

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CALIFORNIA SECTION.

EDWARD A. BEALS, District Forecaster.

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SAN FRANCISCO, MAY, 1919.

No. 5.

GENERAL SUMMARY.

Seasonable temperatures prevailed in California during May, but the rainfall was deficient. For the State as a whole, the average precipitation was only 0.32 inch, or 26 per cent of the normal. As in April, the first half of the month was cool, and the latter half was warm. There were no long continued hot or cold spells. Sunshine was deficient, and though no general storms occurred, the wind movement was high, as is usual in spring months. During severe local storms which passed over southern California on the 21st, snow fell in the mountains of San Bernardino County, and hail fell in the higher portions of San Diego County. Violent thunderstorms were experienced in the foothills along the eastern border of the San Joaquin Valley between the 26th and 29th. During one of these, on the 28th, an inch of rain fell in 30 minutes at Glennville, Kern County. Most streams maintained high stages throughout the month, but no floods occurred. Snow in the Sierra Nevada Mountains melted rapidly, and at the close of the month the only snow remaining was that which covered the highest peaks.

May weather was generally favorable from an agricultural viewpoint. The soil remained in good condition, and the planting of rice, cotton, beans and sugar beets was completed. As this was the third consecutive month with deficient rainfall, there was extensive cultivation of the soil in orchards for the purpose of conserving the moisture which remained in the ground. All irrigated crops made good progress. Valley and foothill pastures dried rapidly because of the prolonged drought, but mountain ranges continued in excellent condition, as low temperatures prevented excessive evaporation. The cool weather of the first half of the month was especially beneficial to grain crops, as ripening was retarded, and the heads filled out better than was expected a month earlier. At the close of the month the outlook for all general crops was encouraging, and there was every prospect that the fruit crop would be a record breaker. The drop of deciduous fruit was not serious, lemons and grapes bloomed heavily, and early berries, cherries, peaches and apricots appeared on the market. The maturing of cantaloupes and early vegetables was accelerated by the change to warmer weather by the higher temperatures which followed. While orange trees in southern California blossomed in profusion, the fruit set unevenly on account of deficient sunshine. Dry weather was favorable for the curing of grass and alfalfa, though the showers of the last week of the month damaged hay in the San Joaquin Valley. However, the good done growing crops more than offset all damage, and at the close of the month crop conditions were everywhere satisfactory, and in many places they were the best in years.

A. H. P.

PRESSURE.

The mean sea level pressure, determined from the records of twelve regular Weather Bureau stations, was 29.91 inches. The highest was 30.32 inches at Eureka on the 9th; the lowest was 29.57 inches at Red Bluff on the 20th; the range for the State was 0.75 inch.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 98 stations, was 63.3°, which is 1.2° above the normal. The highest monthly mean was 85.1°, at Greenland Ranch; and the lowest was 47.8°, at La Porte. The highest temperature, 112°, occurred at Greenland Ranch on the 27th; and the lowest, 20°, occurred at Fordyce Dam on the 4th, and also at Madeline on the 31st. The range for the State was 92°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 239 stations, was 0.32 inch, or 0.90 inch below the normal. The greatest monthly amount was 3.04 inches, at Crescent City. No rain fell at 32 stations. The greatest amount in 24 hours was 1.40 inches at Milo on the 29th.

RELATIVE HUMIDITY, SUNSHINE AND CLOUDINESS.

Stations.	Relative humidity. (Per cent.)			Sunshine.	
	5 a. m.	5 p. m.	Mean.	Actual No. of hours	Per cent of possible.
Eureka.....	90	78	84	275	61
Fresno.....	63	25	46	392	89
Independence.....	45	20	32	393	90
Los Angeles.....	90	74	82	178	41
Mount Tamalpais.....	59	55	57	386	88
Red Bluff.....	59	26	42	379	90
Sacramento.....	79	43	61	408	92
San Diego.....	86	75	81	218	51
San Francisco.....	85	69	77	365	88
San Jose.....	56	56	56	363	88
San Luis Obispo.....	88	66	77	260	60

WIND MOVEMENT.—(Miles.)

Stations.	Total mov. for month.	Ave. hr. velocity.	Maximum velocity.	Direction.	Date.	Prev. dir.
Eureka.....	7,242	9.7	39	n.	30	n.
Fresno.....	7,077	9.5	36	nw.	21	nw.
Independence.....	4,688	6.3	29	se.	14	nw.
Los Angeles.....	4,948	5.4	20	s.	8	sw.
Mount Tamalpais.....	14,809	19.9	84	nw.	29	nw.
Point Reyes.....	19,954	28.9	83	nw.	29	nw.
Red Bluff.....	5,076	6.8	29	nw.	30	se.
Sacramento.....	7,196	9.7	35	nw.	31	s.
San Diego.....	4,603	6.2	19	w.	22	sw.
San Francisco.....	9,735	13.1	36	sw.	7	sw.
San Jose.....	5,367	7.2	24	se.	7	sw.
San Luis Obispo.....	3,371	4.5	20	w.	9	nw.

COMPARATIVE DATA FOR MAY.

Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.	Year.	Mean temp.	Ave. precip.
1897.....	66.9	0.18	1903.....	63.5	0.14	1909.....	60.4	0.23	1915.....	57.6	4.13
1898.....	61.3	1.56	1904.....	64.9	0.22	1910.....	65.5	0.18	1916.....	58.1	0.61
1899.....	59.9	0.73	1905.....	59.6	2.18	1911.....	58.3	0.72	1917.....	57.2	0.75
1900.....	64.0	1.39	1906.....	59.8	3.19	1912.....	60.7	1.92	1918.....	59.0	0.37
1901.....	62.0	1.03	1907.....	61.5	0.57	1913.....	62.3	1.04	1919.....	63.3	0.32
1902.....	60.8	0.84	1908.....	58.0	1.63	1914.....	58.0	0.69

The departures from the normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete reports are used in determining section or division means. † Also on other dates. a, b, c, etc., indicate respectively, 1, 2, 3, etc., days missing from the record.

Daily evaporation (inches) and wind movement (miles) for May, 1919.

Stations.	Data.	Day of Month.																															Monthly.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Chula Vista**1.	Evaporation.....	155	165	240	235	236	195	109	212	233	235	204	185	219	177	245	206	254	213	241	253	233	252	238	128	110	147	095	177	145	223	173	6.133
	Wind movement.....	103	103	120	149	141	146	116	120	145	123	108	92	135	89	130	116	139	126	113	185	102	132	120	111	141	117	91	102	134	127	105	3.781
Dodgeland*2.	Evaporation.....	246	267	282	304	275	262	279	275	234	207	300	301	305	411	341	270	213	347	225	819	343	289	437	308	265	165	272	373	469	466	562	9.412
	Wind movement.....	16	31	26	125	18	35	35	59	38	38	26	59	60	68	32	70	42	93	48	89	61	72	71	69	52	23	25	36	90	111	193	1.896
Oakdale (near)*3.	Evaporation.....	205	262	311	253	189	170	194	175	205	167	172	165	244	383	304	323	323	376	328	289	353	222	306	323	328	439	401	451	428	322	536	9.152
	Wind movement.....	86	90	84	116	114	103	80	83	100	102	111	101	136	72	136	126	109	117	156	71	122	119	105	101	110	106	100	89	145	100	163	3.353
Tahoe**4.	Evaporation.....	117	020	150	070	020	040	120	120	120	080	090	210	070	070	230	180	130	100	110	120	240	160	130	020	230	080	070	090	060	120	270	3.637
	Wind movement.....	111	22	37	51	74	76	70	57	52	112	65	48	87	128	112	106	13	86	124	58	49	113	2	11	77	62	40	40	106	111	57	2.157

* Observation taken at 7 a. m.; ** at 8 a. m. † Included in next following entry. 1 Ele. 9 ft.; 10 miles SE of San Diego. 2 Ele. 125 ft.; 16 miles SW of Chico. 3 Ele. 215 ft.; Woodward Reservoir, 8 miles N of Oakdale. 4 Ele. 6230 feet; float in Lake Tahoe.

Climatological Data for May, 1919.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range, Total), Precipitation (Departure from normal, Greatest in 24 hours, Snowfall, Precipitation of inch or more, Clear, Partly cloudy, Cloudy), Prevailing direction of wind, Observers.

Daily Precipitation for May, 1919.

Stations.	Watersheds.	Day of Month.																														Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31		
Alturas	Sacramento																																		0.02
Antioch	San Joaquin																																	0.00	
Atascadero	Coast																																	0.67	
Azusa	do																																	0.39	
Bakersfield	San Joaquin																																	0.82	
Barstow	Desert																																	0.17	
Berkeley	Coast																																	0.02	
Betteravia	do																																	0.47	
Blue Canon	Sacramento																																	0.08	
Blythe	Colorado																																	0.07	
Bonita	Coast																																	0.10	
Branscomb	do																																	0.90	
Brawley	Imperial Valley																																	0.02	
Cloverdale	Imperial Valley																																	0.28	
Calexico	Imperial Valley																																	0.10	
Camptonville	San Joaquin																																	0.10	
Chico	Sacramento																																	0.62	
Claremont	Coast																																	0.15	
Cloverdale	do																																	T	
Colfax	Sacramento																																	T	
Corona	Coast																																	0.26	
Crescent City	do																																	3.04	
Davis	Sacramento																																	0.00	
Downieville	do																																	0.25	
Durham	do																																	0.14	
El Cajon	Coast																																	0.14	
Elsinore	do																																	0.33	
Escondido	do																																	0.17	
EUREKA	do																																	1.48	
Folsom	Sacramento																																	T	
Fontana	Coast																																	0.62	
Fort Bidwell	Mountain Lakes																																	0.06	
FRESNO	San Joaquin																																	0.10	
Grass Valley	Sacramento																																	0.20	
Greenland Ranch	Desert																																	0.00	
Hanford	San Joaquin																																	0.10	
Healdsburg	Coast																																	0.08	
Hollister	do																																	0.00	
INDEPENDENCE	Owens																																	0.34	
Indio	Coachella Val.																																	0.20	
Inskip	Sacramento																																	0.15	
Kennett	do																																	0.10	
King City	Coast																																	0.45	
La Porte	Sacramento																																	0.65	
Lemon Cove	San Joaquin																																	T	
Lick Observatory	Coast																																	0.77	
Lindsay	San Joaquin																																	0.59	
Lone Pine	Owens																																	0.19	
LOS ANGELES	Coast																																	0.45	
McCloud	Sacramento																																	0.11	
Madeline	Mountain Lakes																																	T	
Marysville	Sacramento																																	0.05	
Mecca	Coachella Val.																																	0.15	
Merced	San Joaquin																																	0.18	
MT. TAMALPAIS	Coast																																	0.02	
Mount Wilson	do																																	T	
Napa	do																																	0.22	
Needles	Colorado																																	T	
Nevada City	Sacramento																																	0.00	
Newman	San Joaquin																																	0.02	
Oakland	Coast																																	0.18	
Orcutt	Sacramento																																	0.08	
Oroville (near)	do																																	0.36	
Pasadena	Coast																																	0.15	
Paso Robles	do																																	T	
Petaluma	do																																	0.19	
Placerville	Sacramento																																	0.54	
POINT REYES	Coast																																	1.05	
Pomona	do																																	0.00	
Porterville	San Joaquin																																	0.03	
Portola	Sacramento																																	0.30	
RED BLUFF	do																																	0.89	
Redding	do																																	0.56	
Redlands	Coast																																	0.00	
Riverside	do																																	1.23	
Rocklin	Sacramento																																	0.01	
Rohnerville	Coast																																		

Daily Temperature for May, 1919.

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean.	
Bakersfield	Maximum 92	93	91	89	78	75	85	88	81	79	56	70	77	87	80	75	75	84	85	77	84	83	80	84	86	86	87	96	90	80	76	82.3	
Bakersfield	Minimum 69	59	68	63	61	55	57	60	53	65	55	60	57	70	65	59	60	56	65	55	65	60	56	61	56	65	62	61	60	57	55	59.8	
Calexico	Maximum 101	99	98	95	92	90	99	95	93	91	95	97	96	97	95	94	95	95	90	85	78	80	88	90	94	96	100	101	92	95	96	93.4	
Calexico	Minimum 61	64	63	55	57	57	59	59	57	57	61	61	61	62	59	55	60	62	60	59	61	58	56	59	64	66	67	73	62	61	61	60.5	
Chico	Maximum 94	90	86	80	86	89	84	87	81	85	85	84	89	84	75	75	82	80	98	95	87	82	84	85	85	95	105	96	85	84	90	86.7	
Chico	Minimum 56	54	54	49	43	46	48	49	47	44	52	44	46	57	45	47	44	52	50	55	57	57	52	51	55	60	62	67	54	55	54	51.8	
Escondido	Maximum 73	69	71	70	68	70	66	71	71	71	72	78	82	80	75	75	72	79	76	68	74	64	74	74	72	74	71	80	75	68	66	72.4	
Escondido	Minimum 52	53	50	52	63	58	53	53	54	52	42	49	49	50	51	49	44	51	52	54	51	45	49	53	56	56	58	58	57	56	55	52.2	
Eureka	Maximum 56	54	54	54	56	55	54	58	54	55	59	54	57	58	57	57	67	61	57	56	54	50	50	50	50	50	50	55	52	49	43	46	47.3
Eureka	Minimum 45	47	45	43	52	44	49	48	48	45	43	43	46	47	48	45	47	48	45	51	50	50	50	50	50	50	50	55	52	49	43	46	44
Fresno	Maximum 91	90	86	77	76	86	87	81	77	82	86	82	90	85	76	78	86	84	80	88	85	80	81	85	88	92	98	88	81	83	86	84.4	
Fresno	Minimum 58	60	56	50	48	57	63	51	51	48	56	53	54	57	50	50	47	54	55	58	62	57	54	54	55	60	66	66	69	58	54	55.2	
Independence	Maximum 85	85	85	83	83	76	80	83	80	78	83	85	86	85	82	86	87	84	81	82	79	71	79	86	87	91	96	84	79	85	81	83.1	
Independence	Minimum 53	59	52	57	56	52	52	49	52	50	52	49	53	51	52	51	49	50	53	62	58	56	55	56	58	60	63	63	58	58	53	54.6	
Los Angeles	Maximum 67	60	63	64	62	64	62	67	68	69	74	72	72	70	68	68	69	72	68	66	70	67	63	67	67	70	75	76	71	71	70	70	68.2
Los Angeles	Minimum 53	54	54	53	53	50	53	55	53	54	54	54	55	55	55	54	54	55	55	56	56	56	54	51	51	49	52	52	66	57	56	51.4	
Merced	Maximum 89	88	84	73	77	86	85	80	79	83	87	82	90	80	76	77	85	82	82	88	86	79	79	83	87	92	99	86	80	83	87	83.6	
Merced	Minimum 51	52	53	48	47	48	47	49	47	47	48	51	46	55	50	50	46	49	52	53	58	54	51	51	49	52	52	66	57	56	57	51.4	
Mount Tamalpais	Maximum 72	71	63	43	60	71	63	58	55	67	66	74	59	54	53	61	51	72	66	66	68	58	58	64	62	71	85	74	60	63	74	64.1	
Mount Tamalpais	Minimum 61	56	40	39	38	53	51	45	43	47	46	46	56	42	42	44	43	47	44	44	44	43	44	48	52	55	63	53	47	49	54	47.5	
Oakland	Maximum 62	65	62	58	62	63	59	62	63	67	63	69	74	61	62	61	63	69	67	65	65	64	62	60	62	67	70	83	66	67	70	66.3	
Oakland	Minimum 49	50	49	49	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48.0	
Orland	Maximum 94	91	91	75	86	88	84	80	81	82	86	87	82	90	78	75	73	89	80	96	98	93	94	86	85	84	109	100	96	83	87	87.0	
Orland	Minimum 58	57	56	50	46	50	55	49	47	54	50	49	50	49	46	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48.0	
Oroville	Maximum 89	93	90	86	72	72	85	87	83	89	80	85	84	83	89	79	76	75	82	80	97	92	86	82	84	86	84	94	101	97	86	85.4	
Oroville	Minimum 54	54	52	50	44	44	47	47	46	47	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45.0		
Paso Robles	Maximum 91	90	81	66	66	73	83	85	83	78	85	88	85	91	69	80	81	87	70	78	74	67	67	70	82	88	92	100	70	72	87	80.3	
Paso Robles	Minimum 40	39	47	48	45	37	39	38	41	40	41	47	39	40	46	45	38	36	45	47	48	53	52	46	40	51	55	63	51	40	44	44.0	
Point Reyes	Maximum 51	52	53	53	54	56	54	54	52	53	54	53	54	53	56	55	50	59	54	56	56	54	56	53	55	55	56	58	50	52	53	54.3	
Point Reyes	Minimum 46	46	46	46	47	48	47	47	46	46	47	47	45	46	47	49	48	51	47	49	48	50	44	47	47	47	47	47	46	46	46	47.2	
Pomona	Maximum 79	63	63	66	63	70	68	72	73	77	87	84	83	79	78	73	82	75	74	78	75	68	71	68	81	83	89	80	67	75	74.9		
Pomona	Minimum 52	53	52	52	43	40	47	53	43	53	43	46	50	51	55	46	42	54	54	55	54	53	49	52	49	51	58	60	50	56	56	47.6	
Porterville	Maximum 92	92	88	80	77	84	88	83	80	78	78	82	91	81	80	79	82	77	88	82	78	81	83	85	83	92	105	99	77	77	83	83.7	
Porterville	Minimum 59	56	56	50	47	54	50	47	48	47	48	51	51	54	52	49	45	49	48	47	50	56	58	58	57	56	56	62	74	62	58	53.4	
Red Bluff	Maximum 91	89	88	72	82	87	83	80	80	82	81	79	88	69	70	71	79	70	94	98	89	83	85	85	83	92	105	99	77	77	83	83.7	
Red Bluff	Minimum 62	62	56	51	48	52	51	54	51	55	56	49	53	56	51	50	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48.0	
Redlands	Maximum 83	70	74	69	67	70	72	72	66	74	85	87	85	81	73	74	86	75	75	78	72	69	69	71	83	86	93	81	69	69	79	76.2	
Redlands	Minimum 51	53	52	51	51	48	51	52	51	53	49	49	49	50	53	52	46	54	53	54	52	52	53	54	55	52	58	59	58	56	56	52.5	
Sacramento	Maximum 90	87	75	63	78	84	73	78	75	83	83	79	81	80	74	73	86	74	86	79	70	72	70	72	70	83	100	80	80	80	85	79.4	
Sacramento	Minimum 50	50	49	49	48	48	47	49	47	48	50	50	49	51	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48.0	
San Bernardino	Maximum 84	71	72	71	66	70	71	71	72	77	88	89	85	81	76	75	85	78	73	79	75	65	66	70	82	85	93	81	83	69	80	76.4	
San Bernardino	Minimum 52	53	53	54	51	45	50	53	48	54	44	47	46	51	54	54	44	53	54	55	52	50	54	54	55	52	58	60	59	58	57	52.4	
San Diego	Maximum 64	62	64	64	63	64	62	65	66	66	66	66	64	65	65	65	64	66	67	66	66	66	67	65	66	66	68	66	67	67	67	65.3	
San Diego	Minimum 55	54	54	55																													