1998

Progress Report

REGIONAL ALMOND VARIETY TRIALS

Planted in 1993

University of California

TABLE OF CONTENTS

REGIONAL ALMOND VARIETY TRIALS

Planted in 1993

Warren C. Micke, Joseph H. Connell, Paul Verdegaal, Mario Viveros, James T. Yeager, Mary Ann Thorpe and Thomas M. Gradziel[1]

Background

Regional Almond Variety Trials (RAVTs) were designed to evaluate newer varieties in a semi-commercial (20 to 40 trees per variety) manner and to compare them to standard varieties such as Nonpareil, Mission and currently accepted pollenizers.

Previous RAVTs were established between 1974 and 1981 in Kern, Colusa, Butte, San Joaquin and Fresno Counties. These trials were planted over several years and had trees of different ages and variety combinations. Thus, the data from these trials were not directly comparable and at this point data collection has ended.

1993 Trials

Three new RAVTs were established in 1993, and this leaflet presents data collected from these trials in 1998. These RAVTs are located in Butte County at the California State University at Chico farm (CSU-Chico), in San Joaquin County at the San Joaquin Delta College farm (Delta College) near Manteca and in Kern County at a Paramount Farming Company orchard (Kern) located south of Shafter and just off of 7th Standard road. At all locations signs are in place to identify each variety.

To be comparable these three new trials were all planted in the same year and with essentially the same variety composition. Thus, any differences in varietal performance among various regions should become evident. The only differences in variety composition among these trials were that Fritz was not included at the CSU-Chico trial (it was in the previous trial at this location) and Dottie Won was added to the Delta College plot. Some trees were planted/replanted after 1993. A few trees of several varieties were not available in 1993, especially for the Delta College trial. Vandalism and a tornado destroyed a few trees at CSU-Chico and normal replanting has occurred at all locations.

Varieties were planted on peach rootstock; Lovell for those at CSU-Chico and Nemaguard for trees in the Delta College and Kern plots. One exception, Kapareil, is being grown on both peach and peach-almond hybrid rootstocks at all locations, but data isn't always included in this publication for the trees on peach-almond hybrid.

The Kern plot is planted on a Milham sandy loam soil and is irrigated with micro-sprinklers. The trial at CSU-Chico is on a Vina loam soil and is irrigated with solid-set sprinklers. The Delta College trial

---

[1]Warren C. Micke is Extension Pomologist, Emeritus, University of California, Davis. Joseph H. Connell, Paul Verdegaal, and Mario Viveros, are University of California Farm Advisors in Butte, San Joaquin, and Kern Counties, respectively. James T. Yeager and Mary Ann Thorpe are Staff Research Associates with the Pomology Department, University of California, Davis. Thomas M. Gradziel is Associate Professor of Pomology, University of California, Davis.

is on a Delhi loamy sand soil and is flood irrigated. Probably as a result of the coarse textured soil and flood irrigation, the trees in this latter trial are generally somewhat smaller than those in the other two RAVTs.

Varieties Included

Standard varieties are planted 1:1 with new varieties; Nonpareil for the early-mid blooming varieties and Mission for the late blooming varieties to ensure adequate pollination. In the Kern and Delta College trials, varieties are planted as a full row of 29 to 38 trees. With longer rows at CSU-Chico, each row has three different variety sections, with 21 to 25 trees per section. In addition to Nonpareil and Mission, a plot of each of seven "new standard" varieties (other varieties commonly planted today) has been included. These new standard varieties are Butte, Carmel, Fritz (not at CSU-Chico), Monterey, Padre, Price and Sonora.

The new varieties being tested in these trials are Aldrich, Chips, Donna, Dottie Won (Delta College only), Kahl, Kapareil, Jenette, Jiml, Johlyn, Livingston, Morley, Plateau, Rosetta, Ruby, Sano, Savana, Wood Colony and Yokut. While several of these varieties are not new to the almond industry, they had not been adequately tested in the uniform RAVT concept. In addition six numbered selections from a University of California at Davis almond breeding program were included in these trials. These are 1-87, 1-102W, 2-19 E, 2-43W, 13-1 and 25-75.

Data to be collected from these trials include bloom time, hullsplit/harvest time, yield, and nut quality. Trees in these trials are also being observed and evaluated for growth characteristics, pest and disease susceptibility and noninfectious bud failure symptoms.

1998 Data

This 1998 report includes information, mostly in table or graph form, on bloom time, hullsplit/harvest time, yields, shelling percentage (percent kernel) and kernel defects. Some information on disease susceptibility is also included. With marginal bloom time weather in 1998, yields for many but not all varieties were rather poor for trees in their **sixth growing season**. The Kern trial had the highest yields this year. In the early bearing years tree spacing can have a significant impact on production per acre, and trees per acre vary in these RAVTs with 86 trees per acre in the Kern trial, 64 trees per acre in the CSU-Chico trial and 75 trees per acre in the Delta College trial.

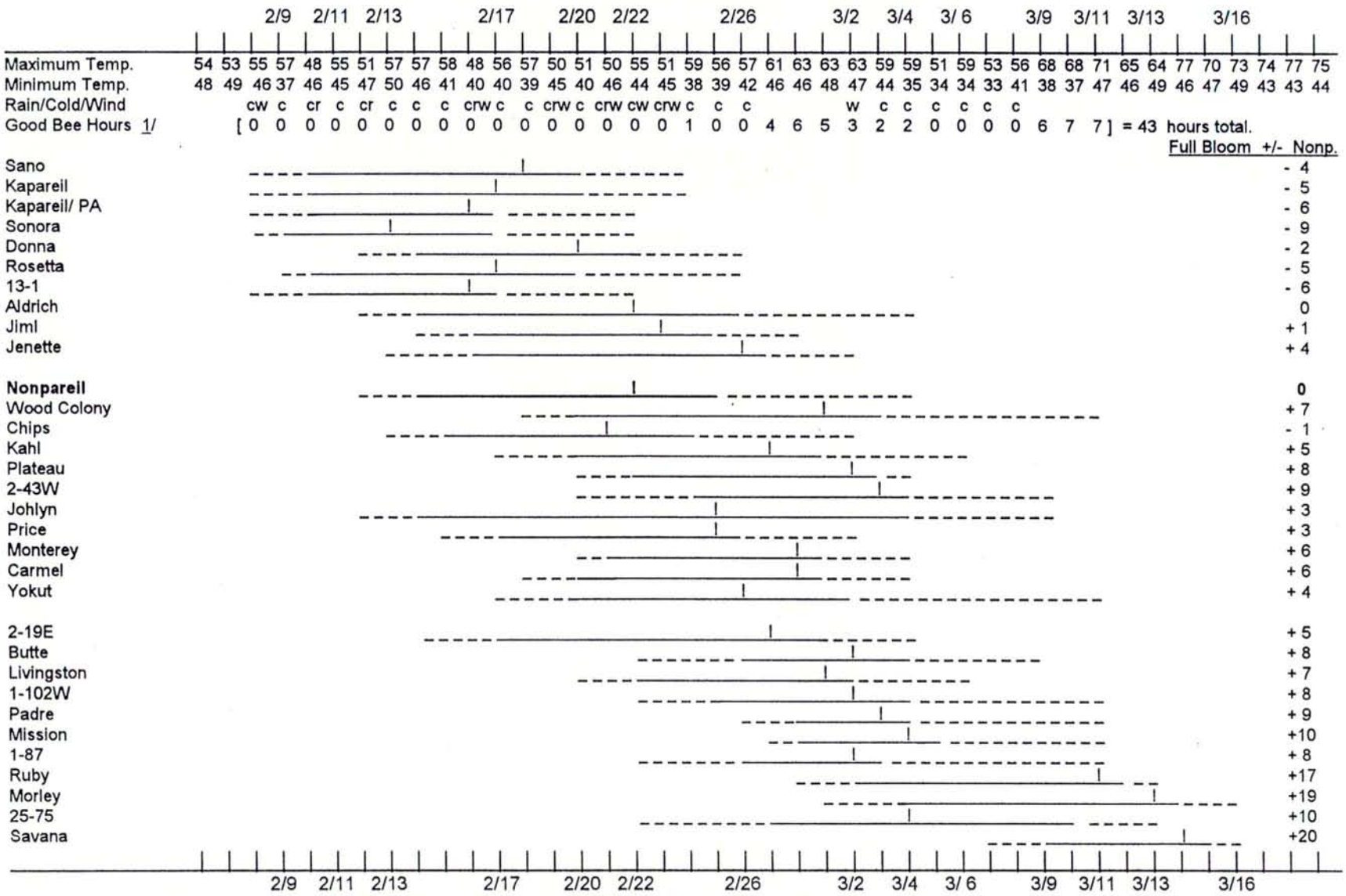
Again, this year a number of varieties produced a high percentage of double kernels in all of the RAVTs. In 1998 many varieties had a considerable number of shriveled kernels regardless of trial location. This shrivel may be caused by the cool, wet spring and early summer that resulted in kernels not filling properly. To date no symptoms of noninfections bud failure have been seen in any variety in any of these trials.

Acknowledgements

The authors wish to thank the Almond Board of California for helping with tree purchase and for continued support of this project. The following nurseries supplied trees at reduced cost for these trials: Bright's Nursery, Burchell Nursery, Dave Wilson Nursery, Fowler Nursery, Sierra Gold Nurseries and Spoto Nursery. We particularly want to express our appreciation and thanks to the staffs of California State University at Chico, San Joaquin Delta College and Paramount Farming Company for excellent cooperation and for managing and maintaining these trials. The assistance of retired farm advisor Donald Rough, Cooperative Extension field assistants in Kern, Butte and San Joaquin Counties and field personnel of the University of California Pomology Department is gratefully acknowledged.

ALMOND REGIONAL VARIETY TRIAL - 1998 BLOOM

Planted in 1993 at the California State University Farm, Chico



Dashed line encompasses 1 to 100% bloom, solid line covers 10 to 90% bloom, full bloom date marked with a | = 80% bloom.

1/ Good Bee Hours = total daylight hours between 1% bloom on Sonora and 100% bloom on Mission when temperatures are ≥ 59 F, wind ≤ 10 mph, and no rain.

This is a cooperative project between The Almond Board of California, California State University-Chico, and University of California Cooperative Extension.

Prepared by: Joseph H. Connell, U.C. Farm Advisor, Butte County. 6/28/98.

Bloom Density Almond Regional Variety Trial - Chico

The density of bloom is rated annually for each variety on a subjective scale of 1 to 5 with a rating of 5 being the heaviest bloom. Consistency of bloom from one year to the next and tendencies toward alternate bloom/bearing may be indicated by these ratings.

Variety	Bloom Density		
	1996	1997	1998
Sano	4	4	3
Kapareil	5	5	5
Kapareil/PA	5	5	5
Sonora	4	2	5
Donna	3	3	3
Rosetta	3	4	2
13-1	5	4	3
Aldrich	4	5	3
Jiml	2	3	2
Jenette	4	5	3
Nonpareil	4	4	3
Wood Colony	4	3	3
Chips	3	4	4
Kahl	2	3	2
Plateau	2	3	3
2-43W	4	3	2
Johlyn	4	4	1
Price	1	1	4
Monterey	4	4	2
Carmel	3	3	3
Yokut	1	3	1
2-19E	3	3	2
Butte	4	4	3
Livingston	3	4	3
1-102W	4	4	4
Padre	3	3	4
Mission	3	3	3
1-87	3	3	3
Ruby	3	3	3
Morley	3	3	3
25-75	2	3	3
Savana	4	3	3

bloom.density.98

SAN JOAQUIN DELTA COLLEGE
REGIONAL ALMOND VARIETY TRIAL
1998 BLOOM DATA
MANTECA

Continued next page →

	FEBRUARY																										
Row	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
Nonpareil																	17	18	19	20	21	22	23	24	25	26	27	
Chips																			19	20	21	22	23	24	25			
Johlyn														14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Dottie Won																				20	21	22	23	24	25	26	27	28
Jenette																	17	18	19	20	21	22	23	24	25	26	27	
Kahl																								24	25	26	27	28
Sano												12	13	14	15	16	17	18	19	20	21							
Yokut																				20	21	22	23	24	25	26	27	28
Plateau																					21	22	23	24	25	26	27	28
2-43W																										26	27	28
Morley				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
Savana																												
Kapareil																				20	21	22	23	24	25	26	27	28
Sonora												12	13	14	15	16	17	18	19	20	21							
Rosetta															15	16	17	18	19	20	21	22	23	24	25	26		
13-1																	17	18	19	20	21	22	23	24	25	26	27	28
Price																						22	23	24	25	26	27	28
Aldrich																				20	21	22	23	24	25	26	27	28
Wood Colony																								24	25	26	27	28
Fritz																					21	22	23	24	25	26	27	28
Jiml																												
Donna																					21	22	23	24	25	26	27	28
Carmel																						22	23	24	25	26	27	28
Monterey																							23	24	25	26	27	28
Butte																				20	21	22	23	24	25	26	27	28
Livingston																								24	25	26	27	28
1-87																												
Padre																								24	25	26	27	28
2-19E																							23	24	25	26	27	28
1-102W																								24	25	26	27	28
Ruby																												
25-75																										26	27	28
Mission																												

= 10 to 90%

SAN JOAQUIN DELTA COLLEGE
REGIONAL ALMOND VARIETY TRIAL
1998 BLOOM DATA
MANTECA

	MARCH																											
Row	**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**
Nonpareil																												
Chips																												
Johlyn																												
Dottie Won	1	2																										
Jenette																												
Kahl	1	2																										
Sano																												
Yokut	1	2																										
Plateau	1	2	3																									
2-43W	1	2	3	4	5																							
Morley	1	2	3	4	5	6	7	8	9																			
Savana										10	11	12	13	14														
Kapareil	1	2	3	4	5																							
Sonora																												
Rosetta																												
13-1																												
Price	1																											
Aldrich	1	2																										
Wood Colony	1	2																										
Fritz	1																											
Jiml		2	3	4	5	6	7	8	9	10																		
Donna	1	2																										
Carmel																												
Monterey	1																											
Butte	1	2	3																									
Livingston	1	2	3	4																								
1-87	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16												
Padre	1	2	3	4	5	6																						
2-19E	1	2	3	4	5																							
1-102W	1	2	3	4	5	6																						
Ruby			3	4	5	6																						
25-75	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16												
Mission	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16												

= 10 to 90%

SAN JOAQUIN DELTA COLLEGE
REGIONAL ALMOND VARIETY TRIAL
1998 RAINFALL
MANTECA

February	Rain (inches)	Wind > 8 mph.	March	Rain (inches)	Wind > 8 mph
1	0.31		1	0	
2	0.91		2	0	
3	1.46		3	0	
4	0.08		4	0	
5	0.47		5	0.24	
6	0.43		6	0	
7	0.43		7	0.12	
8	0.31		8	0	
9	0		9	0	
10	0.24		10	0	
11	0		11	0	
12	0.51		12	0	
13	0		13	0	
14	1.18	9.8	14	0	
15	0		15	0	
16	0.59	9.2	16	0.04	
17	0		17	0	
18	0		18	0	
19	0.94		19	0	
20	0		20	0	
21	0.51	10.5			
22	0				
23	0.35				
24	0				
25	0				
26	0				
27	0.04				
28	0				

Rainfall subtotal for :

January	5.31
February	8.74
March	1.85
Grand Total	15.90

Shaded dates = Bloom period

EFFECTIVE BLOOM PERIOD

Kern RVT - Paramount Farming Company

Early Blooming Varieties			
	Bloom Period		
	Beginning	Full	End
Sano	1-30	2-13	3-03
Kapareil	1-30	2-18	3-09
Rosetta	1-28	2-20	3-02
Sonora	2-03	2-20	3-09
13-1	2-07	2-22	3-03

Mid-Season Blooming Varieties			
	Bloom Period		
	Beginning	Full	End
Nonpareil	2-11	2-22	3-03
Price	2-12	2-20	3-03
Jenette	2-08	2-20	3-03
Yokut	2-14	2-22	2-28
Johlyn	2-13	2-24	3-10
Plateau	2-15	2-24	3-03
Chips	2-14	2-24	3-04
Kahl	2-13	2-22	3-03
Fritz	2-13	2-20	3-09
Monterey	2-13	2-22	3-05
Aldrich	2-10	2-20	3-09
Wood Colony	2-14	2-22	3-09
1-102W	2-16	2-28	3-12
Jim1	2-16	2-22	3-09
Donna	2-12	2-20	3-03
Carmel	2-14	2-22	3-09
2-19E	2-19	2-24	3-06
2-43W	2-20	2-24	3-11

Late Season Blooming Varieties			
	Bloom Period		
	Beginning	Full	End
Butte	2-23	3-03	3-15
Livington	2-20	3-03	3-14
Padre	2-22	3-03	3-14
1-87	2-20	2-26	3-11
25-75	2-22	3-05	3-20
Mission	2-22	3-03	3-15
Ruby	2-26	3-09	3-20
Morley	2-25	3-09	3-17
Savana	3-03	3-04	3-30

Bloom Observations:

Good Blooming Varieties: Kahl, Yokut, Kapareil, Price, Aldrich, Carmel, Monterey, Sano, Wood Colony, Mission, and Butte.

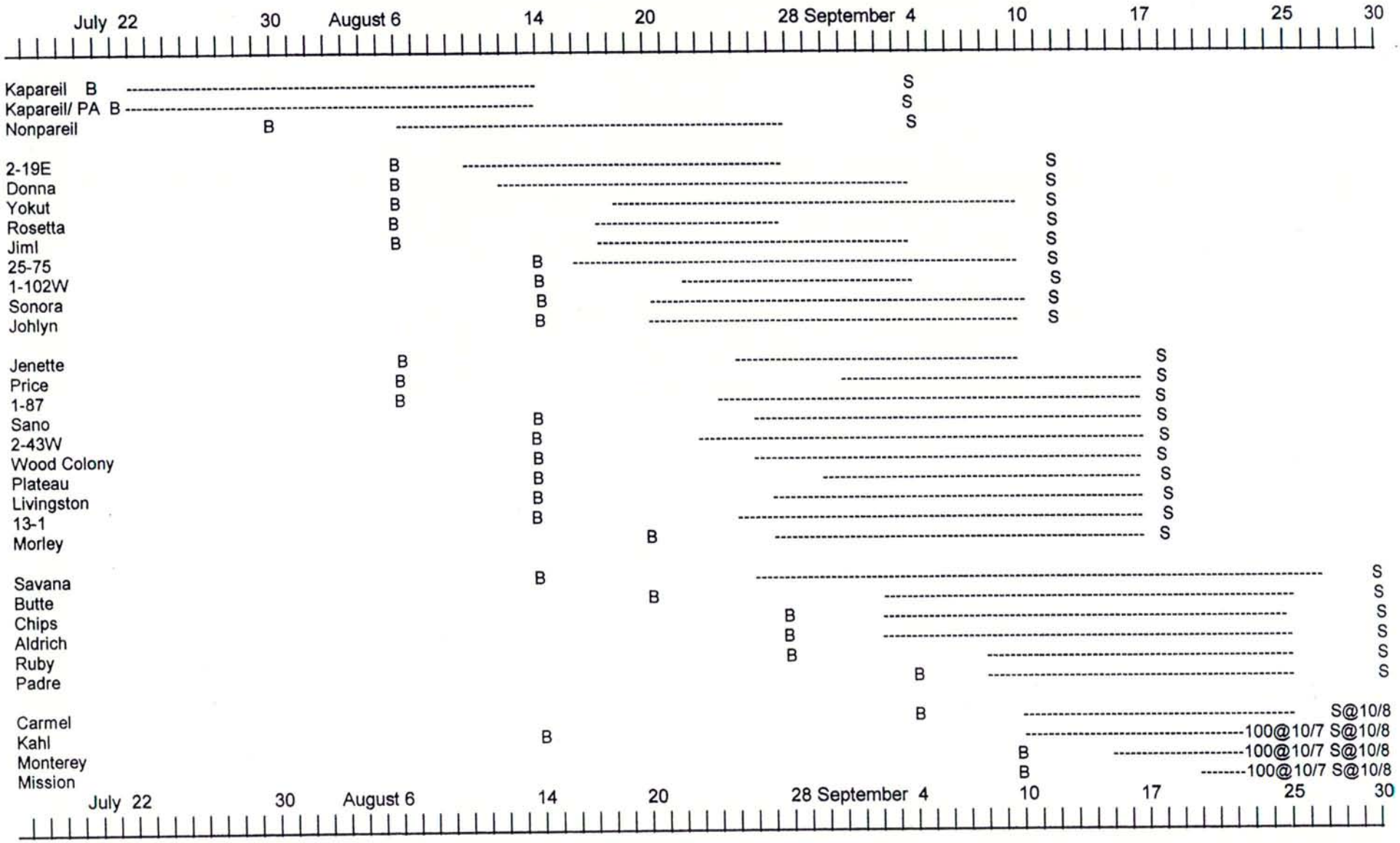
Average Blooming Varieties: Nonpareil, Sonora, Padre, Fritz, Donna, Chips, Johlyn, and Ruby.

Poor Blooming Varieties: Rosetta, Jiml, Jenette, Livingston, and 1-102W.

Chilling Hours: 759

ALMOND REGIONAL VARIETY TRIAL - 1998 HARVEST MATURITY

Planted in 1993 at the California State University Farm, Chico



Dashed line encompasses 1 to 100% hullsplit. B -- denotes blanks beginning to split. S -- indicates that the variety was shaken to the ground at the time of the observation. Five harvests were conducted this year to complete harvest in the entire block. This is a cooperative project between the Almond Board of California, California State University-Chico, and University of California Cooperative Extension. Prepared by: Joseph H. Connell, U.C. Farm Advisor, Butte County. 11/5/98.

SAN JOAQUIN DELTA COLLEGE
REGIONAL ALMOND VARIETY TRIAL
1998 HULL SPLIT DATES
MANTECA

Variety	10%	90%
Kapareil (1)	7/19	8/7
Nonpareil (2)	7/22	8/10
Johlyn (4)	8/9	8/26
Rosetta (30)	8/10	8/23
Price (13)	8/12	8/24
Sonora (3)	8/15	8/31
25-75 (14)	8/17	9/5
2-19E (9)	8/18	9/1
Jiml (6)	8/18	9/5
Donna (15)	8/19	8/26
13-1 (25)	8/19	9/1
Dottie Won (16)	8/20	9/8
Jenette (7)	8/25	9/10
Morley (12)	8/25	9 /9
Yokut (5)	8/26	9/17
2-43W (10)	8/26	8/31
Sano (21)	8/27	9/16
Plateau (8)	8/29	9/10
Aldrich (22)	8/31	9/12
Wood Colony (18)	9/2	9/16
Chips (11)	9/4	9/23
1-87 (19)	9/5	9/24
1-102W (20)	9/5	9/24
Monterey (23)	9/9	10/7
Livingston (24)	9/9	10/4
Butte (29)	9/10	9/29
Kahl (33)	9/12	10/2
Savana (17)	9/13	10/8
Carmel (26)	9/17	10/3
Padre (28)	9/17	10/2
Ruby (31)	9/23	10/14
Mission (27)	9/25	10/15
Fritz (32)	9/29	10/15

Numbers in ( ) = 1997 order of hull split

HULLSPLIT PERIOD

Kern RVT - Paramount Farming Company

EARLY - SEASON		
	Hullsplit Period	
	Beginning*	**End****
Kapareil	7/15	8/11
Nonpareil	7/20	8/20
2-19E	8/04	9/01
Sonora	7/28	9/09
Rosetta	7/28	8/20
2-43W	7/28	9/09
1-102W	7/31	9/01
Donna	7/28	9/09
Aldrich	8/04	9/01
Jiml	7/31	9/05
Jenette	8/04	9/12
Johlyn	7/30	9/09

MID-SEASON		
	HULLSPLIT PERIOD	
	Beginning*	**End****
25-75	8/04	9/24
13-1	8/04	9/09
1-87	8/07	9/09
Price	7/28	9/09
Plateau	8/04	9/12
Chips	8/15	9/30
Savana	8/15	9/30
Morley	8/04	9/09
Wood Colony	8/04	9/12

MID to LATE SEASON		
	Hullsplit Period	
	Beginning*	End**
Sano	8/04	9/12
Yokut	8/11	9/15
Padre	8/20	9/12
Butte	8/13	9/24
Livingston	8/04	9/30
Kahl	8/07	9/20
Carmel	8/07	9/20
Ruby	8/13	9/30

LATE-SEASON		
	Hullsplit Period	
	Beginning*	End**
Mission	8/25	9/27
Monterey	8/25	9/27
Fritz	8/28	9/30

*Beginning means one to five percent of hullsplit.

**End means 100% hullsplit.

NOTES: The length of the hullsplit period depended on crop load. Varieties with a big crop took longer to complete hullsplit than varieties with a light crop.

The hullsplit was also affected by Alternaria Leaf Spot disease.

1998 Yield Summary for the Regional Almond Variety Trial at California State University at Chico Farm, Butte County. Planted in 1993					
		Average		Kernel Pounds Per	
Variety	No. of Nuts/Tree	Kernel Weight (g)	Shelling %	Tree	Acre[1]
Plateau	11390	1.47	50.6	37.0	2367
Butte	11664	0.94	48.1	24.2	1549
Monterey	7541	1.44	46.9	23.9	1531
Ruby	7320	1.27	45.7	20.5	1315
Livingston	7598	1.19	63.6	19.9	1275
Carmel	6563	1.36	54.5	19.7	1260
Morley	8176	1.03	53.4	18.6	1189
Chip's	6920	1.22	56.7	18.6	1188
Sonora	4958	1.65	72.5	18.0	1152
Nonpareil	5964	1.34	67.8	17.6	1127
2-43W	6801	1.13	60.1	16.9	1081
1-87	8171	0.93	49.3	16.8	1074
Kahl	7038	1.08	35.5	16.7	1070
Johlyn	5293	1.40	70.0	16.3	1046
Sano	5153	1.40	57.2	15.9	1020
Aldrich	6167	1.16	54.9	15.7	1005
Price	6087	1.15	60.5	15.5	990
Wood Colony	4976	1.36	54.3	14.9	951
Yokut	4488	1.42	61.4	14.0	896
Mission	4926	1.28	40.8	13.9	890
Rosetta	3849	1.55	48.3	13.1	840
Padre	4911	1.20	49.7	13.0	832
25-75	6510	0.89	52.3	12.7	815
Savana	4281	1.35	64.9	12.7	815
13-1	4138	1.34	61.0	12.3	784
Jiml	3908	1.34	57.5	11.5	738
Donna	4153	1.22	51.3	11.1	712
Jenette	3350	1.42	67.7	10.5	672
2-19E	2894	1.11	43.7	7.1	454
1-102W	2041	1.51	58.1	6.8	436
Kapareil	1830	1.09	76.6	4.4	280

[1]Based on a spacing that gives 64 trees per acre.

1998 Yield Summary for the Regional Almond Variety Trial at San Joaquin Delta College Farm, Manteca, San Joaquin County. Planted in 1993					
		Average		Kernel Pounds Per	
Variety	No. of Nuts/Tree	Kernel Weight (g)	Shelling %	Tree	Acre[1]
Plateau	9851	1.41	51.3	30.7	2301
Butte	13058	0.96	56.8	27.7	2075
Carmel	9213	1.24	61.2	25.2	1893
Ruby	8205	1.39	60.0	25.2	1890
Yokut	8765	1.30	65.0	25.1	1882
Chips	9803	1.11	57.9	24.0	1798
Dottie Won	9904	1.07	53.0	23.4	1757
Monterey	7673	1.31	49.4	22.1	1660
Livingston	8107	1.17	59.8	21.0	1572
Fritz	8707	1.07	50.7	20.5	1539
Jenette	7579	1.22	71.8	20.4	1530
Padre	6995	1.30	54.2	20.0	1502
Mission	6617	1.22	48.9	17.8	1332
Kahl	8101	0.99	48.0	17.6	1320
1-87	7892	0.93	61.7	16.1	1207
Wood Colony	5139	1.38	61.1	15.6	1168
Johlyn	5012	1.20	75.1	13.3	997
Sano	4314	1.40	56.9	13.3	995
Donna	4794	1.25	61.2	13.2	990
Sonora	3917	1.49	78.6	12.9	965
Nonpareil	4230	1.32	66.0	12.2	918
1-102W	3770	1.43	64.7	11.9	892
2-43W	4359	1.08	66.6	10.4	776
Jiml	3546	1.27	75.6	9.9	744
25-75	4336	0.92	63.4	8.8	660
Aldrich	3218	1.20	56.4	8.5	636
Rosetta	2540	1.43	44.9	8.0	600
Morley	3387	1.03	54.7	7.7	576
Price	3220	1.08	58.7	7.6	573
2-19E	2998	1.02	50.0	6.8	507
13-1	995	1.17	63.0	2.6	192
Savana	726	1.53	72.8	2.5	184
Kapareil	1263	0.88	68.3	2.4	183

[1]Based on a spacing that gives 75 trees per acre.

1998 Yield Summary for the Regional Almond Variety Trial at Paramount Farming Company, Shafter, Kern County. Planted in 1993					
		Average		Kernel Pounds Per	
Variety	No. of Nuts/Tree	Kernel Weight (g)	Shelling %	Tree	Acre[1]
Plateau	8652	1.48	53.3	28.1	2419
Butte	13711	0.91	53.2	27.4	2353
Fritz	11912	0.99	56.0	26.0	2234
Ruby	9654	1.19	56.5	25.3	2180
13-1	10034	1.13	65.1	25.0	2152
Chip's	9044	1.17	60.6	23.3	2004
Nonpareil	7718	1.34	69.8	22.7	1963
2-19E	9556	1.07	52.6	22.6	1944
Johlyn	8763	1.17	73.8	22.5	1936
Monterey	7185	1.41	55.1	22.3	1914
Jiml	7858	1.27	61.4	21.9	1887
Padre	9051	1.10	55.2	21.9	1883
Morley	9799	1.01	48.6	21.8	1871
Yokut	7406	1.31	63.7	21.3	1835
Mission	8690	1.10	47.6	21.1	1816
2-43W	7945	1.19	60.9	20.9	1794
Price	8741	1.07	67.4	20.6	1772
Sano	6612	1.40	60.0	20.4	1754
Livingston	7282	1.27	70.5	20.3	1749
1-102W	6138	1.50	67.8	20.3	1742
Kahl	8020	1.11	59.0	19.6	1683
1-87	9307	0.90	54.2	18.5	1594
Jenette	5577	1.49	73.5	18.3	1574
Carmel	6226	1.21	67.3	16.6	1427
Aldrich	5844	1.17	56.6	15.1	1295
Savana	5783	1.16	68.6	14.8	1271
25-75	6573	0.91	57.7	13.2	1138
Rosetta	3624	1.64	52.7	13.1	1123
Sonora	4228	1.40	70.3	13.0	1120
Wood Colony	5416	1.00	52.1	11.9	1024
Donna	4865	1.04	50.8	11.1	955
Kapareil	3514	1.01	73.4	7.8	670

[1]Based on a spacing that gives 86 trees per acre.

KERNEL DEFECTS OBSERVED IN 1998

Significant defects noted in the 1998 harvest nut samples of the three RAVTs are outlined below. The trees were only in their sixth growing season. Defects listed may only become important if they continue to show in the same varieties over the next several years as the trees mature.

Defect	Trial		
	CSU-Chico	Delta College	Kern
Varieties with more than 20% double kernels:	Kahl Donna Plateau Mission Monterey Ruby Jiml	Plateau Kahl Price Monterey Sano	Plateau Donna Aldrich Mission Kahl Sano Fritz Monterey 2-43W
10-20% double kernels:	Price Sano Carmel 1-87 Jenette Yokut 2-43W	Fritz Aldrich Donna Wood Colony 2-43W Livingston Dottie Won Mission Jiml Padre	Livingston Ruby Carmel Padre
Varieties with 10% or more twin kernels (two kernels within the same pellicle):		Sonora Price Jiml Nonpareil Johlyn	2-19E
Varieties with 10% or more blank kernels:	Kahl Donna Yokut Morley Monterey	Kahl Price Jiml Johlyn	Sano Donna Kahl Livingston 2-43W
Varieties with 10% or more kernels with gum:		Livingston Savana Fritz	Jenette Livingston
Varieties with more than 4% worm damage (including ant damage)	Kapareil (A)[1] Sano (A) 13-1 (A) 1-102 (A)	Kapareil (N & A) 13-1 (N & A)	Kapareil (A) Livingston (A)

[1] This damage caused by N (navel orangeworm) or A (ants). Very little peach twig borer damage was found in these trials in 1998.

Diseases noted following the wet 1998 Spring Almond Regional Variety Trial, Chico

This list indicates diseases that were obvious when each variety was evaluated in August 1998. These were natural infections occurring in spite of fungicide applications. Other diseases may have been present but these are the ones that stood out on each variety. Fungicide sprays applied to the orchard are shown below.

Rhizopus Hull Rot

Nonpareil
Kapareil
Johlyn

Anthracnose

1-102 W
Ruby
Monterey
Wood Colony
13-1
2-43 W
Yokut

Alternaria Leaf Spot

Aldrich
Jiml
Livingston
Monterey
Wood Colony
Sonora
1-87
Butte
Donna
13-1

Leaf Blight

Nonpareil
Rosetta
Aldrich
Jiml
Mission
Padre
Carmel
Wood Colony
Yokut

Scab

1-102 W	(on leaves with leaf drop)
Sonora	(on leaves with leaf drop)
Sano	(on hulls and leaves with leaf drop)
13-1	(on hulls and leaves with leaf drop)
2-43 W	(on hulls)
Yokut	(on hulls)
Johlyn	(on hulls)
Nonpareil	(on hulls)

Varieties with No Significant Disease Noted

Chips	Price	25-75
Kahl	Plateau	2-19 E
Savana	Morley	Jenette

Fungicide Sprays applied to the orchard:

2/4 Rovral - on Sonora & Kapareil
2/13 Rovral - full spray by aircraft
2/18 Rovral - every other row by ground on Nonpariel & California varieties
2/27 Rovral - every other row by ground on all varieties
3/10 Rovral - every other row by ground on late varieties
4/11 Ziram - full spray by aircraft
4/22 Captan - full spray by ground
5/7 Break - full spray by ground
5/18 Captan - full spray by ground
6/2 Captan - full spray by ground
7/22 Sulfur - full spray by ground

Rated 8/14/98 by Joseph H. Connell, UC Farm Advisor, Butte County.

ALMOND ALTERNARIA LEAFSPOT

Percent Defoliation of Almond Varieties by July 31, 1998

Kern RAVT

VARIETY	PERCENT DEFOLIATION
Carmel	90
Savana	70
Wood Colony	70
13-1	70
Mission	60
Kahl	40
Morley	40
Price	40
Ruby	40
Yokut	40
2-43W	40
Butte	30
Fritz	30
Sonora	30
Donna	20
Johlyn	20
Monterey	20
Plateau	20
Sano	20
1-102W	20
Jiml	10
Kapareil	10
Nonpareil	10
Aldrich	5
Chips	5
Jenette	5
Livingston	5
Padre	5
Rosetta	5
1-87	5
2-19E	0
25-75	0