

Project Title: UCCE Statewide Processing Tomato Variety Evaluation Trials, 2006

Project Leader: Scott Stoddard
Farm Advisor
UCCE Merced & Madera Counties
2145 Wardrobe Rd.
Merced, CA 95340
209-385-7403
csstoddard@ucdavis.edu

Cooperating

DANR Personnel: Brenna Aegerter, Farm Advisor, San Joaquin County
Diane Barrett, Food Science & Technology CE Specialist, UCD
Janet Caprile, Farm Advisor, Contra Costa County
Tim Hartz, Vegetable Crops CE Specialist, UCD
Michelle LeStrange, Farm Advisor, Tulare & Kings Counties
Gene Miyao, Farm Advisor, Yolo, Solano, & Sacramento Counties
Jan Mickler, Farm Advisor, Stanislaus County
Joe Nunez, Farm Advisor, Kern County

Summary:

UCCE farm advisors conducted three early-maturity variety tests and seven mid-maturity tests in 2006. Weather played a dominant role in the results of these trials this year. An extended cool and wet spring resulted in delayed planting in many locations, which was exasperated by a very hot summer. The mid season trials were particularly impacted by severe heat in July when daytime temps exceeded 100°F throughout the Central Valley for a period of about two weeks. This severe heat resulted in poor pollination and fruit set, and a corresponding drop in yield. Most varieties in the mid season trial yielded less than 40 tons/acre in all locations, with the exception of Merced County which was drip irrigated. The early trials escaped most of the extreme heat and yielded very well in Yolo and Contra Costa Counties, averaging 48 and 55 tons/acre respectively. In the early trial, H5003, Sun 6366, BOS 66509, 66508, and APT 410 had significantly better yields than the other entries in this test; HyPeel 45 had the highest °Brix and lowest pH. Averaged across location, no significant differences were found in the mid-season observation trial for yield or Brix; in the replicated trial best yields occurred with DRI 8058 and Sun 6368, while Sun 6374 had significantly higher Brix than the other varieties.

Objectives:

The major objective is to conduct processing tomato variety field tests that evaluate fruit yield, Brix, color, and pH in various statewide locations. The data are combined from all test locations to analyze variety adaptability under a wide range of growing conditions. 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 variety selection decisions.

Procedures:

Three early-maturity variety tests and seven mid-maturity tests were conducted in 2006. Participating counties and Farm Advisors are shown in Table 1. Variety entries and their disease resistances are listed in Tables 2a and 2b. As in 2005, there were no observational lines in the early trial.

Early maturity tests were planted in February, March, or late April and mid-maturity lines were planted from March to May. New varieties were usually screened one or more years in non-replicated observational trials before being selected for testing in the replicated trials. Tests were primarily conducted in commercial production fields with grower cooperators (the Fresno trials were located at the UC West Side Research and Extension Center near Five Points).

Each variety was planted in a one-bed by 100-foot long plot. 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. The Farm Advisor organized seeding or transplanting at 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. Most test locations were furrow irrigated (Merced was drip irrigated). A field day or arrangements for interested persons to visit the plots occurred at most locations.

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), and pH determinations. These samples were hand picked ripe fruit. The tomatoes in each plot 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 each individual location and combining 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.

Results:

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

Early replicated. Early replicated results are presented in Table 3 a – e. Significant differences were found among varieties for yield, Brix, color, and pH. Overall yields with the early varieties were excellent, especially in Contra Costa County where almost all varieties yielded more than 50 tons/acre. Best yields occurred with H5003, Sun 6366, BOS 66509, 66508, and APT 410. HyPeel 45, SUN 6366, PS 438, and H5003 had significantly better °Brix than the other varieties, ranging from 5.6 to 5.4. Average pH was 4.35 and ranged from 4.27 for HyPeel 45 to 4.43 for PS 438 (Table 4e).

Significant variety by location interactions occurred only for yield. This indicates that some varieties performed better at different locations. Where significant, the variety by location LSD can be used to compare the performance of varieties across locations (Table 3b).

Mid observational. Mid-maturity observational results combining all locations are shown in Table 4a, and individual counties in Tables 5 b – e. When all counties were combined, significant differences were found among varieties only for color and pH (Table 4a). High variability (CV 16.4%) in this test prevented significant differences in yield, but in general HMX 5893 performed well in all locations but Stanislaus County. Overall yields were much lower than the early trial, mainly due to the weather. °Brix between varieties was very consistent, ranging between 5.2 to 5.5. HMX 5893 was significantly less red than all the other lines. Fruit pH ranged for 4.40 to 4.48 (Table 5e). Because there was no replication in this test, variety by location interactions could not be performed.

Mid replicated. Mid-maturity replicated variety results combining all locations are shown in Table 5 a, and individual counties in Tables 5 b – e. Significant differences were found for all parameters measured, though Kern and Stanislaus counties did not have had significant differences for yield and °Brix. Significantly best yields occurred with DRI 8058 and Sun 6368, at > 39 tons/A. As with the observational trial, yields were lower than the early trial (Merced County location was drip irrigated and yielded very well compared to the other locations).

Brix was significantly better in Sun 6374 at 6.3% compared to the other varieties. The other varieties ranged between 5.0 to 5.9%. Kern County posted the best average °Brix at 6.0. U886, DRI 4610, DRI 8058, and H2005 had the best fruit color with an LED rating of 22.4 to 22.9 (Table 5d). Fruit pH ranged from 4.34 to 4.52 (Table 6e), with AB2 having significantly lowest pH.

Significant variety by location interactions occurred for yield, °Brix, color, and pH. This indicates that certain varieties performed differently at different locations. The standard AB2, for example, yielded relatively poorly in Merced compared to the other locations, probably because of nematode pressure. Kern often had significantly higher °Brix for the same variety as compared to the other locations.

Acknowledgements:

Many thanks to CTRI and participating seed companies for their continued support for this project. The cooperation from PTAB and support of the processors is also greatly appreciated. Many thanks to Gail Nishimoto for her help with the statistical analyses. And lastly, this project would not be possible without the many excellent grower cooperators who were involved with this project.

Table 1. Location, Advisor, planting method (DS = direct seed, TR = transplant), planting and harvest dates for the 2006 Statewide Processing Tomato Variety Trials.

Early Maturity					
County	Advisor	Plant method	Plant Date	Harvest date	Comments
Yolo	Gene Miyao	TR	4/25	8/11	Double lines, sunburn
Contra Costa	Janet Caprile & Brenna Aegerter	DS	3/27	8/18	Excellent stand and yield
Fresno	Michelle LeStrange	DS	2/13	7/20	
Mid-Maturity					
Yolo	Gene Miyao	TR	5/9	8/25	Double lines, nematodes.
San Joaquin	Brenna Aegerter	TR	5/24	10/13	Delayed harvest
Stanislaus	Jan Mickler	TR	5/19	10/16	Disease, stand problems.
Merced	Scott Stoddard	TR	5/13	9/15	Drip irrigated
Fresno 1	Michelle LeStrange	DS	3/16	8/10	Early planted
Fresno 2		DS	5/4	9/11	Late planted
Kern	Joe Nunez	DS	3/16	8/3	

Table 2a. Early maturity test varieties information for 2006. Varieties followed by STD are standards.

Seed Company	Early Season Replicated Code	Variety	Disease Resistance	days to maturity	processed use	Brix	std compared	vine size	fruit shape
AB/TS&L Seeds									
Harris Moran	1	HMX 5883	VFFFP	110	MultiUse	med/high	410	med/lg	blocky
Heinz Seed	2 3	H 5003 H 9280	VFFFP VFFN	115 108	MultiUse	5.2 4.8	HP45, 410	med sm	oval blocky
Lipton/Unilever Best Foods, N.A.	4 5	U 250 U 462	VFFFP VFFFP	115 115	MultiUse MultiUse	med high	410, H 9280 410, H 9280	sm/med med	elong/sq blocky
Nunhems USA (formerly Sunseeds)	6	SUN 6366	VFFN Bsp	118	peel, solids	high	--	--	blocky
Orsetti Seeds	7 8 9	BOS 66508 BOS 66509 BOS 7026	VFFFP VFFFP VFFFP	115 108 113	peel/dice peel/dice MultiUse	5 5 4.8	-- -- --	-- -- --	blky blky round blky round
Seminis Seeds	10 11 12	APT 410 HYPEEL45 PS 438	VFFNBsk VFFNBsk VFFNBsk	114 118 118	MultiUse MultiUse MultiUse	med high med	-- -- --	-- -- --	-- -- --
Nippon Del Monte									

Check with seed supplier to confirm resistance.

Table 2b. Mid-maturity test varieties for 2006. Varieties followed by STD are standards.

Seed Company	Code	Mid-Season Maturity Replicated	Code	OBS	Disease Resistance	days to maturity	processed use	Brix	std compared	vine size	fruit shape
AB/TS&L Seeds	1 2 3	AB 2 DRI 4610 DRI 8058			VFFFP VFFN VFFN TSWV	120 125 118	Multiuse Multiuse paste	high high med	3155 AB2 ?	med med med	square square blocky
Harris Moran	4	HMX 4802	17	HMX 5893	VFFFP VFFFP	125 125	-- Multiuse	med high	-- AB2	lg lg	blocky blocky
Heinz Seed	5 6 7 8	H 2005 H 2601 H 8004 H 9780			VFFFP VFFFP VFFFP VFFFP	128 122 125 138	MultiUse pear MultiUse MultiUse	5.8 5 5.6 5.5	H9780 -- H 9780 --	lg lg lg lg	oval pear elongate blocky
Lipton/Unilever Best Foods, N.A.	9 10	U 567 U 886	18 19	U 892 U 898	VFFNPsw VFFN VFFN VFFNLV	130 129 123 128	MultiUse MultiUse MultiUse MultiUse	med med high med	H 9665 H 9665 AB2, H 9780 AB2	Med sm/med med med	Sq/blky Sq/round Elong/sq Sq/blky
Nunhems USA (formerly Sunseeds)	11 12 13	RED SPRING SUN 6368 SUN 6374			VFFN Bsp VFFN Bsp VFFN Bsp	123 125 127	Peel, solid peel, solids pear peeling	med high high	-- -- --	-- -- --	pear blocky blocky
Orsetti Seeds	14	BOS 67374	20	BOS 212	VFFNPJ VFFNP	123 120	Peel/dice Peel/dice	5.1 5.1	-- --	-- --	blocky pear
Seminis Seeds	15 16	PS 345 PX 384			VFFNBsk VFFN	130 130	MultiUse MultiUse	med high	H9780 H9780	med/lg med/lg	blocky blocky
Nippon Del Monte			21	NDM4464	VFFNB	120	paste	5.1	3155	med	blocky

P = Bsk = Bsp = Bacterial Speck
 TSWV = tomato spotted wilt virus
 FFF fusarium Race 3
 LV = powdery mildew (Leveillula
 J = jointless

Check with seed supplier to confirm resistance.

Table 3a. 2006 processing tomato early maturity replicated varieties combined county data (3 locations).

VARIETY	Yield tons/acre		Brix %	Color	pH
H 5003	49.5 (01)	A	5.4 (04)	22.9 (02)	4.35 (08)
Sun 6366	49.0 (02)	A	5.6 (02)	27.4 (11)	4.33 (05)
BOS 66509	48.5 (03)	A	4.8 (11)	24.8 (05)	4.34 (07)
BOS 66508	48.2 (04)	A	5.2 (07)	22.1 (01)	4.32 (03)
APT 410	47.9 (05)	A B	5.3 (05)	24.3 (04)	4.31 (02)
HMX 5883	45.6 (06)	B C	5.0 (10)	27.9 (12)	4.38 (10)
BOS 7026	45.6 (07)	B C	5.2 (06)	25.1 (07)	4.33 (05)
H 9280	44.9 (08)	C	4.8 (12)	25.7 (08)	4.32 (04)
U 250	43.2 (09)	C D	5.1 (08)	26.8 (10)	4.37 (09)
PS 438	42.4 (10)	D	5.5 (03)	23.6 (03)	4.43 (12)
HyPeel 45	42.3 (11)	D	5.6 (01)	25.8 (09)	4.27 (01)
U 462	41.3 (12)	D	5.1 (09)	25.0 (06)	4.39 (11)
MEAN	45.7		5.2	25.1	4.35
LSD @ 0.05 =	2.4		0.3	1.8	0.03
C.V. =	6.5		6.4	8.9	1.0
VARIETY X LOCATION					
LSD @ 0.05=	4.2		N.S.	N.S.	N.S.

Numbers in parentheses (x) represent relative ranking within a column.

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 varieties across locations.

Table 3b. 2006 early maturity tomato varieties combined and county replicated yield (tons/A).

VARIETY	Yield tons/acre	Statewide 3 LOCATIONS	Yolo	Fresno	Contra Costa
H 5003	49.5	A	52.4	38.4	57.7
Sun 6366	49.0	A	48.0	38.7	60.3
BOS 66509	48.5	A	52.6	36.4	56.4
BOS 66508	48.2	A	50.3	35.5	58.7
APT 410	47.9	A B	52.7	34.2	56.7
HMX 5883	45.6	B C	48.5	30.4	57.9
BOS 7026	45.6	B C	47.8	34.3	54.5
H 9280	44.9	C	48.9	34.1	51.6
U 250	43.2	C D	45.8	33.4	50.3
PS 438	42.4	D	46.0	26.7	54.6
HyPeel 45	42.3	D	41.5	33.5	52.0
U 462	41.3	D	43.2	32.9	47.7
MEAN	45.7		48.1	34.0	54.9
LSD @ 0.05 =	2.4		4.5	3.7	4.5
C.V. =	6.5		6.5	7.6	5.8
VARIETY X LOCATION LSD @ 0.05=	4.2				

Table 3c. 2006 early maturity processing tomato varieties combined and county replicated °Brix.

VARIETY	Brix %	Statewide 3 LOCATIONS	Yolo	Fresno	Contra Costa
HyPeel 45	5.6	A	5.4	6.0	5.5
Sun 6366	5.6	A B	5.2	6.1	5.5
PS 438	5.5	A B	5.2	6.1	5.2
H 5003	5.4	A B C	5.2	5.5	5.5
APT 410	5.3	B C D	5.1	5.9	5.1
BOS 7026	5.2	C D E	5.3	5.6	4.7
BOS 66508	5.2	C D E	5.0	5.6	4.9
U 250	5.1	C D E F	5.0	5.2	5.1
U 462	5.1	D E F	4.7	5.4	5.2
HMX 5883	5.0	E F	4.7	5.3	5.1
BOS 66509	4.8	F G	4.7	4.8	5.0
H 9280	4.8	G	4.4	5.1	4.8
MEAN	5.2		5.0	5.5	5.1
LSD @ 0.05=	0.3		0.4	0.7	0.3
C.V.=	6.4		5.1	8.7	3.8
VARIETY X LOCATION LSD @ 0.05=	N.S.				

Table 3d. 2006 early maturity processing tomato varieties combined and county replicated color.

VARIETY	Color	Statewide 3 LOCATIONS	Yolo	Fresno	Contra Costa
BOS 66508	22.1	A	25.3	19.0	22.0
H 5003	22.9	A B	24.8	23.3	20.8
PS 438	23.6	A B C	24.3	25.0	21.5
APT 410	24.3	B C D	25.5	25.3	22.3
BOS 66509	24.8	C D	27.0	25.3	22.0
U 462	25.0	C D E	27.0	26.3	21.8
BOS 7026	25.1	C D E	25.8	27.5	22.0
H 9280	25.7	D E F	28.0	26.5	22.5
HyPeel 45	25.8	D E F	26.0	27.8	23.5
U 250	26.8	E F G	29.3	28.0	23.0
Sun 6366	27.4	F G	27.3	29.3	25.8
HMX 5883	27.9	G	29.5	28.8	25.5
MEAN	25.1		26.6	26.0	22.7
LSD @ 0.05=	1.8		2.2	5.0	1.4
C.V.=	8.9		5.6	13.3	4.2
VARIETY X LOCATION LSD @ 0.05=	N.S.				

Table 3e. 2006 early maturity processing tomato varieties combined and county replicated fruit pH.

VARIETY	pH	Statewide 3 LOCATIONS	Yolo	Fresno	Contra Costa
HyPeel 45	4.27	A	4.42	4.20	4.20
APT 410	4.31	B	4.42	4.25	4.27
BOS 66508	4.32	B	4.43	4.25	4.27
H 9280	4.32	B C	4.40	4.30	4.27
Sun 6366	4.33	B C	4.44	4.31	4.25
BOS 7026	4.33	B C	4.45	4.28	4.27
BOS 66509	4.34	B C D	4.46	4.28	4.29
H 5003	4.35	C D E	4.47	4.29	4.30
U 250	4.37	D E F	4.44	4.34	4.34
HMX 5883	4.38	E F	4.46	4.34	4.34
U 462	4.39	F	4.48	4.34	4.36
PS 438	4.43	G	4.54	4.36	4.39
MEAN	4.35		4.45	4.29	4.29
LSD @ 0.05=	0.03		0.06	0.07	0.04
C.V.=	1.0		1.0	1.1	0.7
VARIETY X LOCATION LSD @ 0.05=	N.S.				

Table 4a. 2006 processing tomato mid-maturity observation varieties combined county results.

VARIETY	Yield tons/acre	Brix %	Color LED	pH
HMX 5893	35.3 (01)	5.4 (03)	25.6 (05)	4.48 (05)
NDM 4464	34.4 (02)	5.2 (05)	23.6 (02)	4.40 (01)
BOS 212	32.7 (03)	5.5 (01)	23.9 (04)	4.47 (04)
U 898	30.2 (04)	5.2 (04)	23.7 (03)	4.44 (02)
U 892	29.5 (05)	5.4 (02)	22.3 (01)	4.46 (03)
MEAN	32.4	5.3	23.8	4.45
LSD @ 0.05=	NS	NS	1.7	0.05
C.V.=	16.4	7.3	6.4	1.0

Numbers in parentheses represent relative ranking within a column.

LSD @ 0.05 = least significant difference at 95% probability level.

NS = not significant.

C.V.= coefficient of variation.

Table 4b. 2006 processing tomato mid-maturity observation trial combined and county yield.

VARIETY	tons/A							
	STATEWIDE YIELD	Fresno Trial 1	Fresno Trial 2	Kern	Merced	San Joaquin	Stanislaus	Yolo
HMX 5893	35.3	44.7	34.2	22.5	50.4	39.6	19.4	36.7
NDM 4464	34.4	47.2	19.6	21.1	44.8	39.1	39.6	29.1
BOS 212	32.7	41.1	24.8	17.7	44.8	36.3	29.0	35.4
U 898	30.2	37.3	31.5	15.4	46.9	23.5	30.4	26.6
U 892	29.5	31.4	28.1	15.9	49.2	29.6	23.0	29.1
MEAN	32.4							
LSD @ 0.05 =	N.S.							
C.V. =	16.4							

Table 4c. 2006 processing tomato mid-maturity observation trial combined and county °Brix.

VARIETY	Brix, %							
	STATEWIDE	Fresno Trial 1	Fresno Trial 2	Kern	Merced	San Joaquin	Stanislaus	Yolo
BOS 212	5.5	5.5	5.3	6.0	4.8	5.8	5.7	5.5
U 892	5.4	5.3	4.9	6.1	4.4	5.7	6.7	5.0
HMX 5893	5.4	5.1	5.6	5.1	4.5	5.9	6.6	5.0
U 898	5.2	4.9	5.1	5.6	4.3	6.0	5.1	5.3
NDM 4464	5.2	5.3	4.8	5.7	4.5	5.7	4.9	5.2
MEAN	5.3							
LSD @ 0.05=	N.S.							
C.V.=	7.3							

Table 4d. 2006 processing tomato mid-maturity observation trial combined and county color.

VARIETY	LED Color								
	STATEWIDE		Fresno Trial 1	Fresno Trial 2	Kern	Merced	San Joaquin	Stanislaus	Yolo
U 892	22.3	A	25	24	22	24	19	19	23
NDM 4464	23.6	A	25	24	24	25	19	24	24
U 898	23.7	A	26	25	23	28	20	22	22
BOS 212	23.9	A	25	24	23	29	19	24	23
HMX 5893	25.6	B	26	26	25	31	21	21	29
MEAN	23.8								
LSD @ 0.05=	1.7								
C.V.=	6.4								

Table 4e. 2006 processing tomato mid-maturity observation trial combined and county fruit pH.

VARIETY	pH								
	STATEWIDE		Fresno Trial 1	Fresno Trial 2	Kern	Merced	San Joaquin	Stanislaus	Yolo
NDM 4464	4.40	A	4.49	4.45	4.41	4.25	4.37	4.45	4.40
U 898	4.44	A B	4.54	4.42	4.34	4.28	4.46	4.53	4.51
U 892	4.46	B	4.50	4.46	4.42	4.24	4.60	4.53	4.47
BOS 212	4.47	B	4.48	4.56	4.46	4.29	4.49	4.56	4.44
HMX 5893	4.48	B	4.55	4.48	4.47	4.31	4.51	4.58	4.43
MEAN	4.45								
LSD @ 0.05=	0.05								
C.V.=	1.0								

Observation varieties were not replicated so the statistical analysis could be performed on the combined data only.

Table 5a. 2006 processing tomato mid-maturity replicated varieties combined county results.

VARIETY	Yield tons/acre		Brix %	Color	pH
DRI 8058	40.7 (01)	A	5.1 (13)	22.9 (03)	4.46 (11)
Sun 6368	39.3 (02)	A B	5.8 (03)	24.7 (13)	4.44 (09)
PS 345	37.7 (03)	B C	5.0 (15)	26.4 (16)	4.40 (04)
U 886	36.8 (04)	B C D	5.3 (10)	22.4 (01)	4.47 (13)
H 8004	36.1 (05)	C D E	5.7 (05)	23.3 (06)	4.40 (07)
H 9780	35.0 (06)	D E F	5.4 (09)	24.2 (11)	4.40 (05)
PS 384	34.6 (07)	D E F	5.9 (02)	26.2 (15)	4.41 (08)
AB 2	34.2 (08)	E F	5.6 (07)	23.6 (08)	4.34 (01)
H 2005	34.1 (09)	E F	5.7 (04)	22.9 (04)	4.48 (14)
BOS 67374	33.6 (10)	F G	5.5 (08)	23.7 (09)	4.38 (02)
H 2601	33.5 (11)	F G	5.2 (11)	23.9 (10)	4.45 (10)
DRI 4610	33.4 (12)	F G	5.7 (06)	22.8 (02)	4.40 (06)
Sun 6374	32.6 (13)	F G H	6.3 (01)	24.5 (12)	4.39 (03)
Red Spring	32.5 (14)	F G H	5.1 (14)	23.2 (05)	4.52 (16)
HMX 4802	31.4 (15)	G H	5.2 (12)	24.9 (14)	4.50 (15)
U 567	30.6 (16)	H	5.0 (16)	23.6 (07)	4.46 (11)
MEAN	34.6		5.5	23.9	4.43
LSD @ 0.05=	2.5		0.2	0.7	0.03
C.V.=	13.8		7.2	5.2	1.2
VARIETY X LOCATION					
LSD @ 0.05=	6.7		0.5	1.7	0.07

Numbers in parentheses (x) represent relative ranking within a column.

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 varieties across locations.

Table 5b. 2006 processing tomato mid-maturity replicated trial combined and county yield.

VARIETY	Yield		Statewide						
	tons/acre	7 LOCATIONS	Yolo	San Joaquin	Stanislaus	Fresno Trial 1	Fresno Trial 2	Merced	Kern
DRI 8058	40.7	A	39.4	45.3	45.2	36.5	38.8	49.1	30.7
Sun 6368	39.3	A B	36.7	45.5	36.4	40.1	34.0	52.0	30.1
PS 345	37.7	B C	40.1	39.6	39.5	41.6	29.5	45.5	27.8
U 886	36.8	B C D	36.6	40.6	35.2	36.3	32.6	53.3	23.4
H 8004	36.1	C D E	35.8	38.3	34.1	36.9	28.2	52.7	27.0
H 9780	35.0	D E F	36.9	38.5	36.9	41.3	24.9	42.3	24.2
PS 384	34.6	D E F	35.3	40.9	37.3	32.6	26.8	47.6	21.8
AB 2	34.2	E F	39.7	38.7	40.5	33.4	29.3	32.2	25.6
H 2005	34.1	E F	29.2	36.8	34.7	34.9	28.8	49.3	25.2
BOS 67374	33.6	F G	37.3	36.4	30.9	37.5	24.7	44.5	24.0
H 2601	33.5	F G	25.0	33.2	37.5	34.2	31.2	48.8	24.5
DRI 4610	33.4	F G	36.8	35.4	40.4	35.4	23.9	42.3	19.8
Sun 6374	32.6	F G H	30.2	36.5	29.5	32.4	30.3	44.1	25.5
Red Spring	32.5	F G H	28.4	33.6	37.5	27.4	24.3	45.2	31.2
HMX 4802	31.4	G H	29.7	37.6	33.2	29.0	22.8	41.7	25.6
U 567	30.6	H	32.2	34.2	30.4	32.5	24.8	36.2	23.9
MEAN	34.6		34.3	38.2	36.2	35.1	28.4	45.5	25.6
LSD @ 0.05=	2.5		4.2	3.8	N.S.	5.3	3.7	5.7	N.S.
C.V.=	13.8		8.6	6.9	24.3	10.5	9.3	8.7	21.3
VARIETY X LOCATION									
LSD @ 0.05=	6.7								

Table 5c. 2006 processing tomato mid-maturity replicated trial combined and county °Brix.

VARIETY	Brix		Statewide						
	%	7 LOCATIONS	Yolo	San Joaquin	Stanislaus	Fresno Trial 1	Fresno Trial 2	Merced	Kern
Sun 6374	6.3	A	6.2	6.6	6.6	6.1	6.2	5.7	6.8
PS 384	5.9	B	5.5	6.0	5.8	5.9	5.9	5.4	6.6
Sun 6368	5.8	B	5.4	6.0	5.9	5.7	6.1	5.5	6.2
H 2005	5.7	B C	5.5	5.9	5.8	5.8	5.6	5.4	6.3
H 8004	5.7	B C	5.3	5.9	5.9	5.6	5.6	5.3	6.5
DRI 4610	5.7	B C D	5.4	5.8	5.3	6.1	5.0	5.7	6.5
AB 2	5.6	C D	5.1	5.8	5.2	6.0	5.6	5.3	6.5
BOS 67374	5.5	D E	5.1	5.4	5.7	5.7	5.5	5.1	6.1
H 9780	5.4	E F	5.6	5.6	4.8	5.5	5.2	5.0	6.3
U 886	5.3	E F G	5.1	5.5	5.4	5.3	5.2	4.8	6.1
H 2601	5.2	F G H	5.2	5.7	5.2	5.1	5.1	4.7	5.7
HMX 4802	5.2	G H I	5.2	5.3	5.2	5.3	5.2	4.7	5.3
DRI 8058	5.1	G H I	4.6	5.3	5.0	5.6	5.1	4.5	5.7
Red Spring	5.1	H I	4.9	5.5	5.0	5.2	5.1	4.4	5.4
PS 345	5.0	H I	4.6	5.3	4.8	5.2	5.2	4.7	5.5
U 567	5.0	I	4.8	5.2	5.4	4.9	5.1	4.6	4.9
MEAN	5.5		5.2	5.7	5.4	5.6	5.4	5.0	6.0
LSD @ 0.05=	0.2		0.3	0.3	N.S.	0.4	0.6	0.3	0.6
C.V.=	7.2		4.4	4.2	13.0	5.1	7.5	4.6	7.1
VARIETY X LOCATION									
LSD @ 0.05=	0.5								

Table 5d. 2006 processing tomato mid-maturity replicated trial combined and county LED color.

VARIETY	LED	Statewide							
	Color	7 LOCATIONS	Yolo	San Joaquin	Stanislaus	Fresno Trial 1	Fresno Trial 2	Merced	Kern
U 886	22.4	A	23.0	18.5	21.3	24.0	23.5	23.3	23.3
DRI 4610	22.8	A B	22.0	18.8	21.5	24.8	24.0	23.5	24.8
DRI 8058	22.9	A B	23.0	18.8	22.3	24.0	22.8	24.8	24.5
H 2005	22.9	A B	21.8	19.5	22.5	25.0	24.3	23.8	23.5
Red Spring	23.2	B C	23.3	19.5	22.5	24.0	24.8	25.5	23.0
H 8004	23.3	B C	23.8	18.5	21.5	26.3	23.5	24.0	25.3
U 567	23.6	C D	23.8	20.0	23.0	24.3	25.0	24.5	24.8
AB 2	23.6	C D	24.0	20.0	23.3	24.3	24.3	24.8	25.0
BOS 67374	23.7	C D	24.0	19.8	24.3	24.3	24.0	24.8	24.8
H 2601	23.9	C D E	24.3	19.5	22.5	25.5	24.8	25.5	25.0
H 9780	24.2	D E F	23.3	19.5	25.0	25.3	25.8	25.3	25.3
Sun 6374	24.5	E F G	23.8	20.3	23.3	25.3	23.8	28.3	26.8
Sun 6368	24.7	F G	23.5	20.5	24.8	25.5	23.8	28.3	26.8
HMX 4802	24.9	G	23.0	20.5	25.0	25.5	26.5	27.3	26.5
PS 384	26.2	H	26.3	22.0	27.5	27.5	27.5	27.8	25.0
PS 345	26.4	H	27.5	23.3	27.3	27.3	25.8	25.8	27.8
MEAN	23.9		23.8	19.9	23.6	25.2	24.6	25.4	25.1
LSD @ 0.05=	0.7		1.6	1.0	2.5	1.9	1.3	1.9	1.8
C.V.=	5.2		4.6	3.6	7.4	5.2	3.8	5.4	5.0
VARIETY X LOCATION LSD @ 0.05=	1.7								

Table 5e. 2006 processing tomato mid-maturity replicated trial combined and county fruit pH.

VARIETY	pH	Statewide							
		7 LOCATIONS	Yolo	San Joaquin	Stanislaus	Fresno Trial 1	Fresno Trial 2	Merced	Kern
AB 2	4.34	A	4.35	4.32	4.41	4.29	4.34	4.34	4.36
BOS 67374	4.38	B	4.36	4.40	4.48	4.32	4.39	4.39	4.36
Sun 6374	4.39	B C	4.38	4.39	4.48	4.32	4.43	4.35	4.39
PS 345	4.40	B C	4.36	4.36	4.51	4.35	4.45	4.40	4.33
H 9780	4.40	B C	4.31	4.43	4.52	4.34	4.42	4.38	4.38
DRI 4610	4.40	B C	4.38	4.45	4.49	4.31	4.41	4.39	4.37
H 8004	4.40	B C	4.37	4.41	4.45	4.35	4.45	4.39	4.41
PS 384	4.41	C D	4.36	4.47	4.48	4.35	4.42	4.40	4.42
Sun 6368	4.44	D E	4.42	4.47	4.52	4.40	4.47	4.38	4.41
H 2601	4.45	E F	4.48	4.38	4.47	4.47	4.51	4.44	4.40
U 567	4.46	E F	4.41	4.47	4.52	4.48	4.45	4.45	4.40
DRI 8058	4.46	E F	4.47	4.56	4.50	4.39	4.45	4.44	4.39
U 886	4.47	F	4.43	4.50	4.50	4.48	4.46	4.46	4.45
H 2005	4.48	F G	4.45	4.47	4.59	4.48	4.56	4.33	4.46
HMX 4802	4.50	G H	4.50	4.49	4.57	4.46	4.57	4.49	4.43
Red Spring	4.52	H	4.55	4.46	4.57	4.52	4.57	4.49	4.49
MEAN	4.43		4.41	4.44	4.50	4.39	4.46	4.41	4.40
LSD @ 0.05=	0.03		0.06	0.10	0.06	0.06	0.06	0.10	0.07
C.V.=	1.2		1.0	1.6	1.0	0.9	1.0	1.5	1.1
VARIETY X LOCATION LSD @ 0.05=	0.07								