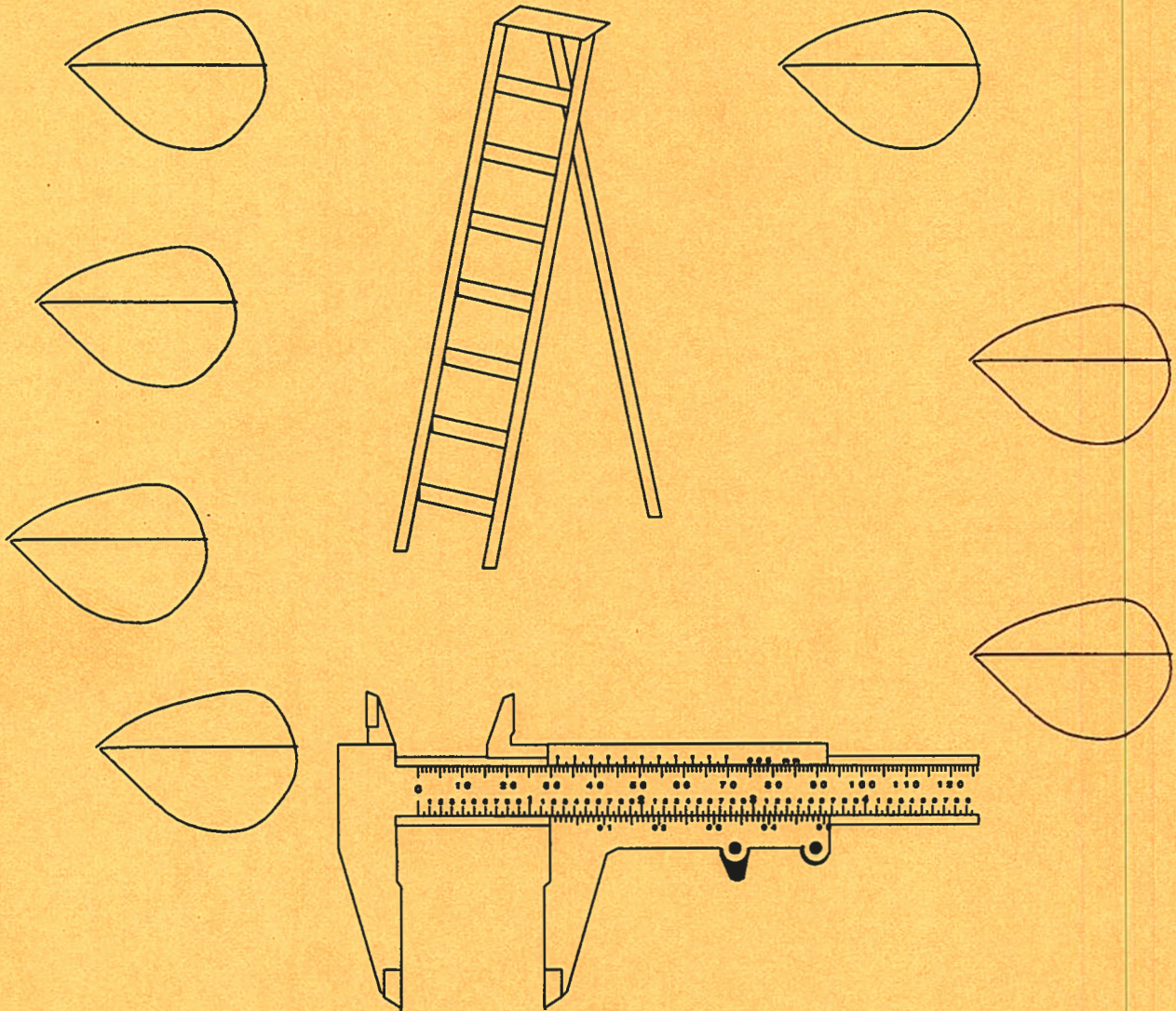


PERMANENT
RECORD FILE

1988 ALMOND

OBJECTIVE MEASUREMENT SURVEY



CALIFORNIA AGRICULTURAL STATISTICS SERVICE
P.O. BOX 1258, SACRAMENTO, CALIFORNIA 95812
(916) 445-3214/4478
July 15, 1988

1988 ALMOND OBJECTIVE MEASUREMENT SURVEY

I. Results

The July 1988 almond estimate is 580 million meat pounds. This estimate represents no change from last month. The yield is forecasted at 1,430 pounds per acre, from an estimated 406,000 acres. The Nonpareil variety is estimated at 350 million meat pounds, 9 percent below last season. This variety represents 60 percent of the total almond production.

The average nut set per tree was 8,386, down 11 percent from 1987 record set of 9,410. The average nut set for Nonpareil was 8,843, down 10 percent from 1987.

The average kernel weight was 1.57 grams, 3 percent above last season. A total of 93.7 percent of the nuts sized were sound.

The crop is progressing quite well and appears to be slightly ahead of normal. The quality and nut size are good. No problem with insects has been reported.

II. Survey Procedures

To determine tree set, we use a method which counts nuts along a path that starts at the trunk and ends at the end of a terminal branch on the tree. Each branch at a forking has a given probability of selection proportional to its cross-sectional area. This methodology is used because of its statistical efficiency. The path is random in that, at each forking, only one of the branches is randomly selected to continue the path. In this way it is possible to end up at any of the tree's terminal branches. Along intermediate stages, i.e., the bearing surface between forkings, every fifth nut is picked. All nuts on the terminal branch are picked. The path chosen has a known probability of selection associated with it and thus can be used to expand the counts along the path in order to arrive at an estimated set for the entire tree.

III. Field Sampling Activities

The Survey began May 26th in the San Joaquin Valley and sampling in all areas of the State was in full swing by May 31st. Sampling was completed on June 23rd. There were 1,700 trees sampled for the 1988 Survey in 850 orchards. An additional 48 orchards were not sampled for one of the following reasons:

- 1) orchard was wet
- 2) orchard had been pulled
- 3) owner refused to cooperate or could not be contacted

IV. The Objective Measurement Survey is funded by monies provided by the Almond Board of California in cooperation with the California Department of Food and Agriculture.

JIM TIPPETT
State Statistician

DAVE KLEWENO
DALE P. HAWKS
Agricultural Statisticians

TABLE 1: WEIGHT, SIZE, AND GRADE OF AVERAGE ALMOND SAMPLE

Variety and District	Weight (Grams)		Size (Millimeters)					Grade (Percent of Nuts) a/							
			Suture		Kernel			Edible Nuts		Insect	Natural				
	In-Hull	Kernel	In-Hull	In-Shell	Length	Width	Thick-ness	Singles	Doubles			Damage	Shriveled	Gum	Blank
VARIETY	VARIETY														
Nonpareil															
1984	12.15	1.73	27.51	21.54	24.40	13.92	10.32	95.4	2.1	b/	1.5	0.1	0.4	0.5	
1985	12.07	1.62	27.35	21.62	24.14	13.54	9.76	94.8	3.7	b/	0.8	0.1	b/	0.5	
1986	14.90	1.97	29.54	23.40	25.80	14.82	10.68	95.7	0.6	b/	2.5	0.2	0.1	0.7	
1987	11.21	1.59	27.24	21.70	23.78	13.97	9.95	96.3	2.1	b/	1.0	b/	b/	0.6	
1988	11.82	1.64	27.20	21.65	23.52	13.59	10.13	95.5	2.2	b/	1.0	0.3	0.1	0.8	
Mission															
1984	8.83	1.42	25.14	19.14	20.33	12.99	11.06	93.5	4.9	b/	0.7	0.2	0.1	0.5	
1985	7.88	1.22	24.40	18.64	19.30	12.27	10.12	96.9	1.8	b/	0.6	0.2	b/	0.5	
1986	10.09	1.56	25.91	19.81	21.38	13.46	11.13	93.7	2.8	b/	1.4	0.4	b/	1.8	
1987	8.53	1.28	25.09	19.33	19.94	12.89	10.67	93.4	4.5	b/	0.8	0.1	0.1	1.2	
1988	8.22	1.33	24.77	19.19	19.36	12.62	10.76	95.5	1.4	b/	0.7	0.2	b/	2.0	
Merced															
1984	11.04	1.64	26.61	20.51	22.44	13.73	11.06	88.9	7.4	b/	1.9	0.6	0.4	0.8	
1985	10.03	1.50	25.55	19.65	21.76	13.17	10.48	93.6	3.7	0.1	1.4	0.6	0.1	0.4	
1986	12.45	1.73	27.43	21.18	23.30	14.04	10.98	93.7	0.9	b/	2.5	1.7	b/	1.0	
1987	9.74	1.53	25.99	20.03	21.33	13.51	10.77	88.2	8.4	b/	2.2	0.3	b/	0.7	
1988	11.04	1.59	26.34	20.08	21.92	13.35	10.65	88.0	4.1	b/	2.0	3.6	0.3	2.1	
Ne Plus Ultra															
1984	13.80	2.03	28.34	21.85	27.75	14.07	10.51	80.2	16.8	0.1	1.5	0.8	0.1	0.5	
1985	11.93	1.76	26.55	21.14	26.15	12.96	10.02	80.9	16.7	b/	0.8	0.3	0.3	0.9	
1986	15.20	2.19	29.33	22.99	28.02	14.54	10.62	84.4	7.1	0.1	4.5	1.3	b/	2.6	
1987	11.12	1.84	26.96	21.35	26.36	13.72	10.42	79.9	17.8	b/	1.7	b/	b/	0.5	
1988	12.61	1.88	27.65	21.95	26.64	13.65	10.27	78.3	16.3	b/	3.0	0.6	b/	1.4	
California Types c/															
1984	10.38	1.56	25.04	19.28	23.39	12.83	10.46	92.3	5.5	b/	1.2	0.1	0.5	0.4	
1985	9.44	1.45	24.35	19.04	22.99	12.40	9.95	92.4	6.1	b/	0.8	0.1	0.1	0.5	
1986	12.16	1.69	26.21	20.36	25.18	13.10	10.40	94.4	1.4	b/	2.9	0.1	0.1	1.0	
1987	9.00	1.42	24.31	18.94	22.40	12.49	10.15	91.9	6.4	b/	0.9	b/	b/	0.8	
1988	9.28	1.45	24.29	18.87	22.22	12.31	10.07	93.0	3.3	b/	1.8	0.7	0.1	1.2	
Carmel d/															
1988	9.44	1.48	24.34	18.70	22.84	12.29	10.01	93.9	2.6	b/	1.4	1.0	0.1	1.1	
DISTRICT	DISTRICT (Weighted by bearing acreage)														
Sacramento Valley															
1984	11.63	1.69	27.28	21.76	24.14	13.59	10.19	91.7	6.2	b/	0.7	0.3	0.2	0.9	
1985	10.12	1.39	25.50	21.47	22.58	12.38	9.29	92.5	4.9	0.1	0.8	0.2	0.3	1.2	
1986	13.39	1.81	28.08	23.40	25.14	13.67	10.77	93.7	3.5	b/	1.5	0.5	b/	0.7	
1987	10.34	1.48	26.61	22.15	23.30	13.50	9.91	93.5	5.1	b/	0.6	0.1	0.2	0.5	
1988	10.46	1.50	25.69	22.22	22.58	12.74	10.00	93.8	3.9	b/	0.7	0.2	0.2	0.9	
San Joaquin Valley															
1984	11.28	1.67	27.15	20.84	23.81	13.78	10.52	93.4	4.0	b/	1.6	0.2	0.4	0.4	
1985	11.05	1.55	26.41	20.29	23.18	13.28	10.06	93.9	4.7	b/	0.8	0.2	b/	0.3	
1986	13.57	1.85	28.27	21.78	24.69	14.40	10.72	94.4	1.3	b/	2.7	0.4	0.1	1.2	
1987	10.43	1.54	26.31	20.43	22.92	13.55	10.19	93.9	4.2	b/	1.1	b/	b/	0.7	
1988	11.06	1.59	26.49	20.26	22.82	13.35	10.29	93.7	2.8	b/	1.4	0.7	0.1	1.3	
Contra Costa & San Luis Obispo Counties															
1984	10.70	1.22	25.83	19.35	21.79	12.35	8.69	93.3	3.3	b/	2.8	b/	0.3	0.3	
1985	11.70	1.27	26.60	20.92	21.96	12.56	8.42	89.2	1.7	b/	4.4	3.6	b/	0.7	
1986	15.85	1.93	30.70	24.63	24.93	14.64	10.77	96.6	b/	b/	b/	3.4	b/	b/	
1987	9.29	1.12	25.82	20.25	21.03	12.59	8.33	92.7	3.2	b/	1.5	b/	b/	2.6	
1988	10.10	1.15	25.56	19.73	20.31	12.40	8.84	98.7	0.8	b/	0.4	b/	b/	0.1	
STATE															
1984	11.56	1.67	26.88	20.88	23.69	13.64	10.49	93.0	4.6	b/	1.4	0.2	0.3	0.5	
1985	10.83	1.51	26.19	20.58	23.03	13.07	9.88	93.6	4.7	b/	0.8	0.2	0.1	0.5	
1986	13.53	1.84	28.22	22.16	24.80	14.23	10.73	94.2	1.8	b/	2.4	0.4	0.1	1.1	
1987	10.41	1.53	26.38	20.82	23.00	13.53	10.12	93.8	4.4	b/	1.0	b/	0.1	0.7	
1988	10.91	1.57	26.30	20.73	22.75	13.20	10.21	93.7	3.1	b/	1.2	0.6	0.1	1.2	

a/ Percentages may not add to 100 due to rounding.

b/ Not shown if less than 0.07 percent.

c/ Ballico, Carmel, Davey, Fritz, Harvey, Le Grand, Mono, Monterey, Norman, Price Cluster, Ruby, Tokyo, and Yosemite.

d/ 1988 is first time Carmel breakdown was available, Carmel variety is also included in California Types.

NOTE: Sacramento Valley includes these counties: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

San Joaquin Valley includes these counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare.

TABLE 2: CALIFORNIA ALMOND ACREAGE, PRODUCTION AND TREES/ACRE, 1984-88

YEAR	BEARING ACRES 1/	TOTAL MEAT PRODUCTION			AVERAGE TREES PER ACRE
		METRIC TONS	MILLION LBS.	LBS. PER ACRE	
1984	381,300	268,000	590	1,550	83.1
1985	409,200	211,000	465	1,140	84.0
1986	412,700	114,000	250	606	84.0
1987	411,000	299,000	660	1,610	85.4
1988 2/	406,000	263,000	580	1,430	85.4

1/ BEARING ACREAGE DEFINED TO BE PLANTINGS 4 YEARS AND OLDER.

2/ JULY FORECAST.

TABLE 3: COMPARISON OF NUT ESTIMATES AND ORCHARDS SAMPLED BY AREA AND VARIETY JUNE OBJECTIVE MEASUREMENT SURVEY COUNTS

AREA OR VARIETY	1984		1985		1986		1987		1988	
	NUTS PER TREE	ORCHARDS SAMPLED	NUTS PER TREE	ORCHARDS SAMPLED	NUTS PER TREE	ORCHARDS SAMPLED	NUTS PER TREE	ORCHARDS SAMPLED	NUTS PER TREE	ORCHARDS SAMPLED
ALL DISTRICTS										
(All Varieties)	9,216	804	7,373	843	3,171	808	9,410	835	8,386	850
BY DISTRICTS										
District I 1/										
Sacramento Vly.	9,537	193	7,602	182	3,660	178	9,261	175	9,835	177
District II 2/										
San Joaquin Vly.	9,297	595	6,803	647	3,775	624	9,600	647	8,123	661
Contra Costa &										
S.L.O. Counties	2,370	16	194	14	191	6	1,910	13	1,535	12
BY VARIETIES										
Calif. Types 3/	10,202	82	8,746	108	3,786	120	9,835	144	8,253	154
Carmel 4/	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8,184	88
Merced	9,349	60	7,957	56	3,567	50	10,477	46	7,199	51
Mission	8,556	104	7,890	101	4,784	92	8,699	94	8,479	87
Ne Plus Ultra	6,699	55	6,499	54	2,445	52	7,525	42	6,354	43
Nonpareil	9,592	443	7,017	449	3,606	417	9,793	443	8,843	457

1/ Sacramento Valley District includes Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba counties.

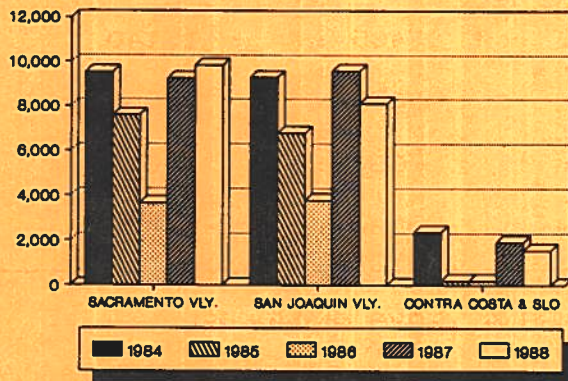
2/ San Joaquin Valley District includes Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties.

3/ California types include the following varieties: Ballico, Carmel, Davey, Fritz, Harvey, Le Grand, Mono, Monterey, Norman, Price Cluster, Ruby, Tokyo, Yosemite.

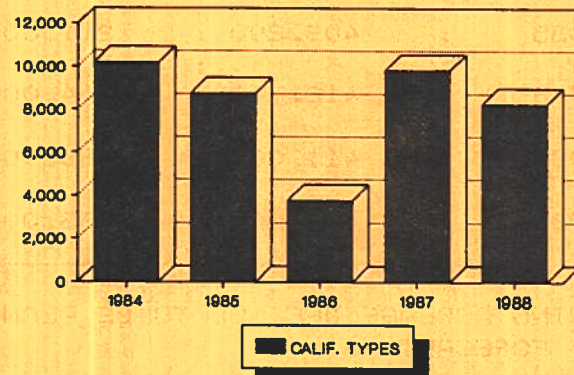
4/ 1988 is the first time Carmel breakdown was available, Carmel variety is included in Calif. type also.

NUTS PER TREE

DISTRICTS

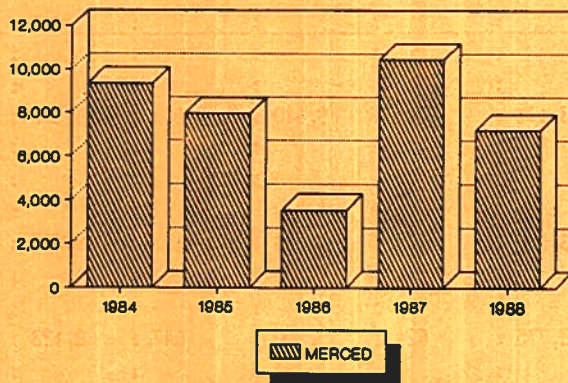


CALIFORNIA TYPES

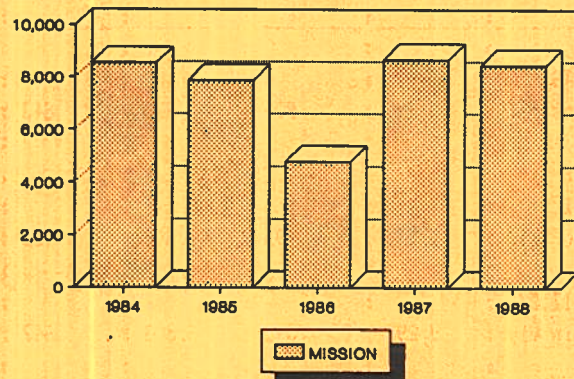


refer to footnotes for calif. type

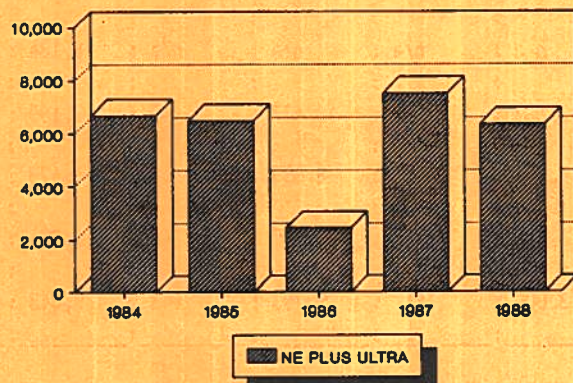
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MISSION



NE PLUS



NONPAREIL

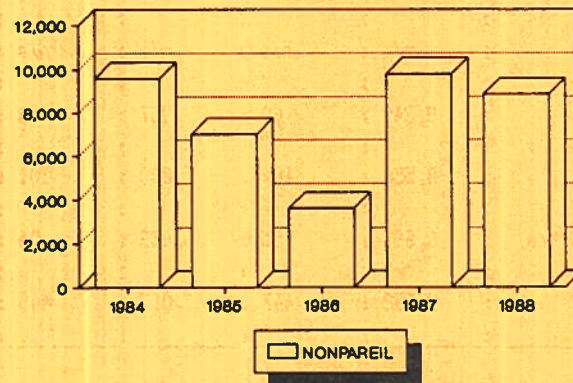


Table 4: CALIFORNIA FRUIT AND NUT ACREAGE AS OF 1987--VARIETIES AND AGE GROUPS--STATE SUMMARY
ACREAGE PLANTED DURING YEARS SHOWN AND STANDING IN 1987--CONTINUED

CROP AND VARIETY	1975 AND EARLIER	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ACRES STANDING IN 1987:		
														BEARING	NON- BEARING	TOTAL
ALMONDS																
BALLICO	71	0	0	0	0	0	0	0	0	0	0	0	0	71	0	71
BUTTE	356	52	31	88	265	538	1,026	550	305	56	64	85	205	3,211	410	3,621
CARMEL	8,813	1,046	1,050	2,534	6,354	5,397	9,162	5,534	2,108	1,389	1,167	612	498	41,998	3,666	45,664
CARRIENS	0	8	19	2	4	34	65	0	5	0	0	0	0	137	0	137
DAVEY	1,475	3	0	0	0	1	0	0	0	0	1	0	0	1,479	1	1,480
DRAKE	2,406	5	0	0	0	2	1	0	0	0	0	0	0	2,414	0	2,414
EARLY MISSION	49	3	8	3	6	1	0	0	0	0	0	0	0	70	0	70
EMERALD	63	0	0	0	0	0	0	0	0	0	0	0	0	63	0	63
FRITZ	302	35	72	151	110	248	417	195	61	96	246	144	50	1,591	536	2,127
HARVEY	1,646	89	12	30	385	69	124	3	0	8	0	0	0	2,358	8	2,366
HASHAM	0	0	50	139	236	145	0	78	62	0	0	0	0	710	0	710
IXL	1,213	0	0	0	0	2	1	0	0	0	0	0	0	1,216	0	1,216
JEFFRIES	31	0	0	30	177	72	261	0	0	0	0	0	0	571	0	571
JORDANLO	596	2	0	0	0	0	0	0	1	0	0	0	0	599	0	599
JUBILEE	79	0	0	0	0	0	0	0	0	0	0	0	0	79	0	79
KAPAREIL	373	4	23	0	2	25	3	13	68	0	0	0	0	511	0	511
LE GRAND	684	100	73	139	77	125	230	88	39	0	0	0	0	1,355	0	1,355
LEWELLING	102	0	0	0	0	0	0	0	6	0	0	0	0	108	0	108
LIVINGSTON	23	10	32	21	25	4	18	8	5	0	0	6	0	146	6	152
LONG IXL	68	0	3	0	0	0	0	0	0	0	0	0	0	71	0	71
MERCED	22,025	310	175	201	598	141	95	45	31	10	135	21	9	23,621	175	23,796
MONO	765	71	26	96	192	146	36	47	14	9	0	0	0	1,393	9	1,402
MONTEREY	34	8	16	50	300	431	549	1,029	275	52	63	6	16	2,692	137	2,829
N-43	0	0	0	0	0	60	0	0	0	0	0	0	0	60	0	60
NE PLUS ULTRA	16,292	334	391	618	516	834	595	260	43	36	36	3	7	19,883	82	19,965
NONPAREIL	154,290	3,704	2,657	6,794	12,296	12,024	15,711	6,933	2,266	1,693	1,945	955	632	216,675	5,225	221,900
NORMAN	871	18	0	23	68	0	0	12	0	0	0	0	0	992	0	992
PADRE	0	0	0	0	0	0	0	37	9	0	0	8	17	46	25	71
PEERLESS	6,007	202	90	288	625	1,135	1,223	508	154	109	130	70	17	10,232	326	10,558
PRICE CLUSTER	2,857	353	318	1,002	2,058	2,285	3,695	1,512	526	311	392	130	111	14,606	944	15,550
RIPON	50	4	11	0	0	0	0	0	0	0	0	0	0	65	0	65
RUBY	751	65	48	45	251	236	451	338	113	50	35	17	37	2,298	139	2,437
SAURET #1	23	0	0	11	184	117	55	6	7	2	15	0	1	403	18	421
SAURET #2	22	6	0	6	121	128	43	2	0	0	10	0	0	328	10	338
SMITH XL	20	0	0	0	0	0	0	34	0	0	1	0	0	54	1	55
SONORA	0	0	0	0	0	0	0	0	0	12	40	0	29	0	81	81
TEXAS/MISSION	37,690	632	472	801	961	1,217	1,824	798	396	122	85	146	215	44,791	568	45,359
THOMPSON	9,316	121	143	169	118	83	78	100	49	15	4	0	0	10,177	19	10,196
TIOGA	23	0	0	8	0	36	12	1	0	0	0	0	0	80	0	80
TOKYO	348	30	16	71	82	73	46	40	0	0	24	0	0	706	24	730
TREMBATH/BAKERS SDLO	89	0	0	0	0	0	0	0	0	0	0	0	0	89	0	89
YOSEMITE	360	28	18	66	137	84	104	40	8	0	0	0	0	845	0	845
OTHER	1,315	60	47	58	127	116	56	91	34	10	11	35	11	1,904	67	1,971
CROP TOTAL	271,498	7,303	5,801	13,444	26,275	25,809	35,881	18,302	6,585	3,980	4,404	2,238	1,855	410,898	12,477	423,375