Project Title: **UCCE Statewide Processing Tomato Variety Evaluation Trials, 2004**

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Summary:
In 2004, 4 early and 6 mid-maturity processing tomato variety trials were conducted at multiple locations to identify varieties broadly adapted to California's Central Valley production area, where the majority of processing tomatoes are grown. Twelve replicated entries were evaluated in the direct-seeded, early-maturity tests that were conducted in Contra Costa, Colusa, Fresno, and Yolo Counties. The combined analysis showed a variety x location interaction effect on fruit yield, brix yield, and pH. Fruit ºbrix and color were not location-dependent. The combined, overall means for yield, brix yield and pH were 39.9 tons/A, 2.04 tons/A, and 4.44, respectively. Varieties that performed well, overall, were H 5003, AGT 771, and the two industry standard cultivars, Hypeel 45 and APT 410. H 5003 had the highest fruit yield (46.7 tons/A) and brix yield (2.54 tons/A), the third highest fruit ºbrix (5.5%), and the second best color (22.6).

There were 4 transplanted and 2 direct-seeded mid-maturity trials each with an observational block of 12 entries and a replicated block of 18 entries. The direct-seeded trials were conducted in Fresno and Kern Counties while transplants were used in the Colusa, Merced, Stanislaus, and Yolo County trials. In the observational trials, the combined data showed variety differences for all measured parameters but brix yield. The varieties PX 345 and U 232, both averaged 47.9 tons/A and the varieties U 258, HMX 3859, and BOS 52295 formed the top yield group. There were 9 lines in the bottom yield group that was led by Sun 6365 (35.1 tons/A). HMX 3859 was the only high-yielding variety that also produced high solids (ºbrix). BOS 47721 and Sun 6365, both at 5.9%, led the high ºbrix group which included 5 other varieties.

In the replicated trials, differential yield, ºbrix, ºbrix yield, and color responses by the varieties were observed across locations. The over-location fruit yields ranged from 34.0 tons/A (PX 607) to 45.1 tons/A (U 941) and averaged 39.9 tons/A. In addition to U 941, other varieties with high yields were Heinz's H 8892, H 5503, H 2401, and H 9665. These varieties, however, were among the lowest ºbrix producers, averaging $\leq$5.2%. H 5803, Halley 3155, and PS 296 produced a high fruit º brix of 5.7%. U 941 and H 5803 had the highest brix yields at 2.31 tons/A and 2.30 tons/A, respectively, but included 5 others. The lowest combined brix yields were from La Rossa (1.85 tons/A), PX 607 (1.87 tons/A), and 4 other varieties. Fruit color averaged 24.5 and ranged from 22.8 for H 2501 to 27.1 for Sun 6119. UG 151 and Red Sky had the worst fruit pH with levels of 4.42 and 4.45, respectively. H 2401 and PS 296 fruit were significantly more acidic than fruit produced by any other variety tested.

Objectives:

1. To conduct replicated and uniform variety trials in the major processing tomato production regions.
2. To collaborate with and receive input from seed companies, processors, growers, and other industry clientele throughout project development and conduct.
3. To identify varieties that are widely- and narrowly-adapted to California's production regions that also are tolerant to biotic and abiotic factors that reduce production.
4. To use measurable characteristics such as yield, ºbrix, brix yield, color, and pH for assessing variety performance.
5. To conduct field days for clientele to view the in-field performance and plant growth habits of the tested varieties.

Procedures:

In 2004, UC farm advisors conducted 4 early-maturity and 6 mid-maturity variety trials. There were 0 observational and 12 replicated varieties evaluated in the early-maturity tests (Table 1A). The mid-maturity trials consisted of 12 observational and 18 replicated entries (Table 1B).

Uniform trials were conducted at multiple locations in the major processing tomato production regions. Early-maturity trials were located in Colusa, Contra Costa, Fresno, and Yolo counties. The trials were all direct-seeded by the farm advisor between mid-February and mid-March and harvested between mid-July and mid-August.

The mid-maturity trials were located in Colusa, Fresno, Yolo, Stanislaus, Merced, and Kern counties. Except for the Kern and Fresno County trials that were direct seeded, all other mid-maturity tests were transplanted. The trials were planted/transplanted by the researcher from March to May and harvested from August to September.

Replicated varieties were evaluated using a randomized complete block design with 4 replications. Observational varieties were studied in single, non-replicated plots. Experimental plots were 100' long and one bed wide. All of the trials were conducted in commercial fields with grower cooperators except those in Fresno County, which were established at the Westside Research and Extension Center located near Five Points, CA. The Colusa County mid-maturity trial was the only sprinkler-irrigated trial. All other trials were furrow-irrigated. All cultural operations except planting and harvesting were conducted by the grower cooperator and were no different from those applied to the rest of the field. Researchers conducted a field day before harvesting the crop to allow in-field viewing of the varieties by interested clientele.

Within days of harvesting, ripe fruit were sampled from each plot and transported to PTAB where fruit ºbrix, color, and pH measurements were made. Plot yields were recorded at harvest. All of the trials were machine harvested except the Contra Costa early-maturity trial and the Merced and Stanislaus mid-maturity trials, which were hand-harvested. Machine harvested trials used commercial harvest equipment that conveyed the fruit to a GT wagon for weighing.

Combined locations and individual county data were subjected to an analysis of variance and mean separation procedures using SAS statistical software. When data were combined, a nested analysis of variance was conducted on each parameter, where the block factor was nested within location. Only when the analysis of variance yielded a significant F test, was the least significant difference (LSD) test used to separate the means.

Results:

Tables 2A-2F, 3A-3F, and 4A-4F correspond to the results of the replicated, early-maturity trials, the observational, mid-maturity trials, and the replicated, mid-maturity trials, respectively. The first table in each numbered set (i.e., table 2A, 3A, and 4A) shows the yield, ºbrix, brix yield, color, and pH for each

variety, when the data were averaged across trial locations, and their respective, least significant differences (LSD), used for grouping the varieties when there is not a location x variety interaction. The remaining 5 tables in each set of trial results show, in the following sequence, the yield, ºbrix, brix yield, color, and pH means of each variety for individual and combined locations.

Observational, early-maturity varieties:
None of the early-season maturity trials conducted in 2004 had an observational block because only two varieties, H 5003 and BOS 40809, were entered for evaluation. These lines were advanced to the replicated, early-season maturity trials.

Replicated, early-maturity varieties:
A common set of 12 replicated entries were planned for evaluation in the Colusa, Contra Costa, Fresno, and Yolo County trials. However, only 10 of the 12 varieties were planted at all 4 locations, because AGT 771 seed was received after the Fresno trial was planted and U 250 seed was not provided in sufficient quantity to plant the Colusa test. When the individual location data were combined, the effects of unequally replicated treatments were observed. The means for AGT 771 and U 250, were calculated using only 12 observations while the means for all other varieties were calculated using 16 observations. Comparing variety means having different numbers of observations is difficult and often results in the generation of complex means tables. In many cases, a separate statistical analysis is conducted on those data having sub-optimal numbers of observations. Despite the differences in observation number in the 2004 early-maturity trials, it was possible to conduct a single analysis of variance on the combined data and obtain a reasonably simple means table having only 3 least significant different (LSD) values. The LSD value used for separating two means depends on the variety-pair one is comparing. The LSD1 value is used to compare the means of all varieties except AGT 771 and U 250. The LSD2 value is used to compare the means of AGT 771 or U 250 to all other varieties, and the LSD3 value is used to compare the means of AGT 771 and U 250, only.

When the data were combined, a significant variety x location interaction effect was observed for fruit yield, brix yield, and pH, but not for fruit ºbrix or color (Table 2A). A significant interaction occurs when a change in location results in a change in response by the variety or variety-pair, that is too large to be explained by chance (i.e., equals or exceeds the LSD for the interaction). When an interaction exists, the interaction LSD is used to compare the means of different varieties at different locations or to compare the means for the same variety at different locations.

The average yield across all locations and varieties tested was 39.9 tons/A (Tables 2A and 2B). Yields ranged from a low of 35.6 ton/A for HA 3523 to a high of 46.7 tons/A for H 5003. The overall mean for fruit ºbrix was 5.1 (Table 2A and 2C). Varieties with the highest solids (ºbrix) included AGT 771, Hypeel 45, the industry standard cultivar, and H 5003 with 5.7, 5.6, and 5.5% soluble solids, respectively. The varieties H 9280 and U 250 produced fruit with significantly less soluble solids than any other tested variety. Across all locations, the lowest brix yield varieties were H 9280 and HA 3523 but included 3 others (Tables 2A and 2D). H 5003 led the group for brix yield with a 2.54 tons/A over-location average. The overall brix yield mean was 2.04 tons/A. Fruit of H 9280, Sun 6358, UG 8168, and Hypeel 45 had significantly better color than U 250, that had a LED color of 25.8 and significantly worst color than fruit of H 9997, H 5003, HA 3523, and Calista (HA 3303) all averaging a LED color of <23.1 Tables 2A and 2E). The mean pH for all tests and cultivars was 4.44 (Tables 2A and 2F). Over all locations, PX 740 and Hypeel 45, had the best, or lowest, pH. High pH fruit were observed from Calista (HA 3303) and HA 3523.

Observational, mid-maturity varieties:
When the data were averaged across the 6 locations significant differences were observed between the varieties for all parameters but brix yield (Table 3A). The average yield for all varieties and locations was

40.6 tons (Tables 3A and 3B). The high coefficient of variation (C.V.) observed in combined yield results was related to the high C.V. in yield at the Kern County location that was attributed to incorrect planter calibration during trial establishment. The varieties PX 345 and U 232, both averaging 47.9 tons/A and the varieties U 258, HMX 3859, and BOS 52295 formed the top yield group. The lowest yielding variety was Sun 6365 with <36 tons/A. Sun 6365, however, could not be separated statistically from 8 other varieties (Tables 3A and 3B). Mean fruit ºbrix for the combined analysis was 5.5% with all varieties averaging at least 5% soluble solids (Table 3A and 3C). HMX 3863 and the high-yielding varieties, PX 345, U 258, and BOS 52295 comprised the lowest ºbrix group. BOS 47721 and Sun 6365, led the high-brix group of 7 varieties with fruit averaging 5.9% soluble solids. There were no significant differences between the varieties in fruit brix yield (Tables 3A and 3D). Fruit brix yields ranged from 1.86 to 2.52 tons/A and averaged 2.18 tons/A. PX 345 fruit were significantly less red than 8 other varieties. CXD 236 had the reddest fruit across all locations; but, it was statistically no redder than the fruit of 5 other varieties (Tables 3A and 3E). Fruit pH was lowest, or best, for Sun 6365, but included 2 others. Fruit pH was highest, or worst, for HMX 3863 and Sun 6366. The average combined pH was 4.40 (Tables 3A and 3F).

Replicated, mid-maturity varieties:
The variety x location interaction was significant for all parameters measured except fruit pH when the data were averaged across all 6 locations. The combined locations fruit yield for all varieties tested was 39.9 tons/A (Tables 4A and 4B). The Yolo trial had the highest average yield (50.1 tons/A) and the Kern trial had the lowest (<24 tons/A). The low yields and high coefficient of variation in yield at the Kern County location were attributed to a reduced and uneven plant stand that resulted from incorrect planter calibration when the trial was seeded. The varieties with the lowest over-location yield were PX 607 and La Rossa (Table 4A). Varieties averaging more than 42 tons/A included U 941, H 5503, H 2401, and the two standards H 8892 and H 9665. The combined locations average yield was 39.9 tons/A. The statewide average fruit ºbrix was 5.3% (Tables 4A and 4C). Soluble solids ranged from 5.0% for CPL 4863-N to 5.7% for H 5803, PS 296, and Halley 3155, the industry standard cultivar. Soluble solids were highest at the Stanislaus and Kern County trials. Fruit brix yield across the 6 locations averaged 2.09 tons/A (Tables 4A and 4D). The variety ranking for brix yield was similar to the ranking observed for yield. PX 607 and La Rossa had the lowest brix yields of 6 lines comprising the low ºbrix group and U 941 had the highest brix yield (Tables 4A and 4D). The variety with the overall worst fruit color was Sun 6119 (Tables 4A and 4E). Only one variety, H 2501, had a LED color below 23.0. The average fruit color over all locations and varieties tested was 24.5. Fruit with the best color were obtained at the Stanislaus County trial. There were significant differences between varieties in fruit pH (Table 4A and 4F). Fruit of H 2401 and PS 296 were significantly more acidic than fruit of the other 16 varieties. In contrast, fruit of UG 151 was significantly less acidic than all other varieties but Red Sky.

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Table 1A. General description of the early-season maturing varieties evaluated in 2004

Seed Company	Replicated Entries	Genetic Traits[y]
Hazera Seeds, Inc.	HA 3523	$VFFN
	Calista (HA 3303)	$VFF
Heinz Seed	H 5003	$VFFNP
	H 9280[z]	$VFFNP
	H 9997	$VFFNP
Orsetti Seed Co.	AGT 771	$VFFNP
Seminis Vegetable Seeds, Inc/Asgrow	**APT 410**	$VFFNP
	Hypeel 45	$VFFNP
	PX 740	$VFFNP
Nunhems USA, Inc.	Sun 6358	$VFFNP
Lipton/Unilever Bestfoods, N.A.	U 250	$VFFNP
United Genetics Seeds Co.	UG 8168	$VFFNP

[y] and [z] See Table 1B footnotes

Table 1B. General description of the mid-season maturing varieties evaluated in 2004

	Replicated Entries		Observational Entries	
Seed Company	Variety	Genetic Traits	Variety	Genetic Traits[y]
Campbell's Seeds			CXD 236	$VFFN
California Pure Lines Tomato Seeds, Inc.	CPL 4863-N	¢VFFN		
Harris Moran Seed Co.			HMX 3859	$VFFNP
			HMX 3863	$VFFNP
Heinz Seed	H 2401	$VFFNP		
	H 2501	$VFFNP		
	H 2601	$VFFNP		
	H 5503	$VFFNP		
	H 5803	$VFFNP		
	H 8892[z]	$VFFN		
	H 9665	$VFFNP		
Nippon Del Monte Co.			NDM 0098	$VFFN
Orsetti Seed Co.	**Halley 3155**	$VFF	BOS 47721	$VFFN
			BOS 52295	$VFFNP
			BOS 7025	$VFFNP
Syngenta Seeds, Inc./ Rogers	**La Rossa**	$VFF		
Seminis Seeds	PS 296	$VFFNP	PX 345	$VFFNP
	PS 607	$VFFN		
Nunhems USA, Inc	Sun 6119	$VFFN	Sun 6365	$VFFNP
	Sun 6360	$VFFNP	Sun 6366	$VFFNP
	Red Sky	$VFFP		
Lipton/Unilever Bestfoods, N.A.	U 005	$VFFNP	U 232	$VFFNP
	U 941	$VFFN	U 258	$VFFNP
United Genetics Seeds Co.	UG 151	$VFFN		

[y] = $ = hybrid; ¢ = open-pollinated;V = Verticillium wilt race 1 resistance; F = Fusarium race 1 resistance; FF= Fusarium race 1 and 2 resistance; N= Nematode resistance; P = bacterial speck (*P. syringae* pv *tomato*) resistance.

[z] Varieties in bold are the industry.

Table 2A. 2004 fruit yield, ºbrix, brix yield, color, and pH of replicated, early-season maturing varieties across all locations

Variety	Yield (tons/A) 4 locations combined				ºBrix	Brix yield (tons/A)	Color	pH
H 5003	46.7	A[t]			5.5	2.54	22.6	4.45
APT 410	42.1	B			5.2	2.16	23.3	4.44
UG 8168	41.9	B			5.1	2.13	24.3	4.43
Hypeel 45	40.5	B	C		5.6	2.27	24.4	4.38
AGT 771	39.7*[u]	B	C		5.7*	2.21*	23.4*	4.44*
U 250	39.5*	B	C		4.6*	1.82*	25.8*	4.46*
PX 740	39.3	B	C		5.3	2.08	23.8	4.38
H 9997	39.1	B	C		5.0	1.94	22.4	4.46
Calista (HA 3303)	39.0	B	C		4.9	1.89	23.1	4.50
Sun 6358	38.0		C	D	5.0	1.91	24.0	4.42
H 9280	37.6		C	D	4.6	1.74	23.9	4.43
HA 3523	35.6			D	5.0	1.76	22.9	4.55
MEAN	39.9				5.1	2.04	23.6	4.44
LSD 1 @ 0.05[v] =	3.3				0.15	0.18	0.76	0.02
LSD 2 @ 0.05[w] =	3.5				0.16	0.19	0.82	0.02
LSD 3 @ 0.05[x] =	3.8				0.18	0.21	0.87	0.03
C.V.[y]=	11.7				4.3	12.6	4.6	0.7
Variety x location LSD @ 0.05 =	6.5				NS[z]	0.36	NS	0.05

[t] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[u] * = The arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[v] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[w] LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[x] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[y] C.V. = coefficient of variation.

[z] NS = not significant.

Table 2B. Fruit yield of replicated, early-season maturing varieties across all locations and by individual county in 2004

	Yield (tons/A)				
Variety	4 locations combined		Yolo	Colusa	Fresno	Contra Costa
H 5003	46.7	A[t]	46.5	38.3	37.1	64.9
APT 410	42.1	B	44.7	44.8	26.0	53.0
UG 8168	41.9	B	47.0	41.2	29.7	49.8
Hypeel 45	40.5	B C	44.1	37.2	30.8	50.0
AGT 771	39.7*[u]	B C	38.4	29.5	ND[v]	51.0
U 250	39.5*	B C	48.3	ND	32.0	38.2
PX 740	39.3	B C	47.1	43.4	29.9	36.9
H 9997	39.1	B C	46.3	40.2	34.5	35.5
Calista (HA 3303)	39.0	B C	42.0	34.1	32.1	47.6
Sun 6358	38.0	C D	42.0	40.9	26.1	43.1
H 9280	37.6	C D	47.6	43.9	27.9	31.2
HA 3523	35.6	D	44.1	33.5	25.4	39.4
MEAN	39.9		44.8	38.8	30.1	45.0
LSD 1 @ 0.05[w] =	3.3		4.2	5.5	4.6	10.4
LSD 2 @ 0.05[x] =	3.5					
LSD 3 @ 0.05[y] =	3.8					
C.V.[z] =	11.7		6.6	9.9	10.6	16.1
Variety x location LSD @ 0.05 =	6.5					

[t] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[v] * denotes the arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[v] ND = not determined. The variety was not evaluated at that location.

[w] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[x] LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[y] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[z] C.V. = coefficient of variation.

Table 2C. Fruit ºbrix of replicated early-season maturing varieties across all locations and by individual county in 2004

	ºBrix				
Variety	4 locations combined		Yolo	Colusa	Fresno	Contra Costa
AGT 771	5.7*[s]	A[t]	5.2	6.4	ND[u]	5.3
Hypeel 45	5.6	A	5.4	6.4	5.4	5.3
H 5003	5.5	A	5.1	6.4	5.4	5.2
PX 740	5.3	B	4.8	6.2	5.0	5.2
APT 410	5.2	B C	4.7	6.1	5.1	4.8
UG 8168	5.1	C D	4.9	5.8	5.0	4.8
Sun 6358	5.0	C D E	4.7	5.9	4.8	4.6
HA 3523	5.0	D E	4.5	5.8	4.8	4.8
H 9997	5.0	D E	4.7	5.7	4.8	4.6
Calista (HA 3303)	4.9	E	4.6	5.7	4.7	4.5
H 9280	4.6	F	4.3	5.1	4.5	4.6
U 250	4.6*	F	4.5	ND	4.6	4.8
MEAN	5.1		4.8	5.9	4.9	4.9
LSD 1 @ 0.05[v] =	0.15		0.3	0.3	0.3	0.3
LSD 2 @ 0.05[w] =	0.16					
LSD 3 @ 0.05[x] =	0.18					
C.V.[y] =	4.3		4.2	3.7	4.4	4.8
Variety x location LSD @ 0.05 =	NS[z]					

[s] * denotes the arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[t] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[u] ND = not determined. The variety was not evaluated at that location.

[v] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[w] LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[x] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[y] C.V. = coefficient of variation.

[z] NS = not significant.

Table 2D. Fruit brix yield of replicated, early-season maturing varieties across all locations and by individual county in 2004

	Brix yield (tons/A)				
Variety	4 locations combined	Yolo	Colusa	Fresno	Contra Costa
H 5003	2.54 A[t]	2.36	2.43	2.01	3.38
Hypeel 45	2.27 B	2.38	2.36	1.66	2.67
AGT 771	2.21*[u] B C	2.01	1.90	ND[v]	2.73
APT 410	2.16 B C	2.08	2.70	1.33	2.54
UG 8168	2.13 B C	2.29	2.36	1.48	2.37
PX 740	2.08 C D	2.23	2.69	1.48	1.93
H 9997	1.94 D E	2.15	2.31	1.66	1.66
Sun 6358	1.91 D E F	1.97	2.42	1.24	2.01
Calista (HA 3303)	1.89 E F	1.94	1.95	1.52	2.17
U 250	1.82* E F	2.16	ND	1.47	1.83
HA 3523	1.76 F	1.99	1.93	1.20	1.90
H 9280	1.74 F	2.02	2.25	1.26	1.43
MEAN	2.04	2.13	2.30	1.48	2.22
LSD 1 @ 0.05[w] =	0.18	0.24	0.34	0.21	0.57
LSD 2 @ 0.05[x] =	0.19				
LSD 3 @ 0.05[y] =	0.21				
C.V.[z] =	12.6	7.7	10.2	9.7	17.9
Variety x location LSD @ 0.05 =	0.36				

[s] * denotes the arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[t] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[u] ND = not determined. The variety was not evaluated at that location.

[v] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[w] LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[x] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[y] C.V. = coefficient of variation.

[z] NS = not significant.

Table 2E. Fruit color of replicated, early-season maturing varieties across all locations and by individual county in 2004

	Color				
Variety	4 locations combined		Yolo	Colusa	Fresno	Contra Costa
H 9997	22.4	A[s]	23.3	22.0	21.3	23.0
H 5003	22.6	A B C	24.0	22.5	22.0	22.0
HA 3523	22.9	A B C	24.0	22.8	21.8	23.0
Calista (HA 3303)	23.1	A B C D	25.0	22.3	22.0	23.0
APT 410	23.3	B C D E	24.8	23.5	21.8	23.0
AGT 771	23.4*[t]	C D E	24.3	22.8	ND[u]	23.3
PX 740	23.8	D E F	25.5	24.3	23.0	22.5
H 9280	23.9	E F	25.0	24.3	23.0	23.3
Sun 6358	24.0	E F	24.5	24.5	23.0	24.0
UG 8168	24.3	F	25.0	24.3	23.3	24.5
Hypeel 45	24.4	F	26.3	24.8	23.0	23.8
U 250	25.8*	G	27.0	ND	24.8	25.5
MEAN	23.6		24.9	23.4	22.6	23.4
LSD 1 @ 0.05[v] =	0.76		1.2	1.3	1.4	NS[w]
LSD 2 @ 0.05[x] =	0.82					
LSD 3 @ 0.05[y] =	0.87					
C.V.[z] =	4.6		3.3	3.8	4.4	6.3
Variety x location LSD @ 0.05 =	NS					

[s] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[t] * denotes the arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[u] ND = not determined. The variety was not evaluated at that location.

[v] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[w] NS = not significant.

[x] LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[y] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[z] C.V. = coefficient of variation.

Table 2F. Fruit pH of replicated, early-season maturing varieties across all locations and by individual county in 2004

	pH				
Variety	4 locations combined	Yolo	Colusa	Fresno	Contra Costa
PX 740	4.38 A[t]	4.37	4.29	4.41	4.44
Hypeel 45	4.38 A	4.40	4.37	4.35	4.41
Sun 6358	4.42 B	4.42	4.35	4.44	4.47
H 9280	4.43 B C	4.42	4.39	4.43	4.47
UG 8168	4.43 B C	4.41	4.42	4.43	4.48
APT 410	4.44 C D	4.45	4.39	4.42	4.51
AGT 771	4.44*[u] C D	4.44	4.41	ND[v]	4.49
H 5003	4.45 C D	4.44	4.45	4.45	4.46
H 9997	4.46 D	4.45	4.42	4.47	4.48
U 250	4.46* D	4.45	ND	4.44	4.48
Calista (HA 3303)	4.50 E	4.52	4.45	4.50	4.53
HA 3523	4.55 F	4.55	4.54	4.55	4.54
MEAN	4.44	4.44	4.41	4.44	4.48
LSD 1 @ 0.05[w] =	0.02	0.05	0.06	0.04	0.04
LSD 2 @ 0.05[x] =	0.02				
LSD 3 @ 0.05[y] =	0.03				
C.V.[z] =	0.7	0.7	0.9	0.7	0.6
Variety x location LSD @ 0.05 =	0.05				

[t] Means within the column followed by the same letter are statistically the same according to Fisher's unprotected LSD test using a 95% level of confidence.

[u] * denotes the arithmetic mean of 12 plots. The least squares mean could not be estimated because the variety was not included at all study locations. Means without asterisks were calculated using 16 observations.

[v] ND = not determined. The variety was not evaluated at that location.

[w] LSD 1 = least significant difference for comparing means of all varieties **except** AGT 771 and U 250.

[x] .LSD 2 = least significant difference for comparing means of AGT 771 and U 250 to all other varieties.

[y] LSD 3 = least significant difference for comparing means of AGT 771 to U 250.

[z] C.V. = coefficient of variation.

Table 3A. 2004 fruit yield, ºbrix, brix yield, color, and pH of observational, mid-season maturing varieties across all locations

Variety	Yield (tons/acre)				ºBrix	Brix yield (tons/A)	Color	pH
U 232	47.9	A[w]			5.4	2.52	25.5	4.38
PX 345	47.9	A			5.3	2.37	26.3	4.35
U 258	43.7	A	B		5.1	2.18	23.8	4.43
HMX 3859	42.3	A	B	C	5.7	2.40	25.2	4.41
BOS 52295	40.6	A	B	C	5.4	2.12	24.8	4.36
NDM 0098	39.8		B	C	5.5	2.17	23.2	4.41
Sun 6366	39.0		B	C	5.8	2.22	23.5	4.44
BOS 47721	38.3		B	C	5.9	2.18	24.7	4.37
HMX 3863	38.1		B	C	5.0	1.86	24.5	4.50
BOS 7025	37.4		B	C	5.8	2.11	24.2	4.43
CXD 236	37.0		B	C	5.5	2.04	23.0	4.41
Sun 6365	35.1			C	5.9	2.00	24.7	4.30
MEAN	40.6				5.5	2.18	24.4	4.40
LSD @ 0.05[x] =	8.0				0.4	NS[y]	1.6	0.07
C.V.[z] =	17.0				7.0	16.8	5.7	1.3

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] NS = not significant.

[z] C.V.= coefficient of variation.

Table 3B. Fruit yield of 2004 observational, mid-season maturing varieties across all locations and by individual county

	Yield (tons/A)									
Variety	6 locations combined				Colusa	Fresno	Kern	Merced	Stanislaus	Yolo
U 232	47.9	A [x]			37.5	50.4	19.0	58.2	62.4	60.2
PX 345	47.9	A			36.2	49.9	12.9	74.0	47.7	66.8
U 258	43.7	A	B		34.6	42.9	30.1	48.8	48.8	56.9
HMX 3859	42.3	A	B	C	31.1	48.5	25.1	43.9	50.3	54.6
BOS 52295	40.6	A	B	C	33.1	48.0	20.6	44.1	41.5	55.9
NDM 0098	39.8		B	C	37.9	33.3	30.1	34.5	46.9	56.1
Sun 6366	39.0		B	C	33.3	47.2	20.7	26.0	52.0	54.7
BOS 47721	38.3		B	C	32.7	37.4	19.6	38.1	45.6	56.3
HMX 3863	38.1		B	C	24.8	39.4	24.4	54.3	38.9	46.5
BOS 7025	37.4		B	C	29.0	39.2	19.2	35.2	44.9	56.8
CXD 236	37.0		B	C	32.0	35.0	26.1	29.7	44.2	55.0
Sun 6365	35.1			C	31.4	30.2	16.3	47.7	36.7	48.3
MEAN	40.6				32.8	41.8	22.0	44.5	46.6	55.7
LSD @ 0.05[y] =	8.0									
C.V.[z] =										

[x] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[y] LSD = least significant difference for statistical separation of means.

[z] C.V. = coefficient of variation.

Table 3C. Fruit ºbrix of 2004 observational, mid-season maturing varieties across all locations and by individual county

	º Brix											
Variety	6 locations combined							Colusa	Fresno	Kern	Merced	Stanislaus	Yolo
BOS 47721	5.9	A[x]						6.2	5.4	7.3	5.2	5.9	5.2
Sun 6365	5.9	A						5.7	5.9	6.9	5.5	6.1	5.1
BOS 7025	5.8	A	B					5.6	5.6	7.3	5.7	5.8	5.0
Sun 6366	5.8	A	B	C				5.5	5.5	7.3	5.1	6.1	5.3
HMX 3859	5.7	A	B	C	D			5.6	5.7	6.0	5.7	5.9	5.3
NDM 0098	5.5	A	B	C	D	E		5.7	5.2	6.8	4.9	5.5	5.0
CXD 236	5.5	A	B	C	D	E		5.8	5.4	5.1	5.5	5.7	5.5
U 232	5.4		B	C	D	E		4.7	6.1	6.7	4.6	5.2	5.1
BOS 52295	5.4			C	D	E	F	5.6	5.1	6.7	4.5	5.3	5.1
PX 345	5.3				D	E	F	5.3	5.0	7.0	4.6	5.0	4.7
U 258	5.1					E	F	5.2	5.1	6.1	4.6	5.3	4.3
HMX 3863	5.0						F	4.5	4.9	5.8	4.6	5.3	4.6
MEAN	5.5							5.5	5.4	6.6	5.0	5.6	5.0
LSD @ 0.05[y] =	0.4												
C.V.[z] =	7.0												

[x] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[y] LSD = least significant difference for statistical separation of means.

[z] C.V.= coefficient of variation.

Table 3D. Fruit brix yield of 2004 observational, mid-season maturing varieties across all locations and by individual county

	Brix yield (tons/A)						
Variety	6 locations combined	Colusa	Fresno	Kern	Merced	Stanislaus	Yolo
U 232	2.52	1.76	3.08	1.28	2.68	3.24	3.07
HMX 3859	2.40	1.74	2.77	1.51	2.50	2.97	2.90
PX 345	2.37	1.92	2.50	0.90	3.40	2.39	3.14
Sun 6366	2.22	1.83	2.60	1.51	1.33	3.17	2.90
U 258	2.18	1.80	2.19	1.84	2.24	2.59	2.45
BOS 47721	2.18	2.03	2.02	1.43	1.98	2.69	2.93
NDM 0098	2.17	2.16	1.73	2.05	1.69	2.58	2.80
BOS 52295	2.12	1.85	2.45	1.38	1.99	2.20	2.85
BOS 7025	2.11	1.62	2.19	1.40	2.00	2.60	2.84
CXD 236	2.04	1.86	1.89	1.33	1.63	2.52	3.03
Sun 6365	2.00	1.79	1.78	1.13	2.63	2.24	2.46
HMX 3863	1.86	1.12	1.93	1.42	2.50	2.06	2.14
MEAN	2.18	1.79	2.26	1.43	2.21	2.60	2.79
LSD @ 0.05[x] =	NS[y]						
C.V.[z] =	16.8						

[x] LSD = least significant difference for statistical separation of means.
[y] NS = not significant.
[z] C.V. = coefficient of variation.

Table 3E. Fruit color of 2004 observational, mid-season maturing varieties across all locations and by individual county

	Color											
Variety	6 locations combined							Colusa	Fresno	Kern	Merced	Stanislaus	Yolo
CXD 236	23.0	A[x]						23	22	28	23	21	21
NDM 0098	23.2	A	B					23	25	24	24	21	22
Sun 6366	23.5	A	B	C				23	25	23	25	21	24
U 258	23.8	A	B	C	D			24	25	24	24	22	24
BOS 7025	24.2	A	B	C	D	E		24	25	24	23	25	24
HMX 3863	24.5	A	B	C	D	E		25	26	24	26	21	25
BOS 47721	24.7		B	C	D	E		26	25	25	25	22	25
Sun 6365	24.7		B	C	D	E		25	25	24	25	23	26
BOS 52295	24.8			C	D	E	F	22	27	26	26	23	25
HMX 3859	25.2				D	E	F	25	24	26	25	26	25
U 232	25.5					E	F	27	27	24	26	24	25
PX 345	26.3						F	26	27	29	27	21	28
MEAN	24.4							24.4	25.3	25.1	24.9	22.5	24.5
LSD @ 0.05[y] =	1.6												
C.V.[z] =	5.7												

[x] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[y] LSD = least significant difference for statistical separation of means.

[z] C.V.= coefficient of variation.

Table 3F. Fruit pH of 2004 observational, mid-season maturing varieties across all locations and by individual county

	pH											
Variety	6 locations combined							Colusa	Fresno	Kern	Merced	Stanislaus	Yolo
Sun 6365	4.30	A[x]						4.20	4.20	4.40	4.36	4.24	4.38
PX 345	4.35	A	B					4.32	4.30	4.40	4.42	4.36	4.30
BOS 52295	4.36	A	B	C				4.39	4.37	4.38	4.46	4.25	4.32
BOS 47721	4.37		B	C	D			4.30	4.34	4.40	4.42	4.38	4.39
U 232	4.38		B	C	D	E		4.42	4.24	4.42	4.52	4.31	4.37
NDM 0098	4.41		B	C	D	E		4.32	4.34	4.41	4.52	4.42	4.42
CXD 236	4.41		B	C	D	E		4.46	4.41	4.31	4.49	4.38	4.42
HMX 3859	4.41		B	C	D	E		4.48	4.38	4.35	4.52	4.33	4.42
U 258	4.43			C	D	E		4.45	4.28	4.45	4.53	4.41	4.43
BOS 7025	4.43				D	E		4.39	4.38	4.49	4.46	4.35	4.50
Sun 6366	4.44					E	F	4.40	4.29	4.54	4.55	4.38	4.47
HMX 3863	4.50						F	4.51	4.42	4.42	4.56	4.43	4.64
MEAN	4.40							4.39	4.33	4.41	4.48	4.35	4.42
LSD @ 0.05[y] =	0.07												
C.V.[z] =	1.30												

[x] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[y] LSD = least significant difference for statistical separation of means.

[z] C.V.= coefficient of variation.

Table 4A. 2004 fruit yield, ºbrix, brix yield, color, and pH of replicated, mid-season maturing varieties across all locations

Variety	Yield (tons/A)							ºBrix	Brix yield (tons/A)	Color	pH
U 941	45.1	A[w]						5.2	2.31	24.5	4.38
H 8892	43.2	A	B					5.2	2.18	24.5	4.36
H 5503	43.0	A	B					5.1	2.18	23.5	4.36
H 2401	42.9	A	B	C				5.2	2.20	24.8	4.27
H 9665	42.4	A	B	C	D			5.2	2.14	24.3	4.32
H 5803	40.9		B	C	D	E		5.7	2.30	23.8	4.32
Sun 6360	40.3		B	C	D	E		5.2	2.05	23.4	4.40
PS 296	40.1			C	D	E		5.7	2.28	25.7	4.27
H 2501	39.9				D	E		5.5	2.15	22.8	4.35
H 2601	39.6				D	E		5.2	2.03	25.2	4.39
Red Sky	39.2					E		5.4	2.08	23.8	4.42
UG 151	38.9					E		5.3	1.99	23.3	4.45
Halley 3155	38.7					E		5.7	2.17	24.8	4.33
CPL 4863-N	38.7					E		5.0	1.91	24.7	4.37
U 005	38.3					E		5.2	1.97	25.5	4.31
Sun 6119	38.1					E	F	5.4	1.98	27.1	4.38
La Rossa	35.4						F G	5.4	1.85	24.8	4.40
PX 607	34.0						G	5.6	1.87	25.2	4.38
MEAN	39.9							5.3	2.09	24.5	4.36
LSD @ 0.05[x] =	2.9							0.2	0.16	0.9	0.04
C.V.[y] =	12.7							6.1	13.40	6.1	1.60
Variety x Location LSD @0.05 =	7.1							0.5	0.39	2.1	NS[z]

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] C.V.= coefficient of variation.

[z] NS = not significant.

Table 4B. Fruit yield of replicated, mid-season maturing varieties across all locations and by individual county in 2004

Variety	Yield (tons/acre) 6 locations combined							Yolo	Colusa	Stanislaus	Fresno	Kern	Merced
U 941	45.1	A[w]						54.1	42.4	44.4	52.9	27.4	49.5
H 8892	43.2	A	B					53.8	42.0	46.1	46.3	22.9	48.1
H 5503	43.0	A	B					52.8	41.2	45.3	48.4	26.5	44.0
H 2401	42.9	A	B	C				49.7	41.2	40.3	50.1	21.8	54.5
H 9665	42.4	A	B	C	D			50.1	41.5	39.6	39.6	27.4	56.4
H 5803	40.9		B	C	D	E		54.0	40.6	36.4	41.4	23.0	50.0
Sun 6360	40.3		B	C	D	E		48.2	35.8	42.1	47.6	22.5	45.9
PS 296	40.1			C	D	E		50.8	35.1	53.2	37.1	22.1	42.4
H 2501	39.9				D	E		47.5	33.5	40.0	43.0	25.7	50.0
H 2601	39.6				D	E		42.6	39.9	40.9	37.8	24.3	52.1
Red Sky	39.2					E		49.0	34.6	41.6	41.2	25.5	43.4
UG 151	38.9					E		50.7	32.6	43.1	41.0	20.3	45.8
Halley 3155	38.7					E		54.1	42.4	44.4	52.9	27.4	49.5
CPL 4863-N	38.7					E		53.7	34.4	42.0	36.7	24.0	41.4
U 005	38.3					E		49.3	39.5	40.1	37.5	18.3	47.4
Sun 6119	38.1					E	F	45.7	35.4	41.3	35.9	25.2	46.5
La Rossa	35.4						F G	50.5	34.5	39.3	36.5	19.4	48.2
PX 607	34.0						G	53.9	28.0	35.9	34.2	26.3	33.8
MEAN	39.9							50.1	36.8	41.5	41.2	23.4	46.5
LSD @ 0.05[x] =	2.9							2.8	4.5	7.7	6.1	NS[y]	8.2
C.V[z].=	12.7							4.0	8.7	13.0	10.5	32.9	12.4
Variety x Location LSD @ 0.05 =	7.1												

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] NS = not significant.

[z] C.V.= coefficient of variation.

Table 4C. Fruit ºbrix of replicated, mid-season maturing varieties across all locations and by individual county in 2004

	ºBrix						
Variety	6 locations combined	Yolo	Colusa	Stanislaus	Fresno	Kern	Merced
H 5803	5.7 A[w]	5.5	5.3	6.3	5.6	6.7	5.1
Halley 3155	5.7 A	5.1	5.5	5.9	5.8	6.5	5.3
PS 296	5.7 A B	5.2	5.2	6.3	5.9	6.0	5.4
PX 607	5.6 A B C	5.1	5.3	6.1	5.4	6.3	5.3
H 2501	5.5 B C D	4.8	5.4	5.9	5.4	6.5	5.0
Sun 6119	5.4 C D E	4.5	5.1	6.2	5.3	6.3	5.1
Red Sky	5.4 D E F	5.0	5.2	5.6	5.3	6.4	4.9
La Rossa	5.4 D E F G	4.7	5.3	6.0	5.3	6.0	4.8
UG 151	5.3 E F G H	4.5	5.1	5.4	5.3	6.5	4.8
H 2401	5.2 E F G H	4.7	4.9	5.5	5.6	6.2	4.6
Sun 6360	5.2 F G H	4.8	4.8	5.4	5.1	6.3	4.8
H 2601	5.2 F G H	5.1	5.2	5.3	5.2	5.6	4.9
U 941	5.2 F G H	4.7	4.8	5.6	5.4	5.9	4.8
U 005	5.2 G H I	4.9	5.0	5.5	5.0	5.8	4.9
H 8892	5.2 H I	4.3	5.0	5.7	5.5	6.1	4.5
H 9665	5.2 H I	4.7	4.8	5.7	5.2	6.1	4.6
H 5503	5.1 H I	4.8	4.9	5.5	5.3	5.7	4.7
CPL 4863-N	5.0 I	4.7	5.0	5.4	5.0	5.6	4.5
MEAN	5.3	4.8	5.1	5.7	5.4	6.1	4.9
LSD @ 0.05[x] =	0.2	0.3	0.3	0.5	0.5	NS[y]	0.3
C.V.[z] =	6.1	3.7	4.0	6.3	6.0	8.6	5.0
Variety x Location LSD @ 0.05 =	0.5						

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] NS = not significant.

[z] C.V.= coefficient of variation.

Table 4D. Fruit brix yield of replicated, mid-season maturing varieties across all locations and by individual county in 2004

	Brix yield (tons/A)						
Variety	6 locations combined	Yolo	Colusa	Stanislaus	Fresno	Kern	Merced
U 941	2.31 A[w]	2.52	2.04	2.47	2.87	1.60	2.38
H 5803	2.30 B	2.96	2.15	2.30	2.33	1.52	2.53
PS 296	2.28 B	2.64	1.82	3.36	2.17	1.36	2.30
H 2401	2.20 B C	2.32	1.99	2.20	2.80	1.34	2.52
H 8892	2.18 B C D	2.30	2.08	2.61	2.56	1.37	2.17
H 5503	2.18 B C D	2.51	2.00	2.47	2.54	1.51	2.05
Halley 3155	2.17 B C D	2.74	1.90	2.49	2.12	1.59	2.19
H 2501	2.15 B C D E	2.29	1.79	2.34	2.31	1.67	2.48
H 9665	2.14 B C D E F	2.33	1.99	2.22	2.06	1.67	2.58
Red Sky	2.08 C D E F G	2.44	1.79	2.32	2.20	1.62	2.10
Sun 6360	2.05 C D E F G H	2.31	1.72	2.27	2.41	1.40	2.21
H 2601	2.03 D E F G H	2.16	2.06	2.16	1.96	1.32	2.52
UG 151	1.99 E F G H I	2.29	1.66	2.34	2.15	1.33	2.18
Sun 6119	1.98 F G H I	2.26	1.75	2.35	1.92	1.19	2.44
U 005	1.97 G H I	2.23	1.76	2.28	1.79	1.47	2.27
CPL 4863-N	1.91 H I	2.30	1.98	2.14	1.87	1.07	2.11
PX 607	1.87 I	2.30	1.57	2.19	1.92	1.23	2.01
La Rossa	1.85 I	2.54	1.48	2.14	1.80	1.57	1.56
MEAN	2.09	2.41	1.86	2.37	2.21	1.43	2.27
LSD @ 0.05[x] =	0.16	0.19	0.26	0.43	0.36	NS[y].	0.42
C.V.[z] =	13.4	5.7	9.7	12.7	11.5	29.0	13.2
Variety x Location LSD @ 0.05 =	0.39						

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] NS = not significant.

[z] C.V.= coefficient of variation.

Table 4E. Fruit color of replicated, mid-season maturing varieties across all locations and by individual county in 2004

	Color											
Variety	6 locations combined								Yolo	Colusa	Stanislaus	Fresno	Kern	Merced
H 2501	22.8	A[w]							23.5	23.0	20.8	24.0	22.5	23.3
UG 151	23.3	A	B						24.5	23.3	21.3	24.3	22.8	23.8
Sun 6360	23.4	A	B	C					23.8	24.3	22.5	25.0	21.8	23.3
H 5503	23.5	A	B	C					24.5	24.8	21.0	25.0	23.3	22.8
Red Sky	23.8		B	C	D				24.0	26.0	21.0	25.3	23.3	23.3
H 5803	23.8		B	C	D				24.5	23.5	22.0	24.8	24.8	23.3
H 9665	24.3			C	D	E			25.3	24.8	22.3	24.5	24.5	24.3
H 8892	24.5				D	E	F		24.8	25.0	22.5	25.0	25.8	23.8
U 941	24.5				D	E	F		25.0	23.8	22.0	26.5	24.5	25.3
CPL 4863-N	24.7					E	F		25.0	23.5	21.8	25.0	28.5	24.3
La Rossa	24.8					E	F	G	25.0	25.8	22.0	26.3	24.5	25.0
H 2401	24.8					E	F	G	25.3	25.3	22.0	25.8	26.3	24.3
Halley 3155	24.8					E	F	G	H	25.8	26.0	22.5	24.5	25.0	25.3
PX 607	25.2						F	G	H	24.8	25.5	22.3	25.5	28.0	25.0
H 2601	25.2						F	G	H	25.0	25.5	23.0	25.8	27.3	24.8
U 005	25.5							G	H	25.5	26.8	23.3	25.5	26.3	26.0
PS 296	25.7								H	25.5	27.0	22.5	25.8	27.3	26.0
Sun 6119	27.1								I	27.3	29.5	22.5	25.8	29.3	28.3
MEAN	24.5									24.9	25.2	22.1	25.2	25.3	24.5
LSD @ 0.05[x] =	0.9									1.1	1.8	1.4	NS[y]	3.9	1.6
C.V.[z] =	6.1									3.1	5.0	4.4	5.1	10.8	4.5
Variety x Location LSD @ 0.05=	2.1														

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] NS = not significant.

[z] C.V.= coefficient of variation.

Table 4F. Fruit pH of replicated, mid-season maturing varieties across all locations and by individual county in 2004

	pH							
Variety	6 locations combined		Yolo	Colusa	Stanislaus	Fresno	Kern	Merced
H 2401	4.27	A[w]	4.30	4.26	4.26	4.23	4.28	4.28
PS 296	4.27	A	4.29	4.28	4.25	4.25	4.21	4.37
U 005	4.31	B	4.33	4.33	4.27	4.32	4.30	4.34
H 5803	4.32	B	4.39	4.38	4.29	4.30	4.10	4.44
H 9665	4.32	B C	4.41	4.31	4.27	4.27	4.30	4.36
Halley 3155	4.33	B C D	4.34	4.32	4.33	4.26	4.32	4.40
H 2501	4.35	B C D E	4.41	4.30	4.29	4.33	4.35	4.40
H 5503	4.36	C D E F	4.36	4.37	4.35	4.32	4.30	4.44
H 8892	4.36	D E F G	4.38	4.35	4.35	4.30	4.38	4.42
CPL 4863-N	4.37	D E F G	4.36	4.40	4.32	4.35	4.37	4.42
Sun 6119	4.38	E F G	4.44	4.35	4.33	4.33	4.39	4.42
U 941	4.38	E F G H	4.41	4.41	4.36	4.35	4.31	4.44
PX 607	4.38	E F G H	4.39	4.39	4.37	4.37	4.34	4.45
H 2601	4.39	F G H	4.50	4.36	4.36	4.40	4.32	4.42
La Rossa	4.40	G H	4.43	4.38	4.38	4.36	4.39	4.45
Sun 6360	4.40	G H	4.46	4.40	4.34	4.36	4.40	4.45
Red Sky	4.42	H I	4.42	4.44	4.38	4.35	4.42	4.49
UG 151	4.45	I	4.53	4.42	4.43	4.36	4.53	4.45
MEAN	4.36		4.40	4.36	4.33	4.32	4.33	4.41
LSD@0.05[x] =	0.04		0.08	0.05	0.05	0.08	0.19	0.08
C.V.[y]=	1.6		1.3	0.8	0.8	1.4	3.1	1.2
Variety x Location LSD @ 0.05 =	NS[z]							

[w] Means within the column followed by the same letter are not significantly different according to Fisher's unprotected least significant difference test at the 95% confidence level.

[x] LSD = least significant difference for statistical separation of means.

[y] C.V. = coefficient of variation.

[z] NS = not significant.