Project Title: UCCE Statewide Processing Tomato Variety Evaluation Trials, 2003

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Summary:

Four early and 8 mid-maturity variety tests were conducted throughout the major processing tomato production regions of California during the 2003 season. Ten mid-maturity trials were planned, but one trial in Kings County did not get planted and an additional transplant test in Fresno County was lost due to irrigation problems. All of the major production areas had at least one test to identify tomato cultivars appropriate for that specific region. As in the past, both replicated and observational lines were evaluated.

Transplants presently account for about half the production acreage in the state—with a greater percentage in the northern and central production areas (Merced County northward). In three of the mid-maturity tests transplants were used based on grower preference (Colusa, Yolo, and Merced); in Colusa and Yolo counties, both mid-maturity transplant and direct seeded trials were evaluated (in separate fields). All of the early-maturity tests were direct seeded.

When averaged across all four locations, there were no significant differences among the early-maturing observation varieties for yield, °Brix, Brix yield, color, or pH. Greatest yields occurred with UG 8168, HyPeel 45, and H 9280. For the replicated early lines, highest yields occurred with AP 957, H9997, and H9280 (52.5, 48.7, and 48.0 tons per acre, respectively). AP 957 had a relatively low °Brix of 4.9, well below the group average of 5.2.

The overall highest yielding lines for the mid-maturity observation test were CXD 223, H 8892, U 729, Sun 6360, HMX 2855, Sun 6324, H 2401, and U 886 ranging from 43.4 to 38 tons per acre. There were no significant differences with °Brix, which averaged 5.4 across all locations. In the replicated mid-maturity trials, highest yields occurred with H 8892, U 941, and AB 5 at 43.3, 41.8, and 41.7 tons per acre. The lines with the best °Brix were CPL 155, CXD 221, and H 2801, which all averaged more than 5.5% soluble solids.

Objectives:

The major objective is to conduct processing tomato variety field tests that evaluate fruit yield, °Brix (a measure of soluble solids %), color, and pH in various statewide locations. The data from all test locations are used to analyze variety adaptability under a wide range of growing conditions. Continued support is needed to maintain weigh trailers to accurately measure fruit yield. These tests are designed and conducted with input from seed companies, processors, and other allied industry and are intended to generate information useful for making intelligent management decisions.

Procedures:

Four early-maturity variety tests and 8 mid-maturity tests were conducted in 2003, each with an observation and replicated component. Participating counties and Farm Advisors are listed in Table 1. Variety entries and their disease resistances are listed in Tables 2a and 2b.

Early maturity tests were planted in February or early March and mid-maturity lines were planted from March to May. New varieties are typically screened one or more years in non-replicated observational trials before being included in the replicated trials. Tests were primarily conducted in commercial production fields with grower cooperators (the Fresno trials were located at the West Side Research and Extension Center [WSREC] near Five Points).

Each variety was usually planted in one-bed wide by 100 foot long plots (Fresno used 75 foot long plots). Plot design was randomized complete block with four replications for the replicated trial. The observational trial consisted of one non-replicated plot directly adjacent to the replicated trial. Seeding or transplanting was organized by the Farm Advisor at approximately the same time that the rest of the field was planted. All cultural operations, with the exception of planting and harvest, were done by the grower cooperator using the same equipment and techniques as the rest of the field. All test locations were primarily furrow irrigated. A field day or arrangements for interested persons to view the plots occurred at all of the tests.

Shortly before harvest, fruit samples were collected from all plots and submitted to an area PTAB station for soluble solids (reported as °Brix, an estimate of the soluble solids percentage using a refractometer), color (LED color, lower values indicate redder fruit), and pH determinations. These samples were usually hand picked ripe fruit, however, at the Merced trial, samples were taken off the harvester. The plots were harvested with commercial harvest equipment, conveyed to a GT wagon equipped with weigh cells, and weighed before going to the trailers for processing. Data were analyzed using analysis of variance procedures with SAS, both for individual locations and combined locations. In the combined analysis, the block effect was nested within each county. Significant difference tests were performed using Fisher's unprotected LSD at the 5% level. Because of planting problems with SUN 6119, it was not harvested in each county, and therefore was not included in the combined-location analyses.

Results:

Results are presented in the following order and include combined county, yield, °Brix, Brix yield, color, and pH for each trial: early maturity observational (Table 3 a - f), early replicated (Table 4 a – f), mid-maturity observational (Table 5 a – f), and mid-maturity replicated (Table 6 a – f).

Early observational. Results averaged across counties and for individual counties are presented in Table 3 a – e. There were no significant differences between any of the varieties for any of the parameters measured in this test (Table 3a). Average yield in the early observational trials was 42.5 tons/A with an average °Brix of 5.2. The best yielding variety was UG 8168 at 48.4 tons/A at 5.4 °Brix. AGT 771 had the highest °Brix at 5.7%. Brix yield was highest in UG 8168 at 2.6 tons/A, but this was not significantly different from any of the other varieties even though this was 0.63 ton improvement (32%) over the lowest yielder, HA 3523. Average color and pH were 24.7 and 4.42 respectively. Because there was no replication in this test, variety by location interactions could not be tested.

Early replicated. Early replicated results are presented in Table 4 a – f. Significant yield and °Brix differences were found between varieties, with the highest yields occurring with AP 957 at 52.5 tons/A. HyPeel 45, CXD 224, SUN 6358, H1400, APT 410, H 1100 had significantly better °Brix than the other varieties, ranging from 5.5 to 5.3. Because AP 957 had a relatively low °Brix of only 4.9, however, Brix yield was not significantly different between it and five other varieties (Table 4d). Large differences were found for color, with H9997 having significantly redder fruit than all other varieties (23.1). Average pH was 4.40 and ranged from 4.35 for H 1400 to 4.48 for Calista (Table 4f).

Significant variety by location interactions occurred for yield, Brix yield, and color. This indicates that some varieties performed better at specific locations. Where significant, the variety by location LSD can be used to compare the performance of the same variety at one location to the other (Tables 4b, d, e).

Mid observational. Mid-maturity observational results combining all locations are shown in Table 5a, and individual counties in Table 5 b – f. When all counties were combined, significant differences were observed between varieties for yield, Brix yield, color, and pH (Table 5a). The highest yields occurred with CXD 223, H 8892, U729, SUN 6360, and CPL 4863, all exceeding 40 tons/A. No significant differences were found for °Brix, which was good for all lines, ranging between 5.1 to 5.6. Brix yield ranged from 2.21 tons/A for CXD 223 to 1.59 tons/A for CPL 1056, a 39% difference. Eleven varieties were in the top Brix yield group (Table 5d). UG 151 and SUN 6360 had the reddest fruit, but their color was not significantly different than 9 other varieties (Table 5e). Fruit pH ranged for 4.30 to 4.47 (Table 5f). Because there was no replication in this test, variety by location interactions could not be performed.

Mid replicated. Combined mid-maturity replicated variety results are reported in Table 6 a, and individual counties in Tables 6 b – f. Significant differences occurred for all parameters measured, though individual counties may not have had significant differences for yield, °Brix, and color (Tables 6b, 6c, and 6e). Highest yields occurred with H 8892, U 941, and AB 5, at > 40 tons/A. SUN 6119 yielded well with an average 39.3 tons/A, but because it was not tested in every location it is not included in the combined statistical analysis in Table 6a; however, it was included in the individual counties where data were collected.

°Brix was significantly higher in CPL 155, CXD 221, and H 2801 compared to the other varieties, at 5.6, 5.6, and 5.5 respectively. Lowest °Brix occurred with H 8892, at 4.8. AB5 had the highest Brix yield of 2.16 tons/A, followed closely by U 941 and H8892 in the same high Brix yield group. Lowest Brix yield was with LaRossa at 1.60 tons/A—a reduction of 35% compared to the top yielding varieties. H2801, NDM0098, H2501, and AB2 had the best fruit color with an LED rating of 23.8 to 24.3 (Table 6e). Average pH ranged from 4.28 to 4.42 (Table 6f).

Significant variety by location interactions occurred for yield, °Brix, Brix yield, and pH. This suggests that certain varieties performed differently at different locations. H 8892, for example, yielded significantly better in Stanislaus than all other locations except Yolo (Table 6 b). Kern and Colusa often had significantly higher °Brix for the same variety at the other locations.

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Table 1. Location, Advisor, planting method (DS = direct seed, TR = transplant), planting and harvest dates for the 2003 Regional Processing Tomato Variety Trials.

County	Advisor	Plant method	Plant Date	Harvest date	Comments
Early Maturity					
Yolo	Gene Miyao	DS	2/10	7/30	Field day held
Colusa	Mike Murray	DS	2/11	8/1	Opportunity to view
Contra Costa	Janet Caprile & Bob Mullen	DS	3/6	8/12	
Fresno	Jesus Valencia	DS	2/20	7/22	Field day held
Mid-Maturity					
Colusa	Mike Murray	DS	3/11	8/18	No SUN 6119
		TR	5/9	9/16	Opportunity to view
Yolo	Gene Miyao	DS	3/28	8/21	Field day held.
		TR	4/23	8/28	Field day held
Stanislaus	Jan Mickler & Bob Mullen	DS	3/19	9/23	Field day. Ethephon used
Merced	Scott Stoddard	TR	5/5	8/25	Ethephon used
Fresno	Jesus Valencia	DS	3/13	8/22	Field day held
Kern	Joe Nunez	DS	3/19	8/15	No SUN 6119

Table 2a. Early maturing test varieties, company, and disease resistance for 2003. Varieties followed by STD are standards.

Early Season Obs				Early Rep			
UC#	**Variety**	**Company**	**disease**	**UC#**	**Variety**	**Company**	**disease**
887	AGT 771	Orsetti	VFFNP				
732	APT 410 STD	Asgrow	VFFNBsk	861	AP 957	Seminis	VFFNBsk
886	BOS 40809	Orsetti	VFFN	732	APT 410 STD	Asgrow	VFFNBsk
637	H 9280 STD	Heinz	VFFNP	860	Calista (HA3303)	Hazera	VFF
890	HA 3523	Hazera	VFFN	850	CXD 224	Campbells	VFFNP
884	HMX 2853	Harris Moran	VFFNP	844	H 1100	Heinz	VFFNP-D
645	Hypeel 45 STD	Peto	VFFNBsk	859	H 1400	Heinz	VFFNP-D
885	U205	Unilever	VFFNP	637	H 9280 STD	Heinz	VFFNP
842	UG 8168	United Genetics	VFFNP	839	H 9997	Heinz	VFFNP
				645	Hypeel 45 STD	Peto	VFFNBsk
				862	SUN 6358	Sunseeds	VFFNP

HA 3523: plus Spotted Wilt and TMV

See footnotes at end of Table 2b.

Table 2b. Mid-maturity test varieties, company, and disease resistance for 2003. Varieties followed by STD are standards.

Mid Season Obs				Mid Season Replicated			
UC#	**Variety**	**Company**	**disease**	**UC#**	**Variety**	**Company**	**disease**
896	AGT 210	Orsetti	VFFN	868	AB 2	AB	VFFP
897	BOS 39422	Orsetti	VFFNP	869	AB 5	AB	VFFNP
898	BOS 47579	Orsetti	VFFNP	888	CPL 155 (15-58)	CTRI/CPLTS	VFFNP
899	BOS 52295	Orsetti	VFFNP	858	CXD 221	Campbell	VFFF3NP
843	CPL 1056	CTRI/CPLTS	VFFNP	863	CXD 222	Campbell	VFFNP
892	CPL 4863	CTRI/CPLTS	VFFN	864	H 2501	Heinz	VFFNP
891	CXD 223	Campbells	VFFNP	865	H 2601	Heinz	VFFNP
894	H 2401	Heinz	VFFNP	873	H 2801	Heinz	VFFNP
540	H 8892 STD	Heinz	VFFN	540	H 8892 STD	Heinz	VFFN
448	Halley 3155 STD	Orsetti	VFF	866	H 9780	Heinz	VFFNP
871	HM 1852	Harris Moran	VFFN	448	Halley 3155 STD	Orsetti	VFF
893	HMX 2855	Harris Moran	VFFNP	847	HM 0830	Harris Moran	VFFN
418	La Rossa STD	Rogers	VFF	418	La Rossa STD	Rogers	VFF
900	PX 607	Seminis	VFFN	877	NDM 0098	Del Monte	VFFNT
833	SUN 6324	Sunseeds	VFFNP	878	PS 296	Seminis	VFFNBsk
901	SUN 6360	Sunseeds	VFFNP	836	PX 849	Seminis	VFFNBsk
880	U 729	Unilever	VFFN	879	SUN 6119	Sunseeds	VFFN
895	U 886	Unilever	VFFN	889	U 941	Unilever	VFFN
902	UG 151	United Genetics	VFFN				

V = Verticillium Wilt Race 1
FFF3 = Fusarium wilt Race 1, 2, and 3 resistance
N = root knot nematode resistance
P = bacterial speck resistance
Bsk = bacterial speck resistance
D = Dodder tolerant

Check with respective seed companies to confirm disease resistance information.

Table 3a. 2003 early maturity observational varieties combined county data.

VARIETY	Yield tons/A	°Brix (% SS)	Brix Yield tons/A	Color LED	pH
842 UG 8168	48.4 (01)	5.4 (04)	2.60 (01)	25.3 (06)	4.42 (04)
645 HYPEEL 45	44.5 (02)	5.0 (07)	2.25 (04)	24.5 (05)	4.47 (09)
637 H 9280	44.0 (03)	4.8 (09)	2.09 (07)	24.3 (04)	4.44 (08)
732 APT 410	43.3 (04)	5.5 (03)	2.36 (02)	23.5 (02)	4.42 (05)
886 BOS 40809	41.7 (05)	4.9 (08)	2.04 (08)	26.5 (09)	4.43 (06)
884 HMX 2853	41.1 (06)	5.5 (02)	2.24 (05)	23.3 (01)	4.43 (06)
885 U205	40.2 (07)	5.3 (05)	2.12 (06)	25.5 (07)	4.37 (01)
887 AGT 771	40.1 (08)	5.7 (01)	2.30 (03)	24.0 (03)	4.40 (03)
890 HA 3523	39.0 (09)	5.1 (06)	1.97 (09)	25.5 (07)	4.38 (02)
MEAN	42.5	5.2	2.22	24.7	4.42
LSD @ 0.05=	N.S.	N.S.	N.S.	N.S.	N.S.
C.V.=	17.0	9.3	18.5	6.4	1.2

Variety ranking indicated in parentheses ( ).

Table 3b. 2003 early maturity combined observation yield (tons/A).

VARIETY	-------- (4 LOCATIONS COMBINED)	-------- Colusa	Tons/A Contra Costa	-------- Fresno	-------- Yolo
842 UG 8168	48.4	50.3	53.3	42.5	47.3
645 HYPEEL 45	44.5	42.3	45.0	40.5	50.3
637 H 9280	44.0	49.0	50.5	29.7	46.7
732 APT 410	43.3	50.0	47.7	34.2	41.5
886 BOS 40809	41.7	47.3	46.7	32.1	40.8
884 HMX 2853	41.1	45.7	57.2	25.2	36.2
885 U205	40.2	46.8	41.2	37.5	35.2
887 AGT 771	40.1	41.8	47.4	42.3	28.8
890 HA 3523	39.0	39.0	32.1	52.9	32.1
MEAN	42.5				
LSD @ 0.05=	N.S.				
C.V.=	17.0				

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 3 c. 2003 early maturity combined and county observation data, °Brix.

VARIETY	STATEWIDE (4 LOCATIONS COMBINED)	-------	°Brix	-------	---------
		Colusa	Contra Costa	Fresno	Yolo
887 AGT 771	5.7	6.0	6.5	4.4	6.0
884 HMX 2853	5.5	4.8	5.8	6.0	5.4
732 APT 410	5.5	5.2	5.2	5.9	5.6
842 UG 8168	5.4	5.0	5.4	5.5	5.6
885 U205	5.3	5.0	6.0	5.0	5.1
890 HA 3523	5.1	4.3	5.9	4.9	5.3
645 HYPEEL 45	5.0	4.4	5.0	4.9	5.8
886 BOS 40809	4.9	4.8	4.5	5.2	5.2
637 H 9280	4.8	4.5	5.0	5.0	4.6
MEAN	5.2				
LSD @ 0.05=	N.S.				
C.V.=	9.3				

Table 3d. 2003 early maturity combined and county observation data, Brix yield (tons/A).

VARIETY	STATEWIDE (4 LOCATIONS COMBINED)	------- Brix yield, tons/A --------			-------
		Colusa	Contra Costa	Fresno	Yolo
842 UG 8168	2.60	2.52	2.88	2.34	2.65
732 APT 410	2.36	2.60	2.48	2.02	2.32
887 AGT 771	2.30	2.51	3.08	1.86	1.73
645 HYPEEL 45	2.25	1.86	2.25	1.98	2.92
884 HMX 2853	2.24	2.20	3.32	1.51	1.96
885 U205	2.12	2.34	2.47	1.88	1.80
637 H 9280	2.09	2.21	2.52	1.48	2.15
886 BOS 40809	2.04	2.27	2.10	1.67	2.12
890 HA 3523	1.97	1.68	1.89	2.59	1.70
MEAN	2.22				
LSD @ 0.05=	N.S.				
C.V.=	18.5				

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 3e. 2003 early maturity combined and county observation data, LED color.

VARIETY	STATEWIDE (4 LOCATIONS COMBINED)	-------	Color	-------	-------
		Colusa	Contra Costa	Fresno	Yolo
884 HMX 2853	23.3	24	23	23	23
732 APT 410	23.8	27	22	23	23
887 AGT 771	23.8	26	21	25	23
637 H 9280	24.3	25	24	24	24
645 HYPEEL 45	24.5	28	24	22	24
842 UG 8168	25.3	30	22	24	25
885 U205	25.5	30	23	26	23
890 HA 3523	25.5	30	24	25	23
886 BOS 40809	26.5	33	25	24	24
MEAN	24.7				
LSD @ 0.05=	N.S.				
C.V.=	6.4				

LED color: lower values indicate redder fruit.

Table 3f. 2003 early maturity combined observation data, pH.

VARIETY	STATEWIDE (4 LOCATIONS COMBINED)	---------	pH	----------	---------
		Colusa	Contra Costa	Fresno	Yolo
885 U205	4.37	4.48	4.21	4.32	4.47
890 HA 3523	4.38	4.54	4.22	4.22	4.54
887 AGT 771	4.41	4.56	4.28	4.33	4.46
732 APT 410	4.41	4.51	4.36	4.31	4.46
842 UG 8168	4.42	4.53	4.34	4.34	4.45
884 HMX 2853	4.43	4.52	4.34	4.29	4.56
886 BOS 40809	4.43	4.52	4.32	4.33	4.54
637 H 9280	4.44	4.52	4.37	4.43	4.45
645 HYPEEL 45	4.47	4.62	4.46	4.35	4.44
MEAN	4.42				
LSD @ 0.05=	N.S.				
C.V.=	1.2				

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 4a. 2003 processing tomato early maturity replicated varieties combined county data.

VARIETY	Yield tons/A			°Brix (%SS)	Brix Yield tons/A	Color	pH
861 AP 957	52.5(01)	A		4.9(08)	2.57(01)	24.8(04)	4.37(03)
839 H 9997	48.7(02)	B		5.0(07)	2.41(06)	23.1(01)	4.42(08)
637 H 9280	48.0(03)	B		4.8(10)	2.28(08)	25.3(06)	4.40(05)
859 H 1400	46.9(04)	B	C	5.4(04)	2.52(02)	25.9(09)	4.35(01)
732 APT 410	46.3(05)	B	C	5.3(05)	2.45(04)	24.6(03)	4.38(04)
844 H 1100	46.3(06)	B	C	5.3(06)	2.49(03)	26.2(10)	4.40(07)
862 SUN 6358	45.4(07)	B	C	5.4(03)	2.43(05)	25.5(07)	4.40(06)
645 HYPEEL 45	43.8(08)		C D	5.5(01)	2.40(07)	25.7(08)	4.36(02)
860 CALISTA (HA3	41.1(09)		D E	4.9(09)	1.99(10)	24.8(04)	4.48(10)
850 CXD 224	39.4(10)		E	5.4(02)	2.12(09)	24.1(02)	4.43(09)
MEAN	45.9			5.2	2.36	25.0	4.40
LSD @ 0.05=	3.7			0.2	0.18	0.7	0.04
C.V.=	11.5			6.1	10.5	3.7	1.1
VARIETY X LOCATION							
LSD @ 0.05=	7.4		N.S.		0.35	1.3	N.S.

Variety ranking indicated in parentheses ( ).

Table 4b. 2003 early maturity combined and county replicated yield (tons/A).

VARIETY	Yield tons/A	Statewide 4 LOCATIONS			Yolo	Colusa	Fresno	Contra Costa
861 AP 957	52.5	A			50.1	62.8	46.8	50.3
839 H 9997	48.7	B			45.6	57.8	37.4	53.9
637 H 9280	48.0	B			49.0	53.2	41.6	48.1
859 H 1400	46.9	B	C		46.1	59.5	34.2	47.8
732 APT 410	46.3	B	C		47.0	49.8	37.3	51.4
844 H 1100	46.3	B	C		40.5	54.1	39.5	51.1
862 SUN 6358	45.4	B	C		41.1	52.1	44.1	44.4
645 HYPEEL 45	43.8		C	D	45.9	49.2	31.6	48.7
860 CALISTA	41.1			D E	37.6	44.6	40.1	42.1
850 CXD 224	39.4			E	39.5	41.7	31.7	44.8
MEAN	45.9				44.2	52.5	38.4	48.2
LSD @ 0.05=	3.7				8.0	8.0	9.5	4.3
C.V.=	11.5				12.4	10.5	17.0	6.2
VARIETY X LOCATION								
LSD @ 0.05=	7.4							

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different. NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.

Table 4c. 2003 early maturity combined and county replicated °Brix.

VARIETY	Statewide 4 Locations °Brix			Yolo	Colusa	Fresno	Contra Costa
645 HYPEEL 45	5.5	A		5.7	5.2	5.3	5.7
850 CXD 224	5.4	A		5.5	5.2	5.3	5.6
862 SUN 6358	5.4	A		5.4	5.2	5.5	5.5
859 H 1400	5.4	A		5.4	5.3	5.0	5.8
732 APT 410	5.3	A		5.5	5.1	5.5	5.3
844 H 1100	5.3	A		5.6	5.1	4.8	5.6
839 H 9997	5.0		B	5.0	4.8	5.1	5.0
861 AP 957	4.9		B	5.0	4.9	4.7	5.1
860 CALISTA	4.9		B	5.2	4.7	4.9	4.8
637 H 9280	4.8		B	4.8	4.6	4.6	5.1
MEAN	5.2			5.3	5.0	5.0	5.3
LSD @ 0.05=	0.2			0.5	0.3	0.5	0.5
C.V.=	6.1			6.0	4.8	7.0	6.2
VARIETY X LOCATION							
LSD @ 0.05=	N.S.						

Table 4d. 2003 early maturity combined and county replicated Brix yield (tons/A).

VARIETY	Brix Yield tons/A	Statewide 4 LOCATIONS				Yolo	Colusa	Fresno	Contra Costa
861 AP 957	2.57	A				2.52	3.07	2.16	2.54
859 H 1400	2.52	A	B			2.50	3.13	1.69	2.76
844 H 1100	2.49	A	B			2.26	2.77	1.96	2.86
732 APT 410	2.45	A	B	C		2.54	2.52	2.01	2.71
862 SUN 6358	2.43	A	B	C		2.21	2.69	2.41	2.40
839 H 9997	2.41	A	B	C		2.26	2.77	1.88	2.71
645 HYPEEL 45	2.40		B	C		2.62	2.53	1.66	2.78
637 H 9280	2.28			C	D	2.33	2.46	1.89	2.42
850 CXD 224	2.12				D E	2.14	2.15	1.67	2.50
860 CALISTA	1.99				E	1.91	2.07	1.96	2.02
MEAN	2.36					2.33	2.62	1.93	2.57
LSD @ 0.05=	0.18					0.30	0.43	0.43	0.24
C.V.=	10.5					9.0	11.3	15.4	6.4
VARIETY X LOCATION									
LSD @ 0.05=	0.35								

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different. NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.

Table 4e. 2003 early maturity combined and county replicated LED color.

VARIETY	Color Statewide 4 LOCATIONS		Yolo	Colusa	Fresno	Contra Costa
839 H 9997	23.1	A	23.3	24.5	22.5	22.3
850 CXD 224	24.1	B	23.3	28.0	23.3	22.0
732 APT 410	24.6	B C	23.3	28.3	24.5	22.3
860 CALISTA	24.8	C D	23.0	28.0	25.8	22.5
861 AP 957	24.8	C D	23.8	28.8	24.5	22.3
637 H 9280	25.3	D E	23.8	28.8	25.3	23.3
862 SUN 6358	25.5	E	24.0	30.5	24.0	23.5
645 HYPEEL 45	25.7	E F	24.0	30.5	25.3	23.0
859 H 1400	25.9	E F	24.8	27.5	28.3	23.0
844 H 1100	26.2	F	24.5	29.8	26.0	24.5
MEAN	25.0		23.8	28.5	24.9	22.9
LSD @ 0.05=	0.7		0.8	1.5	1.8	1.1
C.V.=	3.7		2.4	3.5	5.0	3.2
VARIETY X LOCATION LSD @ 0.05=	1.3					

LED color: lower values indicate redder fruit.

Table 4f. 2003 early maturity combined and county replicated pH.

VARIETY	pH Statewide 4 LOCATIONS		Yolo	Colusa	Fresno	Contra Costa
859 H 1400	4.35	A	4.32	4.46	4.33	4.28
645 HYPEEL 45	4.36	A	4.41	4.46	4.30	4.25
861 AP 957	4.37	A B	4.41	4.49	4.28	4.32
732 APT 410	4.38	A B	4.44	4.51	4.26	4.31
637 H 9280	4.40	B C	4.42	4.51	4.33	4.33
862 SUN 6358	4.40	B C	4.43	4.50	4.33	4.32
844 H 1100	4.40	B C D	4.47	4.52	4.31	4.31
839 H 9997	4.42	C D	4.46	4.53	4.31	4.36
850 CXD 224	4.43	D	4.47	4.62	4.32	4.33
860 CALISTA (HA3	4.48	E	4.54	4.60	4.36	4.44
MEAN	4.40		4.44	4.52	4.31	4.32
LSD @ 0.05=	0.04		0.06	N.S.	N.S.	0.03
C.V.=	1.1		0.9	1.6	1.2	0.5
VARIETY X LOCATION LSD @ 0.05=	N.S.					

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different. NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.

Table 5a. 2003 processing tomato mid-maturity observed varieties combined county data.

VARIETY	Yield tons/acre									Brix %	Brix Yield T/A	Color ag-tron	pH
891 CXD 223	43.4 (01)	A								5.3 (13)	2.21 (01)	24.5 (10)	4.40 (13)
540 H 8892	42.4 (02)	A	B							5.2 (17)	2.12 (02)	23.6 (05)	4.39 (11)
880 U 729	41.2 (03)	A	B	C						5.3 (14)	2.11 (03)	23.9 (08)	4.42 (16)
901 SUN 6360	40.6 (04)	A	B	C	D					5.1 (18)	2.01 (09)	23.3 (02)	4.40 (12)
892 CPL 4863	40.0 (05)	A	B	C	D	E				5.4 (11)	2.04 (05)	24.1 (09)	4.37 (07)
833 SUN 6324	39.5 (06)	A	B	C	D	E	F			5.4 (08)	2.08 (04)	23.4 (03)	4.42 (17)
894 H 2401	39.1 (07)	A	B	C	D	E	F	G		5.3 (15)	1.97 (11)	24.5 (10)	4.30 (01)
895 U 886	38.7 (08)	A	B	C	D	E	F	G		5.4 (09)	2.02 (07)	23.9 (07)	4.38 (10)
893 HMX 2855	38.4 (09)	A	B	C	D	E	F	G		5.5 (06)	2.00 (10)	24.8 (12)	4.47 (19)
898 BOS 47579	37.4 (10)		B	C	D	E	F	G		5.5 (03)	2.03 (06)	24.9 (14)	4.33 (02)
899 BOS 52295	37.3 (11)		B	C	D	E	F	G		5.6 (01)	2.02 (08)	25.3 (18)	4.35 (04)
902 UG 151	36.8 (12)			C	D	E	F	G		5.1 (19)	1.83 (16)	23.1 (01)	4.46 (18)
871 HM 1852	35.9 (13)			C	D	E	F	G	H	5.3 (15)	1.84 (14)	23.5 (04)	4.41 (15)
448 Halley 3155	35.5 (14)				D	E	F	G	H	I	5.5 (03)	1.92 (12)	25.3 (19)	4.38 (09)
897 BOS 39422	35.2 (15)					E	F	G	H	I	5.4 (12)	1.84 (15)	24.8 (12)	4.33 (03)
900 PX 607	34.2 (16)						F	G	H	I	5.6 (01)	1.87 (13)	24.9 (15)	4.37 (08)
418 La Rossa	33.9 (17)							G	H	I	5.4 (07)	1.76 (17)	24.9 (15)	4.41 (14)
896 AGT 210	31.0 (18)								H	I	5.5 (03)	1.67 (18)	24.9 (15)	4.36 (05)
843 CPL 1056	30.4 (19)									I	5.4 (10)	1.59 (19)	23.8 (06)	4.36 (06)
MEAN	37.4										5.4	1.94	24.3	4.38
LSD @ 0.05=	5.7										N.S.	0.30	1.5	0.06
C.V.=	14.6										6.2	14.5	6.1	1.3

Variety ranking indicated in parentheses ( ).
LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 5b. 2003 mid-maturity observation varieties combined and county yield (tons/A).

VARIETY	Yield	STATEWIDE									Colusa DS	Colusa Tr	Fresno DS	Kern DS	Merced Tr	Stanislaus DS	Yolo DS	Yolo Tr
	tons/A	(8 LOCATIONS COMBINE																
891 CXD 223	43.4	A									37.2	26.6	58.8	19.8	35.7	70.6	45.8	52.7
540 H 8892	42.4	A	B								26.1	36.2	56.7	19.6	39.4	61.4	45.0	54.3
880 U 729	41.2	A	B	C							27.4	24.6	54.6	37.1	33.0	44.3	49.9	58.9
901 SUN 6360	40.6	A	B	C	D						31.1	20.9	53.8	26.7	37.9	45.6	52.3	56.6
892 CPL 4863	40.0	A	B	C	D	E					24.0	29.2	53.8	---	38.3	44.0	42.1	48.6
833 SUN 6324	39.5	A	B	C	D	E	F				24.0	22.0	55.5	30.3	40.7	54.6	40.7	48.2
894 H 2401	39.1	A	B	C	D	E	F	G			21.6	35.9	48.8	16.4	33.7	59.7	42.3	54.1
895 U 886	38.7	A	B	C	D	E	F	G			26.1	29.4	55.3	27.1	21.1	58.6	41.1	51.0
893 HMX 2855	38.4	A	B	C	D	E	F	G			21.3	27.7	48.5	20.4	34.4	69.3	42.8	42.7
898 BOS 47579	37.4		B	C	D	E	F	G			28.5	26.6	48.2	23.0	33.8	47.5	44.3	47.7
899 BOS 52295	37.3		B	C	D	E	F	G			29.4	22.2	50.5	17.3	33.2	54.5	42.4	48.9
902 UG 151	36.8			C	D	E	F	G			19.8	22.4	39.5	32.2	32.6	55.2	40.6	52.1
871 HM 1852	35.9			C	D	E	F	G	H		18.7	22.2	50.2	25.6	36.4	50.1	42.0	42.1
448 Halley 3155	35.5				D	E	F	G	H	I	30.7	14.6	45.5	25.7	30.3	53.6	38.7	45.0
897 BOS 39422	35.2					E	F	G	H	I	32.0	22.2	44.8	16.5	33.1	44.9	43.8	44.2
900 PX 607	34.2						F	G	H	I	30.9	19.5	40.1	25.7	28.8	50.0	37.6	40.6
418 La Rossa	33.9							G	H	I	29.2	21.1	47.5	10.5	23.3	49.6	41.7	48.5
896 AGT 210	31.0								H	I	31.8	20.3	31.5	15.1	29.3	38.8	38.7	42.7
843 CPL 1056	30.4									I	24.8	21.1	34.5	13.0	27.1	50.1	35.8	36.7
MEAN	37.4																	
LSD @ 0.05=	5.7																	
C.V.=	14.6																	

DS = direct seed, Tr = transplants

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.

NS = not significant.

CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 5c. 2003 mid-maturity observation varieties combined and county °Brix.

VARIETY	Statewide °Brix	Colusa DS	Colusa Tr	Fresno DS	Kern DS	Merced Tr	Stanislaus DS	Yolo DS	Yolo Tr
899 BOS 52295	5.6	5.9	6.4	5.3	6.5	5.1	5.1	5.0	5.3
900 PX 607	5.6	6.1	6.0	4.5	5.8	6.1	5.4	5.3	5.4
448 Halley 3155	5.5	6.1	6.0	5.3	6.3	5.0	4.9	5.3	5.3
896 AGT 210	5.5	5.6	6.3	4.9	6.7	5.3	5.1	4.9	5.4
898 BOS 47579	5.5	5.1	6.4	4.8	6.4	5.6	5.8	4.9	5.2
893 HMX 2855	5.5	6.1	6.3	5.3	6.6	5.0	4.6	4.9	4.9
418 La Rossa	5.4	5.9	6.3	5.2	6.3	5.7	4.6	4.9	4.6
833 SUN 6324	5.4	5.7	6.7	4.7	5.7	5.8	5.1	5.1	4.6
895 U 886	5.4	6.0	5.9	4.7	6.1	6.0	4.9	5.0	4.7
843 CPL 1056	5.4	5.4	6.1	4.7	6.4	5.1	4.7	5.3	5.5
892 CPL 4863	5.4	6.2	6.3	4.4	---	5.0	5.1	5.1	4.7
897 BOS 39422	5.4	5.9	5.5	4.1	6.4	5.3	5.5	5.1	5.1
891 CXD 223	5.3	5.6	6.6	4.8	6.5	5.2	4.6	4.7	4.7
880 U 729	5.3	5.9	6.3	4.5	5.5	5.8	4.7	4.6	4.9
871 HM 1852	5.3	5.3	5.9	4.5	6.6	4.9	5.2	5.0	4.7
894 H 2401	5.3	6.0	5.6	4.9	6.6	5.0	4.7	4.6	4.7
540 H 8892	5.2	5.9	6.0	4.9	6.1	4.7	4.5	4.8	4.5
901 SUN 6360	5.1	5.9	5.9	4.6	6.0	4.9	4.6	4.7	4.5
902 UG 151	5.1	5.6	5.2	4.2	6.1	5.2	5.1	4.7	4.4
MEAN	5.4								
LSD @ 0.05=	N.S.								
C.V.=	6.2								

DS = direct seed
Tr = transplants
LSD @ 0.05= least significant difference at the 95% confidence level. NS = not significant

Table 5d. 2003 mid-maturity observation varieties combined and county Brix yield, Tons/A.

VARIETY	STATEWIDE													
	BRIX YLD tons/A							Colusa DS	Colusa Tr	Fresno DS	Kern DS	Merced Tr	Stanislaus DS	Yolo DS	Yolo Tr
891 CXD 223	2.21	A						2.09	1.75	2.82	1.29	1.86	3.25	2.15	2.48
540 H 8892	2.12	A	B					1.58	2.17	2.78	1.20	1.85	2.76	2.16	2.45
880 U 729	2.11	A	B	C				1.62	1.55	2.46	2.04	1.92	2.08	2.29	2.88
833 SUN 6324	2.08	A	B	C				1.37	1.47	2.61	1.73	2.36	2.78	2.07	2.22
892 CPL 4863	2.04	A	B	C	D			1.49	1.84	2.37	---	1.92	2.24	2.15	2.29
898 BOS 47579	2.03	A	B	C	D			1.46	1.70	2.31	1.47	1.89	2.75	2.17	2.48
895 U 886	2.02	A	B	C	D			1.57	1.74	2.60	1.65	1.27	2.87	2.05	2.40
899 BOS 52295	2.02	A	B	C	D			1.74	1.42	2.68	1.13	1.69	2.78	2.12	2.59
893 HMX 2855	2.01	A	B	C	D			1.30	1.74	2.57	1.35	1.72	3.19	2.10	2.09
901 SUN 6360	2.01	A	B	C	D			1.84	1.23	2.48	1.61	1.86	2.10	2.46	2.55
894 H 2401	1.97	A	B	C	D			1.29	2.01	2.39	1.08	1.68	2.81	1.94	2.54
448 Halley 3155	1.92		B	C	D	E		1.87	0.88	2.41	1.62	1.51	2.63	2.05	2.38
900 PX 607	1.87		B	C	D	E		1.89	1.17	1.80	1.49	1.76	2.70	1.99	2.19
871 HM 1852	1.84		B	C	D	E	F	0.99	1.31	2.26	1.69	1.78	2.61	2.10	1.98
897 BOS 39422	1.84		B	C	D	E	F	1.89	1.22	1.84	1.05	1.75	2.47	2.24	2.25
902 UG 151	1.83			C	D	E	F	1.11	1.17	1.66	1.96	1.70	2.81	1.91	2.29
418 La Rossa	1.76				D	E	F	1.72	1.33	2.47	0.66	1.33	2.28	2.04	2.23
896 AGT 210	1.67					E	F	1.78	1.28	1.54	1.01	1.55	1.98	1.90	2.31
843 CPL 1056	1.59						F	1.34	1.29	1.62	0.83	1.38	2.35	1.90	2.02
MEAN	1.94														
LSD @ 0.05=	0.3														
C.V.=	14.5														

DS = direct seed, Tr = transplants

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.

CV = coefficient of variation (%), a measure of the variability in the experiment.

Table 5e. 2003 mid-maturity observation varieties combined and county color.

VARIETY	STATEWIDE COLOR		Colusa DS	Colusa Tr	Fresno DS	Kern DS	Merced Tr	Stanislaus DS	Yolo DS	Yolo Tr
902 UG 151	23.1	A	22	22	24	23	24	23	24	23
901 SUN 6360	23.3	A	24	21	24	23	25	23	24	22
833 SUN 6324	23.4	A B	23	21	25	22	25	23	24	24
871 HM 1852	23.5	A B C	24	22	25	22	25	23	24	23
540 H 8892	23.6	A B C	24	22	26	22	25	24	24	22
843 CPL 1056	23.8	A B C	24	22	23	24	25	25	25	22
895 U 886	23.9	A B C D	24	21	28	22	23	26	25	22
880 U 729	23.9	A B C D	24	21	27	23	23	24	25	24
892 CPL 4863	24.1	A B C D	24	22	24	---	27	25	25	23
891 CXD 223	24.5	A B C D	25	24	28	22	24	25	25	23
894 H 2401	24.5	A B C D	24	22	26	23	28	24	25	24
893 HMX 2855	24.8	B C D	24	25	25	24	26	25	25	24
897 BOS 39422	24.8	B C D	24	23	23	24	30	26	25	23
898 BOS 47579	24.9	C D	23	22	31	23	27	25	25	23
418 La Rossa	24.9	C D	23	22	26	24	28	27	25	24
896 AGT 210	24.9	C D	23	23	24	23	33	25	25	23
900 PX 607	24.9	C D	25	26	26	23	29	22	25	23
899 BOS 52295	25.3	D	25	23	26	24	28	25	27	24
448 Halley 3155	25.3	D	25.5	24	23.0	23	33	24	25	25
MEAN	24.3									
LSD @ 0.05=	1.5									
C.V.=	6.1									

DS = direct seed, Tr = transplants
LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
LED color: lower values indicate redder fruit.

Table 5f. 2003 mid-maturity observational varieties combined and county pH.

VARIETY	Statewide pH		Colusa DS	Colusa Tr	Fresno DS	Kern DS	Merced Tr	Stanislaus DS	Yolo DS	Yolo Tr
894 H 2401	4.30	A	4.12	4.42	4.53	4.43	4.25	4.20	4.27	4.17
898 BOS 47579	4.33	A B	4.22	4.32	4.42	4.32	4.36	4.24	4.35	4.38
897 BOS 39422	4.33	A B C	4.18	4.55	4.44	4.34	4.31	4.23	4.33	4.28
899 BOS 52295	4.35	A B C D	4.18	4.46	4.48	4.38	4.36	4.30	4.32	4.29
896 AGT 210	4.36	B C D E	4.31	4.30	4.49	4.38	4.42	4.25	4.38	4.33
843 CPL 1056	4.36	B C D E F	4.22	4.44	4.31	4.34	4.39	4.33	4.41	4.46
892 CPL 4863	4.37	B C D E F	4.24	4.34	4.42	----	4.41	4.25	4.38	4.45
900 PX 607	4.37	B C D E F	4.20	4.34	4.49	4.41	4.36	4.29	4.44	4.40
448 Halley 3155	4.38	B C D E F	4.26	4.31	4.42	4.47	4.42	4.25	4.40	4.48
895 U 886	4.38	B C D E F	4.30	4.44	4.50	4.50	4.37	4.32	4.41	4.19
540 H 8892	4.39	C D E F	4.22	4.43	4.53	4.52	4.40	4.32	4.31	4.37
901 SUN 6360	4.40	D E F	4.35	4.47	4.48	4.45	4.38	4.29	4.34	4.40
891 CXD 223	4.40	D E F	4.28	4.51	4.33	4.52	4.41	4.29	4.43	4.43
418 La Rossa	4.41	E F G	4.30	4.47	4.55	4.51	4.36	4.29	4.43	4.35
871 HM 1852	4.41	E F G H	4.32	4.49	4.48	4.54	4.37	4.34	4.40	4.37
880 U 729	4.42	E F G H	4.28	4.46	4.52	4.44	4.38	4.37	4.42	4.45
833 SUN 6324	4.42	F G H	4.20	4.48	4.52	4.48	4.45	4.30	4.46	4.44
902 UG 151	4.46	G H	4.31	4.62	4.54	4.51	4.48	4.32	4.44	4.46
893 HMX 2855	4.47	H	4.36	4.54	4.49	4.64	4.49	4.35	4.49	4.40
MEAN	4.38									
LSD @ 0.05=	0.06									
C.V.=	1.3									

DS = direct seed
Tr = transplants
LSD @ 0.05= least significant difference at the 95% confidence level.
Means followed by the same letter are not significantly different.

Table 6a. 2003 processing tomato mid-maturity replicated varieties combined county data.

VARIETY	Yield tons/acre										Brix (%SS)	Brix Yield T/A	Color	pH
540 H 8892	43.3	(01)	A								4.8 (17)	2.06 (03)	24.6 (05)	4.37 (09)
889 U 941	41.8	(02)	A	B							5.1 (15)	2.06 (02)	25.5 (12)	4.39 (11)
869 AB 5	41.7	(03)	A	B							5.3 (09)	2.16 (01)	25.2 (09)	4.32 (03)
877 NDM 0098	39.8	(04)		B	C						5.1 (13)	1.98 (08)	23.8 (02)	4.39 (12)
864 H 2501	38.8	(05)			C	D					5.3 (08)	2.00 (04)	23.9 (03)	4.32 (04)
868 AB 2	38.1	(06)			C	D	E				5.4 (05)	1.99 (05)	24.3 (04)	4.30 (02)
878 PS 296	37.8	(07)			C	D	E				5.3 (06)	1.98 (07)	25.6 (14)	4.28 (01)
836 PX 849	37.1	(08)				D	E				5.2 (12)	1.90 (09)	26.4 (17)	4.32 (05)
873 H 2801	37.1	(09)				D	E				5.5 (03)	1.99 (06)	23.8 (01)	4.41 (16)
865 H 2601	36.7	(10)				D	E	F			5.0 (16)	1.77 (14)	25.3 (11)	4.40 (13)
866 H 9780	36.2	(11)					E	F	G		5.3 (10)	1.86 (10)	25.7 (15)	4.32 (05)
863 CXD 222	34.8	(12)						F	G	H	5.2 (11)	1.80 (12)	24.8 (06)	4.36 (08)
448 Halley 3155	34.7	(13)						F	G	H	5.3 (06)	1.80 (13)	25.6 (13)	4.34 (07)
847 HM 0830	34.5	(14)							G	H	5.4 (04)	1.83 (11)	25.1 (08)	4.42 (17)
418 La Rossa	32.8	(15)								H	5.1 (14)	1.60 (17)	25.0 (07)	4.41 (14)
858 CXD 221	30.6	(16)									I 5.6 (02)	1.66 (16)	25.2 (10)	4.41 (15)
888 CPL 155	30.6	(17)									I 5.6 (01)	1.66 (15)	25.7 (16)	4.37 (10)
879 SUN 6119	39.3	(X)									5.1	1.72	26.9	4.35
MEAN	37.0										5.3	1.89	25.1	4.36
LSD @ 0.05=	2.1										0.2	0.12	0.8	0.02
C.V.=	11.6										6.1	13.0	6.4	1.1
VARIETY X LOCATION LSD @ 0.05=	6.0										0.4	0.34	N.S.	0.07

Variety ranking indicated in parentheses ( ).
LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
X. SUN 6119 had missing data and could not be included in the statewide combined analysis.

Table 6b. 2003 mid-maturity replicated varieties combined and county yield (tons/A).

VARIETY	Yield tons/acre	Statewide 8 LOCATIONS	Yolo DS	Yolo Tr	Colusa DS	Colusa Tr	Stanislaus DS	Fresno DS	Kern DS	Merced Tr
540 H 8892	43.3	A	42.5	55.4	26.6	34.7	60.6	54.7	31.2	40.7
889 U 941	41.8	A B	42.7	56.7	23.9	33.7	56.3	54.0	31.8	35.2
869 AB 5	41.7	A B	43.0	53.4	29.0	34.1	53.4	48.1	33.2	39.7
877 NDM 0098	39.8	B C	44.1	58.1	30.1	23.2	47.3	50.3	26.9	38.8
864 H 2501	38.8	C D	43.4	51.7	24.2	34.6	46.8	53.2	23.7	33.2
868 AB 2	38.1	C D E	44.4	55.2	28.2	29.8	52.1	45.1	19.5	30.5
878 PS 296	37.8	C D E	42.9	49.4	33.0	28.9	54.7	40.2	23.5	29.8
836 PX 849	37.1	D E	37.7	49.0	25.0	34.8	50.3	45.5	23.2	31.4
873 H 2801	37.1	D E	41.1	49.1	25.5	36.3	38.1	47.3	22.4	36.6
865 H 2601	36.7	D E F	41.7	55.9	22.6	25.2	46.0	48.5	19.3	34.6
866 H 9780	36.2	E F G	32.3	47.1	29.2	30.9	46.2	50.1	19.2	34.4
863 CXD 222	34.8	F G H	30.6	46.1	26.0	24.8	51.4	46.0	23.4	30.1
448 Halley 3155	34.7	F G H	40.6	49.4	26.3	27.7	46.8	42.3	18.0	26.5
847 HM 0830	34.5	G H	41.9	46.5	27.7	26.1	50.1	36.0	18.8	28.6
418 La Rossa	32.8	H	38.1	49.7	20.7	21.2	44.4	44.8	14.0	29.4
858 CXD 221	30.6	I	37.7	42.5	25.4	21.3	35.9	34.7	18.3	28.9
888 CPL 155 (15-	30.6	I	37.5	43.8	29.6	23.3	43.0	27.3	11.8	28.4
879 SUN 6119	39.3		35.3	46.5	---	31.0	44.7	45.7	---	28.4
MEAN	37.0		39.9	50.3	26.7	28.9	48.2	45.2	22.6	32.5
LSD @ 0.05=	2.1		3.7	4.2	N.S.	5.9	8	6.6	7.4	5.6
C.V.=	11.6		6.5	5.8	17	14.4	11.6	10.3	22.9	12.2
VARIETY X LOCATION LSD @ 0.05=	6.0									

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
DS = Direct seed, Tr = transplants

Table 6c. 2003 mid-maturity replicated varieties combined and county °Brix.

VARIETY	Brix %SS	Statewide 8 LOCATIONS	Yolo DS	Yolo Tr	Colusa DS	Colusa Tr	Stanislaus DS	Fresno DS	Kern DS	Merced Tr
888 CPL 155	5.6	A	4.9	5.4	6.1	6.4	5.0	4.8	6.8	5.4
858 CXD 221	5.6	A	4.9	5.0	6.2	6.5	5.3	5.1	6.5	5.3
873 H 2801	5.5	A B	4.8	4.9	6.1	6.4	5.4	5.0	6.3	5.1
847 HM 0830	5.4	B C	4.8	4.9	6.2	5.7	5.2	5.4	6.2	5.2
868 AB 2	5.4	B C	4.9	4.9	6.1	5.9	5.2	4.7	6.4	5.2
448 Halley 3155	5.3	C D	4.7	4.9	6.1	6.0	4.8	5.1	6.2	4.9
878 PS 296	5.3	C D	4.8	5.2	5.3	6.0	5.2	4.5	6.2	5.5
864 H 2501	5.3	C D	4.6	4.7	5.8	6.1	5.0	4.9	6.2	5.3
869 AB 5	5.3	C D	4.7	4.8	6.2	5.8	5.2	4.8	5.8	5.0
866 H 9780	5.3	C D	4.6	4.9	5.8	6.0	5.0	4.7	6.2	5.0
863 CXD 222	5.2	D E	4.6	5.0	5.7	5.9	5.2	4.8	5.6	5.4
836 PX 849	5.2	D E	4.5	4.8	6.3	5.6	4.9	4.8	5.6	5.2
877 NDM 0098	5.1	E F	4.6	4.6	5.6	5.7	4.9	4.9	5.7	5.0
418 La Rossa	5.1	E F	4.4	4.4	5.6	5.8	4.7	4.9	6.3	4.8
889 U 941	5.1	E F	4.4	4.3	6.1	5.4	4.7	5.1	5.6	5.2
865 H 2601	5.0	F	4.4	4.4	5.6	5.5	4.8	4.5	5.7	4.9
540 H 8892	4.8	G	4.1	4.2	5.7	5.4	4.8	4.8	5.4	4.4
879 SUN 6119	5.1		4.5	4.9	5.8	5.7	5.1	4.8		5.2
MEAN	5.3		4.6	4.8	5.9	5.9	5.0	4.9	6.0	5.1
LSD @ 0.05=	0.2		0.2	0.2	0.4	0.3	0.3	N.S.	0.7	N.S.
C.V.=	6.1		3.4	3.4	5.0	3.3	4.5	8.4	7.6	9.5
VARIETY X LOCATION LSD @ 0.05=	0.4									

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
DS = Direct seed, Tr = transplants

Table 6d. 2003 mid-maturity replicated varieties combined and county Brix yield (tons/A).

VARIETY	Brix Yield T/A	Statewide 8 LOCATIONS								Yolo DS	Yolo Tr	Colusa DS	Colusa Tr	Stanislaus DS	Fresno DS	Kern DS	Merced Tr
869 AB 5	2.16	A								2.03	2.56	1.79	1.96	2.75	2.31	1.92	1.99
889 U 941	2.06	A	B							1.86	2.44	1.45	1.81	2.64	2.74	1.74	1.77
540 H 8892	2.06	A	B							1.73	2.31	1.48	1.87	2.92	2.65	1.69	1.81
864 H 2501	2.00		B	C						2.01	2.43	1.38	2.09	2.32	2.60	1.47	1.74
868 AB 2	1.99		B	C						2.17	2.69	1.70	1.74	2.69	2.12	1.25	1.59
873 H 2801	1.99		B	C						1.96	2.38	1.55	2.31	2.07	2.35	1.41	1.87
878 PS 296	1.98		B	C	D					2.06	2.54	1.75	1.74	2.83	1.82	1.45	1.65
877 NDM 0098	1.98		B	C	D					2.01	2.64	1.69	1.31	2.32	2.44	1.48	1.95
836 PX 849	1.90			C	D	E				1.71	2.37	1.57	1.96	2.48	2.21	1.30	1.64
866 H 9780	1.86				D	E	F			1.49	2.29	1.69	1.86	2.30	2.33	1.22	1.72
847 HM 0830	1.83					E	F			2.00	2.25	1.71	1.47	2.60	1.93	1.17	1.48
863 CXD 222	1.80					E	F			1.42	2.28	1.47	1.47	2.69	2.20	1.30	1.62
448 Halley 3155	1.80					E	F			1.91	2.43	1.59	1.65	2.23	2.16	1.11	1.3
865 H 2601	1.77						F	G		1.82	2.47	1.25	1.39	2.21	2.18	1.10	1.69
888 CPL 155	1.66							G	H	1.84	2.34	1.81	1.50	2.16	1.32	0.81	1.53
858 CXD 221	1.66							G	H	1.85	2.13	1.55	1.37	1.89	1.75	1.19	1.54
418 La Rossa	1.60								H	1.69	2.19	1.17	1.22	2.08	2.20	0.85	1.39
879 SUN 6119										1.57	2.25		1.76	2.25	2.17		1.44
MEAN	1.89									1.84	2.39	1.57	1.69	2.41	2.19	1.34	1.65
LSD @ 0.05=	0.12									0.20	0.22	0.35	0.36	0.41	0.43	0.40	0.36
C.V.=	13.0									7.8	6.4	15.7	15.0	12.0	13.9	21.0	15.3
VARIETY X LOCATION LSD @ 0.05=	0.34																

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
DS = Direct seed, Tr = transplants

Table 6e. 2003 mid-maturity replicated varieties combined and county color.

VARIETY	Color	Statewide 8 LOCATIONS	Yolo DS	Yolo Tr	Colusa DS	Colusa Tr	Stanislaus DS	Fresno DS	Kern DS	Merced Tr
873 H 2801	23.8	A	25.3	22.5	22.5	21.5	22.8	24.5	23.0	28.0
877 NDM 0098	23.8	A	25.0	23.0	24.0	22.5	23.3	25.3	22.8	25.0
864 H 2501	23.9	A B	24.3	22.8	23.8	23.0	23.3	23.3	22.8	28.5
868 AB 2	24.3	A B C	25.3	23.3	25.3	23.5	25.0	23.5	24.3	24.8
540 H 8892	24.6	B C D	25.0	23.0	23.5	23.0	24.3	25.0	24.0	28.8
863 CXD 222	24.8	C D E	25.8	23.5	24.3	22.3	24.0	25.8	24.0	29.0
418 La Rossa	25.0	C D E F	26.0	24.0	24.8	23.3	24.3	24.5	25.3	28.0
847 HM 0830	25.1	D E F	25.8	24.0	26.0	24.3	24.5	26.3	23.3	26.5
869 AB 5	25.2	D E F	25.8	22.8	26.0	24.0	24.5	26.3	25.0	27.3
858 CXD 221	25.2	D E F	26.5	24.3	25.5	24.3	24.0	24.5	24.3	28.5
865 H 2601	25.3	D E F	25.8	23.5	26.3	22.8	25.5	26.0	23.5	29.0
889 U 941	25.5	E F	27.3	24.8	24.0	23.5	24.8	26.5	23.0	30.0
448 Halley 3155	25.6	F	26.0	23.8	25.5	25.5	25.3	25.8	24.0	28.8
878 PS 296	25.6	F	25.5	23.5	27.3	25.8	25.3	24.5	25.0	28.0
866 H 9780	25.7	F G	26.8	24.5	25.3	24.0	25.3	24.8	25.3	29.5
888 CPL 155	25.7	F G	26.5	23.5	27.8	25.3	25.3	26.3	23.5	27.5
836 PX 849	26.4	G	26.8	25.8	25.3	26.3	26.0	25.5	25.3	30.3
879 SUN 6119			27.5	24.5	26.8	24.5	25.8	26.8		31.5
MEAN	25.1		25.9	23.7	25.2	23.8	24.6	25.3	24.0	28.3
LSD @ 0.05=	0.8		1.2	1.4	1.6	1.7	1.5	N.S.	1.8	N.S.
C.V.=	6.4		3.2	4.0	4.5	5.0	4.2	6.8	5.2	11.5
VARIETY X LOCATION LSD @ 0.05=	N.S.									

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
DS = Direct seed, Tr = transplants
LED color: lower values indicate redder fruit.

Table 6f. 2003 mid-maturity replicated varieties combined and county pH.

VARIETY	pH	Statewide 8 LOCATIONS	Yolo DS	Yolo Tr	Colusa DS	Colusa Tr	Stanislaus DS	Fresno DS	Kern DS	Merced Tr
878 PS 296	4.28	A	4.24	4.31	4.18	4.29	4.20	4.37	4.33	4.35
868 AB 2	4.30	A B	4.27	4.29	4.22	4.31	4.21	4.41	4.36	4.33
869 AB 5	4.32	B C	4.28	4.29	4.24	4.35	4.25	4.42	4.33	4.37
864 H 2501	4.32	B C	4.30	4.34	4.26	4.30	4.23	4.43	4.29	4.40
836 PX 849	4.32	B C	4.31	4.27	4.24	4.31	4.25	4.44	4.38	4.38
866 H 9780	4.32	B C	4.33	4.29	4.22	4.36	4.23	4.45	4.33	4.37
448 Halley 3155	4.34	C D	4.33	4.33	4.26	4.33	4.27	4.43	4.42	4.40
863 CXD 222	4.36	D E	4.36	4.34	4.33	4.43	4.25	4.46	4.37	4.36
540 H 8892	4.37	E F	4.37	4.37	4.32	4.37	4.28	4.41	4.43	4.39
888 CPL 155 (15-	4.37	E F	4.36	4.35	4.30	4.34	4.31	4.48	4.39	4.42
889 U 941	4.39	F G	4.39	4.42	4.29	4.43	4.31	4.45	4.42	4.40
877 NDM 0098	4.39	F G	4.33	4.38	4.32	4.49	4.34	4.41	4.45	4.43
865 H 2601	4.40	G H	4.38	4.40	4.33	4.49	4.28	4.44	4.45	4.45
418 La Rossa	4.41	G H	4.37	4.34	4.36	4.49	4.35	4.42	4.52	4.44
858 CXD 221	4.41	G H	4.38	4.42	4.35	4.52	4.26	4.47	4.46	4.44
873 H 2801	4.41	G H	4.41	4.40	4.27	4.47	4.29	4.54	4.45	4.49
847 HM 0830	4.42	H	4.41	4.44	4.32	4.47	4.32	4.48	4.44	4.46
879 SUN 6119			4.37	4.35	4.23	4.41	4.27	4.41		4.41
MEAN	4.36		4.34	4.35	4.28	4.40	4.27	4.44	4.40	4.40
LSD @ 0.05=	0.02		0.04	0.07	0.06	0.09	0.04	0.06	0.08	0.08
C.V.=	1.1		0.7	1.2	1.1	1.5	0.6	1.0	1.3	1.3
VARIETY X LOCATION LSD @ 0.05=	0.07									

LSD = Least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different.
NS = not significant.
CV = coefficient of variation (%), a measure of the variability in the experiment.
Variety x location LSD = LSD when comparing the same variety at different locations.
DS = Direct seed, Tr = transplants