

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

CALIFORNIA SECTION

EDWARD A. BEALS, METEOROLOGIST.

Vol. XXV. SAN FRANCISCO, SEPTEMBER, 1921. No. 9.

GENERAL SUMMARY.

Abnormally cool weather prevailed throughout California during the first half of September, but it was much warmer during the latter half. A hot spell which occurred near the close of the month brought the highest temperatures of the season in many places. Precipitation was deficient in northern and central California, but it was unusually heavy in the extreme southern portion of the State. Light showers accompanied thunderstorms in the central portion on the 1st and 2d. Though light, the rainfall was sufficiently heavy to extinguish forest fires which had been burning for some time. At Cupertino, in the Santa Clara Valley, a man was killed by lightning on the 1st. Light showers which fell throughout the northern and central portions on the 17th-19th caused much anxiety among fruit-growers, but the rain was not sufficiently heavy to damage sun-curing fruit. Snow fell in the high Sierra Nevada Mountains on the 18th. On the 30th heavy showers fell throughout southern California. It was a pleasant month along the coast, where there was more sunshine and less fog than usual. Wind movement was about normal.

The cool weather of the early half of the month retarded the growth and maturity of crops somewhat, but the warm weather of the latter half was favorable. Certain crops were late, and harvesting was not completed by the close of the month. However, it was good harvest weather for sugar beets, beans, figs, walnuts, grapes, prunes, potatoes and hops. The sun-curing of fruit was nearly completed under excellent weather conditions. At the close of the month the harvesting of rice was well under way, and the picking of cotton had begun. Dry feed was plentiful, and stock brought in from the mountains were in good condition. Growing vegetables and truck crops were benefited by the showers and cool weather. Citrus fruits made excellent progress; oranges and lemons grew to large sizes for the season. Much fall plowing was accomplished following the softening of the soil by the showers. The weather for the month as a whole was favorable for farm work. At the close of the month the general agricultural situation was satisfactory, and somewhat better than it was on the same date last year. As a whole the weather of the past summer has been favorable for agriculture.

A.H.P.

PRESSURE.

The mean sea-level pressure, determined from the records of 11 regular Weather Bureau stations, was 29.91 inches. The highest was 30.23 inches at Eureka on the 3d; the lowest was 29.58 inches at Red Bluff on the 8th; the range for the State was 0.65 inch.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 96 stations, was 67.3°, which is 1.2° below normal. The highest monthly mean was 85.6°, at Indio; and the lowest was 51.3°, at Foydice Dam.

The highest temperature, 116°, occurred at Greenland Ranch on the 13th; and the lowest, 26°, occurred at Foydice Dam on the 15th.

The range for the State was 90°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 233 stations, was 0.41 inch, or 0.08 inch below the normal. The greatest monthly amount was 4.40 inches, at Nellie. No rain fell at 27 stations.

The greatest amount in 24 hours was 4.15 inches at Nellie on the 30th.

RELATIVE HUMIDITY, SUNSHINE AND CLOUDINESS.

Stations.	Relative humidity Per cent.			Sunshine.	
	6 a. m.	5 p. m.	Mean.	Actual No. of hours	Per cent of possible.
Eureka.....	91	74	82	277	74
Fresno.....	61	22	42	346	93
Independence.....	33	13	23	350	94
Los Angeles.....	81	58	70	279	75
Red Bluff.....	57	26	42	332	89
Sacramento.....	75	33	54	373	92
San Diego.....	84	74	79	281	76
San Francisco.....	87	68	78	300	80
San Jose.....	49	49	.....	317	85
San Luis Obispo.....	81	56	68	265	71

WIND MOVEMENT.—(Miles.)

Stations.	Total mov. for month.	Ave. hr. velocity.	Maximum velocity.	Direction.	Date	Prev dir.
Fresno.....	4,824	6.7	22	nw.	2	nw.
Independence.....	3,687	5.1	24	s.	17	s.
Los Angeles.....	3,410	4.7	18	sw.	18	sw.
Point Reyes.....	13,839	19.2	54	nw.	19	nw.
Red Bluff.....	4,271	5.9	25	se.	2	se.
Sacramento.....	5,075	7.0	35	s.	10	s.
San Diego.....	4,438	6.2	30	s.	30	nw.
San Francisco.....	5,954	8.2	23	w.	1	s.
San Jose.....	4,102	5.3	24	sw.	1	s.
San Luis Obispo.....	2,742	3.8	18	ne.	25	nw.

COMPARATIVE DATA FOR SEPTEMBER.

Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.	Year	Mean temp.	Ave. precip.
1897.....	67.7	0.03	1904.....	70.3	2.66	1911.....	63.9	0.19	1918.....	67.6	2.37
1898.....	69.2	0.64	1905.....	68.6	0.16	1912.....	66.5	1.65	1919.....	67.3	0.98
1899.....	70.9	0.03	1906.....	68.6	0.25	1913.....	70.7	0.07	1920.....	66.4	0.29
1900.....	65.4	0.22	1907.....	65.6	0.13	1914.....	66.2	0.23	1921.....	67.3	0.41
1901.....	66.0	0.94	1908.....	68.1	0.49	1915.....	66.2	0.06	.....	.....	.....
1902.....	70.7	0.01	1909.....	68.2	0.52	1916.....	66.4	0.56	.....	.....	.....
1903.....	68.7	0.10	1910.....	67.3	0.69	1917.....	69.0	0.10	.....	.....	.....

Daily evaporation (inches) and wind movement (miles) for September.

Stations.	Data.	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	
Chula Vista**	Evaporation.....	193	248	211	219	188	201	217	226	249	253	242	228	239	218	215	232	226	222	193	190	166	161	156	159	194	201	209	221	141	153	.....	6,171
	Wind movement.....	93	118	101	113	104	93	91	94	97	111	102	93	147	109	83	96	93	133	94	73	81	88	90	97	63	60	59	108	85	109	.....	2,866
Dodgeland*	Evaporation.....	236	292	112	211	203	233	280	268	337	163	318	307	175	099	056	230	232	180	083	177	208	069	202	172	197	248	152	168	433	229	.....	6,270
	Wind movement.....	31	50	105	22	26	21	22	85	17	64	16	42	26	15	27	23	18	33	63	38	46	18	9	16	22	20	52	15	108	51	.....	1,101
Oakdale (near)*	Evaporation.....	380	169	318	336	464	421	435	450	462	367	328	323	286	334	340	334	345	117	259	297	300	382	374	409	319	355	338	333	405	391	.....	10,351
	Wind movement.....	135	105	120	90	100	80	100	105	105	175	210	165	110	135	110	100	135	70	100	130	80	70	100	120	110	110	60	60	95	95	.....	3,289
Tahoe**	Evaporation.....	150	085	215	140	165	115	185	140	155	175	135	170	175	140	195	230	180	150	175	145	130	140	140	105	145	135	135	120	150	190	.....	4,590
	Wind movement.....	19	53	74	54	39	35	63	51	50	35	30	56	48	40	87	71	45	60	61	13	65	32	55	53	46	35	11	19	51	27	.....	1,378

* Observations taken at 7 a. m.; ** at 8 a. m. † Included in the next following entry.

Climatological Data for September, 1921.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.			Prevailing direction of wind.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Snowfall (un-melted).	Precipitation .01 inch or more.	Clear.			Partly cloudy.	Cloudy.	
Antioch	Contra Costa	46	42	71.4	+0.3	100	127	43	111	47	10	-18	.10	0	1	27	0	3	e.	C. G. McDaniel.	
Atascadero	San Luis Obispo	837	5	63.0		99	27	34	15	54	.70		.29	0	3	24	2	4	sw.	Colony Holding Corp.	
Bakersfield	Kern	404	32	72.5	-2.2	101	23	46	18	48	T.	-1.9	T.	0	0	23	2	5	nw.	Santa Fe Co.	
Bartow	San Bernardino	2,105	18																	L. Tiernan.	
Berkeley	Alameda	317	34	63.9	+0.4	98	27	48	5	42	.17	-0.40	.08	0	3	16	9	5	sw.	State University.	
Blue Canon	Placer	4,695	22	57.8	-1.6	86	9	37	15	41	.05	-1.01	.05	0	1	27	1	2	ne.	Southern Pacific Co.	
Blythe	Riverside	268	12	82.1		111	16	54	117	49	2.95		2.95	0	1	27	1	0	2	w.	Palo Verde Water Co.
Bonita	San Diego	110	5	67.6		98	26	49	113	42	.35			0	1	28	0	2	w.	R. M. Allen.	
Branscomb	Mendocino	2,000	21	60.8	0	95	27	32	12	50	1.24	+0.9	.65	0	3	24	3	3	n.	A. J. Haun.	
Brawley	Imperial	-105	11	81.0		105	19	58	19	42	.70		.70	0	1					M. D. Witter.	
Calexico	Imperial	0	16	82.7	-0.8	109	25	57	17	42	.85	+0.76	.83	0	1	26	3	1	nw.	W. S. Pratt.	
Chico	Butte	189	51	70.0	-4.6	100	126	43	115	50	.03	-0.53	.03	0	0	2	23	0	1	nw.	U. S. Bureau Plant Ind.
Chula Vista	San Diego	9	3	65.3		82	27	52	23	20	1.60		.98	0	2	20	9	1	nw.	Western Salt Works.	
Claremont	Los Angeles	1,200	29	70.8	+0.2	108	26	45	113	47	.02	-1.1	.02	0	1	25	3	2	w.	Prof. P. P. Brackett.	
Cloverdale	Sonoma	349	13	68.3	+0.7	106	27	37	13	46	.21	-0.45	.12	0	3	26	1	3	n.	John O. Ogle.	
Colfax	Colusa	2,421	50	67.6	-1.9	94	27	42	111	37	T.	-0.67	T.	0	0	24	5	1	n.	Southern Pacific Co.	
Colusa	Colusa	60	18	68.5	-0.5	95	7	45	15	40	0	-0.35	0	0	0	26	2	2	se.	E. A. Houchins.	
Corona	Riverside	615	7	71.7		106	27	48	113	45	1.00		1.00	0	1	27	1	2	w.	Edwin T. Brink.	
Crescent City	Del Norte	125	7	58.7		89	28	37	113	42	2.37	+0.35	1.34	0	3	26	2	2	nw.	Thos. E. Peacock.	
Davis	Yolo	51	49	68.6	-3.4	104	27	38	13	53	T.	-0.26	T.	0	0	24	6	0	sw.	Prof. S. H. Beckett.	
Dodgehead	Butte	160	26	70.9		97	127	46	15	40	T.		T.	0	0	24	1	5	n.	Dodge Land Co.	
El Cajon	San Diego	482	22	70.5	-0.4	109	26	46	21	53	.96	+0.84	.96	0	1	28	0	2	sw.	Eugene P. Kessler.	
Elsinore	Riverside	1,300	5	74.4		109	27	47	16	49	1.37	+1.21	1.37	0	1	16	14	0	nw.	W. L. Wilhite.	
Escondido-1	San Diego	742	27	68.5	0	106	26	43	113	50	.92	+0.84	.92	0	1	27	1	2	w.	H. L. Harlow.	
EUREKA	Humboldt	64	35	55.4	+0.5	70	21	43	12	21	.27	-0.84	.27	0	4	16	12	2	nw.	U. S. Weather Bureau.	
Folsom	Sacramento	252	48	72.0	+0.2	101	23	42	3	54	.18	-0.20	.18	0	2	25	0	5	n.	Mrs. G. J. Marvin.	
Fontana	San Bernardino	1,325	9	66.4		103	26	42	113	50	1.61		1.54	0	2	26	3	2	sw.	Fontana Land Co.	
Fordey Dam	Nevada	6,500	27	51.3	+0.1	78	126	26	15	43	.27	-1.42	.27	0	2	22	3	2	sw.	E. E. Roening.	
Fort Bidwell	Modoc	4,373	32	56.2	-5.6	87	27	29	119	45	.33	-0.06	.26	0	2	18	8	4	sw.	C. E. DeJongs.	
FRESNO	Fresno	933	34	72.8	+1.5	99	8	49	15	37	.21	-0.06	.21	0	1	27	2	1	nw.	U. S. Weather Bureau.	
Grass Valley	Nevada	2,690	49	67.8	+2.5	95	27	45	112	33	.04	-0.81	.04	0	1	24	9	3	sw.	Mrs. L. M. Wentworth.	
Greenland Ranch	Inyo	-173	10	83.2		116	13	52	116	55	0		0	0	0	30	0	0	0	O. A. Denton.	
Hanford	Kings	249	21	71.3	-1.1	100	18	44	14	44	.03	-0.42	.02	0	2	30	0	0	0	se.	Santa Fe Co.
Headlandsburg	Sonoma	110	28	66.0	+0.3	105	27	35	14	52	.29	-0.29	.24	0	2	15	8	7	0	n.	Dr. F. J. Kinley.
Hollister	San Benito	284	17	63.0	-2.6	97	27	39	14	45	.24	+0.13	.24	0	1	24	3	3	w.	Grangers' Union.	
INDEPENDENCE	Inyo	3,957	25	69.5	+0.4	92	28	45	17	41	.01	-0.09	.01	0	1	26	4	0	sw.	U. S. Weather Bureau.	
Indio	Riverside	-20	43	85.6	-0.9	110	25	64	112	40	1.24	+1.10	1.24	0	1	23	6	1	se.	U. S. Bureau Plant Ind.	
Inskip	Butte	4,975	14	61.1	+2.5	83	27	40	13	24	.25	-1.12	.17	0	3	23	2	5	0	ne.	Pacific Gas & Electric Co.
Kennett	Shasta	730	9	74.8		107	27	44	16	48	.40	-0.16	.40	0	1	26	0	4	ne.	Mammoth Copper Mine.	
La Porte	Plumas	5,000	27	63.3	-1.9	82	27	28	13	38	.44	-1.31	.28	0	3	24	2	4	sw.	Wm. Schulz.	
Lemon Cove	Tulare	600	26	71.7	-3.2	98	28	44	15	44	.15	-0.30	.15	0	1	26	4	0	nw.	T. E. Benice.	
Lick Observatory	Santa Clara	4,209	32	64.1	+1.5	88	27	39	22	42	.27	-0.09	.14	0	2	24	2	4	n.	Lick Observatory.	
Lindsay	Tulare	384	7	72.0		100	28	42	15	45	T.		T.	0	0	25	4	1	nw.	Basil Prior.	
Long Beach	Los Angeles	50	1	66.4		99	26	46	25	50	.75		.75	0	1	21	8	1	sw.	George D. West.	
LOS ANGELES	Los Angeles	293	44	69.3	-0.2	101	26	45	22	34	.62	+0.56	.62	0	1	18	10	2	sw.	U. S. Weather Bureau.	
McCloud	Siskiyou	3,270	11	56.8		89	28	30	14	49	1.40		.90	0	3	24	3	3	sw.	McCloud River Lbr. Co.	
Marysville	Yuba	67	50	68.8	-5.2	97	8	45	15	47	T.	-0.35	T.	0	0	26	1	3	sw.	Southern Pacific Co.	
Mecca	Riverside	-185	15	83.0	-0.3	111	2	60	117	39	2.16	+2.04	2.16	0	1	27	2	1	nw.	Cooperative Date Garden.	
Merced	Merced	173	47	69.6	-4.1	97	28	46	15	43	.10	-0.12	.06	0	2	26	2	2	sw.	Santa Fe Co.	
Mr. TAMALPAIS	Marin	2,375	22																	U. S. Weather Bureau.	
Mount Wilson	Los Angeles	5,704	4	66.4		89	15	44	12	28	.22		.21	0	2	26	1	3	e.	Solar Observatory.	
Napa	Napa	20	44	65.6	-0.4	102	28	39	13	47	.16	-0.35	.12	0	2	22	5	3	sw.	State Hospital.	
Needles	San Bernardino	477	29	82.3	-1.4	108	6	58	17	48	1.70	+1.46	1.70	0	1	27	0	3	sw.	Santa Fe Co.	
Nevada City	Nevada	2,850	29	63.2	+1.0	97	27	32	16	50	.04	-0.71	.04	0	1	24	1	5	sw.	B. H. Preston.	
Newman	Stanislaus	91	32	72.3	-1.3	109	23	41	113	58	.37	+0.17	.21	0	2	28	0	2	n.	E. S. Wengenheim.	
Oakdale (near)	Stanislaus	215	3	68.8	-1.6	98	128	44	15	42	.06	-0.15	.06	0	1	26	3	1	nw.	S. San Joaquin Irr. Dist.	
Oakland	Alameda	322	45	63.6	+2.4	93	28	52	13	29	.20	-0.26	.11	0	4	17	9	4	sw.	Chabot Observatory.	
Ojai	Ventura	900	15	68.6	+0.1	111	27	39	16	56	.24	-0.36	.10	0	3	25	2	3	w.	W. H. Duncan.	
Orland	Glenn	254	39	72.0	-4.7	102	27	46	17	42	.01	-0.47	.01	0	1	25	4	1	sw.	U. S. Rec. Service.	
Oroville (near)	Butte	250	37	71.5	-1.5	101	8	46	17	43	0	-0.69	0	0	0	24	4	2	sw.	William Noyer.	
Pasadena	Los Angeles	805	31	69.0	-0.6	106	26	47	13	49	.25	+0.10	.25	0	1	24	3	3	sw.	Morris S. Jones.	
Paso Robles-1	San Luis Obispo	800	34	65.4	-0.7	103	27	40	113	52	.44	+0.15	.28	0	4	19	2	9	sw.	Mrs. A. Z. Campbell.	
Petaluma	Sonoma	9	7	62.8		103	25	45	114	44	.25	0	.13	0	3	28	1	1	w.	John Landis.	
Placerville	El Dorado	1,925	32	61.2	-2.3	88	17	35	15	47	.10	-0.62	.10	0	1	22	0	8	w.	O. E. Bailey.	
POINT REYES	Marin	490	29	55.4	-0.8	79	27	46	16	24	.72	-0.12	.56	0	3	10	8	12	nw.	U. S. Weather Bureau.	
Pomona	Los Angeles	857	7	68.2		107	26	42	16	57	.01		.01	0	1	17	10	3	sw.	J. E. Adamson.	
Porterville	Tulare	464	32	73.1	-2.0	101	128	45	14	42	T.	-0.29	T.	0	0	28	2	0	nw.	Santa Fe Co.	
RED BLUFF	Tehama	307	44	72.8	-1.1	101															

Daily Precipitation for September, 1921.

Stations.	Drainage-basin.	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	
Antioch	San Joaquin	T.																																0.10
Atascadero	Coast	.22																																.70
Bakersfield	San Joaquin	T.																																T.
Barstow	Desert																																	.17
Berkeley	Coast	.02	T.																															.05
Blue Canon	Sacramento	.05																																2.95
Blythe	Colorado																																	.35
Bonita	Coast																																	1.24
Branscomb	do																																	.70
Brawley	Imperial Valley																																	.85
Calexico	do																																	.03
Chico	Sacramento																																	1.60
Chula Vista	Coast																																	.02
Claremont	do																																	.21
Cloverdale	do	T.																																T.
Colfax	Sacramento	T.																																0
Colusa	do																																	1.00
Corona	Coast																																	1.00
Crescent City	do	T.																																2.37
Davis	Sacramento																																	T.
Dodgeland	do																																	T.
El Cajon	Coast																																	.96
Elsinore	do																																	1.37
Escondido-1	do																																	.92
EUREKA***	do																																	.18
Folsom	Sacramento	.18																																1.61
Fontana	Coast	.07																																.27
Fordyce Dam	Sacramento	.22																																.33
Fort Bidwell	Mountain Lakes		.07																															.21
FRESNO**	San Joaquin	.21																																.04
Grass Valley	Sacramento	T.																																0
Greenland Ranch	Desert																																	.03
Hanford	San Joaquin	.02																																.29
Healdsburg	Coast	T.	T.																															.24
Hollister	do	T.																																.01
INDEPENDENCE***	Owens	.01	T.																															1.24
Indio	Coachella Val.																																	.25
Inskip	Sacramento	.03																																.40
Kennett	do	T.																																.44
La Porte	do	.05																																.15
Lemon Cove	San Joaquin	T.	.15																															.27
Lick Observatory	Coast	T.																																T.
Lindsay	San Joaquin																																	.75
Long Beach	Coast																																	.62
LOS ANGELES***	do																																	1.40
McCloud	Sacramento		.10																															T.
Marysville	do	T.																																2.16
Mecca	Coachella Val.																																	.10
Merced	San Joaquin	.06																																.22
Mr. TAMALPAIS***	Coast																																	.16
Mount Wilson	do	T.																																1.70
Napa	do																																	.04
Needles	Colorado																																	.37
Nevada City	Sacramento	T.																																.06
Newman	San Joaquin	.21																																.20
Oakdale (near)	do	.06																																.24
Oakland	Coast	.03																																.01
Ojai	do	.07																																T.
Orland	Sacramento	T.																																.25
Oroville (near)	do	T.																																.44
Pasadena	Coast																																	.25
Paso Robles-1	do	.14	.01																															.10
Petaluma	do	T.																																.72
Placerville	Sacramento	.10																																.01
POINT REYES***	Coast	T.																																T.
Pomona	do																																	.30
Porterville	San Joaquin	T.																																1.71
RED BLUFF***	Sacramento	T.																																T.
Redding	do																																	.30
Redlands	Coast																																	1.71
Riverside	do	T.																																0
Rocklin	Sacramento																																	T.
SACRAMENTO***	do	T.																																.28
Salinas	Coast																																	1.10
San Bernardino	do																																	1.24
SAN DIEGO**	do																																	.35
SAN FRANCISCO***	do	T.			T.																													

Daily Temperature for September, 1921.

Table with 32 columns for stations (1-31) and a Mean column. Rows list various California cities like Bakersfield, Calexico, Chico, Escondido, Eureka, Fresno, Independence, Los Angeles, Merced, Oakland, Orland, Oroville, Pasadena, Paso Robles, Point Reyes, Pomona, Porterville, Red Bluff, Redlands, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, Santa Barbara, Santa Rosa, and Stockton, each with maximum and minimum temperature values for each day.

SUPPLEMENTAL PRECIPITATION TABLE.

Table with 12 columns: Stations, Drainage-basin, Precip. inches. Rows list various California locations such as Abbotts, Aguanga, Amago, Angiola, Antelope Valley, Arrowhead Springs, Auberry, Auburn, Avalon, Bagdad, Barret Dam, Beaumont, Beaumont (near), Bellota, Benson's Ferry, Belteravia, Big Bar, Big Sur, Bishop Creek, Calaveras R. S., Campbell, Campo, Camptonville, Canon Dam, Cascada, Cedarville, Centerville Pwr. H., Chester, China Flat, Churn Creek, Clovis, Coalinga, Colgrate, Crockett, Cuyamaca, Deer Creek, Del Monte, Denair, De Sable, and Dinuba, along with their respective precipitation amounts.

*Data obtained from 3-inch rain gage.