress in the northeast. Only light snow on the entire eastern section of the state this last week. Some areas remaining to be harvested in the northeast are still standing because of wet field conditions. Corn harvested 96%, 85% 1992, 94% avg. Sorghum harvest has made good progress in the southeast with warmer weather over the weekend, breezy conditions to dry the crop, fields. Winter wheat 3% poor, 9% fair, 61% good, 27% excellent.

FLORIDA: Temperatures 1 to 3° below normal Panhandle, 1 to 7° above normal Peninsula, Big Bend. Highs, mid 70s to low 80s north, low to mid 80s central, south. Lows, upper 20s to mid 30s Panhandle, Big Bend, upper 30s to mid 40s northeast, central Peninsula, mid 40s to upper 50s south. Rain 2 to 5 days eastern Peninsula, 1 to 2 days elsewhere. Rain totals generally slightly below normal, except 1.00 to 3.00 in. above normal east central Peninsula.

Soil moisture short to adequate with scattered areas surplus. Cotton, soybean harvest virtually complete. Sugarcane harvest active. Small grain, sugarcane planting active. Pecan harvest active. Most citrus very good. Rainfall light except lower east coast. Irrigation some dry areas. New growth slowed. Droppage not excessive, good color break. Many processors now open for grove run fruit. Early fruit harvest also active for fresh markets. Caretakers cutting cover crops, banking young trees. Temperatures low 30s north central vegetable production area, isolated locations showing touch of frost. East coast received up to 5.50 in. of rain. Clear skies, seasonal temperatures west central, south. Volume leaders: Tomatoes, peppers, cucumbers, squash, snap beans. Also available; cabbage, Chinese cabbage, carrots, sweet corn, iceberg, specialty lettuces, radishes, cherry tomatoes, watermelons. Pastures fair to good. Pasture feed 25% fair, 75% good. Cattle herds fair to good.

GEORGIA: Temperatures near normal north, 4 to 6° above normal southeast. Highs around 70° northeast mountains to middle, upper 70s central, south. Coolest lows middle 20s north, with 19° recorded at Blairsville, to around 30° central, middle, upper 30s southeast.

Days suitable for fieldwork 5.6. Soil moisture 4% very short, 29% short, 63% adequate, 4% surplus. Cotton 18% poor, 50% fair, 32% good. Sorghum 96% harvested for grain, 94% 1992, 97% avg. Soybeans 19% very poor, 30% poor, 42% fair, 9% good; 76% harvested, 77% 1992, 86% avg. Wheat 57% planted, 52% 1992, 53% avg.; planting very active. Rye 93% planted, 92% 1992, 90% avg. Other small grains 24% fair, 75% good, 1% excellent; 83% planted, 83% 1992, 78% avg. Onions 56% fair, 44% good; 41% planted, 52% 1992, 55% avg.; Shortage of plants slowing transplanting. Other vegetables 9% poor, 42% fair, 49% good. Apples 92% harvested, 100% 1992, 100% avg.; Harvest slow. Pecans 6% fair, 75% good, 19% excellent; 56% harvested, 65% 1992, 69% avg. Pasture feed 2% very poor, 29% poor, 49% fair, 20% good; seasonal decline most warm season grasses dormant. Warm temperatures south aided growth small grains. Cattle fair to good, hogs good.

HAWAII: Cold front, brisk winds cooled the State during Thanksgiving week. Thermometers read new record lows on Oahu, Hawaii islands. Recent rains partially restored reservoir levels in some areas. Rainfall none to 5.40 in.

Cool weather slowed progress in some crops, advantageous for development in others. Brisk winds interrupted spraying activities, caused minor damage to leaf, vine crops in exposed areas. Insect, disease infestations remained a concern for State's farmers. Root aphid for some Maui vegetable growers, papaya growers in Puna, Hawaii island, battling papaya ringspot virus. Banana shipments moderate to heavy. Papaya shipments higher. Tomato harvesting increasing.

IDAHO: Temperatures 11 to 21° below normal. Precipitation 0.08 to 0.79 in. north, 0.05 to 0.13 in. southwest, none to 0.31 in. south central, 0.02 to 0.51 in. east. Fairfield reached the State low of -19°.

Soil moisture adequate. Hay, roughage supplies adequate. Activities: Marketing, meetings, machinery repair, livestock care. Too cold for fieldwork across State. Livestock good condition.

ILLINOIS: A strong, slow cold front moved across the State last week, producing a wide range of precipitation, temperatures.

Precipitation was heavier than normal for another week, with common accumulations of 0.75 to 1.50 in., accompanied by some freezing rain, snowfall. Highs 40 to 50°. Lows 20 to 34°.

Farm activities last week included minimal fall tillage, hauling some grain, tending, marketing livestock, equipment repair, general maintenance.

INDIANA: Temperatures 1 to 5° above normal. High temperatures from the mid 40s north to mid 50s far south. Lows around 30° to mid 30s. Rainfall totals, water equivalent, 0.50 to 1.00 in. most areas of the State.

Weather continues to cause harvesting problems. Topsoil 32% adequate, 68% surplus. Subsoil 49% adequate, 51% surplus. Moisture content of harvested corn 19%.

IOWA: Temperatures 1° below normal southwest to 12° below normal northwest. Extremes -14°; 58°. Midweek storm brought up to 9 in. snow far northwest, mainly light to moderate rain southeast two-thirds. Precipitation 0.14 in. southwest to 0.84 in. northwest; average 0.41 in. (normal 0.30 in.).

Colder, snowy weather increasing use of limited hay supplies.

KANSAS: Temperatures 8° below normal west, 6° below normal central, 4° east. Precipitation very light.

Days suitable for fieldwork 3.5. Topsoil 8% short to very short, 87% adequate, 5% surplus. Subsurface moisture 2% short to very short, 93% adequate, 5% surplus. Extremely cold weather moved through the State slowing harvest activity. Farmers were able to harvest on frozen ground. Some fall tillage, fertilization dryer regions. Extreme cold weather pushed wheat into dormancy across much of the State. Wheat pastured 15%, 10% 1992, 10% avg. Corn harvest finished most areas. Northwest continues to lag behind. Sorghum harvested 99%, 65% 1992, 99% avg. Majority of sorghum remaining to be harvested in western third of State. Cattle on winter forages, supplemental feeding programs. Sale barn activity high. Cattlemen continue to prepare livestock for winter; monitor weaning, calving; address health problems.

KENTUCKY: Dry, mild early week, ended wet, much colder. High temperatures mid 50s or a few degrees above normal. Low temperatures mid 30s, also a few degrees above normal. Precipitation around 1.00 in. west, east, around 0.66 in. across central areas. Localized amounts over 2.00 in. extreme southeast.

Corn, soybean combining finishing up where soil conditions permitted. Soil moisture generally adequate statewide for fall seeded small grains, pasture. Wheat seeding virtually complete, emerged generally good to fair. Cattle good condition with ample feed.

LOUISIANA: Temperatures 5.0 to 9.3° below normal. Extremes 22°; 77°. Rainfall none west central to 0.23 in. northwest, southwest.

Days suitable for fieldwork 4.0. Soil moisture 3% short, 74% adequate, 23% surplus. Pecans 75% harvested, 81% 1992, 67% avg. Made excellent progress. Soybeans 97% harvested, 97% 1992, 97% avg. Harvest made good progress on the remaining acres. Sweet potatoes 96% harvested, 97% 1992, 97% avg. Harvest was active. Sugarcane 2% poor, 42% fair, 56% good; 69% harvested, 64% 1992, 69% avg. Tonnage was good, sucrose content held steady, was rather low for this late in the

harvesting season. Wheat 2% very poor, 24% poor, 40% fair, 34% good; 77% planted, 75% 1992, 82% avg.; 67% emerged, 70% 1992, 72% avg. Planting made good progress. Livestock 52% fair, 48% good. Pasture feed 7% poor, 11% fair, 82% good. Vegetables 6% very poor, 11% poor, 54% fair, 29% good.

MARYLAND & DELAWARE: MARYLAND: Precipitation 0.01 in. (through Friday), normal 0.79 in. Temperature 43.3°, normal 42.3°. Extremes 14°; 69°.

Activities: Harvesting soybeans, grain corn, sorghum, hay. Stripping tobacco. Seeding small grains. Caring for livestock. General chores.

DELAWARE: Precipitation none (through Friday), normal 0.77 in. Temperature 43.8°, normal 43.1°. Extremes 23°; 63°.

Activities: Harvesting soybeans, sorghum, hay. Seeding small grains. Caring for livestock. General chores.

MICHIGAN: Extremes 2°; 57°. Precipitation 0.20 to 1.10 in. across the State.

Days suitable for fieldwork 4.5. Soil moisture 60% adequate, 40% surplus. Pasture feed 75% of normal. Major activities included: Fall tillage, harvesting corn, hauling manure, repairing, storing equipment, cutting firewood.

MINNESOTA: Temperatures 1 to 9° below normal for the State. Extremes 16°; 54°. Precipitation 0.18 to 1.06 in. below normal. Total precipitation 0.47 to 1.35 in. for State. Maximum precipitation 2.10 in. Snowfall 11 to 17 in. for the northern third, 4 to 9 in. elsewhere. Snow depth at weekend 3 to 15 in. for the State with the heaviest amounts occurring in the northeast.

Fieldwork has come to a halt, as almost all of the State has received significant snowfall. Any corn left for harvest will wait until spring. Only activities on the farm during the week was fixing machinery, handling livestock, moving grain into storage or to the elevator.

MISSISSIPPI: Temperatures 49°, 3.0° below normal. Extremes 20°; 77°. Precipitation very light throughout the State peaking at 0.31 in. east-central district. Rainfall 0.16 in., 1.09 in. below normal. Soil temperature 52°.

Days suitable for fieldwork 4.7, 1.5 1992, 3.0 avg. Soil moisture 4% short, 69% adequate, 19% surplus, 8% excessive. Cotton 98% harvested, 97% 1992, 98% avg. Soybeans 92% harvested, 91% 1992, 92% avg.; 20% poor, 77% fair, 3% good. Wheat 97% planted, 89% 1992, 90% avg.; 90% emerged, 83% 1992, 76% avg.; 52% fair, 48% good. Pecans 53% harvested, 54% 1992, 64% avg.; 16% poor, 78% fair, 4% good 2% excellent. Livestock 24% fair, 73% good, 3% excellent. Pasture feed 91% of normal. Activities: Completing crop harvest, feeding livestock.

MISSOURI: Temperatures 8° below normal west-central to 1° above normal east-central. Precipitation 0.52 in., 0.15 in. west-central, southwest to 1.25 in. southeast.

Cold, damp weather prevented completion of harvesting in some areas, most farmers done.

MONTANA: Temperatures 10 to 15° below normal. Moderate precipitation received statewide, 0.25 to 0.50 in.

Protectiveness of snowcover for winter wheat 29% fair, 32% good, 39% excellent. Supplemental feed given to 100% of the cattle, sheep, lambs.

NEBRASKA: Temperatures 9° below normal southwest to 17° below normal northeast. Scattered precipitation in the form of snow, freezing rain averaging less than 0.25 in. across the State.

Days suitable for fieldwork 3.9. Topsoil 1% short, 86% adequate, 13% surplus. Subsoil 1% short, 90% adequate, 9% surplus. Corn harvest 96%, 73% 1992, 94% avg. Pasture, range feed 103% of normal. Producer activities included crop harvesting, fall fieldwork, grain drying, livestock care.

NEVADA: Period began with high pressure system dominating, followed by low pressure which brought cool weather with light showers to much of State. Temperatures much below normal. Some daily record low temperature records broken. Extremes -18°; 71°.

Main farm/ranch activities feeding, caring for livestock, general maintenance.

NEW ENGLAND: Precipitation none to 0.60 in. regionwide. Temperatures 19 to 39° north; 30 to 39° south. Temperatures 37 to 54° north; 51 to 60° south. Temperatures -4 to 26° north; 5 to 20° south.

Major farm activities: Preparing for winter.

NEW JERSEY: Temperatures were below normal, averaged 38° north, 44° south, 46° coastal. Extremes 10°; 65°. Precipitation above normal north, south, normal coastal; 2.46 in. north, 1.83 in. south, 0.52 in. coastal. Heaviest 24 hour total 2.65 in. on 27th, 28th.

Farmers busy deer hunting, cutting, digging, selling Christmas trees, pruning fruit, caring for livestock.

NEW MEXICO: Coldest air mass of the season plunged southward into State at midweek sending overnight lows into the single digits, lower teens. Few areas of the northern mountains with fresh snow had frigid readings 2 to 7° below zero. Overall, average temperatures for the State 6 to 10° below normal in the north, east, 4° colder than average in the southwest. Precipitation was limited to the northern mountain areas with higher totals near 0.5 in.

Days suitable for fieldwork 5.8. Soil moisture 68% short, 32% adequate. Crop conditions: Cotton 25% fair, 62% good, 13% excellent. Irrigated sorghum 33% fair, 67% good. Dryland sorghum 50% poor, 50% fair. Sorghum harvest 76% complete. Irrigated wheat 9% poor, 36% fair, 55% good. Dryland wheat 50% poor, 40% fair, 10% good. Chile harvest near end; remaining crop poor to excellent. Lettuce harvest basically done. Pecans harvest underway; 5% poor, 38% fair, 57% good. Small amount of cabbage harvest. Cattle, sheep in poor to good shape; over 75% in good category. Range feed conditions 68% of normal.

NEW YORK: Temperatures variable throughout week. Week began mild. Temperatures dropped by midweek. Very cold weather arrived Thanksgiving with highs in 20s to 30s. Rising temperatures by weekend. Precipitation light during most of week. Snow squalls in western Adirondacks, Mohawk Valley brought 4 to 8 in. as week began. Precipitation sparse thereafter until very end of week: rain amounts ranged from 0.50 to 1.50 in. western, central areas.

Corn harvest where conditions warranted. Apples growers packing apples, making cider, continuing orchard clean-up work. Potato growers packing, grading potatoes. Wine-making

continues. Other major activities: Tending livestock, preparing barns, farm equipment for winter.

NORTH CAROLINA: Temperatures 2° below normal to 7° above normal. Largest positive departures were in the coastal plain. Precipitation 5.15 in. at Lake Toxaway to no rain at several locations.

Days suitable for fieldwork 5.9. Soil moisture 3% very short, 42% short, 49% adequate, 6% surplus. Crop condition: Wheat 35% fair, 62% good, 3% excellent; oats 32% fair, 64% good, 4% excellent; barley 44% fair, 56% good; rye 32% fair, 66% good, 2% excellent; pasture 2% very poor, 19% poor, 45% fair, 32% good, 2% excellent; cotton 10% poor, 64% fair, 23% good, 3% excellent; soybeans 2% very good, 8% poor, 61% fair, 27% good, 2% excellent; hay, roughage supplies 3% very short, 34% short, 61% adequate, 2% surplus. Feed grain supplies 25% short, 72% adequate, 3% surplus; soybeans harvested 60%, 64% 1992, 79% avg.; sorghum for grain harvested 92%, 87% 1992, 97% avg.; sweet potatoes harvested 98%, 100% 1992, 100% avg.; cotton harvested 91%, 68% 1992, 89% avg. Major activities: Planting small grain; harvesting soybeans, peanuts, corn for grain, cotton, sweet potatoes. Other activities included: Land preparation; tending livestock; general farm maintenance.

NORTH DAKOTA: Several locations from central to southeast received around 2 feet of snow over the holiday weekend. All other areas received accumulations of at least 1 in. Temperatures 3 to 13° below normal. Extremes -16° southwest; 51° southeast.

Cattle, sheep in good condition despite severe weather. Additional feeding required, grain, forage supplies adequate. Unharvested corn, sunflower snow bound.

OHIO: A slow moving cold front with waves of low pressure produced widespread precipitation on the 27th, 28th. Much of the precipitation fell as rain before snow followed with accumulations up to 1 in. High temperatures mid 40s to around 50° in the north to mostly the 50s in the central, south, 3 to 7° above normal. Lows mostly in the low to mid 30s, 2 to 6° above normal. Coldest readings were in the 20s with a few upper teens in the far west. Precipitation totals (water equivalent) 0.40 to 1.50 in., 0.15 to 0.60 in. above normal. Greatest amounts of precipitation fell in the far northeast, near Columbus. Soil temperatures at the 4-in. depth under bare ground averaged in the low, mid 40s.

Harvesting activities continued to be curtailed by muddy conditions.

OKLAHOMA: Temperatures 10° below normal south-central to 5° below normal southwest. Precipitation none most of State to 0.29 in. east central.

Days suitable for fieldwork 5.2. Topsoil 22% short, 74% adequate, 4% surplus. Subsoil 18% short, 82% adequate. Sorghum 86% harvested, 91% 1992, 85% avg. Soybeans 92% harvested, 79% 1992, 86% avg. Peanuts 89% harvested, 97% 1992, 95% avg.

OREGON: Extremely cold temperatures, statewide. Coast 6° below normal, western sections 10° below normal, eastern sections 16° below normal. Abundant precipitation, statewide. Coastal areas 1.20 in., western valleys 0.50 in., northern Cascades, high plateau 1.00 to 1.33 in., south central, northeastern areas 0.20 in., elsewhere mostly dry.

Soil moisture short to mostly adequate. 1994 winter wheat crop 97% emerged, 25% fair, 70% good, 5% excellent. Christmas tree,

holly harvests full swing. Livestock good to excellent. Supplemental feeding underway, statewide.

PENNSYLVANIA: Temperature 43°, 3° above normal. Extremes 16°; 66°. Precipitation 2.18 in., 1.41 in. above normal.

Soybean harvest 89% complete, 78% 1992. Activities: Harvesting corn; harvesting soybeans; hauling manure; fixing fence; caring for livestock.

PUERTO RICO: No weather data available.

SOUTH CAROLINA: Seasonal temperatures, no rain through midweek. Thundershowers, winds, mid- to late-week. Temperatures near normal. Rainfall 1.40 in.

Days suitable for fieldwork 5.7. Soil moisture 43% short, 57% adequate. Barley fair to good; 79% planted, 93% 1992, 84% avg.; 71% emerged, 87% 1992, 75% avg. Oats fair to good; 83% planted, 89% 1992, 84% avg.; 76% emerged, 81% 1992, 72% avg. Rye fair; 83% planted, 92% 1992, 82% avg.; 78% emerged, 84% 1992, 71% avg. Wheat fair to good; 58% planted, 45% 1992, 55% avg.; 41% emerged, 35% 1992, 36% avg. Sorghum poor; 84% harvested, 98% 1992, 86% avg. Soybeans 10% very poor, 24% poor, 48% fair, 18% good; 98% mature, 99% 1992, 99% avg.; 55% harvested, 51% 1992, 64% avg.; cotton 2% very poor, 21% poor, 75% fair, 2% good; 95% harvested, 81% 1992, 91% avg. Sweet potatoes fair; 90% harvested, 97% 1992, 90% avg. Pecans fair. Pasture 14% very poor, 33% poor, 40% fair, 13% good. Winter grazing fair; 96% planted, 95% 1992, 94% avg. 91% emerged, 91% 1992, 88% avg.

SOUTH DAKOTA: Temperatures 10 to 20° below normal last week. Extremes -17°; 59°. Midweek snowstorm brought significant precipitation amounts to most of the State. Amounts of an inch or more extended from the central part of the State into the northeast. Rest of the State reported amounts from a 0.25 to 0.50 in. Maximum 1.55 in.

Days suitable for fieldwork 2.5. Topsoil 1% very short, 11% short, 68% adequate, 20% surplus. Subsoil 1% very short, 15% short, 64% adequate, 20% surplus. Winter rye 16% fair, 75% good, 9% excellent. Snow storm halted most harvesting. Many areas reported they were almost complete with the corn harvest before the storm hit. Winter wheat was reported to be in good condition before the storm, now has adequate snowcover. Livestock 2% fair, 81% good, 17% excellent. Pasture feed 86% of normal. Many producers started winter feeding last week. Some calves were becoming sick due to the cold temperatures.

TENNESSEE: Temperatures were slightly below normal except in the extreme eastern part of the State where temperatures were 1° above normal. Rainfall amounts were normal across the State. Eastern areas received the most rain with 2.11 in. reported at Bristol.

Moisture provided by rainfall in east kept tobacco in case, stripping is over 75% complete. Cotton producers resumed harvest, most are now finished. Soybean harvest is also in the final stages. Livestock ponds were slightly replenished in east. Cattle are in mostly good condition. Hay now being fed on a consistent basis.

TEXAS: Very strong cold surge affected all of Texas late last week. Low temperature records were set in most growing areas.

The change was sudden, affected not only farming operations, but significantly impacted ranching and livestock as well. Cold front was fast-moving, lack of moist air kept rainfall amounts low. Data reflected the cold change across state last week. All areas had negative temperature departures. Departures -1° in Rolling Plains, Lower Valley to -5° Trans-Pecos. Most areas of State reported some rainfall, all average totals did not make normal values for last week. Rainfall 0.77 in. East Texas to 0.08 in. High Plains.

Crops: Cotton harvest was active prior to freeze in Northern High Plains where some good yields continued to be reported. Cotton gins in some areas of Southern High Plains were running a couple of days to a week behind. Better than expected yields were reported in some areas of Low Plains. Harvest was virtually complete in Blacklands. Weather was perfect for cotton harvest in Trans-Pecos where some land preparation was underway for 1994 crop. Grain sorghum harvest was virtually completed. Small grains: Many areas across State were in need of more rain, warmer temperatures to boost growth of small grains. Some fields were fertilized in South Central Texas. In High, Low Plains, wheat planting was winding down. In Blacklands, existing stands made good progress prior to freeze. Growth of small grain pastures in East Texas was good, wet fields were causing problems in some areas. Wheat 67% normal, 61% 1992. Peanuts harvest was slow in many areas. Evidence of freeze damage continued to be reported in Northern High Plains. Some better than average yields were reported for irrigated fields in Cross Timbers, but yields for dryland crop continued to be below average. Soybean harvest was winding down along Upper Coast where some below average yields were reported.

Commercial Vegetables: In Rio Grande Valley, fall vegetables made good progress. Pepper harvest continued. Onions progressed well with some irrigation. In San Antonio-Winter Garden area, fall vegetable crop made good progress. Most acreage escaped freeze damage. In East Texas, harvest of fall vegetables continued. Some land preparation continued. In High Plains, carrot harvest continued. In Trans-Pecos, pepper harvest winding down. Cabbage, fall seeded onions made good progress. Pecans weather conditions were excellent for gathering nuts in many areas of East Texas. Freeze damage from the late October freeze were still being reported. Low prices were also reported in many areas.

Range and Livestock: Growth of small grain pastures was good in East Texas. Hay supplies remained short in many areas as ranchers increased feeding due to cold weather. Forage quality dropped off in some parts of Edwards Plateau where feeding was heavy. Winter pastures in many areas of State were in need of rain. Livestock fair to good.

UTAH: Temperature maximums 8° below normal, minimums 6° below normal. Precipitation throughout the State was light to moderate in most divisions. Northern mountains received moderate to heavy snowfall.

Below freezing weather during the past week has stopped most fall tillage work. Major farm activities include: Marketing grains, hay, onion, feeding, caring of livestock.

VIRGINIA: Temperatures near to slightly above normal. Extremes 18°; 71°. Precipitation was below normal (through Friday).

Days suitable for fieldwork 5.8. Topsoil 5% very short, 50% short, 45% adequate. Pasture 5% very poor, 17% poor, 49% fair, 29% good. Corn harvested for grain 100%, 98% 1992, 96% avg.

Soybeans harvested 80%, 71% 1992, 81% avg. Cotton harvesting 99% completed, 60% 1992, 76% avg. Winter grains, grazing crops 8% poor, 64% fair, 22% good, 6% excellent. Winter wheat 89% seeded, 80% 1992, 85% avg. Forage from pastures, grazing crops dairy cattle 10%, beef cattle 53%, sheep 57%. Gassing tobacco plantbeds, stripping, grading fire, burley tobacco, cutting Christmas trees, spreading lime.

WASHINGTON: Temperatures 8 to 11° below normal west; 10 to 17° below normal east. Precipitation 0.17 to 0.75 in. west; none to 0.58 in. east. Freezing temperatures were reported across entire State, with lows ranging from 10 to 20° west, -9 to 5° east. Highs 45 to 52° west, 42 to 59° east.

Days suitable for fieldwork 3.7. Soil moisture 55% short, 40% adequate, 5% surplus. Hay, other roughage supplies 15% short, 83% adequate, 2% surplus. Range, pasture feed 15% very poor, 15% poor, 60% fair, 10% good. Winter wheat dryland 5% poor, 50% fair, 45% good; irrigated 5% fair, 95% good. Barley dryland 65% fair, 35% good; irrigated 5% fair, 95% good. Corn 100% good. Damage to small grain crops due to cold snap uncertain. Grain corn harvest continued. Potato harvest was completed. Cold weather halted carrot harvest. Apple, pear pruning were underway in Grant county. Christmas tree farms were busy, as harvest of both trees, wreath boughs was in full swing.

WEST VIRGINIA: Temperature 44°. Extremes 19°; 70°. Precipitation 1.35 in.

Days suitable for fieldwork 4.2. Soil moisture 85% adequate, 15% surplus. Pastures 17% poor, 61% fair, 22% good; 76% of normal. Cattle 7% fair, 93% good. Sheep 3% fair, 97% good. Corn 91% harvested. Wheat good; 94% sown. Barley good. Soybeans 89% harvested. Farm activities: Moving livestock, feeding livestock, chopping silage, harvesting corn, harvesting soybeans, sowing wheat, general maintenance.

WISCONSIN: Began mild, dry, cold; stormy weather took over by Thanksgiving. By weekend, many locations had received their first heavy snowfall of the season. Northwestern part of the State received 5 to 13 in. of snow. Lakeshore areas of the southeast received 5 to 11 in. snow. Temperature 27°, 2° below normal. Extremes -9°; 58°. Precipitation 0.50 to 1.10 in.

Corn for grain 90% harvested, 52% 1992, 88% avg.

WYOMING: Temperatures well below normal across the entire State ranging from 9° below normal in Moran Jct. to 20° below normal in Cody. Precipitation was near normal except for the east-central part of the State which had above normal. Redbird received the largest amount of precipitation with 0.60 in.

Topsoil adequate or better for most of the State. Some corn still being harvested. Cattle, calves, sheep, lambs in good condition.

(Continued from front cover)

through the High Plains. The storm deposited more than 1 foot of snow in Kallispell, MT, and dumped well over 2 feet in nearby mountains. Snow arrived before midweek in the Dakotas and continued for several days. By Friday morning, snow covered the ground from the Cascades to the western Great Lakes, then southward in a narrow band into northeastern Texas. In central Texas, freezing rain slickened roadways on Thanksgiving Day. Snowfall reached record proportions in parts of the Dakotas. Aberdeen, SD broke a November snowfall record on the strength of the storm, which left a 23-inch cover by Friday morning. Bismarck, ND set a single-storm snowfall record (for any month), and reported a maximum snow depth of 22 inches. By late in the week, the storm drifted eastward and tapped a rich fetch of sub-tropical moisture along the Atlantic coast. As snowfall diminished across the upper Midwest, rainfall intensified east of the Appalachians. Gale-force winds and heavy surf pounded the Atlantic seaboard, while more than 4 inches of rain drenched Piedmont and east-slope areas of the central and southern Appalachians, causing local flash-flooding. Farther west, cold air continued to grip areas from the Northwest to the western Great Lakes States, southward into the southern Plains. From midweek onward, about 90 daily record lows were set, including lows of -19°F in Casper, WY on Wednesday, -1°F in Goodland, KS on Thursday, -14°F in Sheldon, IA on Friday, and 23°F in San Antonio, TX on Saturday.

International Weather and Crop Summary

HIGHLIGHTS

November 21 - 27, 1993

FSU: The third consecutive week of bitter cold weather covered dormant winter grains.

EUROPE: Unusual cold covered dormant winter grains in northern and eastern Europe. Snow cover protected winter grains from extreme cold in eastern Poland and eastern Romania.

SOUTH ASIA: Heavy rain covered Sri Lanka and India's southern tip, but dry, warm weather elsewhere promoted winter grain and oilseed planting.

SOUTHEAST ASIA: Typhoon Kyle brought inundating rains to central Vietnam. Heavy rain covered rice and oil palm areas of Malaysia and Indonesia.

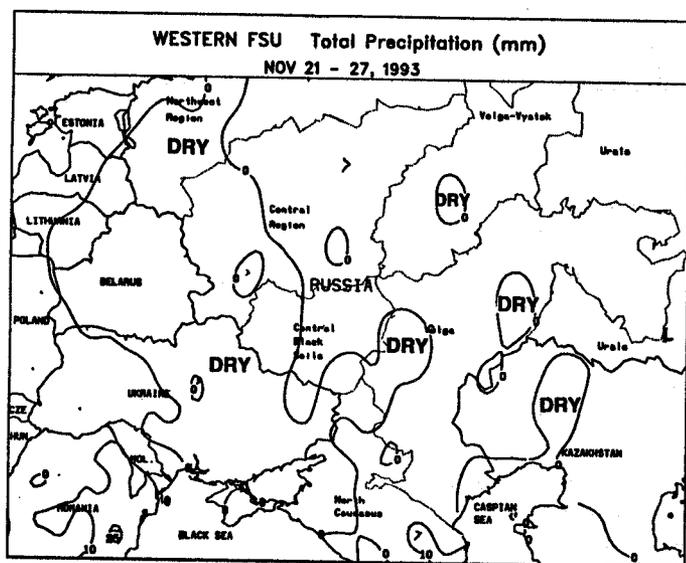
EASTERN ASIA: Cold weather hardened winter wheat across the North China Plain. Dry weather aided late double-crop rice harvesting across central and southern China.

AUSTRALIA: Warm, dry weather aided winter wheat harvesting across most crop areas. Seasonal showers began across the major sugarcane region.

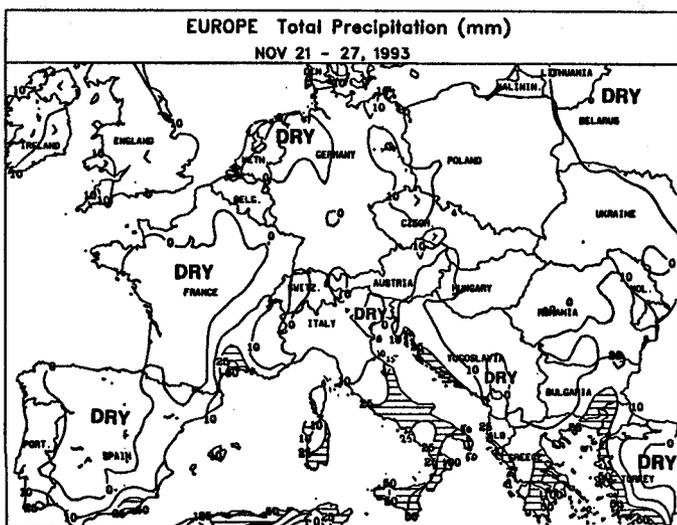
SOUTH AMERICA: Persistent rains caused fieldwork delays across southern Brazil and Argentina.

NORTHWESTERN AFRICA: The first substantial rain of the season in eastern Algeria and Tunisia increased topsoil moisture for winter grain planting.

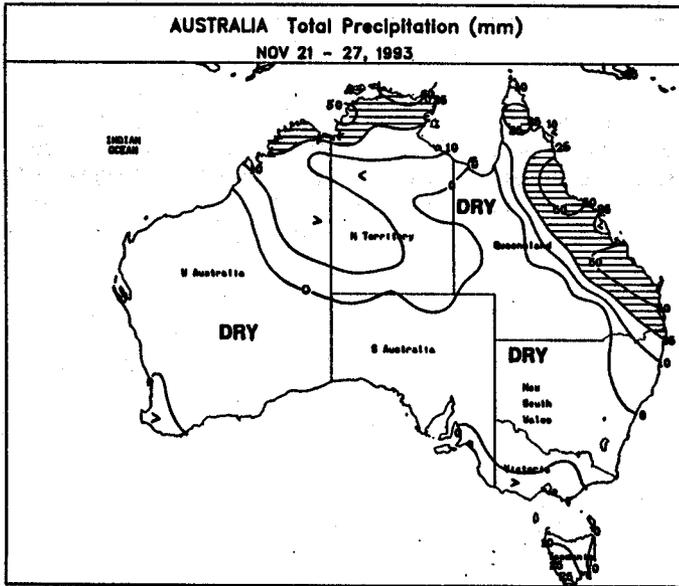
SOUTH AFRICA: Widespread rain, heaviest in eastern corn areas, benefited vegetative crops.



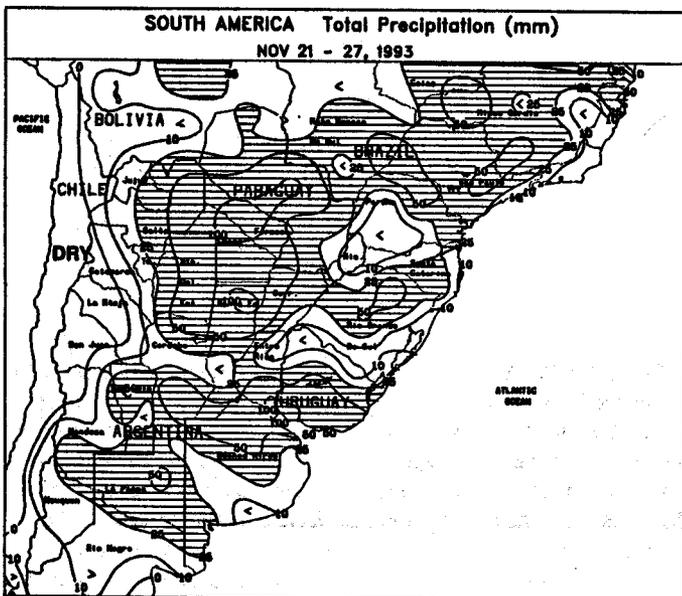
FSU-WESTERN: Bitter cold persisted over most winter grain areas, with average weekly temperatures ranging from 7 to 12 degrees Celsius (C) below normal. Winter grains remained dormant. Little, if any, precipitation (less than 5 mm), mainly snow, covered winter grains. Low temperatures of less than -15 degrees C were widespread as far south as southern Ukraine and most of North Caucasus. A variable snow cover provided protection from extreme cold, easing the threat of significant winterkill.



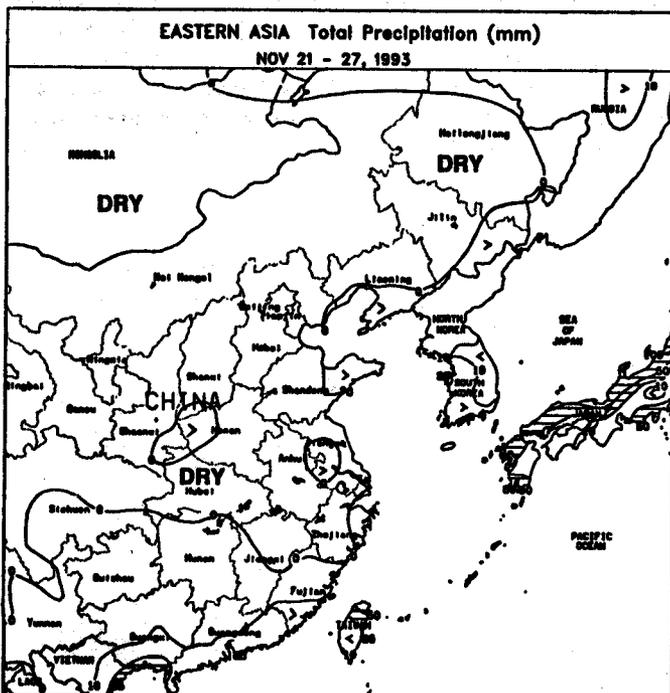
EUROPE: Unseasonably cold and dry weather prevailed over northern Europe. Crop areas in southern Italy, Greece, Bulgaria, and eastern Romania received light to moderate amounts of precipitation (10-40 mm, with local amounts in excess of 50 mm). The rain over Greece continued to relieve drought conditions. Weekly average temperatures were 5-7 degrees C below normal in northern and eastern Europe, where winter grains were in or entering dormancy. Temperatures were 2-4 degrees C below normal across Mediterranean areas, where winter grain planting continued. Lowest temperatures (-15 to -20 degrees C) were confined to eastern Poland and eastern Romania, where a light to moderate snow cover provided protection from extreme cold.



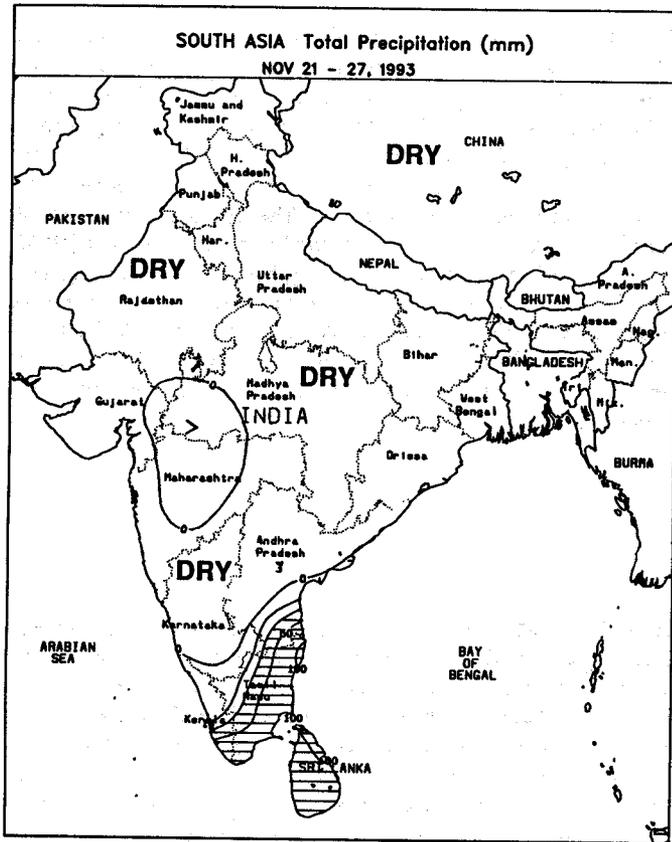
AUSTRALIA: Dry weather prevailed across the major wheat areas, favoring wheat harvesting. The dryness was especially welcomed across the west, where previous cool, moist weather had raised grain quality concerns. In addition, maximum temperatures ranged from 35 to 40 degrees C in the west, helping to dry down grain. Last week's rain, coupled with dry weather, favored summer crop planting across eastern Australia. The northeastern coast of Queensland received the first substantial rains of the season (10-65 mm), slowing late sugarcane harvesting, but mainly benefiting next season's crop. Pasture conditions have been adequate the past several weeks across southeastern Australia and New Zealand, but conditions are still dry across interior Queensland. Temperatures averaged 1-3 degrees C above normal across the west and near normal elsewhere.



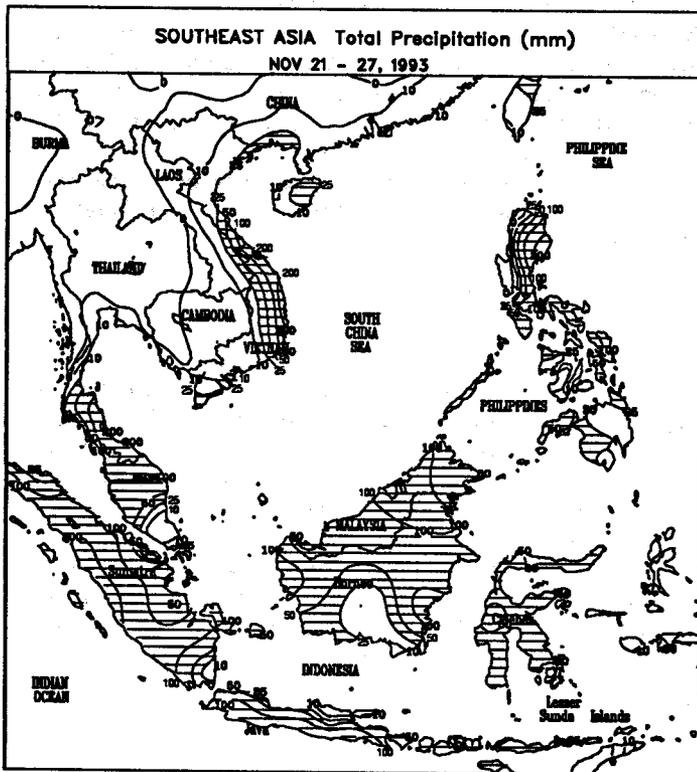
SOUTH AMERICA: After the heavy rains fell across southern Brazil (especially Rio Grande do Sul) last week, 4-5 days of dry weather prevailed, allowing soybean and corn planting to progress. However, moderate to heavy showers (20-90 mm) returned to the region this week, causing further fieldwork delays and possible washouts. Approximately 60-70 percent of the soybeans have been planted already. Across southern Mato Grosso and Goias, moderate showers (20-70 mm) favored vegetative soybeans. In central Argentina, moderate showers (22-80 mm) delayed corn, soybean, and sunflower seed planting. The showers also slowed wheat harvesting and possibly reduced grain quality in southern Santa Fe and northern Buenos Aires. Further north, heavy rains continued across northern Santa Fe, Chaco, and Formosa, delaying cotton planting and possibly washing out newly planted cotton. Temperatures averaged 1-3 degrees C above normal across southern Brazil and 1-3 degrees C below normal across central and northern Argentina.



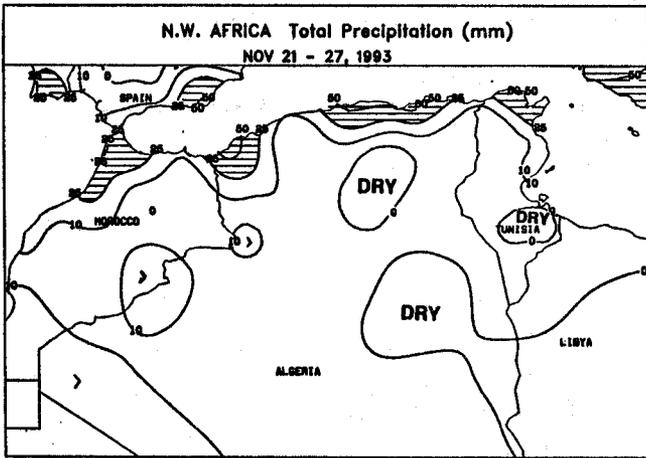
EASTERN ASIA: Cold, dry weather (minimum temperatures ranged from -7 to -15 degrees C) prevailed across the North China Plain, helping to harden winter wheat and stopping vegetative growth. Snow cover helped to protect winter wheat from the early-week cold, but as temperatures rose late in the week, the snow cover substantially diminished. Dry weather also encompassed most of central China, favoring late double-crop rice harvesting. Scattered showers (10-30 mm) slowed sugarcane harvesting across the southern coast. Weekly temperatures averaged -3 to -7 degrees C below normal throughout China.



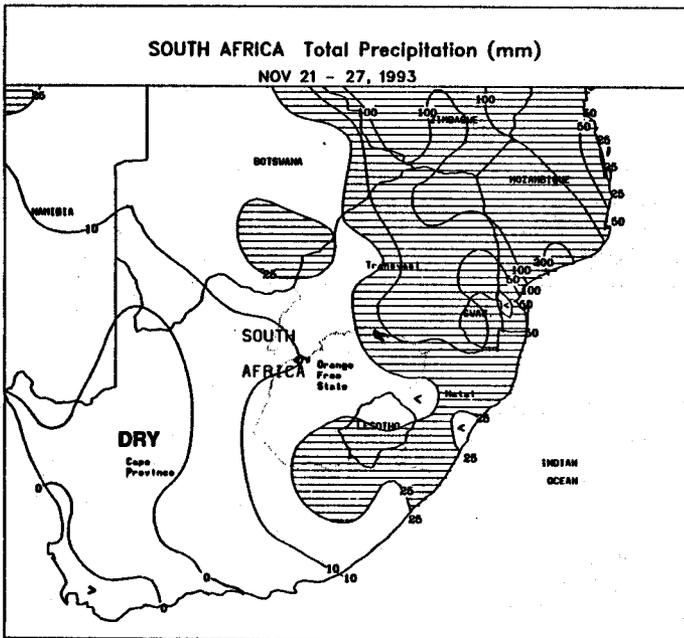
SOUTH ASIA: Moderate to heavy rain (30-150 mm) was confined to Sri Lanka and India's southern tip as dry, warm weather dominated the region. The seasonable dryness favored winter grain and oilseed planting and early development across predominately irrigated crop regions of India and Pakistan.



SOUTHEAST ASIA: Typhoon Kyle hit central Vietnam with sustained winds of about 75 knots, bringing inundating rain (100-300 mm) to a large section of the coast. Rice and other crops in the area sustained damage from inundating rains in early-October, and this newest bout of heavy rain hampered late main-season rice harvests and winter crop plantings. Kyle brought moderate to heavy rain (25-100 mm or more) to most Philippine crop areas as it trekked across the southern islands. Elsewhere, heavy rain (50-100 mm or more) covered much of the Malay Peninsula, including primary rice and oil palm areas of western Malaysia. Moderate to heavy rain (50-100 mm or more) also covered eastern Malaysia and most of Indonesia. Java received beneficial rain for the second week, benefiting newly planted rice, although dry pockets persisted in eastern sections of the island.



NORTHWESTERN AFRICA: Winter grain planting progressed under mostly favorable weather. Light rain (10-25 mm) over Morocco and parts of western Algeria continued to provide favorable moisture for germination and early establishment of winter grains. The first substantial rain of the season (10-25 mm, with local amounts in excess of 50 mm) covered northern wheat- and barley-producing areas in eastern Algeria and Tunisia, prompting winter grain planting. However, topsoil moisture in southern growing areas remained unfavorably low, and significant rain is needed before planting can become widespread. Weekly average temperatures were 1-3 degrees C below normal over the region, slowing germination and early growth.



SOUTH AFRICA: Moderate to heavy showers (15-89 mm) covered most eastern crop areas, with heaviest rainfall (50 mm or more) concentrated in corn areas of south-central Transvaal. Natal's sugar regions received 17 to 38 mm, as did most crop areas of eastern Cape Province. Rainfall was light (5-18 mm) in western corn areas (southwestern Transvaal, central and western Orange Free State), but temperatures moderated to seasonable levels, reducing evaporative losses.

Bitter Cold Persists Over FSU Winter Grain Areas

On November 9, arctic air from Siberia began pushing its way westward, bringing an unusually early cold snap to winter grain areas in the former Soviet Union. By November 18, the cold air was well entrenched over the region and was expanding into Europe and China. Reports from the Russian press (*Moscow Selskaya Zhizn* in Russian, 23 November 1993, page 8) indicated the cold wave reached near record levels in some areas, comparing it to similar cold outbreaks in 1891 and 1965. Daily temperatures averaged 5 to 13 degrees C below normal. These readings were more typical of those during winter months. Furthermore, sub-zero nightly temperatures rose little during the day. Extreme minimum temperatures during the cold period of November 9 - 27 ranged from -15 to -20 degrees C over the major winter wheat-producing areas (fig. 1). Lowest temperatures (-21 to -28 degrees C) were mostly confined to major rye-producing areas in Russia (eastern Central Region, Volga Vyatsk, upper Volga Valley, and Urals). Light snow accompanied the cold, but amounts were highly variable. Although heaviest snow fell over Russian winter grain areas in the Volga Vyatsk, Volga Valley, and North Caucasus, strong easterly winds caused considerable blowing and drifting of snow. The gusty winds also caused frigid wind chills. A daily temperature graph for Moscow for October 25 - November 27, 1993, depicts the unusual nature of the extreme cold compared with normal (fig. 2).

winterkill. Nevertheless, the combination of a dry fall and the early arrival of winter in southern Ukraine and parts of North Caucasus limited plant establishment, making winter grains more susceptible to potential winterkill conditions.

--Tom Puterbaugh

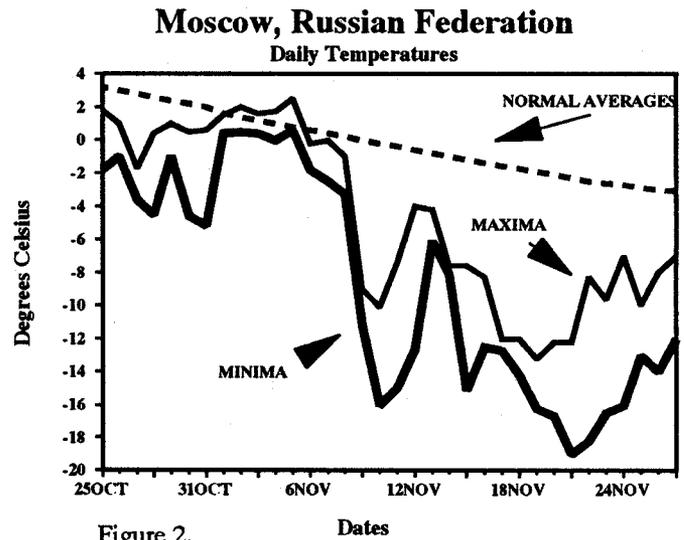


Figure 2.

Regarding the 1994 winter grain crop, the bitter cold induced winter grains into dormancy earlier than usual in southern areas. The threshold for winterkill was approached in those areas where temperatures fell below -20 degrees C. However, a variable snow cover in areas of extreme cold minimized the threat of significant

Former Soviet Union (Western) Extreme Minimum Temperature (C) *

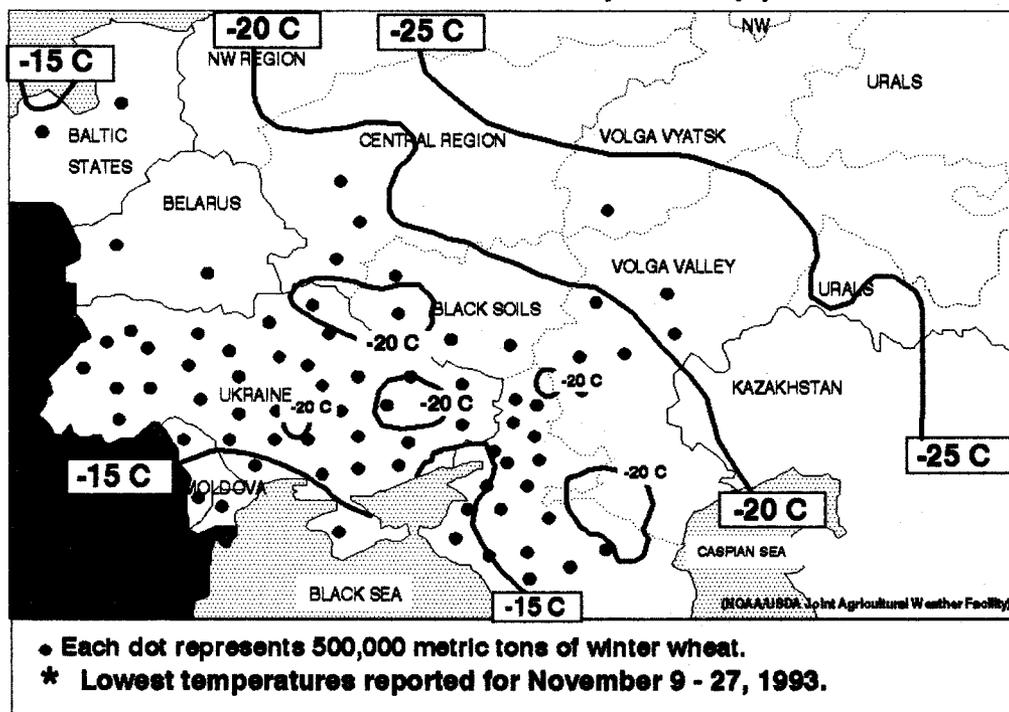


Figure 1.

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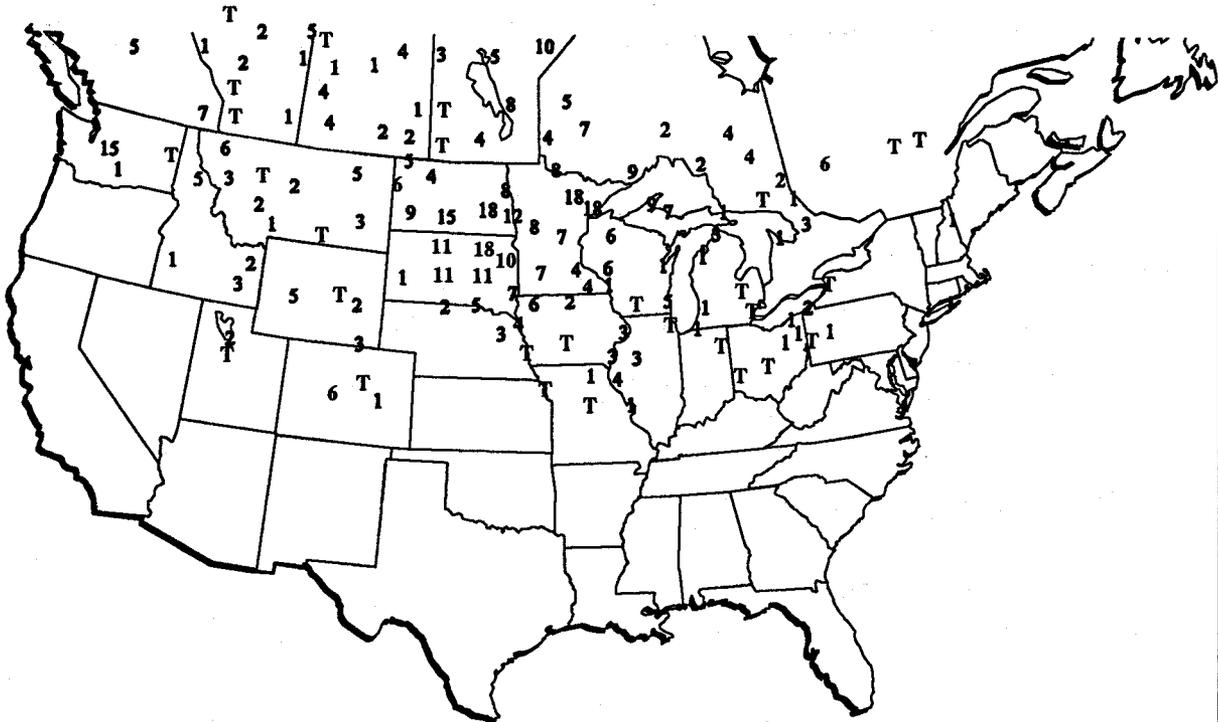
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Total Snow Cover (Inches) November 29, 1993



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Based on preliminary reports

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